Bayside DoubleTree Hotel Expansion

Boston, Massachusetts

Notice of Intent

February 5, 2018

submitted to **Boston Conservation Commission**

submitted by **Bayside Club Hotel, LLC**

prepared by **Fort Point Associates, Inc.**

in association with:

Arrowstreet
Feldman Surveyors
HW Moore Associates, Inc.

Fort Point Associates, Inc.
Urban Planning Environmental Consulting Project Permitting

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Fee Transmittal Form

Enter your transmittal number → X277465 (Transmittal Number)

Your unique Transmittal Number can be accessed online:
http://www.mass.gov/eea/agencies/massdep/service/approvals/transmittal-form-for-payment.html

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

1. Permit Code: 4 to 7 character code from permit instructions	2. Name of Permit Category
BRP WPA Form 3	Notice of Intent

3. Type of Project or Activity: mixed-use construction

B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: Bayside Club Hotel, LLC c/o Corcoran Jennison Companies, Inc.

2. **Last Name** of Individual	3. **First Name** of Individual	4. MI

5. Street Address: 150 Mount Vernon Street

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Boston	MA	02125		

11. Contact Person	12. e-mail address
Thomas Devane	tdevane@corcoranjennison.com

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: Bayside DoubleTree Hotel Expansion

2. Street Address: 240 Mount Vernon Street

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Boston	MA	02125		

8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual: Fort Point Associates, Inc.

2. Address: 31 State Street, 3rd Floor

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Boston	MA	02109	617-357-7044	209

8. Contact Person	9. LSP Number (BWSC Permits only)
Robert Ricchi	

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
   There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

Check Number	Dollar Amount	Date
001040	$512.50	1/17/18

ORIGINAL CHECK IS PRINTED ON CHEMICAL REACTIVE PAPER AND HAS MICRO PRINTING IN THE SIGNATURE LINE

Bayside Club Hotel
150 Mount Vernon Street
Boston, MA 02125
United States of America

KEYBANK
OPERATING - KEYBANK

001040

4-1001
390

PAY Five Hundred Twelve and 50/100 Dollars

Check No.	DATE	AMOUNT
001040	1/17/2018	$512.50

TO THE ORDER OF: Department of Environmental Protection

AUTHORIZED SIGNATURE MP

AUTHORIZED SIGNATURE MP

"VERIFICATION BOX" (TO RIGHT OF ARROW, HOLD BETWEEN THUMB AND FOREFINGER, OR BREATHE ON IT, COLOR WILL DISAPPEAR, THEN REAPPEAR)

⑈001040⑈ ⑆041001039⑆ 359681475729⑈

ORIGINAL CHECK IS PRINTED ON CHEMICAL REACTIVE PAPER AND HAS MICRO PRINTING IN THE SIGNATURE LINE

Bayside Club Hotel
150 Mount Vernon Street
Boston, MA 02125
United States of America

KEYBANK
OPERATING - KEYBANK

001039

4-1001
390

PAY One Thousand Five Hundred and 00/100 Dollars

Check No.	DATE	AMOUNT
001039	1/17/2018	$1,500.00

TO THE ORDER OF: City of Boston

AUTHORIZED SIGNATURE MP

AUTHORIZED SIGNATURE MP

"VERIFICATION BOX" (TO RIGHT OF ARROW, HOLD BETWEEN THUMB AND FOREFINGER, OR BREATHE ON IT, COLOR WILL DISAPPEAR, THEN REAPPEAR)

⑈001039⑈ ⑆041001039⑆ 359681475729⑈

Application

WPA Form 3

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

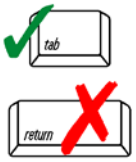
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

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



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

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

240 Mount Vernon Street — a. Street Address
Boston — b. City/Town
02125 — c. Zip Code

Latitude and Longitude:
42.31978 — d. Latitude
71.04745 — e. Longitude

1303448050 — f. Assessors Map/Plat Number
g. Parcel /Lot Number

2. Applicant:

Thomas — a. First Name
Devane — b. Last Name
Bayside Club Hotel, LLC c/o Corcoran Jennison Companies, Inc. — c. Organization
150 Mount Vernon Street — d. Street Address
Boston — e. City/Town
MA — f. State
02125 — g. Zip Code
617-822-7222 — h. Phone Number
i. Fax Number
tdevane@corcoranjennison.com — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Robert — a. First Name
Ricchi — b. Last Name
Fort Point Associates, Inc. — c. Company
31 State Street, 3rd Floor — d. Street Address
Boston — e. City/Town
MA — f. State
02109 — g. Zip Code
617-357-7044 — h. Phone Number
N/A — i. Fax Number
rricchi@fpa-inc.com — j. Email address

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

$2,012.50 — a. Total Fee Paid
$512.50 — b. State Fee Paid
$1,500 (Boston fee) — c. City/Town Fee Paid

A. General Information (continued)

6. General Project Description:

The Applicant proposes to expand an existing hotel adding a net new 104 rooms, function rooms, and publicly-accessible restaurant and lounge space. The Project also includes a new landscaped area at the corner of Mount Vernon Street and Mount Vernon Extension.

7a. Project Type Checklist:

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Limited Project Driveway Crossing
4. ☒ Commercial/Industrial
5. ☐ Dock/Pier
6. ☐ Utilities
7. ☐ Coastal Engineering Structure
8. ☐ Agriculture (e.g., cranberries, forestry)
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

8. Property recorded at the Registry of Deeds for:

Suffolk	565648
a. County	b. Certificate # (if registered land)
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.

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

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

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available)	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

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)

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.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

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

		Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐	Coastal Banks	1. linear feet	
g. ☐	Rocky Intertidal Shores	1. square feet	
h. ☐	Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐	Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐	Land Containing Shellfish	1. square feet	
k. ☐	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. ☒	Land Subject to Coastal Storm Flowage	91,027 1. square feet	

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

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
100 Hartwell Street, Suite 230
West Boylston, MA 01583

August 2, 2017
b. Date of map

C. Other Applicable Standards and Requirements (cont'd)

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.1.d, 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).*

1. 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

   3. ☐ 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

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

   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/eea/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 # _____ b. Date submitted to NHESP _____

* 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)

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

2. 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 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

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.

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

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

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

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. Check why the project is exempt:

1. ☐ Single-family house

C. Other Applicable Standards and Requirements (cont'd)

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.

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.

See Section 1.5 in Attachment A, Supplemental Information
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

9. ☒ Attach Stormwater Report, if needed.

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:

001039	1/17/18
2. Municipal Check Number	3. Check date
001040	1/17/18
4. State Check Number	5. Check date
Bayside Club Hotel	
6. Payor name on check: First Name	7. Payor 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)(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	2. Date 1/25/18
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date 1/30/18

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.

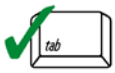
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

240 Mount Vernon Street	Boston
a. Street Address	b. City/Town
001040 (State), 001039 (City)	$2,012.50 (total)
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Thomas		Devane
a. First Name		b. Last Name

Bayside Club Hotel, LLC c/o Corcoran Jennison Companies, Inc.
c. Organization

150 Mount Vernon Street
d. Mailing Address

Boston	MA	02125
e. City/Town	f. State	g. Zip Code

617-822-7222		tdevane@corcoranjennison.com
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

a. First Name	b. Last Name

c. Organization

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

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.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3b: Building	1	$1,050	$1,050

Step 5/Total Project Fee: $1,050

Step 6/Fee Payments:

Total Project Fee:	$2,012.50 a. Total Fee from Step 5
State share of filing Fee:	$512.50 b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	$1,500 (Boston 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.)

SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

1.1 PROJECT SUMMARY

This Notice of Intent (NOI) is submitted by Bayside Club Hotel, LLC (the "Applicant") to the City of Boston Conservation Commission (the "Commission") in order to obtain approval under the Massachusetts Wetland Protection Act (WPA) for work within a wetland resource area associated with the expansion of the existing DoubleTree Club by Hilton Hotel Boston Bayside (the "Project") at 240 Mount Vernon Street on an approximately 91,027 square-foot (sf) (2.1-acre) parcel (the "Site").

1.2 EXISTING CONDITIONS

The Site is located in Columbia Point, Dorchester, and is bounded by Mount Vernon Street on the southwest; the former Bayside Exposition Center, UMass-Boston, and Mount Vernon Extension on the northwest; and surface parking lots on the northeast and southeast. It is primarily accessed from Mount Vernon Extension and has secondary access from Mount Vernon Street. The Site is approximately 0.25 miles from the MBTA's JFK/UMass Station. The UMass-Boston campus lies southeast of the Site. See Figure 1, Locus Map and Figure 2, Aerial View of Existing Site.

The Site is primarily flat, with the highest elevation at landscaped areas (20.6 BCB) and the lowest elevation at the northeast parking area (14.9 BCB). The entire Site is located in the floodplain, as identified by Federal Emergency Management Agency. The Site is approximately 900 feet (ft) from the Dorchester Bay (Boston Harbor). See Figure 3 and Figure 4, Existing Conditions Photographs.

The Site is presently occupied by a six-story, 197-room hotel building located in the center of the parcel. The main entrance, a small parking area, and landscaped area are located southeast of the existing building. Parking and landscaped areas cover the northwest portion of the Site. The Site was identified in the 2011 Columbia Point Master Plan as an area appropriate for new development, activation through a mix of uses, and improvements to the public realm, including additional green space.

1.3 PROJECT DESCRIPTION

The Project involves the construction of an addition to the existing DoubleTree Club by Hilton Hotel Boston as well as improvements to the associated parking, landscaped areas, utilities, and stormwater management system. The Project will include the construction of an approximately 70,900 gross-square-foot (gsf) addition on its northeast side. The Project will add a net new 104 guest rooms, approximately 8,388 sf of assembly and meeting room area, and an approximately 139-seat restaurant and lounge on the ground floor. The hotel's

expansion footprint will be approximately 18,560 sf. The Project's six-story height will be approximately 54 feet (up to approximately 65 feet with mechanical equipment). There will be approximately 34 new parking spaces associated with the Project. See Figure 5, Site Plan.

The Project will include a new landscaped lawn, courtyard, and approximately 2,000 sf of green roof area. The green roof plant materials will be Sedum plant varieties suited for full sun, partial shade, and fully shaded conditions. See Figure 6, Landscape Plan and Figure 7, Green Roof Plan.

The expansion building's first floor elevation will be raised to EL 18.10 BCB, which is approximately one foot above the first floor elevation of the existing hotel building. This is the maximum first floor elevation that is achievable, due to slope limitations between the Project and the existing building, as required by the Massachusetts Architectural Access Board (AAB) rules and regulations and the Americans Disabilities Act Standards for Accessible Design (ADAAG). See Figure 9, Flood Protection Plan.

After construction, the hotel will contain 301 rooms, new function spaces, a publicly accessible restaurant and lounge space fronting Mount Vernon Extension, and an expanded landscaped area at the corner of Mount Vernon Street and Mount Vernon Extension. The expanded landscaped area will add greenspace, with a total of approximately 31,180 sf of open space on the Site. See Figure 10, Project Exterior View from Above.

1.3.1 STORMWATER MANAGEMENT

The surfaces of the Site consist of a combination of gravel, grass, concrete, and soil. The Project will substantially decrease pollution discharged to Boston Harbor and its associated habitat through various stormwater controls. Currently, stormwater runoff generated by the Site flows to the existing drain system, which is conveyed to a large water quality device before discharged to the Mount Vernon Street drain system. Eventually, stormwater from this site flows to the Dorchester Bay (Boston Harbor). The proposed stormwater management system will include deep sump catch basins with oil trap hoods and two infiltration/detention systems. The Applicant will take all necessary steps to minimize the potential of siltation of resource areas from both overland flow and pipe flow. In addition, the Applicant will implement long-term pollution prevention and source control measures, including street sweeping, proper snow management, and stabilization of eroded surfaces to increase the quality of runoff.

Full details of existing and proposed stormwater treatment can be found in Attachment B, Stormwater Report.

1.3.2 FUTURE SEA LEVEL RISE

The City of Boston has made preparing for future sea level rise a priority, especially in new waterfront developments. Due to the proximate location of the Project near the coast, the Applicant has considered and planned for how future sea level rise may affect the Project. The Site is within Flood Zone AE (11 NAVD88 or 17.46 BCB) as shown on the most recent FEMA Flood Insurance Rate Maps dated March 16, 2016.

The Project is limited in how high it can elevate the first floor due to slope requirements for accessibility. However, the Project design includes many techniques to handle the potential impacts of future sea level rise. See Attachment C, Flood Protection. Specifically, the proposed work will include the following:

- Elevation of the Project above the 100-year flood zone. The first floor elevation will be at elevation 18.10 BCB;
- Dry floodproofing up to 19.00 BCB, including concrete curb and waterproofing at the base exterior walls;
- Demountable flood control barriers that will be used in a storm event;
- Installation of the building's mechanical fixtures and critical building systems located on the second floor (approximately 28.00 BCB) or higher; and
- Restriction of all habitable space to be located on the second floor (approximately 28.00 BCB) or higher.

The Project will conform to all flood-proofing requirements per the applicable State Building Code to diffuse any concerns about the structural integrity of the building in the event of future sea level rise.

1.4 WETLAND RESOURCES

The Project includes work that comes under the jurisdiction of the Commission. The following section describes impacts to wetland resources at the Site. The Project has been designed to minimize impacts to its wetland resources. Under the Wetlands Protection Act, there is only one wetland resource, located on the Site that is subject to protection: Land Subject to Coastal Storm Flowage.

Table 1 summarizes the total impacts to the wetland resource area on the Site:

Table 1: Total Impact to Wetland Resource Areas

Resource Area	Impact	Temporary/Permanent
Land Subject to Coastal Storm Flowage	• 18,560 sf of new building	Permanent
	• Landscaping and grading of 16,300 sf	Permanent

1.4.1 LAND SUBJECT TO COASTAL STORM FLOWAGE

Land Subject to Coastal Storm Flowage (LSCSF) is any land subject to inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record, or storm of record, whichever is greater (310 CMR 10.04). The 100-year flood elevation is identified on the Flood Insurance Rate Maps (FIRM) produced by the Federal Emergency Management Agency (FEMA). According to the most recent flood map dated March 16, 2016 (Map No. 25025C0083J), the Site lies entirely within Flood Zone AE, base flood elevation 17.46 BCB, and has a 1% annual chance of flooding.

The entire 34,860 sf footprint of the proposed expansion and portions of the landscaped area is within LSCSF. See Figure 11, FEMA Flood Insurance Rate Map. Presently, the LSCSF that will be modified by the new building and landscaping currently contains a combination of gravel, grass, concrete, and soil. The LSCSF resource area will be modified to add an 18,560 sf building expansion and 16,300 sf of landscaping and grading. All changes to LSCSF will be permanent.

Although there are no performance standards associated with LSCSF, the Applicant understands the importance of the area for storm surge protection and the vulnerabilities associated with structures in the floodplain. To minimize the effects of potential flood events, there will be no habitable space on the first floor of the building. At a minimum, the Project will comply with the Article 25 provisions of the Boston Zoning Code relating to flood zones and the Massachusetts State Building

Code provisions relating to floodplain construction. Additional flood proofing measures will be implemented due to restrictions of existing conditions.

1.5 CONSTRUCTION METHODS AND SCHEDULE

1.5.1 CONSTRUCTION SCHEDULE AND PROCESS

Construction of the Project is anticipated to begin in spring 2018 and be completed in approximately 15 months. Construction will not begin until all required pre-construction regulatory approvals have been obtained. Construction will be staged to minimize impacts on the wetland resources on and surrounding the Site. All temporary structures, including job trailers, portable bathroom facilities, and materials will be handled, stored, installed, cleaned, and protected in accordance with the best industry standards. Work will be completed in one phase with the following steps:

- Prior to construction, construction fencing will be placed at the limits of the work;
- Excavation work, building foundation, and utility construction will then commence;
- The infiltration systems shall be installed after the foundation work is complete;
- The building framing and finishing will commence;
- The pavement subgrade will then be graded, and the gravel and the bituminous base course placed.
- The drainage system shall be completely operational prior to any paving or the building roof drains being installed;
- All drainage structures will be cleaned upon completion of construction; and
- The siltation controls shall be removed after the site has been stabilized.

1.5.2 CONSTRUCTION PHASE AVOIDANCE AND MITIGATION METHODS

Construction will include the following methods for avoidance and mitigation:

- The Site will be prepared with appropriate erosion and siltation controls, and shall be stabilized by temporary seeding, hay bales, and silt fences or netting. The perimeter sedimentation controls will be in place at the end of each day and before rain events;

- Hay bales, crushed stone, or silt sacks shall be set around on-site catch basins to prevent sediment from washing into the drainage system until completion of the Project;

- Debris will be wet down to prevent air pollution by dust rising from demolition work;

- Topsoil on the Site will be stockpiled separately and the pile stabilized. All unvegetated areas that will remain unvegetated for greater than 14 days will be mulched or seeded;

- All equipment and unconsolidated materials will be removed from the floodplain prior to a significant coastal storm event;

- Stockpiled soils on will be properly contained and covered to prevent erosion during rain events; and

- Upon completion of the site work, stabilization of the landscape area and all erosion control measures will be removed and all structures will be cleaned of silt and debris. At that time, all construction related materials will be cleared from the Site.

See Attachment D, Erosion Control Plan for complete details.

1.5.3 PLANS SUBMITTED WITH THIS NOI

Title	Date	Original scale	Stamp and signature
TOPOGRAPHIC PLAN	6-15-17	1″ = 20′	Karl A. McCarthy, FELDMAN LAND SURVEYORS
SITE PREPARATION & DEMOLITION PLAN	8-11-17	1″ = 20′	James M. White, H.W. MOORE ASSOCIATES
SITE LAYOUT PLAN	8-11-17	1″ = 20′	James M. White, H.W. MOORE ASSOCIATES
SITE UTILITY AND GRADING PLAN	8-11-17	1″ = 20′	James M. White, H.W. MOORE ASSOCIATES
SITE DETAILS PLANS (3)	8-11-17	1″ = 20′	James M. White, H.W. MOORE ASSOCIATES

FIGURES

Dorchester, Massachusetts

Figure 1
Locus Map
Sources: USGS, Fort Point Associates, Inc., 2017

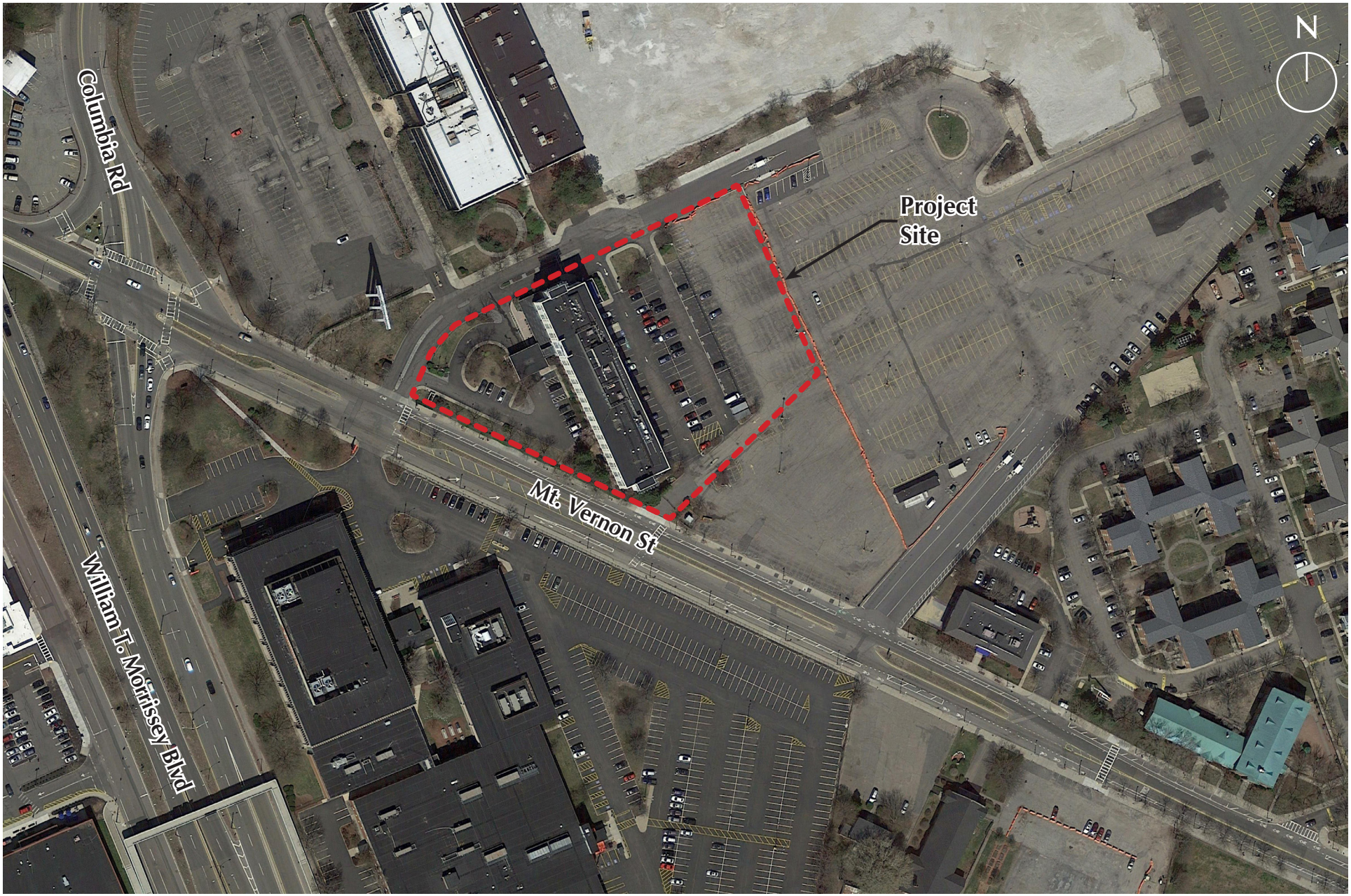
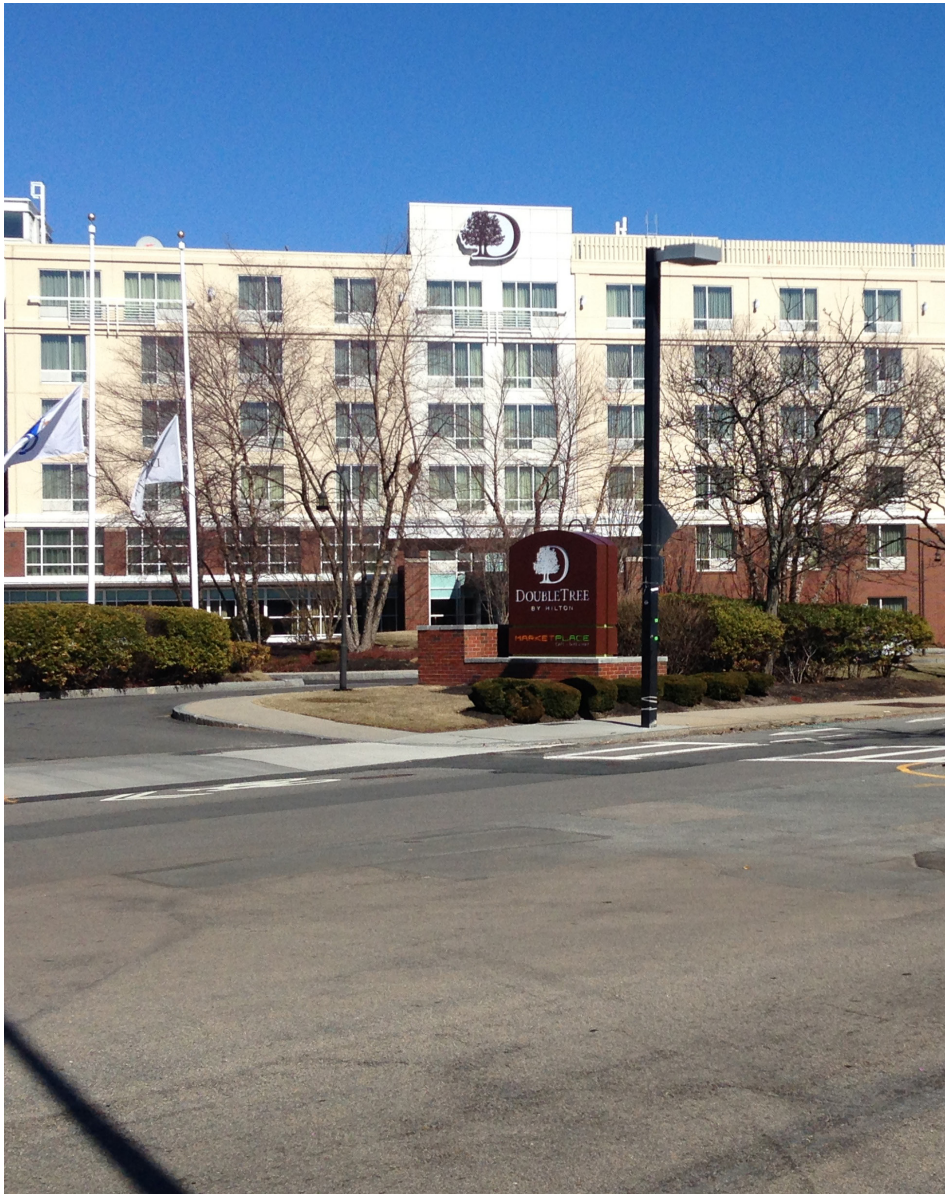


Figure 2
Aerial View of Existing Site
Sources: Google Earth, Fort Point Associates, Inc., 2017



View 1: Mount Vernon looking East

View 2: Mount Vernon looking Southeast

Figure 3
Existing Conditions Photographs
Source: Fort Point Associates, Inc., 2017

View 3: Mount Vernon looking North

View 4: Rear looking Southeast

Figure 4
Existing Conditions Photographs
Source: Fort Point Associates, Inc., 2017

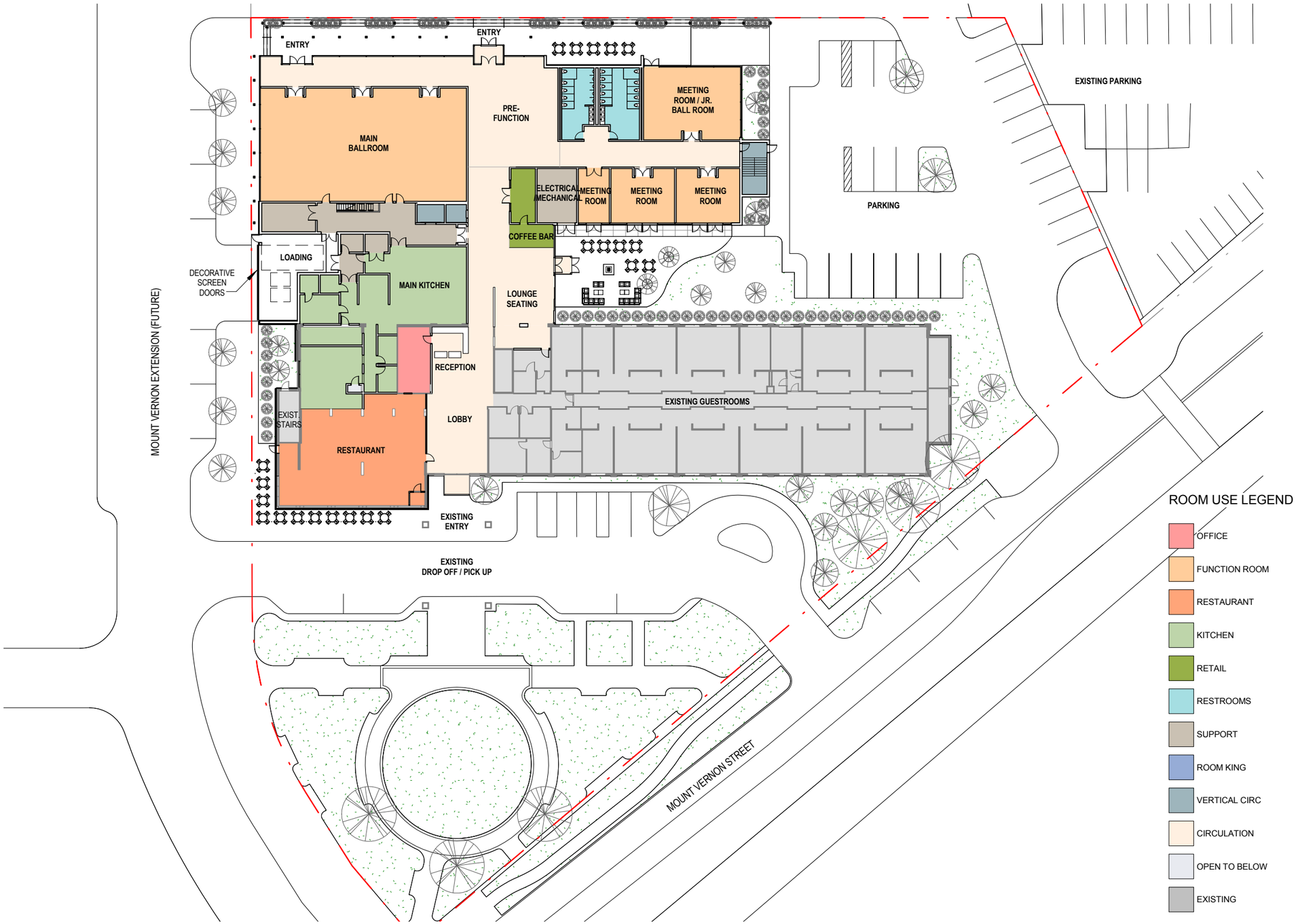
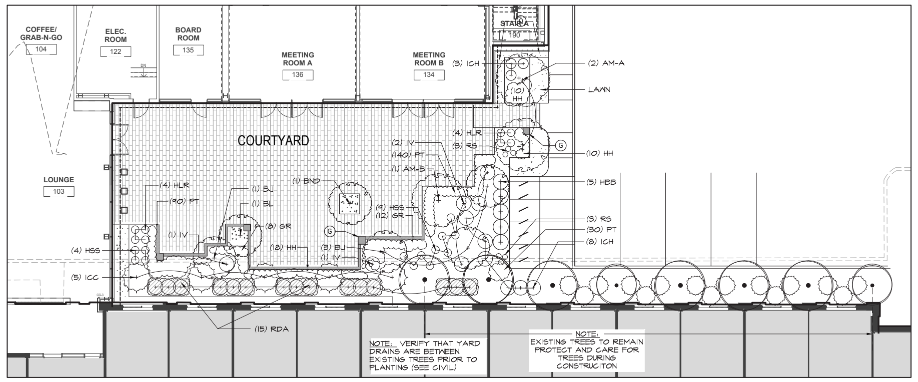


Figure 5
Site Plan
Source: Arrowstreet Inc., 2017

LIGHTING SCHEDULE - See Lighting Plan by Lewis Lighting Design

KEY	DESCRIPTION	SPECIFICATION #
L1	POLE LIGHT (Lewis Lighting G02)	By Lewis Lighting Design
L1D	2-head POLE LIGHT (Lewis Lighting G01A)	
L1S	Single head POLE LIGHT (Lewis Lighting G01B)	
L3	UPLIGHT (Lewis Lighting G04)	
L4	BOLLARD LIGHT (Lewis Lighting G03)	
L5	GARDEN LIGHT	

Note: Site lighting locations to be coordinated with locations of plant materials. Shop drawings shall be provided to confirm and approve light fixture locations prior to installation.



COURTYARD PLANTING PLAN
SCALE: 1" = 10'-0"

East Side & Courtyard Planting - Bayside Hotel Dale Design Landscape Architecture 9/14/2017

Key	Qty	Botanical Name	Common Name	Size	Notes
TREES					
AM-A	2	Amelanchiar grandiflora 'Autumn Brilliance'	Autumn Brilliance Shadblow	10' -12' Ht. Multi Stem	Showy, fragrant white flowers bloom before leaves appear. Colorful fall foliage is a blend of orange, gold, red and green.
AM-B	2	Amelanchiar grandiflora 'Autumn Brilliance'	Autumn Brilliance Shadblow	2" cal. Single Stem	Single stem version of tree above.
BL	1	Betula Lenta	Black Birch	1 1/2" -2"cal., B&B	10'-12 Ht.
BND	1	Betula Nigra 'Dura-Heat'	Dura Heat River Birch	8'-10' Ht. Multi Stem	River Birch - creamy white bark
BJ	4	Betula Jacquemonti	Himalayan Birch	2" cal. Single Stem	White Birch - white bark
GSM	5	Gleditsia triancanthos 'Shade Master'	Shade Master Honey Locust	2"-21/2" cal.	High Limbed for street access
EVERGREEN TREES					
TOS	4	Thuja occidentalis 'Smaragd'	Emerald Green' Arborvitae	6-7'Ht. B&B	Located at the transformer on Mt. Vernon st.
SHRUBS					
HBB	5	Hydrangea 'Blue Billow'	Blue Billow Lacecap hydrangea	#3 pot	Blue lacecap flowers
IC	9	Ilex crenata 'Convexa'	Japanese Holly variety	2'-2.5' B&B	Dense evergreen shrub with dark green foliage
ICC	5	Ilex crenata 'Chesapeake'	Chesapeake' Japanese Holly	3' HT.	Dark green leaves, upright pyramidal form
ICH	11	Ilex crenata 'Hoogendorn'	'Hoogendorn' Japanese Holly	2'-2.5' B&B	Dense evergreen shrub with dark green foliage
IV	4	Ilex verticillata 'Red Sprite'	Dwarft Red Sprite Deciduous Holly	2'-2.5' B&B	Persistent red berries into winter
RDA	15	Rhododendron 'Dora Amatais'	Dora Amatais Rhododendron	2'-2.5' ht. B&B	Pink buds opening to white flowers
TMH	15	Taxus x media 'Hicksii'	Hicks Yew	2'-2.5' B&B	Hedge shrubs - 42" ht.
PERENNIALS & VINES					
GR	20	Geranium x 'Rozanne'	Cranesbill 'Rozanne' Geranium	#2 pot	Dwarf spreading perennial violet/blue flowers that show color for many months.
MS	8	Miscanthus sinensis 'Adagio'	Dwarf Maiden Grass	#2 pot	Pinkish plumes. Green-grey striped foliage
HSS	13	Hosta 'So Sweet'	So Sweet Hosta	#2 pot	Leaves with white edge and fragrant White flowers.
HLR	8	Helleborus niger	Lenten Rose	#2 pot	White flower, blue-green foliage - semi evergreen
HH	28	Hemerocallis (Daylily) Hyperion	Hyperion Daylily	#2 pot	Plant ht. 18-24" bright yellow fragrant flowers re-bloom 36" - 40" ht. Early to mid summer
RS	6	Perovskia atriplicifolia	Russian Sage	#2 pot	Tall, airy, spike-like clusters, lavender-blue cloud of color above the finely textured aromatic foliage.
GROUNDCOVERS					
RAGL	54	Rhus aromatica 'Grow Low'	Grow Low Sumac	#2 pot	Small yellow flowers in spring follwed by red fruit, glossy green foliage
PT	7 flats	Pachysandra terminalis	Japanese Spurge	Flat (50 plants/flat)	Evergreen groundcover
Plants for Planters at east side: See Architectural DWGs (plant counts to be finalized)					
JH	17	Juniperus procumbens	Japanese garden juniper	#2 pot	Evergreen groundcover 2 per planter
PA	25	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Dwarf Fountain Grass	#2 pot	Perennial dwarf fountain grass - 3 per 8' planters, 4 for 16' planter
SK	40	Sedum kamtschaticum 'Variegatum'	Stonecrop	#2 pot	Perennial ground cover - 4 per 8' planters, 8 for 16' planter
NLT	25	Nepeta LITTLE TRUDY®	LITTLE TRUDY® Dwarf Catmint	#2pot	Perennial - 3 per 8' planters, 4 for 16' planter. Alternate dwarf Annual Lobelia erinus 'Cascade' Series:blue.

PLANTING NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING PLANT MATERIAL LOCATIONS AND QUANTITIES IN THE FIELD PRIOR TO BIDDING.

2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON DRAWINGS.

3. ALL PLANT MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY "THE AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. ANSI Z60.1-1990.

4. ALL PLANTS TO BE BALLED IN BURLAP OR CONTAINER GROWN. NO PLASTIC BURLAP.

5. THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.

6. HEAL ALL CONSTRUCTION SCARS WITH LAWN OR MULCH AS INDICATED BY DRAWINGS AND/OR LANDSCAPE ARCHITECT.

7. CONTRACTOR TO DETERMINE IF ADDITIONAL ZONES CAN BE ADDED TO EXISTING IRRIGATION SYSTEM AND PLAN ACCORDINGLY. REFER TO SPECIFICATION SECTION 32 84 00..

8. TREE PROTECTION: TREES TO BE RETAINED ON SITE SHALL BE PROTECTIVELY BARRICADED BEFORE AND DURING CONSTRUCTION. NO STORAGE OF CONSTRUCTION MATERIALS WILL BE PERMITTED WITHIN THESE AREAS. FENCING SHALL BE INSPECTED WEEKLY AND SHALL BE MAINTAINED IN GOOD ORDER. SEE SITE PREPARATION PLAN AND SPECIFICATION AS PREPARED BY CIVIL ENGINEER.

9. SEE SPECIFICATION SECTIONS
32 93 00: PLANTING
32 92 00: SOD & SEED LAWNS

West side (area of Hotel entrance and Park) Planting - Bayside Hotel Dale Design Landscape Architecture 9/15/2017

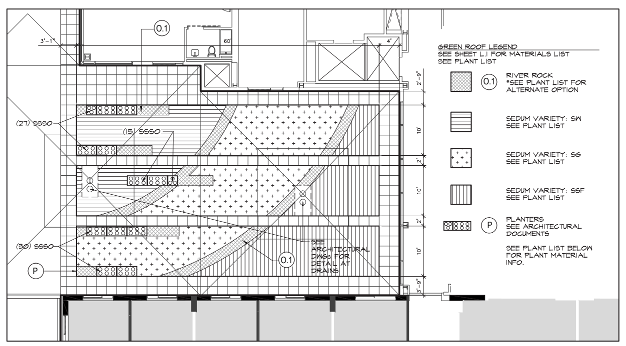
TREES

Three of the large River Birch are to remain and are to be protected and cared for during constrution. An air spade will be required to relocate some roots to a the new surround grades.

Key	Qty.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
BJ	1	Betula utilis var. jacquemontii	Jacquemontii Himalayan Birch	12' -14' ht.	
CF	2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	1.5 - 2" Cal.	
MG	1	Magnolia 'Galaxy'	Galaxy Magnolia	12' Ht.	
PO	4	Prunus 'Okame'	Okame Cherry	2.5-3" Cal.	
EVERGREEN TREES					
TOS	6	Thuja occidentalis 'Smaragd'	Emerald Green' Arborvitae	6-7'Ht. B&B	
SHRUBS					
ICH	53	Ilex crenata 'Hoogendorn'	'Hoogendorn' Japanese Holly	18-24" B&B	Dense evergreen shrub with dark green foliage
IC	7	Ilex crenata 'Convexa'	Japanese Holly variety	2'-2.5' B&B	Dense evergreen shrub with dark green foliage
CIH	7	Cornus alba 'Ivory Halo'	Ivory Halo Dogwood	2'-3' B&B	Red stems, holding color in winter
AH	6	Azalea 'Hino Crimson'	Hino Crimson Azalea	#5 pot	Evergreen spring blooming, brillant red flowers in May
IST	15	Ilex crenata 'Soft Touch'	Soft Touch Japanese Holly	2'-2.5' B&B	Dense evergreen shrub with dark green foliage
IV	12	Ilex verticillata 'Sparkleberry'	Sparkleberry	18-24" B&B	Holds red fruit throughout winter months
IGS	12	Ikex glabra 'Shamrock'	Shamrock Inkberry	2-3' B&B	Evergreen shrub with green foliage
RK	5	Rosa Knockout 'Pink'	Pink Knockout Rose	#3 pot	Pink flowers
TMH	11	Taxus x media 'Hicksii'	Hicks Yew	2'-2.5' B&B	Hedge shrubs - 42" ht.
VCC	4	Viburnum dilatatum 'Cardinal Candy'	Cardinal Candy Viburnum	2'-3' B&B	Creamy white flowers, bright red berries
RDA	18	Rhododendron 'Dora Amatais'	Dora Amatais Rhododendron	2'-2.5' ht. B&B	Pink buds opening to white flowers
GROUNDCOVER					
HHE	5 flats	Hedra helix	English Ivy	flat of 100 plants	evergreen groundcover
PT	200 plants / 2 flats	Pachysandra terminalis	Japanese Spurge	flat of 100 plants	evergreen groundcover
PERENNIALS AND GRASSES					
MS	8	Miscanthus sinensis 'Adagio'	Dwarf Maiden Grass	#2 pot	Pinkish plumes. Green-grey striped foliage
PA	10	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Dwarf Fountain Grass	#2 pot	Perennial dwarf fountain grass - 3 per 8' planters, 4 for 16' planter
AB	200	Ammophila breviligulata	American Beachgrass	#2 pot	Perennial native dune grass
CKF	32	Calamagrostis a. 'Karl Foerster'	Karl Foerster Feather Reed Grass	#2 pot	Deep green foliage, yellow flower spikes
NWL	25	Nepeta 'Walker's Low'	Walker's Low Catmint	#2 pot	Dark blue-purple flowers, blooms early summer
SMN	25	Salvia 'May Night'	May Night Sage	#1 pot	Deep purple flowers, blooms early summer
RG	45	Rudbeckia fulgida 'Goldsturm'	Black-Eyed Susan	#1 pot	Golden-yellow flowers with brown eye July-September
RS	15	Perovskia atriplicifolia	Russian Sage	#2 pot	Tall, airy, spike-like clusters, lavender-blue cloud of color above the finely textured aromatic foliage.
HR	6	Hemercalis 'Happy returns'	Happy returns	#2 pot	Pale-yellow-flowered daylily compact (only 16 inches tall), early bloomer.
HH	175	Hemerocallis (Daylily) Hyperion	Hyperion Daylily	#2 pot	Plant ht. 18-24" bright yellow fragrant flowers re-bloom 36" - 40" ht. Early to mid summer

ANNUALS

Provide annual flowers in the areas indicated on the planting plan (Sheet L.2). Also include annuals for (4) circular planters - Sheet L.1 Item "T". Plants to be "rotated" 3 times per year (spring, summer and fall). For (4) circular planters, provide a fourth rotation in the winter of evergreen boughs and winterberry branches.

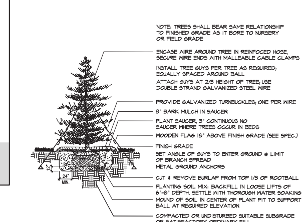


SEE ARCHITECUTRAL DWGs AND SPECS. FOR ROOF PAVERS, PLANTERS, DRAINAGE

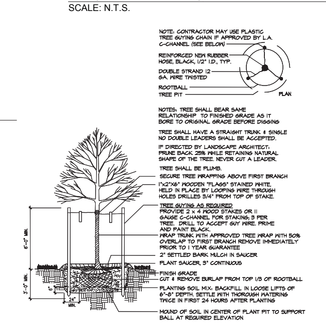
GREEN ROOF PLANT MATERIALS

Key	Qty	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
(3) Sedum plant varieties for sun, sun/shade and shade conditions. (Approx. 4.6 plants per 1 sq. ft.)					
SW	1541	Sedum floriferum 'Weihenstephaner Gold'		4" pot (or vegetation mat)	full sun
SG	3395	Sedum glaucophyllum		4" pot (or vegetation mat)	sun / part shade
SSF	2576	Sedum spurium 'Fuldaglut'		4" pot (or vegetation mat)	shade tolerant
*Alternate to River Rock					
*SBS	1030	Sedum reflexum 'Blue Spruce'		4" pot (or vegetation mat)	sun / part shade
SSSO	72	Schizachyrium scoparium 'Standing Ovation'	Standing Ovation Little Bluestem	3 gallon pot	

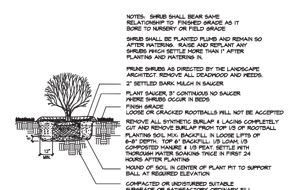
ROOF GARDEN PLANTING PLAN
SCALE: 1" = 10'-0"



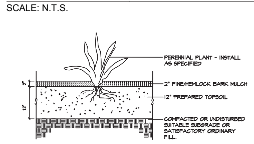
EVERGREEN TREE PLANTING
SCALE: N.T.S.



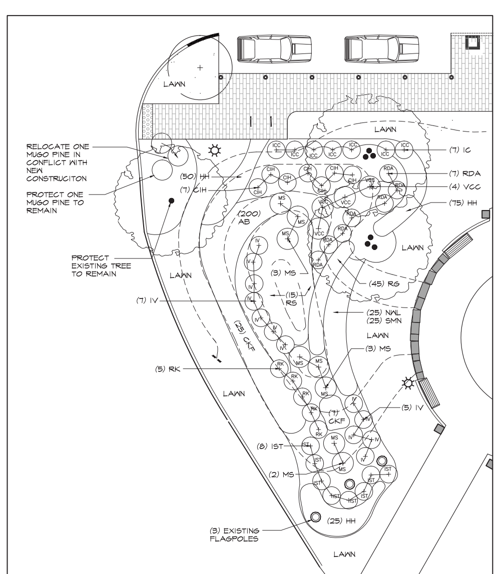
DECIDUOUS TREE PLANTING AND STAKING
SCALE: N.T.S.



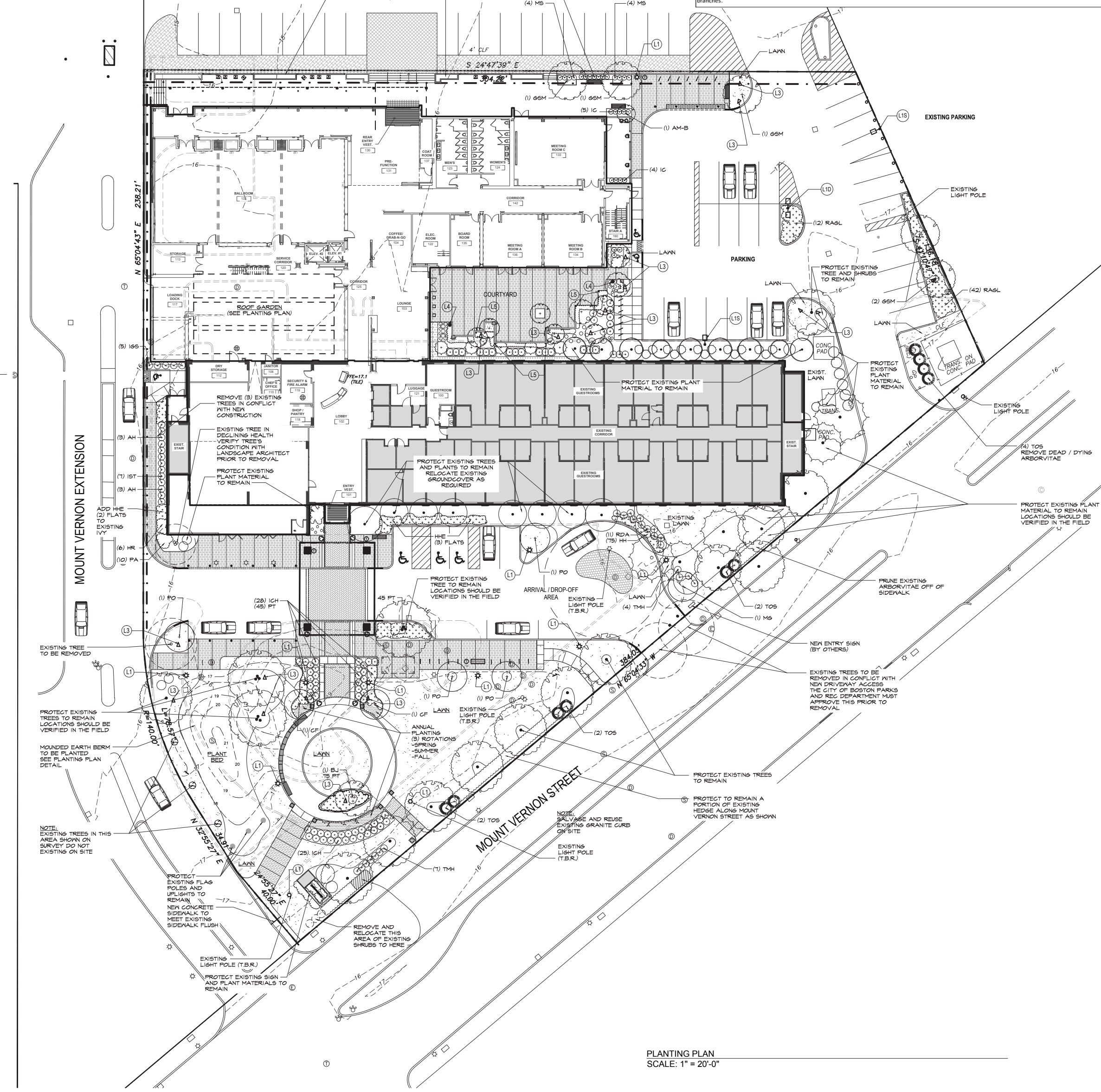
TYPICAL SHRUB PLANTING
SCALE: N.T.S.



TYPICAL PERENNIAL PLANTING
SCALE: N.T.S.

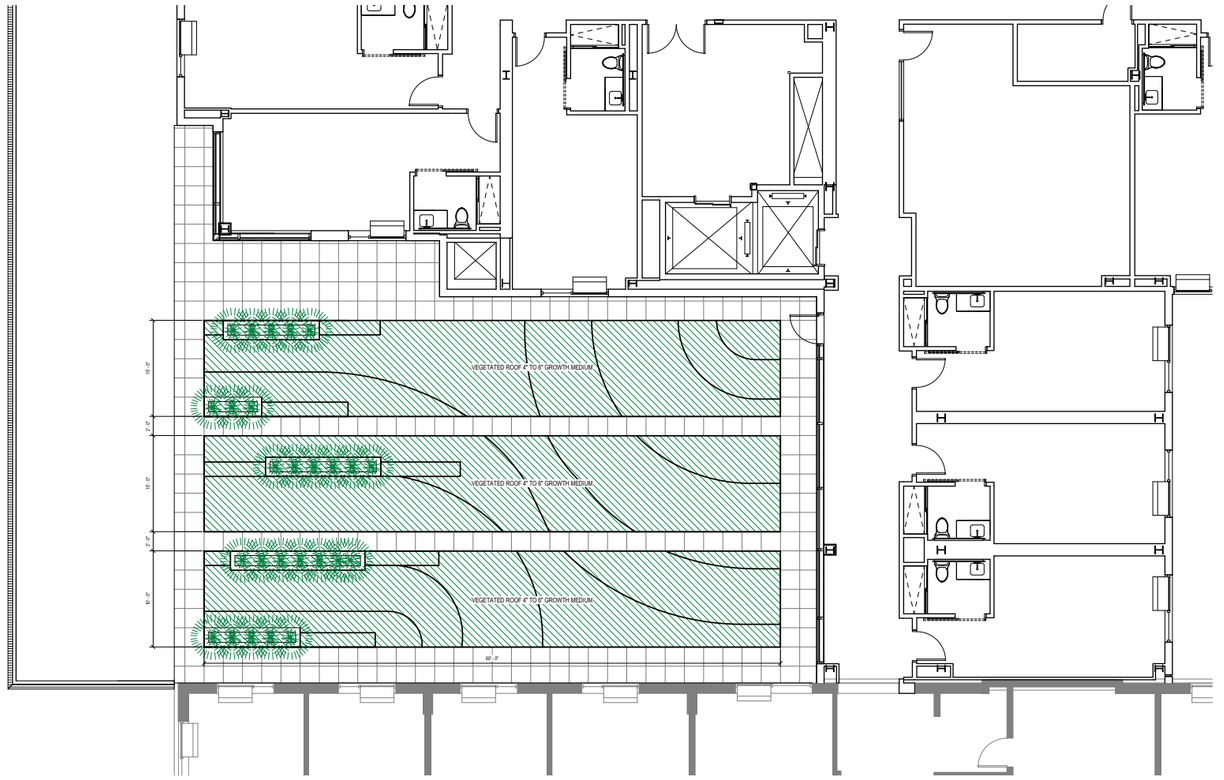


PLANTING PLAN AT MOUNDED EARTH BERM
SCALE: 1" = 10'-0"

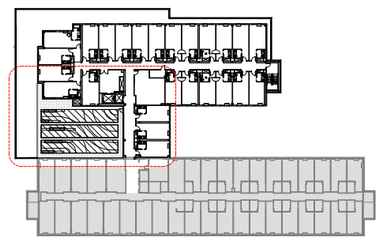


PLANTING PLAN
SCALE: 1" = 20'-0"

Figure 6
Landscape Plan
Source: Arrowstreet Inc., 2017

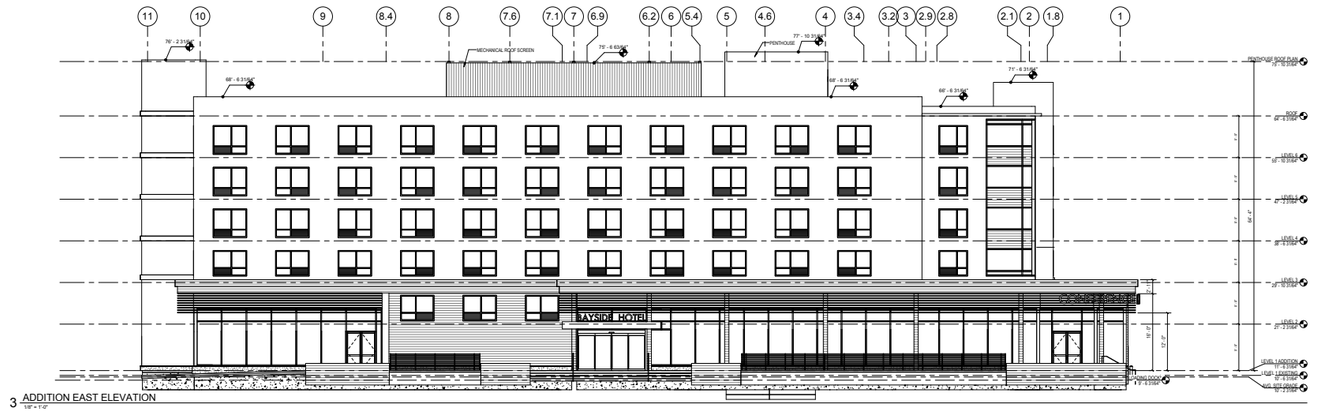


1 LEVEL 3 FLOOR PLAN - GREEN ROOF
1/16" = 1'-0"

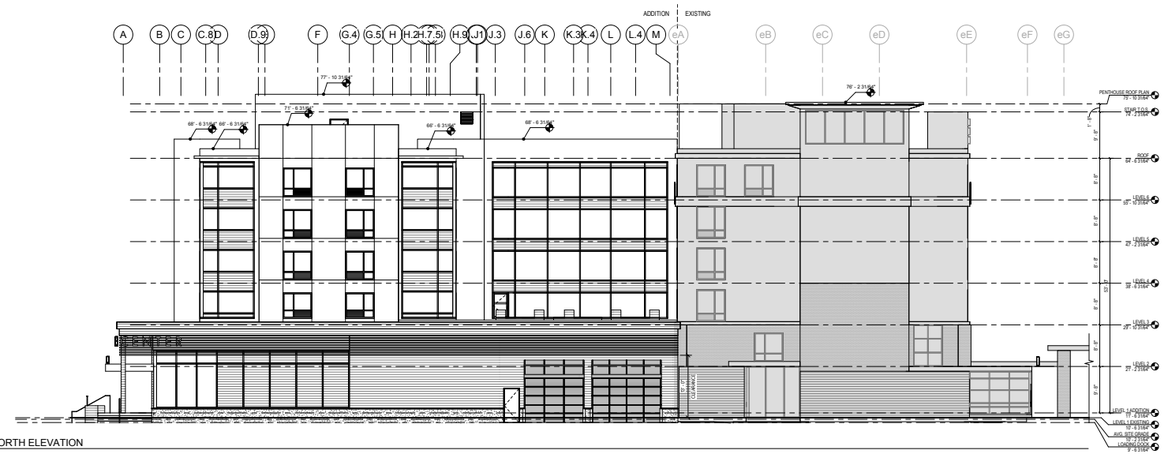


2 KEY PLAN: LEVEL 3 FLOOR PLAN
1" = 80'-0"

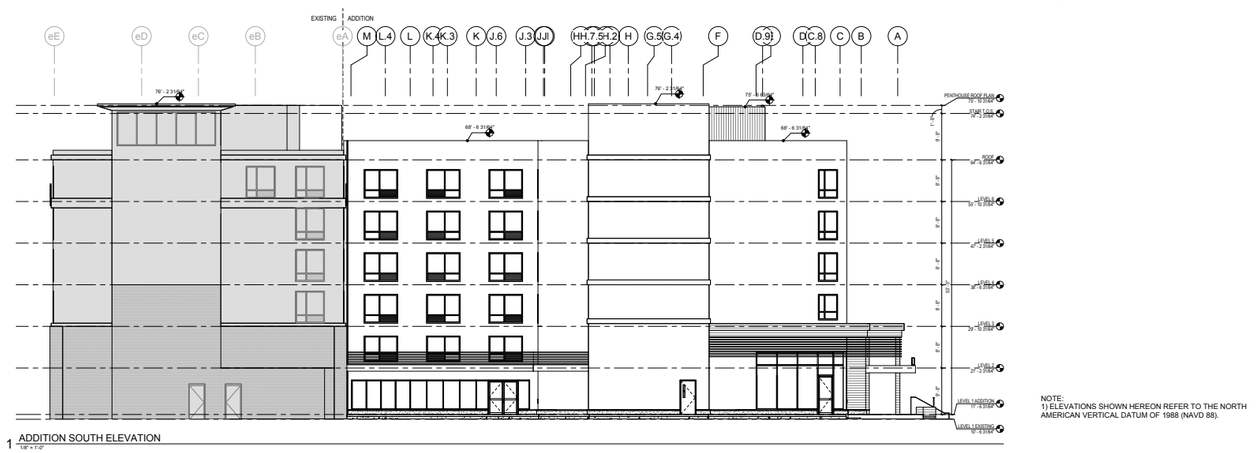
Figure 7
Green Roof Plan
Source: Arrowstreet, 2017



3 ADDITION EAST ELEVATION
1/8" = 1'-0"



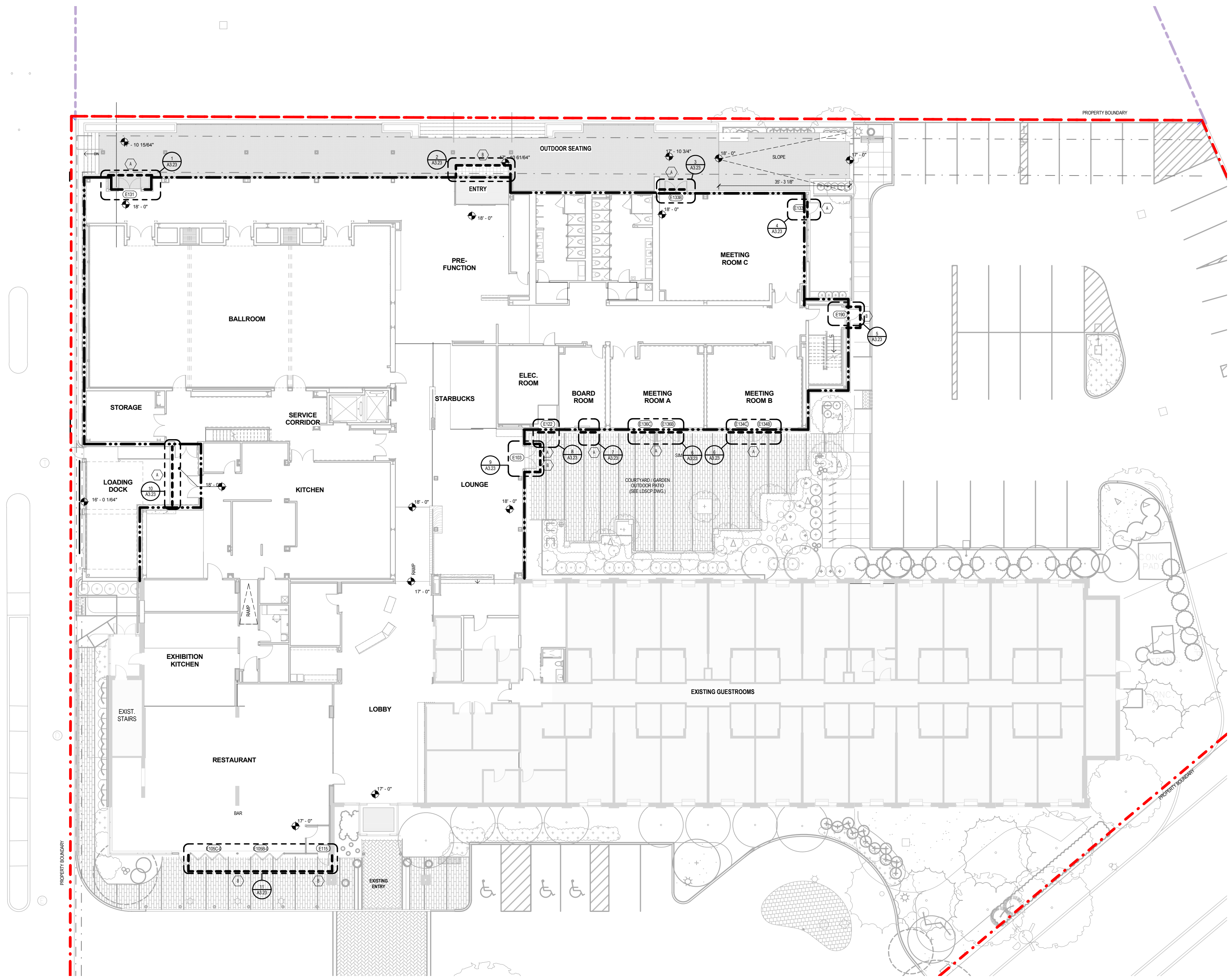
2 ADDITION NORTH ELEVATION
1/8" = 1'-0"



1 ADDITION SOUTH ELEVATION
1/8" = 1'-0"

NOTE:
1) ELEVATIONS SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Figure 8
Building Elevations
Source: Arrowstreet Inc., 2017



1 FLOOD PROTECTION PLAN

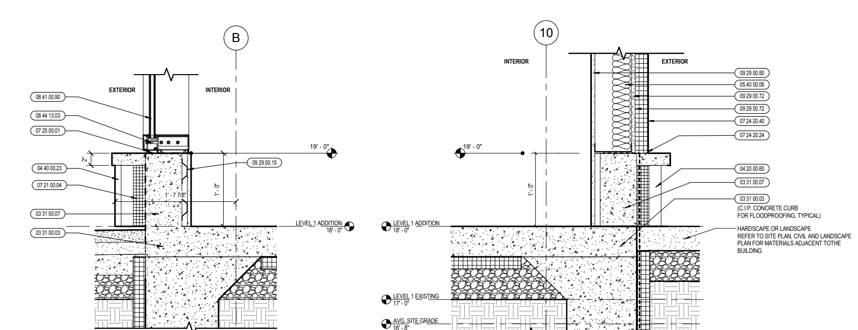
FLOOD PROTECTION LEGEND

- WALLS ARE FLOODPROOFED UP TO 18'-6" BCB ELEVATION
- REMOVABLE FLOOD PANELS AT THE DOORS
- A — REMOVABLE FLOOD PANELS, SINGLE SIDE PANEL
- B — REMOVABLE FLOOD PANELS, MULTIPLE SIDE PANELS
- EQUIPMENT ROOM AT 19.5' BCB, 2 FEET ABOVE BASE FLOOD ELEVATION

GENERAL NOTES:

1. FEMA BASE FLOOD ELEVATION IS 11' NVAD88 (17.5' BCB)
2. NEW FLOOR ELEVATION IS AT 18' BCB, 6" ABOVE BASE FLOOD ELEVATION.
3. FLOOD PROTECTION IS UP TO 18.5' BCB, 1 FOOT ABOVE BASE FLOOD ELEVATION.
4. EXISTING BUILDING DOORS HAVE EXISTING REMOVABLE FLOOD PANELS

KEYNOTES	
03 31 00.03	CONCRETE SLAB ON GRADE
03 31 00.07	CONCRETE WALL
04 20 00.60	AIR SPACE
04 40 00.23	STONE VENEER
05 40 00.06	STRUCTURAL STEEL STUDS - 6"
07 21 00.04	RIGID INSULATION
07 24 20.24	EIFS PVC "J" TRACK, WEEPING
07 24 20.40	EFS FINISH
07 25 00.01	AIR AND WATER BARRIER MEMBRANE
08 41 00.90	GLAZING AS SCHEDULED
08 44 13.03	ALUMINUM CURTAINWALL SILL
09 29 00.15	METAL FURRING CHANNEL - 7/8"
09 29 00.50	GYPSUM WALLBOARD - 5/8" TYPE "X"
09 29 00.72	EXTERIOR GYPSUM SHEATHING-RATED - 5/8"

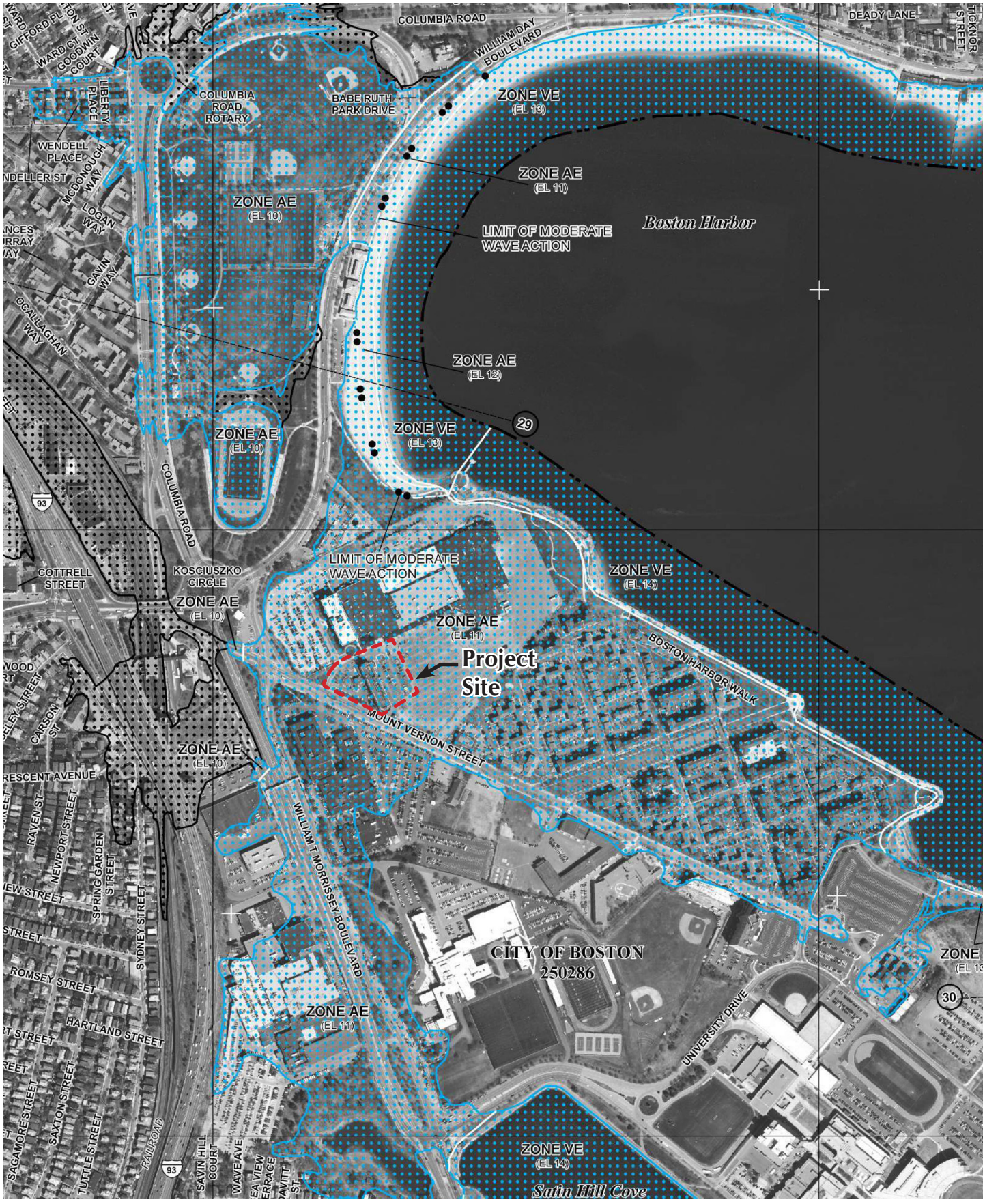


3 SECTION DETAIL W/ CURB FOR FLOODPROOFING AT WINDOWS

2 SECTION DETAIL W/ CURB FOR FLOODPROOFING

Figure 9
Flood Protection Plan
Source: Arrowstreet, 2017

Figure 10
Project Exterior View from Above
Source: Arrowstreet, 2017



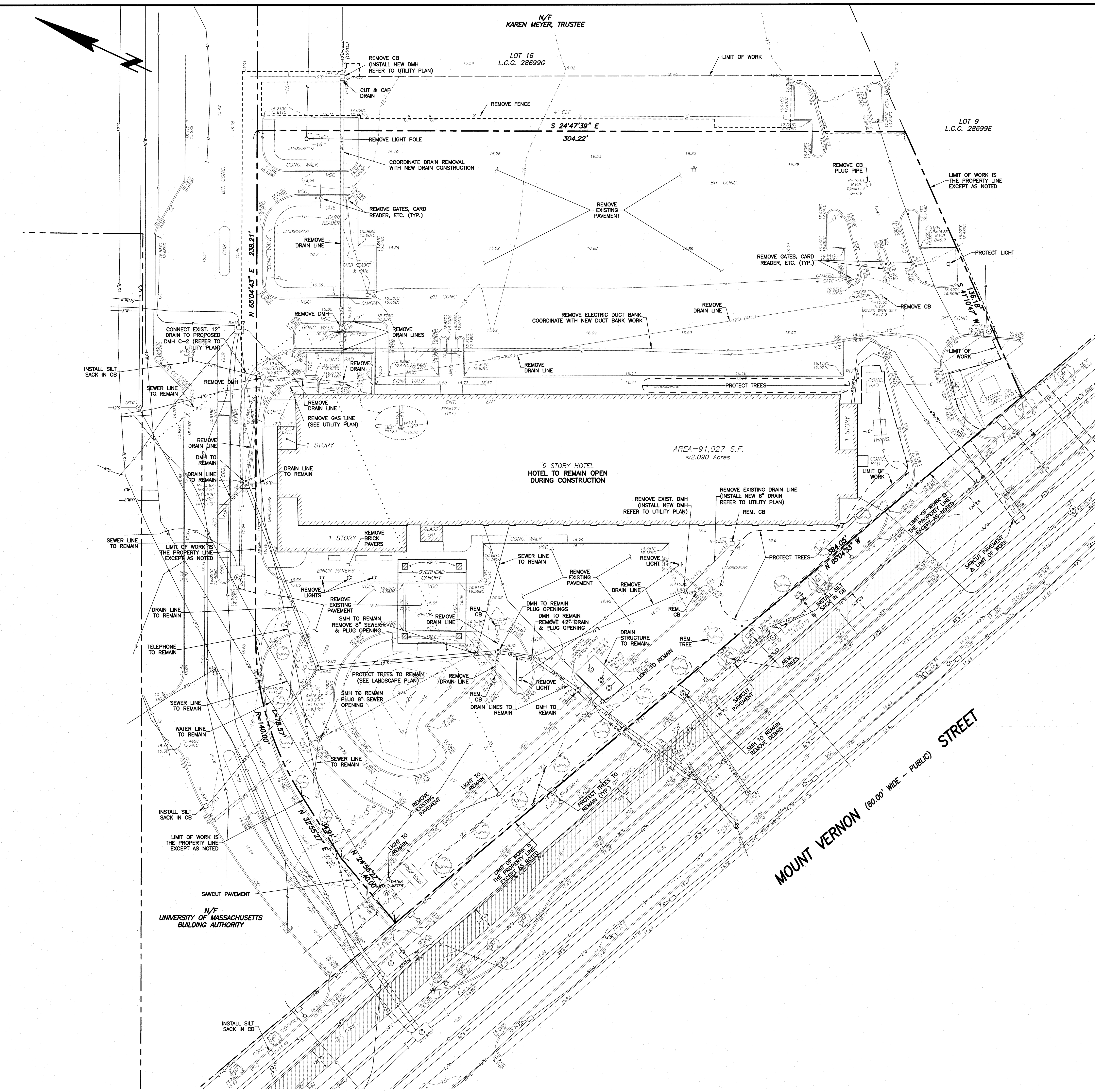
Dorchester, Massachusetts

Figure 11

FEMA Flood Insurance Rate Map

Source: FEMA Revised Map, 2016

NOI PLANS



NOTES:

1. ELEVATIONS REFER TO BOSTON CITY BASE
2. LOCATIONS AND ELEVATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE ABOVE REFERENCED PLAN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. H.W. MOORE ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES INACCURATELY SHOWN OR OMITTED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY DEPARTMENT SHALL BE NOTIFIED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHALL BE VERIFIED IN THE FIELD. CALL THE BWSC, (617)330-9400 (x590) AND DIG-SAFE CALL CENTER, (888)344-7233, 72 HOURS (3 WORKING DAYS) PRIOR TO EXCAVATION.
3. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO ALL APPLICABLE MUNICIPAL REGULATIONS.
4. ALL DISTURBANCES WITHIN THE PUBLIC WAY SHALL CONFORM TO CITY STANDARDS.
5. IF EXISTING SERVICES ARE ENCOUNTERED THEY SHALL BE CUT AND CAPPED AT THE LIMIT OF WORK.
6. CONSTRUCTION ACCESS DRIVES SHALL HAVE CRUSHED STONE TO MINIMIZE MUD FROM BEING TRACKED ONTO THE ROADWAYS. MUD TRACKED ONTO ROADWAYS SHALL BE SWEPT CLEAN.
7. REMOVE ALL EXISTING BITUMINOUS CONCRETE AND CEMENT CONCRETE FROM THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL ITEMS EXCEPT TREES WITHIN THE LIMITS OF WORK ARE TO BE DEMOLISHED AND REMOVED FROM THE SITE.
8. CONTRACTOR IS TO OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF BOSTON AND DEPARTMENT OF ENVIRONMENTAL PROTECTION. CONTRACTOR IS TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AND CODES HAVING JURISDICTION.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR SEDIMENT CONTROLS. HAY BALES AND SILT FENCE SHALL BE EMPLOYED TO PREVENT SEDIMENT FROM WASHING OFF THE SITE. HAY BALES, CRUSHED STONE OR SILT SACKS SHALL BE SET AROUND ON-SITE CATCH BASINS TO PREVENT SEDIMENT FROM WASHING INTO THE DRAINAGE SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SEDIMENT CONTROLS UNTIL THE COMPLETION OF THE PROJECT, AT WHICH TIME THE SEDIMENT CONTROLS ARE TO BE REMOVED.
10. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL. WET DOWN DEBRIS TO PREVENT AIR POLLUTION BY DUST RISING FROM DEMOLITION WORK. CONTINUOUSLY CLEAN DRIVES AND WALKS Of FALLEN OR WIND BLOWN DEBRIS.
11. THE CONTRACTOR SHALL SUBMIT OPERATIONAL SEQUENCE FOR REVIEW AND ACCEPTANCE BY THE OWNER.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILLING ALL EXCAVATIONS, HOLES LEFT FROM THE REMOVAL OF STRUCTURES AND FOUNDATIONS. ALL BACKFILLING SHALL BE COMPACTED IN LOOSE LIFTS NOT EXCEEDING 12 INCHES AND COMPACTED TO 92% OF MAXIMUM MODIFIED DRY DENSITY. BACKFILL SHALL BE GRAVEL, STRUCTURAL FILL OR ¾" CRUSHED STONE.
13. REMOVE ALL TREES AND SHRUBS WITHIN THE LIMIT OF WORK THAT ARE NOT DESIGNATED TO BE PROTECTED. REFER TO LANDSCAPE PLANS FOR TREES TO REMAIN AND BE PROTECTED
14. TREES DESIGNATED TO BE PROTECTED THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED (SAME TYPE AND CALIBER) AT NO COST TO THE OWNER.
15. GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING DRAIN, SEWER AND ELECTRIC WORK. THERE ARE DRAIN, SEWER AND ELECTRIC LINES IN THE SITE THAT NEED TO BE MAINTAINED UNTIL THE NEW LINES ARE CONSTRUCTED.

FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017. PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
2. BUILDING ADDITION FOOTPRINT AND ASSOCIATED ARCHITECTURAL FEATURES HAS BEEN TAKEN FROM A DIGITAL FILE FILE RECEIVED ON JUNE 13, 2017 AND NAMED "FloorPlan-LEVEL1.dwg". THE DIGITAL FILE WAS PREPARED BY ARROWSTREET ARCHITECTURE AND DESIGN OF BOSTON, MA.

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Tab: C1-SITE PREP Plot Style: 1050C.ctb Plotted By: John Getherall

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HORIZONTAL GRAPHIC SCALE IN FEET

3492-S18.dwg Saved: 8/28/2017 3:16 PM Plotted: Aug 28, 2017 3:16:pm

CLIENT / OWNER:

BAYSIDE CLUB HOTEL, LLC

DOUBLETREE CLUB BY HILTON BOSTON BAYSIDE

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:

H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495
hwmoore.com

PROJECT INFO:

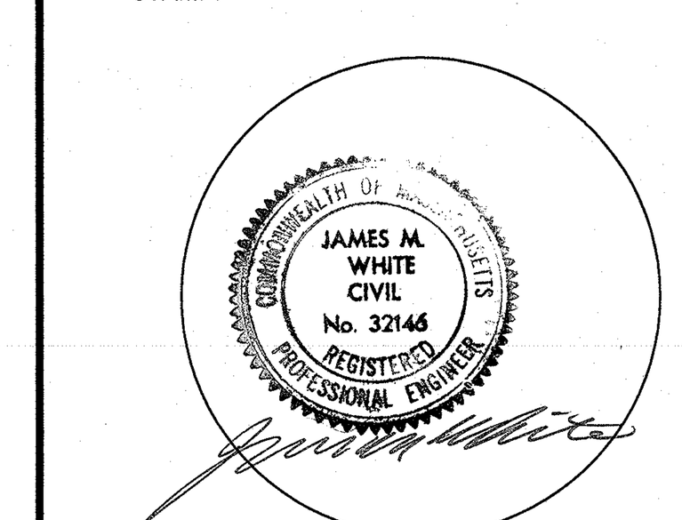
BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:



Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

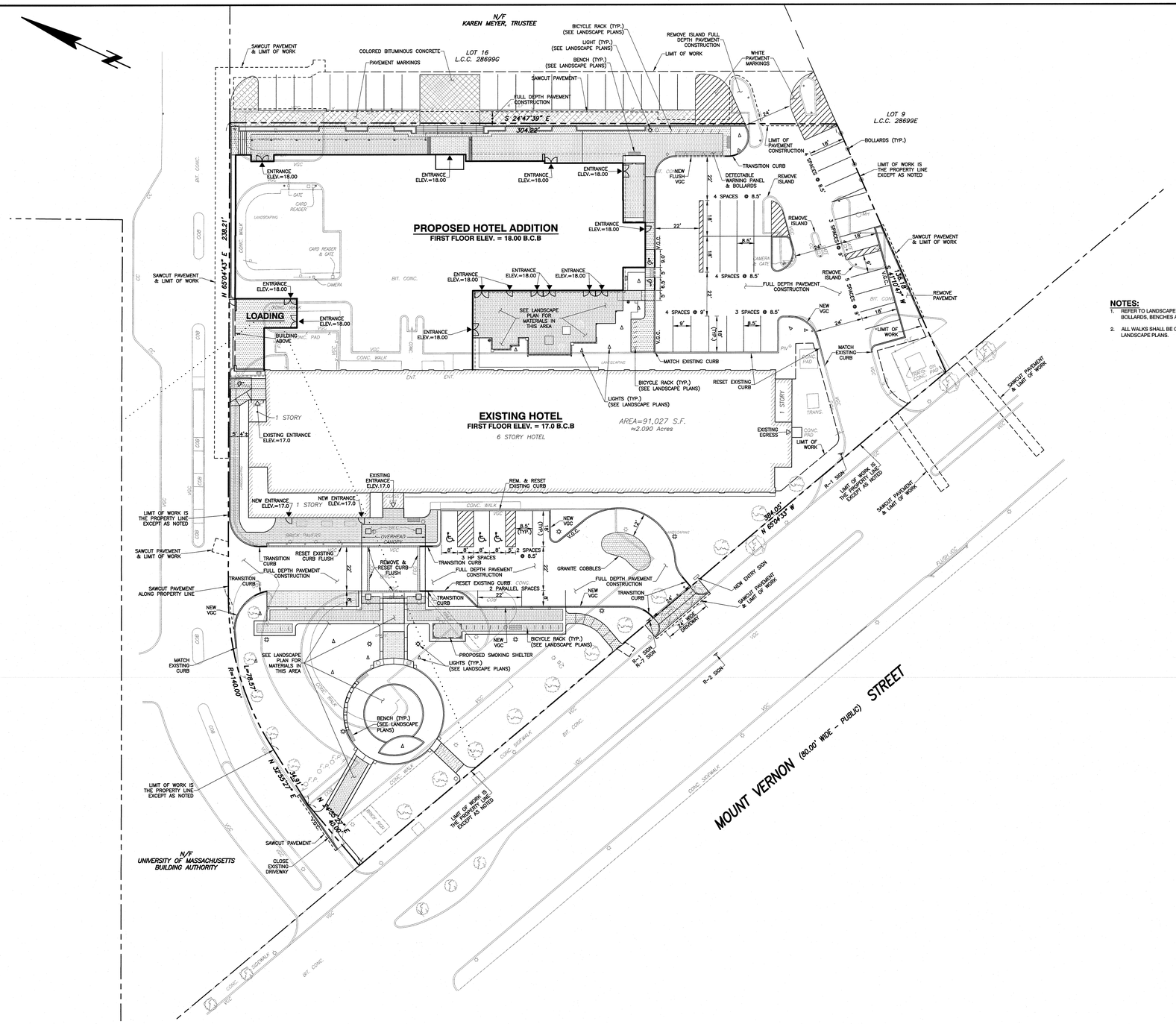
Drawing Title

SITE PREPARATION & DEMOLITION PLAN BWSC #17329

Project No.	13010
Drawn By	
Date	11 AUGUST 2017
Scale	1" = 20'

Drawing Number

C-1



LEGEND

- 152 — CONTOUR
- 152 — HALF FOOT CONTOUR
- ×154.75 — SPOT GRADE
- NEW VERTICAL GRANITE CURB
- NEW FLUSH VERTICAL GRANITE CURB
- EXISTING CURB TO BE RESET
- EXISTING CURB TO BE RESET FLUSH
- TRANSITION CURB
- 12"D DRAIN LINE
- CATCH BASIN (CB)
- DRAIN MANHOLE (DMH)
- DRAIN INLET (DI)
- YARD DRAIN (YD)
- WATER QUALITY DEVICE (WQD) CB
- INSPECTION PORT
- 8"S SEWER LINE
- SEWER MANHOLE (SMH)
- CONCRETE
- ELECTRIC LINE
- GAS LINE
- BOLLARD (SEE LANDSCAPE PLANS FOR OTHER BOLLARDS)

NOTES:

1. REFER TO LANDSCAPE PLAN FOR ALL PAVER DETAILS, WALKS, PATIO MATERIALS, LIGHTS BOLLARDS, BENCHES AND BICYCLE RACKS.
2. ALL WALKS SHALL BE CEMENT CONCRETE UNLESS INDICATED AS ANOTHER MATERIAL ON THE LANDSCAPE PLANS.

FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017. PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
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HORIZONTAL GRAPHIC SCALE IN FEET
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Tab: C2-LAYOUT Plot Style: 1to50C.ctb Plotted By: John Gatherall

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
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PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:

JAMES M. WHITE 12976 No. 32146 REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

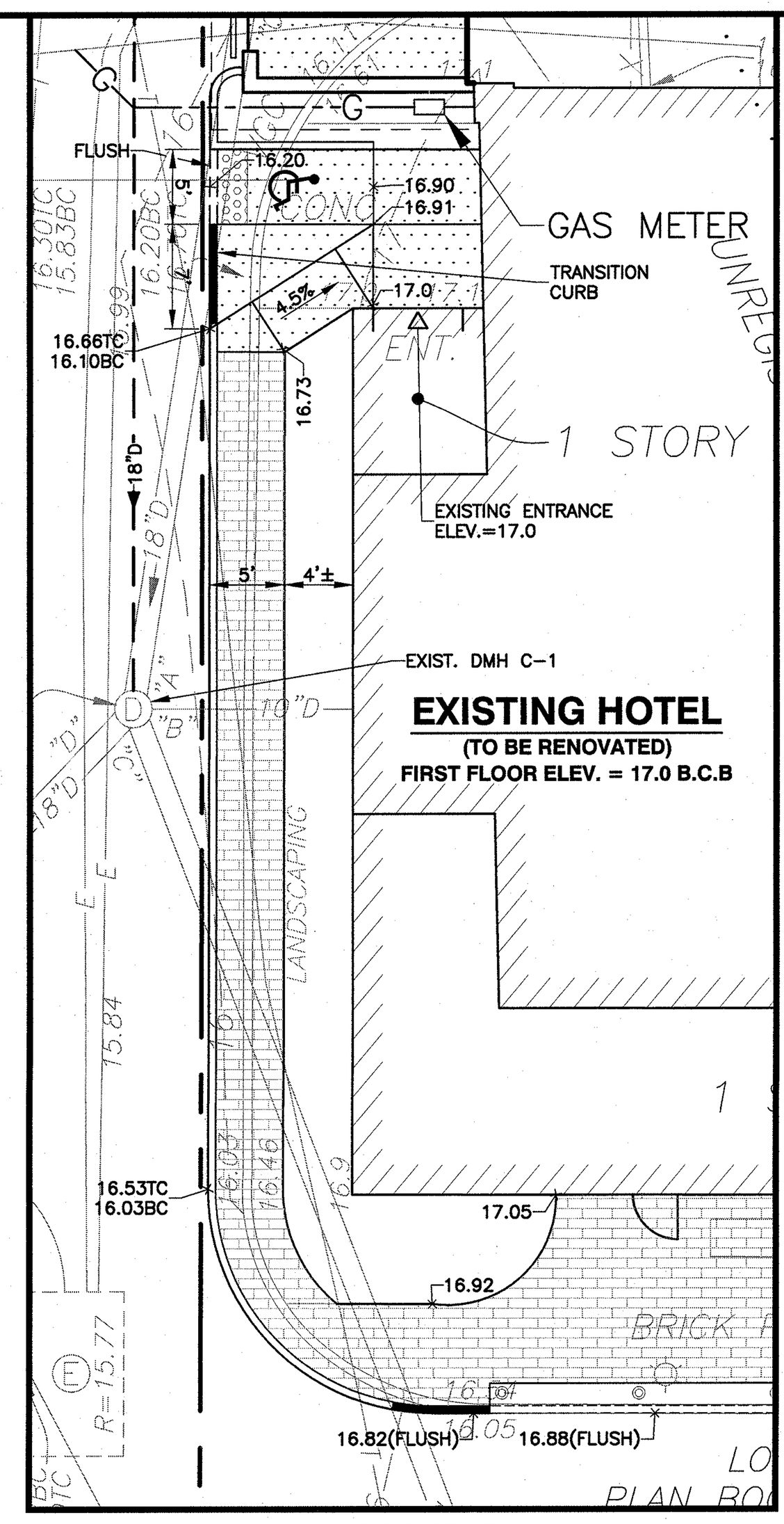
Drawing Title

SITE LAYOUT PLAN
BWSC #17329

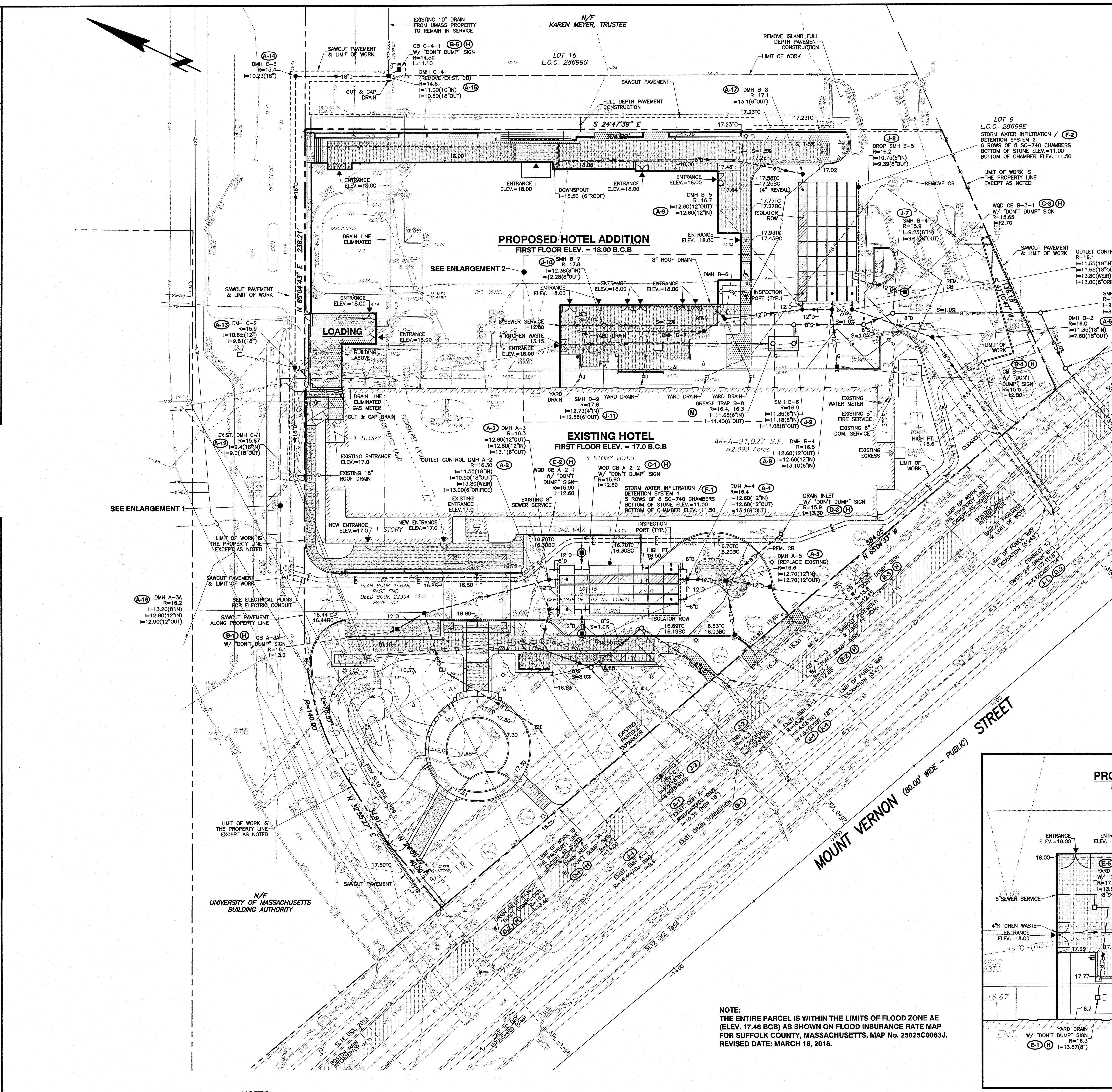
Project No.	**13010**
Drawn By	
Date	**11 AUGUST 2017**
Scale	**1" = 20'**

Drawing Number

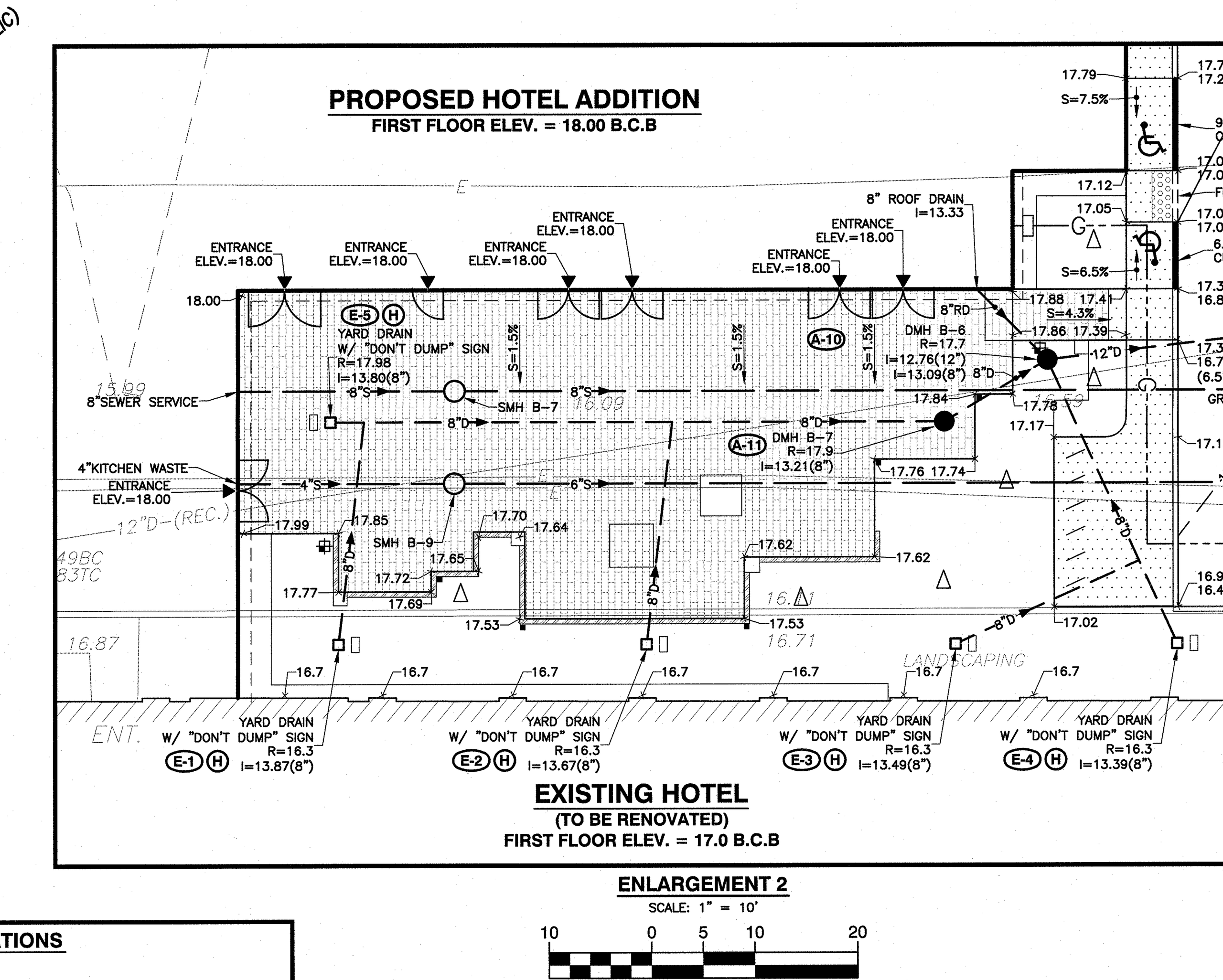
C-2



ENLARGEMENT 1
SCALE: 1" = 10'
HORIZONTAL GRAPHIC SCALE IN FEET



NOTE:
THE ENTIRE PARCEL IS WITHIN THE LIMITS OF FLOOD ZONE AE (ELEV. 17.46 BCB) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP No. 25025C0083J, REVISED DATE: MARCH 16, 2016.



ENLARGEMENT 2
SCALE: 1" = 10'
HORIZONTAL GRAPHIC SCALE IN FEET

HORIZONTAL GRAPHIC SCALE IN FEET

LEGEND

- CONTOUR
- HALF FOOT CONTOUR
- SPOT GRADE
- NEW VERTICAL GRANITE CURB
- NEW FLUSH VERTICAL GRANITE CURB
- EXISTING CURB TO BE RESET
- EXISTING CURB TO BE RESET FLUSH
- TRANSITION CURB
- DRAIN LINE
- CATCH BASIN (CB)
- DRAIN MANHOLE (DMH)
- DRAIN INLET (DI)
- YARD DRAIN (YD)
- WATER QUALITY DEVICE (WQD) CB
- INSPECTION PORT
- SEWER LINE
- SEWER MANHOLE (SMH)
- CONCRETE
- ELECTRIC LINE
- GAS LINE
- BOLLARD (SEE LANDSCAPE PLANS FOR OTHER BOLLARDS)

SERVICE CONNECTION TABLE

ITEM		QTY	BWSC INSPECTOR/DATE
A-1	DRAIN MANHOLE	1	
A-2	DRAIN MANHOLE(OUTLET CONTROL MH)	1	
A-3	DRAIN MANHOLE	1	
A-4	DRAIN MANHOLE	1	
A-5	DRAIN MANHOLE	1	
A-6	DRAIN MANHOLE	1	
A-7	DRAIN MANHOLE(OUTLET CONTROL MH)	1	
A-8	DRAIN MANHOLE	4	
A-9	DRAIN MANHOLE	6	
A-10	DRAIN MANHOLE	1	
A-11	DRAIN MANHOLE	1	
A-12	DRAIN MANHOLE	1	
A-13	DRAIN MANHOLE	1	
A-14	DRAIN MANHOLE	1	
A-15	DRAIN MANHOLE	1	
A-16	DRAIN MANHOLE	1	
A-17	DRAIN MANHOLE	1	
B-1	CATCH BASIN	1	
B-2	CATCH BASIN	1	
B-3	CATCH BASIN	1	
B-4	CATCH BASIN	1	
B-5	CATCH BASIN	1	
C-1	WATER QUALITY DEVICE (WQD) CATCH BASIN	1	
C-2	WATER QUALITY DEVICE (WQD) CATCH BASIN	1	
C-3	WATER QUALITY DEVICE (WQD) CATCH BASIN	1	
D-1	DRAIN INLET	1	
D-2	DRAIN INLET	1	
D-3	DRAIN INLET	1	
E-1	YARD DRAIN	1	
E-2	YARD DRAIN	1	
E-3	YARD DRAIN	1	
E-4	YARD DRAIN	1	
E-5	YARD DRAIN	1	
F-1	INFILTRATION SYSTEM "1"	1	
F-2	INFILTRATION SYSTEM "2"	1	
G-1	DYE TEST DRAIN	1	
G-2	DYE TEST DRAIN	1	
H	"DON'T DUMP" CATCH BASIN SIGN	16	
I-1	18" DRAIN CONNECTION	1	
J-1	SEWER MANHOLE	1	
J-2	SEWER MANHOLE	1	
J-3	SEWER MANHOLE	1	
J-4	SEWER MANHOLE	1	
J-5	SEWER MANHOLE	1	
J-6	SEWER MANHOLE	1	
J-7	SEWER MANHOLE	1	
J-8	SEWER MANHOLE	1	
J-9	SEWER MANHOLE	1	
J-10	SEWER MANHOLE	1	
J-11	SEWER MANHOLE	1	
K-1	DYE TEST SEWER	1	
K-2	DYE TEST SEWER	1	
L-1	8" SEWER CONNECTION	1	
M	GREASE TRAP	1	

SPECIAL CONDITIONS

ITEM	BWSC INSPECTOR/DATE
AS-BUILT PLAN	
CONDITIONS LETTER	
4 TO 1 I/I REMOVAL	
EXIST. SEWER VIDEO (PRE-CONSTRUCTION)	
EXIST. SEWER VIDEO (POST-CONSTRUCTION)	

FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017. PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
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Tab: C-3-UTILITY Plot Style: 1050C.ctb Plotted By: John Getherall

NOTES:

1. LOCATIONS AND ELEVATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE ABOVE REFERENCED PLAN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. H.W. MOORE ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES INACCURATELY SHOWN OR OMITTED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY DEPARTMENT SHALL BE NOTIFIED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHALL BE VERIFIED IN THE FIELD. CALL THE BWSC, (617)989-7000 AND DIG-SAFE CALL CENTER, (888)344-7233, 72 HOURS (3 WORKING DAYS) PRIOR TO EXCAVATION.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO BWSC REQUIREMENTS AND ALL OTHER APPLICABLE MUNICIPAL REGULATIONS.
3. ALL DISTURBANCES WITHIN THE PUBLIC WAY SHALL CONFORM TO CITY AND BWSC STANDARDS.
4. THIS PLAN HAS BEEN PREPARED FOR APPROVAL OF THE WATER, DRAIN AND SEWER CONNECTIONS TO THE BWSC FACILITIES. IT IS UNDERSTOOD THAT THE RESPONSIBILITY OF OWNERSHIP AND MAINTENANCE OF THE SEWER CONNECTIONS ON PRIVATE PROPERTY AND/OR PRIVATE AND PUBLIC WAYS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND/OR OWNERS. IT IS ALSO UNDERSTOOD THAT THE WATER CONNECTIONS ON PRIVATE PROPERTY INCLUDING PRIVATE WAYS ARE ALSO THE RESPONSIBILITY OF THE DEVELOPER AND/OR OWNERS. IF THE CONNECTIONS CROSS, OR ARE NEAR INDIVIDUAL PROPERTY LINES, PROVISIONS MUST BE MADE TO ALLOW EACH OWNER TO MAINTAIN OR RECONSTRUCT THEIR RESPECTIVE CONNECTIONS. THIS FACT MUST BE INCORPORATED INTO ANY PURCHASE AND SALES AGREEMENT AND DEEDS RELATED TO THE TRANSFER OF OWNERSHIP OF THE PROPERTIES.
5. THE PROPOSED BUILDING CONNECTIONS (BY PLUMBER) SHALL BE 10' OUTSIDE THE FOUNDATION WALL.
6. SITE CONTRACTOR TO PROVIDE ALL EXCAVATION, INSTALLATION, BACK FILLING, PAVEMENT PATCHING, ETC. FOR THE INSTALLATION OF UNDERGROUND GAS, ELECTRIC, TELEPHONE, FIRE ALARM, WATER, SEWER, DRAIN AND SIMILAR SERVICES.
7. IF EXISTING ABANDONED BWSC SERVICES ARE ENCOUNTERED THEY SHALL BE CUT AND CAPPED AT THE MAIN PER BWSC STANDARDS.
8. THE SEWER GRAVITY PIPE SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SDR 35 CONFORMING TO ASTM STANDARD SPECIFICATIONS D3034.
9. STORM DRAIN PIPES SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SDR 35 CONFORMING TO ASTM STANDARD SPECIFICATIONS D3034.
10. CONTRACTOR IS TO OBTAIN THE ROUGH CONSTRUCTION SIGN OFF DOCUMENT FROM THE CITY OF BOSTON INSPECTIONAL SERVICES DEPARTMENT PRIOR TO FILING A GENERAL SERVICES APPLICATION WITH BWSC.
11. CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING AS-BUILT PLANS IN ACCORDANCE WITH BWSC REQUIREMENTS.
12. CONTRACTOR TO CONFIRM THE LOCATIONS AND INVERTS OF THE EXISTING UTILITIES IN THE STREET PRIOR TO THE INSTALLATION OF NEW SERVICE CONNECTIONS. SERVICES SHALL BE FIELD VERIFIED BEFORE BEGINNING CONSTRUCTION.
13. ANY CONSTRUCTION DEWATERING SHALL EMPLOY MEASURES TO FILTER OUT SEDIMENT PRIOR TO ITS DISCHARGE AND SHALL CONFORM WITH BWSC REQUIREMENTS. CONTRACTOR TO SUBMIT A SKETCH OF THESE TO THE ARCHITECT FOR APPROVAL.
14. CONTRACTOR TO EMPLOY MEASURES TO CONTROL DUST DURING CONSTRUCTION.
15. RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH. ADJUST ALL OTHER RIM ELEVATIONS OF EXISTING MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISHED GRADE WITHIN LIMITS OF SITE WORK.
16. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM AND OTHER PRIVATE COMPANIES, AS REQUIRED.
17. COORDINATE CATV, TELEPHONE AND GAS INSTALLATION WITH THE UTILITY COMPANIES.
18. LOCATIONS OF "CUT & CAPS" FOR THE EXISTING BUILDINGS UTILITY SERVICES ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING SERVICES TO BE CUT & CAPPED PRIOR TO START OF WORK.
19. SEE PLUMBING PLANS FOR ALL PIPE WORK WITHIN BUILDING.
20. EXISTING WATER & SEWER SERVICES ARE SHOWN ON THIS PLAN STRICTLY FOR PERMITTING PURPOSES ONLY. EXACT LOCATIONS AND ELEVATIONS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
21. SEE ARCHITECTURAL PLANS FOR PROPOSED SITE LAYOUT. THESE PLANS ARE FOR BWSC PERMITTING PURPOSES ONLY.
22. ALL EXISTING WATER SERVICES 3" AND LARGER DESIGNATED TO BE CUT AND CAPPED, THE PIPE AND VALVE MUST BE CUT AND REMOVED FROM THE MAIN. THE MAIN SHALL BE REPAIRED WITH FULL DUCTILE IRON REPAIR SLEEVES OR INSTALLATION OF NEW PIPING WITH APPROVED COUPLINGS.
23. MAINTAIN 18" VERTICAL CLEARANCE BETWEEN WATER PIPE & SEWER/DRAIN PIPES.
24. REFER TO ELECTRIC AND PLUMBING PLANS FOR ADDITIONAL ELECTRIC AND GAS SERVICES.

STORMWATER MITIGATION CALCULATIONS

DESIGN RUNOFF VOLUME:

USE 1-INCH RAINFALL EVENT
IMPERVIOUS AREA = 1.319 ACRES (DOES NOT INCLUDE EXISTING ROOF)

RUNOFF VOLUME = 1.319 AC. x 1" x (43,560 SQ. FT./AC.) x (1 FT./12 IN.) = 4,788.0 C.F.

DESIGN VOLUME = 4,788.0 C.F.

PROVIDED INFILTRATION SYSTEM STORAGE VOLUME

INFILTRATION SYSTEM "1"

USE STORMTECH SC-740 CHAMBERS WITH CRUSHED STONE

CHAMBER VOLUME = 40 CHAMBERS x 35 C.F./CHAMBER = 1,280.0 C.F.

CRUSHED STONE VOLUME = [(1.9 FT. x 25.3 FT. x 60.3 FT.) - 1,280 C.F.] x 0.3 VOIDS = 485.6 C.F.

SUBTOTAL = 1,280.0 C.F. + 485.6 C.F. = 1,765.6 C.F.

INFILTRATION SYSTEM "2"

USE STORMTECH SC-740 CHAMBERS WITH CRUSHED STONE

CHAMBER VOLUME = 48 CHAMBERS x 45.7 C.F./CHAMBER = 2,193.6 C.F.

CRUSHED STONE VOLUME = [(2.9 FT. x 30.0 FT. x 60.3 FT.) - 2193.6 C.F.] x 0.3 VOIDS = 915.8 C.F.

SUBTOTAL = 2,193.6 C.F. + 915.8 C.F. = 3,109.4 C.F.

TOTAL VOLUME PROVIDED = SYSTEM "1" + SYSTEM "2"

= 1765.6 C.F. + 3,109.4 C.F. = 4,875 C.F.

TOTAL VOLUME PROVIDED = 4,875 C.F.

STORMWATER STORAGE VOLUME = 4,875 C.F. > 4,788.0 C.F.

RESERVED FOR BWSC USE

PROPERTY INFORMATION

Account Number 238686 Parcel Number 03448050 Ward 13
Property Location 240 MOUNT VERNON ST.
Project Name BAYSIDE DOUBLETREE HOTEL EXPANSION
Neighborhood DORCHESTER Extended Zip Code 02125-3120
Type of Premise COMMERCIAL/HOTEL

OWNER
BAYSIDE CLUB HOTEL LLC
150 MOUNT VERNON ST.
DORCHESTER, MA 02125
TEL. 617-822-7355
ATTN. MICHAEL CORCORAN

CIVIL ENGINEER
H. W. MOORE ASSOCIATES, INC.
121 E. BERKELEY STREET
BOSTON, MA 02118
TEL. 617-357-8145

WATER METER INFORMATION

EXISTING BWSC WATER ACCOUNT No. : 238686
EXISTING WATER METER No. : 70045866
EXISTING WATER METER SIZE = 3 INCHES

EXISTING SEWAGE FLOW

HOTEL:	197 BEDROOMS x 110 GPD/BEDROOM	=	21,670 GPD
LOUNGE/CAFE	25 SEATS x 20 GPD/SEAT	=	500 GPD
	TOTAL EXISTING	=	22,170 GPD

PROPOSED SEWAGE FLOW

HOTEL:	301 BEDROOMS x 110 GPD/BEDROOM	=	33,110 GPD
BANQUET FACILITY	200 SEATS x 15 GPD/SEAT	=	3,000 GPD
MEETING ROOMS	62 SEATS x 5 GPD/SEAT	=	310 GPD
LOUNGE/CAFE	32 SEATS x 20 GPD/SEAT	=	640 GPD
RESTAURANT	139 SEATS x 35 GPD/SEAT	=	4,865 GPD
	TOTAL PROPOSED	=	41,345 GPD
	TOTAL INCREASED SEWAGE FLOW	=	19,175 GPD

ARTICLE 32 COMPLIANCE:

THE PROPOSED PROJECT LOCATED AT 240 MOUNT VERNON STREET IS NOT LOCATED WITHIN THE GROUNDWATER CONSERVATION DISTRICT.

LAND USE CODE C

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON
BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:
H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495
hwmoore.com

PROJECT INFO:
BAYSIDE DOUBLETREE HOTEL EXPANSION
240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:
PERMIT DOCUMENTS

STAMP:
COMMONWEALTH OF MASSACHUSETTS
JAMES M. WHITE
CIVIL
No. 32145
REGISTERED PROFESSIONAL ENGINEER

Revisions

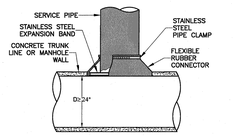
No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

Drawing Title
SITE UTILITY AND GRADING PLAN
BWSC #17329

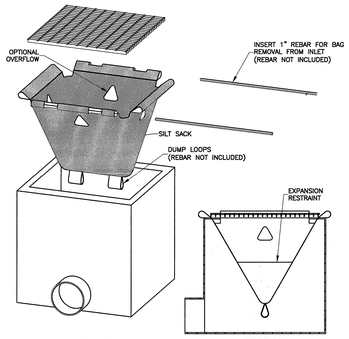
Project No.	13010
Drawn By	
Date	11 AUGUST 2017
Scale	1" = 20'

Drawing Number
C-3

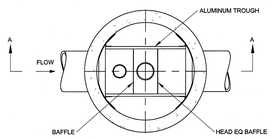


NOTES:
1. OPENING IN CONCRETE WALL SHALL BE CORED USING HIGH SPEED DIAMOND DRILL.
2. ALL METAL FIXTURES SHALL BE OF STAINLESS STEEL.
3. SERVICE LINE SHALL BE FLUSH WITH THE INSIDE OF THE CONCRETE PIPE OR WALL.
4. IF TRUNK LINE DIAMETER IS LESS THAN 24" THEN A SADDLE TYPE CONNECTION WILL BE USED.

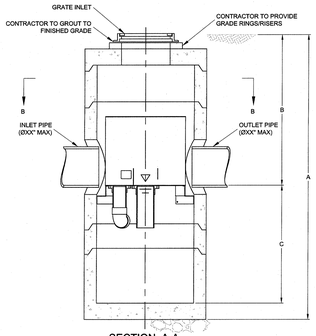
BWSC #B-05
TYPICAL FIELD CONNECTION TO LARGE CONCRETE PIPE OR CONCRETE MANHOLE
(NOT TO SCALE)



SILK SACK DETAIL
(NOT TO SCALE)

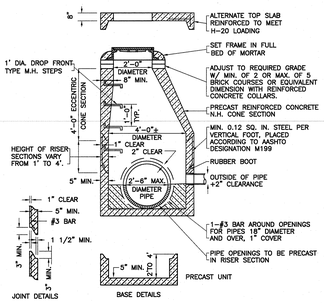


PLAN VIEW B-B

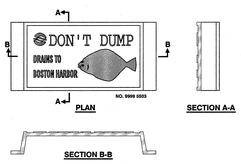


VortSentry.

WATER QUALITY DEVICE (WQD CB)
CONTECH - VORTSENTRY HS36
(NOT TO SCALE)

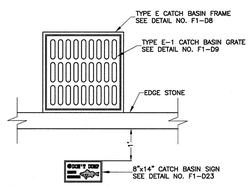


PRECAST CONCRETE DRAIN MANHOLE
(NOT TO SCALE)



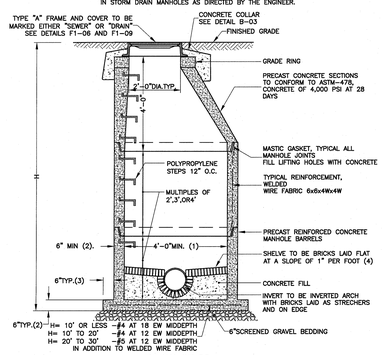
NOTE: TO BE INSTALLED WITH ALL CATCH BASINS.

BWSC #F1-D23
CATCH BASIN "DON'T DUMP" SIGN
(NOT TO SCALE)



BWSC #B-01f
CATCH BASIN "DON'T DUMP" SIGN INSTALLATION
(NOT TO SCALE)

NOTES:
(1.)5'-0"DIAMETER FOR ALL MANHOLE DEPTHS GREATER THAN 20 FEET OR WHEN ORDERED BY THE ENGINEER.
(2.)6" MIN. WALL THICKNESS AND 7 INCH MIN. BASE THICKNESS WITH 5'-0" DIAMETER MANHOLES.
(3.)6 INCH LIP OPTIONAL UNLESS OTHERWISE NOTED.
(4.)CONCRETE INVERT AND SHELF MAY BE SUBSTITUTED IN STORM DRAIN MANHOLES AS DIRECTED BY THE ENGINEER.

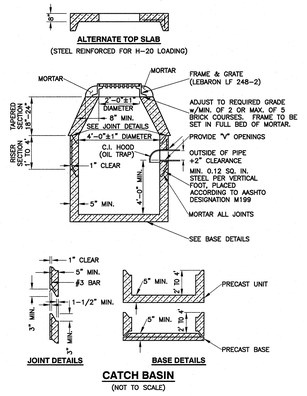


BWSC #B-02a
TYPICAL PRECAST CONCRETE SEWER MANHOLE
(NOT TO SCALE)

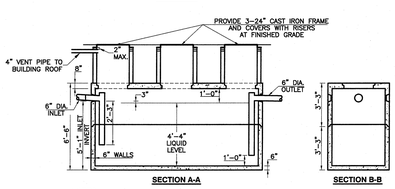
NOTES:

1. ALL CAST IN PLACE CONCRETE TO HAVE A MINIMUM 28 DAY STRENGTH OF 3000 LBS PER SQ. INCH, USING 3/4"MAXIMUM SIZE AGGREGATE.
2. REINFORCING STEEL BARS ARE DEFORMED BARS OF BILLET STEEL ASTM A615 GRADE 60.
3. WELDED WIRE FABRIC CONFORMS TO ASTM A185.
4. CAST IRON FRAME, TYPE "A" AND COVER TYPE "A" FOR DETAILS SEE DETAILS NOS. F1-D01, F1-D04 AND F1-D05. COVERS TO BE MARKED EITHER "SEWER" OR "DRAIN".
5. DESIGN LIVE LOAD – HS 20 – 44.
6. MINIMUM COVER FOR REINFORCING IN WALLS OR SLABS POURED AGAINST EARTH SHALL BE 3 INCHES, ALL OTHERS SHALL BE 2 INCHES UNLESS OTHERWISE NOTED.
7. USE 2'–0" LENGTHS OF PIPE STUBS AT ALL MANHOLES FOR VC OR AC PIPE. USE 4'–0" MAX. LENGTHS OF PIPE STUBS AT ALL MANHOLES FOR RC, DI OR PVC.
8. THESE MANHOLE DETAILS TO BE USED FOR BOTH SANITARY SEWER AND STORM DRAIN MANHOLES.
9. ALL MANHOLES SHALL BE CONSTRUCTED OF REINFORCED CONCRETE. SHOP DRAWINGS SUBMITTALS SHALL SHOW ALL REINFORCING DETAILS.
10. MWRA OIL AND GREASE SEPARATOR IS USED WITHIN BUILDINGS WHERE REQUIRED BY MWRA (MASSACHUSETTS WATER RESOURCES AUTHORITY) OR DEP (DEPARTMENT OF ENVIRONMENTAL PROTECTION) REGULATION. FOR DETAILS SEE DETAIL NO. B-04. FOR BWSC APPROVED GRIT AND OIL SEPARATORS, SEE DETAIL NOS. B-17 AND B-18.

BWSC B-02e
MANHOLE STRUCTURES
GENERAL NOTES
(NOT TO SCALE)

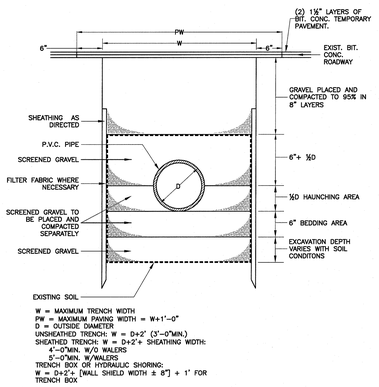


CATCH BASIN
(NOT TO SCALE)



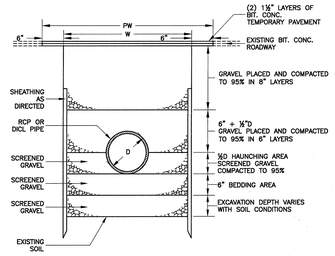
NOTES
1) CONCRETE – 5,000 P.S.I. MINIMUM STRENGTH @ 28 DAYS
2) STEEL REINFORCEMENT – ASTM A–615, GRADE 60
3) COVER TO STEEL – 1" MINIMUM
4) TANKS ARE DESIGNED TO MEET ASTM C858 AND ACI 318 WOTH AASHTO HS–20 LOADING
5) CONSTRUCTION JOINT – SEALED WITH 1" DIA. BUTYL RUBBER OR EQUIVALENT

3,000 GAL. GREASE TRAP
(NOT TO SCALE)



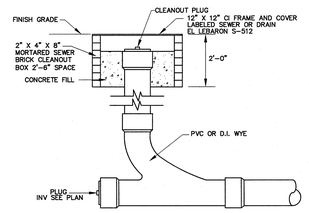
W = MAXIMUM TRENCH WIDTH
PW = MAXIMUM PAVING WIDTH = W+1'–0"
D = OUTSIDE DIAMETER
UNSHEATHED TRENCH: W = D+2' (3'–0"MIN.)
SHEATHED TRENCH: W = D+2'+ SHEATHING WIDTH:
4'–0"MIN. W/O WALERS
5'–0"MIN. W/WALERS
TRENCH BOX OR HYDRAULIC SHORING:
W = D+2'+ [WALL SHIELD WIDTH ± 8"] + 1' FOR TRENCH BOX

BWSC #B-09
TRENCH DETAIL FOR P.V.C. PIPE
(NOT TO SCALE)

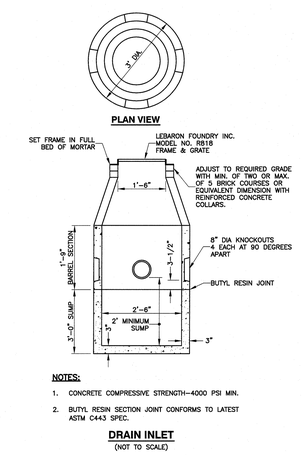


W = MAXIMUM TRENCH WIDTH
PW = MAXIMUM PAVING WIDTH = W+1'–0"
D = OUTSIDE DIAMETER
UNSHEATHED TRENCH: W = D+2'(3'–0" MIN.)
SHEATHED TRENCH: W = D+2'+SHEATHING WIDTH:
4'–2"MIN. W/O WALERS
5'–0" MIN. W/WALERS
TRENCH BOX OR HYDRAULIC SHORING:
W = D+2' + [WALL SHIELD WIDTH≤ 8'] + 1' FOR TRENCH BOX

BWSC #B-08
TRENCH DETAIL FOR RCP OR DICL PIPE
(NOT TO SCALE)

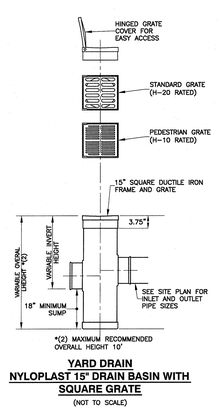


CLEANOUT
(NOT TO SCALE)



NOTES:
1. CONCRETE COMPRESSIVE STRENGTH–4000 PSI MIN.
2. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.

DRAIN INLET
(NOT TO SCALE)



*(2) MAXIMUM RECOMMENDED OVERALL HEIGHT 10'

YARD DRAIN
NYLOPLAST 15" DRAIN BASIN WITH SQUARE GRATE
(NOT TO SCALE)

RESERVED FOR BWSC USE

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:
H.W. Moore ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-6145 fax: 617-357-9495 web: hwmoore.com

PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. WHITE CIVIL No. 32146
REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

Drawing Title

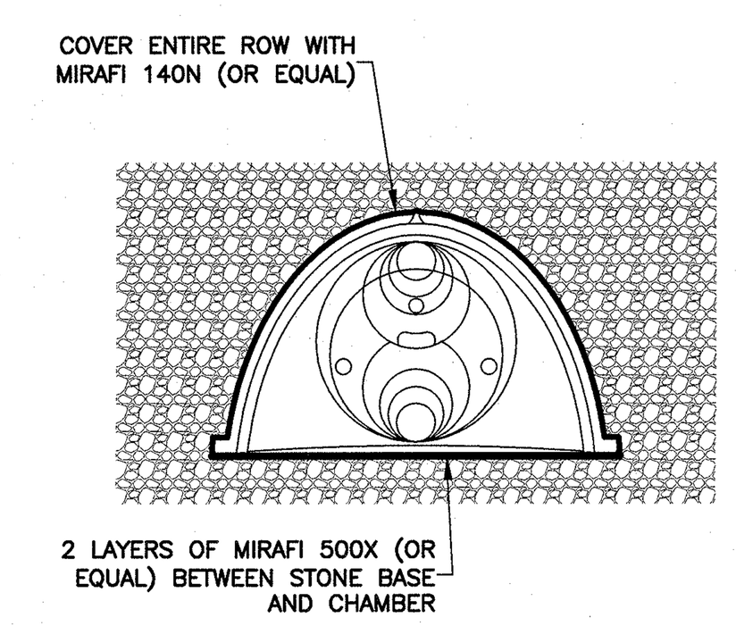
SITE DETAILS PLAN
BWSC #

Project No.	13010
Drawn By	
Date	27 JUNE 2017
Scale	AS NOTED

Drawing Number

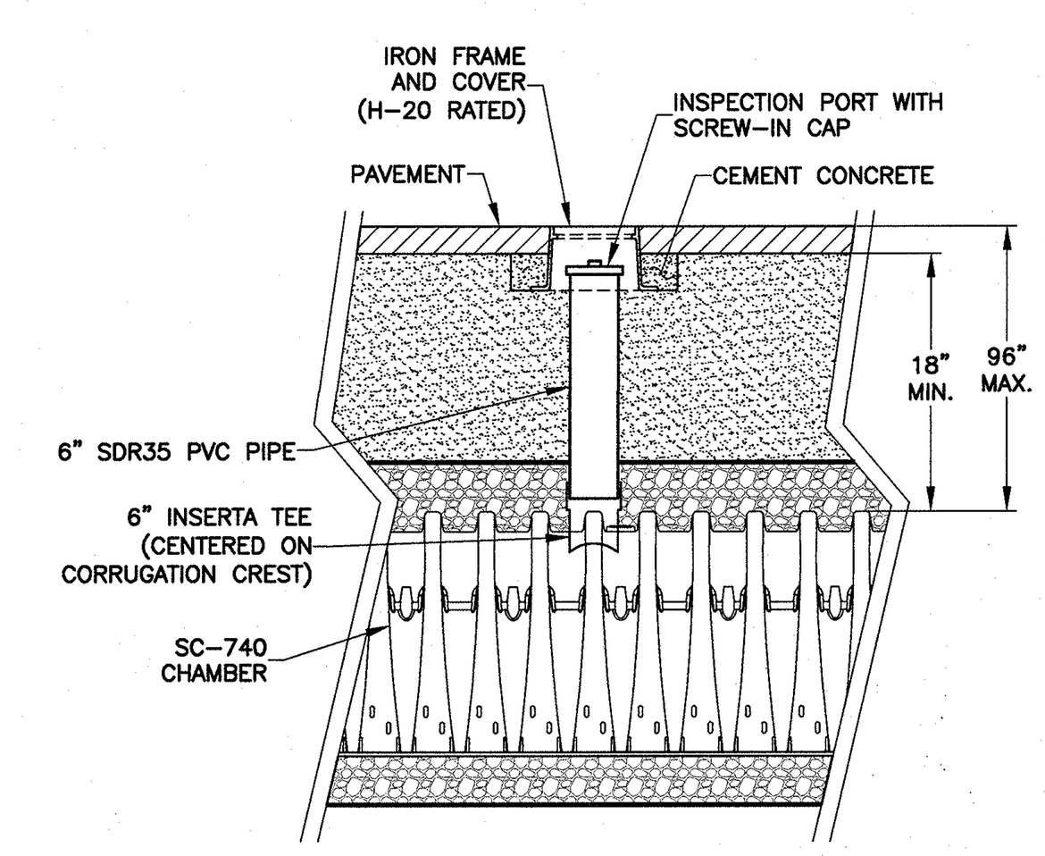
C-4

File Name: C:\490\3490\DETAILS-4.dwg Saved:8/28/2017 3:21 PM Plotted: Aug 28, 2017 3:21:50pm
Tab: C4-SITE DETAILS Pref Style: 11000.ctb Plotted By: John Mitchell



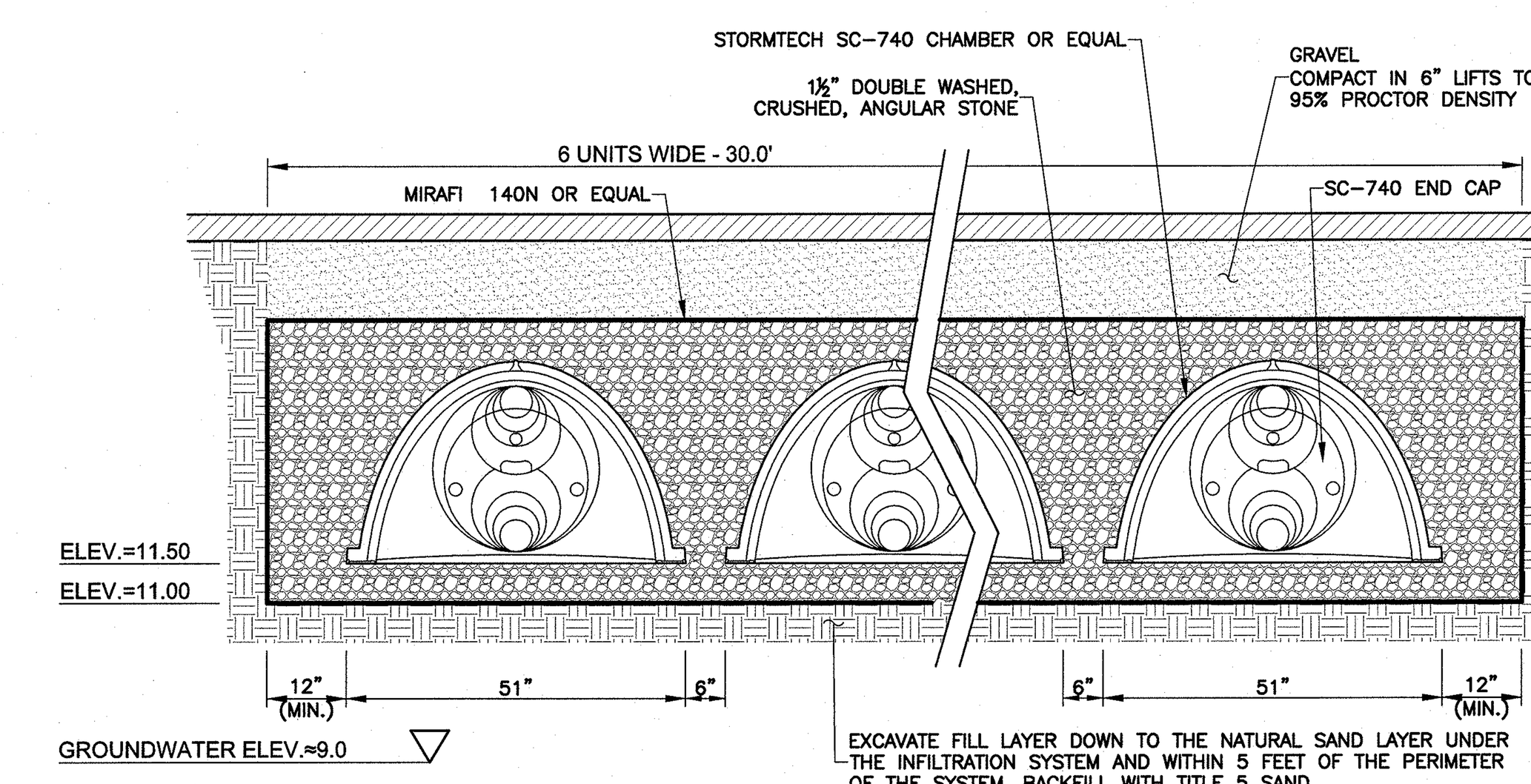
STORMTECH SC-740 ISOLATOR ROW

(NOT TO SCALE)



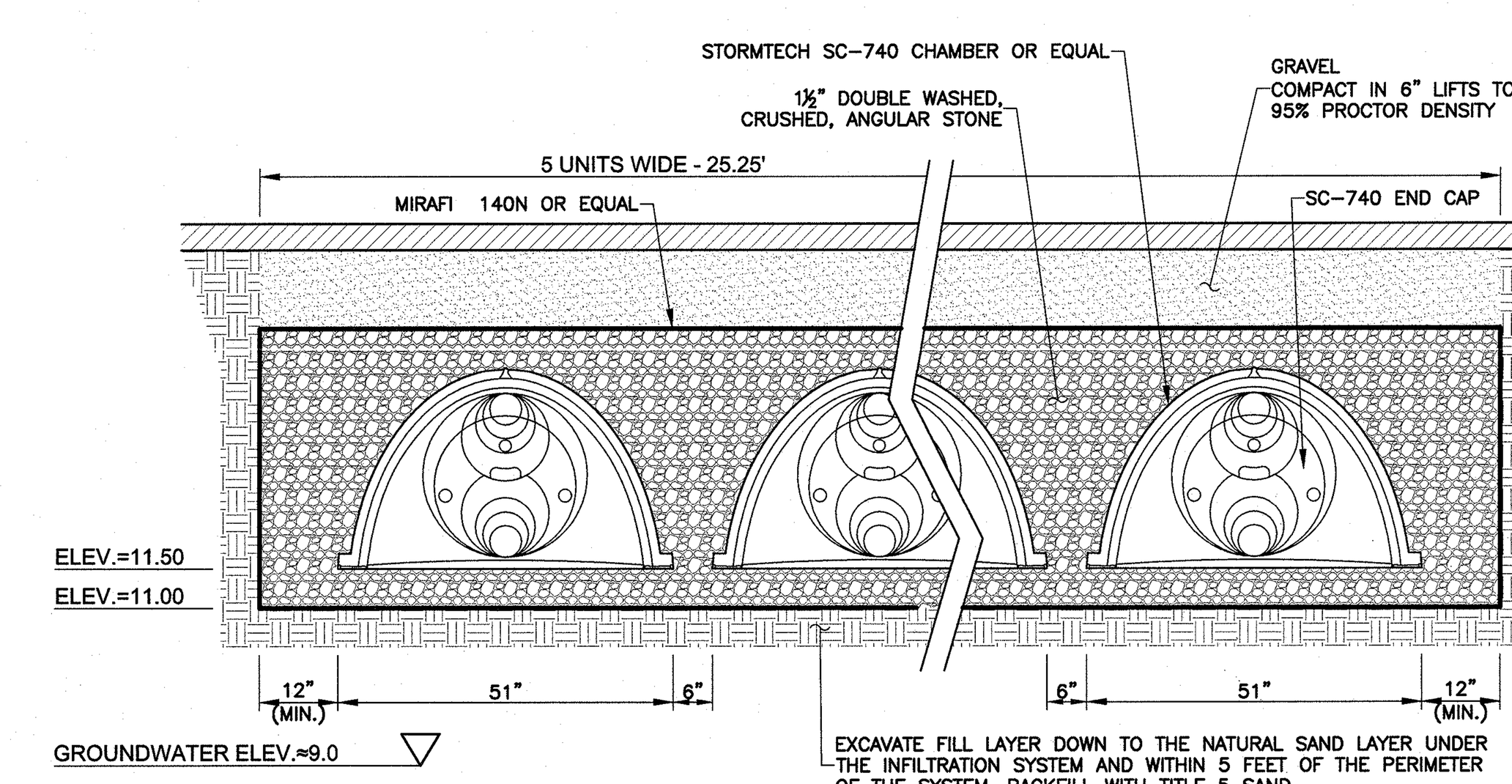
STORMTECH SC-740 INSPECTION PORT DETAIL

(NOT TO SCALE)



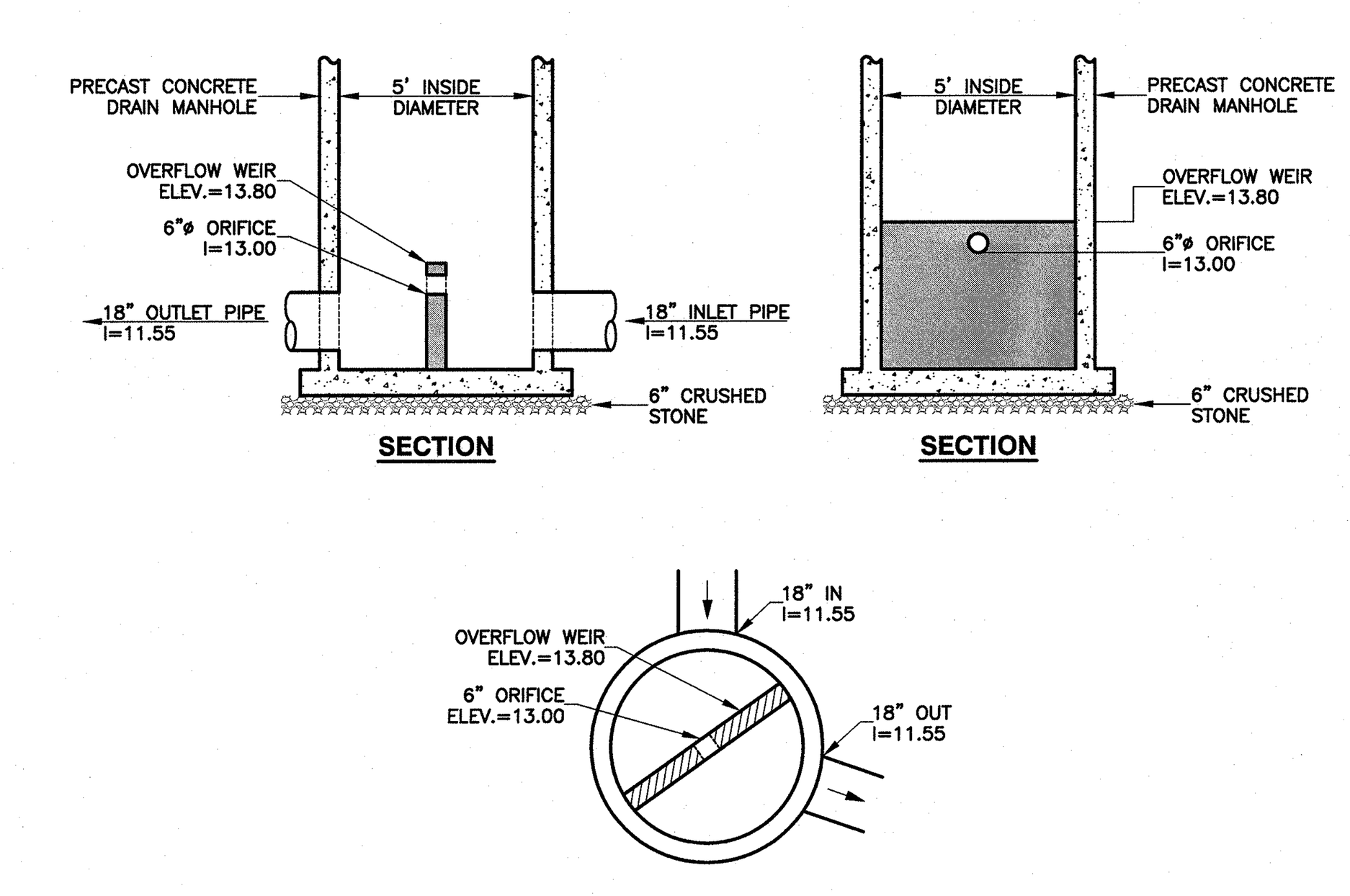
STORMTECH SC-740 STORMWATER INFILTRATION/DETENTION SYSTEM "2"

(NOT TO SCALE)



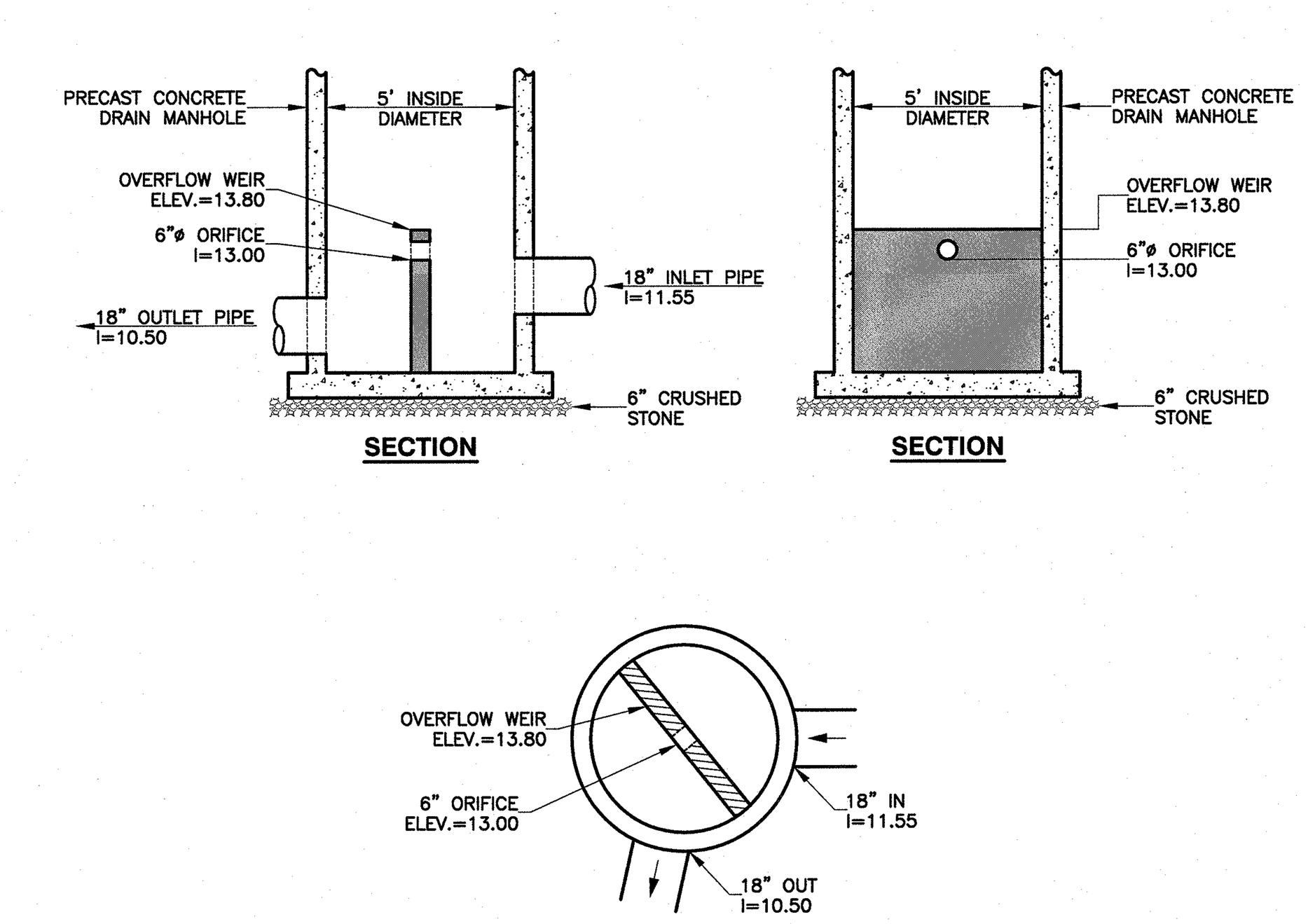
STORMTECH SC-740 STORMWATER INFILTRATION/DETENTION SYSTEM "1"

(NOT TO SCALE)



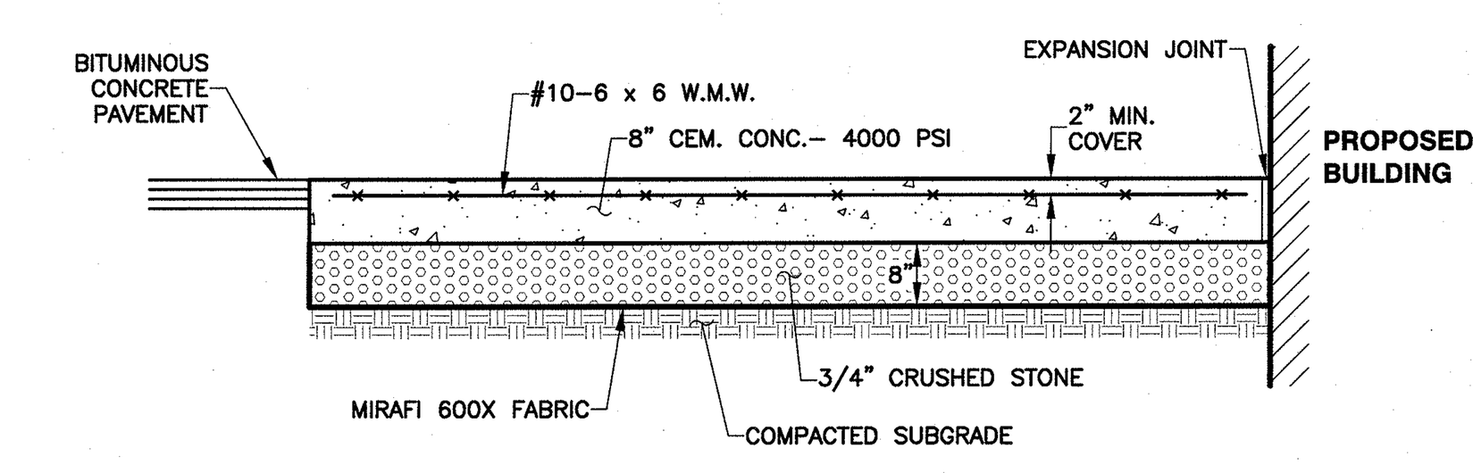
OUTLET CONTROL DMH "B-3"

SCALE: 1" = 4'



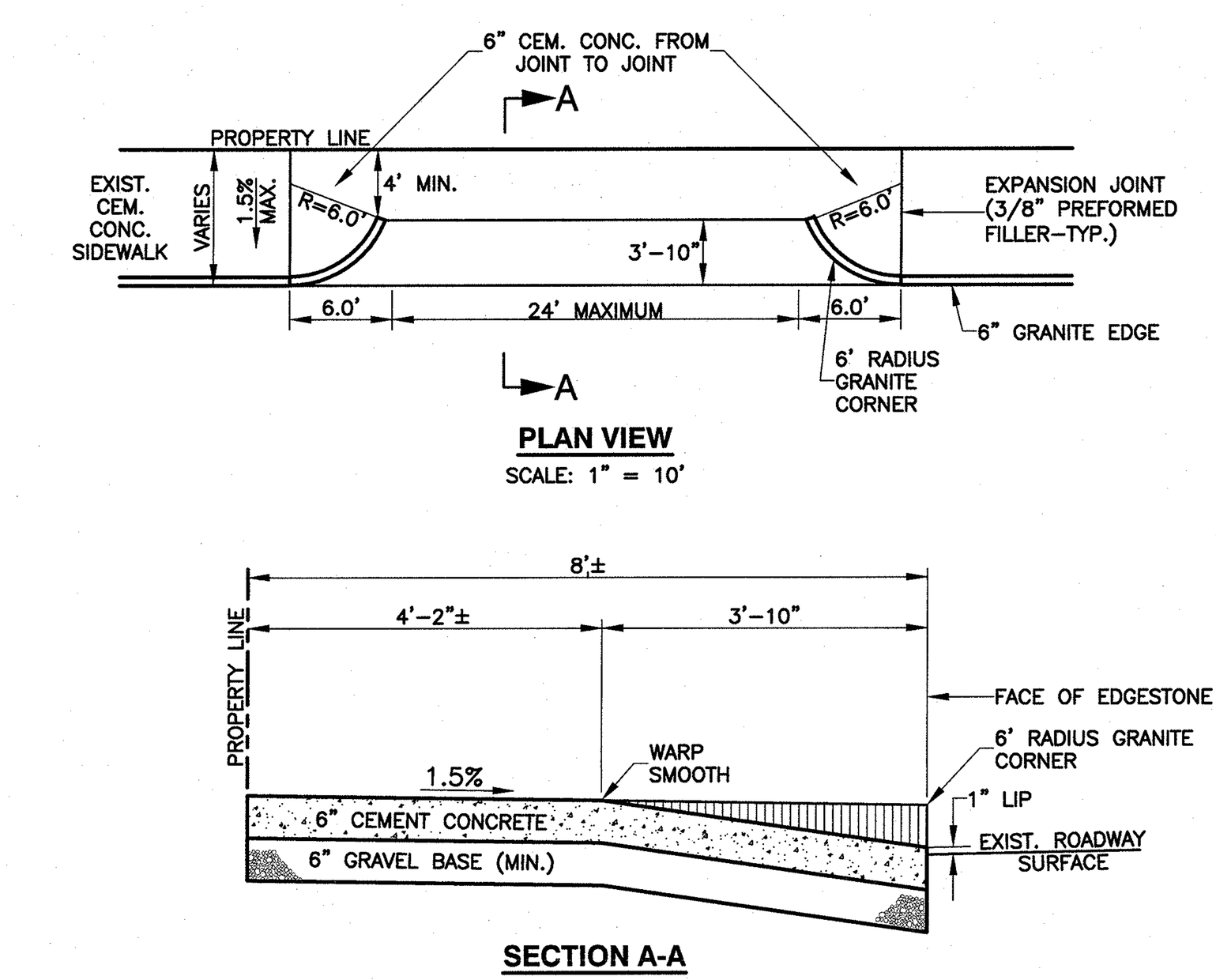
OUTLET CONTROL DMH "A-2"

SCALE: 1" = 4'

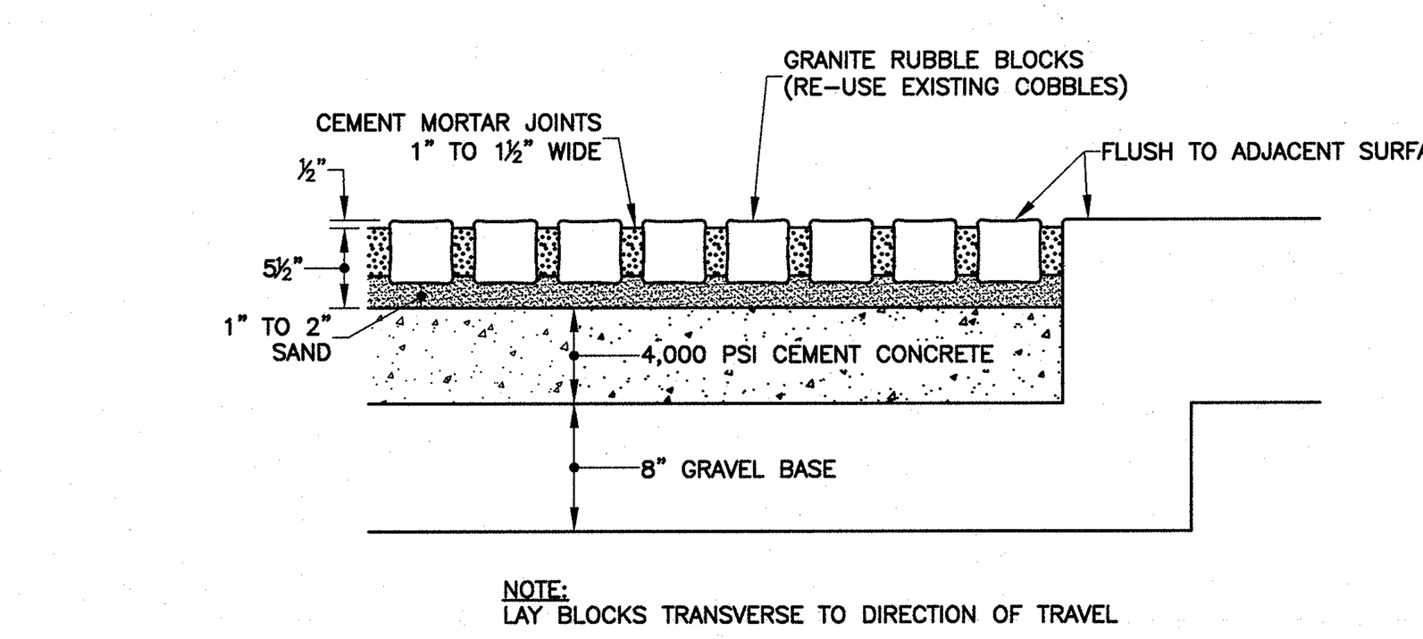


CONCRETE PAVEMENT AT TRUCK LOADING AND DUMPSTER AREA

(NOT TO SCALE)



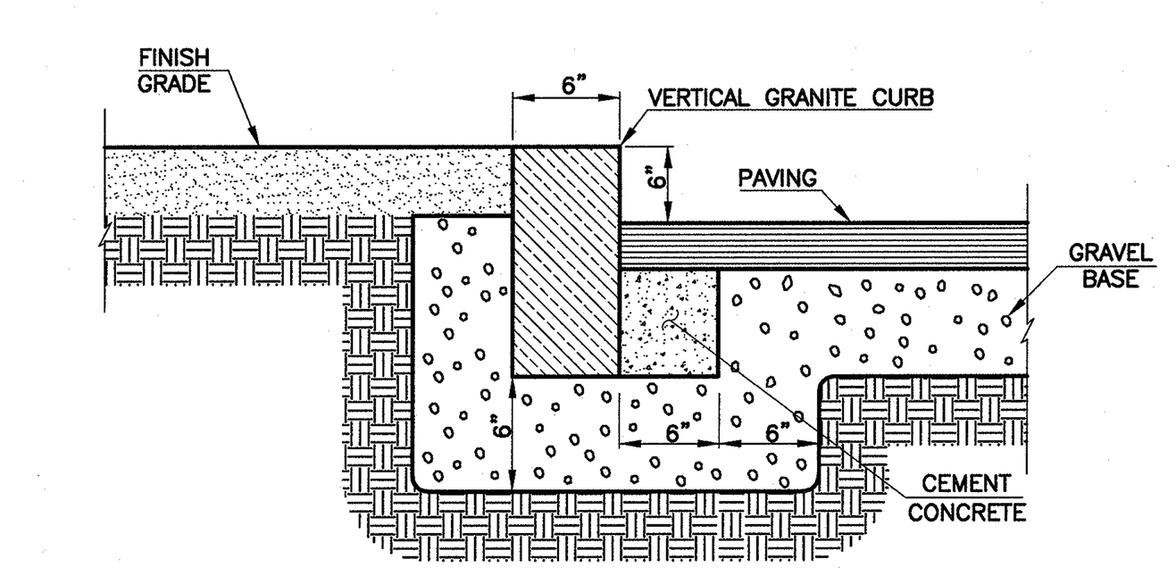
MOUNT VERNON STREET DRIVEWAY DETAIL



GRANITE RUBBLE BLOCK PAVEMENT

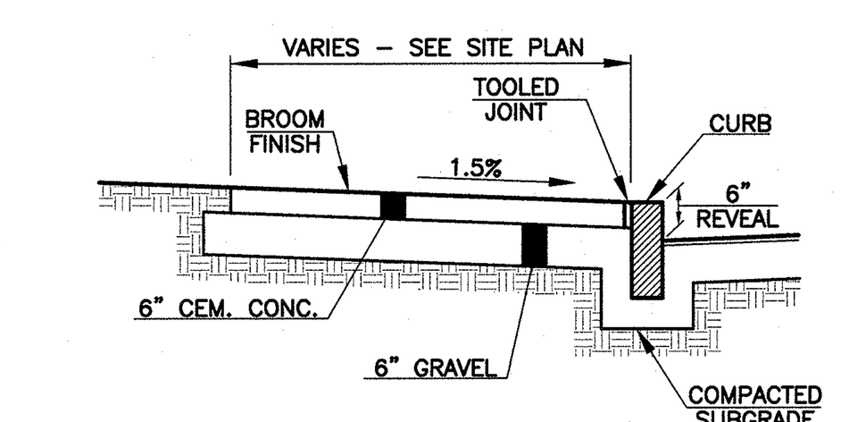
(NOT TO SCALE)

RESERVED FOR BWSC USE



VERTICAL GRANITE CURB SETTING DETAIL

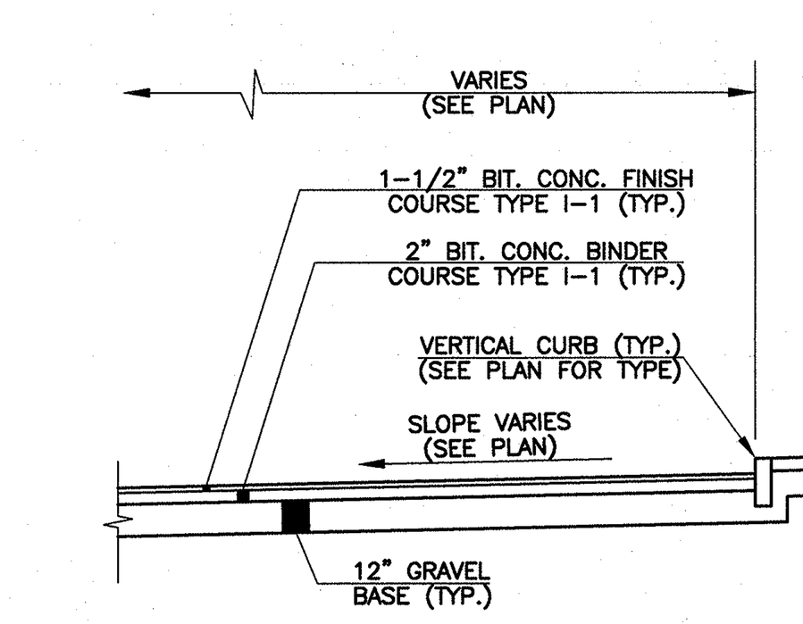
(NOT TO SCALE)



NOTES:
1. CONTROL JOINTS TO BE PROVIDED EVERY 5 FEET.
2. EXPANSION JOINTS TO BE PROVIDED EVERY 30 FEET AND AT ALL POLES AND OTHER STRUCTURES.
3. 6" CURB IS TYPICAL EXCEPT WHERE NOTED ON PLANS.

CONCRETE SIDEWALK

(NOT TO SCALE)



PAVEMENT SECTION

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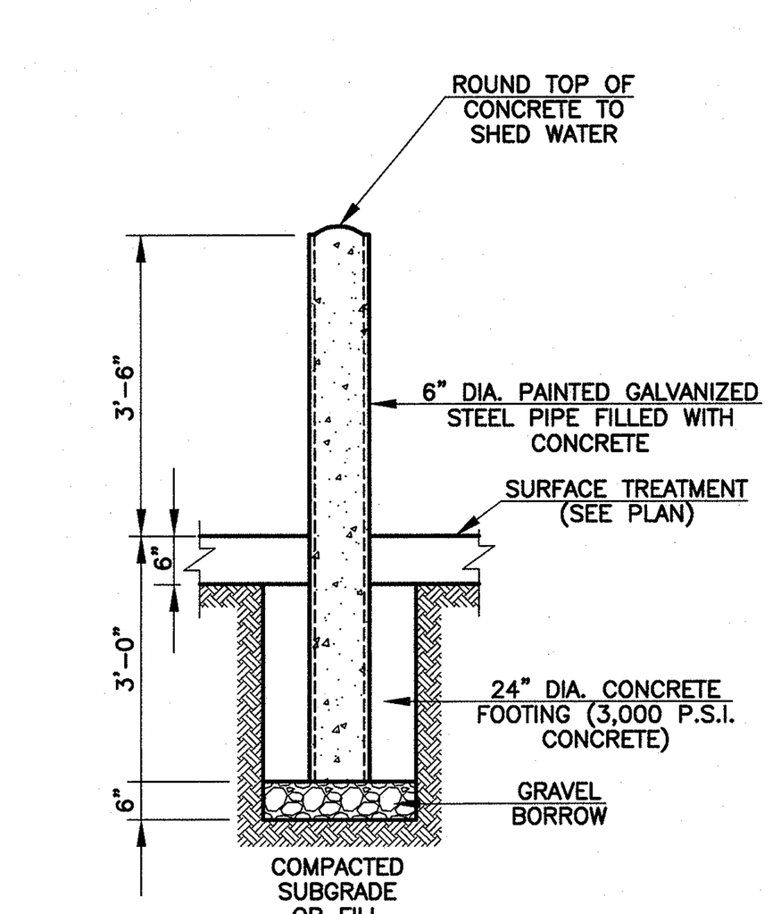


STEEL BOLLARD DETAIL

(NOT TO SCALE)

BTD IDENTIFI-CATION	MUTCD IDENTIFI-CATION	SIZE OF SIGN		TEXT
		WIDTH	HEIGHT	
R-1	R1-1	30"	30"	STOP
T-23	NA	12"	18"	NO STOPPING ANY TIME
R-2	R6-1R	36"	12"	ONLY
R-7	R3-5R	30"	36"	ONE WAY

SIGN SUMMARY

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON
BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:
H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495 web: hwmoore.com

PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:
COMMONWEALTH OF MASSACHUSETTS
JAMES M. WHITE
CIVIL
No. 32146
REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

Drawing Title

SITE DETAILS PLAN
BWSC #

Project No.	13010
Drawn By	
Date	27 JUNE 2017
Scale	AS NOTED

Drawing Number

C-5

3492-DETAILS-4.dwg Saved: 8/28/2017 3:21 PM Plotted: Aug 28, 2017 3:22pm

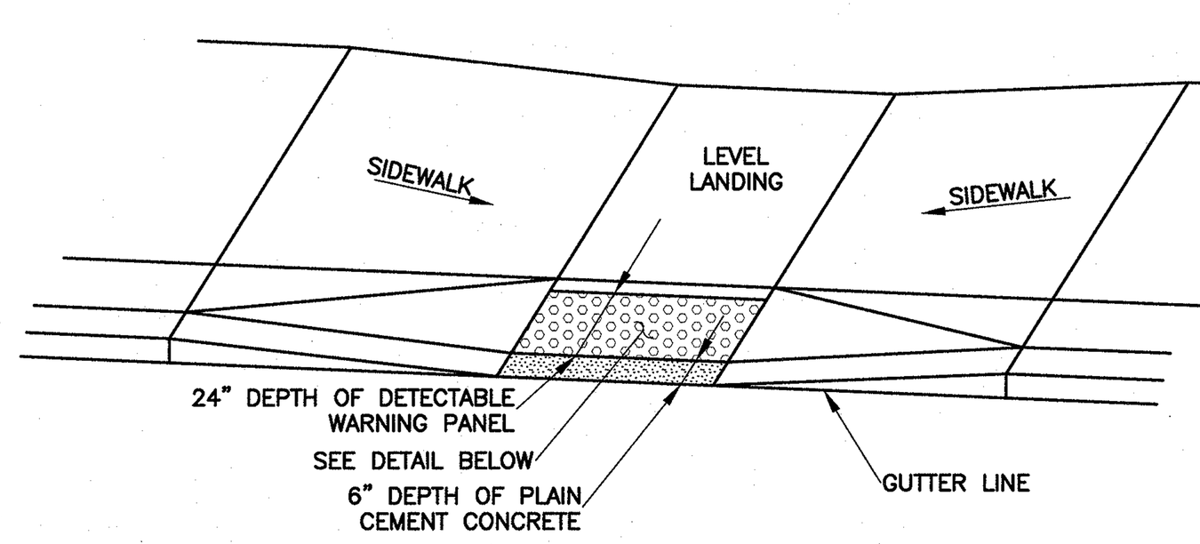
DETECTABLE WARNING APPLICATION NOTES

TRUNCATED DOMES (SEE CMR SECTION 18.4.2a) SHALL BE PLACED ACROSS THE ENTIRE WIDTH OF THE SIDEWALK FOR A DISTANCE OF NOT LESS THAN 2 FEET ALONG THE SIDEWALK, WHENEVER A PUBLIC SIDEWALK CROSSES A RAIL SYSTEM AT GRADE.

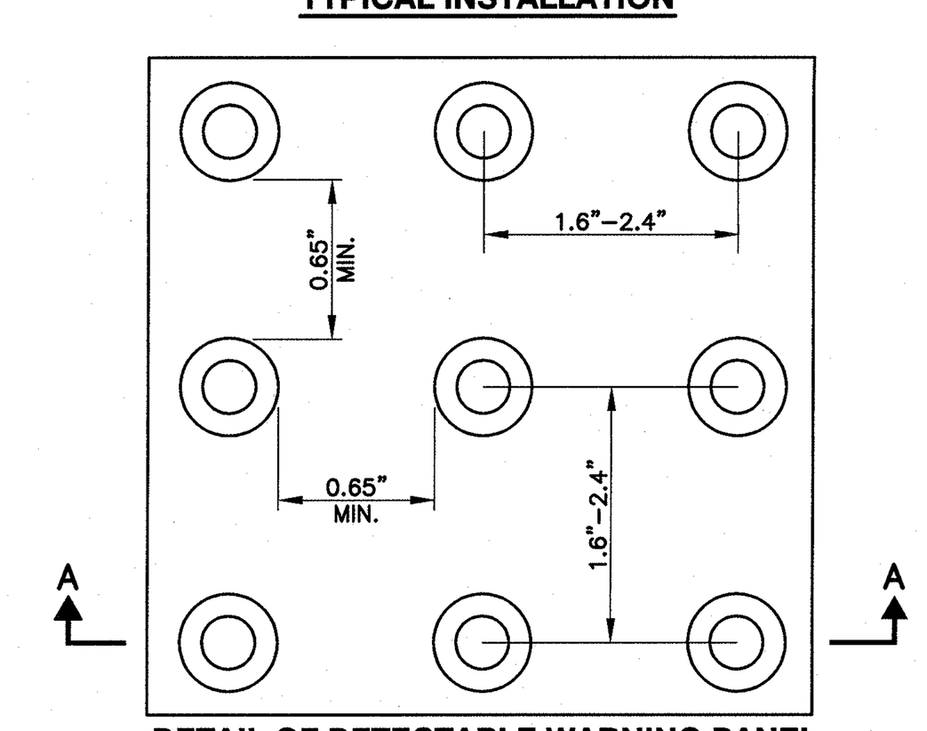
A: AT GRADE CROSSINGS WITH A PEDESTRIAN CONTROL GATE, THE EDGE OF THE 2 FOOT LENGTH OF DETECTABLE WARNING CLOSEST TO THE CONTROL GATE, SHALL BE PLACED PARALLEL TO THE CONTROL GATE AT A DISTANCE OF BETWEEN 4 FEET AND 5 FEET FROM THE GATE IN A DOWN POSITION.

B: AT GRADE CROSSINGS WITHOUT A CONTROL GATE, THE EDGE OF THE 2 FOOT LENGTH OF DETECTABLE WARNING CLOSEST TO THE FIRST RAIL SHALL BE PLACED AT A DISTANCE OF 21 FEET IN ADVANCE OF THE FIRST RAIL CROSSING THE PATH OF TRAVEL.

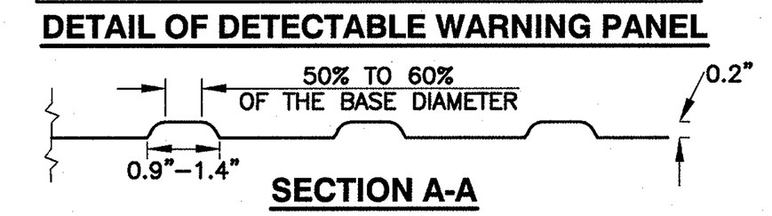
C: MHD MATERIAL SPECIFICATION (TO BE WRITTEN).



TYPICAL INSTALLATION



DETAIL OF DETECTABLE WARNING PANEL

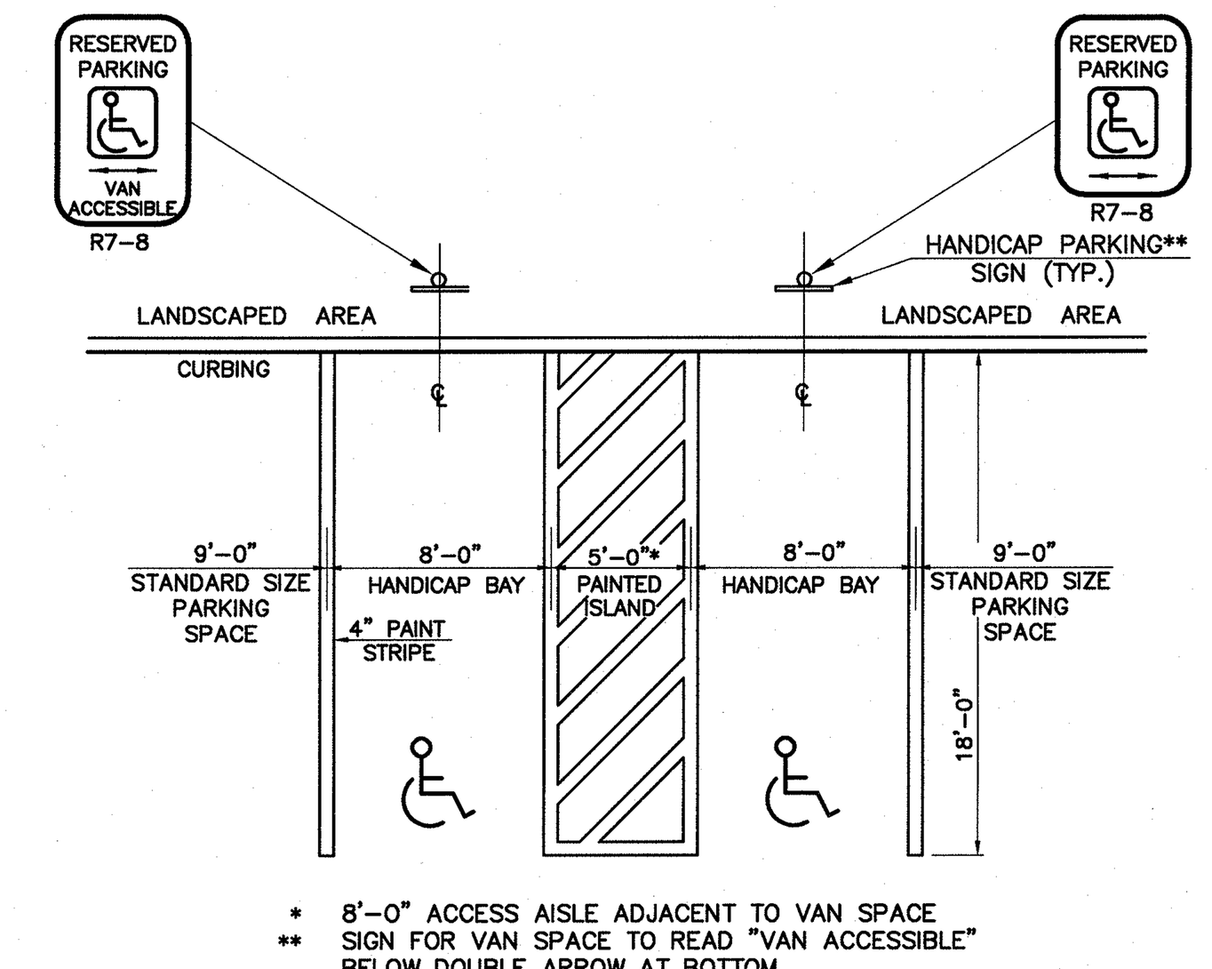


SECTION A-A

NOTE:
PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS

(NOT TO SCALE)

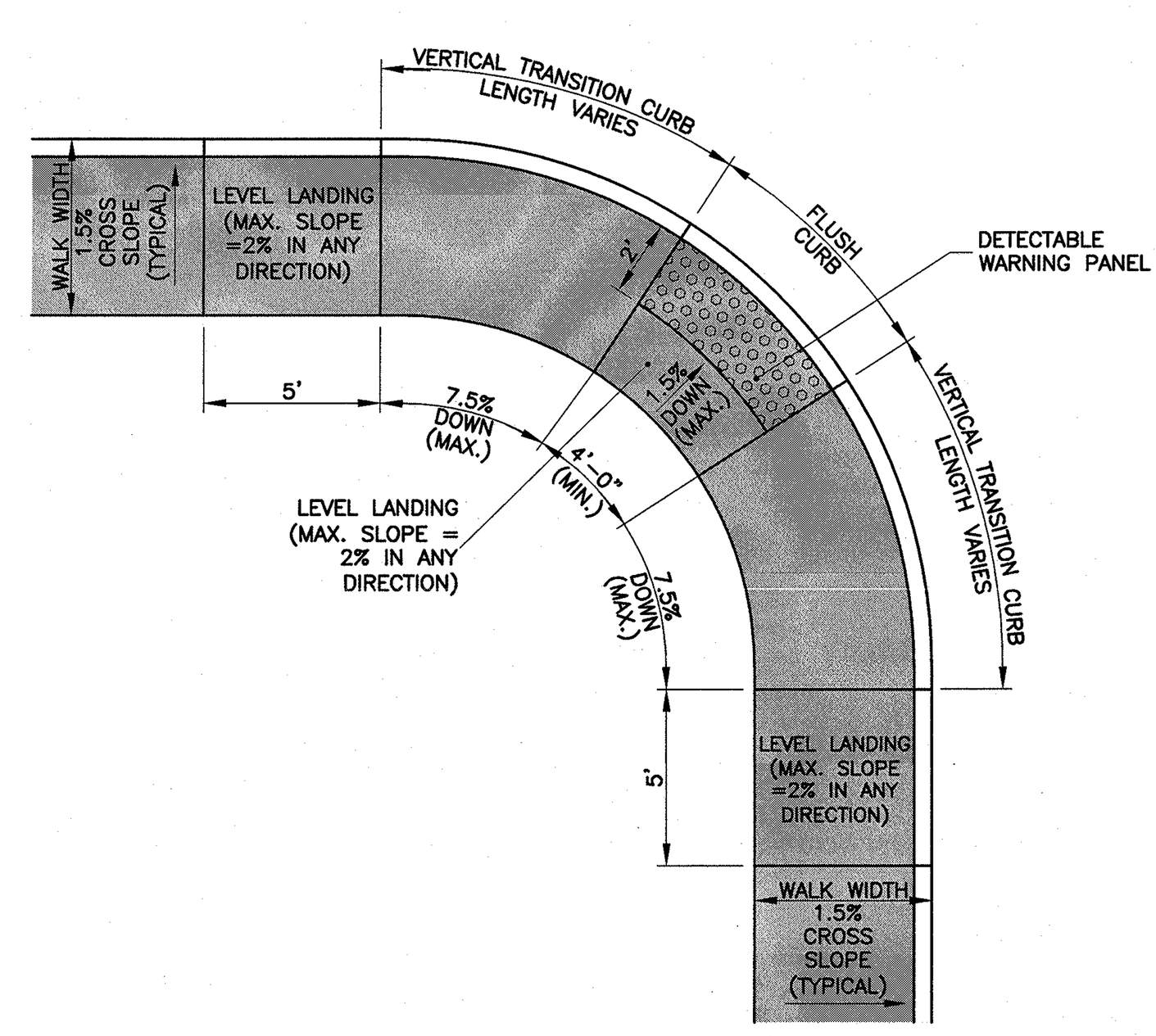


* 8'-0" ACCESS AISLE ADJACENT TO VAN SPACE
** SIGN FOR VAN SPACE TO READ "VAN ACCESSIBLE" BELOW DOUBLE ARROW AT BOTTOM.
NOTE: R7-8 SIGNS SHALL BE MOUNTED AT A HEIGHT OF NO LESS THAN 5 FEET AND NOT MORE THAN 8 FEET TO THE TOP OF THE SIGN.

ADA REQUIREMENTS:
1. WALKS SHALL NOT EXCEED 5% SLOPE.
2. WALKS CROSS SLOPE SHALL NOT EXCEED 2%.
3. SLOPE AT HANDICAP PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.

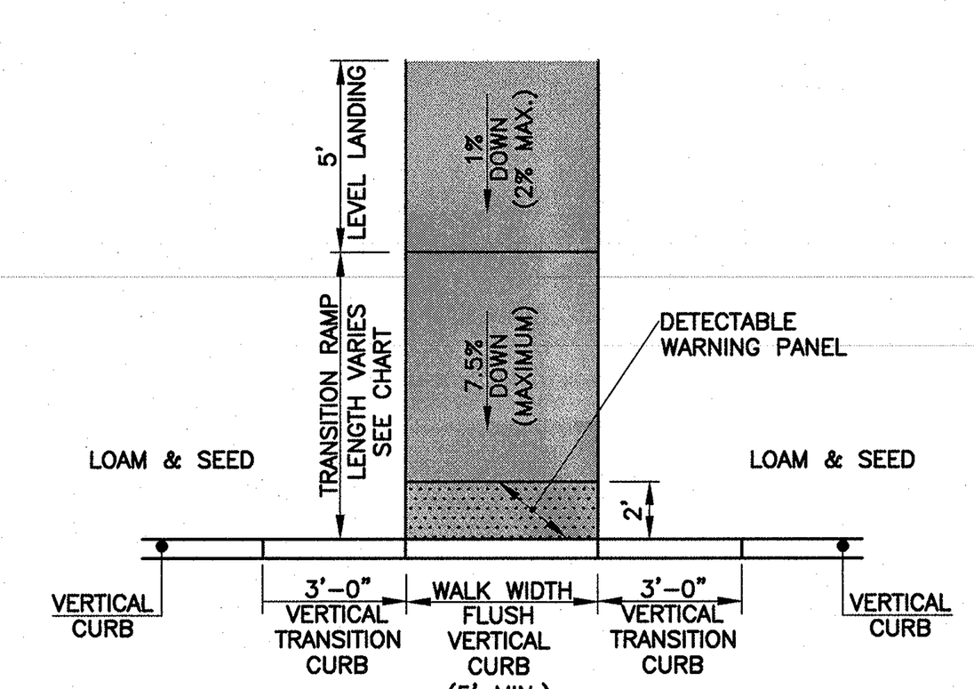
LAYOUT PLAN
TYPICAL HANDICAP PARKING

(NOT TO SCALE)



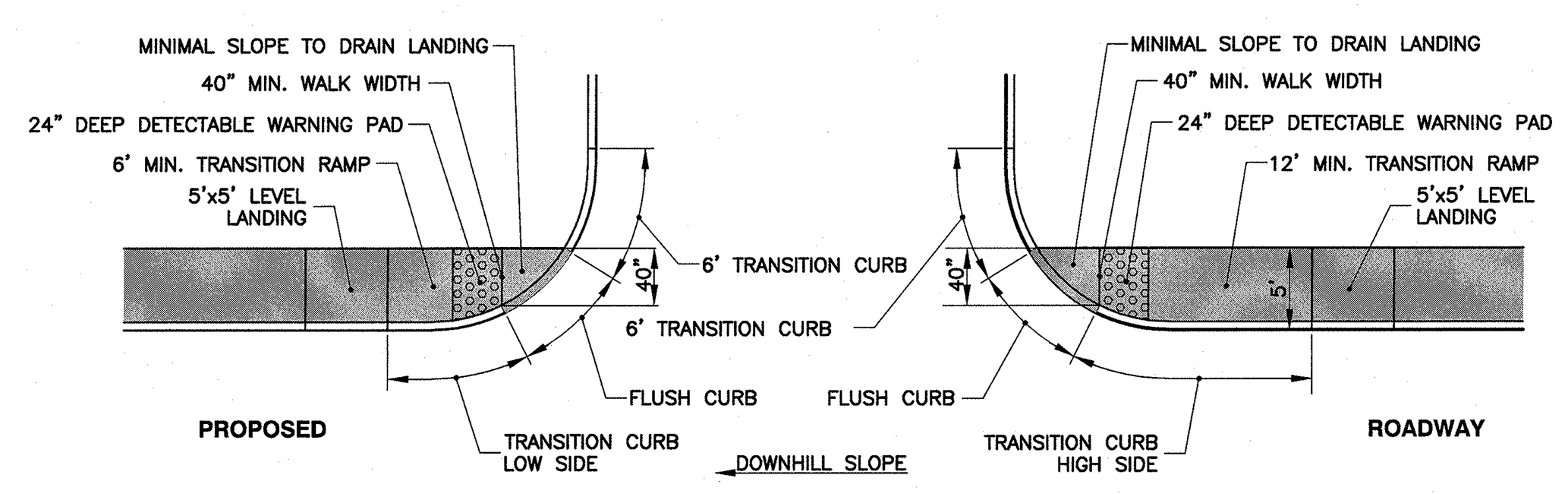
WHEELCHAIR CURB CUT DETAIL "B"

(NOT TO SCALE)



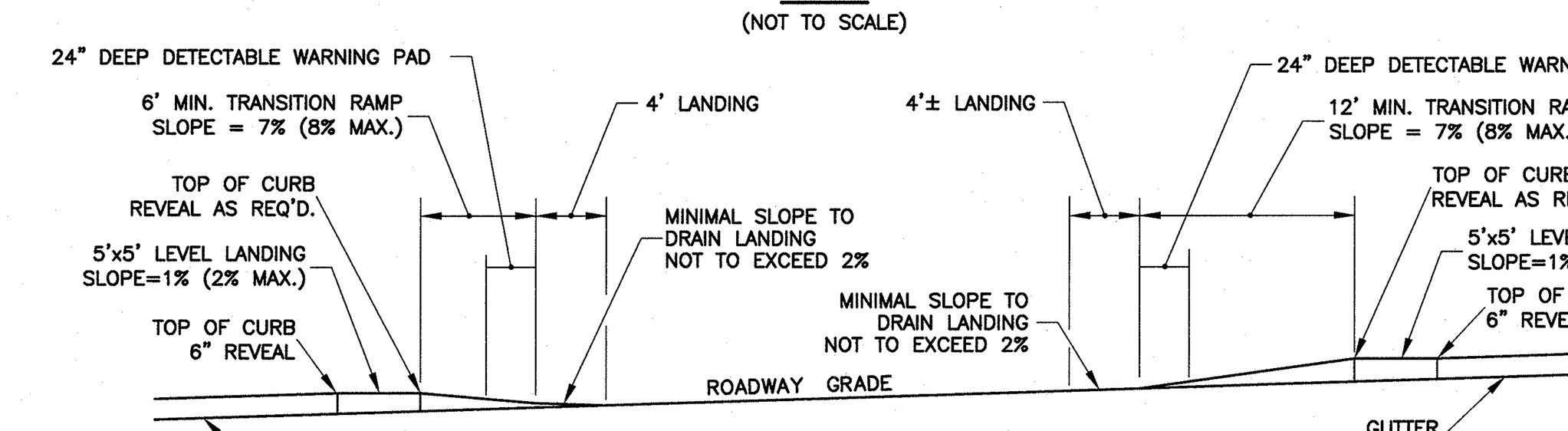
WHEELCHAIR CURB CUT TYPE "C"

(NOT TO SCALE)

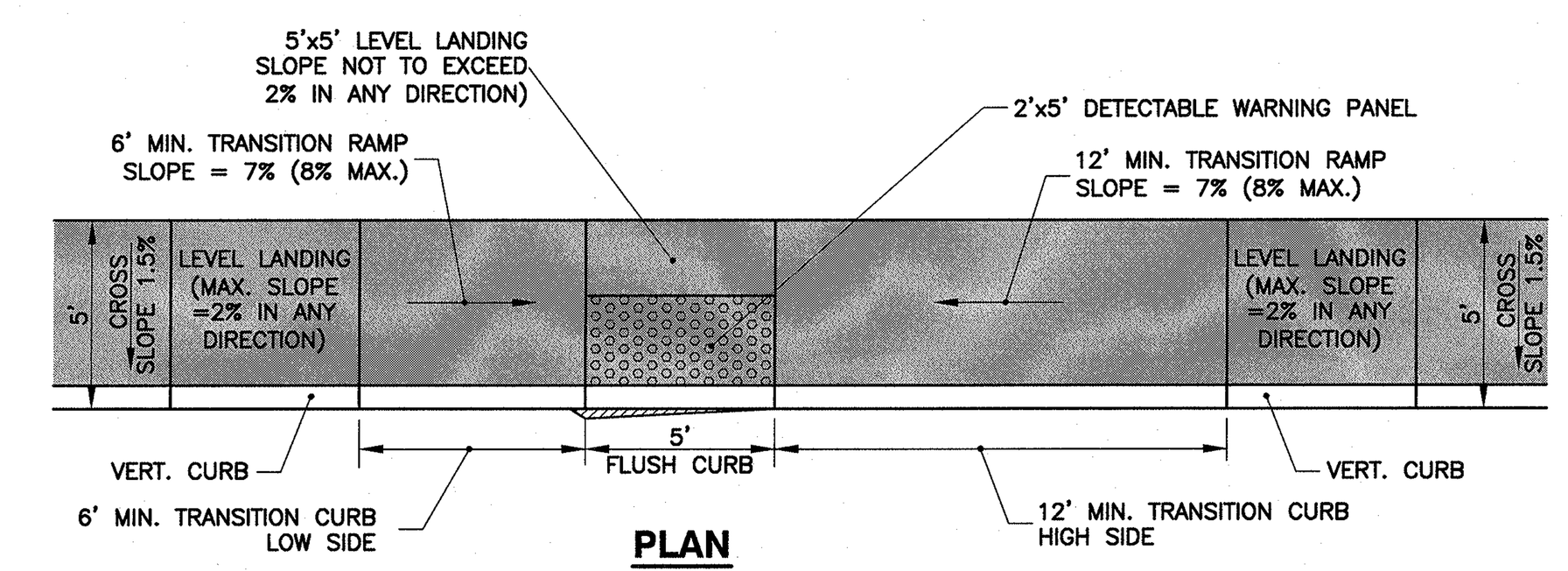


PLAN

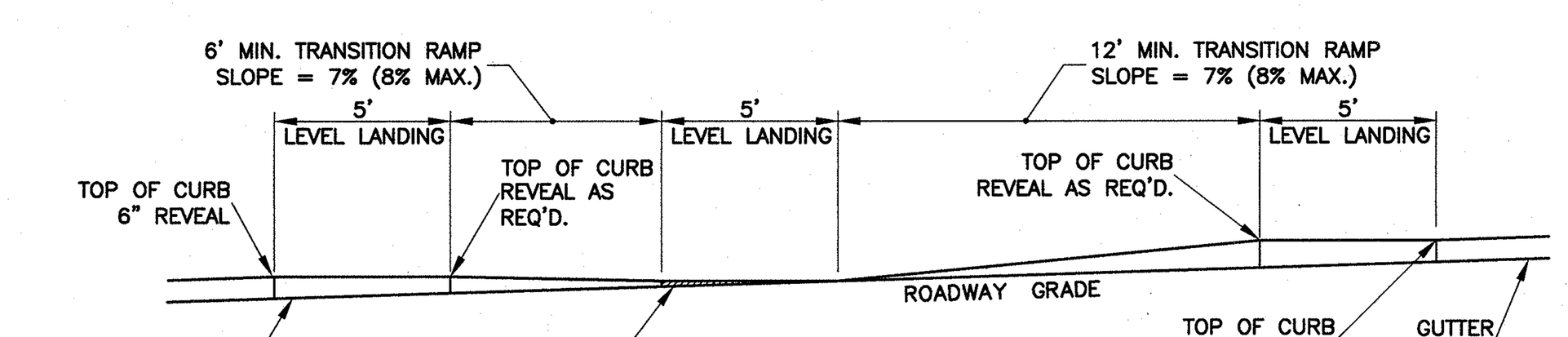
(NOT TO SCALE)



SECTION
WHEELCHAIR CURB CUT TYPE "E"

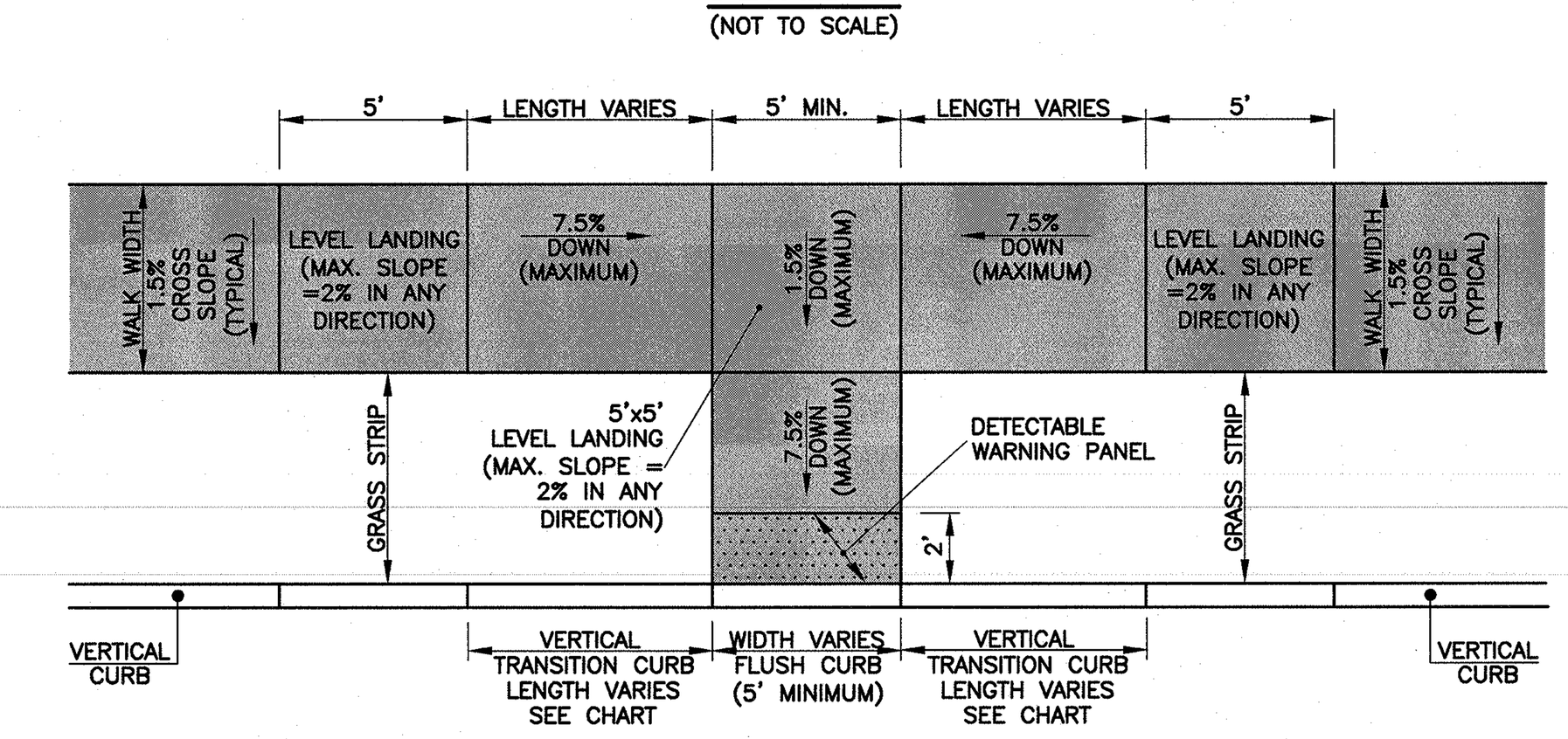


PLAN



SECTION
WHEELCHAIR CURB CUT DETAIL "A"

(NOT TO SCALE)



WHEELCHAIR CURB CUT TYPE "D"

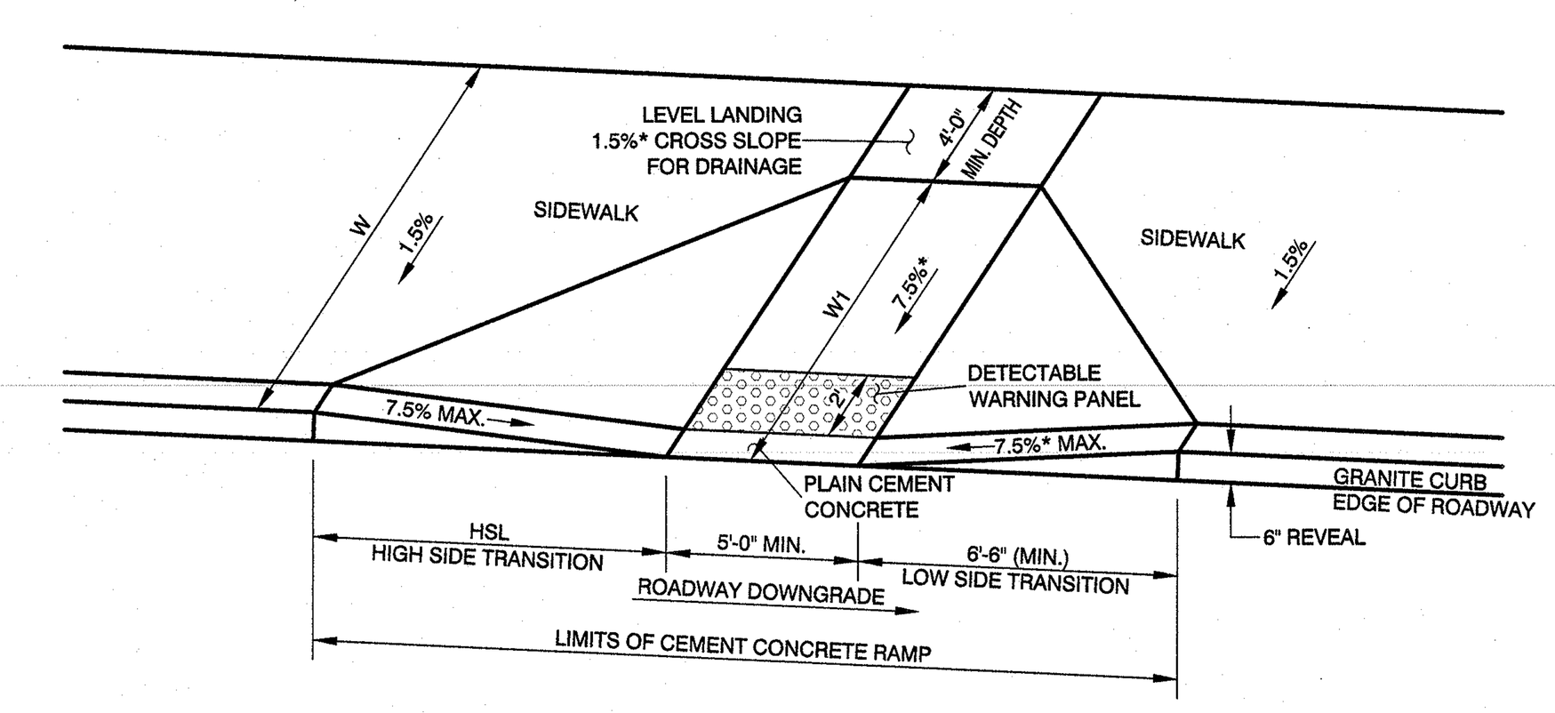
(NOT TO SCALE)

ROADWAY PROFILE GRADE	*HIGH SIDE TRANSITION LENGTH ROUNDED TO THE NEAREST 4"
%	LENGTH
0	6'-6"
>0 to 1	7'-8"
>1 to 2	9'-0"
>2 to 3	11'-0"
>3 to 4	14'-0"
>4	15'-0" Max.

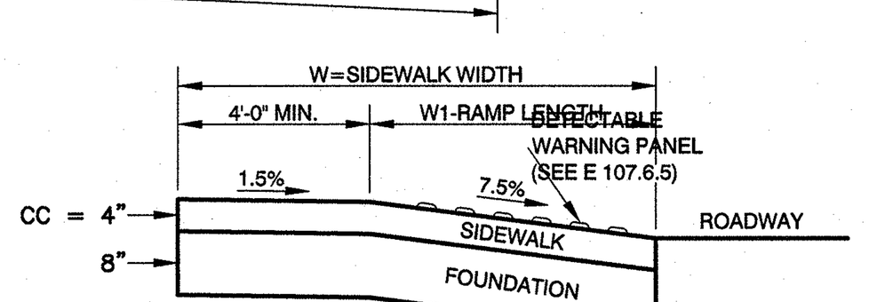
NOTE:
*BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6"

LEGEND
HSL = HIGH SIDE TRANSITION LENGTH (SEE M/E 107.9.0)
W = SIDEWALK WIDTH
W_1 = PERPENDICULAR RAMP LENGTH
Wc = CURB WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
USABLE SIDEWALK WIDTH PER AAB = W–Wc
RAMP LENGTH, W1 = W–4.0' MIN.

CURB TRANSITION LENGTHS FOR WHEELCHAIR CURB CUT RAMPS



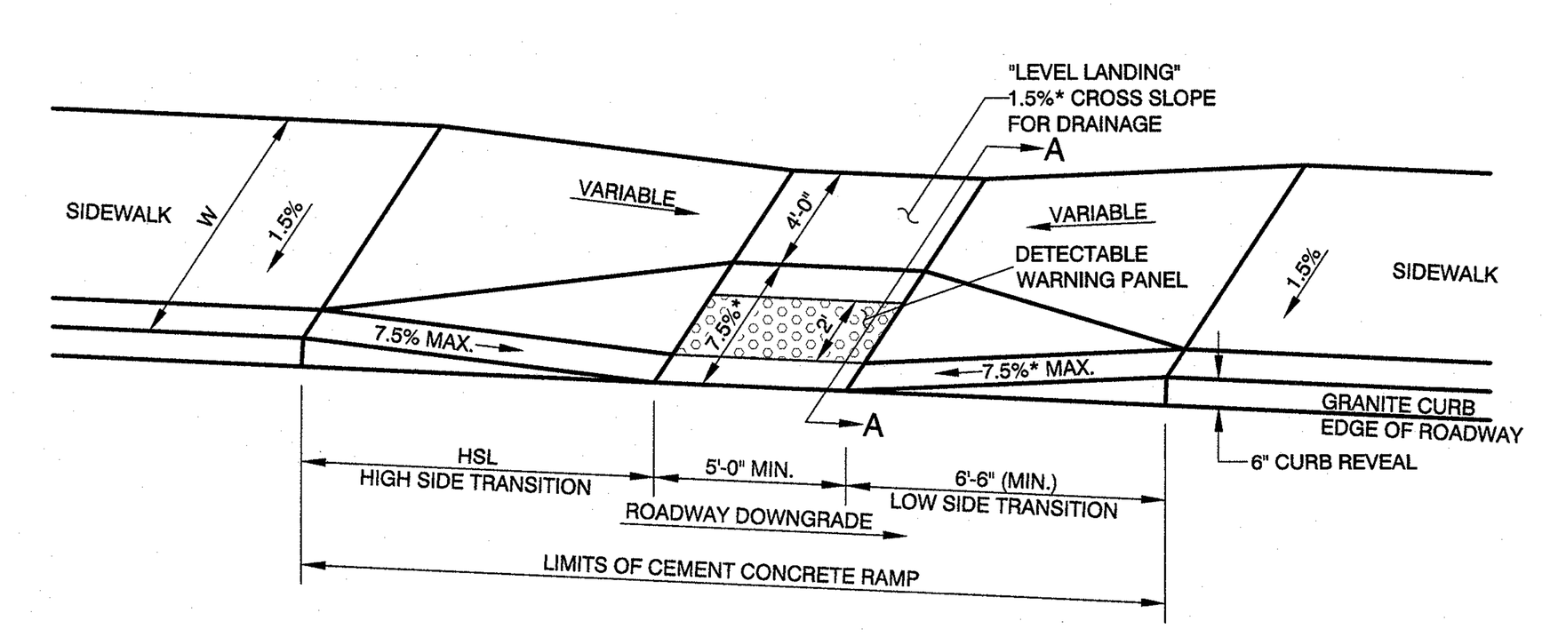
LEGEND
HSL = HIGH SIDE TRANSITION
W = SIDEWALK WIDTH
W_1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%
USABLE SIDEWALK WIDTH PER AAB = W-Wc
RAMP LENGTH, W_1 = W-4'-0" MIN.



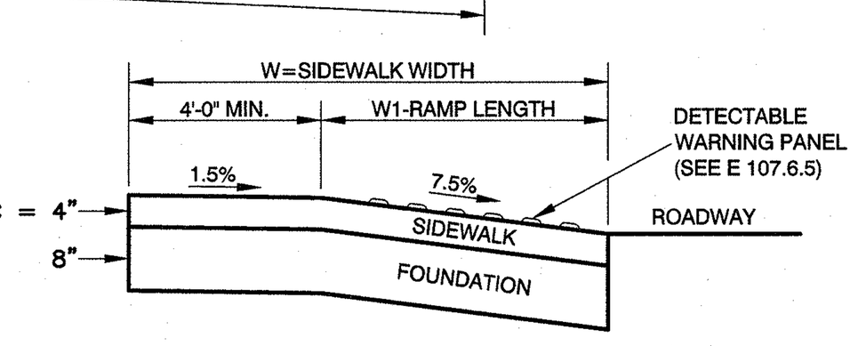
SECTION A-A

WHEELCHAIR CURB CUT
GREATER THAN 12'-4" SIDEWALK

(NOT TO SCALE)



LEGEND
HSL = HIGH SIDE TRANSITION
W = SIDEWALK WIDTH
W_1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%
USABLE SIDEWALK WIDTH PER AAB = W-Wc
RAMP LENGTH, W_1 = W-4'-0" MIN.



SECTION A-A

WHEELCHAIR CURB CUT
LESS THAN 12'-4" SIDEWALK

(NOT TO SCALE)

ACCESSIBILITY NOTES

GENERAL NOTES:

1. SPECIAL ATTENTION SHALL BE GIVEN TO COMPLIANCE WITH THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB) RULES AND REGULATIONS AND THE AMERICANS DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN (ADAAG).

2. IT IS ESSENTIAL THAT CONTRACTORS BE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS. THESE NOTES AND DETAILS ARE INTENDED TO ASSURE THAT CONTRACTORS ARE AWARE OF THE REQUIREMENTS AT THE TIME WHEN THEY ARE BIDDING THE PROJECT. IF SLOPES / GRADES AND DIMENSIONS ARE NOT ACHIEVABLE, THE CONTRACTOR IS REQUIRED TO CONTACT THE OWNER IMMEDIATELY, BEFORE MOVING FORWARD WITH THE WORK.

3. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND CIVIL ENGINEER IMMEDIATELY OF ANY CONFLICT BETWEEN THESE NOTES AND DETAILS AND OTHER PROJECT DRAWINGS, WHETHER BY H.W. MOORE ASSOCIATES OR OTHERS. THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK FOR WHICH THE ALLEGED CONFLICT HAS BEEN DISCOVERED UNTIL SUCH ALLEGED CONFLICT HAS BEEN RESOLVED. NO CLAIM SHALL BE MADE BY THE CONTRACTOR FOR DELAY DAMAGES AS A RESULT OF RESOLUTION OF ANY SUCH CONFLICT(S).

4. AAB REGULATIONS DO NOT ALLOW ANY TOLERANCE ON SLOPE REQUIREMENTS AND THE MAXIMUM SLOPES LISTED BELOW CAN NOT BE EXCEEDED.

5. IT IS RECOMMENDED THAT THE CONTRACTOR USE A 2-FOOT DIGITAL LEVEL TO VERIFY SLOPES PRIOR TO PLACING THE FINSHED SURFACE. IT IS FURTHER RECOMMENDED THAT FORMS BE CHECKED PRIOR TO PLACING CONCRETE OR ASPAHLT.

6. THESE ACCESSIBILITY NOTES AND DETAILS ARE INTENDED TO DEPICT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY. REFER TO SIDEWALK, CURBING, AND PAVEMENT DETAILS FOR ADDITIONAL INFORMATION.

ACCESSIBLE ROUTE NOTES:

1. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES; PUBLIC STREETS OR SIDEWALKS; AND PUBLIC TRANSPORTATION STOPS TO THE ACCESSIBLE BUILDING OR FACILITY THEY SERVE.

2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS, AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.

3. DIRECTIONAL SIGNAGE INDICATING THE ROUTE TO THE NEAREST ACCESSIBLE BUILDING ENTRANCE SHALL BE PROVIDED AT INACCESSIBLE BUILDING ENTRANCES.

4. TRANSITIONS BETWEEN RAMPS, WALKS, LANDINGS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (1/4 INCH MAXIMUM VERTICAL CHANGE).

WALKWAYS:

1. WIDTH OF WALKWAYS SHALL NOT BE LESS THAN 48 INCHES, EXCLUDING CURB STONES.

2. WALKWAYS SHALL PROVIDE A MINIMUM OF 36 INCHES CLEAR, UNOBSTRUCTED PATH OF TRAVEL PAST ALL OBSTRUCTIONS. (I.E. UTILITY POLES, SIGNS, FIRE HYDRANTS, ETC.)

3. WALKING SURFACES SHALL HAVE A MAXIMUM RUNNING SLOPE OF 5.0% AND A MAXIMUM CROSS SLOPE OF 2.0%.

4. AT THE INTERSECTION OF TWO SIDEWALKS, THERE SHALL BE A LEVEL LANDING WITH NO SLOPE GREATER THAN 2% IN ANY DIRECTION.

5. ANY WALKING SURFACE WITH A RUNNING SLOPE GREATER THAN 5.0% IS CONSIDERED A RAMP AND SHALL COMPLY WITH THE GUIDELINES FOR RAMPS OR CURB CUT RAMPS.

6. ACCESSIBLE ROUTE SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.

7. IF CATCH BASINS OR OTHER GRATINGS ARE LOCATED WITHIN A ACCESSIBLE ROUTE, THEN AN ADA GRATE SHALL BE USED WITH SPACES NO GREATER THAN ½ INCH WIDE IN THE DIRECTION OF TRAVEL.

RAMPS:

1. ANY PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5% SHALL BE CONSIDERED A RAMP OR A CURB CUT RAMP.

2. THE MAXIMUM RUNNING SLOPE FOR A RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.

3. THE CLEAR WIDTH OF A RAMP SHALL BE 48 INCHES MINIMUM AS MEASURED BETWEEN THE HANDRAILS.

4. THE MAXIMUM RISE FOR ANY RAMP RUN SHALL BE 30 INCHES.

5. LANDINGS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF RAMPS. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2.0% IN ANY DIRECTION. THE LANDING CLEAR WIDTH SHALL BE AT LEAST AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING. THE LANDING CLEAR LENGTH SHALL BE SIXTY (60) INCHES LONG MINIMUM. RAMPS THAT CHANGE DIRECTION BETWEEN RUNS AT LANDINGS SHALL HAVE A CLEAR LANDING OF SIXTY(60) INCHES BY SIXTY (60) INCHES MINIMUM.

6. EDGE PROTECTION COMPLYING WITH AAB AND ADAAG REQUIREMENTS SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND ON EACH SIDE OF RAMP LANDINGS.

7. WHERE DOORWAYS ARE LOCATED ADJACENT TO A RAMP LANDING, MANEUVERING CLEARANCES REQUIRED BY 521 CMR FIGURES 26d AND 26e SHALL BE COMPLIED WITH.

CURB CUT RAMPS:

1. CURB CUT RAMPS ARE REQUIRED AT THE CORNER OF EACH INTERSECTION AND WHERE A PEDESTRIAN PATH OF TRAVEL CROSSES A ROAD, DRIVEWAY OR OTHER VEHICULAR WAY.

2. THE MAXIMUM RUNNING SLOPE OF A CURB CUT RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.

3. CURB CUT RAMPS MAY EXTEND UP TO 15 FEET IN LENGTH.

4. MAXIMUM SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB CUT RAMP SHALL NOT BE STEEPER THAN 5%. THE ADJACENT SURFACES AT TRANSITIONS AT CURB CUT RAMPS TO WALKS, GUTTERS AND STREETS SHALL BE AT THE SAME LEVEL.

5. THE MINIMUM CLEAR WIDTH OF A CURB CUT RAMP SHALL BE 36 INCHES, EXCLUSIVE OF FLARED SIDES, IF PROVIDED.

6. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB CUT RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE 48 INCHES MINIMUM. THE CLEAR WIDTH OF THE LANDING SHALL BE AT LEAST AS WIDE AS THE CURB CUT RAMP, EXCLUDING FLARED SIDES, LEADING TO THE LANDING. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2% IN ANY DIRECTION.

ACCESSIBILITY NOTES (CONT.)

CURB CUT RAMPS (CONT.):

7. IF A CURB CUT RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES.

8. WHERE PROVIDED, CURB CUT RAMP FLARES SHALL NOT EXCEED 10%. IF THE CLEAR LENGTH OF THE LANDING IS LESS THAN FORTY-EIGHT (48) INCHES THAN THE SLOPE OF THE FLARED SIDES SHALL NOT EXCEED 8.33%.

9. CURB CUT RAMPS AND THE FLARED SIDES OF CURB CUT RAMPS SHALL BE LOCATED SO THAT THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES, PARKING SPACES OR PARKING ACCESS AISLES. CURBS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.

10. CURB CUT RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.

11. CURB CUT RAMPS SHALL HAVE A TWENTY-FOUR (24) INCH DEEP DETECTABLE WARNING PANEL COMPLYING WITH ADAAG, EXTENDING THE FULL WIDTH OF THE RAMP. REFER TO DETECTABLE WARNING DETAILS AND NOTES FOR PLACEMENT.

12. WHERE PROVIDED, STOP LINES SHALL BE LOCATED IN ADVANCE OF CURB CUT RAMP.

13. WHERE PROVIDED, DRAINAGE INLETS SHALL BE LOCATED UPSTREAM OF CURB RAMPS AND NOT IN THE RAMP AREA.

14. CURB CUT RAMP TYPE AND LOCATION ARE SHOWN ON PLAN.

ACCESSIBLE PARKING SPACES:

1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTES OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE.

2. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE AT LEAST 8 FEET WIDE. WHERE PARKING SPACES AND ACCESS AISLES ARE MARKED WITH LINES, THE WIDTH MEASUREMENTS SHALL BE MADE FROM CENTERLINE OF THE MARKINGS.

3. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH PROVISIONS FOR ACCESSIBLE ROUTES.

4. TWO (2) ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.

5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACE THEY SERVE.

6. ACCESS AISLES SHALL NOT OVERLAP THE VEHICULAR WAY. ACCESS AISLES SHALL BE PERMITTED TO BE PLACED ON EITHER SIDE OF THE PARKING SPACE EXCEPT FOR ANGLED VAN PARKING SPACES WHICH SHALL HAVE ACCESS AISLES LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACES.

7. SURFACES OF PARKING SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE.

8. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ANY DIRECTIONS.

9. PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE.

10. PARKING SPACES FOR VANS AND ACCESS AISLES AND VEHICULAR ROUTES SERVING THEM SHALL PROVIDE A VERTICAL CLEARANCE OF 8 FEET 2 INCHES (8'-2") MINIMUM. SIGNS SHALL BE PROVIDED AT ENTRANCES TO PARKING FACILITIES INFORMING DRIVERS OF CLEARANCES AND THE LOCATION OF VAN ACCESSIBLE PARKING SPACES.

11. EACH ACCESSIBLE PARKING SPACE SHALL BE PROVIDED WITH SIGNAGE DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. EACH ACCESS AISLE SHALL BE CLEARLY MARKED BY MEANS OF DIAGONAL STRIPES. SIGNS SHALL BE INSTALLED AT A CLEAR HEIGHT OF BETWEEN 5 FEET AND 8 FEET TO THE TOP OF THE SIGN AND SHALL NOT INTERFERE WITH AN ACCESSIBLE ROUTE FROM AN ACCESS AISLE. SIGNS LOCATED WHERE THEY MAY BE HIT BY VEHICLES BEING PARKED SHALL BE INSTALLED WITH BOLLARD PROTECTION.

12. ACCESSIBLE PARKING SPACE, ACCESS AISLE STRIPING, AND INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE PAINTED BLUE.

PASSENGER LOADING ZONES:

1. PASSENGER LOADING ZONES SHALL PROVIDE VEHICULAR PULL-UP SPACE 8 FEET WIDE MINIMUM AND 20 FEET LONG MINIMUM.

2. PASSENGER LOADING ZONES SHALL PROVIDE A CLEARLY MARKED ACCESS AISLE THAT IS 5 FEET WIDE MINIMUM AND EXTENDS THE FULL LENGTH OF THE VEHICLE PULL-UP SPACE THEY SERVE.

3. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE AND NOT OVERLAP THE VEHICULAR WAY.

4. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ANY DIRECTION. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE VEHICLE PULL-UP SPACE THEY SERVE.

5. SURFACES OF VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT.

6. VEHICLE PULL-UP SPACES, ACCESS AISLES SERVING THEM AND A VEHICULAR ROUTE FROM AN ENTRANCE TO THE PASSENGER LOADING ZONE, AND FROM THE PASSENGER LOADING ZONE TO A VEHICULAR EXIT SERVING THEM, SHALL PROVIDE A VERTICAL CLEARANCE OF 9 FEET 6 INCHES (9'-6")MINIMUM.

BUILDING ENTRANCES:

1. ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE.

2. THE APPROACH TO AN ACCESSIBLE ENTRANCE SHALL BE A PAVED WALK OR RAMP WITH A SLIP RESISTANT SURFACE, UNINTERRUPTED BY STEPS.

3. THE EXTERIOR LANDING AT THE ENTRANCE DOOR SHALL HAVE A LEVEL LANDING MEASURING AT LEAST 5 FEET BY 5 FEET AND SHALL NOT SLOPE MORE THAN 2% IN ANY DIRECTION.

4. THE LEVEL LANDING SHALL EXTEND A MINIMUM OF 18 INCHES WIDER THAN THE LATCH ON THE PULL SIDE OF THE DOOR.

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
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SUITE 700N
BOSTON MA 02109
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PROJECT INFO:
BAYSIDE DOUBLETREE HOTEL EXPANSION
240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:
PERMIT DOCUMENTS

STAMP:
JAMES M. WHITE CIVIL No. 32146 REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

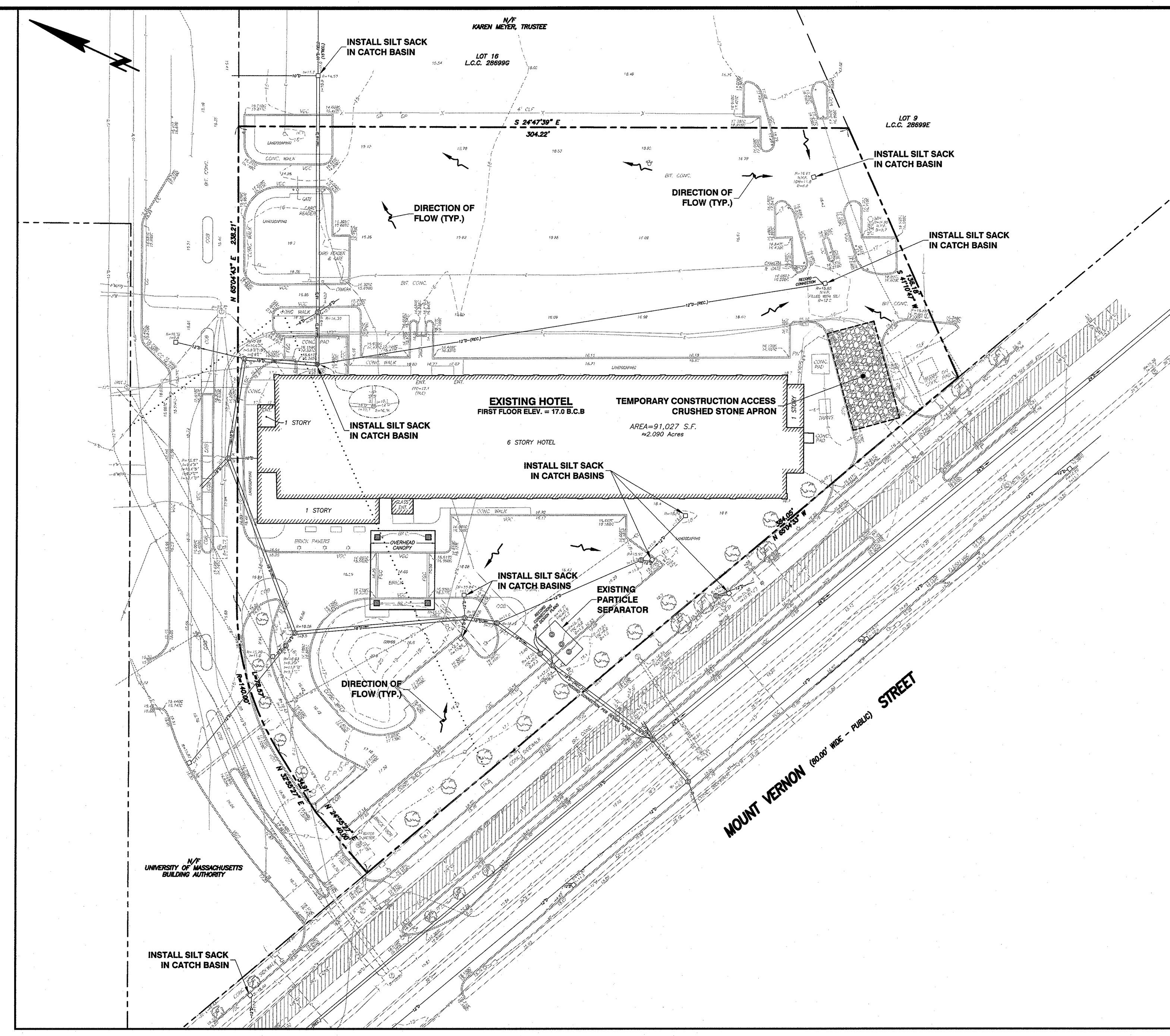
Drawing Title

SITE DETAILS PLAN
BWSC #

Project No.	13010
Drawn By	
Date	27 JUNE 2017
Scale	AS NOTED

Drawing Number
C-6

3492-DETAILS-4.dwg Saved: 8/28/2017 3:21 PM Plotted: Aug 28, 2017 3:22:pm

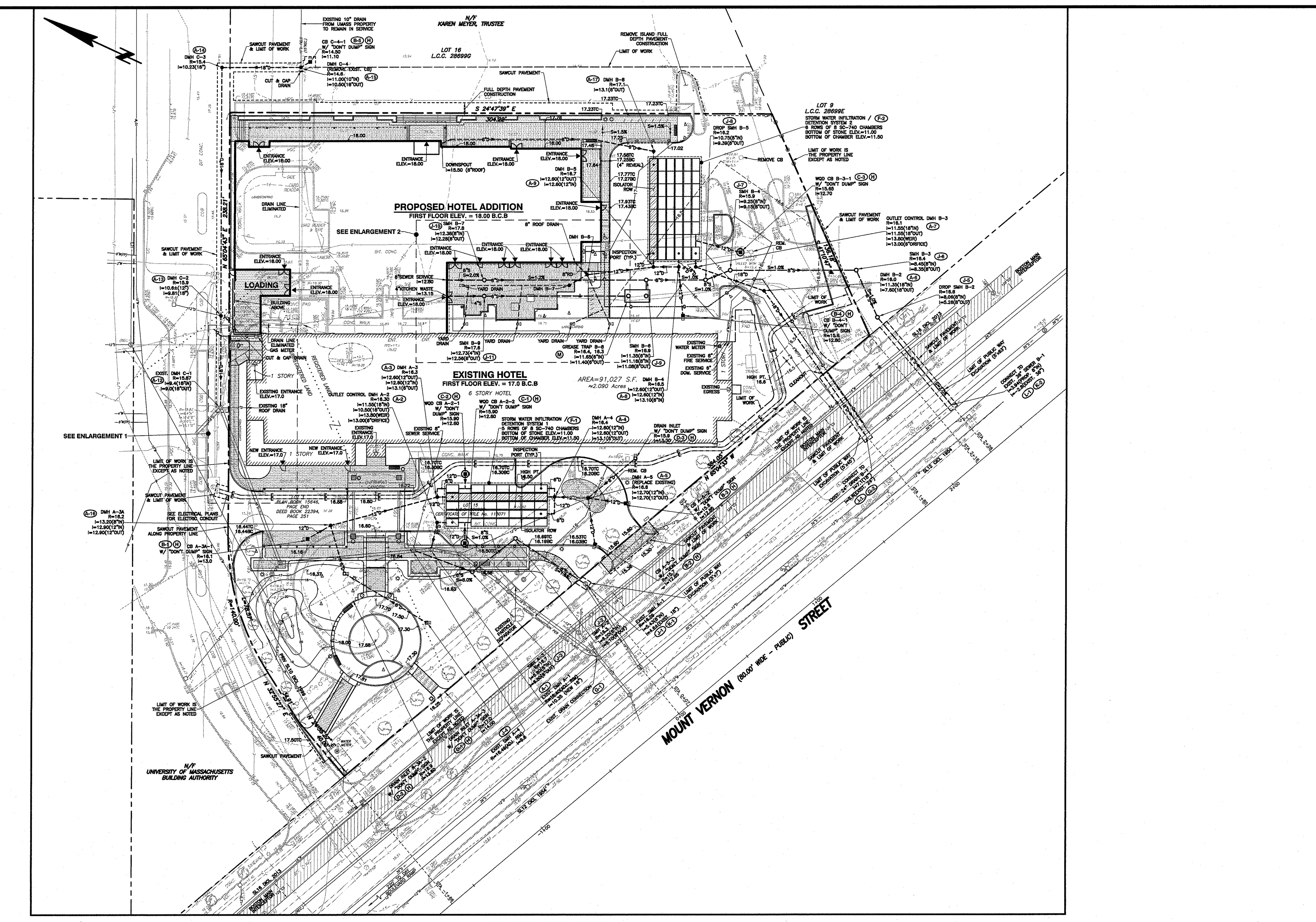


EXISTING SITE WITH EROSION CONTROLS

SCALE: 1" = 40'

40 0 20 40 80

HORIZONTAL GRAPHIC SCALE IN FEET



PROPOSED SITE

SCALE: 1" = 40'

40 0 20 40 80

HORIZONTAL GRAPHIC SCALE IN FEET

OPERATION AND MAINTENANCE PLAN
BAYSIDE DOUBLETREE HOTEL EXPANSION
BOSTON, MA

INTRODUCTION

THE PROPOSED PROJECT WILL INCLUDE THE CONSTRUCTION OF AN ADDITION TO AN EXISTING HOTEL ON THE NORTH SIDE OF MOUNT VERNON STREET AS WELL AS IMPROVEMENTS TO THE ASSOCIATED PARKING, LANDSCAPED AREAS, UTILITIES AND STORMWATER MANAGEMENT SYSTEM. THE PROPOSED STORMWATER MANAGEMENT SYSTEM WILL INCLUDE DEEP SUMP CATCH BASINS WITH OIL TRAP HOODS AND TWO INFILTRATION/DETENTION SYSTEMS.

THE PROPOSED PROJECT INCLUDES WORK THAT COMES UNDER THE JURISDICTION OF THE BOSTON CONSERVATION COMMISSION. IT IS ANTICIPATED THAT THE CONSERVATION COMMISSION WILL ISSUE AN ORDER OF CONDITIONS, A COPY OF WHICH THE CONTRACTOR MUST RETAIN ONSITE, AND MUST COMPLY WITH ALL CONDITIONS STATED THEREIN. THE PURPOSE OF THE ORDERS IS TO MINIMIZE THE POTENTIAL OF SILTATION OF RESOURCE AREAS FROM BOTH OVERLAND FLOW AND PIPE FLOW. THE FOLLOWING NOTES AND DETAILS ARE INTENDED TO BE A MINIMUM SET OF GUIDELINES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR IMPLEMENTATION. SHOULD ADDITIONAL CONTROL BE REQUIRED, THE CONTRACTOR SHALL TAKE WHATEVER STEPS ARE NECESSARY.

THE PROJECT SITE IS PRESENTLY OCCUPIED BY A 6 STORY HOTEL BUILDING LOCATED IN THE CENTER OF THE PROJECT LOT. THE MAIN DRIVE, ENTRANCEWAY, A SMALL PARKING AREA, AND LANDSCAPED AREA ARE LOCATED SOUTHEAST OF THE EXISTING BUILDING. PARKING AND LANDSCAPED AREAS COVER THE NORTHWEST HALF OF THE PROJECT SITE.

TOPOGRAPHY OF THE SITE IS GENERALLY FLAT WITH A HIGH ELEVATION IN THE LANDSCAPED AREA SOUTH OF THE EXISTING HOTEL AT ELEVATION 20.6± (BCB) AND A LOW ELEVATION OF 14.9± (BCB) LOCATED AT THE NORTHEASTERN CORNER OF THE PROJECT SITE IN THE MAIN PARKING AREA.

STORMWATER FROM THE PROJECT SITE PRESENTLY FLOWS TO THE EXISTING ONSITE DRAIN SYSTEM. STORMWATER FROM THE EXISTING DRAIN SYSTEM IS CONVEYED TO A LARGE WATER QUALITY DEVICE BEFORE DISCHARGE TO THE MOUNT VERNON STREET DRAIN SYSTEM. STORMWATER FROM THIS SITE EVENTUALLY FLOWS TO THE DORCHESTER BAY. THERE ARE NO WETLAND RESOURCE AREAS WITHIN THE VICINITY OF THE PROJECT SITE.

THE PROJECT SITE IS WITHIN FLOOD ZONE AE AS SHOWN ON THE FLOOD INSURANCE RATE MAP DATED MARCH 16, 2016. THE FLOOD ELEVATION IS 11.0 NAVD88 OR 17.46 BCB.

SILTATION CONTROLS

THE FIRST PHASE OF CONSTRUCTION WILL CONSIST OF THE PLACEMENT OF SILTATION CONTROLS IN ACCORDANCE WITH THE DETAIL AND AT THE LOCATION INDICATED ON THE PLANS. NO FURTHER CONSTRUCTION ACTIVITY WILL TAKE PLACE UNTIL THE SILTATION CONTROLS ARE INSPECTED AND APPROVED. NO ENCROACHMENT OR ALTERATION SHALL OCCUR BEYOND THE EROSION CONTROL BARRIERS. EROSION CONTROL BARRIERS SHALL BE MAINTAINED AND REPLACED, IF NECESSARY, THROUGHOUT THE COURSE OF CONSTRUCTION.

SITE CONSTRUCTION

PRIOR TO CONSTRUCTION THE PROPOSED LOCATION OF EARTH STOCKPILES SHALL BE SHOWN ON A PLAN AND SHALL BE APPROVED BY THE ENGINEER. STOCKPILES THAT ARE TO BE LEFT FOR MORE THAN FOURTEEN (14) DAYS SHALL BE SHAPED AND SECURED BY SILTATION CONTROLS AROUND THE DOWNSTREAM PERIMETER AND SHALL BE STABILIZED BY TEMPORARY SEEDING OR NETTING. DEMOLITION OF THE EXISTING BUILDING AND THE SITE GRADING OPERATION WILL COMMENCE. TOPSOIL ON THE SITE WILL BE STOCKPILED SEPARATELY AND THE PILE STABILIZED. THE SITE WILL BE GRADED TO SUBGRADE WITH THE EXCESS SOIL STOCKPILED IN THE DESIGNATED AREAS AND THE UTILITIES INSTALLED.

ALL UNVEGETATED AREAS, INCLUDING STOCKPILES, THAT WILL REMAIN UNVEGETATED FOR GREATER THAN 14 DAYS SHOULD BE MULCHED OR SEEDED WITHIN 7 DAYS OF THEIR GRADING. THE PERIMETER SEDIMENTATION CONTROLS AT THE STOCKPILES SHOULD BE IN PLACE AT THE END OF EACH DAY AND BEFORE RAIN EVENTS.

DURING THE CONSTRUCTION OF THE DRAINAGE SYSTEM, CARE MUST BE TAKEN TO PREVENT SILTATION FROM ENTERING THE SYSTEM. DRAINAGE PIPES IN OPEN EXCAVATIONS SHALL NOT REMAIN OPEN OVERNIGHT. WOVEN GEOTEXILE MATERIAL SHALL BE PLACED IN THE CATCH BASINS UNTIL THE BINDER COURSE HAS BEEN PLACED. THE SILT AND SAND, WHICH MAY ACCUMULATE AROUND THE CATCH BASINS, SHALL BE REMOVED AFTER EVERY RAINSTORM. CATCH BASINS SHALL BE SET TO BINDER GRADE UNTIL IMMEDIATELY PRIOR TO PLACEMENT OF THE TOP COURSE, AT WHICH TIME THEY WILL BE SET AT FINAL GRADE. THE DRAINAGE SYSTEM SHALL BE CLEANED PRIOR TO ACCEPTANCE.

WORK SHALL COMMENCE AS SOON AS PRACTICAL ON THE PERIMETER DISTURBED AREAS NOT TO BE PAVED. FOUR INCHES (4") OF TOPSOIL IS TO BE PLACED IN THESE AREAS AND THE AREAS HYDROSEEDED. ALL AREAS SHALL BE STABILIZED WITHIN SIXTY (60) DAYS OF DISTURBANCE. WHEN WEATHER CONDITIONS DO NOT PERMIT STABILIZATION BY SEEDING, HAY MULCH, STRAW MATS, JUTE NETTING OR OTHER APPROVED MEANS SHALL BE USED FOR TEMPORARY STABILIZATION.

INSPECTION AND MAINTENANCE

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FORMULATE A SCHEDULE FOR INSPECTION AND MAINTENANCE OF THE EROSION CONTROL MEASURES. THIS SCHEDULE SHALL ESTABLISH, AT A MINIMUM, THE WEEKLY INSPECTIONS OF THE SEDIMENTATION CONTROLS, STOCKPILES, CATCH BASINS, UNSTABILIZED AREAS WITHIN THE SITE AND A REPORT OF ANY REQUIRED MAINTENANCE. THE SCHEDULE WILL ALSO APPOINT AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PERFORMING THE WEEKLY INSPECTIONS.

DURING THE WEEKLY INSPECTION, AND AT ANY TIME DURING THE COURSE OF CONSTRUCTION, THE ENGINEER, THE OWNER OR THE INDIVIDUAL RESPONSIBLE FOR THE EROSION CONTROL MEASURES MAY DIRECT THE CONTRACTOR TO TAKE IMMEDIATE ACTION TO CORRECT A DEFICIENCY OR TO INCREASE THE EROSION CONTROL MEASURES.

ADDITIONAL REQUIREMENTS

THE CONTRACTOR SHALL EMPLOY MEASURES TO CONTROL DUST DURING CONSTRUCTION. ALL DEBRIS SHALL BE PROPERLY CONTAINED AND DISPOSED OF.

MOUNT VERNON STREET SHALL BE SWEPT CLEAN OF ANY SOILS TRACKED ONTO THE PAVEMENT FROM VEHICLES EXITING THE SITE.

A SUPPLY OF STRAW WATTLES AND SILTATION FENCE SHALL BE KEPT ON SITE TO PROVIDE FOR ADDITIONAL SILTATION CONTROL, AS MAY BE REQUIRED. ANY CONSTRUCTION EQUIPMENT OBSERVED LEAKING OR DRIPPING OIL SHALL BE REMOVED FROM THE SITE. NO CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED WITHIN 100 FEET OF ANY WETLANDS. TEMPORARY GRASS STABILIZATION SHALL BE APPLIED AT RATE OF 4-POUNDS/1,000 SF. AND CONFORM TO THE FOLLOWING MIX SUMMARIZED IN TABLE 1.

TABLE 1

SEED MIXTURE

SEED	% WEIGHT	
	MIN.	MAX.
WINTER RYE	80	
RED FESCUE (CREEPING)	4	
PERENNIAL RYE GRASS	3	
RED CLOVER	3	
OTHER CROP GRASS	0.5	
NOXIOUS WEED SEED		0.5
INERT MATTER		1

CONSTRUCTION SCHEDULE

A. PRIOR TO CONSTRUCTION, CONSTRUCTION FENCING WILL BE PLACED AT THE LIMITS OF WORK, AS INDICATED ON THE SITE DRAWINGS.

B. UTILITY RELOCATION WORK WILL COMMENCE

C. THE EXCAVATION WORK FOR THE BUILDING CONSTRUCTION WILL THEN COMMENCE.

D. BUILDING FOUNDATION WORK SHALL THEN COMMENCE.

E. UTILITY CONSTRUCTION WILL COMMENCE.

F. ADDITIONAL SILTATION FENCE OR STRAW WATTLES WILL BE ADDED AS CONSTRUCTION PROCEEDS WHERE REQUIRED TO CONTROL EROSION. SEDIMENTATION CONTROLS SHALL BE INSTALLED ALONG THE DOWNHILL SIDE OF ALL SOIL STOCKPILES.

G. CATCH BASINS SHALL HAVE A GEOTEXTILE BAG OR SILT SACK INSTALLED UNTIL THE PARKING AREA IS PAVED.

H. THE INFILTRATION SYSTEMS SHALL BE INSTALLED AFTER THE FOUNDATION WORK IS COMPLETE.

I. THE PAVEMENT SUBGRADE WILL THEN BE GRADED, AND THE GRAVEL AND THE BITUMINOUS BASE COURSE PLACED. THIS SHALL BE COMPLETED AS SOON AS PRACTICAL AFTER THE SITE CLEARING.

J. ALL DISTURBED AREAS NOT ALREADY STABILIZED WILL THEN BE COVERED WITH A MINIMUM OF 4-INCHES OF TOPSOIL AND SEEDED.

K. THE DRAINAGE SYSTEM SHALL BE COMPLETELY OPERATIONAL PRIOR TO ANY PAVING OR THE BUILDING ROOF DRAINS BEING INSTALLED.

L. THE BUILDING ROOF DRAINS WILL BE IN OPERATION IMMEDIATELY AFTER THE ROOF IS COMPLETED.

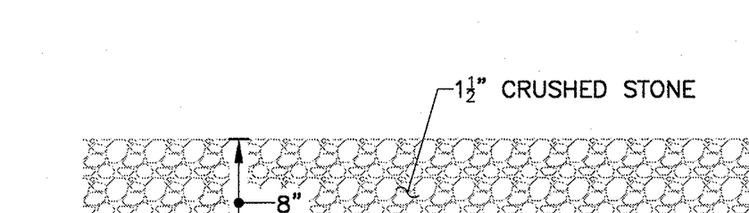
M. ALL DRAINAGE STRUCTURES WILL BE CLEANED UPON COMPLETION OF CONSTRUCTION.

N. THE SILTATION CONTROLS SHALL BE REMOVED AFTER THE SITE HAS STABILIZED.

BMP MAINTENANCE SCHEDULE FOR CONSTRUCTED SITE

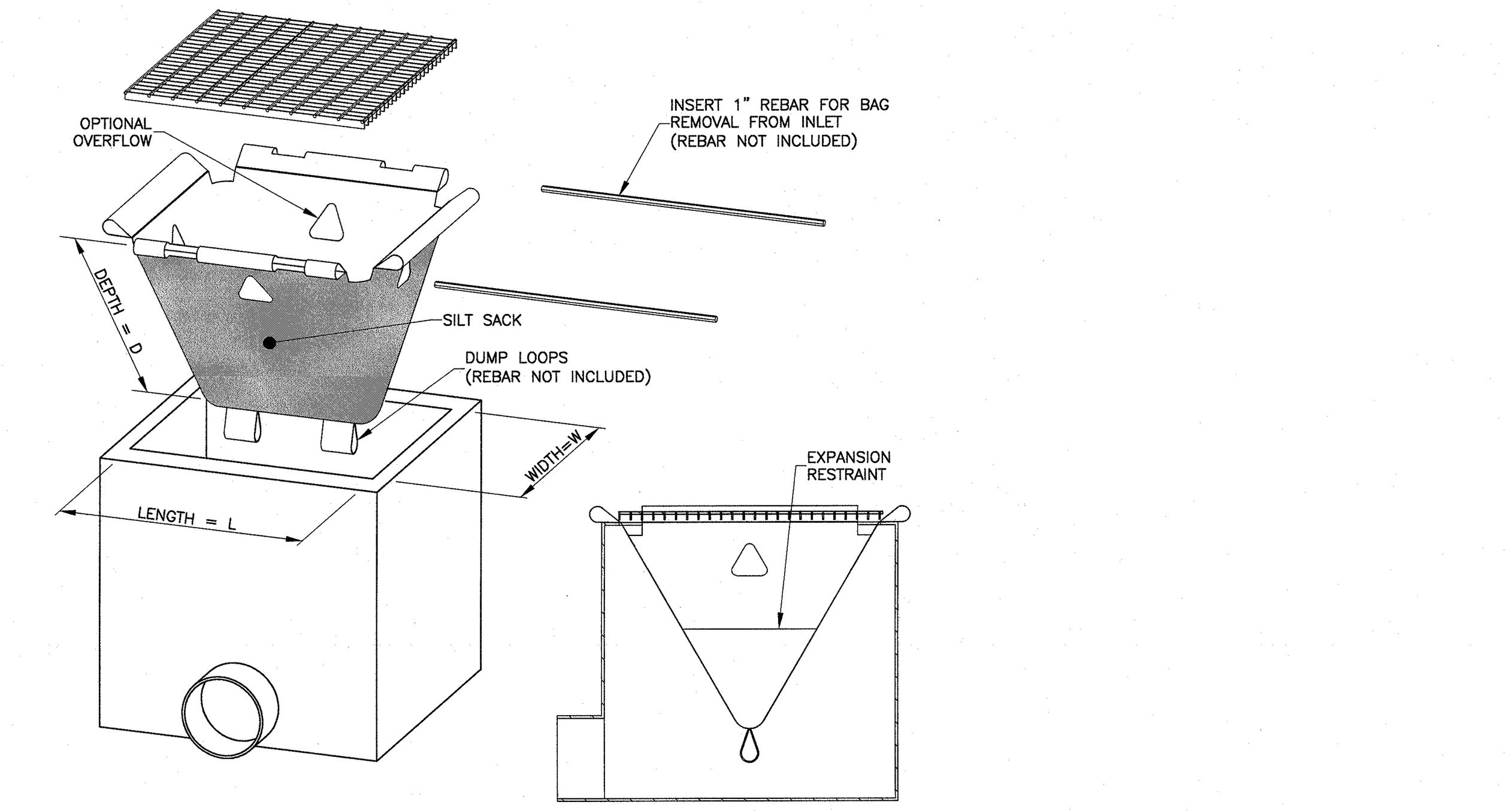
1. INSPECT CATCH BASINS QUARTERLY IF ALL TRIBUTARY AREAS ARE STABILIZED WITH VEGETATION OR MONTHLY IF NOT. CLEAN OUT IF MORE THAN 1/4 FULL OF SEDIMENT (1 FOOT DEEP IN A 4-FOOT SUMP). INSPECT AND CLEAN AS NECESSARY AFTER INTENSE RAINFALL AND AS SOON AS PRACTICAL AFTER WINTER SANDING.
2. KEEP ALL PERVIOUS SITE AREAS STABILIZED AT ALL TIMES. KEEP ANY STOCKPILED EARTH COVERED. REMOVE LEAVES AND TRIMMINGS FROM SITE.
3. THE VORTSENTRY INLETS SHALL BE MAINTAINED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DURING THE FIRST YEAR THE DEVICE IS TO BE MONITORED TWO TIMES AND THE SEDIMENT REMOVED WHEN IT REACHES A 2-FOOT DEPTH. BASED ON THE MONITORING RESULTS FROM THE FIRST YEAR, A CLEANING SCHEDULE SHALL BE ESTABLISHED BASED ON A 2-FOOT SEDIMENT DEPTH REMOVAL. THE VORTSENTRY UNITS SHALL BE INSPECTED A MINIMUM OF TWICE PER YEAR THEREAFTER.
4. THE INFILTRATION SYSTEMS SHOULD BE CHECKED FOR SEDIMENT ON A YEARLY BASIS. A LOG OF THE SEDIMENT DEPTH SHOULD BE MAINTAINED. MEASURE THE SEDIMENT DEPTH VISUALLY BY OPENING THE INSPECTION PORT AND WITH THE USE OF A FLASHLIGHT AND MEASURING ROD. IF SEDIMENT REACHES A THREE-INCH DEPTH, THE SEDIMENT IS TO BE REMOVED BY VACUUM OR JET SPRAY.
5. SWEEP PARKING AREAS TWICE PER YEAR, IN THE SPRING AFTER WINTER SANDING AND AGAIN IN THE LATE FALL. THE USE OF A REGENERATIVE AIR SWEEPER WILL BE THE PREFERRED METHOD OF CLEANING THE PAVEMENT.
6. MINIMIZE THE USE OF SAND AND CHEMICALS FOR WINTER DE-ICING OF PAVEMENT AREAS. DO NOT USE SALT IN THE PARKING AREAS FOR DE-ICING.
7. IT IS ANTICIPATED THAT CORCORAN JENNISON CO. WILL BE THE OWNER AND RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE SITE. THEIR ADDRESS IS:

CORCORAN JENNISON CO.
ATTN. TOM DEVANE
150 MOUNT VERNON STREET
BOSTON, MA 02125
TEL. 617-822-7222



TYPICAL SECTION CONSTRUCTION ACCESS CRUSHED STONE APRON

(NOT TO SCALE)



SILK SACK DETAIL

(NOT TO SCALE)

20 0 10 20 40

HORIZONTAL GRAPHIC SCALE IN FEET

FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017. PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
2. BUILDING ADDITION FOOTPRINT AND ASSOCIATED ARCHITECTURAL FEATURES HAS BEEN TAKEN FROM A DIGITAL FILE FILE RECEIVED ON JUNE 13, 2017 AND NAMED "FloorPlan-LEVEL1.dwg". THE DIGITAL FILE WAS PREPARED BY ARROWSTREET ARCHITECTURE AND DESIGN OF BOSTON, MA.

File Name: C:\3492\3492-S18.dwg Saved 8/28/2017 3:20 PM Plotted: Aug 28, 2017 3:20:54pm
Tab: C7-EROSION Plot Style: 1050C.ctb Plotted By: John Getherall

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON™ BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:
H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495
hwmoore.com

PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
JAMES M. WHITE
CIVIL
No. 32146
REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

Drawing Title

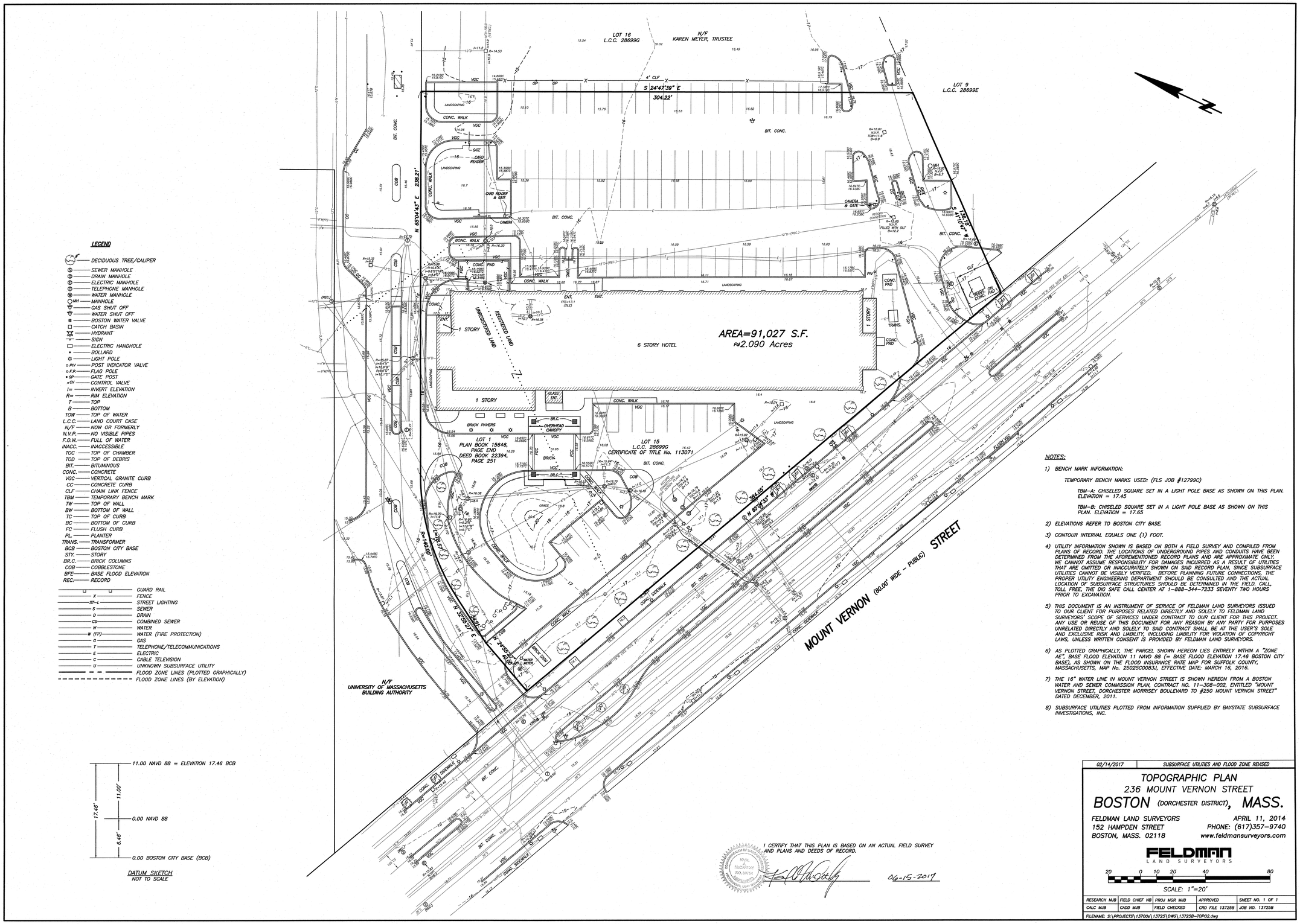
EROSION CONTROL PLAN
BWSC #17329

Project No.	13010
Drawn By	
Date	11 AUGUST 2017
Scale	1" = 20'

Drawing Number

C-7

3492-S18.dwg Saved: 8/28/2017 3:20 PM Plotted: Aug 28, 2017 3:20:pm



LEGEND

- DECIDUOUS TREE/CALIPER
- SEWER MANHOLE
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MH — MANHOLE
- GAS SHUT OFF
- WATER SHUT OFF
- BOSTON WATER VALVE
- CATCH BASIN
- HYDRANT
- SIGN
- ELECTRIC HANDHOLE
- BOLLARD
- LIGHT POLE
- P.I.V. — POST INDICATOR VALVE
- F.P. — FLAG POLE
- G.P. — GATE POST
- C.V. — CONTROL VALVE
- Inv — INVERT ELEVATION
- Rim — RIM ELEVATION
- T — TOP
- B — BOTTOM
- TOW — TOP OF WATER
- L.C.C. — LAND COURT CASE
- N/F — NOW OR FORMERLY
- N.V.P. — NO VISIBLE PIPES
- F.O.W. — FULL OF WATER
- INACC. — INACCESSIBLE
- TOC — TOP OF CHAMBER
- TOD — TOP OF DEBRIS
- BIT. — BITUMINOUS
- CONC. — CONCRETE
- VGC — VERTICAL GRANITE CURB
- CC — CONCRETE CURB
- CLF — CHAIN LINK FENCE
- TBM — TEMPORARY BENCH MARK
- TW — TOP OF WALL
- BW — BOTTOM OF WALL
- TC — TOP OF CURB
- BC — BOTTOM OF CURB
- FC — FLUSH CURB
- PL. — PLANTER
- TRANS. — TRANSFORMER
- BCB — BOSTON CITY BASE
- STY. — STORY
- BR.C. — BRICK COLUMNS
- COB — COBBLESTONE
- BFE — BASE FLOOD ELEVATION
- REC. — RECORD

- GUARD RAIL
- X — FENCE
- ST-L — STREET LIGHTING
- S — SEWER
- D — DRAIN
- CS — COMBINED SEWER
- W — WATER
- W (FP) — WATER (FIRE PROTECTION)
- G — GAS
- T — TELEPHONE/TELECOMMUNICATIONS
- E — ELECTRIC
- C — CABLE TELEVISION
- U — UNKNOWN SUBSURFACE UTILITY
- FLOOD ZONE LINES (PLOTTED GRAPHICALLY)
- FLOOD ZONE LINES (BY ELEVATION)

DATUM SKETCH
NOT TO SCALE

NOTES:

1) BENCH MARK INFORMATION:

   TEMPORARY BENCH MARKS USED: (FLS JOB #12799C)

   TBM–A: CHISELED SQUARE SET IN A LIGHT POLE BASE AS SHOWN ON THIS PLAN. ELEVATION = 17.45

   TBM–B: CHISELED SQUARE SET IN A LIGHT POLE BASE AS SHOWN ON THIS PLAN. ELEVATION = 17.65

2) ELEVATIONS REFER TO BOSTON CITY BASE.

3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

4) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND COMPILED FROM PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON SAID RECORD PLAN, SINCE SUBSURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL TOLL FREE, THE DIG SAFE CALL CENTER AT 1–888–344–7233 SEVENTY TWO HOURS PRIOR TO EXCAVATION.

5) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN LAND SURVEYORS ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN LAND SURVEYORS' SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN LAND SURVEYORS.

6) AS PLOTTED GRAPHICALLY, THE PARCEL SHOWN HEREON LIES ENTIRELY WITHIN A "ZONE AE", BASE FLOOD ELEVATION 11 NAVD 88 (= BASE FLOOD ELEVATION 17.46 BOSTON CITY BASE), AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP No. 25025C0083J, EFFECTIVE DATE: MARCH 16, 2016.

7) THE 16" WATER LINE IN MOUNT VERNON STREET IS SHOWN HEREON FROM A BOSTON WATER AND SEWER COMMISSION PLAN, CONTRACT NO. 11–309–002, ENTITLED "MOUNT VERNON STREET, DORCHESTER MORRISEY BOULEVARD TO #250 MOUNT VERNON STREET" DATED DECEMBER, 2011.

8) SUBSURFACE UTILITIES PLOTTED FROM INFORMATION SUPPLIED BY BAYSTATE SUBSURFACE INVESTIGATIONS, INC.

I CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND PLANS AND DEEDS OF RECORD.

06-15-2017

02/14/2017	SUBSURFACE UTILITIES AND FLOOD ZONE REVISED

TOPOGRAPHIC PLAN
236 MOUNT VERNON STREET
BOSTON (DORCHESTER DISTRICT), MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02118
PHONE: (617)357–9740
www.feldmansurveyors.com

APRIL 11, 2014

FELDMAN LAND SURVEYORS

20 0 10 20 40 80

SCALE: 1"=20'

RESEARCH MJB	FIELD CHIEF NB	PROJ MGR MJB	APPROVED	SHEET NO. 1 OF 1
CALC MJB	CADD MJB	FIELD CHECKED	CRD FILE 13725B	JOB NO. 13725B

FILENAME: S:\PROJECTS\13700s\13725\DWG\13725B-TOPO2.dwg

Attachment A

NOTIFICATION INFORMATION

ATTACHMENT A: NOTIFICATION INFORMATION

The following table outlines abutters of the Project within 100 feet of the property line as gathered from the City of Boston Assessing Department.

Property	Owner Name	Owner Address	Parcel ID
160-234 Mt Vernon Street, Dorchester, MA 02125	University of Massachusetts Building Authority	333 South St, Shrewsbury, MA 01545	1303448000
Mt Vernon St, Dorchester, MA 02125	Bayside Merchandise Mart	150 Mt Vernon St #520	1303448200
orf2 William T Morrissey Blvd, Dorchester, MA 02125	S-Bnk Dorchester Operations	200 State St, 5th Floor, Boston, MA 02109	1303405000
238 Mt Vernon St, Boston, MA 02125	Karen Meyer	150 Mt Vernon St, Dorchester, MA 02125	1303447050

Notification to Abutters Under the
Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the applicant is **Bayside Club Hotel, LLC** . The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of **Boston** seeking permission to remove, till, dredge, or alter an Area Subject to Protection Under the Wetlands Protection Act (General Laws Chapter 131, section 40).

B. The address of the lot where the activity is proposed **236 Mount Vernon Street, Dorchester, Massachusetts 02128**

C. Copies of the notice of Intent may be examined at **Boston City Hall** between the hours of **9 AM and 5 PM** on the following days of the weeks: **Monday through Friday.** For more information, call Boston City Hall at **(617) 635-3850.**

D. Copies of the Notice of Intent may be obtained from the applicant's representative by calling this telephone number (**617) 357-7044 x 209** between the hours of 9 **AM and 5 PM** on the following days of the week: **Monday through Friday**

E. Information regarding the date, time, and place of the public hearing may be obtained from **Boston Conservation Commission** by calling this telephone number: **(617) 635-3850** between the hours of and on the following days of the week: **9 AM to 5 PM, Monday through Friday**

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald**

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

NOTE: You also may contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 661-7600.

Attachment B

STORMWATER REPORT

STORM RUNOFF ANALYSIS

AND

OPERATION AND MAINTENANCE PLAN

BAYSIDE DOUBLETREE HOTEL EXPANSION

BOSTON, MASSACHUSETTS

July 6, 2017

Prepared for: Corcoran Jennison Co.
150 Mount Vernon Street
Boston, MA 02125
Tel. 617-822-7222

Prepared by: H.W. Moore Associates, Inc.
Civil Engineers | Land Planners
121 East Berkeley Street
Boston, MA 02118
Tel. (617) 357-8145

TABLE OF CONTENTS

LIST OF APPENDICES

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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.

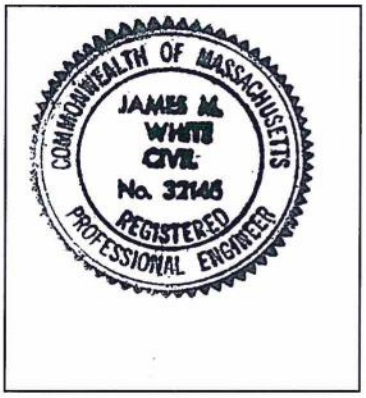
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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



7/10/17
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

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): Infiltrate site runoff into subsurface recharge system.

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

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[1]

☐ 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.

[1] 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

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 propriety 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.

STORM RUNOFF ANALYSIS
BAYSIDE DOUBLETREE HOTEL EXPANSION
BOSTON, MA

1.0 PROJECT DESCRIPTION

1.1 Existing Conditions

The 2.09-acre project site is located along the north side of Mount Vernon Street. The project site is bounded by a University of Massachusetts (UMass) drive to the northwest, a large parking area to the northeast and southeast, and Mount Vernon Street to the southwest.

The project site is presently occupied by a 6 story hotel building located in the center of the project lot. The main drive, entranceway, a small parking area, and landscaped area are located southeast of the existing hotel. Parking and landscaped areas cover the northwest half of the project site.

Topography of the site is generally flat with a high elevation in the landscaped area south of the existing hotel at elevation 20.6± (BCB) and a low elevation of 14.9± (BCB) located at the northeastern corner of the project site in the main parking area.

Stormwater from the project site presently flows to the existing onsite drain system. Stormwater from the existing drain system is conveyed to a large water quality device before discharge to the Mount Vernon Street drain system. Stormwater from this site flows to the BWSC drain system in mount Vernon street and eventually discharges to Dorchester Bay. There are no wetland resource areas within the vicinity of the project site.

The project site is within the Flood Zone AE as shown on the Flood Insurance Rate Map dated March 16, 2016. The Flood Elevation is 11 NAVD88 or 17.46 BCB.

1.2 Proposed Conditions

The proposed project will include the construction of an addition to the existing hotel, landscaping, parking improvements and a stormwater management system. The addition is located northeast of the existing hotel on land currently occupied by a parking lot. There will also be improvements to the associated parking, landscaped areas, utilities and stormwater management system. The proposed stormwater management system will comply with DEP Stormwater Management Regulations and will include deep sump catch basins with oil trap hoods and two infiltration/detention systems.

1.3 Soils

A review of the Web Soil Survey provided by the Natural Resources Conservation Service (NRCS) indicates that Urban Land (Map Unit 603) is the primary soil on the project site. Urban Land is soil that has been previously disturbed or filled by previous construction. Due to the fill nature of Urban Land, it is not given a soil classification by the NRCS.

Four soil borings were performed onsite under the supervision of McPhail Associates on August 16 through 24, 2016. Throughout the project site there is either a 12-inch layer of topsoil, or pavement reaching 5-inches of thickness. Underlying these layers is a 8.5 to 9-foot layer of miscellaneous fill. Beneath the fill layer is an organic deposit which is 1.5 to 16.5 feet deep in thickness. A 4.5 to 17.0-foot thick layer of inorganic sand underlays the organic deposit. Glacial outwash is located beneath the sand layer and extends to depths 127 to 143 feet below the ground surface. At the time of testing, ground water was observed at 7.5 to 8.0 feet below ground surface.

2.0 STORMWATER MANAGEMENT STANDARDS

A stormwater management system has been developed for this project, and as such, compliance with the MassDEP Stormwater Management Standards is presumed for the project site. The following is a description of the ten stormwater management standards and how they relate to the proposed project

Standard #1

No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Stormwater from paved areas will flow to deep sump catch basins equipped with oil trap hoods for pretreatment and then to one of two proposed infiltration system. Overflow from the infiltration systems will flow to the existing stormwater drain system in Mount Vernon Street. There are no new stormwater conveyances discharging untreated stormwater directly to wetlands or waters of the commonwealth.

Standard #2

Stormwater management systems must be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

Stormwater runoff calculations contained herein for site related runoff have been computed in accordance with methods developed by the NRCS, as described in the "NRCS National Engineering Handbook, Section 5, Hydrology." Storm hydrographs were generated and routed using the NRCS TR-20/TR-55 methodologies (incorporated into the hydraulic modeling software HydroCAD) with a Type III Storm Distribution.

The methodologies provide for hydraulic analyses of a watershed under various combinations of land cover/use. Surface runoff hydrographs were developed from storm rainfall data using a dimensionless unit hydrograph, drainage areas, times of concentration (Tc), and NRCS runoff curve numbers. These computer simulated hydrographs have been flood-routed, when appropriate, to account for effects of surface and/or underground storage and hydraulic constraints provided by the identified mitigative measures.

For this analysis, hydrographs were developed to simulate peak storm runoff flows under existing and proposed conditions for the 2, 10, and 100-year storm events. 24 hour values of 3.2, 4.7, and 7.0 inches of rainfall were utilized for the respective storm events. These calculations indicate the order-of-magnitude of existing and proposed peak runoff rates anticipated from the

project site. The following section provides a brief description of the existing and proposed watershed areas and associated downstream facilities.

2.1 Existing Watersheds

Existing Watershed 1 is 1.92 acres and contains areas whose stormwater is captured in the existing stormwater management system. Stormwater is conveyed to the existing water quality device before discharge to the Mount Vernon Street drain system. This watershed is divided into four sub-watersheds for clarity.

1. Existing Watershed E1A is 0.89 acres and includes the large parking area and landscaped areas east of the existing building. This watershed generally slopes away from the existing building in a northerly or a southeasterly direction. The southerly stormwater flows are captured in a catch basin and are conveyed north to a drain pipe in the UMass drive. The northerly stormwater flows are captured in a catch basin outside of the project site and are conveyed to the UMass drive drain pipe. The UMass storm drain pipe connects back onto the project site and transports the stormwater to the existing water quality device and the Mount Vernon Street drain system.

2. Existing Watershed E1B is 0.48 acres includes the main drive, landscaped areas, and parking areas west of the existing hotel building. Stormwater is captured in a series of catch basins and is conveyed to the existing water quality device and the Mount Vernon Street drain system.

3. Existing Watershed E1C is 0.40 acres and includes the existing building roof. Stormwater is captured in roof drains and is conveyed to an outlet pipe on the northeastern side of the hotel building. This outlet pipe connects to the UMass Drive drain pipe. This drain pipe connects back into the onsite drain system. Stormwater is conveyed to the existing water quality device and the Mount Vernon Street drain system.

4. Existing Watershed E1D is 0.14 acres and includes the northern perimeter of the project site consisting of walks, landscaped areas, and drives whose stormwater runoff flows overland offsite to the UMass drive. This watershed slopes in a northerly direction offsite. Stormwater is captured in catch basins located in the UMass Drive drain system. This drain system connects back to the onsite drain system on the east side of the existing hotel building. Stormwater is then conveyed to the existing water quality device and the Mount Vernon Street drain system.

Existing Watershed 2 is 0.02 acres and includes the catchment area of a catch basin in the south east corner of the project site. The catch basin does not connect to the rest of the onsite drain system. An outlet pipe from this catch basin transports stormwater in a southerly direction offsite to the Lot 9 stormwater management system.

Existing Watershed 3 is 0.16 acres and includes areas along Mount Vernon Street.

Stormwater flows overland in a southwesterly direction offsite to Mount Vernon Street and the Mount Vernon Street drain system.

2.2 Proposed Watersheds

Proposed Watershed 1 is 0.97 acres and includes the existing hotel roof, landscaped areas, main drive, and walk areas west and north of the hotel. Stormwater runoff from non-roof areas is directed to Infiltration System "1" for detention and infiltration. Overflow discharge from Infiltration System "1" and the existing hotel roof runoff flow to an existing water quality device before discharging to the Mount Vernon Street drain system. There will be no increase in the rate of peak runoff to the existing water quality device due to the proposed development.

1. Proposed Watershed P1A is 0.40 acres and includes the existing hotel building roof. Stormwater is captured in roof drains and is conveyed to an outlet pie on the northeastern side of the building. This outlet pipe connects to the UMass Drive drain pipe. The drain pipe connects back into the onsite drain system. Stormwater is conveyed to the existing water quality device and the Mount Vernon Street drain system.

2. Proposed Watershed P1B is 0.46 acres and includes the drive, landscaped, and parking areas west of the existing hotel building. Stormwater is captured in a series of catch basins and is directed to Infiltration System "1" for detention and infiltration. Stormwater discharge from Infiltration System "1" flows through an existing water quality device before flowing to the Mount Vernon Street Drain System.

3. Proposed Watershed P1C is 0.11 acres and includes the northern perimeter of the project site along the north side of the existing hotel building and the north and east sides of the proposed hotel addition. Stormwater flows overland offsite either east to a large parking lot or north to the UMass Drive. The stormwater is captured in the UMass drive drain system. The UMass drive drain system connects back into the project site drain system. Stormwater then flows through the existing water quality device and discharges to the Mount Vernon Street drain system,

Proposed Watershed 2 is 0.88 acres and includes the proposed hotel addition, the southeastern parking area and associated landscaped areas. Stormwater is conveyed to Proposed Infiltration System "2" before discharge to the Mount Vernon Street drain system via a new storm drain connection.

4. Proposed Watershed P2A is 0.43 acres and includes the proposed hotel addition roof. Stormwater is captured in roof drains and flows to Infiltration System "2." Infiltration System "2" discharges to the Mount Vernon Street drain system via a new storm drain connection.

5. Proposed Watershed P2B is 0.45 acres and includes the southeastern parking and landscaped areas. Stormwater will be directed to two existing catch basins.

Stormwater flows from the catch basins to Infiltration System "2." Discharge from Infiltration System "2" flows to the Mount Vernon Street drain system via a new storm drain connection.

Proposed Watershed P3 is 0.25 acres and includes the south western landscaped areas adjacent to Mt. Vernon Street. Stormwater flows overland in a southwesterly direction offsite to Mt. Vernon Street as under existing conditions.

2.3 Stormwater Mitigation Measures

Attenuation of peak runoff rate from the project has been provided through two proposed stormwater infiltration systems.

Under existing conditions, stormwater runoff flows unmitigated to an existing water quality device and then to the Mount Vernon Street drain system.

Under proposed conditions, stormwater runoff from the existing hotel roof and areas east of the existing building is directed to proposed Infiltration System 1 for treatment and mitigation. Stormwater from the proposed building addition roof, parking area and landscaped areas will be treated and mitigated in Proposed Infiltration System 2.

2.4 Stormwater Calculations

The stormwater calculations indicate the "order-of magnitude" of peak runoff rates under existing and proposed conditions for the 2, 10 and 100-year storm event recurrence intervals. Refer to **Table 1** for a summary of the peak runoff rates. As shown in the Table, there is no increase in the peak rates of runoff for the 2, 10, and 100 –year storm events.

Table 1 – Peak Stormwater Runoff Summary

Existing Peak Rates										Proposed Peak Rates									
Watershed	Area	Runoff Curve Number	Time of Concentraion	Unmitigated Flow	With Mitigation (if any)	Unmitigated Flow	With Mitigation (if any)	Unmitigated Flow	With Mitigation (if any)	Watershed	Area	Runoff Curve Number	Time of Concentraion	Unmitigated Flow	With Mitigation (if any)	Unmitigated Flow	With Mitigation (if any)	Unmitigated Flow	With Mitigation (if any)
	A	Cn	Tc	Q100-yr		Q10-yr		Q2-yr			A	Cn	Tc	Q100-yr		Q10-yr		Q2-yr	
	ac.		min.	cfs		cfs		cfs			ac.		min.	cfs		cfs		cfs	
Ex Reach 1: Flow to Existing Water Quality Device										*Pr. Reach 1: Flow to Existing Water Quality Device*									
E1A	0.89	94	6.0	5.99	-	3.83	-	2.55	-	P1A	0.40	98	6	2.73	-	1.78	-	1.23	-
E1B	0.48	90	6.0	3.09	-	1.91	-	1.21	-	P1B	0.46	90	6	2.95	2.83	1.82	0.94	1.15	0.10
E1C	0.40	98	6.0	2.71	-	1.78	-	1.23	-	P1C	0.11	97	6	0.75	-	0.49	-	0.34	-
E1D	0.14	93	6.0	0.94	-	0.60	-	0.39	-										
R1				*12.74*	-	*8.11*	-	*5.38*	-	R1				-	*6.21*	-	*2.49*	-	*1.57*
E2	0.02	95	6.0	0.11	-	0.07	-	0.05	-	P2A	0.43	98	6	2.93	-	1.92	-	1.32	-
										P2B	0.45	93	6	2.96	5.84	1.88	3.75	1.24	2.40
E3	0.16	75	6.0	0.79	-	0.40	-	0.20	-	P3	0.25	86	6	1.55	-	0.91	-	0.55	-
Ex. Sum: Mount Vernon Street										*Pr. Sum: Mount Vernon Street*									
ES	2.09			*13.65*	-	*8.59*	-	*5.63*	-	PS	2.09			-	*13.57*	-	*7.06*	-	*4.40*

- *Flood-routing effect and offset times of concentration results in a combined peak runoff rate that can be less than the sum of the peak rates for the individual watersheds*

Standard #3

Loss of annual recharge to groundwater should be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater 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.

This project will comply with Stormwater Standard #3. There will be no loss of annual recharge to groundwater as a result of the proposed project. The project was designed to reduce loss of recharge to groundwater with the construction of two subsurface infiltration systems. The overall increase in impervious area onsite is less than ¼ of an acre yielding a relatively small required recharge volume. However, pursuant to the Boston 1-inch recharge requirement, the required recharge volume onsite is 4,787 cf.

This project is a redevelopment of an existing site. The existing bayside doubletree hotel will remain as existing and stormwater from the existing roof drain will not be recharged as under existing conditions.

Table 2 summarizes the on-site recharge requirements and the proposed recharge volumes provided by the proposed stormwater infiltration system. The "Static" Method was used to calculate the volume required for the project.

Table 2 – Recharge Compliance Summary

Impervious Area		Recharge Required	Recharge Vol. Required	BMP	Recharge Vol. Provided
	(ac)	(in/acre)	(CF)		(CF)
Exist. IMP Area	1.60			Infiltration System 1	1,764
Prop. IMP Area	1.72			Infiltration System 2	3,110
Total IMP Area	0.12				
TOTAL	**0.12**	**0.25 (C soils)**	**107.1**		**4,874**

Standard #4

For new developments, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:

- ***a. Suitable nonstructural practices for source control and pollution prevention are implemented.***
- ***b. Stormwater management BMPs are sized to capture the prescribed runoff volume.***
- ***c. Stormwater management BMPs are maintained as designed.***

This project will use BMPs to provide effective treatment of runoff quantity and quality prior to discharge. These measures will meet or exceed the current state guidelines for stormwater treatment. The primary BMPs for water quality renovation are:

1. Installation of catch basins equipped with 4-ft deep sumps and hoods.
2. Infiltration Systems with an Isolator Rows.
3. VortSentry Water Quality Inlets

The quality of runoff will be improved by employing measures designed to remove in excess of 80% ± of the TSS found in the stormwater runoff from the developed portion of the site (estimated on an average annual basis). Runoff from the proposed parking lot will be directed to a catch basin, through a StormTech treatment chamber and through an Isolator Row to provide treatment before discharge. All stormwater discharging to infiltration systems that do not discharge to isolator rows will be treated by VortSentry Water Quality inlets.

Stormwater from impervious areas in Watershed 1 discharges to a large existing water quality device onsite. This water quality device was constructed in 1999 and services stormwater upstream parking areas in addition to the areas on the project site. The Vortechs Unit may not be sized to meet modern water quality standards and therefore will not be included in the water quality treatment chain for this project site.

Isolator Row: *The Isolator Row is a row of StormTech chambers that is completely encased in geotextile filter fabric and acts as a sediment trap. A strip of woven geotextile is placed under the entire length of the row between the chambers and base stone. This provides a "floor" to the row that will allow water to pass, but will trap sediment and debris. A strip of non-woven geotextile is wrapped over the top of the chambers for the entire length of the row, separating the chambers from the cover stone, providing further filtration as the row fills. The Isolator Row should be the*

first row in the chamber bed at each inlet point. They must be directly connected to a manhole, catch basin, or other access structure. Small storm events and the first flush of larger storms (which carry the most debris) are directed into the Isolator Row first via a weir plate in the access structure or through elevation differences in the manifolds. Only when the Isolator Row fills does the water build enough of a head to top the weir plate, or reach the manifold invert to the standard rows. This overflow option provides a way to fill the system quickly during large storm events.

VortSentry HS Chamber: *The VortSentry HS is a compact, below grade stormwater treatment system that uses helical flow technology to enhance gravitational separation of floating and settling pollutants from stormwater flows. The small footprint of the VortSentry HS makes it an effective stormwater treatment option for projects where space is at a premium. The VortSentry HS accepts a wide range of pipe sizes to treat and convey a wide range of flows. The unique internal bypass weir allows flows exceeding the treatment capacity to be diverted within the unit eliminating the need for an external bypass structure.*

VortSentry Sixing Calculations are appended to this report

Table 3 and **Table 4** summarize how the proposed BMPs will exceed the 80% TSS removal standard based on Mass DEP's presumptive criteria. The Stormwater Management Regulations provides design average annual TSS removal rates for correctly sized BMPs. These values can then be used to estimate if the overall average annual TSS removal efficiency for the proposed BMP system.

Table 3 – TSS Removal Rates Infiltration System 1

BMP	TSS Removal Rate	TSS Load Removed by BMP	TSS Load Remaining	Overall Removal Rate
Catch Basins with Deep Sumps & Hoods	25%	25%	75%	
Subsurface Infiltration System	80%	60%	15%	85%
			Total	85%

The following diagram illustrates the proposed BMP treatment train:

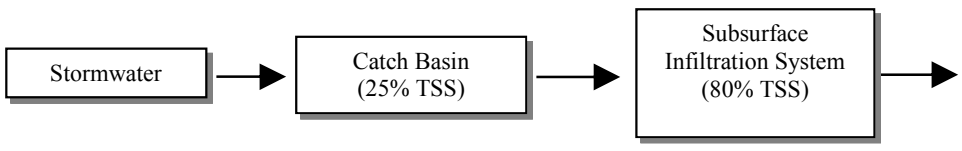


Table 4 – TSS Removal Rates Infiltration System 2

BMP	TSS Removal Rate	TSS Load Removed by BMP	TSS Load Remaining	Overall Removal Rate
Deep Sump and Hooded Catch Basins	25%	25%	75%	
Subsurface Infiltration System	80%	60%	15%	85%
			Total	85%

The following diagram illustrates the proposed BMP treatment train:

Standard #5

Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs. The use of infiltration practices without pretreatment is prohibited.

The project site is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL) as defined by the Stormwater Management Regulations; therefore, this standard is not applicable.

Standard #6

Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for "critical areas". Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

The stormwater from this project eventually discharges to Dorchester Bay which is not considered a "critical area" as defined by the Stormwater Management Regulations. Therefore, this standard is not applicable.

Standard #7

Redevelopment of previously developed sites must meet the Stormwater Management Regulations to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new stormwater management systems must be designed to improve existing conditions.

The proposed project is a partial redevelopment project. Regardless, the project will comply to all Stormwater Management Standards.

Standard #8
Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.

Downslope areas will be protected through the installation of construction fence with screening a combination of straw wattles and filter fabric fence as required to protect and stabilize earthworks. Refer to the Operation and Maintenance Plan appended to the report, and the Stormwater Pollution Prevention Plan.

Standard #9
All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.

The site shall be maintained by the project owner to provide a stabilized, maintained surface thereby preventing excess materials from contacting surface runoff and minimizing transport of materials within the drain system. Refer to the Operation and Maintenance Plan.

Standard #10
All illicit discharges to the stormwater management system are prohibited.

The proposed project does not have any illicit discharges to the proposed stormwater management system. An Illicit Discharge Compliance Certification is appended to the report.

3.0 SILTATION CONTROL PROCEDURES

Downslope areas will be protected through the installation of a combination of straw wattles when necessary and filter fabric fence to be located along the perimeter and/or elsewhere as required to protect and stabilize earthwork. All embankment slopes will be fine graded and stabilized by the means of wood chip mulch, shrubs, sod and/or seed and mulch as is appropriate and consistent with the landscaping plan. All pipe drains and catch basins will be installed early in the construction period in order to provide early control of site runoff. Crushed stone will be judiciously applied to stabilize select areas, as required during the course of construction. The erosions controls are further described in the Operation and Maintenance Plan located in the appendix.

4.0 SUMMARY AND CONCLUSIONS

Significant attention and consideration has been given to proper management of stormwater runoff from the project site. The unique site-specific characteristics and hydrologic setting has been carefully studied to develop a comprehensive plan that fully utilizes and recognizes these attributes. Disposition of stormwater has been considered, with respect to its peak rate, total volume and water quality aspects, to ensure appropriate mitigation upon project completion.

- There will be no adverse impact to any surrounding areas.
- The drainage system has been properly designed to handle the design flow rates.

A

LOCUS MAP

500 0 1000 2000 3000 METERS

1000 0 1000 2000 3000 4000 6000 8000 10000 FEET

USGS QUADRANGLE(s): BOSTON SOUTH, MASSACHUSETTS

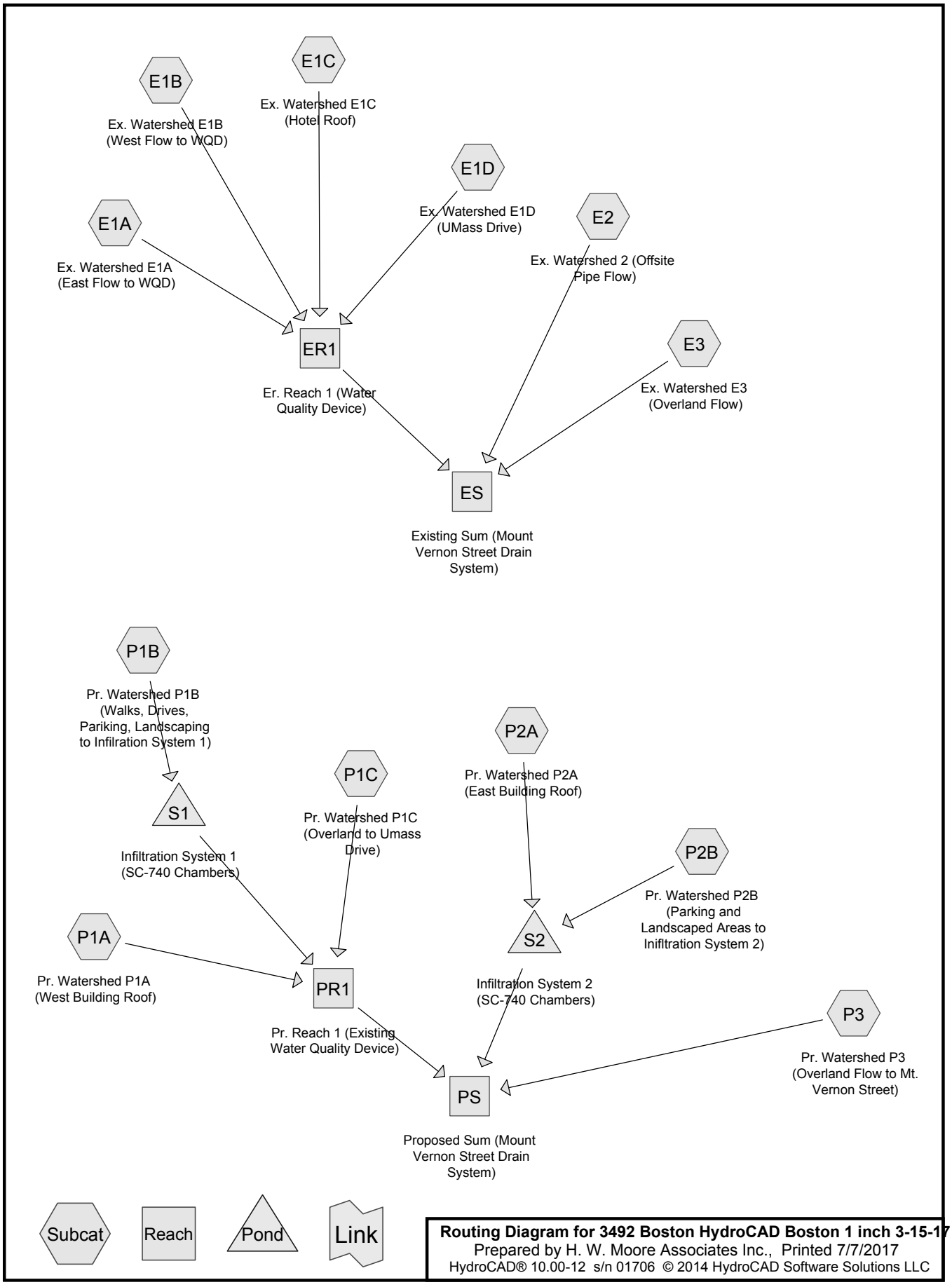
Source: Topographic Quadrangle(s) provided by Maptech, Inc.

hwmoore ASSOCIATES, INC. CIVIL ENGINEERING | LAND PLANNING	Project Title: Bayside Doubletree Hotel Expansion Location: Boston, MA Plan Title: Locus Map	Project #: 3492 Date: Feb. 21, 2016 Scale: 1" = 2000'	FIGURE: 1

File Name: N:\3492\Stormwater\3492 USGS Locus Map 2-21-17.dwg Saved 2/21/2017 12:55 PM Plotted: Feb 21, 2017 12:55:29pm Tab: 8x11P-USGS Plot Style: 1050C.ctb Plotted By: David White

B

HYDROCAD CALCULATIONS



Routing Diagram for 3492 Boston HydroCAD Boston 1 inch 3-15-17
Prepared by H. W. Moore Associates Inc., Printed 7/7/2017

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1A: Ex. Watershed E1A Runoff Area=0.893 ac 84.77% Impervious Runoff Depth=2.54"
Flow Length=690' Tc=6.0 min CN=94 Runoff=2.55 cfs 0.189 af

Subcatchment E1B: Ex. Watershed E1B Runoff Area=0.480 ac 65.21% Impervious Runoff Depth=2.17"
Flow Length=690' Tc=6.0 min CN=90 Runoff=1.21 cfs 0.087 af

Subcatchment E1C: Ex. Watershed E1C Runoff Area=0.395 ac 100.00% Impervious Runoff Depth=2.97"
Flow Length=690' Tc=6.0 min CN=98 Runoff=1.23 cfs 0.098 af

Subcatchment E1D: Ex. Watershed E1D Runoff Area=0.142 ac 80.28% Impervious Runoff Depth=2.45"
Flow Length=690' Tc=6.0 min CN=93 Runoff=0.39 cfs 0.029 af

Subcatchment E2: Ex. Watershed 2 (Offsite Runoff Area=0.017 ac 88.24% Impervious Runoff Depth=2.64"
Flow Length=50' Slope=0.0100 '/' Tc=6.0 min CN=95 Runoff=0.05 cfs 0.004 af

Subcatchment E3: Ex. Watershed E3 Runoff Area=0.163 ac 2.45% Impervious Runoff Depth=1.09"
Flow Length=24' Slope=0.0280 '/' Tc=6.0 min CN=75 Runoff=0.20 cfs 0.015 af

Reach ER1: Er. Reach 1 (Water Quality Device) Inflow=5.38 cfs 0.403 af
Outflow=5.38 cfs 0.403 af

Reach ES: Existing Sum (Mount Vernon Street Drain System) Inflow=5.63 cfs 0.421 af
Outflow=5.63 cfs 0.421 af

Subcatchment P1A: Pr. Watershed P1A Runoff Area=0.397 ac 100.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=98 Runoff=1.23 cfs 0.098 af

Subcatchment P1B: Pr. Watershed P1B Runoff Area=0.458 ac 65.94% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=90 Runoff=1.15 cfs 0.083 af

Subcatchment P1C: Pr. Watershed P1C Runoff Area=0.110 ac 96.36% Impervious Runoff Depth=2.86"
Tc=6.0 min CN=97 Runoff=0.34 cfs 0.026 af

Subcatchment P2A: Pr. Watershed P2A Runoff Area=0.426 ac 100.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=98 Runoff=1.32 cfs 0.105 af

Subcatchment P2B: Pr. Watershed P2B Runoff Area=0.445 ac 80.67% Impervious Runoff Depth=2.45"
Tc=6.0 min CN=93 Runoff=1.24 cfs 0.091 af

Subcatchment P3: Pr. Watershed P3 Runoff Area=0.254 ac 49.61% Impervious Runoff Depth=1.84"
Tc=6.0 min CN=86 Runoff=0.55 cfs 0.039 af

Reach PR1: Pr. Reach 1 (Existing Water Quality Device) Inflow=1.57 cfs 0.150 af
Outflow=1.57 cfs 0.150 af

Reach PS: Proposed Sum (Mount Vernon Street Drain System) Inflow=4.40 cfs 0.295 af
Outflow=4.40 cfs 0.295 af

Pond S1: Infiltration System 1 (SC-740 Peak Elev=13.16' Storage=0.047 af Inflow=1.15 cfs 0.083 af
Discarded=0.01 cfs 0.031 af Primary=0.10 cfs 0.026 af Outflow=0.11 cfs 0.057 af

Pond S2: Infiltration System 2 (SC-740 Peak Elev=14.18' Storage=0.075 af Inflow=2.56 cfs 0.196 af
Discarded=0.01 cfs 0.041 af Primary=2.40 cfs 0.106 af Outflow=2.41 cfs 0.147 af

Summary for Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)

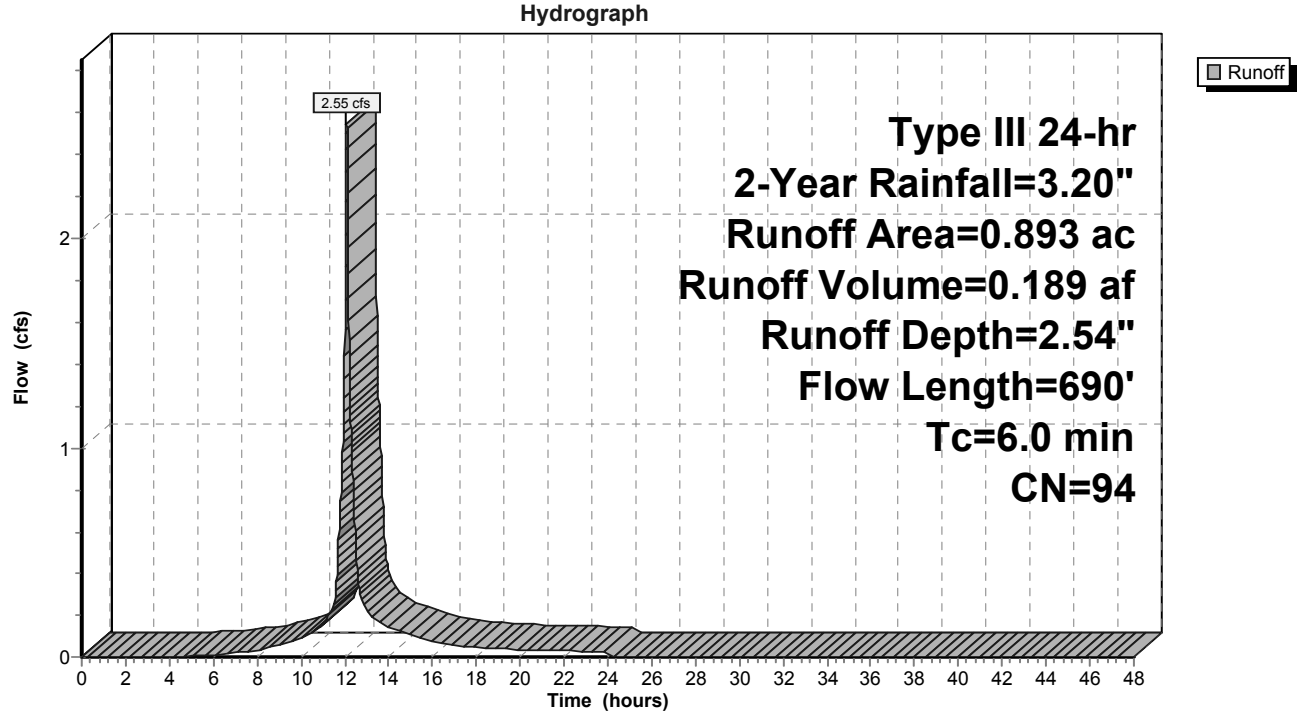
Runoff = 2.55 cfs @ 12.08 hrs, Volume= 0.189 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.025	98	Walks
	0.136	74	>75% Grass cover, Good, HSG C
*	0.732	98	Drives and Parking
	0.893	94	Weighted Average
	0.136		15.23% Pervious Area
	0.757		84.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)



Summary for Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)

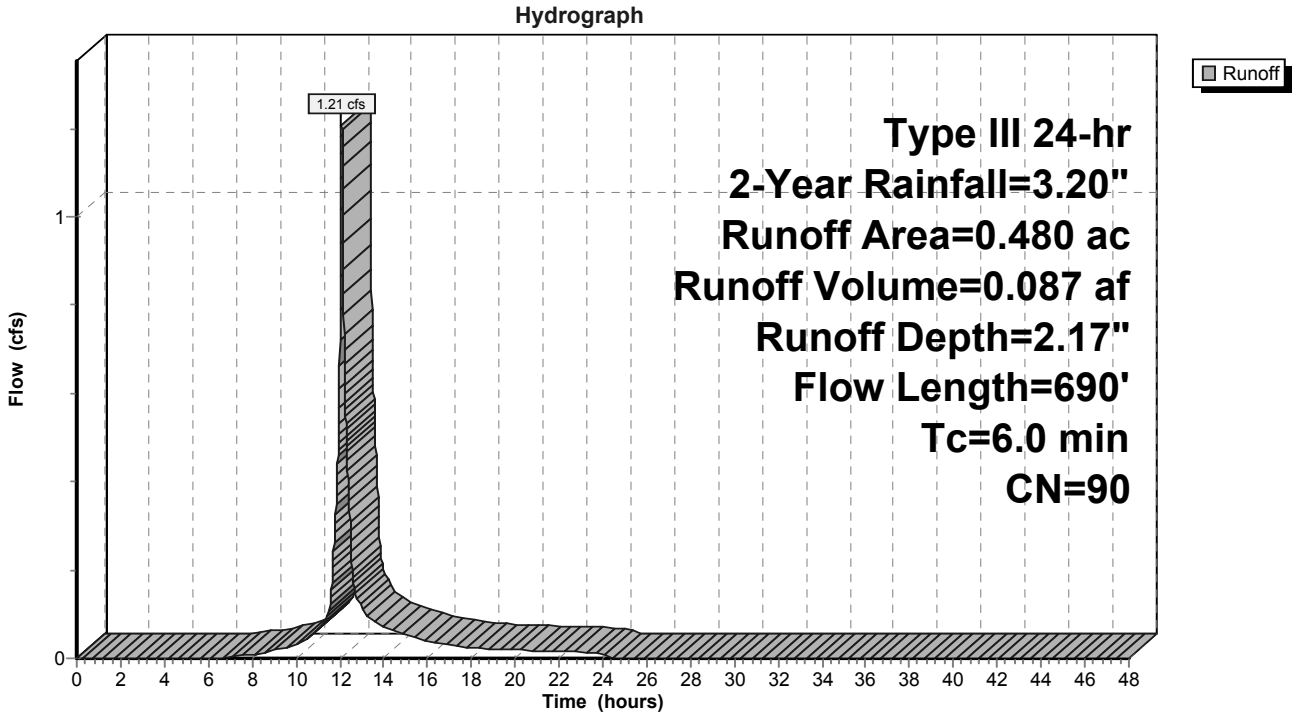
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.029	98	Roof
*	0.035	98	Walks
	0.167	74	>75% Grass cover, Good, HSG C
*	0.249	98	Drives and Parking
	0.480	90	Weighted Average
	0.167		34.79% Pervious Area
	0.313		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)



Summary for Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)

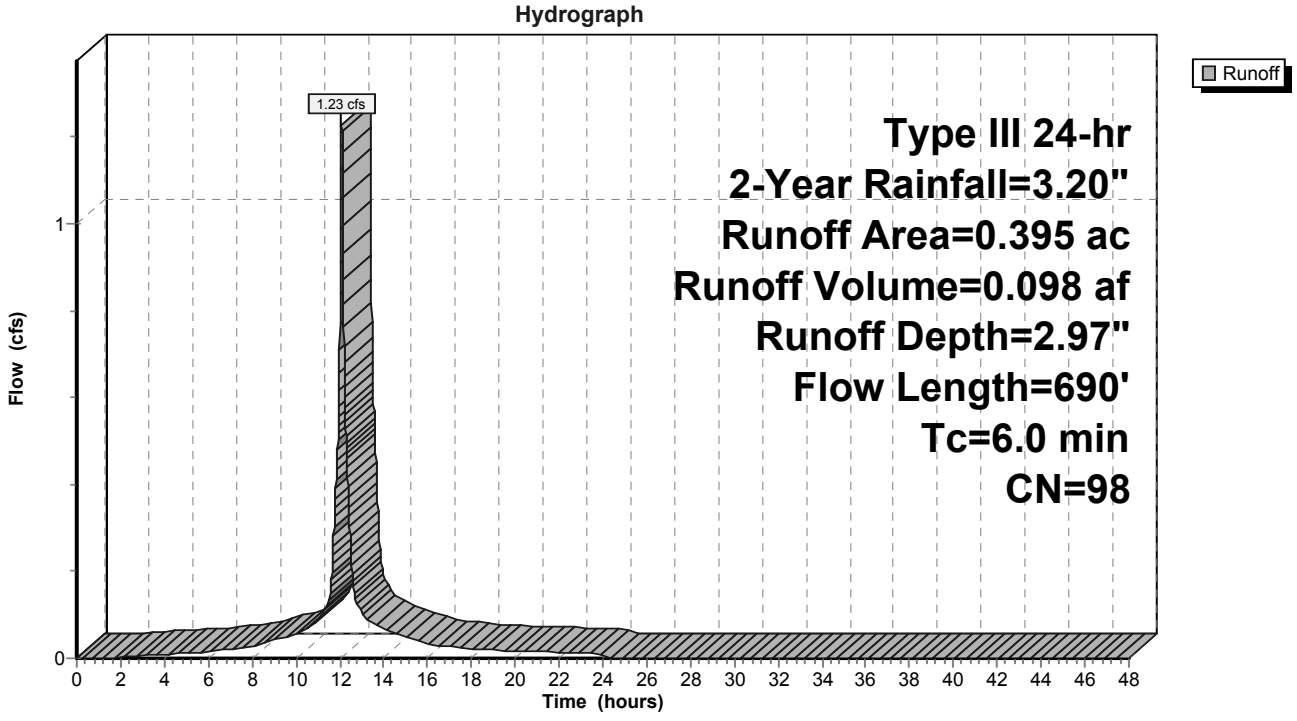
Runoff = 1.23 cfs @ 12.08 hrs, Volume= 0.098 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.395	98	Roof
	0.395		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)



Summary for Subcatchment E1D: Ex. Watershed E1D (UMass Drive)

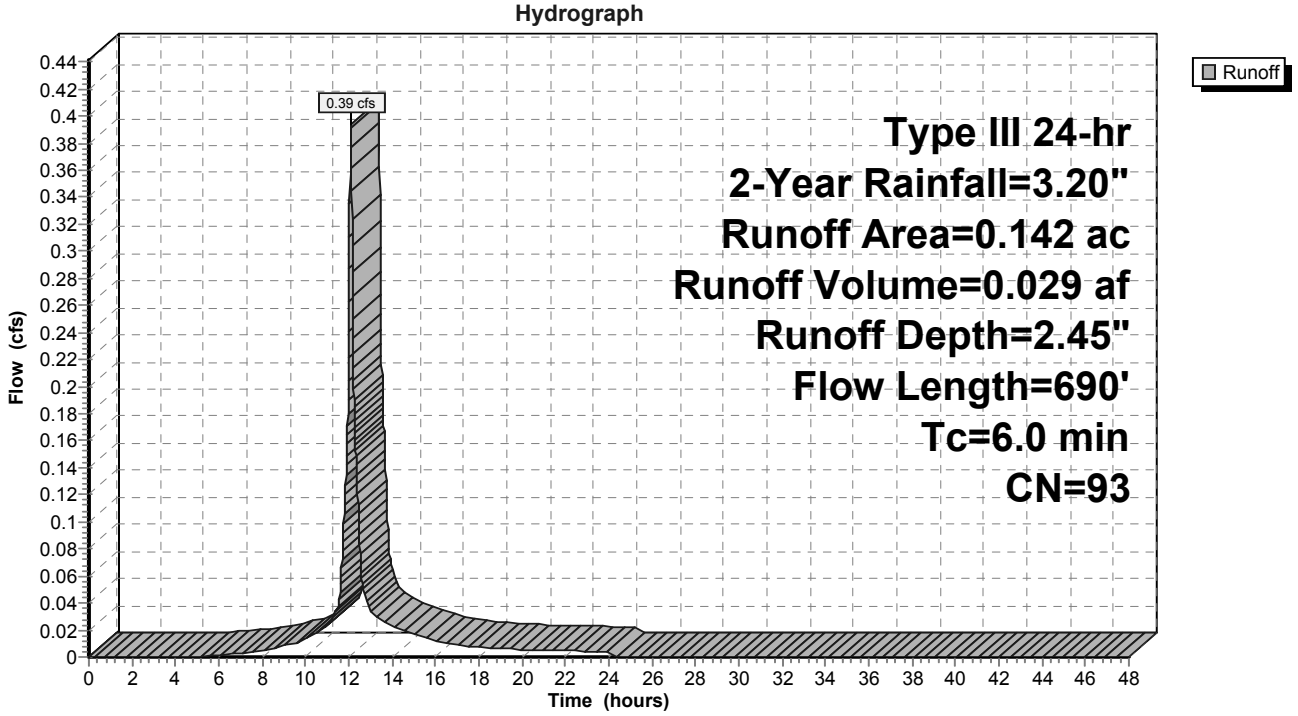
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.017	98	Walks
	0.028	74	>75% Grass cover, Good, HSG C
*	0.097	98	Drives and Parking
	0.142	93	Weighted Average
	0.028		19.72% Pervious Area
	0.114		80.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1D: Ex. Watershed E1D (UMass Drive)



Summary for Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)

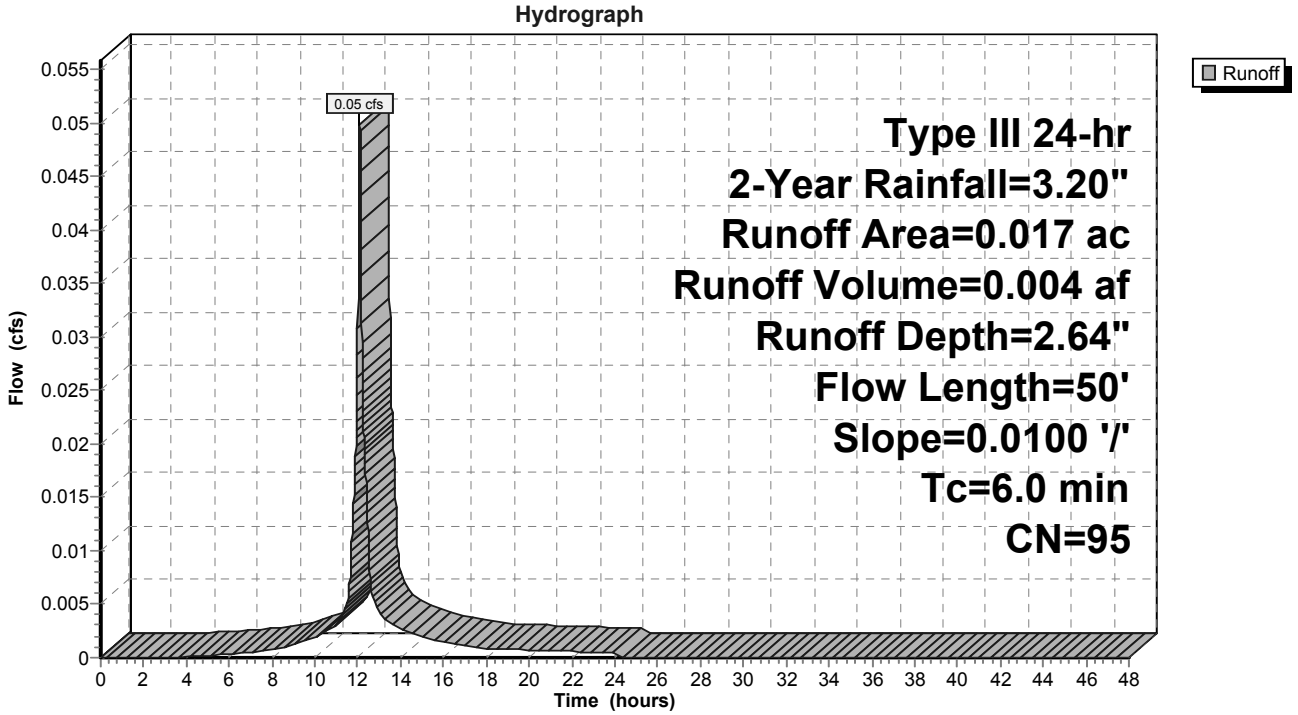
Runoff = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.015	98	Drives and Parking
	0.002	74	>75% Grass cover, Good, HSG C
	0.017	95	Weighted Average
	0.002		11.76% Pervious Area
	0.015		88.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	25	0.0100	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.1	25	0.0100	5.36	4.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
5.3					**Direct Entry, 1/10 Hour Minimum**
6.0	50	Total			

Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)



Summary for Subcatchment E3: Ex. Watershed E3 (Overland Flow)

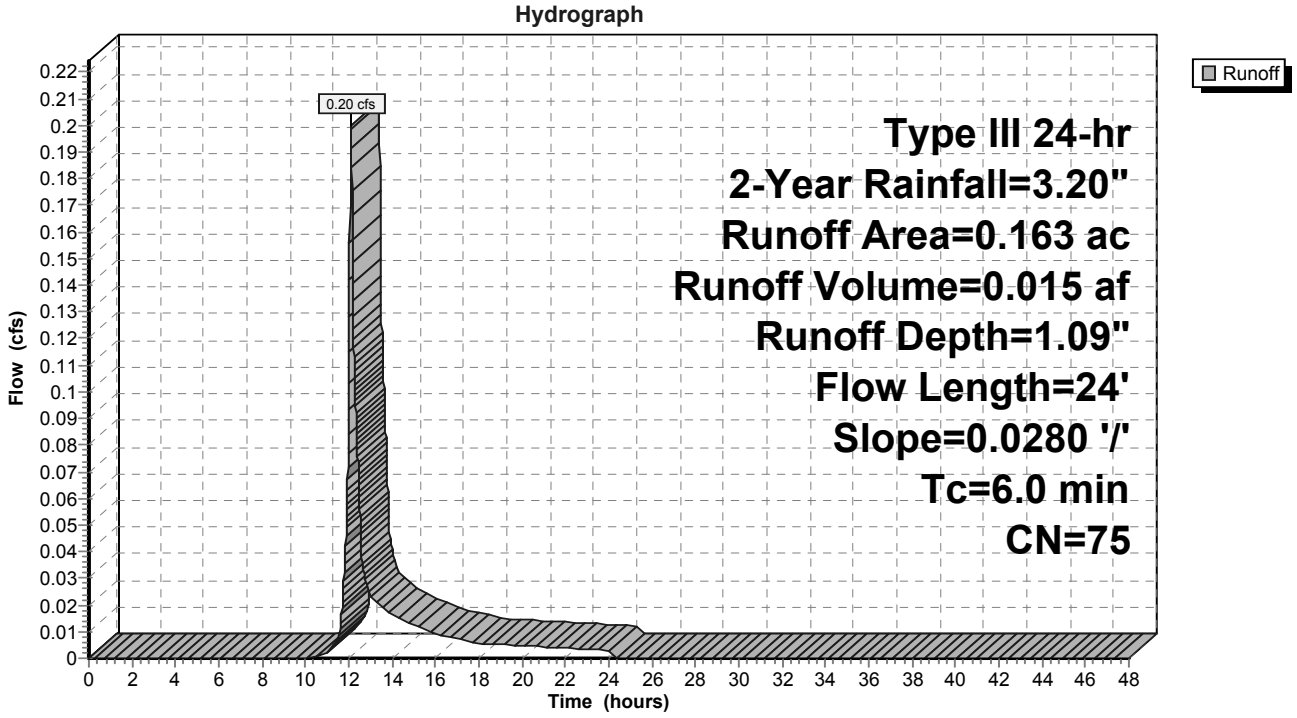
Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
	0.159	74	>75% Grass cover, Good, HSG C
*	0.004	98	Drives and Parking
	0.163	75	Weighted Average
	0.159		97.55% Pervious Area
	0.004		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0280	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.40"
1.4					**Direct Entry, 1/10 Hour Minimum**
6.0	24	Total			

Subcatchment E3: Ex. Watershed E3 (Overland Flow)



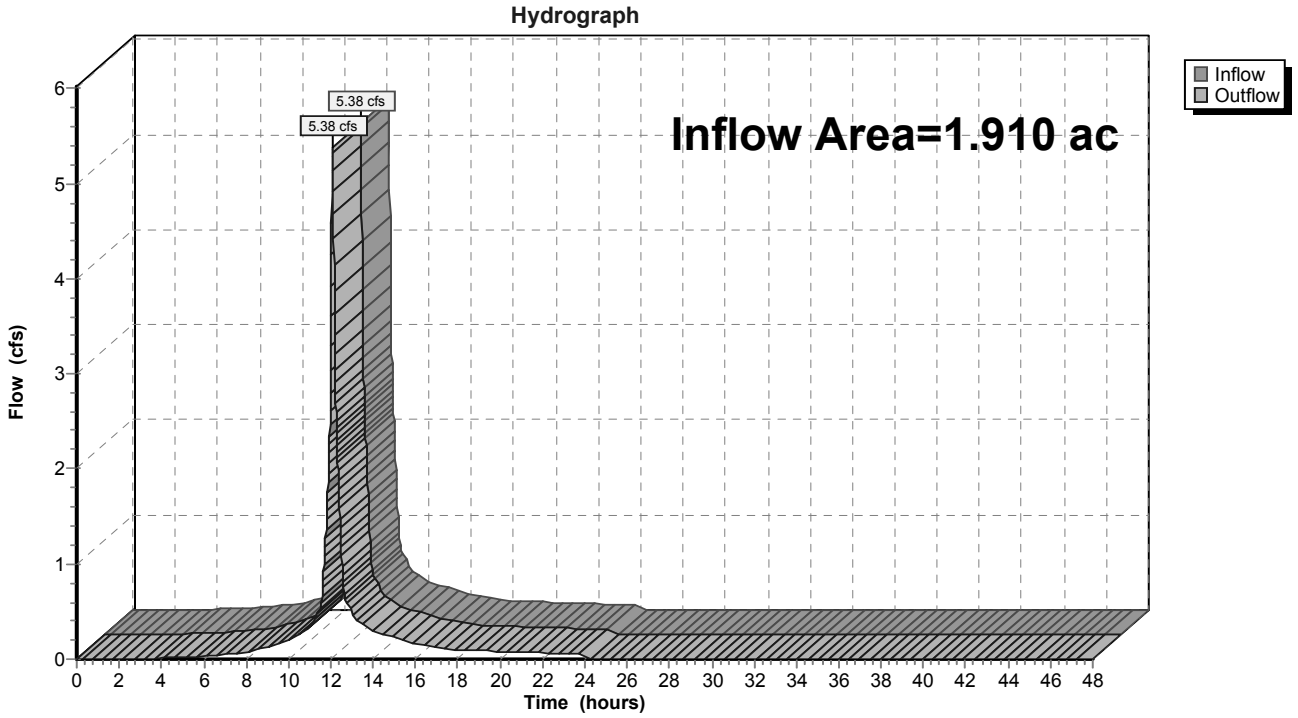
Summary for Reach ER1: Er. Reach 1 (Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.910 ac, 82.67% Impervious, Inflow Depth = 2.53" for 2-Year event
Inflow = 5.38 cfs @ 12.08 hrs, Volume= 0.403 af
Outflow = 5.38 cfs @ 12.08 hrs, Volume= 0.403 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ER1: Er. Reach 1 (Water Quality Device)



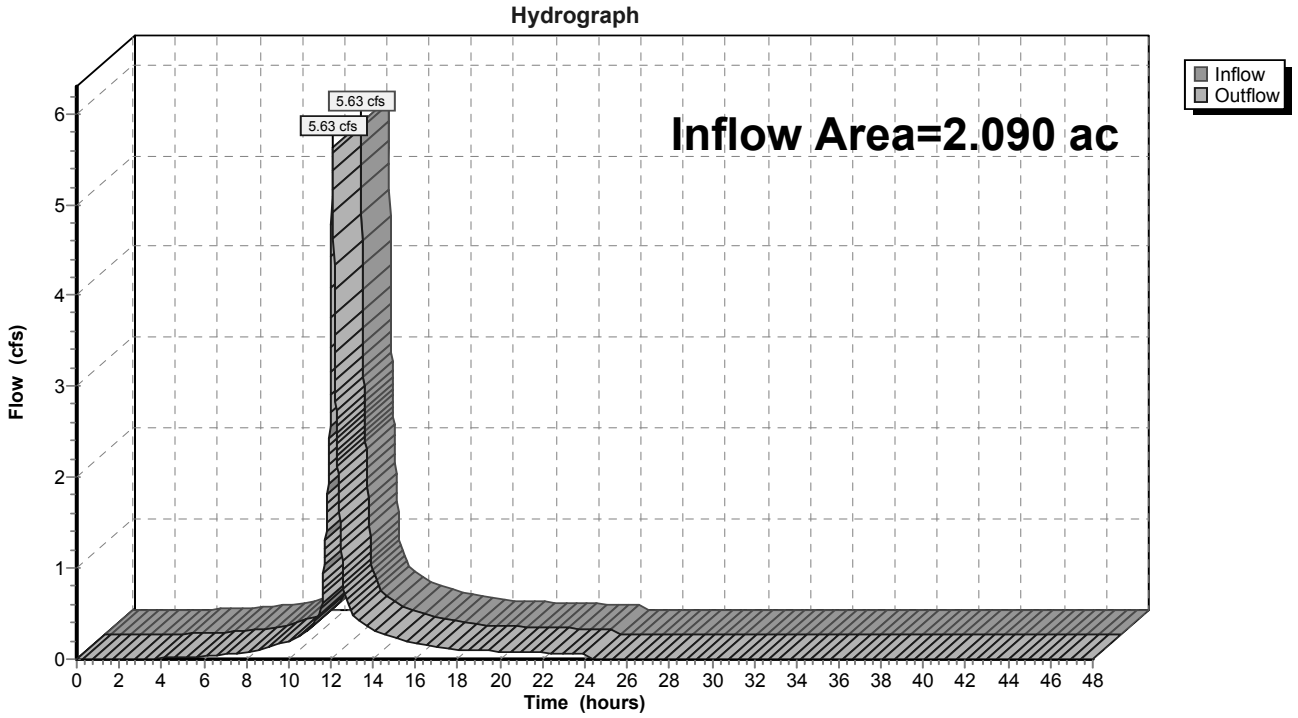
Summary for Reach ES: Existing Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 76.46% Impervious, Inflow Depth = 2.42" for 2-Year event
Inflow = 5.63 cfs @ 12.09 hrs, Volume= 0.421 af
Outflow = 5.63 cfs @ 12.09 hrs, Volume= 0.421 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ES: Existing Sum (Mount Vernon Street Drain System)



Summary for Subcatchment P1A: Pr. Watershed P1A (West Building Roof)

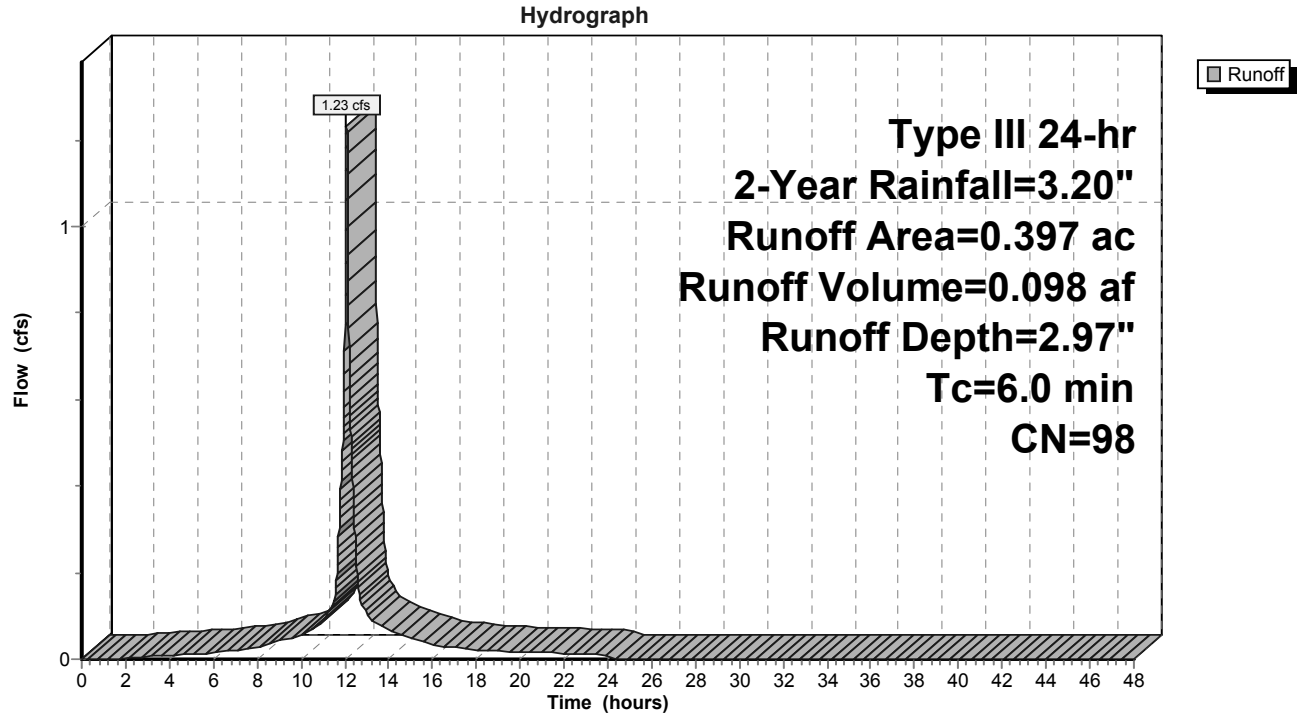
Runoff = 1.23 cfs @ 12.08 hrs, Volume= 0.098 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.397	98	Roof
	0.397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1A: Pr. Watershed P1A (West Building Roof)



mmary for Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration Sy

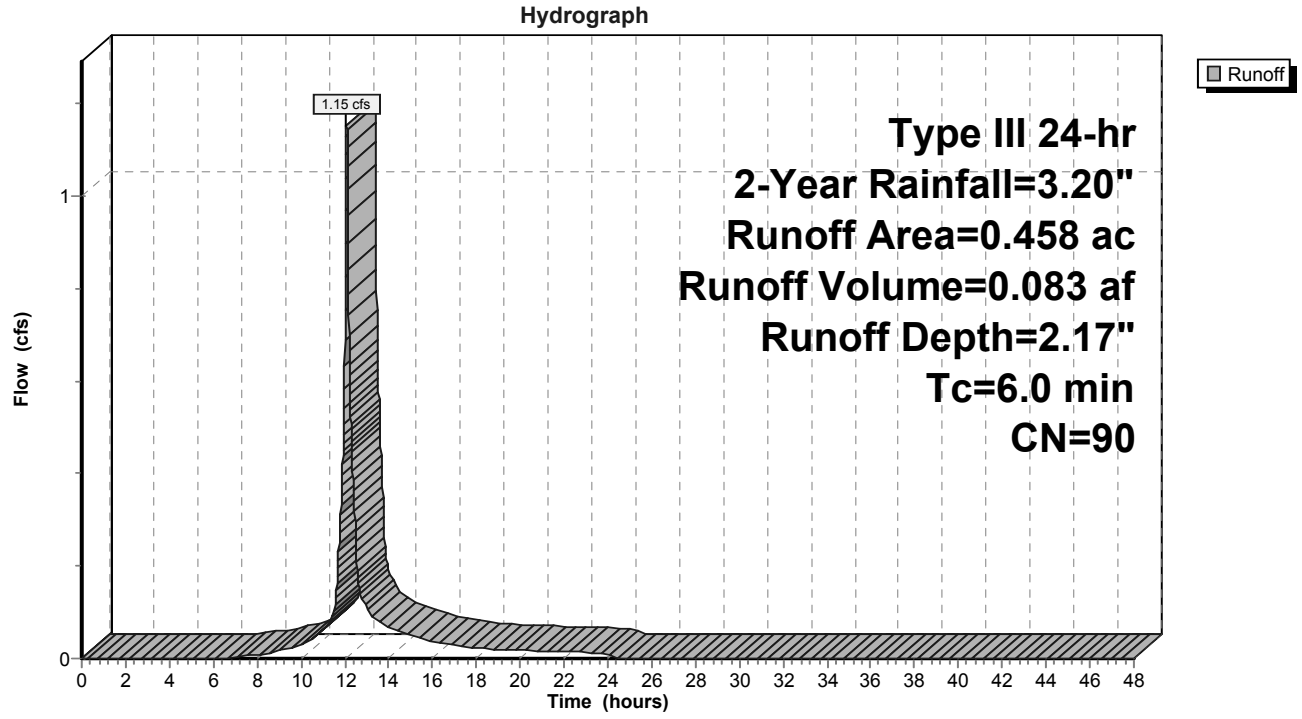
Runoff = 1.15 cfs @ 12.09 hrs, Volume= 0.083 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.302	98	Impervious
	0.156	74	>75% Grass cover, Good, HSG C
	0.458	90	Weighted Average
	0.156		34.06% Pervious Area
	0.302		65.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration System 1



Summary for Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)

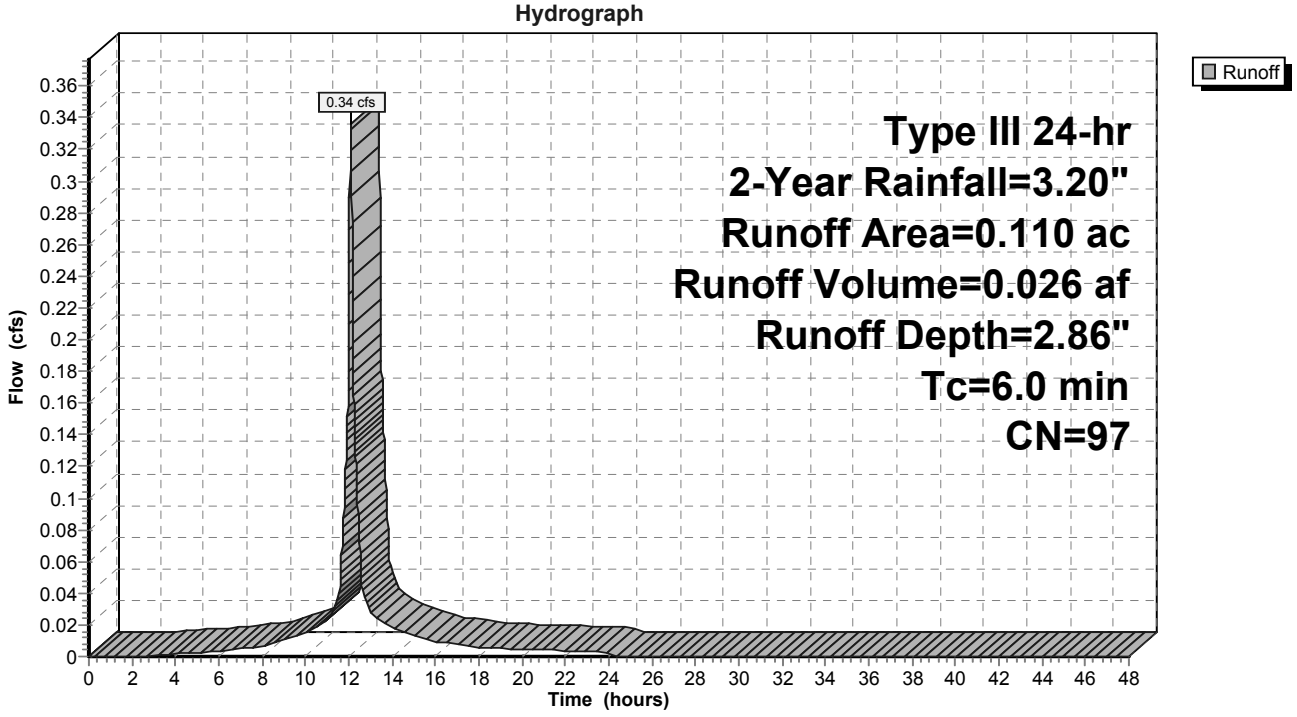
Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.026 af, Depth= 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.106	98	Impervious
	0.004	74	>75% Grass cover, Good, HSG C
	0.110	97	Weighted Average
	0.004		3.64% Pervious Area
	0.106		96.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)



Summary for Subcatchment P2A: Pr. Watershed P2A (East Building Roof)

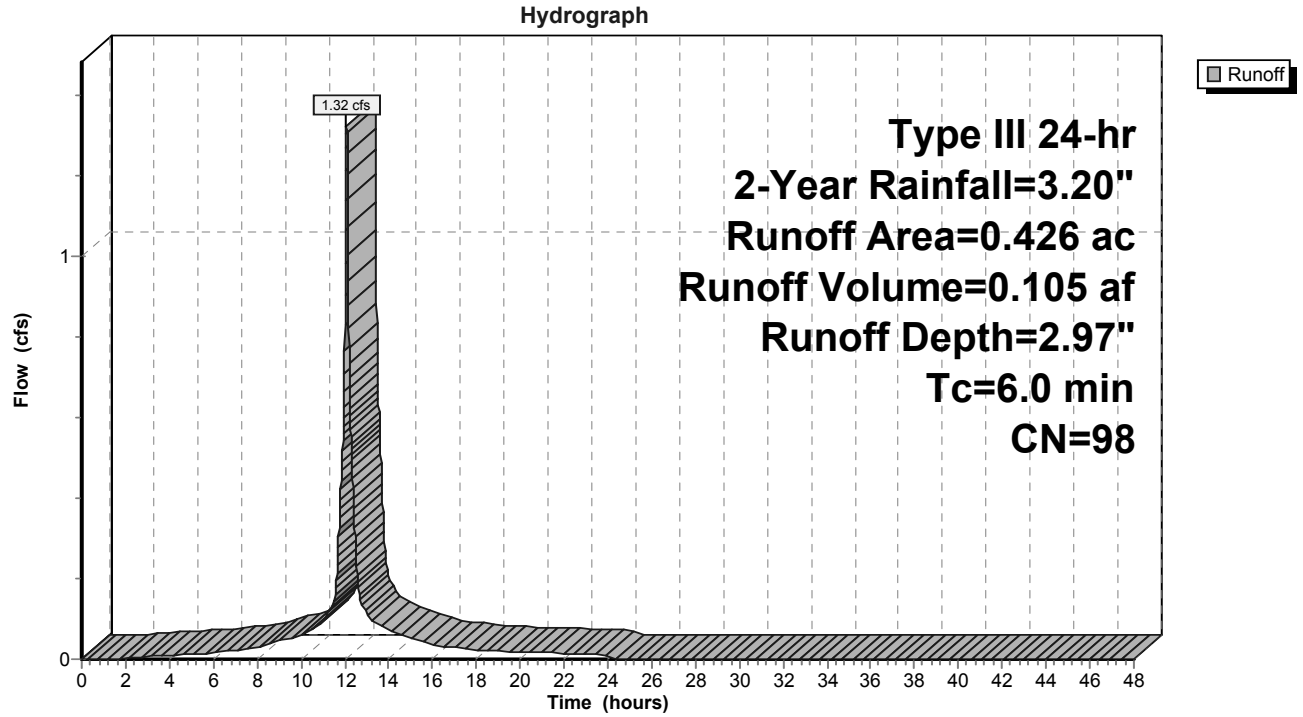
Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.105 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.426	98	Roof
	0.426		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2A: Pr. Watershed P2A (East Building Roof)



ummary for Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration Syst

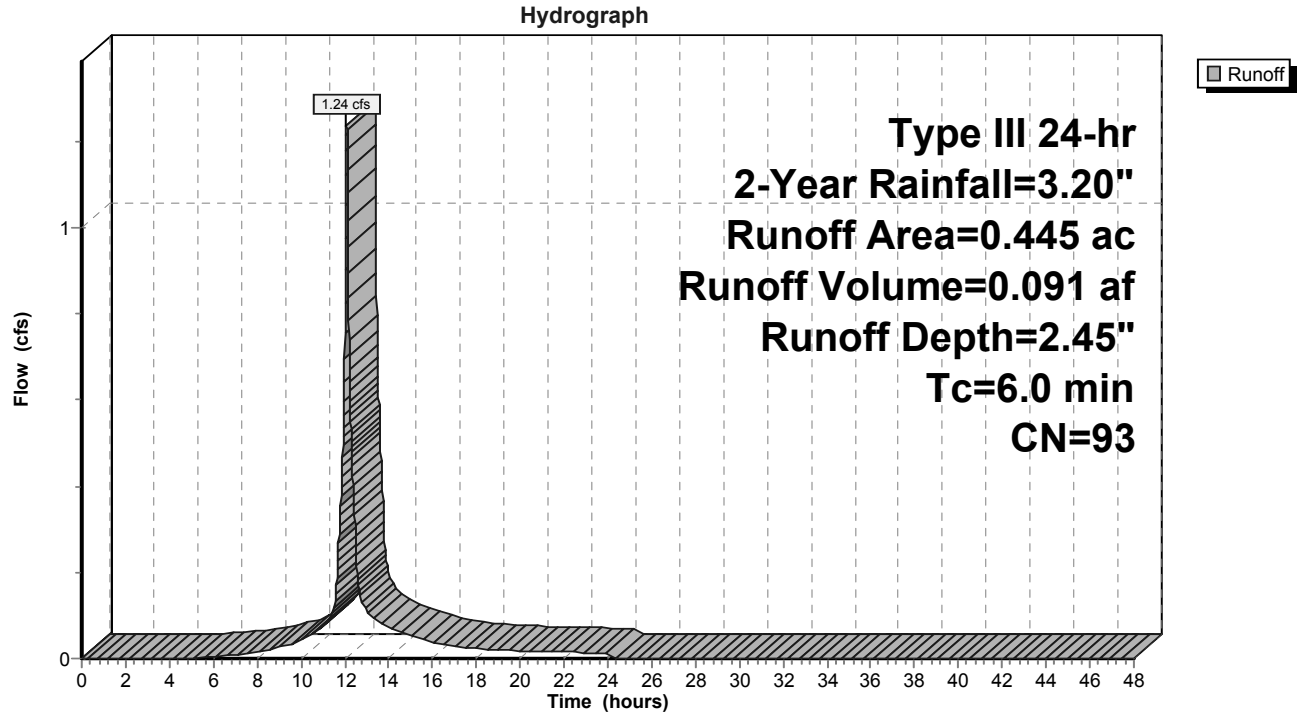
Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
	0.086	74	>75% Grass cover, Good, HSG C
*	0.359	98	Impervious
	0.445	93	Weighted Average
	0.086		19.33% Pervious Area
	0.359		80.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration System 2)



Summary for Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)

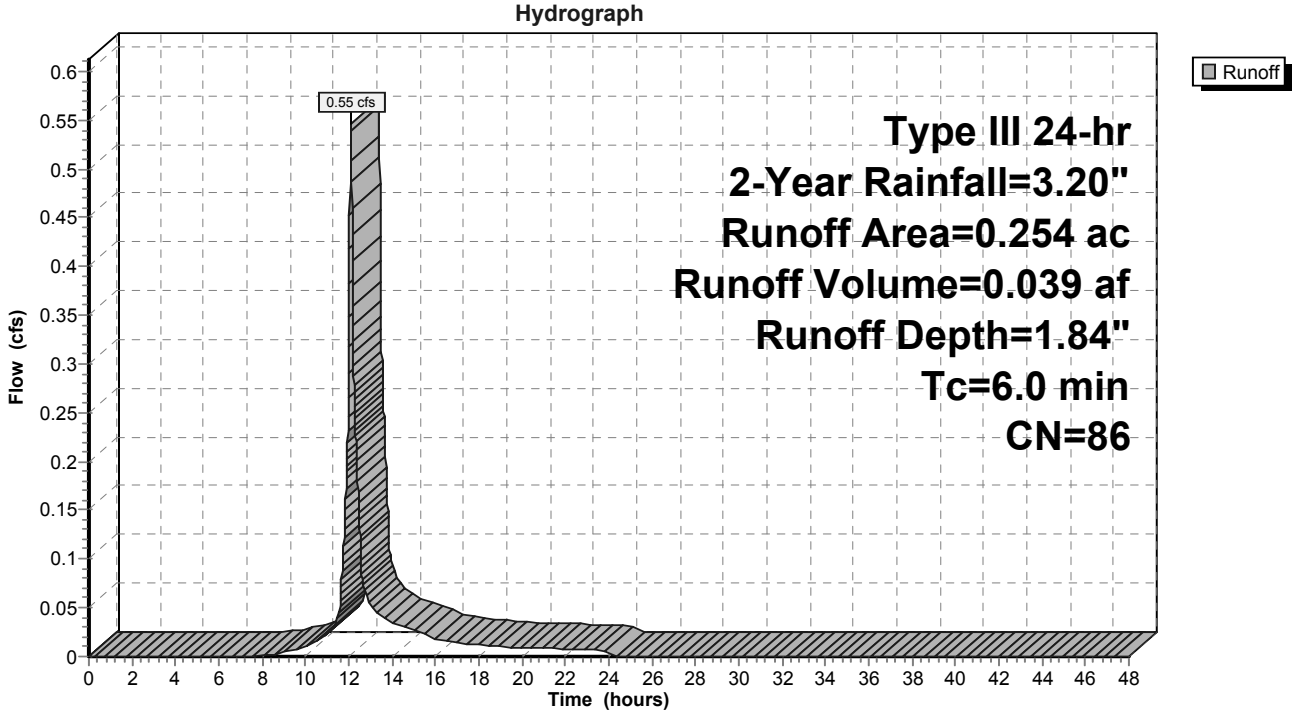
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
	0.128	74	>75% Grass cover, Good, HSG C
*	0.126	98	Impervious
	0.254	86	Weighted Average
	0.128		50.39% Pervious Area
	0.126		49.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)



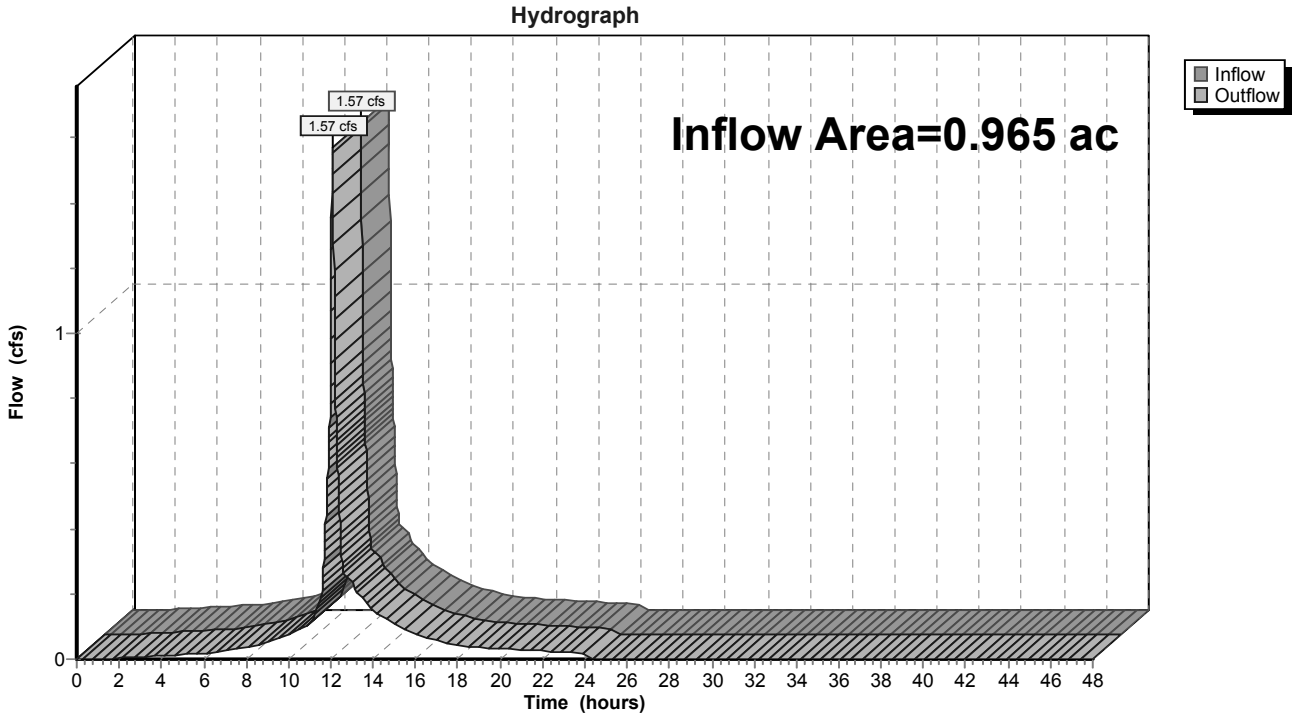
Summary for Reach PR1: Pr. Reach 1 (Existing Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.965 ac, 83.42% Impervious, Inflow Depth = 1.87" for 2-Year event
Inflow = 1.57 cfs @ 12.08 hrs, Volume= 0.150 af
Outflow = 1.57 cfs @ 12.08 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PR1: Pr. Reach 1 (Existing Water Quality Device)



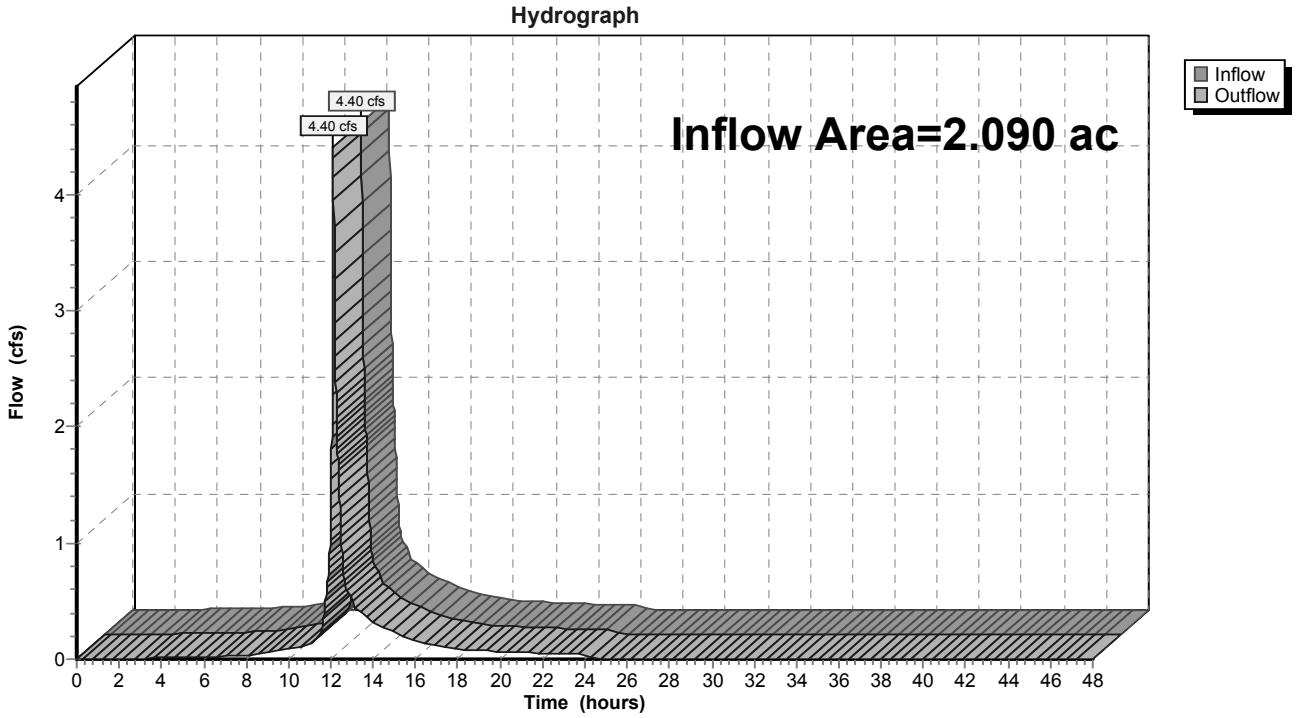
Summary for Reach PS: Proposed Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 82.11% Impervious, Inflow Depth = 1.69" for 2-Year event
Inflow = 4.40 cfs @ 12.11 hrs, Volume= 0.295 af
Outflow = 4.40 cfs @ 12.11 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PS: Proposed Sum (Mount Vernon Street Drain System)



Summary for Pond S1: Infiltration System 1 (SC-740 Chambers)

Inflow Area = 0.458 ac, 65.94% Impervious, Inflow Depth = 2.17" for 2-Year event
Inflow = 1.15 cfs @ 12.09 hrs, Volume= 0.083 af
Outflow = 0.11 cfs @ 12.96 hrs, Volume= 0.057 af, Atten= 90%, Lag= 52.2 min
Discarded = 0.01 cfs @ 8.63 hrs, Volume= 0.031 af
Primary = 0.10 cfs @ 12.96 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 13.16' @ 12.96 hrs Surf.Area= 0.034 ac Storage= 0.047 af

Plug-Flow detention time= 621.4 min calculated for 0.057 af (69% of inflow)
Center-of-Mass det. time= 526.9 min (1,333.8 - 806.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.023 af	**25.25'W x 59.40'L x 3.50'H Field A** 0.121 af Overall - 0.043 af Embedded = 0.078 af x 30.0% Voids
#2A	11.50'	0.043 af	**ADS_StormTech SC-740** x 40 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.066 af	Total Available Storage

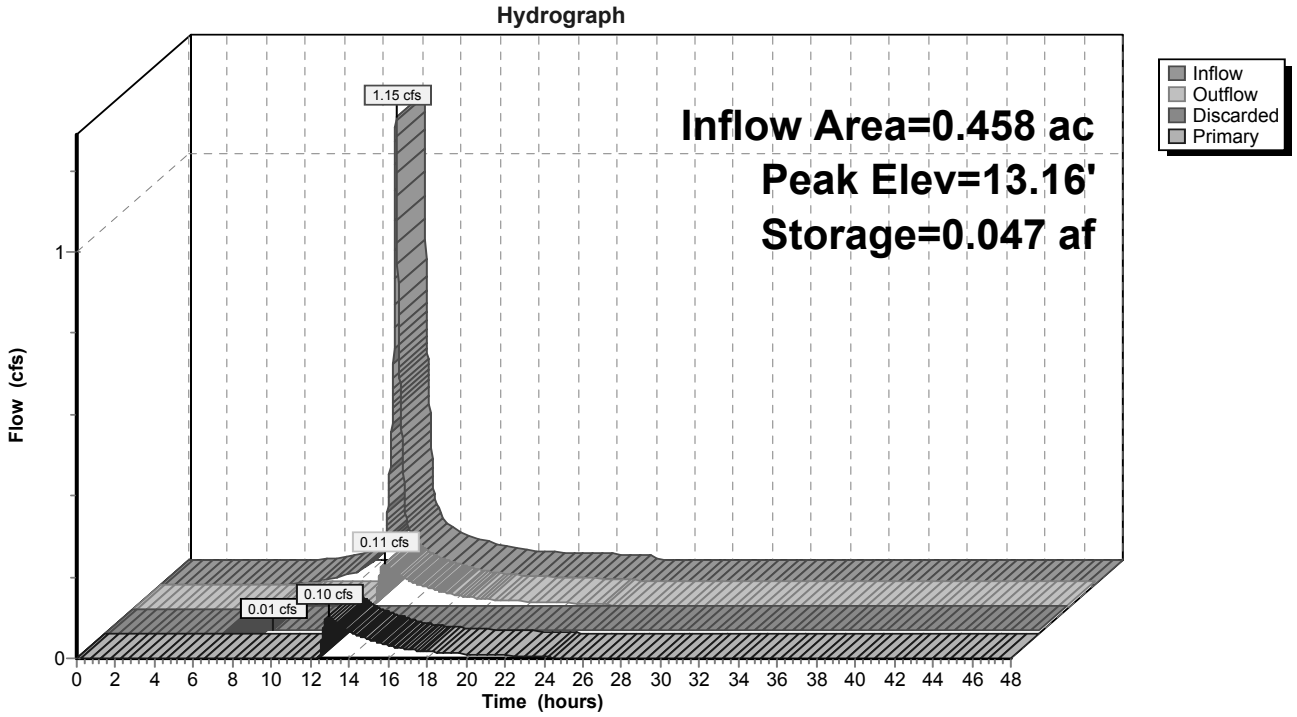
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.50'	**18.0" Round Culvert** L= 15.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.50' / 10.35' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	14.00'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	13.00'	**10.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.63 hrs HW=11.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.10 cfs @ 12.96 hrs HW=13.16' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 11.76 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.10 cfs @ 1.37 fps)

Pond S1: Infiltration System 1 (SC-740 Chambers)



Summary for Pond S2: Infiltration System 2 (SC-740 Chambers)

Inflow Area = 0.871 ac, 90.13% Impervious, Inflow Depth = 2.70" for 2-Year event
Inflow = 2.56 cfs @ 12.08 hrs, Volume= 0.196 af
Outflow = 2.41 cfs @ 12.11 hrs, Volume= 0.147 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.01 cfs @ 4.89 hrs, Volume= 0.041 af
Primary = 2.40 cfs @ 12.11 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.11 hrs Surf.Area= 0.041 ac Storage= 0.075 af

Plug-Flow detention time= 352.5 min calculated for 0.147 af (75% of inflow)
Center-of-Mass det. time= 266.6 min (1,039.8 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.028 af	**30.00'W x 59.40'L x 3.50'H Field A** 0.143 af Overall - 0.051 af Embedded = 0.092 af x 30.0% Voids
#2A	11.50'	0.051 af	**ADS_StormTech SC-740** x 48 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.079 af	Total Available Storage

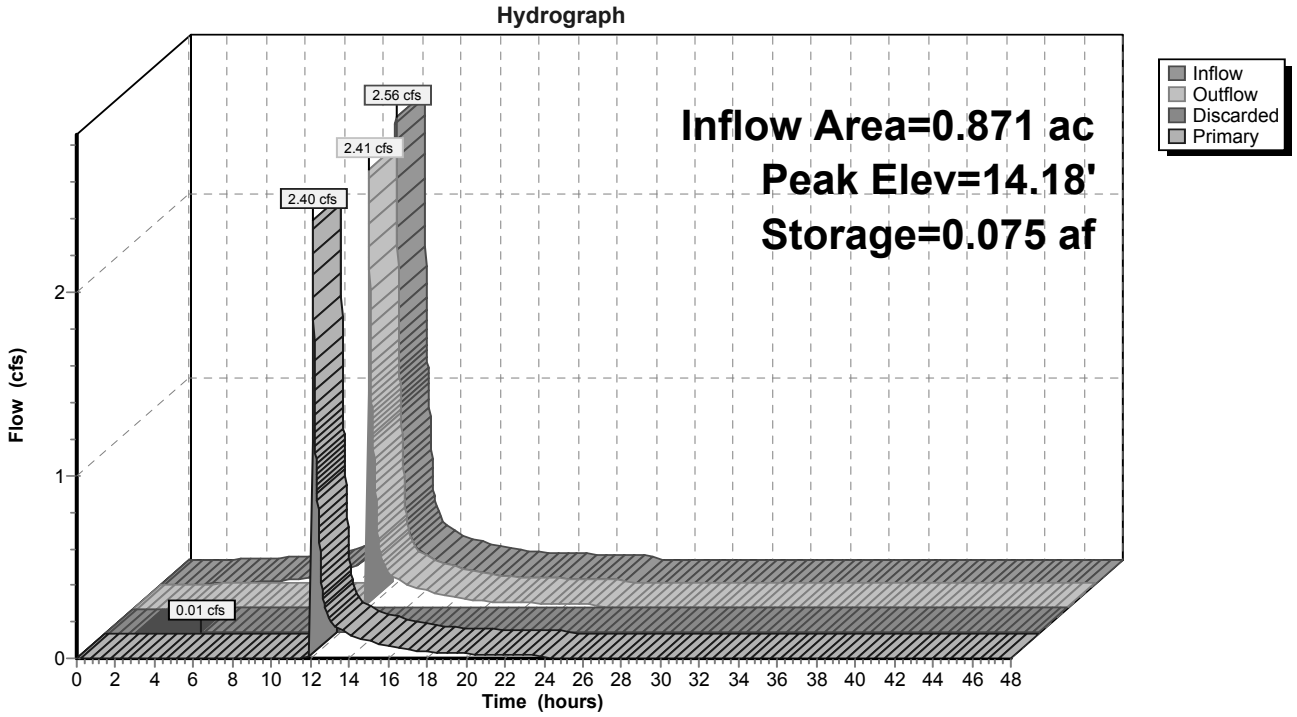
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	11.55'	**18.0" Round Culvert** L= 41.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.55' / 11.35' S= 0.0049 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	13.90'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 4.89 hrs HW=11.04' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=2.38 cfs @ 12.11 hrs HW=14.18' (Free Discharge)
└**1=Culvert** (Passes 2.38 cfs of 11.45 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.38 cfs @ 1.73 fps)

Pond S2: Infiltration System 2 (SC-740 Chambers)



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1A: Ex. Watershed E1A Runoff Area=0.893 ac 84.77% Impervious Runoff Depth=3.91"
Flow Length=690' Tc=6.0 min CN=94 Runoff=3.83 cfs 0.291 af

Subcatchment E1B: Ex. Watershed E1B Runoff Area=0.480 ac 65.21% Impervious Runoff Depth=3.49"
Flow Length=690' Tc=6.0 min CN=90 Runoff=1.91 cfs 0.140 af

Subcatchment E1C: Ex. Watershed E1C Runoff Area=0.395 ac 100.00% Impervious Runoff Depth=4.36"
Flow Length=690' Tc=6.0 min CN=98 Runoff=1.78 cfs 0.144 af

Subcatchment E1D: Ex. Watershed E1D Runoff Area=0.142 ac 80.28% Impervious Runoff Depth=3.81"
Flow Length=690' Tc=6.0 min CN=93 Runoff=0.60 cfs 0.045 af

Subcatchment E2: Ex. Watershed 2 (Offsite Runoff Area=0.017 ac 88.24% Impervious Runoff Depth=4.02"
Flow Length=50' Slope=0.0100 '/' Tc=6.0 min CN=95 Runoff=0.07 cfs 0.006 af

Subcatchment E3: Ex. Watershed E3 Runoff Area=0.163 ac 2.45% Impervious Runoff Depth=2.13"
Flow Length=24' Slope=0.0280 '/' Tc=6.0 min CN=75 Runoff=0.40 cfs 0.029 af

Reach ER1: Er. Reach 1 (Water Quality Device) Inflow=8.11 cfs 0.620 af
Outflow=8.11 cfs 0.620 af

Reach ES: Existing Sum (Mount Vernon Street Drain System) Inflow=8.59 cfs 0.654 af
Outflow=8.59 cfs 0.654 af

Subcatchment P1A: Pr. Watershed P1A Runoff Area=0.397 ac 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.78 cfs 0.144 af

Subcatchment P1B: Pr. Watershed P1B Runoff Area=0.458 ac 65.94% Impervious Runoff Depth=3.49"
Tc=6.0 min CN=90 Runoff=1.82 cfs 0.133 af

Subcatchment P1C: Pr. Watershed P1C Runoff Area=0.110 ac 96.36% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=0.49 cfs 0.039 af

Subcatchment P2A: Pr. Watershed P2A Runoff Area=0.426 ac 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.92 cfs 0.155 af

Subcatchment P2B: Pr. Watershed P2B Runoff Area=0.445 ac 80.67% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=1.88 cfs 0.141 af

Subcatchment P3: Pr. Watershed P3 Runoff Area=0.254 ac 49.61% Impervious Runoff Depth=3.10"
Tc=6.0 min CN=86 Runoff=0.91 cfs 0.066 af

Reach PR1: Pr. Reach 1 (Existing Water Quality Device) Inflow=2.49 cfs 0.258 af
Outflow=2.49 cfs 0.258 af

Reach PS: Proposed Sum (Mount Vernon Street Drain System) Inflow=7.06 cfs 0.529 af
Outflow=7.06 cfs 0.529 af

Pond S1: Infiltration System 1 (SC-740 Peak Elev=13.54' Storage=0.054 af Inflow=1.82 cfs 0.133 af
Discarded=0.01 cfs 0.032 af Primary=0.94 cfs 0.075 af Outflow=0.95 cfs 0.108 af

Pond S2: Infiltration System 2 (SC-740 Peak Elev=14.28' Storage=0.076 af Inflow=3.79 cfs 0.296 af
Discarded=0.01 cfs 0.042 af Primary=3.75 cfs 0.205 af Outflow=3.76 cfs 0.247 af

Summary for Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)

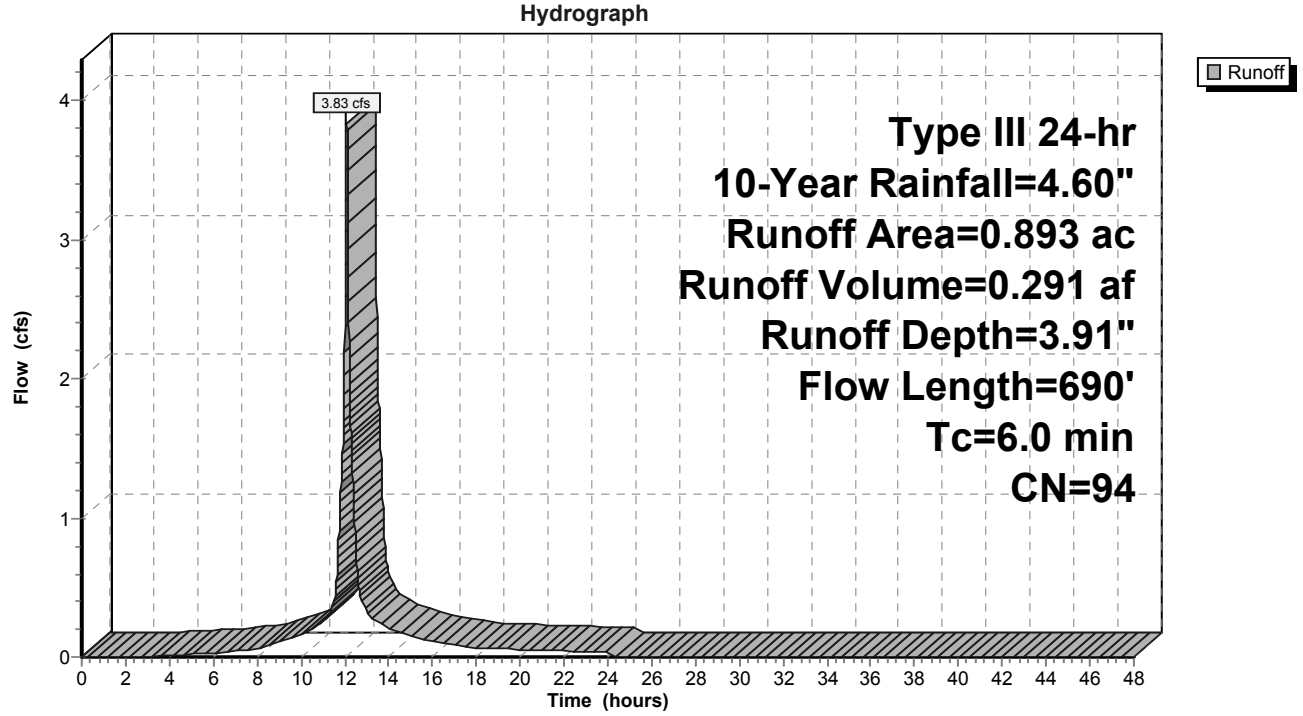
Runoff = 3.83 cfs @ 12.08 hrs, Volume= 0.291 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.025	98	Walks
	0.136	74	>75% Grass cover, Good, HSG C
*	0.732	98	Drives and Parking
	0.893	94	Weighted Average
	0.136		15.23% Pervious Area
	0.757		84.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)



Summary for Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)

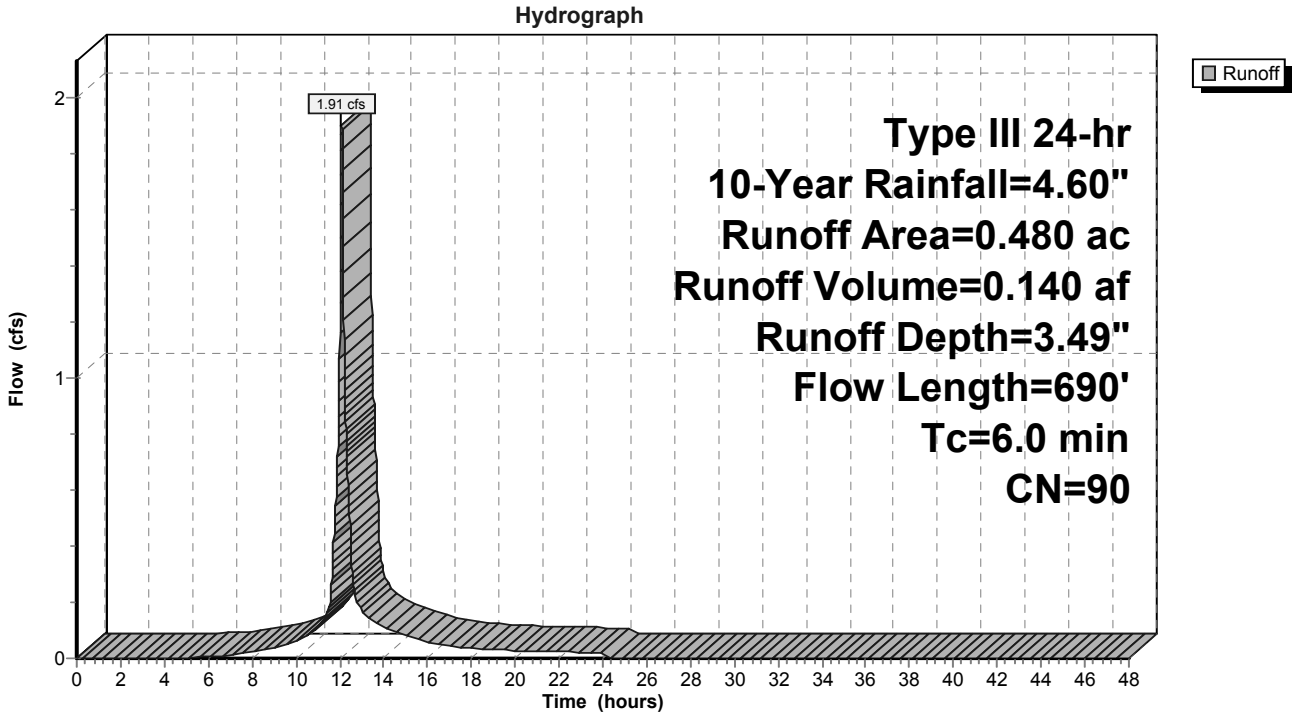
Runoff = 1.91 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.029	98	Roof
*	0.035	98	Walks
	0.167	74	>75% Grass cover, Good, HSG C
*	0.249	98	Drives and Parking
	0.480	90	Weighted Average
	0.167		34.79% Pervious Area
	0.313		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)



Summary for Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)

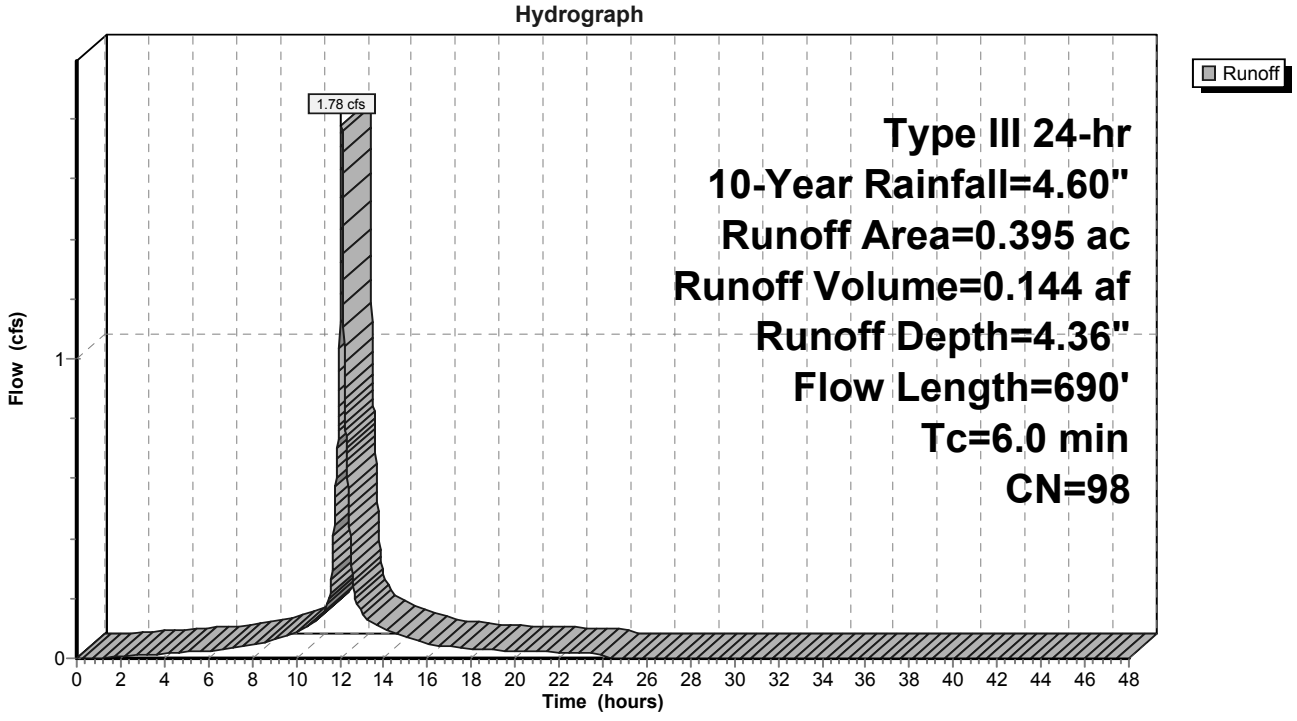
Runoff = 1.78 cfs @ 12.08 hrs, Volume= 0.144 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.395	98	Roof
	0.395		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)



Summary for Subcatchment E1D: Ex. Watershed E1D (UMass Drive)

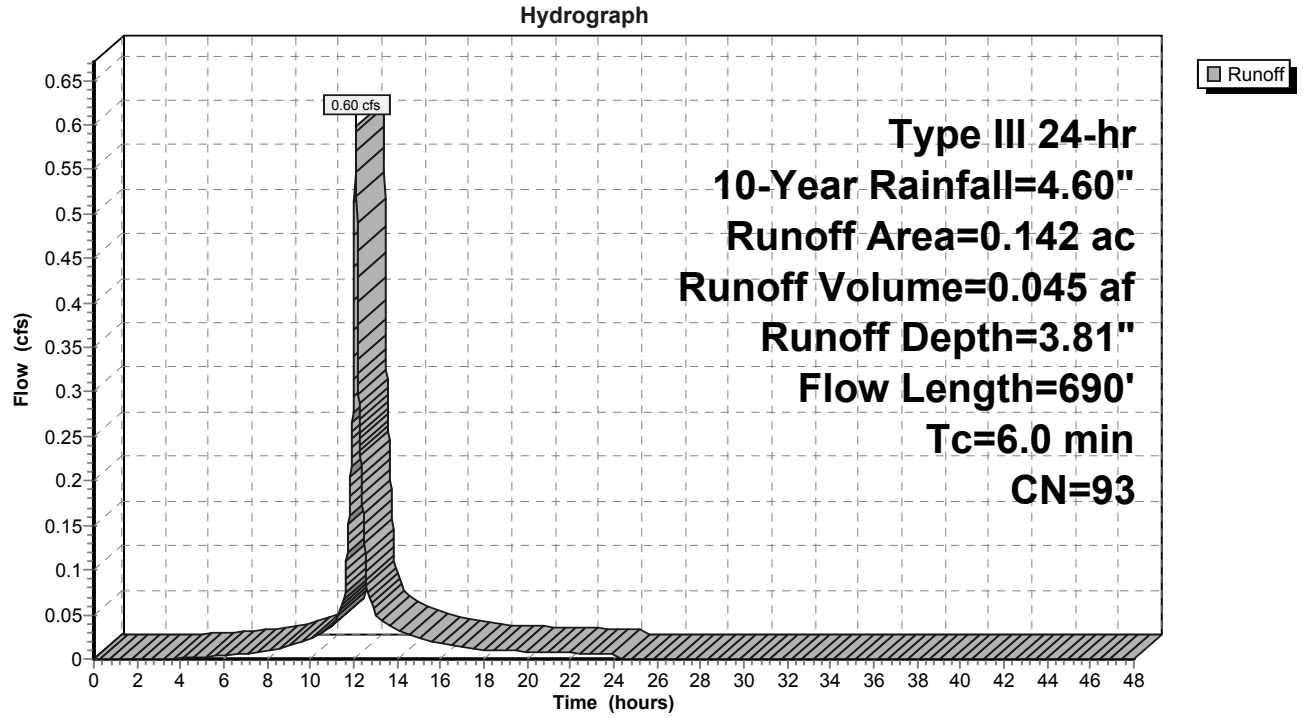
Runoff = 0.60 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.017	98	Walks
	0.028	74	>75% Grass cover, Good, HSG C
*	0.097	98	Drives and Parking
	0.142	93	Weighted Average
	0.028		19.72% Pervious Area
	0.114		80.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1D: Ex. Watershed E1D (UMass Drive)



Summary for Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)

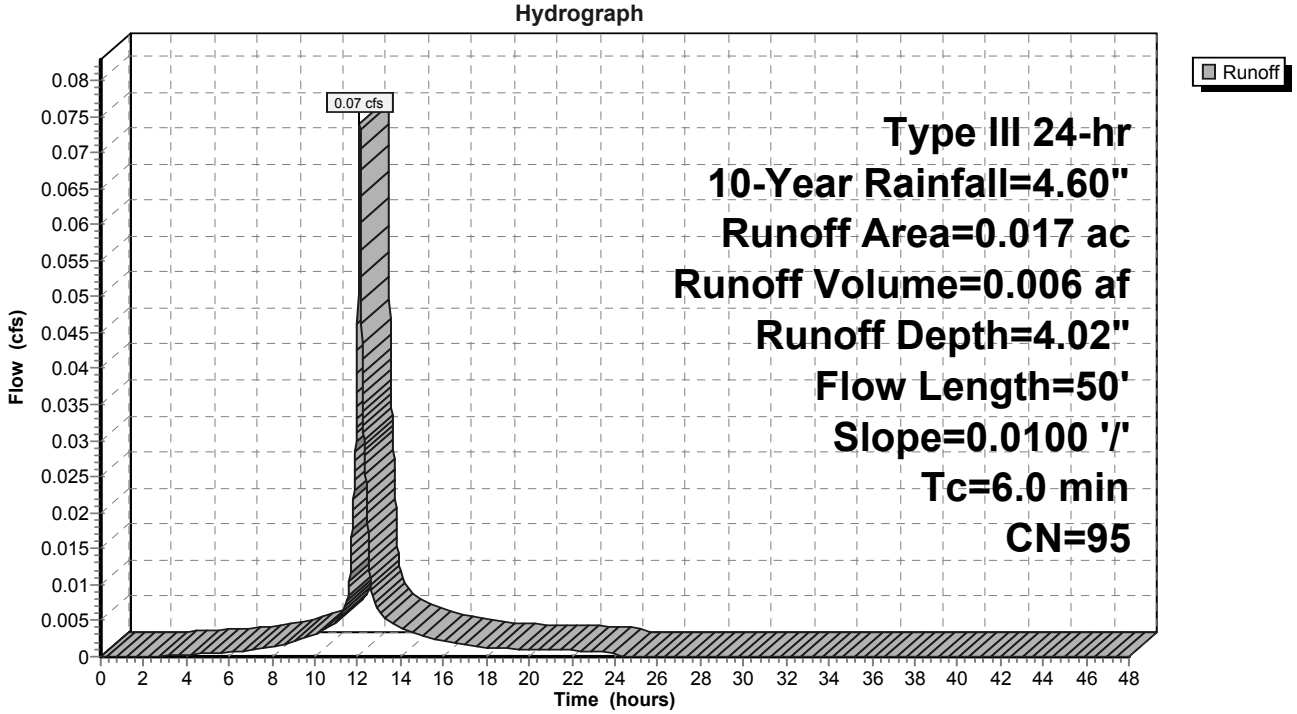
Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.006 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.015	98	Drives and Parking
	0.002	74	>75% Grass cover, Good, HSG C
	0.017	95	Weighted Average
	0.002		11.76% Pervious Area
	0.015		88.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	25	0.0100	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.1	25	0.0100	5.36	4.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
5.3					**Direct Entry, 1/10 Hour Minimum**
6.0	50	Total			

Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)



Summary for Subcatchment E3: Ex. Watershed E3 (Overland Flow)

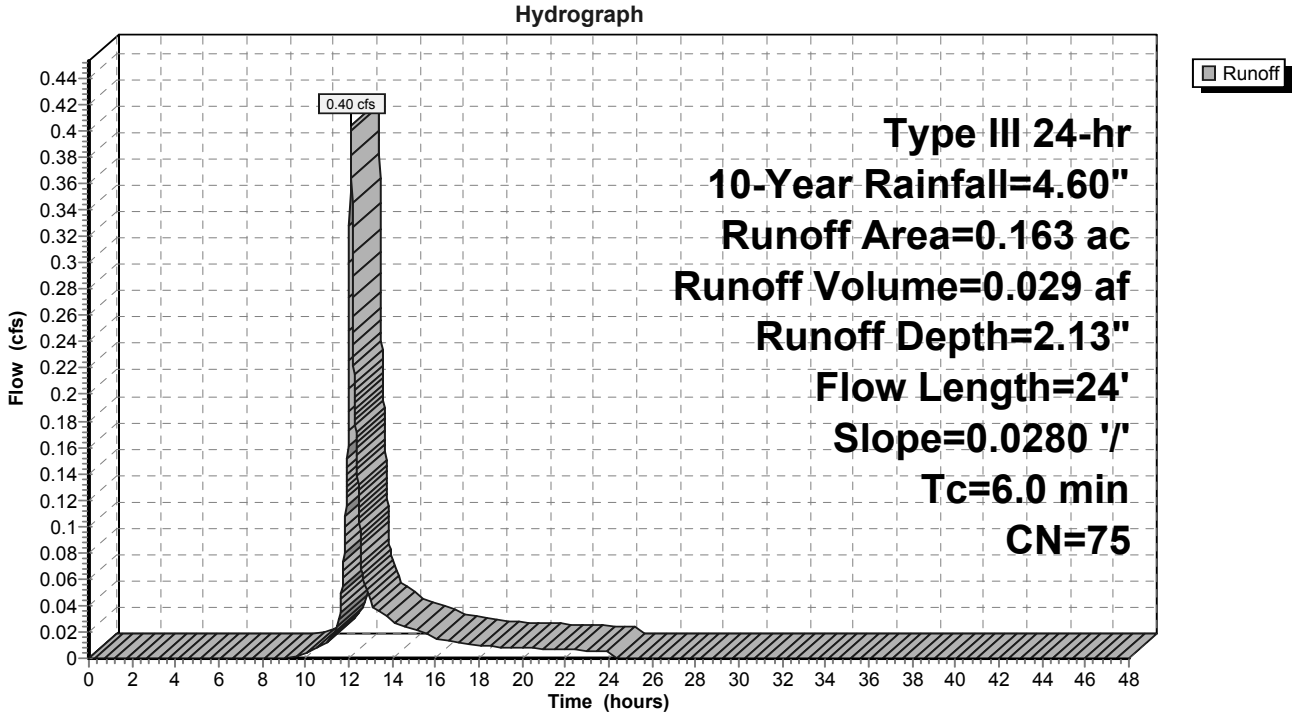
Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
	0.159	74	>75% Grass cover, Good, HSG C
*	0.004	98	Drives and Parking
	0.163	75	Weighted Average
	0.159		97.55% Pervious Area
	0.004		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0280	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.40"
1.4					**Direct Entry, 1/10 Hour Minimum**
6.0	24	Total			

Subcatchment E3: Ex. Watershed E3 (Overland Flow)



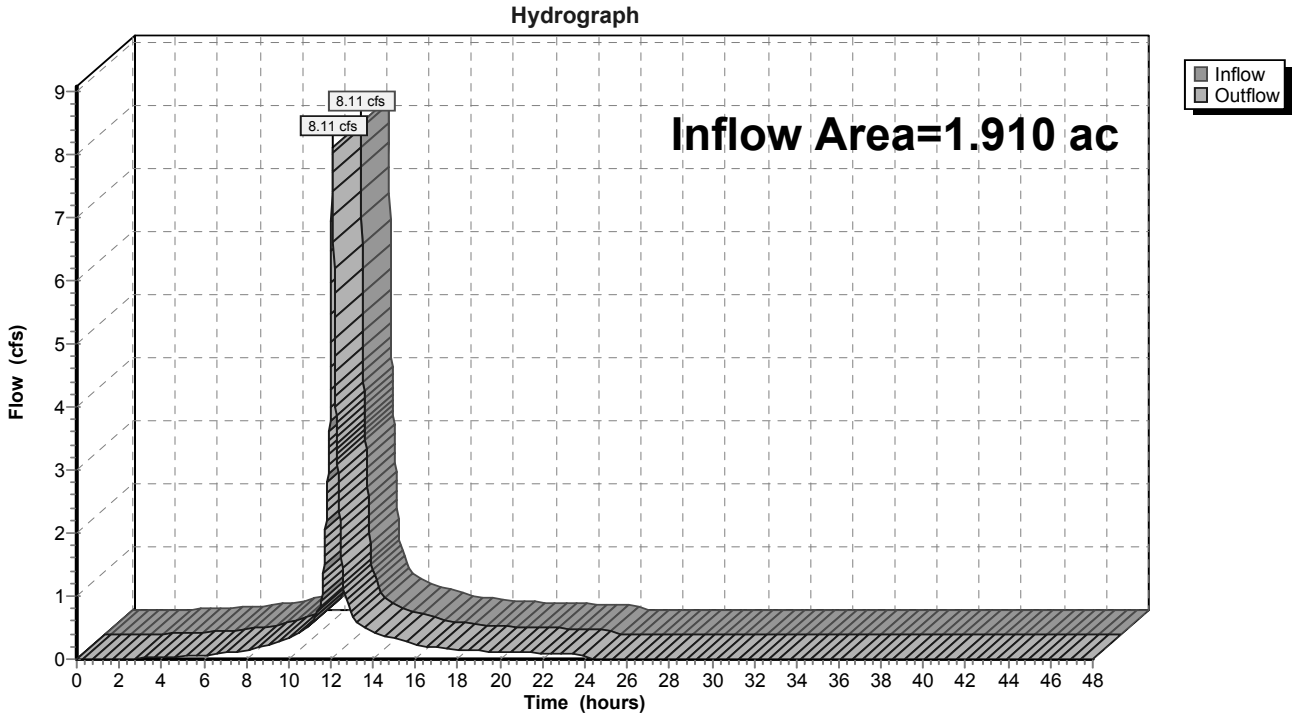
Summary for Reach ER1: Er. Reach 1 (Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.910 ac, 82.67% Impervious, Inflow Depth = 3.89" for 10-Year event
Inflow = 8.11 cfs @ 12.08 hrs, Volume= 0.620 af
Outflow = 8.11 cfs @ 12.08 hrs, Volume= 0.620 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ER1: Er. Reach 1 (Water Quality Device)



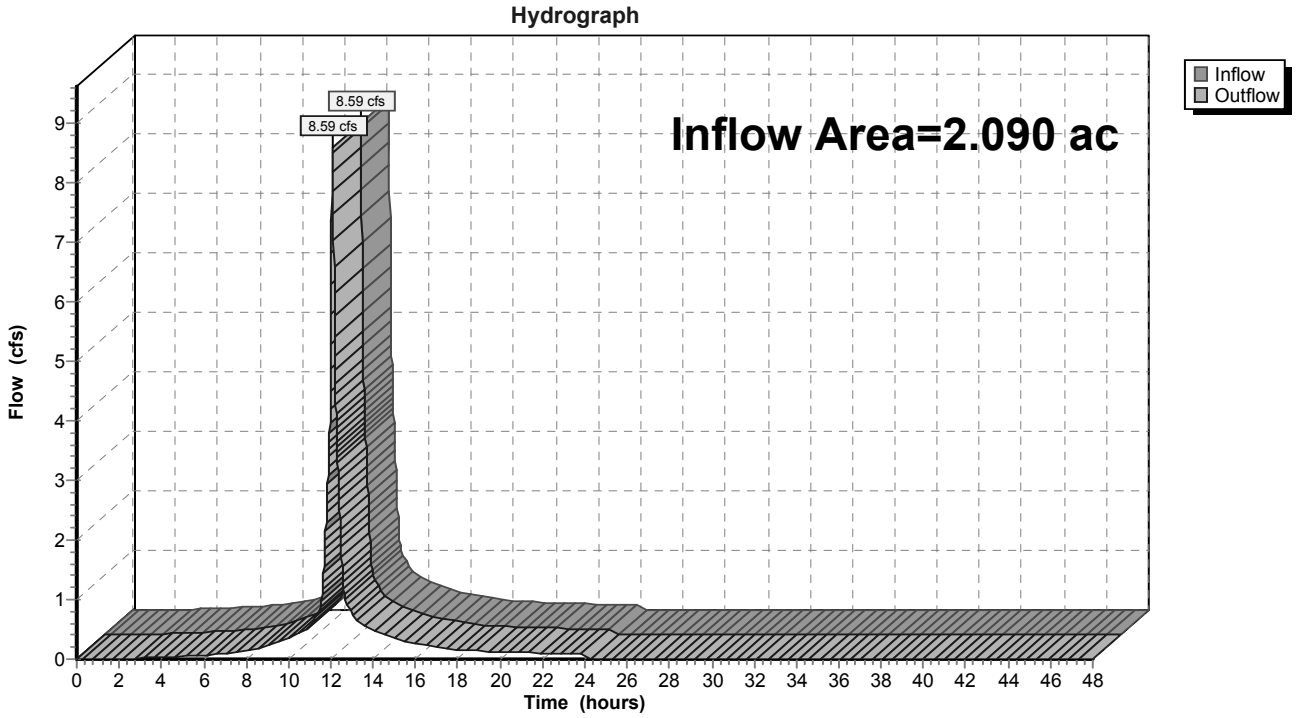
Summary for Reach ES: Existing Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 76.46% Impervious, Inflow Depth = 3.76" for 10-Year event
Inflow = 8.59 cfs @ 12.08 hrs, Volume= 0.654 af
Outflow = 8.59 cfs @ 12.08 hrs, Volume= 0.654 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ES: Existing Sum (Mount Vernon Street Drain System)



Summary for Subcatchment P1A: Pr. Watershed P1A (West Building Roof)

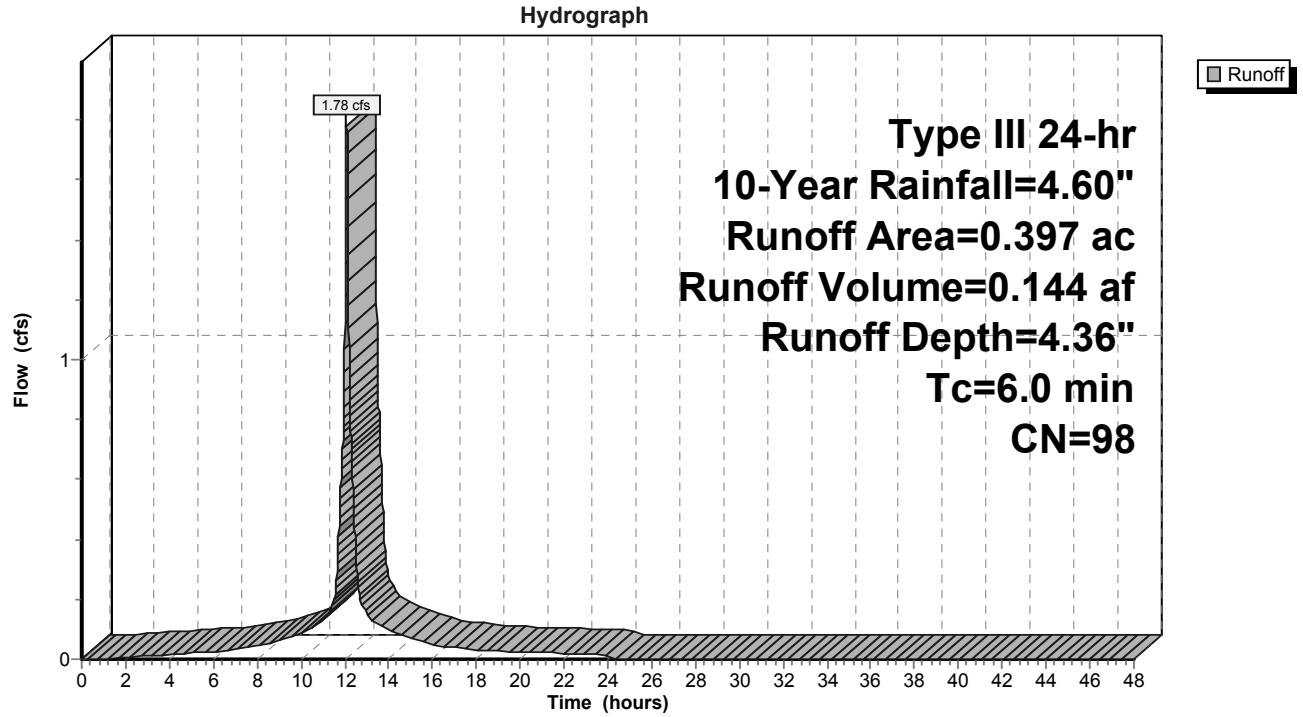
Runoff = 1.78 cfs @ 12.08 hrs, Volume= 0.144 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.397	98	Roof
	0.397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1A: Pr. Watershed P1A (West Building Roof)



mmary for Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration Sy

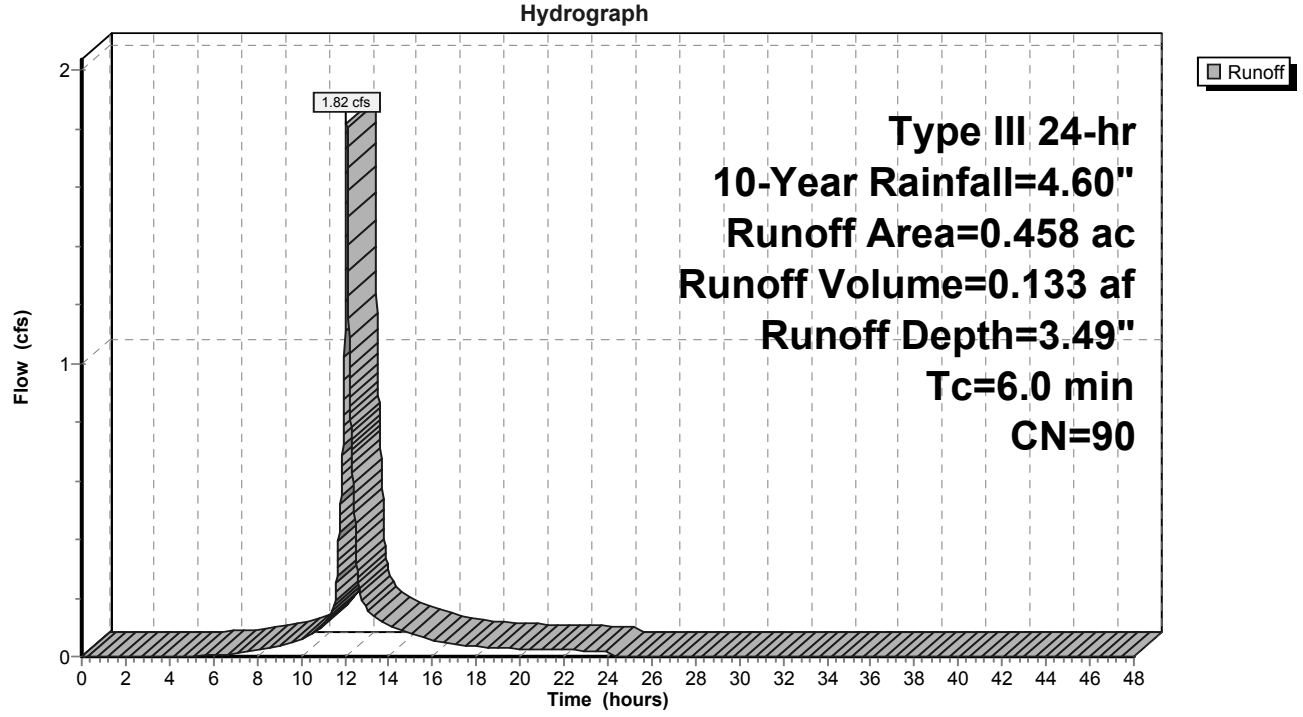
Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.133 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.302	98	Impervious
	0.156	74	>75% Grass cover, Good, HSG C
	0.458	90	Weighted Average
	0.156		34.06% Pervious Area
	0.302		65.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration System 1



Summary for Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)

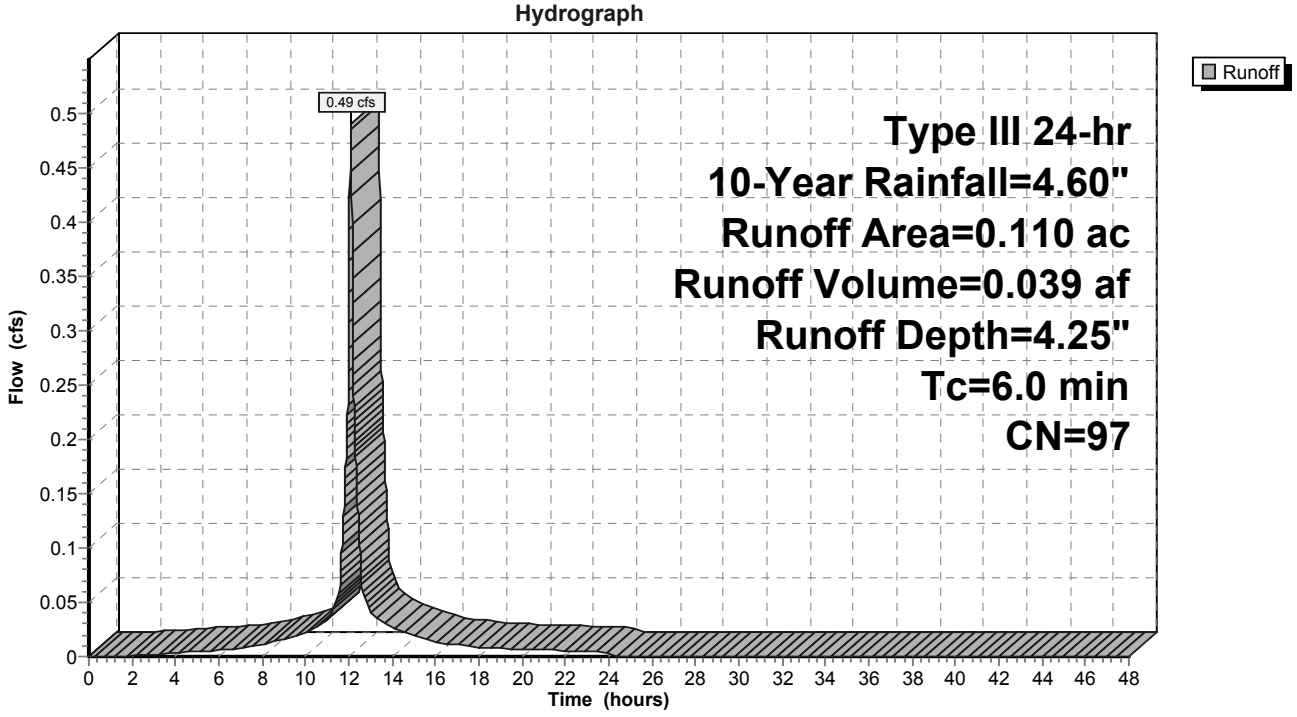
Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.106	98	Impervious
	0.004	74	>75% Grass cover, Good, HSG C
	0.110	97	Weighted Average
	0.004		3.64% Pervious Area
	0.106		96.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)



Summary for Subcatchment P2A: Pr. Watershed P2A (East Building Roof)

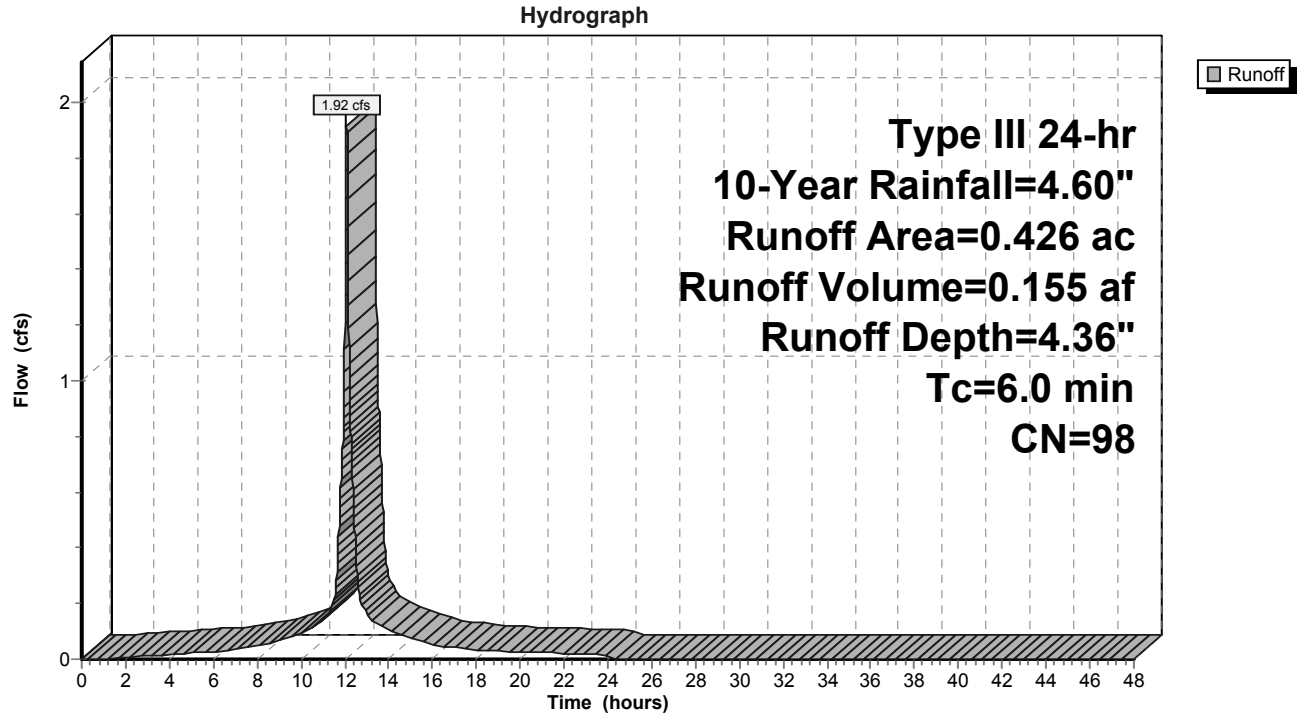
Runoff = 1.92 cfs @ 12.08 hrs, Volume= 0.155 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.426	98	Roof
	0.426		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2A: Pr. Watershed P2A (East Building Roof)



ummary for Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration Syst

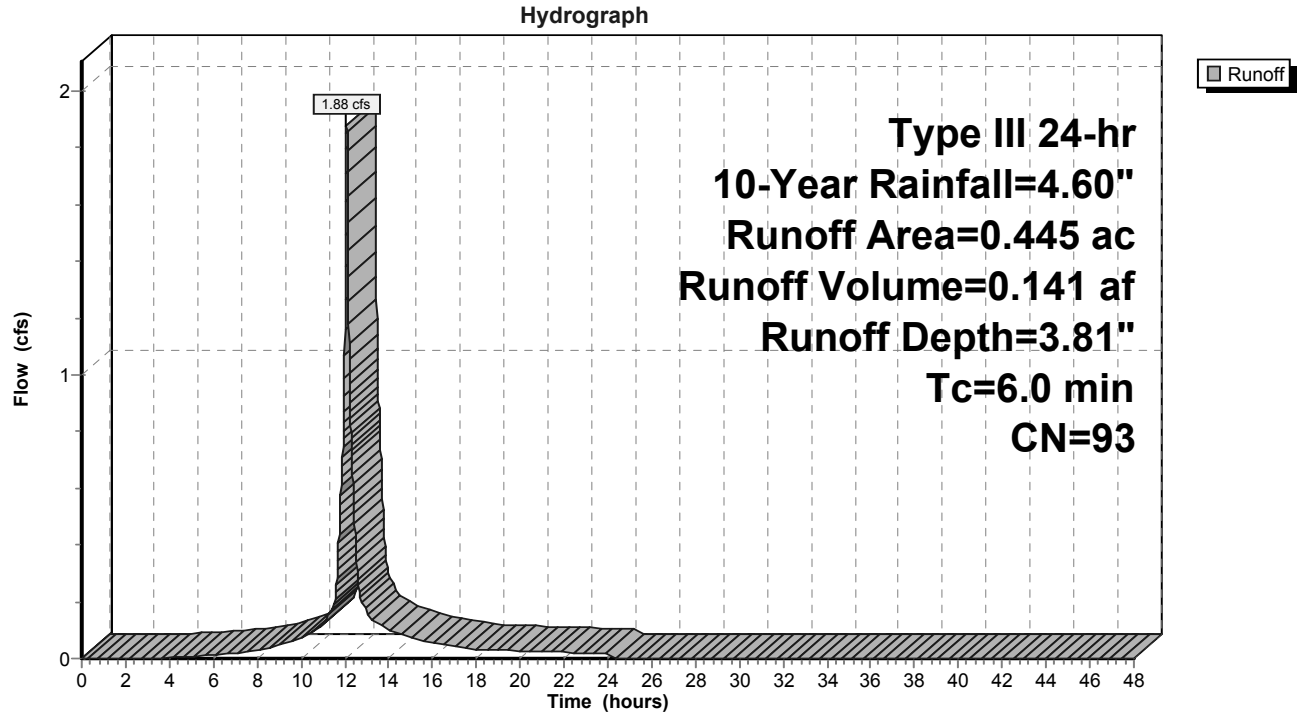
Runoff = 1.88 cfs @ 12.08 hrs, Volume= 0.141 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
	0.086	74	>75% Grass cover, Good, HSG C
*	0.359	98	Impervious
	0.445	93	Weighted Average
	0.086		19.33% Pervious Area
	0.359		80.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration System 2)



Summary for Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)

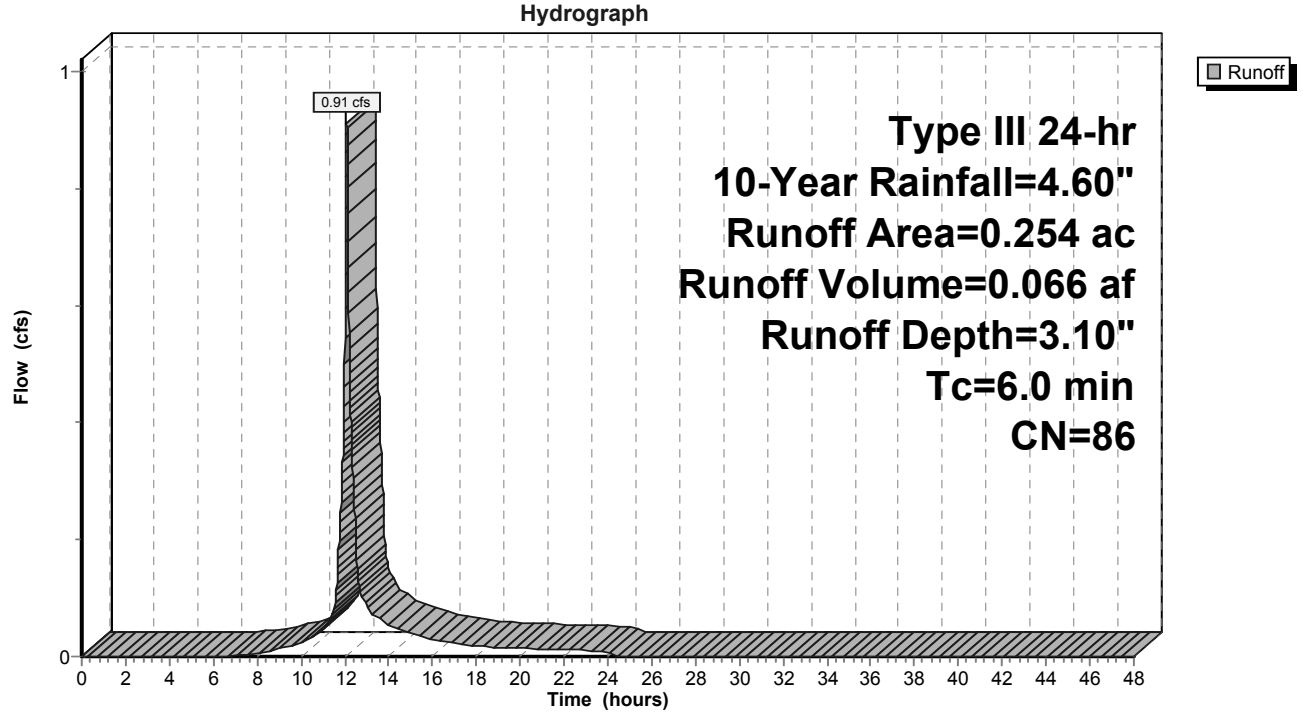
Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.066 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
	0.128	74	>75% Grass cover, Good, HSG C
*	0.126	98	Impervious
	0.254	86	Weighted Average
	0.128		50.39% Pervious Area
	0.126		49.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)



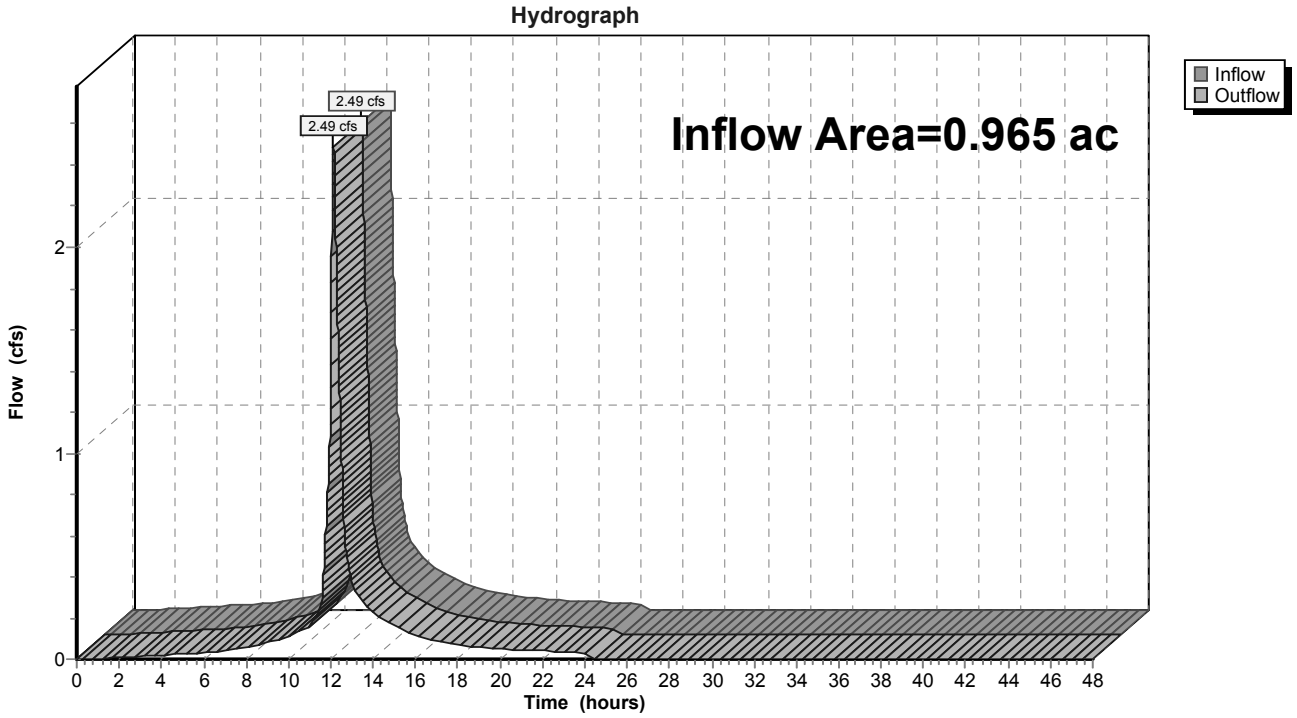
Summary for Reach PR1: Pr. Reach 1 (Existing Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.965 ac, 83.42% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 2.49 cfs @ 12.13 hrs, Volume= 0.258 af
Outflow = 2.49 cfs @ 12.13 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PR1: Pr. Reach 1 (Existing Water Quality Device)



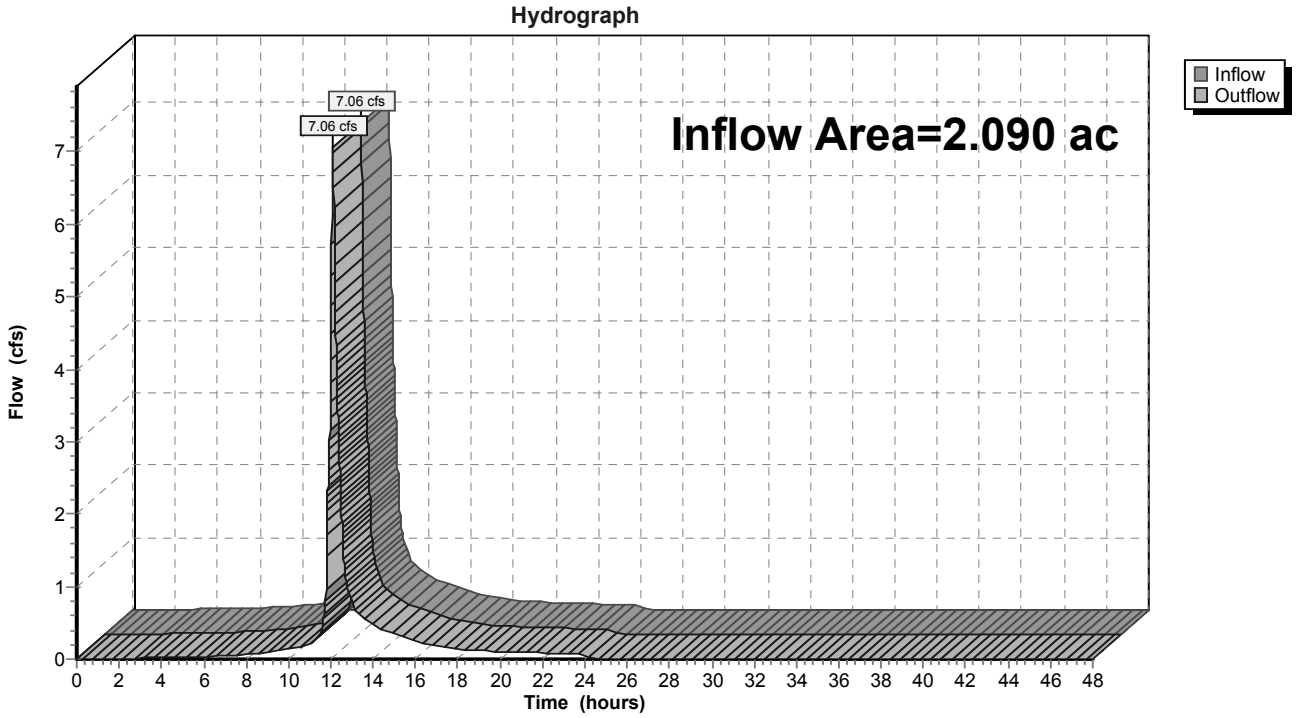
Summary for Reach PS: Proposed Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 82.11% Impervious, Inflow Depth = 3.03" for 10-Year event
Inflow = 7.06 cfs @ 12.10 hrs, Volume= 0.529 af
Outflow = 7.06 cfs @ 12.10 hrs, Volume= 0.529 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PS: Proposed Sum (Mount Vernon Street Drain System)



Summary for Pond S1: Infiltration System 1 (SC-740 Chambers)

Inflow Area = 0.458 ac, 65.94% Impervious, Inflow Depth = 3.49" for 10-Year event
Inflow = 1.82 cfs @ 12.09 hrs, Volume= 0.133 af
Outflow = 0.95 cfs @ 12.22 hrs, Volume= 0.108 af, Atten= 48%, Lag= 8.0 min
Discarded = 0.01 cfs @ 7.12 hrs, Volume= 0.032 af
Primary = 0.94 cfs @ 12.22 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 13.54' @ 12.22 hrs Surf.Area= 0.034 ac Storage= 0.054 af

Plug-Flow detention time= 369.9 min calculated for 0.108 af (81% of inflow)
Center-of-Mass det. time= 295.9 min (1,089.5 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.023 af	**25.25'W x 59.40'L x 3.50'H Field A** 0.121 af Overall - 0.043 af Embedded = 0.078 af x 30.0% Voids
#2A	11.50'	0.043 af	**ADS_StormTech SC-740** x 40 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.066 af	Total Available Storage

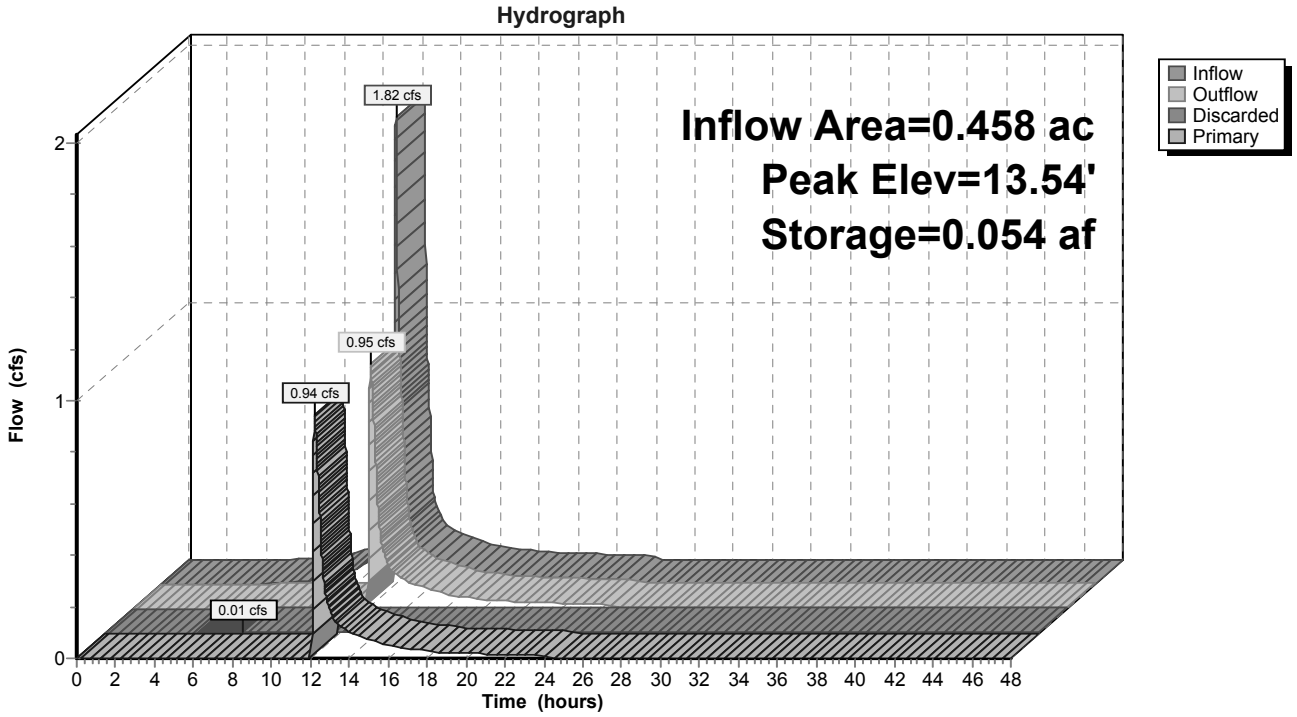
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.50'	**18.0" Round Culvert** L= 15.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.50' / 10.35' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	14.00'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	13.00'	**10.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 7.12 hrs HW=11.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.94 cfs @ 12.22 hrs HW=13.54' (Free Discharge)
└**1=Culvert** (Passes 0.94 cfs of 12.88 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.94 cfs @ 2.51 fps)

Pond S1: Infiltration System 1 (SC-740 Chambers)



Summary for Pond S2: Infiltration System 2 (SC-740 Chambers)

Inflow Area = 0.871 ac, 90.13% Impervious, Inflow Depth = 4.08" for 10-Year event
Inflow = 3.79 cfs @ 12.08 hrs, Volume= 0.296 af
Outflow = 3.76 cfs @ 12.09 hrs, Volume= 0.247 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.01 cfs @ 3.30 hrs, Volume= 0.042 af
Primary = 3.75 cfs @ 12.09 hrs, Volume= 0.205 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 14.28' @ 12.09 hrs Surf.Area= 0.041 ac Storage= 0.076 af

Plug-Flow detention time= 243.5 min calculated for 0.247 af (83% of inflow)
Center-of-Mass det. time= 175.1 min (939.5 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.028 af	**30.00'W x 59.40'L x 3.50'H Field A** 0.143 af Overall - 0.051 af Embedded = 0.092 af x 30.0% Voids
#2A	11.50'	0.051 af	**ADS_StormTech SC-740** x 48 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.079 af	Total Available Storage

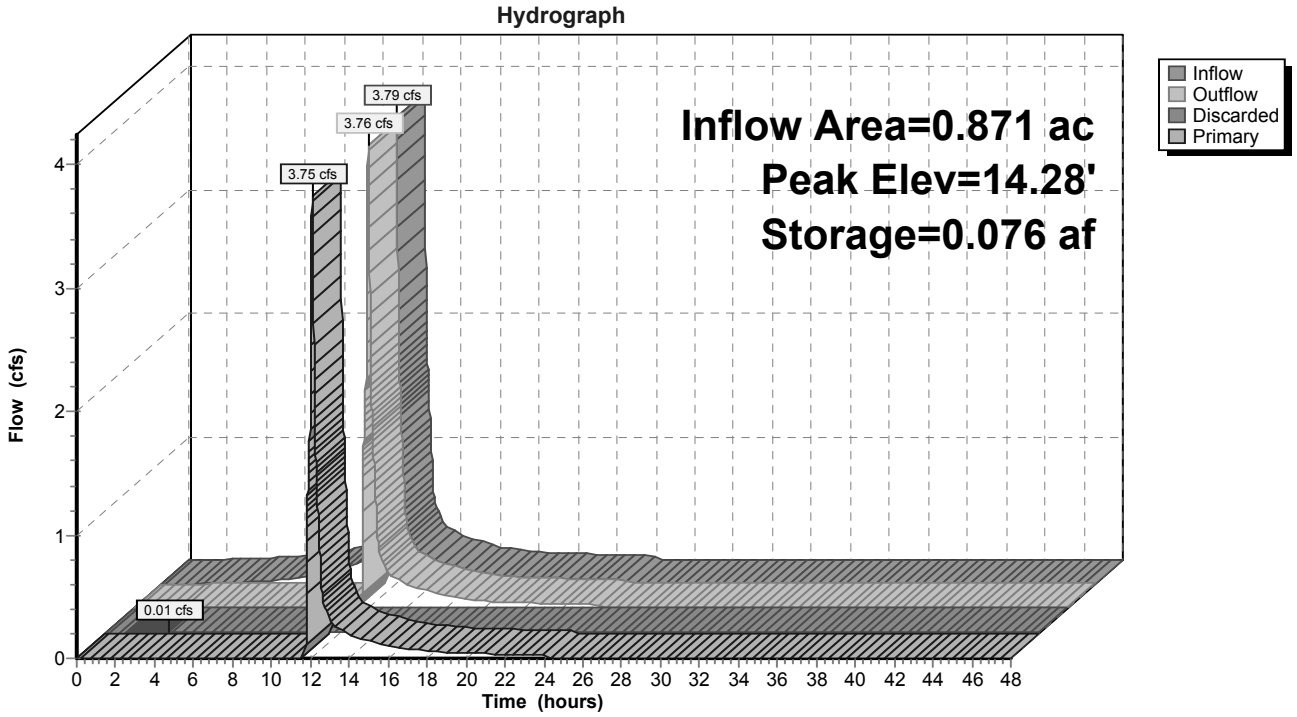
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	11.55'	**18.0" Round Culvert** L= 41.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.55' / 11.35' S= 0.0049 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	13.90'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 3.30 hrs HW=11.04' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=3.74 cfs @ 12.09 hrs HW=14.28' (Free Discharge)
└**1=Culvert** (Passes 3.74 cfs of 11.87 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.74 cfs @ 2.01 fps)

Pond S2: Infiltration System 2 (SC-740 Chambers)



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1A: Ex. Watershed E1A Runoff Area=0.893 ac 84.77% Impervious Runoff Depth=6.29"
Flow Length=690' Tc=6.0 min CN=94 Runoff=5.99 cfs 0.468 af

Subcatchment E1B: Ex. Watershed E1B Runoff Area=0.480 ac 65.21% Impervious Runoff Depth=5.82"
Flow Length=690' Tc=6.0 min CN=90 Runoff=3.09 cfs 0.233 af

Subcatchment E1C: Ex. Watershed E1C Runoff Area=0.395 ac 100.00% Impervious Runoff Depth=6.76"
Flow Length=690' Tc=6.0 min CN=98 Runoff=2.71 cfs 0.223 af

Subcatchment E1D: Ex. Watershed E1D Runoff Area=0.142 ac 80.28% Impervious Runoff Depth=6.17"
Flow Length=690' Tc=6.0 min CN=93 Runoff=0.94 cfs 0.073 af

Subcatchment E2: Ex. Watershed 2 (Offsite Runoff Area=0.017 ac 88.24% Impervious Runoff Depth=6.41"
Flow Length=50' Slope=0.0100 '/' Tc=6.0 min CN=95 Runoff=0.11 cfs 0.009 af

Subcatchment E3: Ex. Watershed E3 Runoff Area=0.163 ac 2.45% Impervious Runoff Depth=4.15"
Flow Length=24' Slope=0.0280 '/' Tc=6.0 min CN=75 Runoff=0.79 cfs 0.056 af

Reach ER1: Er. Reach 1 (Water Quality Device) Inflow=12.74 cfs 0.996 af
Outflow=12.74 cfs 0.996 af

Reach ES: Existing Sum (Mount Vernon Street Drain System) Inflow=13.65 cfs 1.062 af
Outflow=13.65 cfs 1.062 af

Subcatchment P1A: Pr. Watershed P1A Runoff Area=0.397 ac 100.00% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=98 Runoff=2.73 cfs 0.224 af

Subcatchment P1B: Pr. Watershed P1B Runoff Area=0.458 ac 65.94% Impervious Runoff Depth=5.82"
Tc=6.0 min CN=90 Runoff=2.95 cfs 0.222 af

Subcatchment P1C: Pr. Watershed P1C Runoff Area=0.110 ac 96.36% Impervious Runoff Depth=6.64"
Tc=6.0 min CN=97 Runoff=0.75 cfs 0.061 af

Subcatchment P2A: Pr. Watershed P2A Runoff Area=0.426 ac 100.00% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=98 Runoff=2.93 cfs 0.240 af

Subcatchment P2B: Pr. Watershed P2B Runoff Area=0.445 ac 80.67% Impervious Runoff Depth=6.17"
Tc=6.0 min CN=93 Runoff=2.96 cfs 0.229 af

Subcatchment P3: Pr. Watershed P3 Runoff Area=0.254 ac 49.61% Impervious Runoff Depth=5.37"
Tc=6.0 min CN=86 Runoff=1.55 cfs 0.114 af

Reach PR1: Pr. Reach 1 (Existing Water Quality Device) Inflow=6.21 cfs 0.447 af
Outflow=6.21 cfs 0.447 af

Reach PS: Proposed Sum (Mount Vernon Street Drain System) Inflow=13.57 cfs 0.937 af
Outflow=13.57 cfs 0.937 af

Pond S1: Infiltration System 1 (SC-740 Peak Elev=14.11' Storage=0.062 af Inflow=2.95 cfs 0.222 af
Discarded=0.01 cfs 0.034 af Primary=2.83 cfs 0.163 af Outflow=2.84 cfs 0.196 af

Pond S2: Infiltration System 2 (SC-740 Peak Elev=14.41' Storage=0.078 af Inflow=5.89 cfs 0.469 af
Discarded=0.01 cfs 0.043 af Primary=5.84 cfs 0.377 af Outflow=5.85 cfs 0.420 af

Summary for Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)

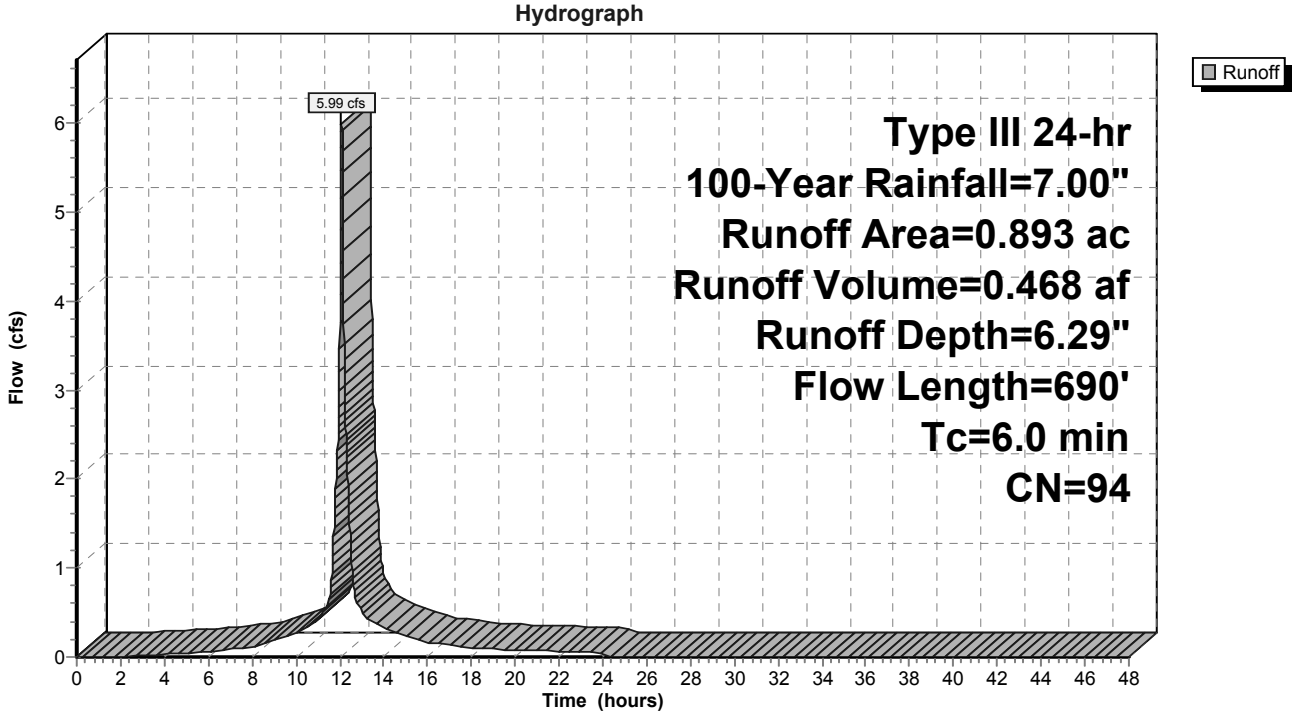
Runoff = 5.99 cfs @ 12.08 hrs, Volume= 0.468 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.025	98	Walks
	0.136	74	>75% Grass cover, Good, HSG C
*	0.732	98	Drives and Parking
	0.893	94	Weighted Average
	0.136		15.23% Pervious Area
	0.757		84.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1A: Ex. Watershed E1A (East Flow to WQD)



Summary for Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)

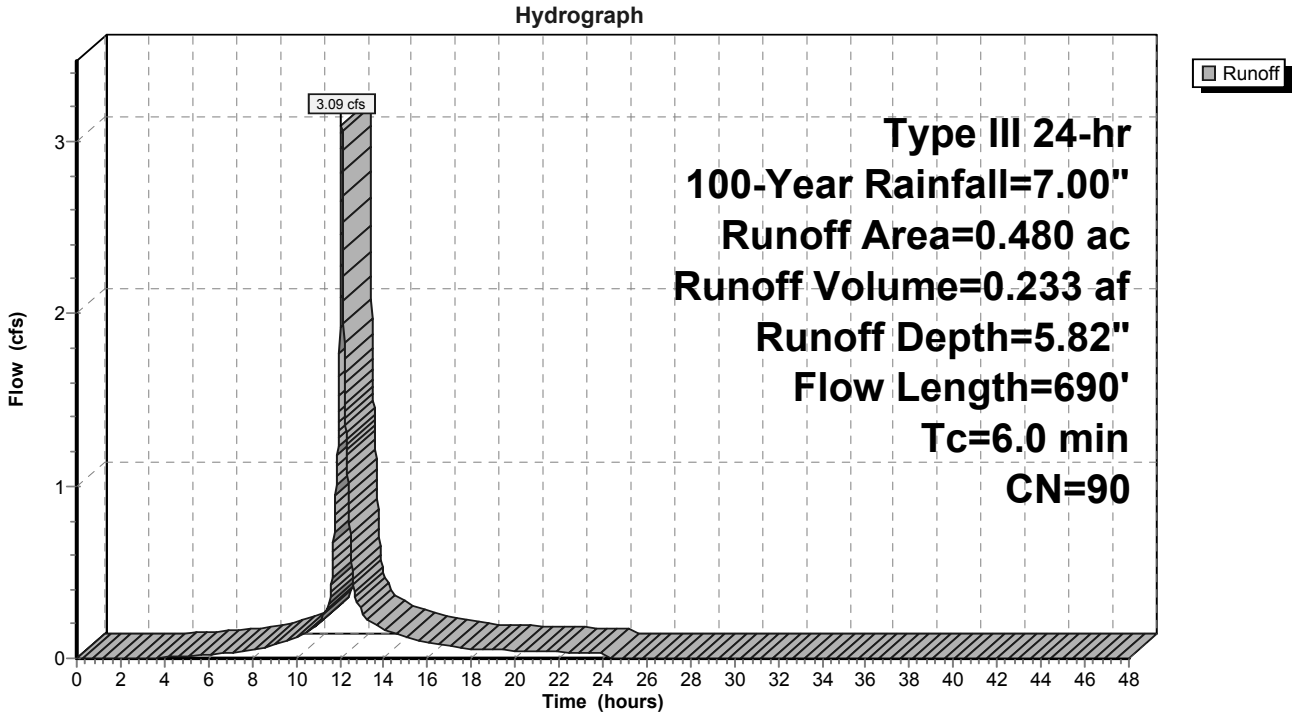
Runoff = 3.09 cfs @ 12.08 hrs, Volume= 0.233 af, Depth= 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.029	98	Roof
*	0.035	98	Walks
	0.167	74	>75% Grass cover, Good, HSG C
*	0.249	98	Drives and Parking
	0.480	90	Weighted Average
	0.167		34.79% Pervious Area
	0.313		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1B: Ex. Watershed E1B (West Flow to WQD)



Summary for Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)

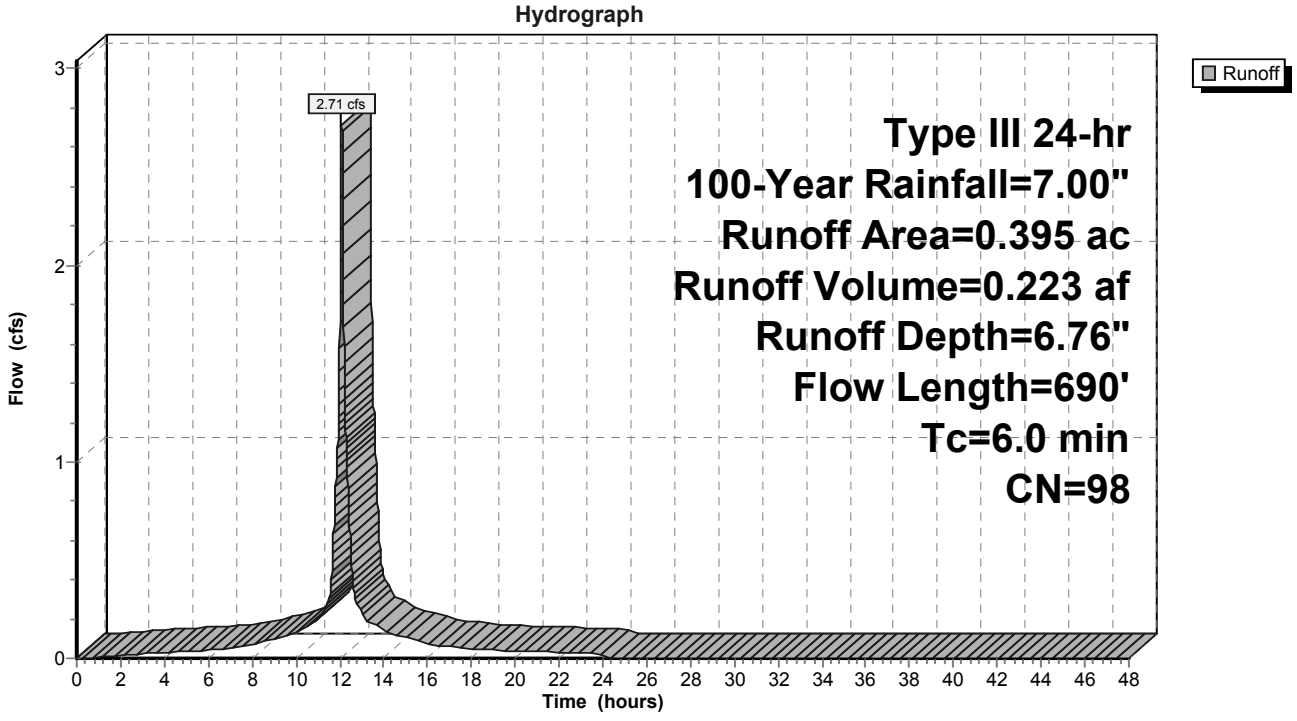
Runoff = 2.71 cfs @ 12.08 hrs, Volume= 0.223 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.395	98	Roof
	0.395		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1C: Ex. Watershed E1C (Hotel Roof)



Summary for Subcatchment E1D: Ex. Watershed E1D (UMass Drive)

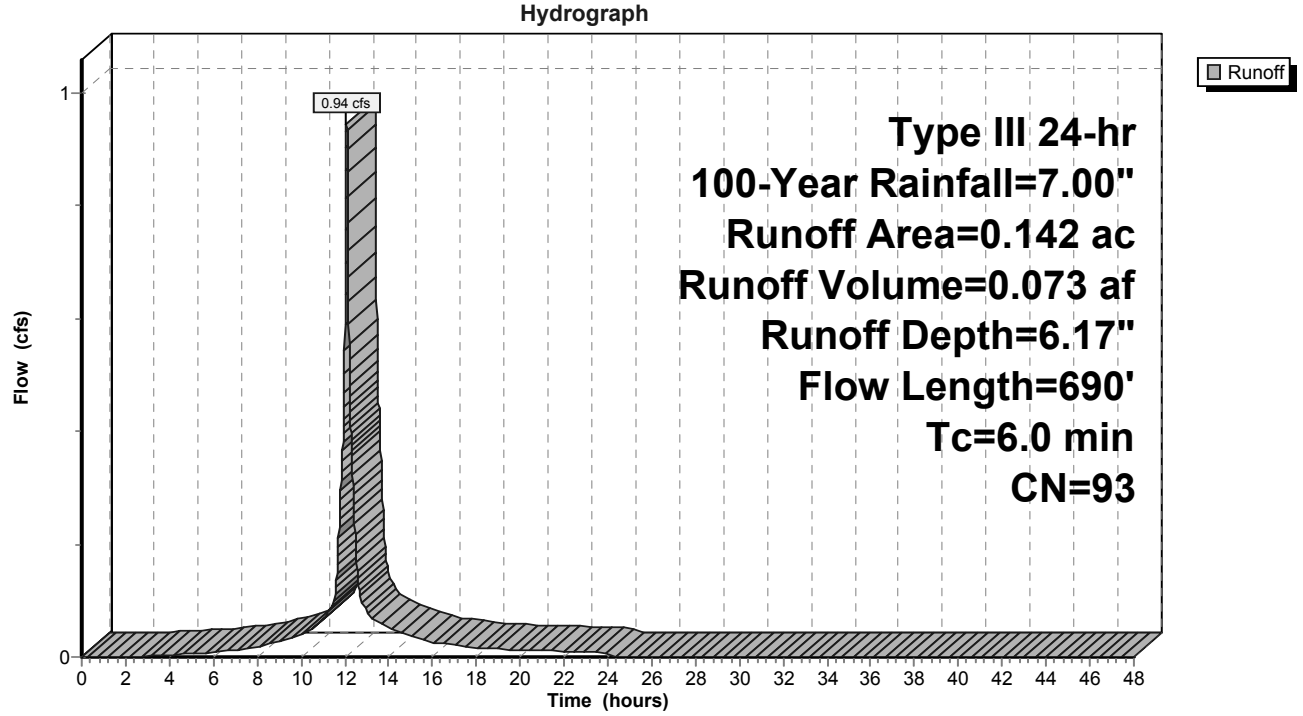
Runoff = 0.94 cfs @ 12.08 hrs, Volume= 0.073 af, Depth= 6.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.017	98	Walks
	0.028	74	>75% Grass cover, Good, HSG C
*	0.097	98	Drives and Parking
	0.142	93	Weighted Average
	0.028		19.72% Pervious Area
	0.114		80.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0100	0.90		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.5	75	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	515	0.0100	7.03	12.41	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
2.5					**Direct Entry, 1/10 Hour Minimum**
6.0	690	Total			

Subcatchment E1D: Ex. Watershed E1D (UMass Drive)



Summary for Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)

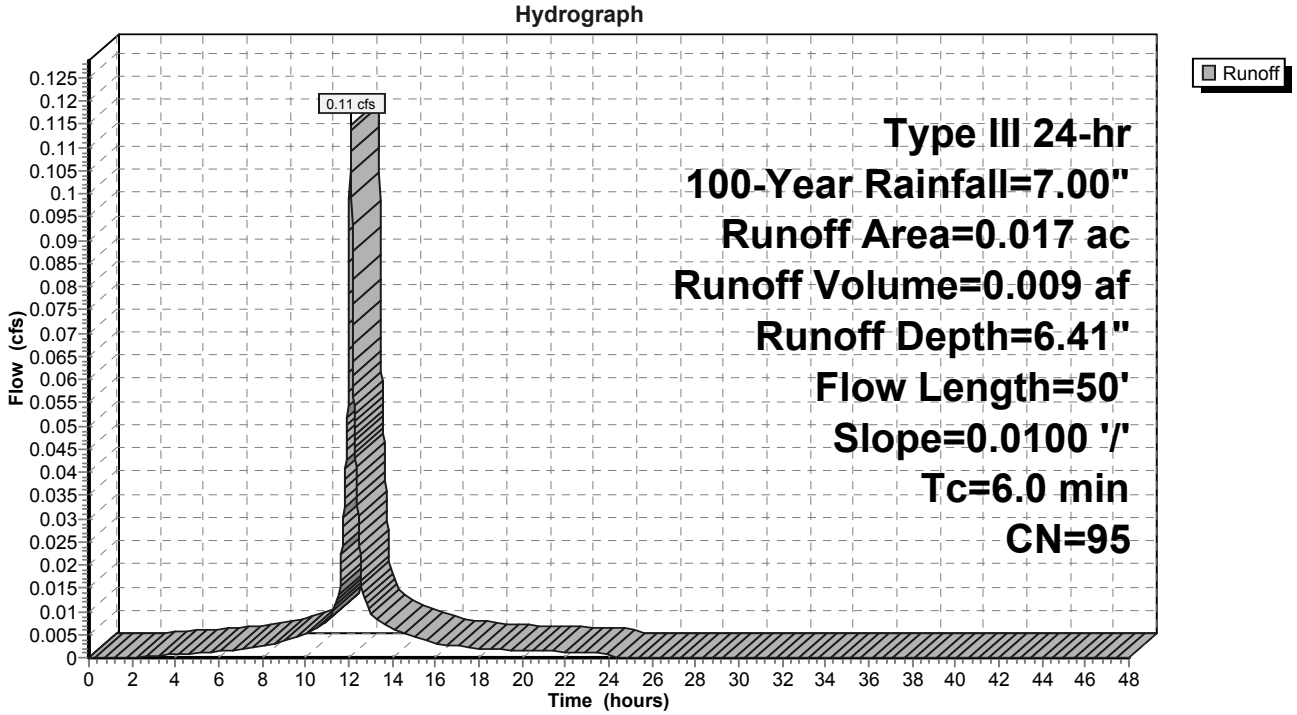
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.015	98	Drives and Parking
	0.002	74	>75% Grass cover, Good, HSG C
	0.017	95	Weighted Average
	0.002		11.76% Pervious Area
	0.015		88.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	25	0.0100	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
0.1	25	0.0100	5.36	4.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
5.3					**Direct Entry, 1/10 Hour Minimum**
6.0	50	Total			

Subcatchment E2: Ex. Watershed 2 (Offsite Pipe Flow)



Summary for Subcatchment E3: Ex. Watershed E3 (Overland Flow)

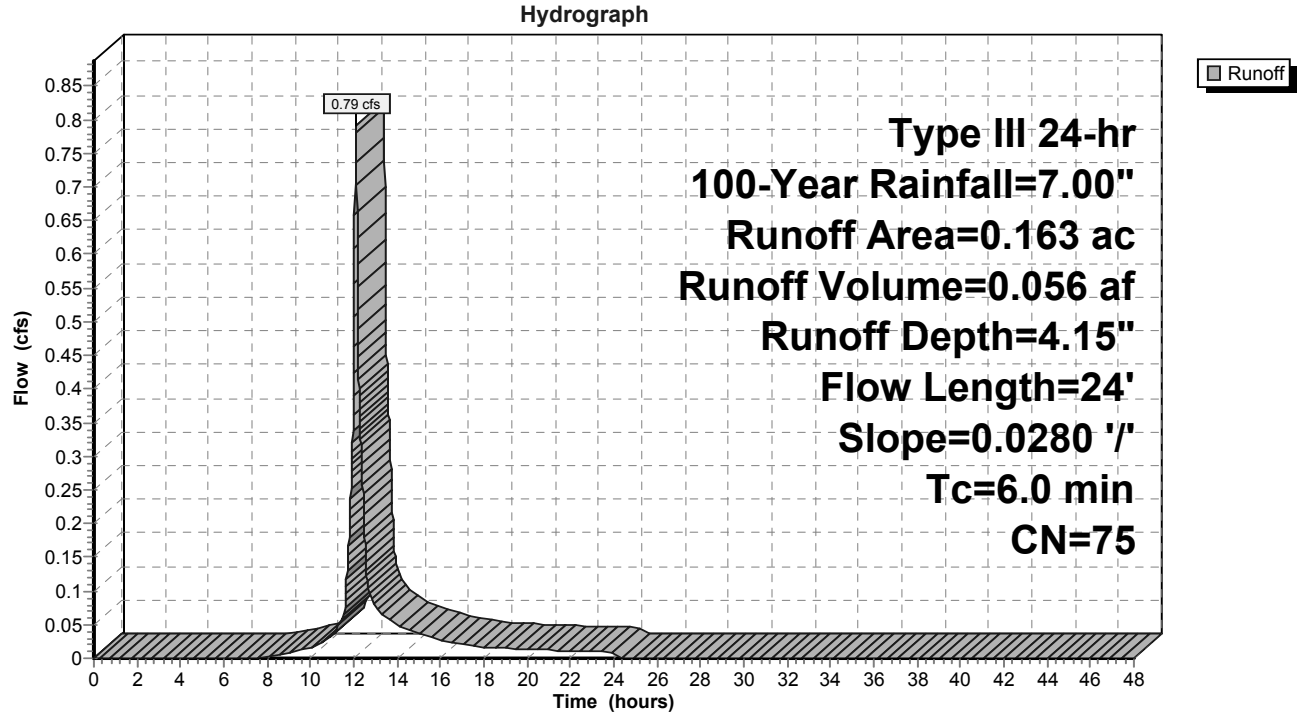
Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.159	74	>75% Grass cover, Good, HSG C
*	0.004	98	Drives and Parking
	0.163	75	Weighted Average
	0.159		97.55% Pervious Area
	0.004		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0280	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.40"
1.4					**Direct Entry, 1/10 Hour Minimum**
6.0	24	Total			

Subcatchment E3: Ex. Watershed E3 (Overland Flow)



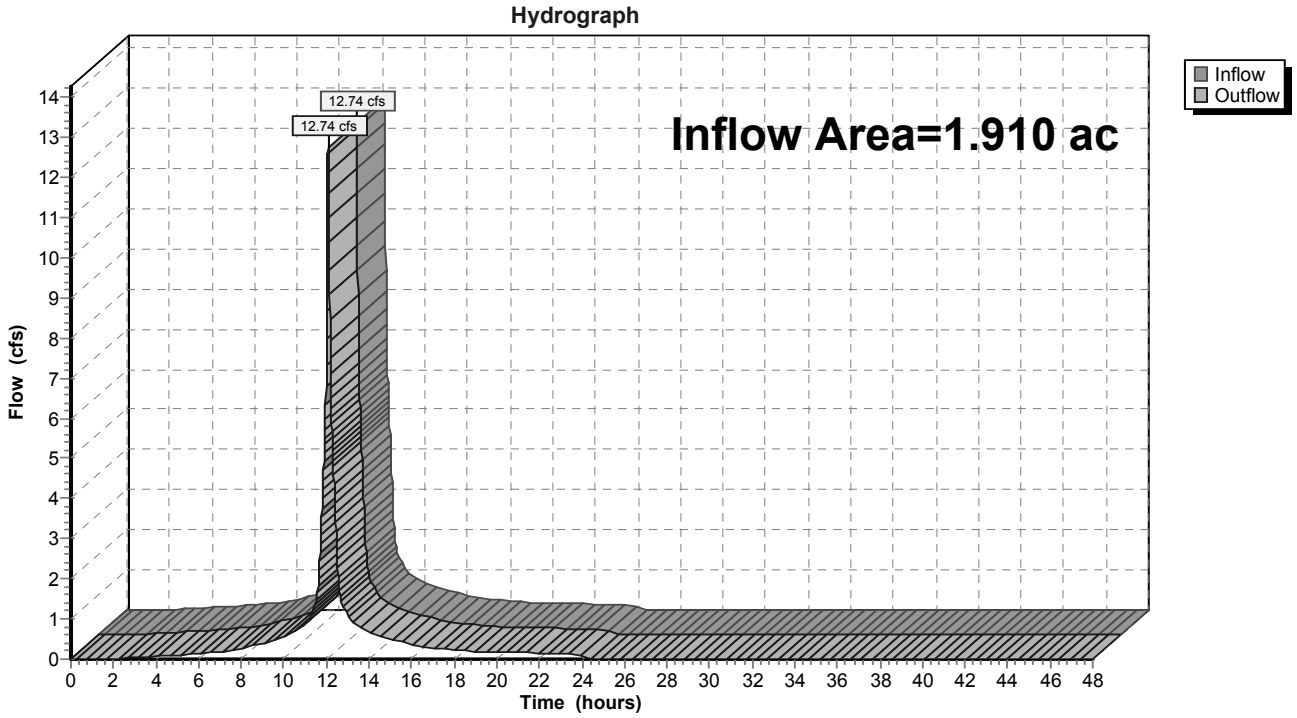
Summary for Reach ER1: Er. Reach 1 (Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.910 ac, 82.67% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 12.74 cfs @ 12.08 hrs, Volume= 0.996 af
Outflow = 12.74 cfs @ 12.08 hrs, Volume= 0.996 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ER1: Er. Reach 1 (Water Quality Device)



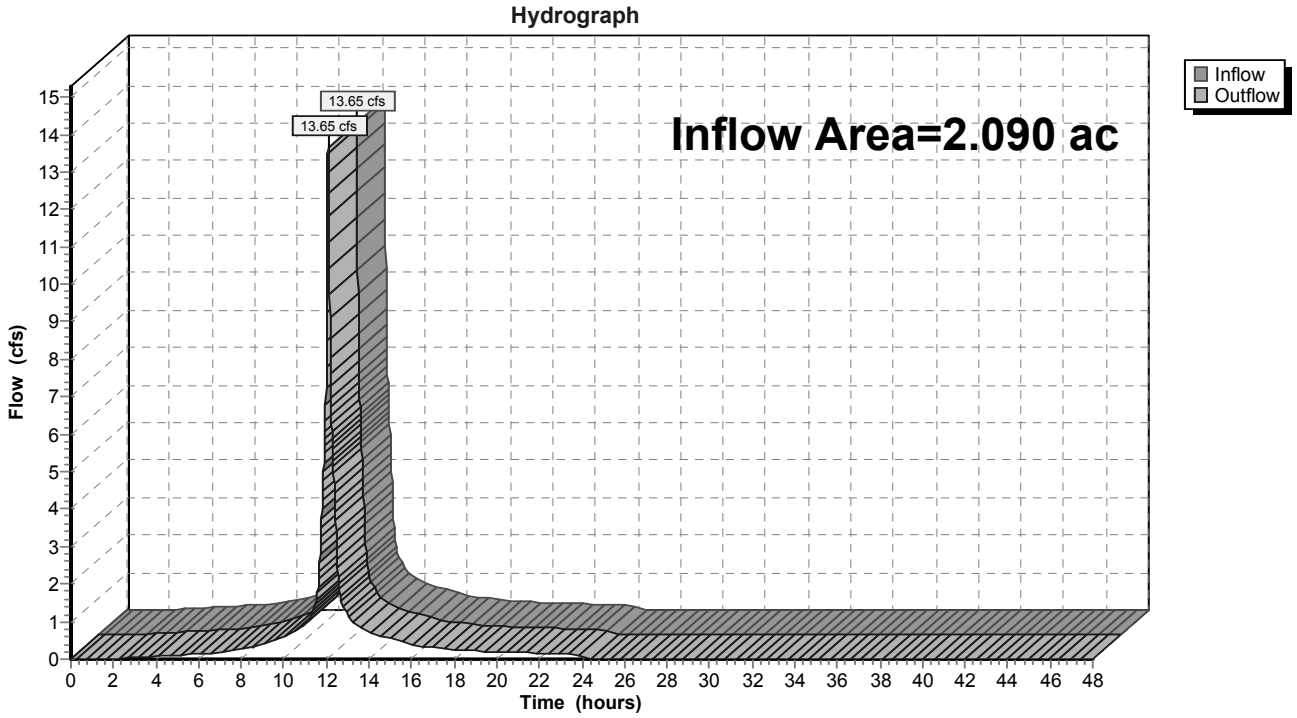
Summary for Reach ES: Existing Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 76.46% Impervious, Inflow Depth = 6.10" for 100-Year event
Inflow = 13.65 cfs @ 12.08 hrs, Volume= 1.062 af
Outflow = 13.65 cfs @ 12.08 hrs, Volume= 1.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach ES: Existing Sum (Mount Vernon Street Drain System)



Summary for Subcatchment P1A: Pr. Watershed P1A (West Building Roof)

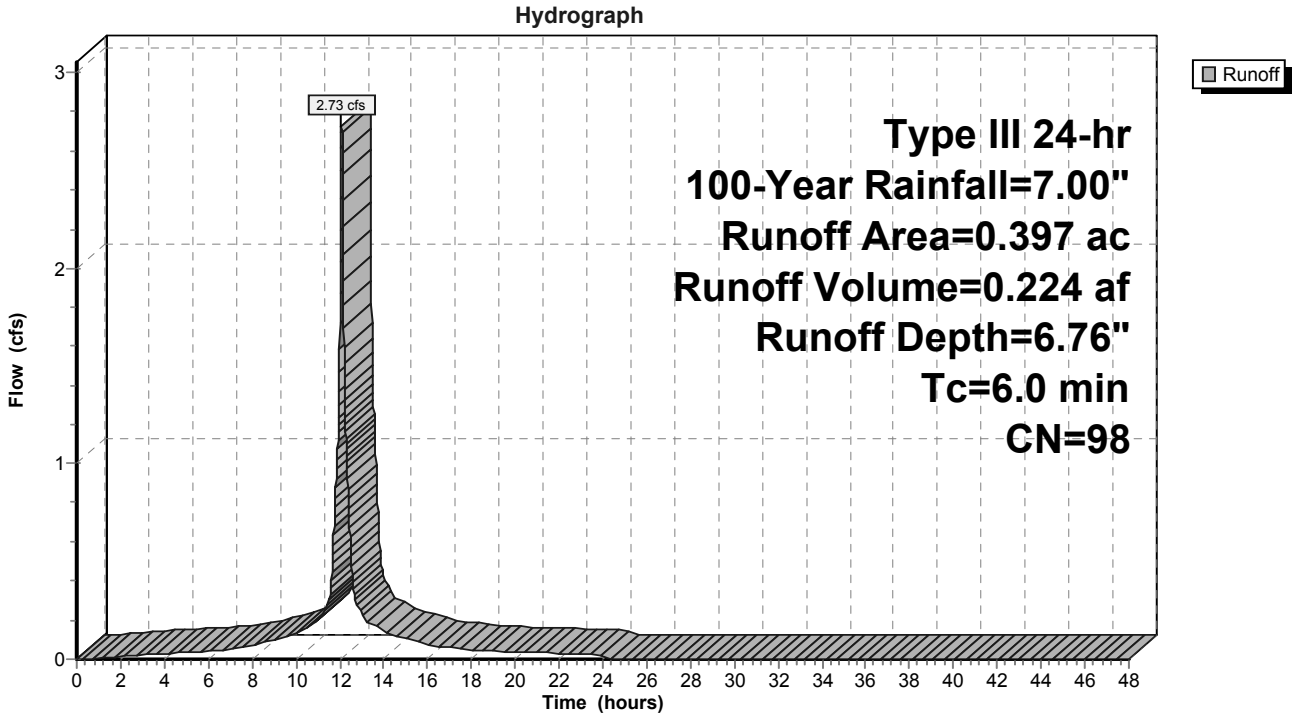
Runoff = 2.73 cfs @ 12.08 hrs, Volume= 0.224 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.397	98	Roof
	0.397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1A: Pr. Watershed P1A (West Building Roof)



mmary for Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration Sy

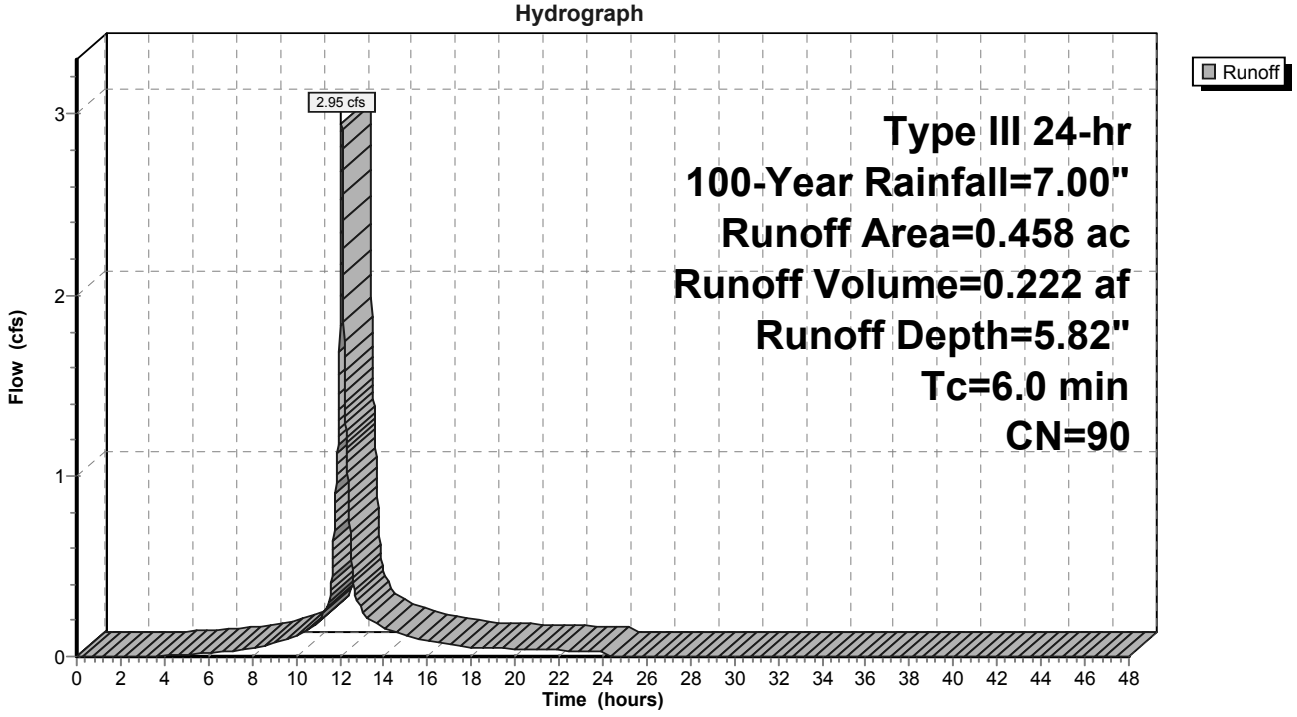
Runoff = 2.95 cfs @ 12.08 hrs, Volume= 0.222 af, Depth= 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.302	98	Impervious
	0.156	74	>75% Grass cover, Good, HSG C
	0.458	90	Weighted Average
	0.156		34.06% Pervious Area
	0.302		65.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1B: Pr. Watershed P1B (Walks, Drives, Pariking, Landscaping to Infilration System 1



Summary for Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)

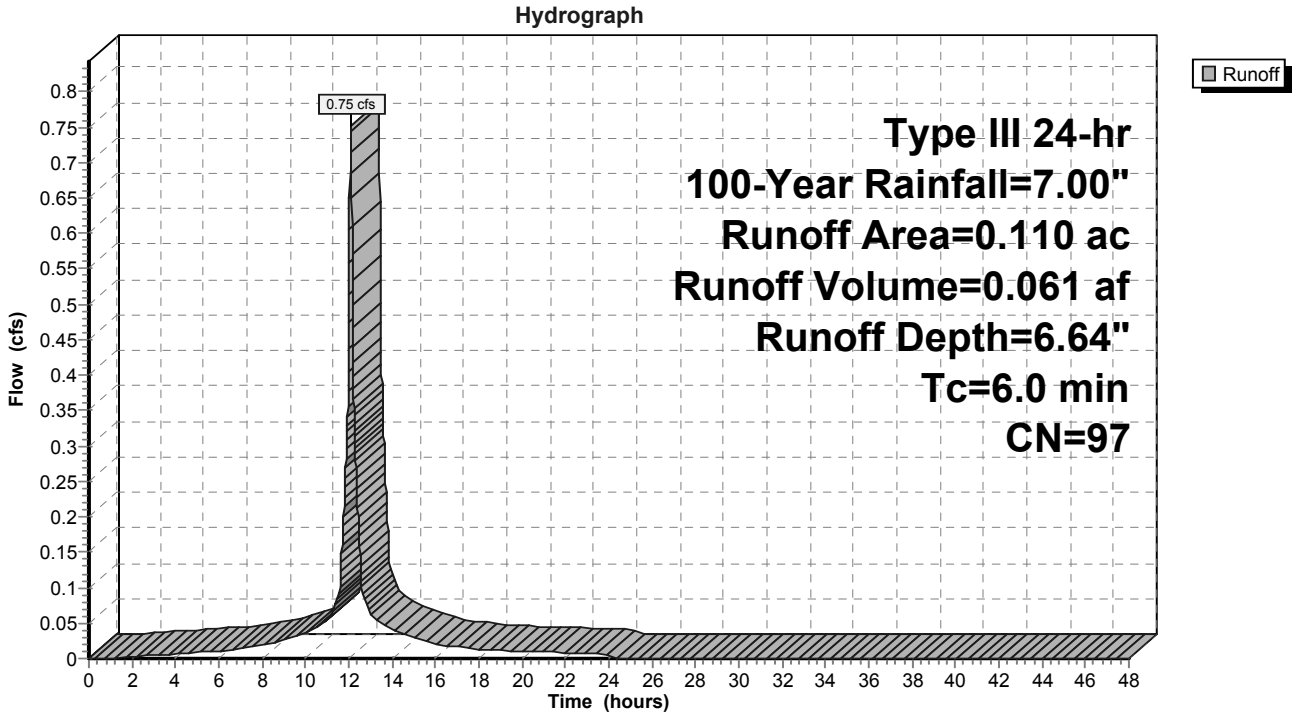
Runoff = 0.75 cfs @ 12.08 hrs, Volume= 0.061 af, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.106	98	Impervious
	0.004	74	>75% Grass cover, Good, HSG C
	0.110	97	Weighted Average
	0.004		3.64% Pervious Area
	0.106		96.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P1C: Pr. Watershed P1C (Overland to Umass Drive)



Summary for Subcatchment P2A: Pr. Watershed P2A (East Building Roof)

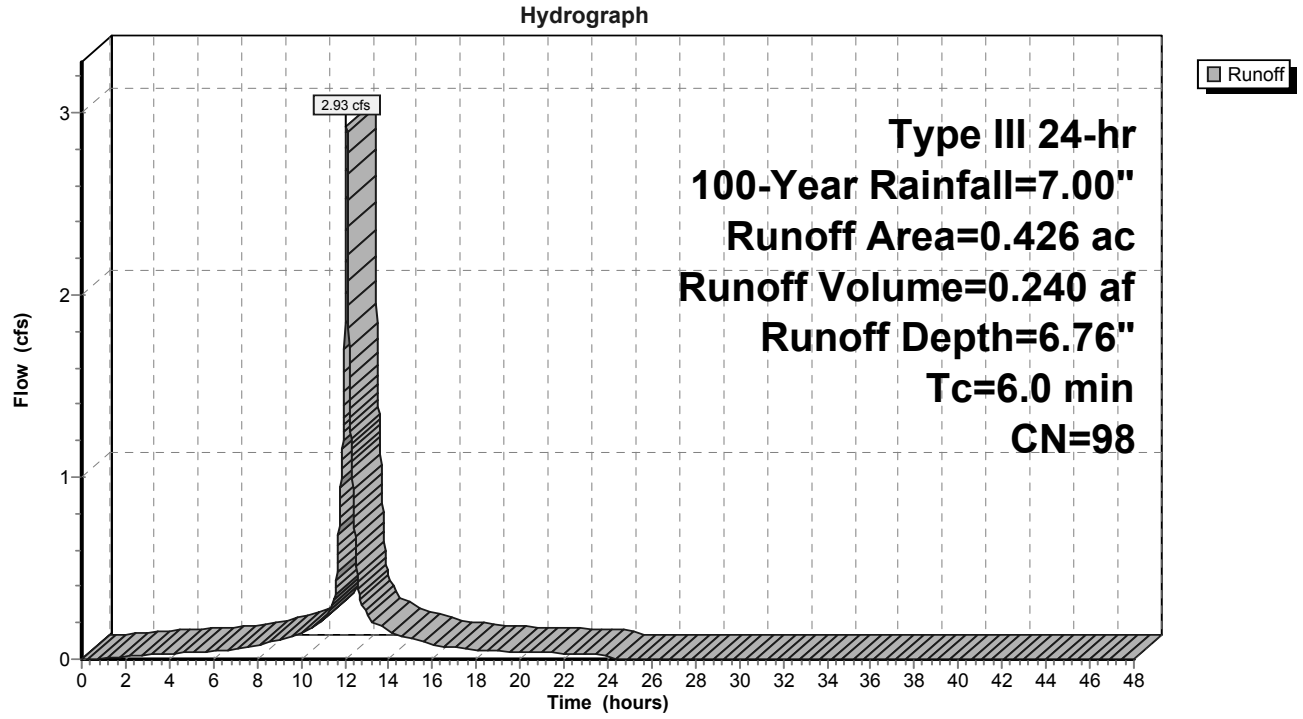
Runoff = 2.93 cfs @ 12.08 hrs, Volume= 0.240 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
*	0.426	98	Roof
	0.426		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2A: Pr. Watershed P2A (East Building Roof)



ummary for Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration Syst

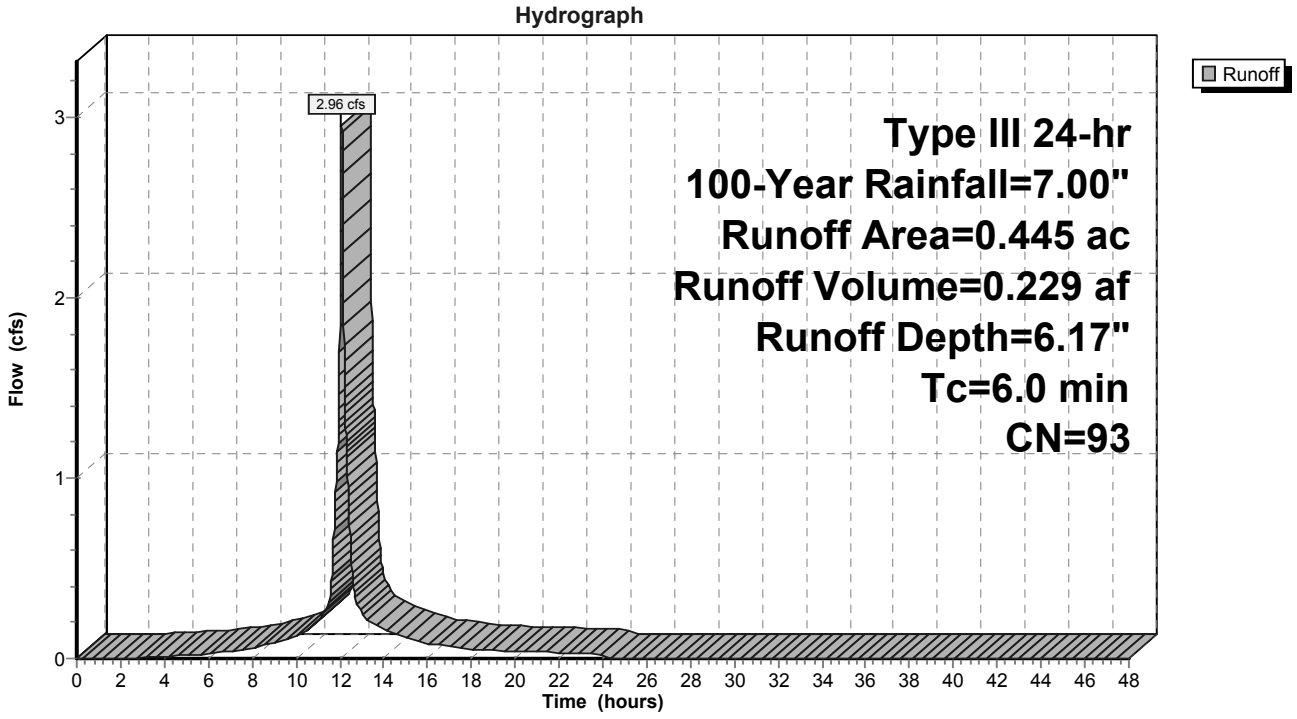
Runoff = 2.96 cfs @ 12.08 hrs, Volume= 0.229 af, Depth= 6.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.086	74	>75% Grass cover, Good, HSG C
*	0.359	98	Impervious
	0.445	93	Weighted Average
	0.086		19.33% Pervious Area
	0.359		80.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P2B: Pr. Watershed P2B (Parking and Landscaped Areas to Inifltration System 2)



Summary for Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)

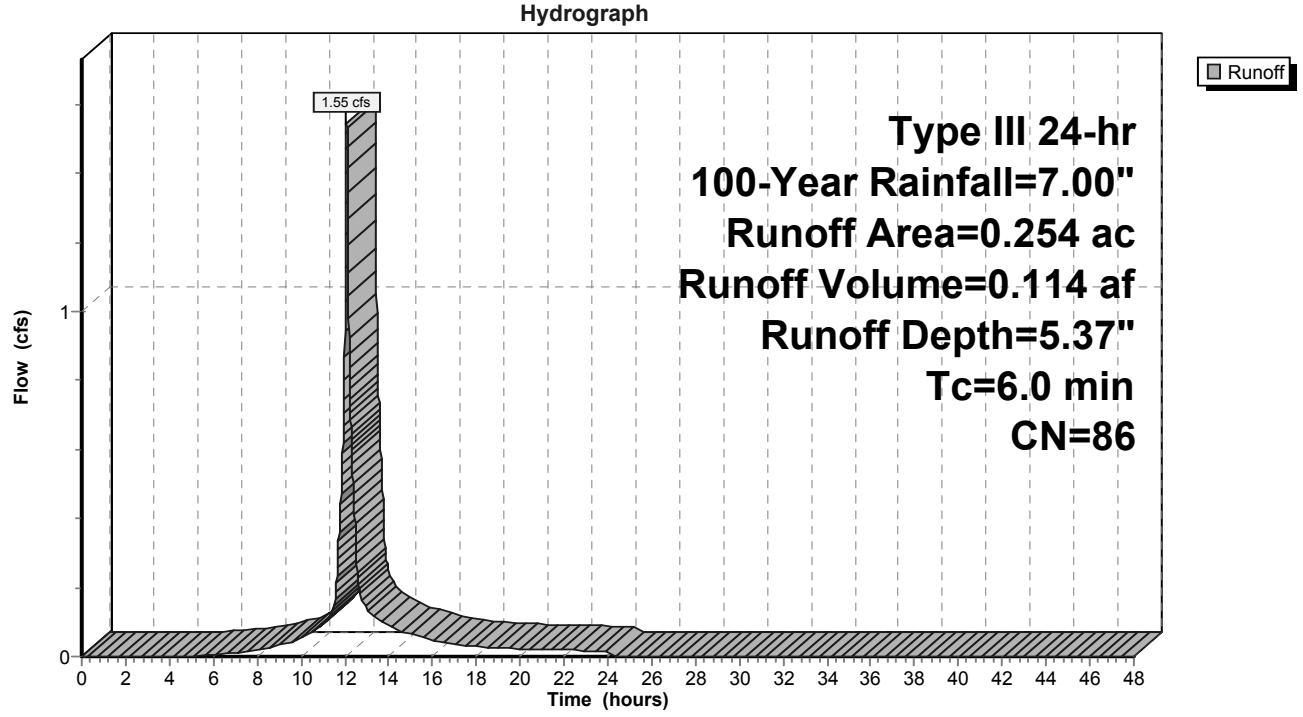
Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.114 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.128	74	>75% Grass cover, Good, HSG C
*	0.126	98	Impervious
	0.254	86	Weighted Average
	0.128		50.39% Pervious Area
	0.126		49.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 1/10 Hour Minimum**

Subcatchment P3: Pr. Watershed P3 (Overland Flow to Mt. Vernon Street)



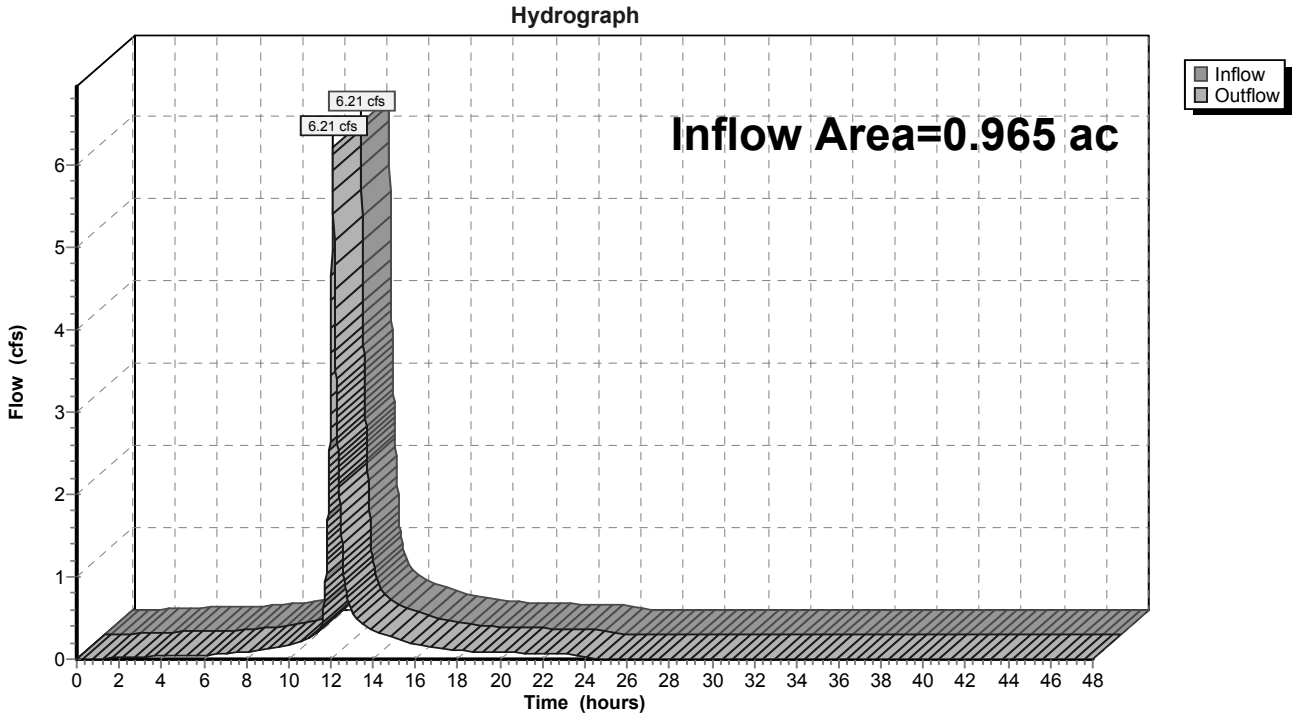
Summary for Reach PR1: Pr. Reach 1 (Existing Water Quality Device)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.965 ac, 83.42% Impervious, Inflow Depth = 5.56" for 100-Year event
Inflow = 6.21 cfs @ 12.10 hrs, Volume= 0.447 af
Outflow = 6.21 cfs @ 12.10 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PR1: Pr. Reach 1 (Existing Water Quality Device)



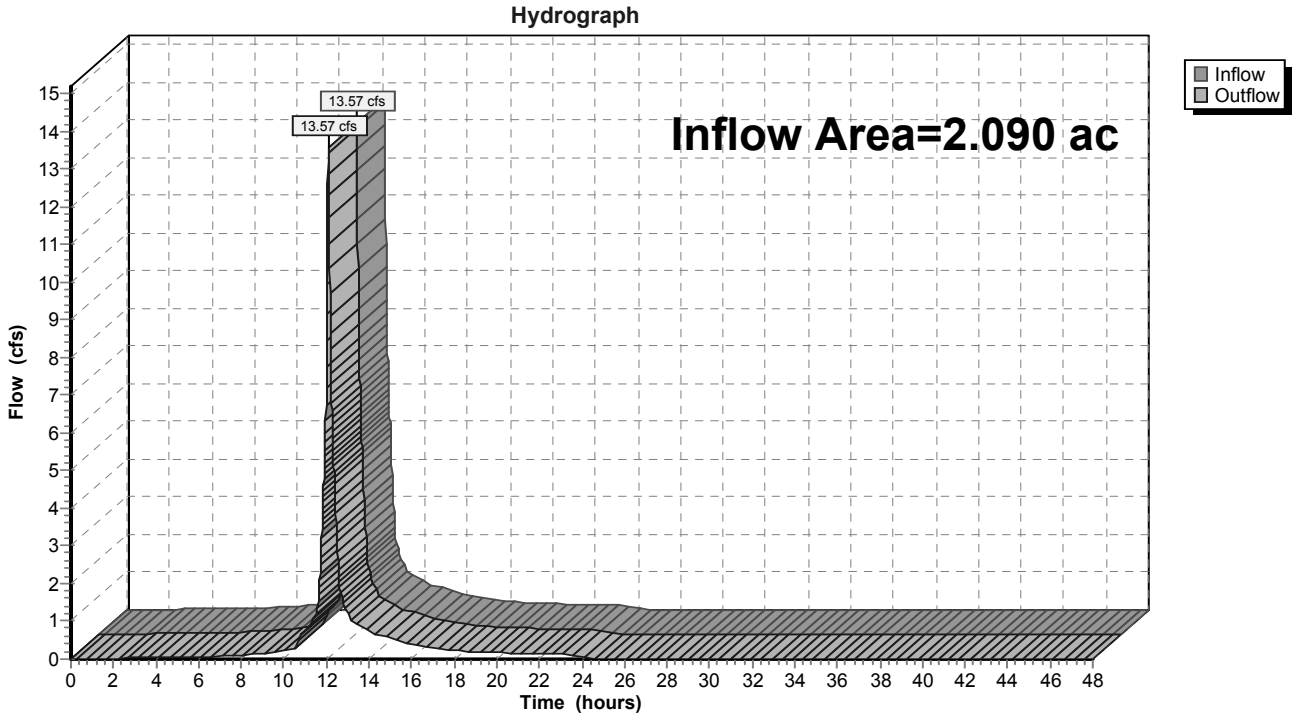
Summary for Reach PS: Proposed Sum (Mount Vernon Street Drain System)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.090 ac, 82.11% Impervious, Inflow Depth = 5.38" for 100-Year event
Inflow = 13.57 cfs @ 12.10 hrs, Volume= 0.937 af
Outflow = 13.57 cfs @ 12.10 hrs, Volume= 0.937 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach PS: Proposed Sum (Mount Vernon Street Drain System)



Summary for Pond S1: Infiltration System 1 (SC-740 Chambers)

Inflow Area = 0.458 ac, 65.94% Impervious, Inflow Depth = 5.82" for 100-Year event
Inflow = 2.95 cfs @ 12.08 hrs, Volume= 0.222 af
Outflow = 2.84 cfs @ 12.11 hrs, Volume= 0.196 af, Atten= 4%, Lag= 1.4 min
Discarded = 0.01 cfs @ 5.17 hrs, Volume= 0.034 af
Primary = 2.83 cfs @ 12.11 hrs, Volume= 0.163 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 14.11' @ 12.11 hrs Surf.Area= 0.034 ac Storage= 0.062 af

Plug-Flow detention time= 232.2 min calculated for 0.196 af (88% of inflow)
Center-of-Mass det. time= 178.3 min (958.2 - 779.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.023 af	**25.25'W x 59.40'L x 3.50'H Field A** 0.121 af Overall - 0.043 af Embedded = 0.078 af x 30.0% Voids
#2A	11.50'	0.043 af	**ADS_StormTech SC-740** x 40 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.066 af	Total Available Storage

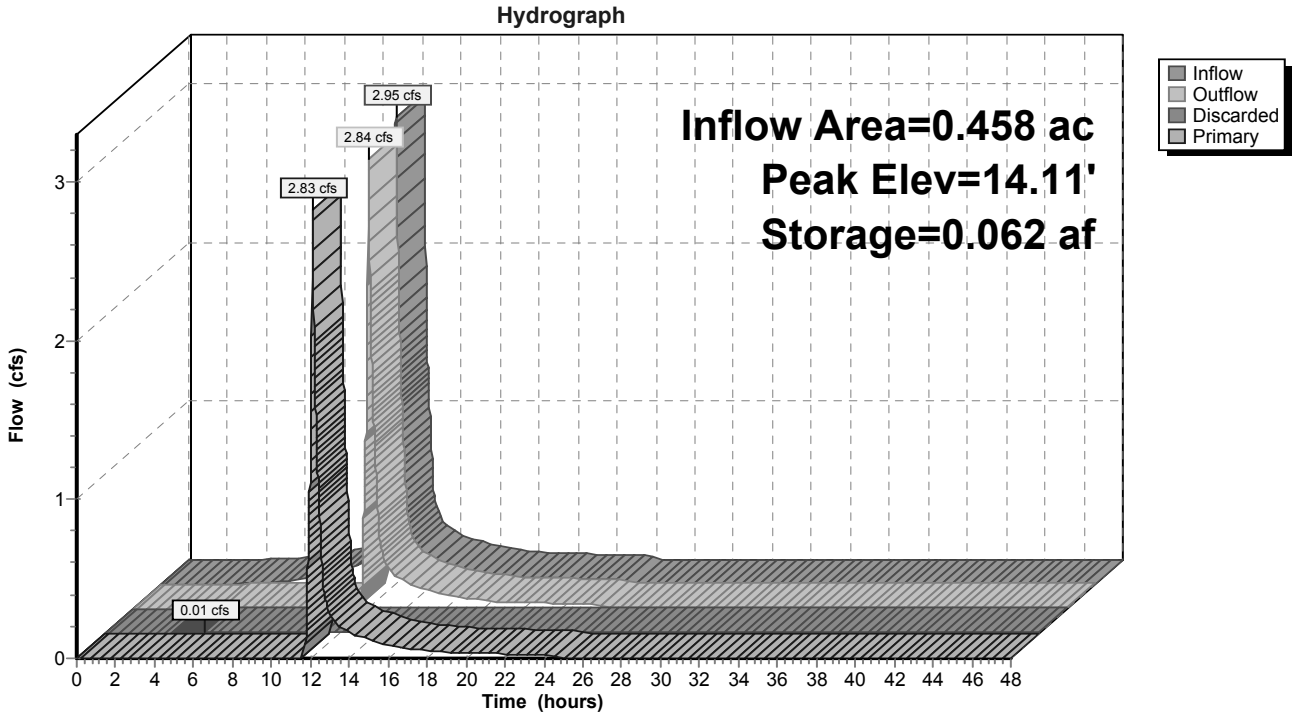
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	10.50'	**18.0" Round Culvert** L= 15.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.50' / 10.35' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	14.00'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	13.00'	**10.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 5.17 hrs HW=11.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=2.82 cfs @ 12.11 hrs HW=14.11' (Free Discharge)
└**1=Culvert** (Passes 2.82 cfs of 14.39 cfs potential flow)
  ├**2=Broad-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 0.94 fps)
  └**3=Orifice/Grate** (Orifice Controls 2.19 cfs @ 4.02 fps)

Pond S1: Infiltration System 1 (SC-740 Chambers)



Summary for Pond S2: Infiltration System 2 (SC-740 Chambers)

Inflow Area = 0.871 ac, 90.13% Impervious, Inflow Depth = 6.46" for 100-Year event
Inflow = 5.89 cfs @ 12.08 hrs, Volume= 0.469 af
Outflow = 5.85 cfs @ 12.09 hrs, Volume= 0.420 af, Atten= 1%, Lag= 0.5 min
Discarded = 0.01 cfs @ 1.94 hrs, Volume= 0.043 af
Primary = 5.84 cfs @ 12.09 hrs, Volume= 0.377 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 14.41' @ 12.09 hrs Surf.Area= 0.041 ac Storage= 0.078 af

Plug-Flow detention time= 170.3 min calculated for 0.419 af (89% of inflow)
Center-of-Mass det. time= 119.1 min (874.7 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.00'	0.028 af	**30.00'W x 59.40'L x 3.50'H Field A** 0.143 af Overall - 0.051 af Embedded = 0.092 af x 30.0% Voids
#2A	11.50'	0.051 af	**ADS_StormTech SC-740** x 48 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.079 af	Total Available Storage

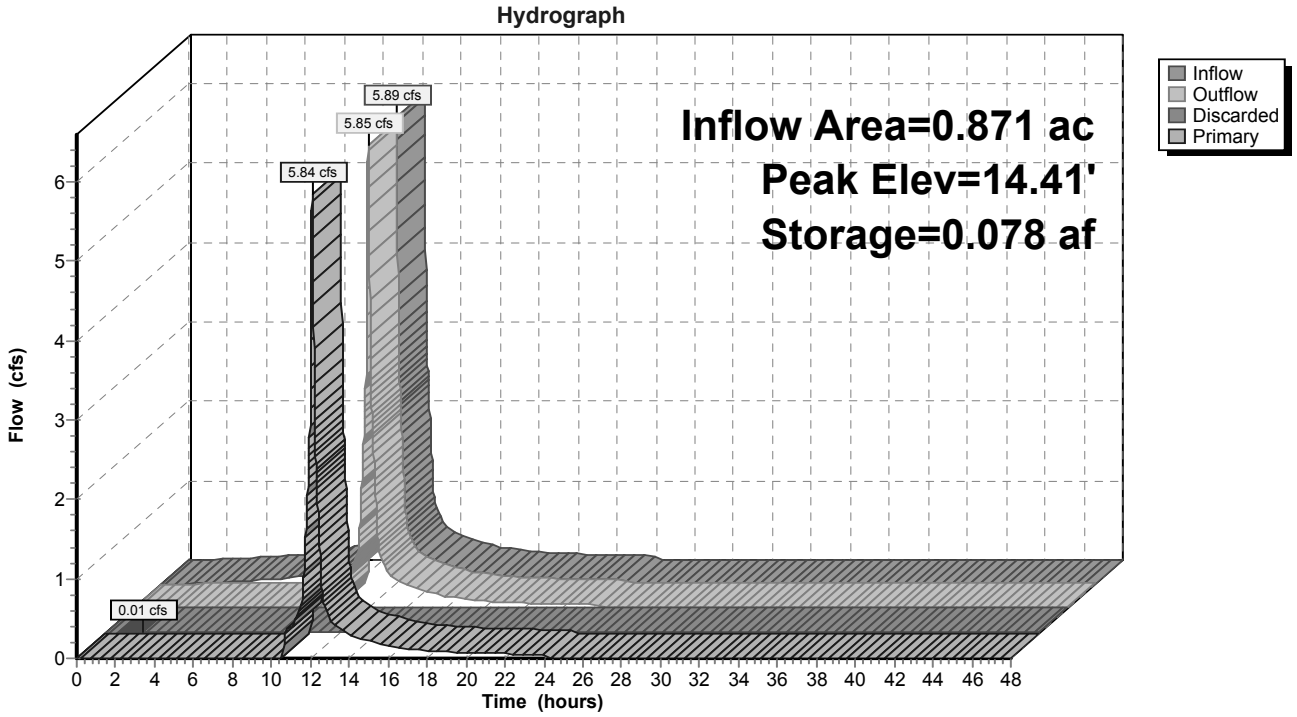
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	11.55'	**18.0" Round Culvert** L= 41.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.55' / 11.35' S= 0.0049 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	13.90'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	11.00'	**0.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 1.94 hrs HW=11.04' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=5.83 cfs @ 12.09 hrs HW=14.41' (Free Discharge)
└**1=Culvert** (Passes 5.83 cfs of 12.36 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 5.83 cfs @ 2.33 fps)

Pond S2: Infiltration System 2 (SC-740 Chambers)



C

RECHARGE CALCULATIONS

STORMWATER MANAGEMENT STANDARDS

STANDARD # 3

RECHARGE TO GROUNDWATER

HYD. SOIL GROUP		RECHARGE PER ACRE
A	=	0.60 in.
B	=	0.35 in.
C	=	0.25 in.
D	=	0.10 in.

					TOTAL EXISTING IMPERVIOUS AREA	=	1.60	ac.
					TOTAL PROPOSED IMPERVIOUS AREA	=	1.72	ac.
					NET INCREASE	=	**0.12**	ac.
					HYD. SOIL GROUP			
					A	=	0.00	ac.
					B	=	0.00	ac.
					C	=	0.12	ac.
					D	=	0.00	ac.
0.60	in.	x	0.00	ac.	x 1/12	=	0.00	cf.
0.35	in.	x	0.00	ac.	x 1/12	=	0.00	cf.
0.25	in.	x	0.12	ac.	x 1/12	=	107.09	cf.
0.10	in.	x	0.00	ac.	x 1/12	=	0.00	cf.
					TOTAL RECHARGE VOLUME REQUIRED	=	**107**	**cf.**
					TOTAL STORAGE VOLUME OF INFILTRATION SYSTEM 1	=	**1,764**	cf.
					TOTAL STORAGE VOLUME OF INFILTRATION SYSTEM 2	=	**3,110**	cf.
					TOTAL RECHARGE VOLUME PROVIDED	=	**4,874**	**cf.**
					(Storage Volume + Infiltration Volume per day)			

4,874 cf **>>>** **107 cf** **STANDARD #3 SATISFIED**

STANDARD #3

INFILTRATION SYSTEM 1 CALCULATIONS

INFILTRATION SYSTEM STORAGE VOLUME

SC-740 CHAMBER VOLUME

	OUTLET ORIFICE INVERT	I_W	=	12.9	ft.
	BOTTOM INVERT CHAMBERS	I_C	=	11.5	ft.
	STORMWATER DEPTH	D_C	=	1.4	ft.
	VOLUME PER CHAMBER	V_C	=	32.0	cf.
	NUMER OF ROWS	R_C	=	5	
	CHAMBERS PER ROW	C_C	=	8	
$N_C = (R_C * C_C)$	NUMBER OF CHAMBERS	N_C	=	40	
$V_{CHAMBERS} = (V_C * N_C)$	TOTAL VOLUME OF CHAMBERS BELOW OUTLET	$V_{CHAMBERS}$	=	1280.6	cf.

STONE VOLUME

	STONE BOTTOM INVERT	I_S	=	11.0	ft.
	STONE WIDTH	W_S	=	25.3	ft.
	STONE LENGTH	L_S	=	60.3	ft.
	% VOIDS	VOIDS	=	30%	
$V_{STONE} = [(W_S * L_S * (I_W - I_S)) - V_{CHAMBERS}] * VOIDS$	STONE VOLUME	V_{stone}	=	483.5	cf.

TOTAL VOLUME BELOW INVERT

$V_{TOTAL} = V_{CHAMBERS} + V_{STONE}$	**TOTAL STORAGE VOLUME**	V_{TOTAL}	=	**1764.2**	cf.

BOTTOM AREA

$A_{bottom} = W_S * L_S$	BOTTOM SURFACE AREA	A_{bottom}	=	**1522.3**	sf.

REQUIRED RECHARGE VOLUME

STATIC METHOD

	SOIL TYPE		=	C	
	RECHARGE DEPTH	F	=	0.25	in.
	IMPERVIOUS AREA	A_{IMP}	=	**0.30**	ac.
$Rv = (F * A_{imp})$	RECHARGE STORAGE VOLUME	Rv	=	**274.1**	cf.

1764.2 cf. >>> 274.1 cf.

STANDARD 3 SATISFIED

72 HOUR DRAWDOWN

	SOIL TYPE		=	C	
	RAWLS RATE	K	=	0.27	in/hr
	REQUIRED RECHARGE VOLUME	Rv	=	274.1	cf.
	BOTTOM AREA	A_{bottom}	=	1522.3	sf.
$T_D = (Rv) / (K * A_{bottom})$	DRAWDOWN TIME	T_D	=	**8.0**	hr.

8.0 hr. <<< 72.0 hr.

72 HOUR DRAWDOWN SATISFIED

STANDARD #3

INFILTRATION SYSTEM 2 CALCULATIONS

INFILTRATION SYSTEM STORAGE VOLUME

SC-740 CHAMBER VOLUME

	OUTLET ORIFICE INVERT	I_W	=	13.9	ft.
	BOTTOM INVERT CHAMBERS	I_C	=	11.5	ft.
	STORMWATER DEPTH	D_C	=	2.4	ft.
	VOLUME PER CHAMBER	V_C	=	45.7	cf.
	NUMER OF ROWS	R_C	=	6	
	CHAMBERS PER ROW	C_C	=	8	
$N_C = (R_C * C_C)$	NUMBER OF CHAMBERS	N_C	=	48	
$V_{CHAMBERS} = (V_C * N_C)$	TOTAL VOLUME OF CHAMBERS BELOW OUTLET	$V_{CHAMBERS}$	=	2195.2	cf.

STONE VOLUME

	STONE BOTTOM INVERT	I_S	=	11.0	ft.
	STONE WIDTH	W_S	=	30.0	ft.
	STONE LENGTH	L_S	=	60.3	ft.
	% VOIDS	VOIDS	=	30%	
$V_{STONE} = [(W_S * L_S * (I_W - I_S)) - V_{CHAMBERS}] * VOIDS$	STONE VOLUME	V_{stone}	=	915.0	cf.

TOTAL VOLUME BELOW INVERT

$V_{TOTAL} = V_{CHAMBERS} + V_{STONE}$	**TOTAL STORAGE VOLUME**	V_{TOTAL}	=	**3110.2**	cf.

BOTTOM AREA

$A_{bottom} = W_S * L_S$	BOTTOM SURFACE AREA	A_{bottom}	=	**1808.7**	sf.

REQUIRED RECHARGE VOLUME

STATIC METHOD

	SOIL TYPE		=	C	
	RECHARGE DEPTH	F	=	0.25	in.
	IMPERVIOUS AREA	A_{IMP}	=	**0.78**	ac.
$Rv = (F * A_{imp})$	RECHARGE STORAGE VOLUME	Rv	=	**707.9**	cf.

3110.2 cf. >>> 707.9 cf.

STANDARD 3 SATISFIED

72 HOUR DRAWDOWN

	SOIL TYPE		=	C	
	RAWLS RATE	K	=	0.27	in/hr
	REQUIRED RECHARGE VOLUME	Rv	=	707.9	cf.
	BOTTOM AREA	A_{bottom}	=	1808.7	sf.
$T_D = (Rv) / (K * A_{bottom})$	DRAWDOWN TIME	T_D	=	**17.4**	hr.

17.4 hr. <<< 72.0 hr.

72 HOUR DRAWDOWN SATISFIED

D

WATER QUALITY CALCULATIONS

STORMWATER MANAGEMENT STANDARDS

STANDARD # 4

WATER QUALITY VOLUME (WQV) INFILTRATION SYSTEM 1

IMPERVIOUS AREA (TO BE TREATED) = 0.30 ac.

[ ] CRITICAL AREA

WQV = **1.00** inch runoff x TOTAL IMPERVIOUS AREA

[X] OTHER AREA

WQV = **0.50** inch runoff x TOTAL IMPERVIOUS AREA

0.50 x **0.30** = 548.1 cf.

TOTAL WATER QUALITY VOLUME REQUIRED = **548.1** **cf.**

WATER QUALITY VOLUME

INFILTRATION SYSTEM 1 = **1764.0** cf.

* Water Quality Volume from recharge calculations

TOTAL WATER QUALITY VOLUME PROVIDED = **1764.0** **cf.**

1764.0 cf **>>>** **548.1 cf** **STANDARD #4 SATISFIED**

STORMWATER MANAGEMENT STANDARDS

STANDARD # 4

WATER QUALITY VOLUME (WQV) INFILTRATION SYSTEM 2

IMPERVIOUS AREA (TO BE TREATED) = 0.78 ac.

[ ] CRITICAL AREA

WQV = **1.00** inch runoff x TOTAL IMPERVIOUS AREA

[X] OTHER AREA

WQV = **0.50** inch runoff x TOTAL IMPERVIOUS AREA

0.50 x **0.78** = 1,415.7 cf.

TOTAL WATER QUALITY VOLUME REQUIRED = **1415.7** **cf.**

WATER QUALITY VOLUME

INFILTRATION SYSTEM 2 = **3110.0** cf.

* Water Quality Volume from recharge calculations

TOTAL WATER QUALITY VOLUME PROVIDED = **3110.0** **cf.**

3110.0 cf **>>>** **1415.7 cf** **STANDARD #4 SATISFIED**

STORMWATER MANAGEMENT STANDARDS

STANDARD # 4

WATER QUALITY FLOW RATE FOR WQD CB A-2-1

[ ] CRITICAL AREA OR LUHPPL

WQV = **1.00** inch runoff x TOTAL IMPERVIOUS AREA

[x] OTHER AREA

WQV = **0.50** inch runoff x TOTAL IMPERVIOUS AREA

IMPERVIOUS AREA = 0.05 acre = 0.00008 sq. mi

Time of Concentration = 6.0 min.

Ia/P Curve = 0.058

qu = 752 csm/in

$Q_{0.5}$ = 0.5 -inch x 0.00008 sq. mi. x 752 csm/min = 0.03 cfs

Use VortSentry HS36 Model

Water Quality Flow Rate Provided = 0.55 cfs

0.55 >>> 0.03 **Standard #4 Satisfied**

STORMWATER MANAGEMENT STANDARDS

STANDARD # 4

WATER QUALITY FLOW RATE FOR WQD CB A-2-2

[ ] CRITICAL AREA OR LUHPPL

WQV = **1.00** inch runoff x TOTAL IMPERVIOUS AREA

[x] OTHER AREA

WQV = **0.50** inch runoff x TOTAL IMPERVIOUS AREA

IMPERVIOUS AREA = 0.06 acre = 0.00009 sq. mi

Time of Concentration = 6.0 min.

Ia/P Curve = 0.058

qu = 752 csm/in

$Q_{0.5}$ = 0.5 -inch x 0.00009 sq. mi. x 752 csm/min = 0.03 cfs

Use VortSentry HS36 Model

Water Quality Flow Rate Provided = 0.55 cfs

0.55 >>> 0.03 **Standard #4 Satisfied**

STORMWATER MANAGEMENT STANDARDS

STANDARD # 4

WATER QUALITY FLOW RATE FOR WQD CB B-3-1

[ ] CRITICAL AREA OR LUHPPL

WQV = **1.00** inch runoff x TOTAL IMPERVIOUS AREA

[x] OTHER AREA

WQV = **0.50** inch runoff x TOTAL IMPERVIOUS AREA

IMPERVIOUS AREA = 0.29 acre = 0.00045 sq. mi

Time of Concentration = 6.0 min.

Ia/P Curve = 0.058

qu = 752 csm/in

$Q_{0.5}$ = 0.5 -inch x 0.00045 sq. mi. x 752 csm/min = 0.17 cfs

Use VortSentry HS36 Model

Water Quality Flow Rate Provided = 0.55 cfs

0.55 >>> 0.17 **Standard #4 Satisfied**

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: Infiltration System "1"

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	**0.25**	**1.00**	**0.25**	**0.75**
Subsurface Infiltration Structure	**0.80**	**0.75**	**0.60**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**

Total TSS Removal = **85%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **Bayside Doubletree Hotel**

Prepared By: **DTW**

Date: **7/6/2017**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: Infiltration System "2"

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	**0.25**	**1.00**	**0.25**	**0.75**
Subsurface Infiltration Structure	**0.80**	**0.75**	**0.60**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**
	0.00	**0.15**	**0.00**	**0.15**

Total TSS Removal = **85%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **Bayside Doubletree Hotel**

Prepared By: **DTW**

Date: **7/6/2017**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

UNIVERSITY OF MASSACHUSETTS
AT AMHERST
Water Resources Research Center
Blaisdell House, UMass
310 Hicks Way
Amherst, MA 01003

Massachusetts Stormwater Evaluation Project

(413) 545-5532
(413) 545-2304 FAX
www.mastep.net

MASTEP Technology Review

Technology Name: Vortechs System. (Models 1000, 1100, 2000 and 4000 reviewed in these studies)

Studies Reviewed:

- NJCAT Technology Verification. Vortechs. April 2011
- A Study of the Effectiveness of a Vortechs Stormwater Treatment System for Removal of Total Suspended Solids, 2001. NYSDEC
- ETV Rpt. Stormwater Source Area Treatment Device. Vortechnics, inc. Vortechs System, Model 1000, 2005
- NJCAT Technology Verification Vortechnics, Inc. May 4, 2004
- Two Vendor-supplied studies conducted at Delorme Publishing Company, Yarmouth Maine

Date: 11/04/2011
Reviewer: Jerry Schoen

Rating: 1 for SSC, 2 for TSS

Brief rationale for rating: SSC rating is primarily based on the NJCAT 2011 field study; TSS on the ETV field study with some consideration of the NJCAT 2004 laboratory study. All have scientific merit. Both field studies (NJCAT and ETV) monitored 18 storms and provided detailed description of methods, quality control procedures and results. The NJCAT lab study tested a good range of flow rates, particle sizes, influent sediment concentrations. Problems: no scour test, large abnormally large particles sizes in the NJCAT field study; raw data not shown in ETV study, few details on test equipment or setup. Other studies reviewed offer some useful information, but had more significant quality control problems and/or lacked detailed discussion of methods.

TARP Requirements Not Met:

- NJCAT 2011: excessive quality control failure rate for TSS analysis
- ETV: At least 50% of annual rainfall must be sampled (36% was sampled)
- ETV: Minimum of 15" of precipitation must be sampled (11.8" were sampled)

Other Comments:

- NJCAT field study (2011). Conducted on a Vortechs Model 4000, at flows up to 97% design flow. Good documentation of quality control. Mean influent particle sizes were approximately 500 microns, well above the recommended < 100 microns. SSC results were reported for several discreet influent particle size ranges, with results of 52-95% depending on size. TSS and TVSS results not considered reliable in this study because of QC failures, likely due to the large particle sizes, which tend to skew results for this analysis method.
- ETV study: conducted on a Vortechs Model 1000. Quality control results were good, with the exception of some problems with outlet flow measurements. Inlet TSS concentrations were 46-305 mg/l, lower than the target of 100-300 mg/l. this is considered a strong point of the study, since performance usually suffers during "cleaner" storms. Similarly particle size analysis showed a high concentration of fines; most influent particles were less than 62 microns – producing influent sediments that are difficult to treat.
- NJCAT lab study: conducted on a Vortechs Model 2000. 64% TSS removal obtained.

E

LONG TERM POLLUTION PREVENTION PLAN

LONG-TERM POLLUTION PREVENTION PLAN
BAYSIDE DOUBLETREE HOTEL EXPANSION
BOSTON, MA

Good Housekeeping BMPS:

Waste Materials: Debris and trash will be collected in a metal dumpster. The dumpster will meet all Municipal requirements. Surplus soil material will be removed from the site and legally disposed of. Handling, sampling, manifesting, transportation and disposal of waste material will be documented.

Hazardous Waste: Hazardous waste will be disposed of as required under local, state and federal regulations. Site personnel will be instructed regarding proper management of hazardous waste. The individual in charge of this activity will be properly trained in hazardous waste management in accordance with OSHA regulations and MassDEP regulation 310 CMR 30 and 310 CMR 40.

Sanitary Waste: Temporary sanitary waste facilities will be provided onsite. Waste will be collected as required, and in any event as required by local regulation, by a sanitary waste management contractor.

Hazardous Products: The following practices will be used to reduce the risks associated with hazardous materials onsite:

a. All shipments will be promptly inspected to assure that products comply with requirements and items are undamaged.
b. Products will be stored and protected in accordance with the manufacturer's instructions with seals and labels intact and legible.
c. Products will be stored in a secure location and access to the materials will be provided to authorize personnel only.

Establish Proper Building Material Staging Areas:

a. Material deliveries will be coordinated with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
b. Delivers will be scheduled to reduce long-term onsite storage prior to installation, unless written authorization is provided by the engineer.
c. Materials stored onsite will be stored in manufacturer's original sealed containers or other packing systems complete with instruction for handling, storing, unpacking, protecting and installing.
d. Adequate equipment and personnel will be provided to ensure materials can be safely handled.
e. Cement and lime will be stored under a roof and off the ground to be kept completely dry at all times.
f. Petroleum products will be stored in a secure location under control of the site superintendent.
g. Mechanical and electrical equipment will be stored in a weatherproof structure.

Designated Washout Areas:

a. Concrete contractors should be encouraged where possible to use the washout facilities at their own plants.
b. Concrete washouts areas shall be established onsite with signs noting the locations. The washout area is to be inspected daily during concrete operations.
c. Provide adequate containment for the amount of wash water that will be used.
d. Dispose of materials properly. Concrete wash water can be highly polluted. It is not to be discharged to any surface water or storm drain system.

Establish Proper Vehicle / Equipment Maintenance Practices:

a. Train employees and subcontractor in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, and such).
b. Inspect onsite vehicles and equipment daily for leaks, equipment damage and other service problems.
c. Clearly designate vehicle / equipment service areas away from drainage facilities and water course to prevent stormwater run-on and runoff.
d. Use drip pans, drip cloths, or absorbent pads when replacing spent fluids.
e. Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible.

Spill Prevention and Control Plan:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and clean up:

a. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
b. The contractor shall provide a 55-gallon spill containment kit and maintain it onsite throughout the construction period.
c. All spills will be cleaned up immediately after discovery.
d. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
e. Spills of toxic or hazardous materials, at or greater than reportable quantities, will be reported to the appropriate state or local government agency.
f. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
g. The Site Superintendent is the designated responsible party for day to day operations and spill clean up procedures.

Allowable Non-Stormwater Discharge Management:

The allowable non-stormwater discharges may include the following:

a. Discharges from emergency fire-fighting activities;
b. Fire hydrant flushings;
c. Landscape irrigation;
d. Water used to wash vehicles and equipment, provided that there is no discharge of soaps, solvents, or detergents used for such purposes;
e. Water used to control dust;
f. Potable water including uncontaminated water line flushings;
g. External building washdown, provided soaps, solvents, and detergents are not used, and external surfaces do not contain hazardous substances (e.g., paint or caulk containing polychlorinated biphenyls (PCBs));
h. Pavement wash waters, provided spills or leaks of toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used. You are prohibited from directing pavement wash waters directly into any water of the U.S., storm drain inlet, or stormwater conveyance, unless the conveyance is connected to a sediment basin, sediment trap, or similarly effective control;
i. Uncontaminated air conditioning or compressor condensate;
j. Uncontaminated, non-turbid discharges of ground water or spring water;
k. Foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated ground water; and
l. Construction dewatering water discharged in accordance with Part 2.4.

Non-stormwater discharges should be eliminated or reduced to the extent feasible.

a. Water used to control dust.

   Dust control will be implemented as needed once site grading has begun and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site grading is occurring. Spraying of potable water at a rate of 300 gallons per acre or less will be performed by a mobile pressure-type distributor truck no more than three times a day during the months of May through September or whenever the dryness of the soil warrants it.

b. Uncontaminated Excavation Dewatering

   Dewatering activities are not anticipated for this project due to the depth of the groundwater. If dewatering does occur, the LTPPP will be revised to address the need for appropriate BMPs.

c. Landscape Irrigation

   Irrigation waters will not be sprayed onto impermeable surfaces such as paved driveways and roads. Waters will be directed onto soil and lawns by using hoses and correctly sized sprinklers with adjustable spray patterns. To avoid discharges of irrigation waters, the

sprinkler will have low-flow rates and increased watering time. The irrigated area will be inspected for excess watering and to adjust watering times and schedules.

Inspection Personnel:

Inspection must be conducted by qualified personnel. "Qualified Personnel" means a person knowledgeable in the principals and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measure selected to control the quality of stormwater discharges for the construction activity. Prior to construction the contractor shall submit the names of the personnel whom will be responsible for the inspections.

Inspection Schedule and Procedures:

Inspections of the site will be performed once every 7 days. The inspections will verify that all BMPs are implemented, maintained, and effectively minimizing erosion and preventing stormwater contamination from construction materials.

Inspections must include all areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation. Inspectors must look for evidence of, or the potential for, pollutants entering the stormwater conveyance system. Sedimentation and erosion control measures identified in the LTPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of offsite sediment tracking.

If corrective actions are identified during the inspections, the construction managers will be notified and a copy of the inspection report will be submitted to them. Corrective action is to be initiated within 24 hours of the report and the maintenance completed as soon as possible or before the next storm event. In addition, the LTPPP shall be modified as necessary to include the additional or modified BMPs designed to correct the problems identified. Revisions to the LTPPP must be completed within seven (7) calendar days following the inspection.

Emergency Contact:

It is anticipated that **Corcoran Jennison Co.** will be the owner and responsible for the operation and maintenance of the site. Their address is:

Corcoran Jennison Co.
ATTN. Tom Devane
150 Mount Vernon Street
Boston, MA 02125
Tel. 617-822-7222

F

OPERATION AND MAINTENANCE PLAN

OPERATION AND MAINTENANCE PLAN
BAYSIDE DOUBLETREE HOTEL EXPANSION
BOSTON, MA

INTRODUCTION

The proposed project will include the construction of an addition to an existing hotel on the north side of Mount Vernon Street as well as improvements to the associated parking, landscaped areas, utilities and stormwater management system. The proposed stormwater management system will include deep sump catch basins with oil trap hoods and two infiltration/detention systems.

The proposed project includes work that comes under the jurisdiction of the Boston Conservation Commission. It is anticipated that the Conservation Commission will issue an Order of Conditions, a copy of which the contractor must retain onsite, and must comply with all conditions stated therein. The purpose of the Orders is to minimize the potential of siltation of resource areas from both overland flow and pipe flow. The following notes and details are intended to be a minimum set of guidelines and the contractor shall be responsible for their implementation. Should additional control be required, the contractor shall take whatever steps are necessary.

The project site is presently occupied by a 6 story hotel building located in the center of the project lot. The main drive, entranceway, a small parking area, and landscaped area are located southeast of the existing building. Parking and landscaped areas cover the northwest half of the project site.

Topography of the site is generally flat with a high elevation in the landscaped area south of the existing hotel at elevation 20.6± (BCB) and a low elevation of 14.9± (BCB) located at the northeastern corner of the project site in the main parking area.

Stormwater from the project site presently flows to the existing onsite drain system. Stormwater from the existing drain system is conveyed to a large water quality device before discharge to the Mount Vernon Street drain system. Stormwater from this site eventually flows to the Dorchester Bay. There are no wetland resource areas within the vicinity of the project site.

The project site is within Flood Zone AE as shown on the Flood Insurance Rate Map dated March 16, 2016. The Flood Elevation is 11.0 NAVD88 or 17.46 BCB.

SILTATION CONTROLS

The first phase of construction will consist of the placement of siltation controls in accordance with the detail and at the location indicated on the plans. No further construction activity will take place until the siltation controls are inspected and approved. No encroachment or alteration shall occur beyond the erosion control barriers. Erosion control barriers shall be maintained and replaced, if necessary, throughout the course of construction.

SITE CONSTRUCTION

Prior to construction the proposed location of earth stockpiles shall be shown on a plan and shall be approved by the Engineer. Stockpiles that are to be left for more than fourteen (14) days shall be shaped and secured by siltation controls around the downstream perimeter and shall be stabilized by temporary seeding or netting. Demolition of the existing building and the site grading operation will commence. Topsoil on the site will be stockpiled separately and the pile stabilized. The site will be graded to subgrade with the excess soil stockpiled in the designated areas and the utilities installed.

All unvegetated areas, including stockpiles, that will remain unvegetated for greater than 14 days should be mulched or seeded within 7 days of their grading. The perimeter sedimentation controls at the stockpiles should be in place at the end of each day and before rain events.

During the construction of the drainage system, care must be taken to prevent siltation from entering the system. Drainage pipes in open excavations shall not remain open overnight. Woven geotexile material shall be placed in the catch basins until the binder course has been placed. The silt and sand, which may accumulate around the catch basins, shall be removed after every rainstorm. Catch basins shall be set to binder grade until immediately prior to placement of the top course, at which time they will be set at final grade. The drainage system shall be cleaned prior to acceptance.

Work shall commence as soon as practical on the perimeter disturbed areas not to be paved. Four inches (4") of topsoil is to be placed in these areas and the areas hydroseeded. All areas shall be stabilized within sixty (60) days of disturbance. When weather conditions do not permit stabilization by seeding, hay mulch, straw mats, jute netting or other approved means shall be used for temporary stabilization.

INSPECTION AND MAINTENANCE

Prior to construction, the Contractor shall formulate a schedule for inspection and maintenance of the erosion control measures. This schedule shall establish, at a minimum, the weekly inspections of the sedimentation controls, stockpiles, catch basins, unstabilized areas within the site and a report of any required maintenance. The schedule will also appoint an individual who will be responsible for performing the weekly inspections.

During the weekly inspection, and at any time during the course of construction, the Engineer, the Owner or the individual responsible for the erosion control measures may direct the Contractor to take immediate action to correct a deficiency or to increase the erosion control measures.

ADDITIONAL REQUIREMENTS

The contractor shall employ measures to control dust during construction. All debris shall be properly contained and disposed of.

Mount Vernon Street shall be swept clean of any soils tracked onto the pavement from vehicles exiting the site.

A supply of straw wattles and siltation fence shall be kept on site to provide for additional siltation control, as may be required. Any construction equipment observed leaking or dripping oil shall be removed from the site. No construction equipment shall be re-fueled within 100 feet of any wetlands. Temporary grass stabilization shall be applied at rate of 4-pounds/1,000 sf. and conform to the following mix summarized in Table 1.

Table 1
Seed Mixture

SEED	% WEIGHT	
	Min.	Max.
Winter Rye	80	
Red Fescue (Creeping)	4	
Perennial Rye Grass	3	
Red Clover	3	
Other Crop Grass	0.5	
Noxious Weed Seed		0.5
Inert Matter		1

CONSTRUCTION SCHEDULE

A. Prior to construction, construction fencing will be placed at the limits of work, as indicated on the site drawings.

B. Utility Relocation Work will commence

C. The excavation work for the building construction will then commence.

D. Building foundation work shall then commence.

E. Utility construction will commence.

F. Additional siltation fence or straw wattles will be added as construction proceeds where required to control erosion. Sedimentation controls shall be installed along the downhill side of all soil stockpiles.

G. Catch basins shall have a geotextile bag or silt sack installed until the parking area is paved.

H. The infiltration systems shall be installed after the foundation work is complete.

I. The pavement subgrade will then be graded, and the gravel and the bituminous base course placed. This shall be completed as soon as practical after the site clearing.

J. All disturbed areas not already stabilized will then be covered with a minimum of 4-inches of topsoil and seeded.

K. The drainage system shall be completely operational prior to any paving or the building roof drains being installed.

L. The building roof drains will be in operation immediately after the roof is completed.

M. All drainage structures will be cleaned upon completion of construction.

N. The siltation controls shall be removed after the site has stabilized.

BMP MAINTENANCE SCHEDULE FOR CONSTRUCTED SITE

1. Inspect catch basins quarterly if all tributary areas are stabilized with vegetation or monthly if not. Clean out if more than 1/4 full of sediment (1 foot deep in a 4-foot sump). Inspect and clean as necessary after intense rainfall and as soon as practical after winter sanding.

2. Keep all pervious site areas stabilized at all times. Keep any stockpiled earth covered. Remove leaves and trimmings from site.

3. The VortSentry Inlets shall be maintained in strict conformance with the Manufacturer's recommendations. During the first year the device is to be monitored two times and the sediment removed when it reaches a 2-foot depth. Based on the monitoring results from the first year, a cleaning schedule shall be established based on a 2-foot sediment depth removal. The VortSentry Units shall be inspected a minimum of twice per year thereafter.

4. The infiltration systems should be checked for sediment on a yearly basis. A log of the sediment depth should be maintained. Measure the sediment depth visually by opening the inspection port and with the use of a flashlight and measuring rod. If sediment reaches a three-inch depth, the sediment is to be removed by vacuum or jet spray.

5. Sweep parking areas twice per year, in the spring after winter sanding and again in the late fall. The use of a regenerative air sweeper will be the preferred method of cleaning the pavement.

6. Minimize the use of sand and chemicals for winter de-icing of pavement areas. Do not use salt in the parking areas for de-icing.

7. It is anticipated that **Corcoran Jennison Co.** will be the owner and responsible for the operation and maintenance of the site. Their address is:

   Corcoran Jennison Co.
   ATTN. Tom Devane
   150 Mount Vernon Street
   Boston, MA 02125
   Tel. 617-822-7222

Bayside Doubletree Hotel Expansion, Boston, Massachusetts

Stormwater Operation and Maintenance Plan

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

Best Management practice	Inspection Frequency	Date Inspected	Contractor	Current Conditions and Minimum Maintenance / Repairs, If Necessary	Completed Maintenance / Repair (i.e. date, contractor, tasks complete, etc.)
Site Sweeping	Biannual				
Catch Basins	Quarterly				
Infiltration Systems	Annual				
Parking Areas	Quarterly				
Vegetated Areas	Quarterly				
Overall Site Condition	Quarterly				
VortSentry Units	Biannual				

Property Manager: _____ Date: _____

G

ILLICIT DISCHARGE COMPLIANCE CERTIFICATE

ILLICIT DISCHARGE COMPLIANCE CERTIFICATE

PROPERTY: **236 Mount Vernon Street**
Boston, MA 02118

PROJECT: **Bayside Doubletree Hotel Expansion**
Boston, MA

The undersigned, James M. White, PE, a professionally licensed civil engineer with the firm of H.W. Moore Associates, Inc. located in Boston, Massachusetts, hereby makes this certification as required under Standard #10 of the MassDEP Stormwater Management Standards. In connection with my review of the Property and the Project, I have reviewed and relied upon the "Topographic Plan, 236 Mount Vernon Street, Boston, Mass.," dated April 11, 2014, prepared by Feldman Land Surveyors, and the "Grading and Utility Plan, Bayside Doubletree Hotel Expansion," dated June 27, 2017, prepared by H.W. Moore Associates, Inc.

In connection with the above referenced matter, I do hereby certify to the best of my knowledge and belief, as of the date set forth above, that there are no illicit sewage discharges to the existing or proposed site stormwater management system.

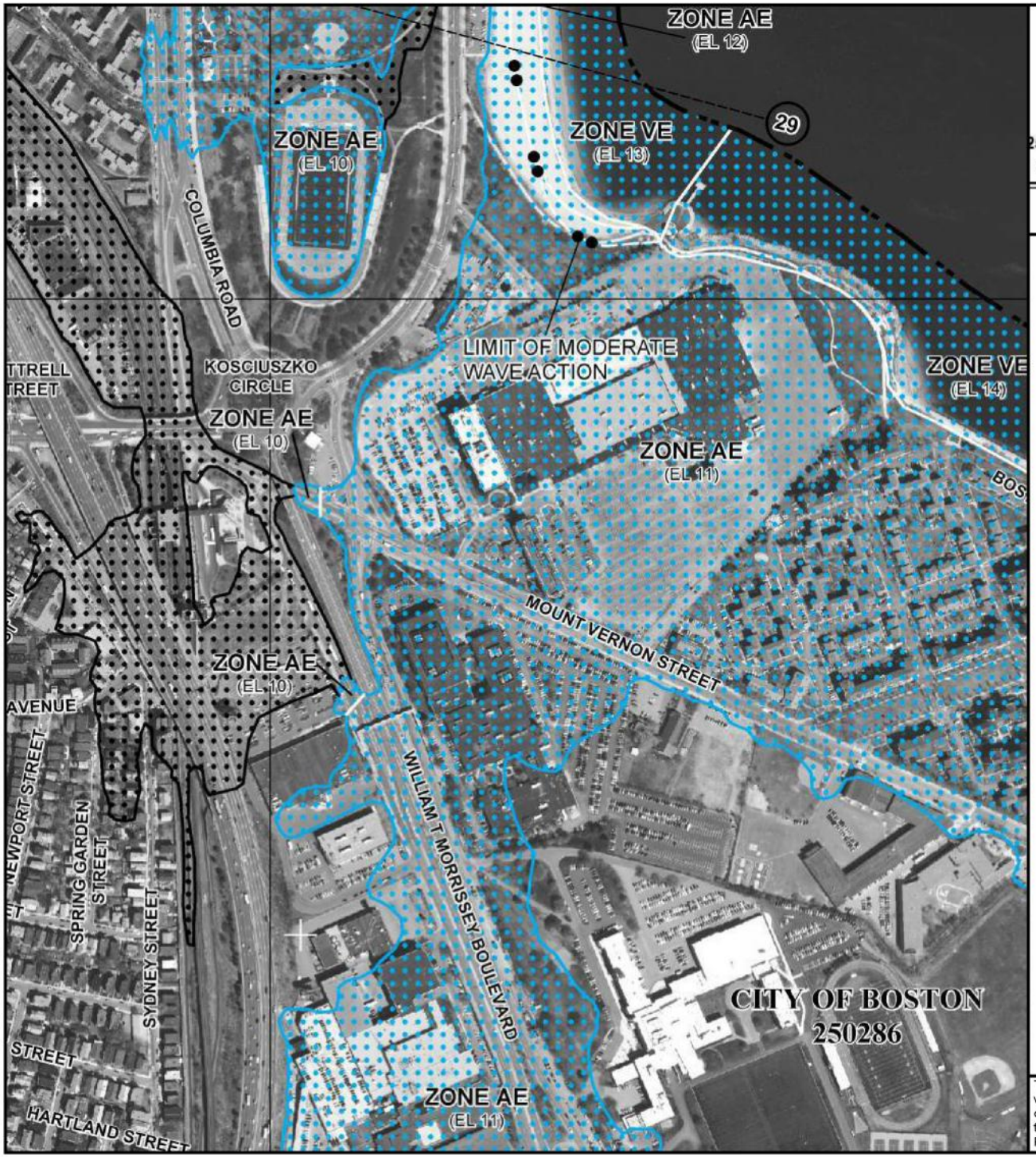
H.W. MOORE ASSOCIATES, INC.

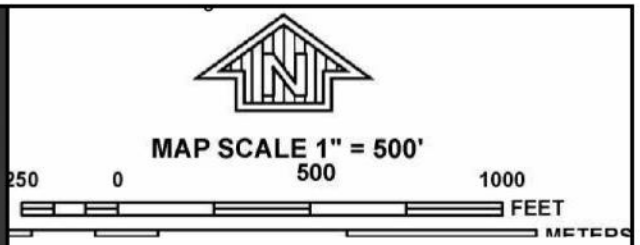
Dated as of: 7/10/17

By: _____
James M. White

H

FEMA MAP





NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0083J

FIRM

FLOOD INSURANCE RATE MAP

SUFFOLK COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 83 OF 176

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOSTON, CITY OF	250286	0083	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25025C0083J

MAP REVISED
MARCH 16, 2016

Federal Emergency Management Agency

I

NRCS SOILS MAP

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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: http://websoilsurvey.nrcs.usda.gov
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: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 10, Sep 19, 2014

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

Date(s) aerial images were photographed: Aug 10, 2014—Aug 25, 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

Norfolk and Suffolk Counties, Massachusetts (MA616)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
603	Urban land, wet substratum, 0 to 3 percent slopes	6.2	100.0%
Totals for Area of Interest		**6.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Norfolk and Suffolk Counties, Massachusetts

603—Urban land, wet substratum, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: vkyl
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land over herbaceous organic material and/or alluvium and/or marine deposits

Minor Components

Udorthents

Percent of map unit: 13 percent

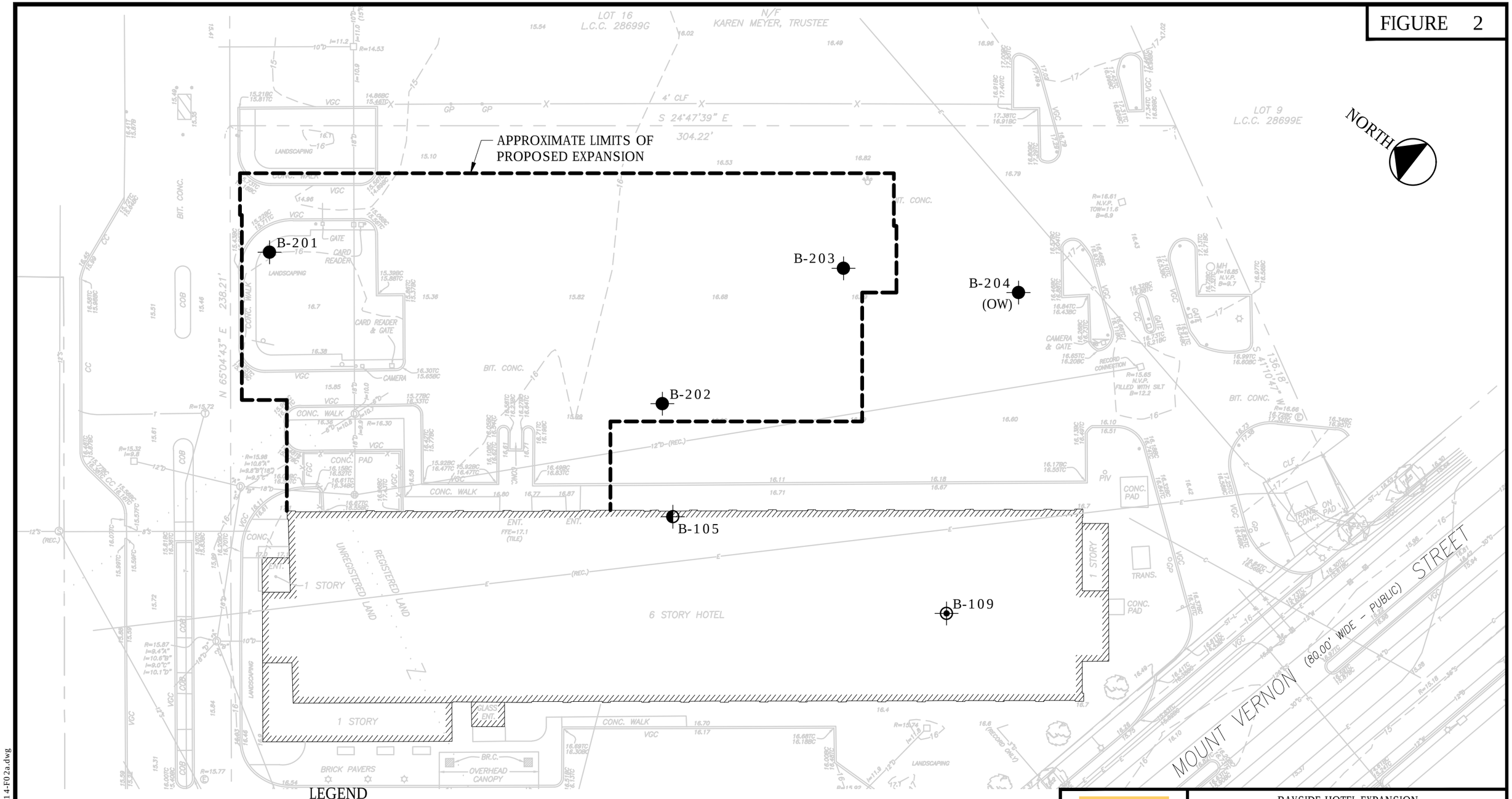
Beaches

Percent of map unit: 2 percent

J

BORING LOGS

FIGURE 2



LEGEND

- ● — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY NORTHERN DRILL SERVICE, INC. DURING THE PERIOD OF AUGUST 16 THROUGH 24, 2016 FOR McPHAIL ASSOCIATES, LLC
- ◐ — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY CARR-DEE CORP. ON MAY 7, 1998 FOR CORCORAN JENNISON CONSTRUCTION CO, INC.
- ◉ — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY CARR-DEE CORP. DURING JUNE 8 THROUGH 10, 1998 FOR CORCORAN JENNISON CONSTRUCTION CO, INC.
- (OW) — INDICATES GROUNDWATER OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

REFERENCE: THIS PLAN WAS PREPARED FROM AN UNTITLED EXISTING CONDITIONS AND SITE PLAN ELECTRONICALLY PROVIDED BY H.W. MOORE ASSOCIATES, INC. ON JULY 28, 2016

GRAPHIC SCALE

30 0 30 60

McPHAIL ASSOCIATES, LLC
Geotechnical and Geoenvironmental Engineers
2269 Massachusetts Avenue
Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)
www.mcphailgeo.com

BAYSIDE HOTEL EXPANSION

DORCHESTER MASSACHUSETTS

SUBSURFACE EXPLORATION PLAN

FOR

CORCORAN JENNISON COMPANY, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: SEPTEMBER 2016	Dwn: I.J.M.	Chkd: O.C.D.	Scale: 1" = 30'
Project No: 6214			

FILE NAME: H:\Acad\JOBS\6214\6214-F02a.dwg

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
	16									
			1.0 / 15.2	TOPSOIL	n/a	VAC 1	12/	0.0-1.0		Loose to compact, dark brown to black, SILTY SAND, some organics and roots, trace gravel. (Topsoil)
1	15									
2	14									Compact, dark brown to black, GRAVELLY SAND, trace silt and cobbles. (Fill)
3	13				n/a	VAC 2	60/	1.0-6.0		
4	12									
5	11			FILL						
6	10								3	NO RECOVERY
7	9				4	S1	24/0	6.0-8.0	1 3 5	Went down with big spoon and still no recovery.
8	8									
9	7		9.0 / 7.2							
10	6				3	S2	24/24"	9.0-11.0	1 1 2 1	Soft to firm, black/gray, ORGANIC SILT, some peat, trace gravel. (Organics)
11	5									
12	4			ORGANICS						
13	3									
14	2				WOH	S3	12/12	14.0-15.0	WOH/12"	Very loose, black/gray, ORGANIC SILT, some peat. (Organics)
15	1		15.0 / 1.2		6	S3A	12/12	15.0-16.0	WOH/6" 6	Loose, gray, fine to medium, SILTY SAND, some gravel. (Marine Sand)
16	0									
17	-1									
18	-2									
19	-3			MARINE SAND						
20	-4				43	S4	24/5	19.0-21.0	21 25 18 15	Desne, gray, medium to coarse, SAND, some silt and gravel. (Marine Sand)
21	-5									
22	-6									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
	-7		24.0 / -7.8	MARINE SAND						
24	-8				5	S5	24/15	24.0-26.0	3 3 2 4	Firm, gray, SILTY CLAY. (Marine Clay)
25	-9									
26	-10									
27	-11									
28	-12									
29	-13				2	S6	24/24	29.0-31.0	WOH/12" 2 2	Very soft to soft, gray, SILTY CLAY. (Marine Clay)
30	-14									
31	-15									
32	-16									
33	-17									
34	-18									
35	-19			MARINE CLAY	WOH	S7	24/24	34.0-36.0	WOH/24"	Very soft, gray, SILTY CLAY. (Marine Clay)
36	-20									
37	-21									
38	-22									
39	-23									
40	-24									
41	-25									
42	-26									
43	-27									
44	-28									
45	-29									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
47	-31									
48	-32									
49	-33									
50	-34									
51	-35									
52	-36									
53	-37									
54	-38				WOR	S8	24/24	54.0-56.0	WOR/18" 1	Very soft, gray, SILTY CLAY. (Marine Clay)
55	-39			MARINE CLAY						
56	-40									
57	-41									
58	-42									
59	-43									
60	-44									
61	-45									
62	-46									
63	-47									
64	-48									
65	-49									
66	-50									
67	-51									
68	-52									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

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Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
	-53									
70	-54									
71	-55									
72	-56									
73	-57									
74	-58									
75	-59									
76	-60									
77	-61									
78	-62									
79	-63									
80	-64			MARINE CLAY						
81	-65									
82	-66									
83	-67									
84	-68									
85	-69									
86	-70									
87	-71									
88	-72									
89	-73									
90	-74									
91	-75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

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"TRACE"	0-10%
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"AND"	35-50%

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Notes:
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Weather: Sunny 90

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CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
	-76									
93	-77									
94	-78									
95	-79									
96	-80									
97	-81									
98	-82									
99	-83									
100	-84									
101	-85									
102	-86									
103	-87			MARINE CLAY						
104	-88									
105	-89									
106	-90									
107	-91									
108	-92									
109	-93									
110	-94									
111	-95									
112	-96									
113	-97									
114	-98									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

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CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-19-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-23-16

Boring No.

B-201

Contractor: Northern Drill Services, Inc.
Driller/Helper: Carl/Sam/Zach
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.2

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-19-16	8	8.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
	-99									
116	-100									
117	-101									
118	-102									
119	-103									
120	-104			MARINE CLAY						
121	-105				13	S9	24/24	120.0-122.0	37 6 7 9	Stiff, gray, SILTY CLAY, trace gravel. (Marine Clay)
122	-106									
123	-107									
124	-108									
125	-109		125.0 / -108.8							
126	-110									
127	-111			GLACIAL OUTWASH	n/a		/	127.0		
128	-112									Lost 10 feet of rod at 130 feet below ground surface, preventing the hole from advancing further. Surface of glacial outwash interpretted from drilling rate and wash water. No sample of glacial outwash.
129	-113									
130	-114		130.0 / -113.8	Bottom of borehole at 130 feet below ground surface.						
131	-115									
132	-116									
133	-117									
134	-118									
135	-119									
136	-120									
137	-121									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
			0.4 / 15.7	ASPHALT						
1	15			FILL	n/a	VAC	/	0.4		Compact, light brown to brown, SAND, some gravel, trace silt and cobbles, w/ ash & cinders and asphalt. (Fill)
2	14									
3	13									
4	12									
5	11									
6	10				5	S1	24/9	6.0-8.0	17 3 2 1	Loose, brown/gray, SILTY SAND and ASH & CINDERS, w/ glass and brick. (Fill)
7	9									
8	8									
9	7		9.0 / 7.1	ORGANICS	1	S2	24/16	9.0-11.0	1 WOH 1 1	Very soft, gray/black, SILTY ORGANICS and PEAT. (Organics)
10	6									
11	5									
12	4									
13	3									
14	2				WOH	S3	24/22	14.0-16.0	WOH/18" 5	Very soft, gray/brown, SILTY ORGANICS, some peat, trace gravel. (Organics)
15	1									
16	0		16.0 / 0.1	MARINE SAND						
17	-1									
18	-2									
19	-3				46	S4	24/	19.0-21.0	14 22 24 22	Dense, gray, medium to coarse, SAND, trace silt and gravel. (Marine Sand)
20	-4									
21	-5									
22	-6									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
24	-8									
25	-9				22	S5	24/15	24.0-26.0	7 10 12 13	Compact, gray, medium to coarse, SAND, some gravel, trace silt. (Marine Sand)
26	-10									
27	-11									
28	-12			MARINE SAND						
29	-13									
30	-14				22	S6	24/15	29.0-31.0	8 10 12 17	Compact, yellow/gray, fine, SILTY SAND, some clay. (Marine Sand)
31	-15									
32	-16									
33	-17		33.0 / -16.9							
34	-18				WOH	S7	24/24	34.0-36.0	WOH/18" 4	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
35	-19									
36	-20									
37	-21									
38	-22									
39	-23			MARINE CLAY						
40	-24				WOH	S8	24/24	39.0-41.0	WOH/18" 1	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
41	-25									
42	-26									
43	-27									
44	-28									
45	-29				WOH	S9	24/10	44.0-46.0	WOH/24"	Very soft, blue/gray, SILTY CLAY. (Marine Clay)

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
47	-31			MARINE CLAY						
48	-32									
49	-33									
50	-34									
51	-35									
52	-36									
53	-37									
54	-38									
55	-39									
56	-40									
57	-41									
58	-42									
59	-43									
60	-44									
61	-45									
62	-46									
63	-47									
64	-48				WOH	S10	24/24	64.0-66.0	WOH/24"	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
65	-49									
66	-50									
67	-51									
68	-52									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
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SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

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Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
70	-54			MARINE CLAY						
71	-55									
72	-56									
73	-57									
74	-58									
75	-59									
76	-60									
77	-61									
78	-62									
79	-63									
80	-64									
81	-65									
82	-66									
83	-67									
84	-68									
85	-69									
86	-70									
87	-71									
88	-72									
89	-73									
90	-74									
91	-75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
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Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
93	-77									
94	-78									
95	-79									
96	-80									
97	-81									
98	-82									
99	-83									
100	-84									
101	-85									
102	-86									
103	-87			MARINE CLAY						
104	-88									
105	-89									
106	-90									
107	-91									
108	-92									
109	-93									
110	-94									
111	-95									
112	-96									
113	-97		113.5 / -97.4							
114	-98			GLACIAL OUTWASH						Compact to dense, gray, medium to coarse grain, SAND and GRAVEL, trace silt. (Glacial Outwash)

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
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Notes:
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Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
116	-100				30	S11	24/16	114.0-116.0	12 14 16 13	
117	-101									
118	-102									
119	-103									
120	-104									
121	-105									
122	-106									
123	-107									
124	-108									
125	-109									
126	-110			GLACIAL OUTWASH						
127	-111									
128	-112									
129	-113				28	S12	24/4	129.0-131.0	24 18 10 8	Compact, gray, GRAVEL and coarse grain SAND. (Glacial Outwash)
130	-114									
131	-115									
132	-116									
133	-117									
134	-118									
135	-119									
136	-120									
137	-121									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-18-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-24-16

Boring No.

B-202

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.1

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	8.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
139	-123									
140	-124			GLACIAL OUTWASH						
141	-125									
142	-126									
143	-127		143.0 / -126.9	BEDROCK	100/1"	S13	1/0	143.0-143.1	100/1"	NO RECOVERY, possible bedrock. (Bedrock)
144	-128		143.1 / -127.0	Bottom of borehole at 143.1 feet below ground surface.						Casing refusal at 143 feet below ground surface and spoon refusal at 143.1 feet below ground surface.
145	-129									
146	-130									
147	-131									
148	-132									
149	-133									
150	-134									
151	-135									
152	-136									
153	-137									
154	-138									
155	-139									
156	-140									
157	-141									
158	-142									
159	-143									
160	-144									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Sunny 90

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No. B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations			
Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
			0.4 / 16.3	ASPHALT						
1	16			FILL	n/a	VAC	/	0.4		Compact, light brown, SAND, some gravel, trace silt and cobbles, w/ ash & cinders, and asphalt. (Fill)
2	15									
3	14									
4	13									
5	12									
6	11									
7	10				3	S1	24/3	6.0-8.0	2 1 2 1	Very loose, gray/brown, SILTY SAND, some gravel, w/ ash & cinders, wood and shells. (Fill)
8	9		8.5 / 8.2							
9	8			DREDGE FILL	2	S2	24/2	9.0-11.0	3 1 1 1	Very loose, gray/black, ORGANIC SILT, some gravel, w/ glass and shells. (Dredge Fill)
10	7									
11	6									
12	5									
13	4									
14	3									
15	2				3	S3	24/18	14.0-16.0	2 1 2 2	Very loose, gray/black, ORGANIC SILT, some gravel, w/ glass, shells and brick. (Dredge Fill)
16	1									
17	0		17.0 / -0.3							
18	-1			MARINE SAND						
19	-2									
20	-3				48	S4	24/12	19.0-21.0	13 22 26 25	Dense, gray, medium grain, SAND, some gravel, trave silt. (Marine Sand)
21	-4									
22	-5									
	-6									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No.

B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
24	-7									
25	-8			MARINE SAND	26	S5	24/14	24.0-26.0	8 12 14 16	Compact, yellow to gray, SILTY FINE SAND, some clay. (Marine Sand)
26	-9									
27	-10		27.0 / -10.3							
28	-11			MARINE CLAY						
29	-12									
30	-13				7	S6	24/24	29.0-31.0	2 3 4 4	Firm, blue/gray, SILTY CLAY. (Marine Clay)
31	-14									
32	-15									
33	-16									
34	-17									
35	-18				1	S7	24/24	34.0-36.0	WOH/12" 1 2	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
36	-19									
37	-20									
38	-21									
39	-22									
40	-23				WOH	S8	24/24	39.0-41.0	WOR/6" WOH/18"	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
41	-24									
42	-25									
43	-26									
44	-27									
45	-28									
	-29									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No.

B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
47	-30									
48	-31									
49	-32									
50	-33									
51	-34									
52	-35									
53	-36									
54	-37									
55	-38									
56	-39									
57	-40									
58	-41			MARINE CLAY						
59	-42									
60	-43				WOH	S9	24/24	59.0-61.0	WOH/24"	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
61	-44									
62	-45									
63	-46									
64	-47									
65	-48									
66	-49									
67	-50									
68	-51									
	-52									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No.

B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
70	-53									
71	-54									
72	-55									
73	-56									
74	-57									
75	-58									
76	-59									
77	-60									
78	-61									
79	-62									
80	-63			MARINE CLAY	WOH	S10	24/24	79.0-81.0	WOR/6" WOH/18"	Very soft, blue/gray, SILTY CLAY. (Marine Clay)
81	-64									
82	-65									
83	-66									
84	-67									
85	-68									
86	-69									
87	-70									
88	-71									
89	-72									
90	-73									
91	-74									
	-75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No.

B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
93	-76			MARINE CLAY						
94	-77									
95	-78									
96	-79									
97	-80									
98	-81									
99	-82									
100	-83				2	S11	24/24	99.0-101.0	1 1 1 7	Very soft to soft, blue/gray, SILTY CLAY, trace gravel. (Marine Clay) Hit gravel in clay at 97.5 feet.
101	-84									
102	-85		102.0 / -85.3							
103	-86			GLACIAL OUTWASH						
104	-87									
105	-88				34	S12	24/2	104.0-106.0	18 13 21 16	Dense, gray, GRAVEL. (Glacial Outwash) Rock stuck in nose of spoon.
106	-89									
107	-90									
108	-91									
109	-92									
110	-93				12	S13	24/14	109.0-111.0	17 7 5 11	Compact, gray, coarse grained, SAND and GRAVEL, trace silt. (Glacial Outwash)
111	-94									
112	-95									
113	-96									
114	-97									Compact, gray, GRAVEL and coarse grained SAND, trace silt. (Glacial Outwash)
	-98									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Bayside Hotel Expansion	**Job #:**	6214
Location:	Bayside Hotel	**Date Started:**	8-16-16
City/State:	240 Mount Vernon St.	**Date Finished:**	8-18-16

Boring No.

B-203

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.7

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.5	9.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
116	-99				15	S14	24/8	114.0-116.0	12 8 7 8	
117	-100									
118	-101									
119	-102				28	S15	24/12	118.5-120.5	20 13 15 18	Compact, gray, coarse grained, SAND and GRAVEL, trace silt. (Glacial Outwash)
120	-103									
121	-104			GLACIAL OUTWASH						
122	-105									
123	-106									
124	-107				36	S16	24/3	124.0-126.0	23 21 15 19	Dense, gray, GRAVEL and coarse grained SAND. (Glacial Outwash)
125	-108									
126	-109									
127	-110		127.0 / -110.3							
128	-111									
129	-112									
130	-113			GLACIOMARINE	33	S17	24/10	129.0-131.0	22 13 20 27	Dense, gray, SILTY, fine to medium, SAND and GRAVEL, trace clay. (Glaciomarine)
131	-114									
132	-115									
133	-116									
134	-117		133.5 / -116.8							
135	-118			BEDROCK	150/9"	S18	15/12	134.0-135.3	38 50 100/3"	Very dense, gray, severely weathered, ARGILLITE. (Bedrock) Rollerbit refusal at 136.5 feet below ground surface.
136	-119									
137	-120		136.5 / -119.8	Bottom of borehole at 136.5 feet below ground surface.						
	-121									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Bayside Hotel Expansion
Location: Bayside Hotel
City/State: 240 Mount Vernon St.

Job #: 6214
Date Started: 8-16-16
Date Finished: 8-16-16

Boring No. B-204 (OW)

Contractor: Northern Drill Services, Inc.
Driller/Helper: Tim/Sam
Logged By/Reviewed By: M. Sachs
Surface Elevation (ft): 16.6

Casing Type: 4"
Casing Hammer (lbs)/Drop (in): 140lb/30"
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140lb/30"

Groundwater Observations

Date	Depth	Elev.	Notes
8-16-16	7.66	8.9	
8-17-16	7.66	8.9	
8-18-16	7.66	8.9	
8-19-16	7.67	8.9	8/22 7.68

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
1	16		0.4 / 16.2	ASPHALT						
				FILL	n/a	VAC	/	0.4		Loose to compact, light brown to brown/gray, SAND, some gravel, trace silt, w/ ash & cinders and brick. (Fill)
7	10		8.5 / 8.1		7	S1	24/10	6.0-8.0	5 4 3 1	Loose, brown, SILTY SAND, some gravel, w/ brick, and dark brown, SILTY ORGANICS, some peat. (Fill)
				ORGANICS	14	S2	24/10	9.0-11.0	21 9 5 7	Compact, dark brown to gray, ORGANIC SILT and PEAT. (Organics)
13	4		13.0 / 3.6	MARINE SAND	13	S3	24/15	14.0-16.0	3 4 9 15	Compact, dark gray, fine to medium, SAND, some silt, trace gravel. (Marine Sand)
16	1		16.0 / 0.6	Bottom of borehole at 16 feet below ground surface.						

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
VAC was completed on 8/15/2016. Installed 15 foot observation well, 5 foot solid and 10 foot screen.

Weather: Partly Sunny 80

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

CARR-DEE CORP.

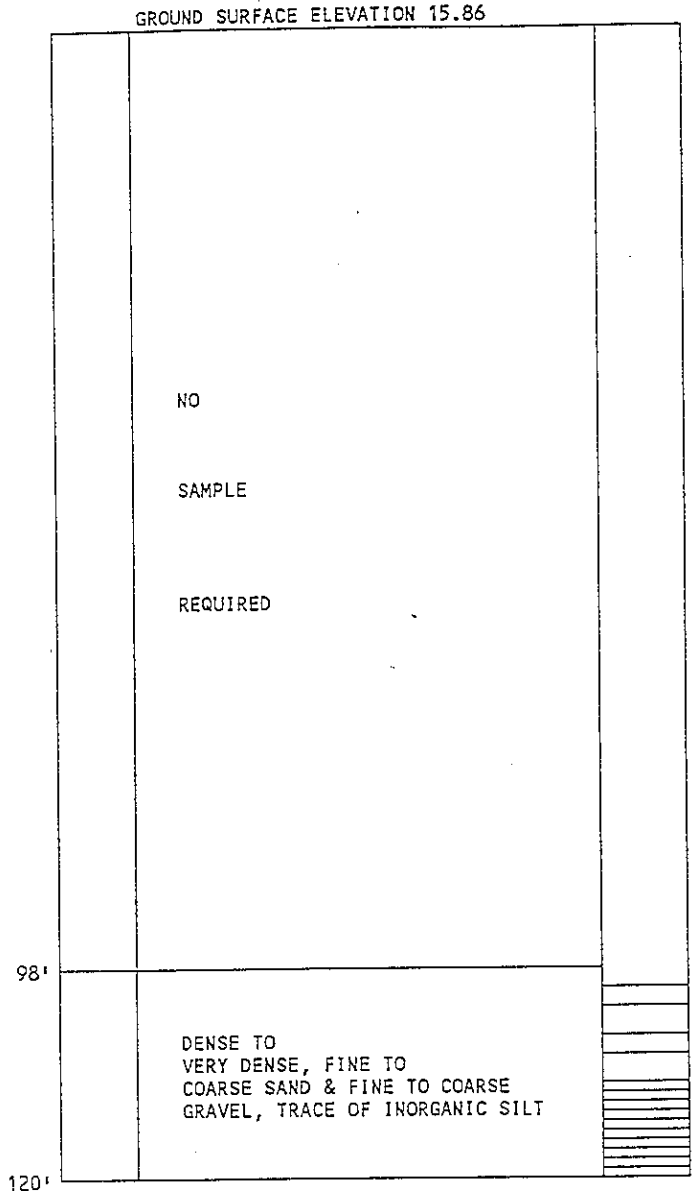
37 LINDEN STREET P.O. BOX 67 MEDFORD, MA 02155-0001 Telephone (617) 391-4500

To: CORCORAN JENNISON CONSTRUCTION CO. LLC, BOSTON, MA Date: MAY 7, 1998 Job No.: 98098

Location: BAYSIDE HOTEL, 250 MOUNT VERNON STREET, DORCHESTER, MA Scale: 1 in.= 20 ft.

BORING B-105

GROUND SURFACE ELEVATION 15.86



1, 100' to 102' (42-20-18-16) RECOVERED 16 in.
2, 105' to 107' (18-19-17-16) RECOVERED 10 in.
(17-18)
(25-37)
(42-16)
(18-27)
(28-34)
(36-29)
(39-53)
(43-48)
(42-44)
(49-46)

WATER LEVEL 8'0"
SIZE OF CASING NW, DEPTH 28'0"
DRILLER: STEPHEN DESIMONE, INSPECTOR: JOHN THERIAULT
DATE STARTED & COMPLETED: 5-6-98

NOTE: BOREHOLE COLLAPSED, DROVE OPEN-END ROD WITH 140-LB. WEIGHT AND RECORDED BLOW COUNTS PER. 0'6" INCREMENTS, STARTING AT 110'0".

All samples have been visually classified by HJD. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

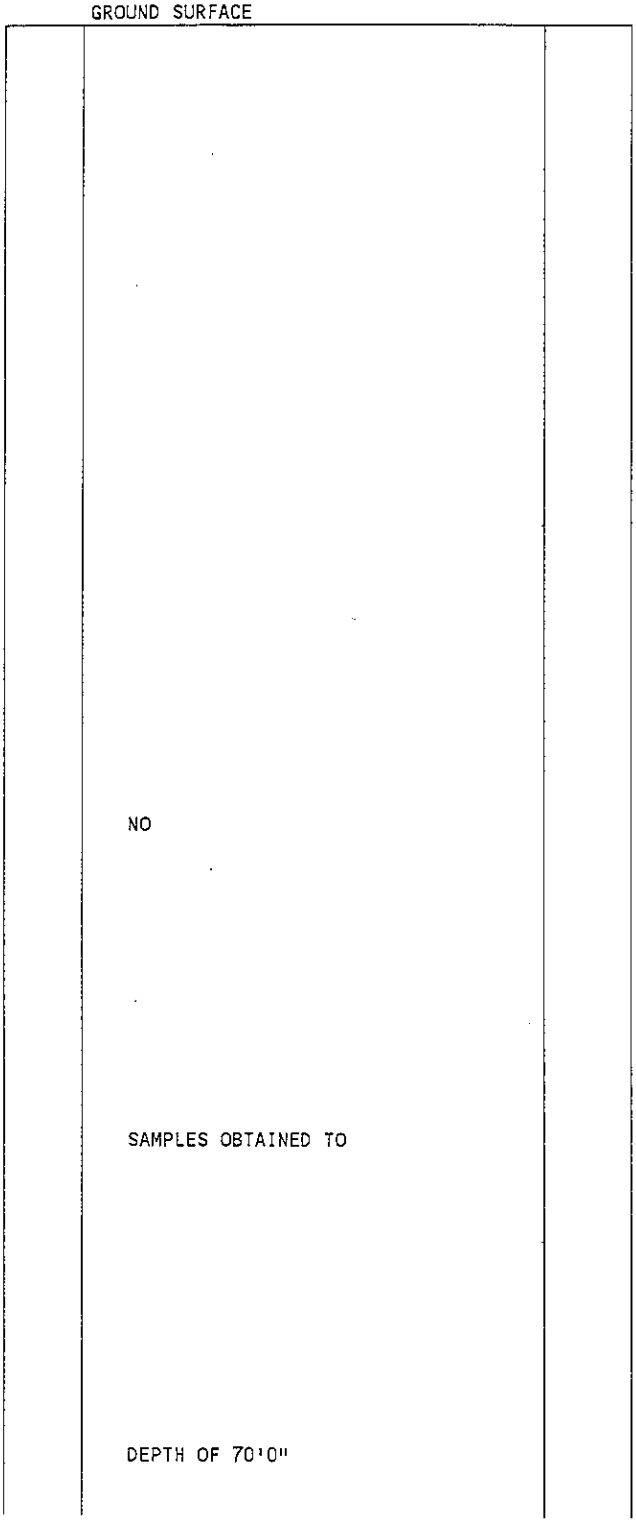
CARR-DEE CORP.

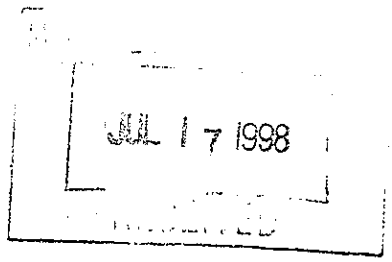
37 LINDEN STREET P.O. BOX 67 MEDFORD, MA 02155-0001 Telephone (617) 391-4500

To: CORCORAN JENNISON CONSTRUCTION CO. LLC, BOSTON, MA Date: JUNE 11,1998 Job No.: 98083

Location: BAYSIDE HOTEL, 250 MOUNT VERNON STREET, DORCHESTER, MA Scale: 1 in.= 6 ft.

BORING B-109





All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

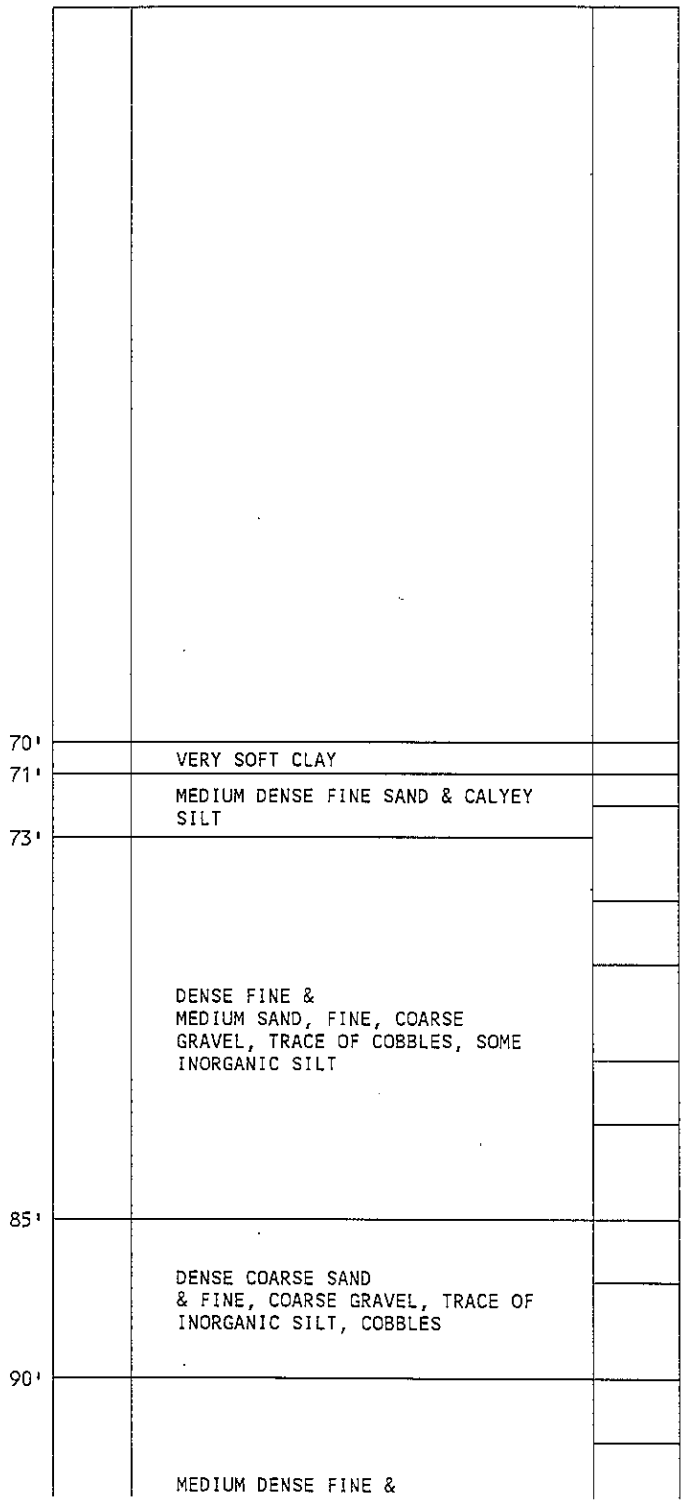
CARR-DEE CORP.

37 LINDEN STREET P.O. BOX 67 MEDFORD, MA 02155-0001 Telephone (617) 391-4500

To: CORCORAN JENNISON CONSTRUCTION CO. LLC, BOSTON, MA Date: JUNE 11,1998 Job No.: 98083

Location: BAYSIDE HOTEL, 250 MOUNT VERNON STREET, DORCHESTER, MA Scale: 1 in.= 6 ft.

BORING B-109



All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

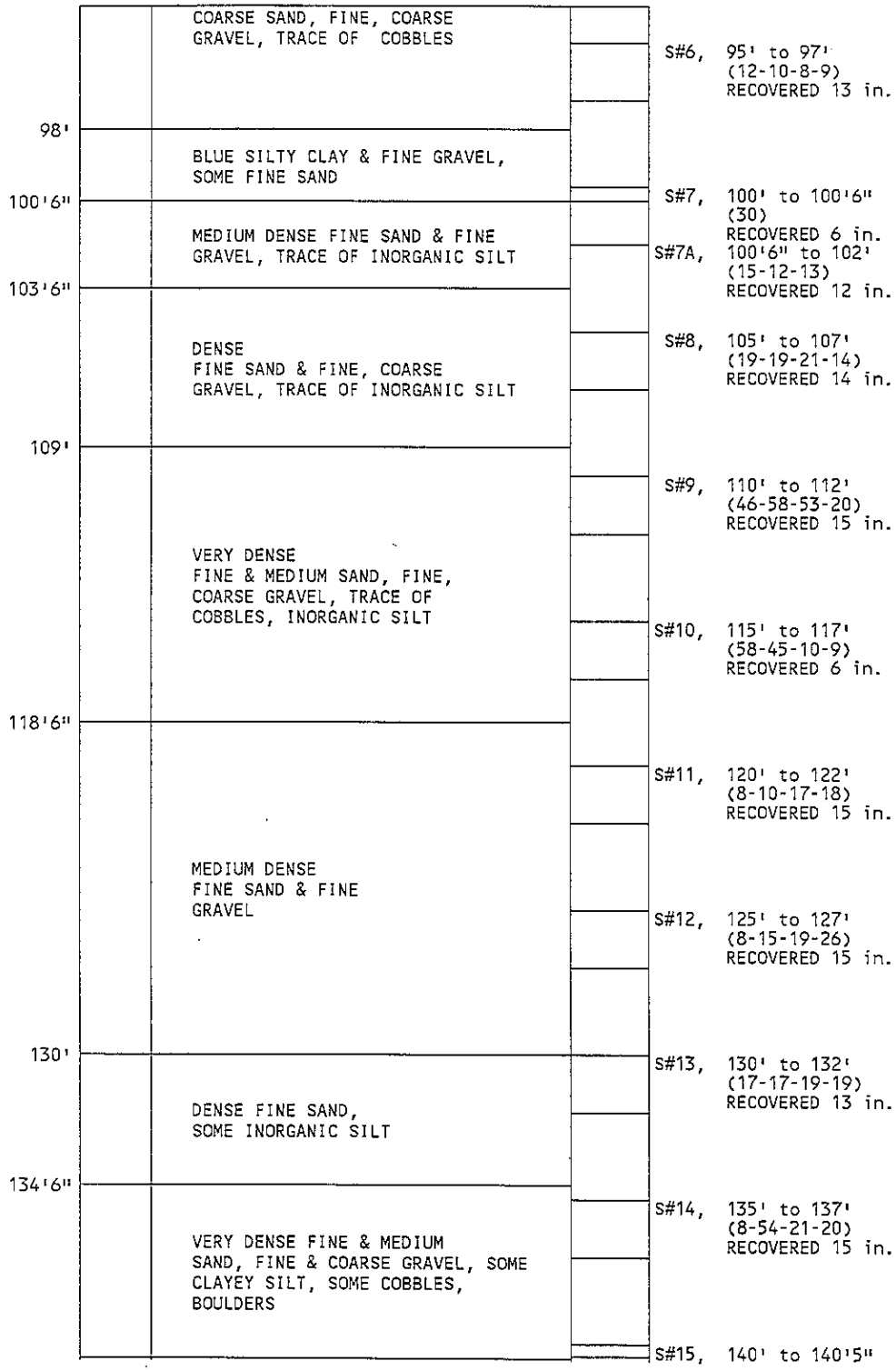
CARR-DEE CORP.

37 LINDEN STREET P.O. BOX 67 MEDFORD, MA 02155-0001 Telephone (617) 391-4500

To: CORCORAN JENNISON CONSTRUCTION CO. LLC, BOSTON, MA Date: JUNE 11,1998 Job No.: 98083

Location: BAYSIDE HOTEL, 250 MOUNT VERNON STREET, DORCHESTER, MA Scale: 1 in.= 6 ft.

BORING B-109



All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

CARR-DEE CORP.

37 LINDEN STREET P.O. BOX 67 MEDFORD, MA 02155-0001 Telephone (617) 391-4500

To: CORCORAN JENNISON CONSTRUCTION CO. LLC, BOSTON, MA Date: JUNE 11,1998 Job No.: 98083

Location: BAYSIDE HOTEL, 250 MOUNT VERNON STREET, DORCHESTER, MA Scale: 1 in.= 6 ft.

BORING B-109

140'6"		AGILLITE (USED ROLLER BIT TO 143'0")		(120/5") RECOVERED 5 in.
143'			3 4	RUN 1 (100%), 143' to 148' RECOVERED 60 in.
		MIN. PER.FOOT-> B E D R O C K (ARGILLITE)	4 6 4	
148'				

WATER LEVEL 10'0"
SIZE OF CASING HW, LENGTH 40'0"
SIZE OF CASING NW, LENGTH 140'6"
SIZE OF ROCK CORE BX, LENGTH DRILLED: 5'0"
DRILLER: JOSEPH DESIMONE, INSPECTOR: P. WADSWORTH
DATE STARTED & COMPLETED: 6-8-98, 6-10-98

All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

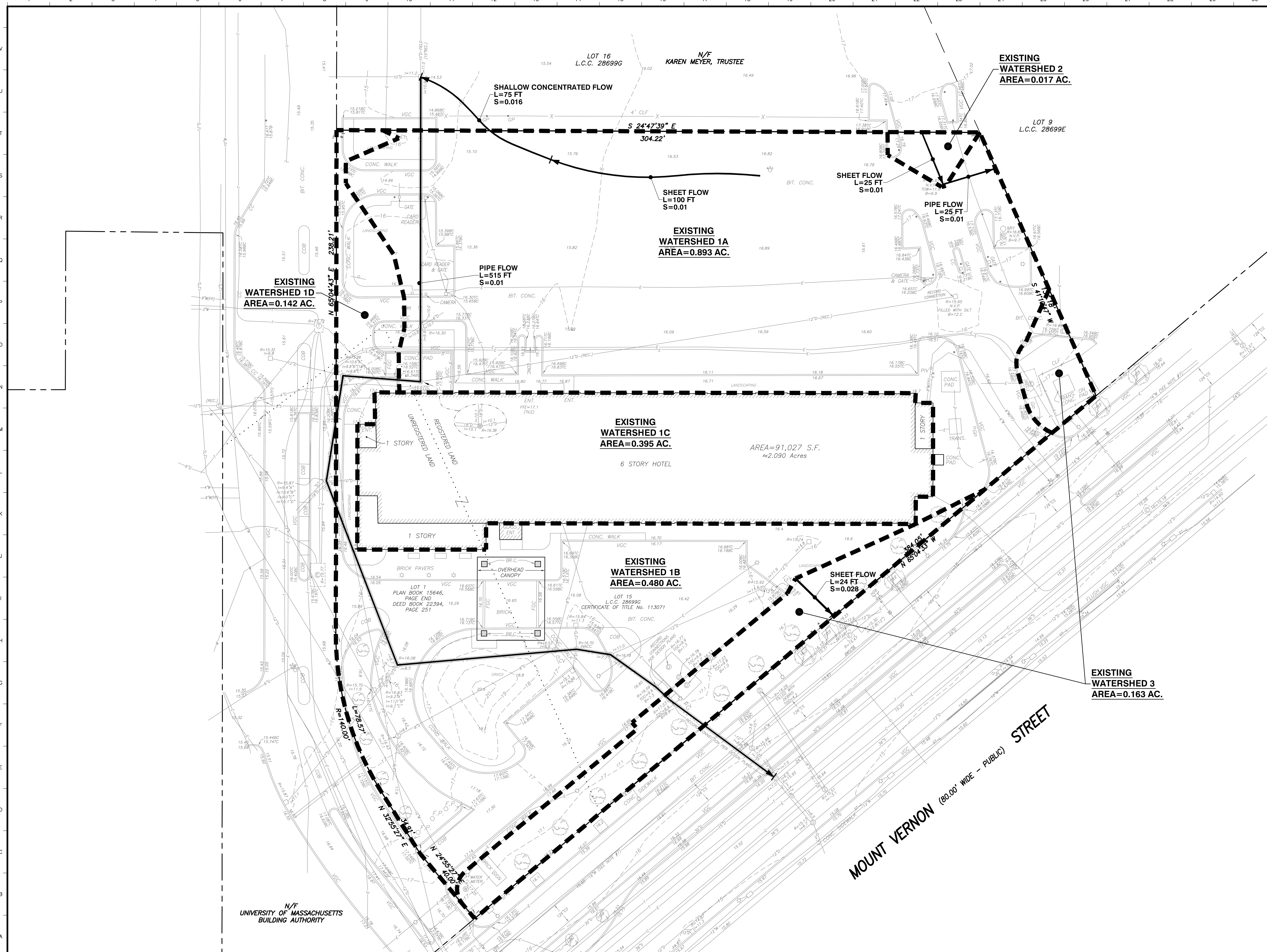
GROUNDWATER MONITORING REPORT

Well I.D.	B-204(OW)	**Elevation of Road Box**	+16.6	**Job. No.**	6214
				Job Name	Bayside Hotel Expansion

Date	Time	Elapsed Time	Depth of Water from Road Box	Elevation of Water	Remarks	Read By
		Days	Feet	Feet		
8/16/2016	12:00	INITIAL	7.6	+9.0	INSTALLED AT 15 FT	MS
8/17/2016	N/A	1	7.6	+9.0		MS
8/18/2016	N/A	2	7.6	+9.0		MS
8/19/2016	N/A	3	7.7	+8.9		MS
8/22/2016	N/A	6	7.7	+8.9		MS
9/14/2016	N/A	29	7.9	+8.7		LDP

K

WATERSHED PLANS



REVISIONS

ISSUE	DATE	DESCRIPTION

DATE: JULY 10, 2017

SCALE: 1" = 20'

SHEET W-1

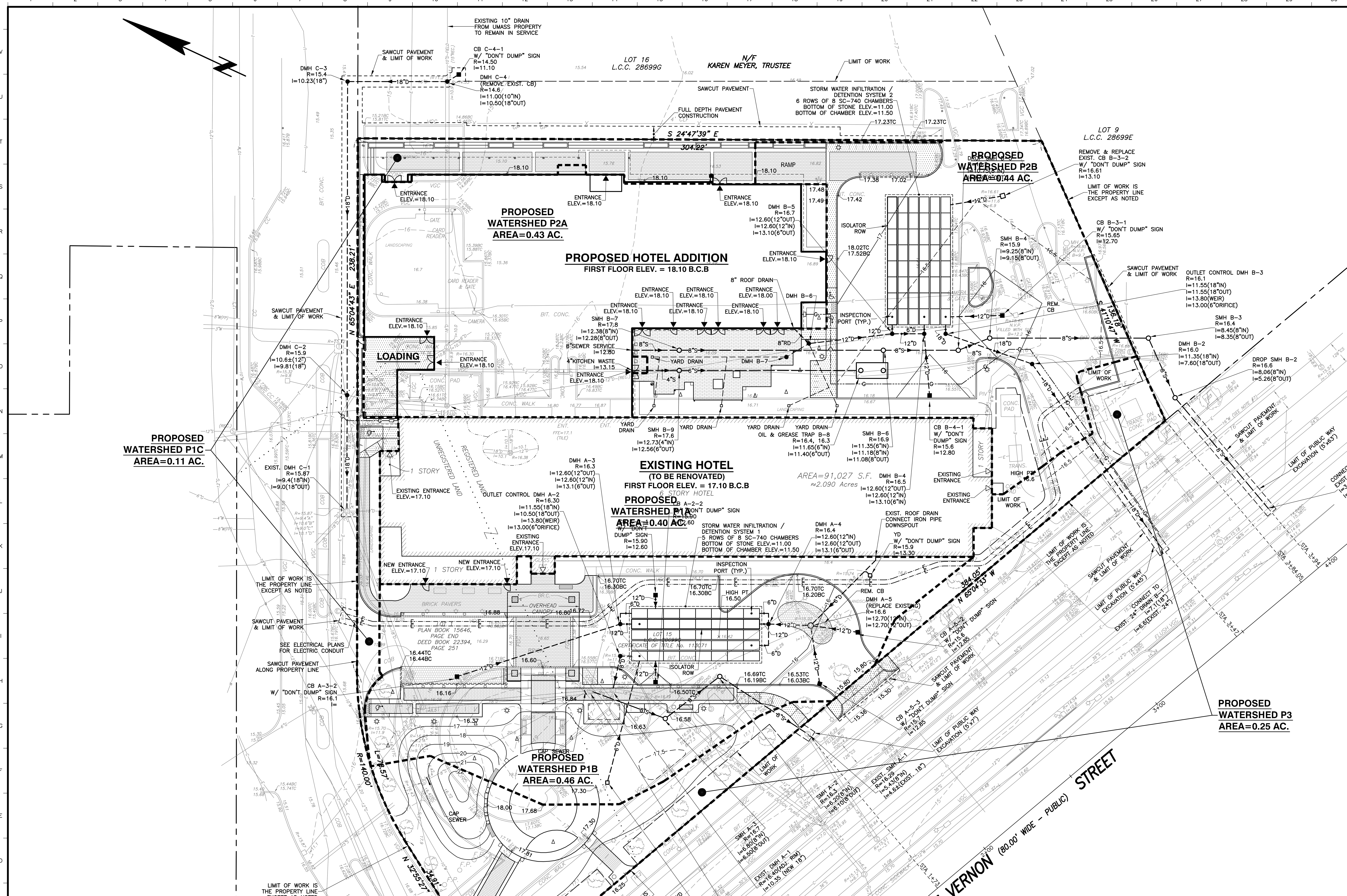
BAYSIDE DOUBLETREE HOTEL EXPANSION

BOSTON, MASSACHUSETTS

EXISTING WATERSHED PLAN

H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495 web: hwmoore.com

3492-S15.dwg Saved: 7/11/2017 4:29 PM Plotted: Jul 12, 2017 9:36am



FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017, PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
2. BUILDING ADDITION FOOTPRINT AND ASSOCIATED ARCHITECTURAL FEATURES HAS BEEN TAKEN FROM A DIGITAL FILE FILE RECEIVED ON JUNE 13, 2017 AND NAMED "FloorPlan-LEVEL1.dwg". THE DIGITAL FILE WAS PREPARED BY ARROWSTREET ARCHITECTURE AND DESIGN OF BOSTON, MA.

REVISIONS		
ISSUE	DATE	DESCRIPTION

DATE: JULY 10, 2017

SCALE: 1" = 20'

SHEET W-2

BAYSIDE DOUBLETREE HOTEL EXPANSION

BOSTON, MASSACHUSETTS

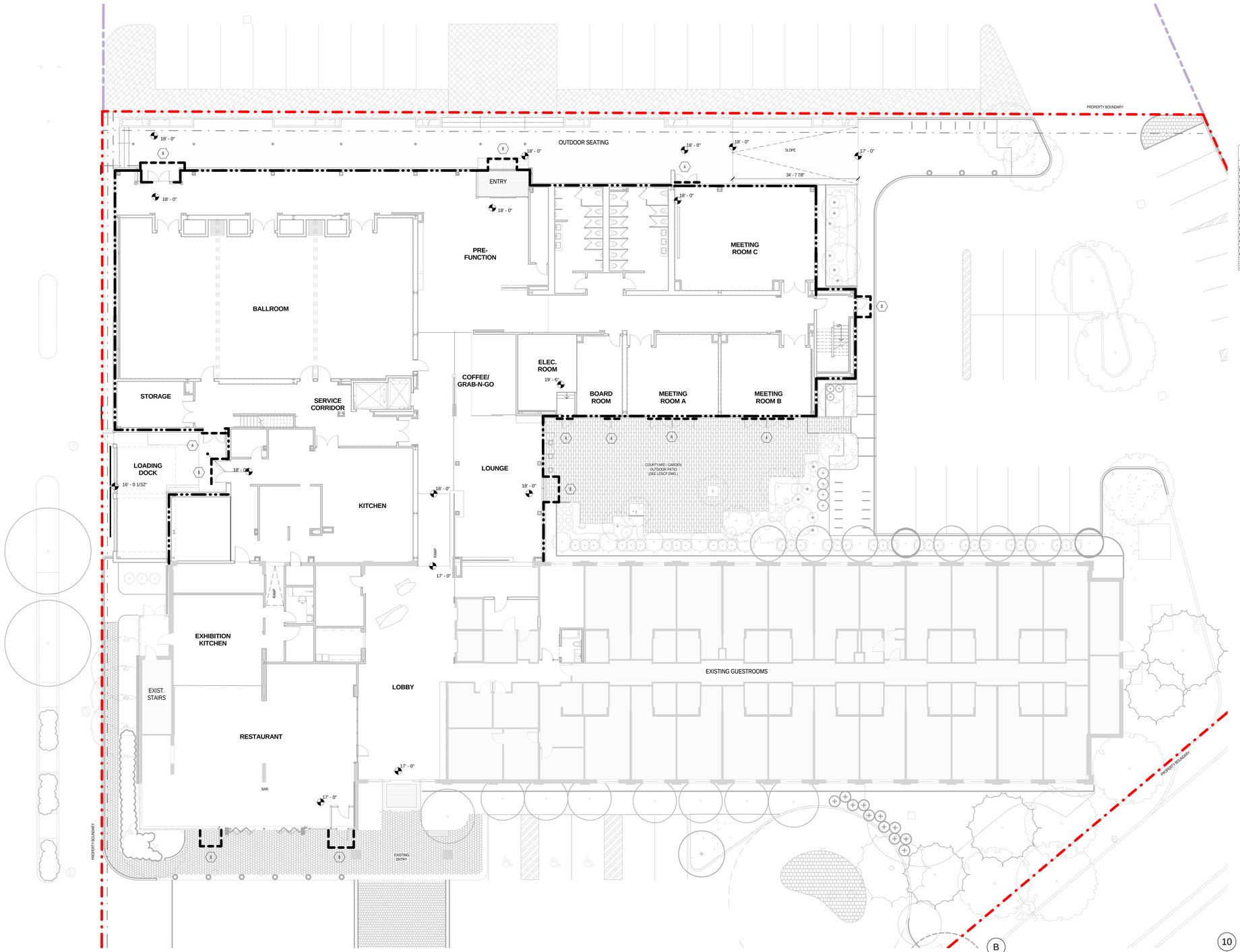
PROPOSED WATERSHED PLAN

H.W. Moore ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495 web: hwmoore.com

3492-S15.dwg Saved: 7/11/2017 4:29 PM Plotted: Jul 12, 2017 9:38am

Attachment C

DEMOUNTABLE BARRIERS



1 FLOOD PROTECTION PLAN
1" = 10'-0"

FLOOD PROTECTION LEGEND

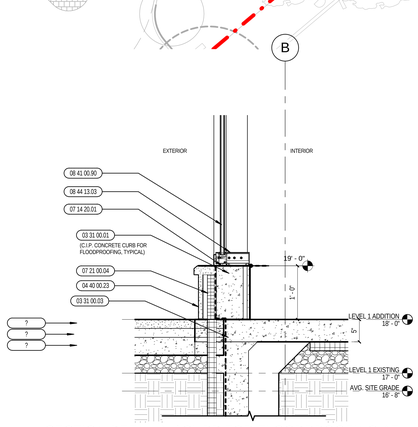
- WALLS ARE FLOODPROOFED UP TO 18'-6" BCB ELEVATION
- REMOVABLE FLOOD PANELS AT THE DOORS
- (A) REMOVABLE FLOOD PANELS, SINGLE PANEL
- (B) REMOVABLE FLOOD PANELS, MULTIPLE PANELS
- EQUIPMENT ROOM AT 19.5' BCB, 2 FEET ABOVE BASE FLOOD ELEVATION

GENERAL NOTES:

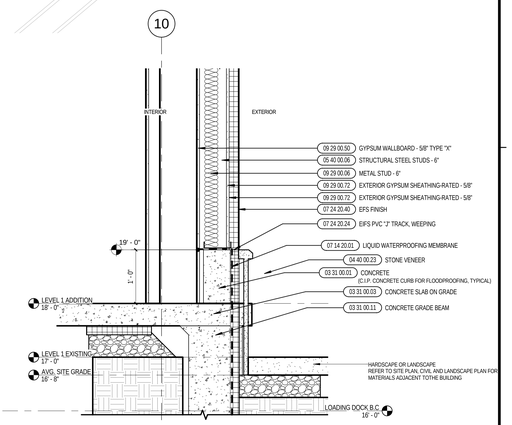
1. FEMA BASE FLOOD ELEVATION IS 11' NAVD88 (17.5' BCB)
2. NEW FLOOR ELEVATION IS AT 18' BCB, 6" ABOVE BASE FLOOD ELEVATION.
3. FLOOD PROTECTION IS UP TO 18.5' BCB, 1 FOOT ABOVE BASE FLOOD ELEVATION.
4. EXISTING BUILDING DOORS HAVE EXISTING REMOVABLE FLOOD PANELS

KEYNOTES

03 31 00.01	CONCRETE
03 31 00.03	CONCRETE SLAB ON GRADE
03 31 00.11	CONCRETE GRADE BEAM
04 40 00.23	STONE VENEER
05 40 00.06	STRUCTURAL STEEL STUDS - 6"
07 14 20.01	LIQUID WATERPROOFING MEMBRANE
07 21 00.04	RIGID INSULATION
07 24 20.24	EIFS PVC "J" TRACK, WEEPING
07 24 20.40	EIFS FINISH
08 41 00.90	GLAZING AS SCHEDULED
08 44 13.03	ALUMINUM CURTAINWALL SILL
09 29 00.06	METAL STUD - 6"
09 29 00.50	GYPSUM WALLBOARD - 5/8" TYPE "X"
09 29 00.72	EXTERIOR GYPSUM SHEATHING-RATED - 5/8"
32 10 00.05	UNIT PAVERS
32 10 00.09	SETTING BED



3 SECTION DETAIL W/ CURB FOR FLOODPROOFING AT WINDOWS
1" = 1'-0"



2 SECTION DETAIL W/ CURB FOR FLOODPROOFING
1" = 1'-0"

PRINTED: 8/17/2017 6:12:53 PM

CLIENT / OWNER:
BAYSIDE CLUB HOTEL, LLC
DOUBLETREE CLUB BY HILTON™ BOSTON BAYSIDE

ARCHITECT:
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:

PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

CONSTRUCTION DOCUMENTS PROGRESS

STAMP:

Revisions

No.	Date	Description

TRUE NORTH
PROJECT NORTH

Key Plan

Drawing Title

FLOOD PROTECTION PLAN

Project No.	13010
Drawn By	Author
Date	16 AUGUST 2017
Scale	As indicated

Drawing Number

A1.02

FLOODCONTROL INTERNATIONAL

FM APPROVED

DEMOUNTABLE BARRIERS

Demountable barriers are engineered to provide similar levels of protection to permanent flood defences, but with the distinct advantage of being fully removable when not required. They comprise aluminium panels that are inserted into steel channels. Bespoke clamps compress specialist seals to create a reliable barrier against flood water.

These barriers can be supplied for virtually any configuration including arcs, closed rectangles or circles and straight runs of any length. The system can be used on slopes up to 20° and can be stepped for steeper gradients. Each system is load calculated based on application and the prevailing flood conditions and can be configured for flood depths up to 4m. A four-sided detail is available for openings that may become fully submerged.

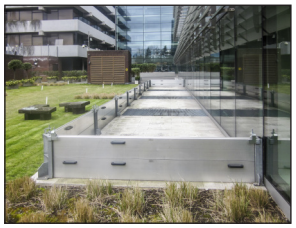
To facilitate installation in new builds, we can supply preformed ground plates with integral anchors for the demountable supports. The systems can be also retrospectively fitted to suitable existing foundations in which case load certified, chemically fixed sleeve anchors are used to attach the demountable supports.

This leaves only stainless steel bolt blanks at each post location. Due to the strength of our beams, this can be at 3m spacing.

Purpose designed seals that resist silt clogging and reform even after prolonged compression, together with vandal resistant covers and lockable clamps, make these systems ideal for locations where semi-permanent installation is a requirement.

The modular design facilitates storage and transportation and the ergonomically positioned carrying handles enable all but the higher systems to be erected without the need for mechanical lifting equipment.

Fully removable flush-finish perimeter defences - flood depths up to 4m, ideal for wide area defences.



USES

- Single building apertures.
- Openings in flood walls.
- Stainless / aluminium system for marine environments.
- Fully removable perimeter defence to buildings.
- A 'usually stored' system for erection when flood warnings received.

BENEFITS

- Low cost system.
- Lightweight - sections allow safe lifting of 3m beams by one person for rapid deployment.
- Flexibility – can be configured to any geometry.
- High strength – single beams can span up to 3m unsupported. Spans up to 6.5m possible with optional back-braces.
- Choice of bottom seals - allow barriers to sit on existing non-porous surfaces.
- Completely removable - leaving a totally flat ground surface.
- Vandal resistant - covers and padlockable clamps available.
- Able to be powder coated to any RAL colour.
- Long life - using galvanized and aluminium components.

FM APPROVED

FLOODCONTROL INTERNATIONAL

DESIGN

SIZES

- Unsupported spans possible up to 3m.
- Maximum spans of up to 6.5m possible with back bracing.
- Standard maximum flood control height of 4m, using 300mm standard beams.
- Beam weights of 8kg/m allow safe single person lifting of 2.5m beams.

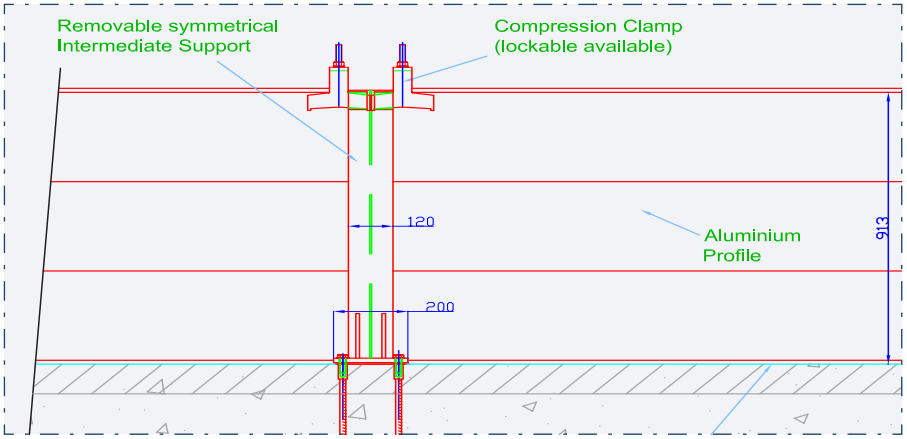
CONFIGURATIONS

- Any length or layout is achievable.
- Posts and beams can be tailored for any gradient.
- Posts can accommodate steps and changes in direction.

INSTALLATION

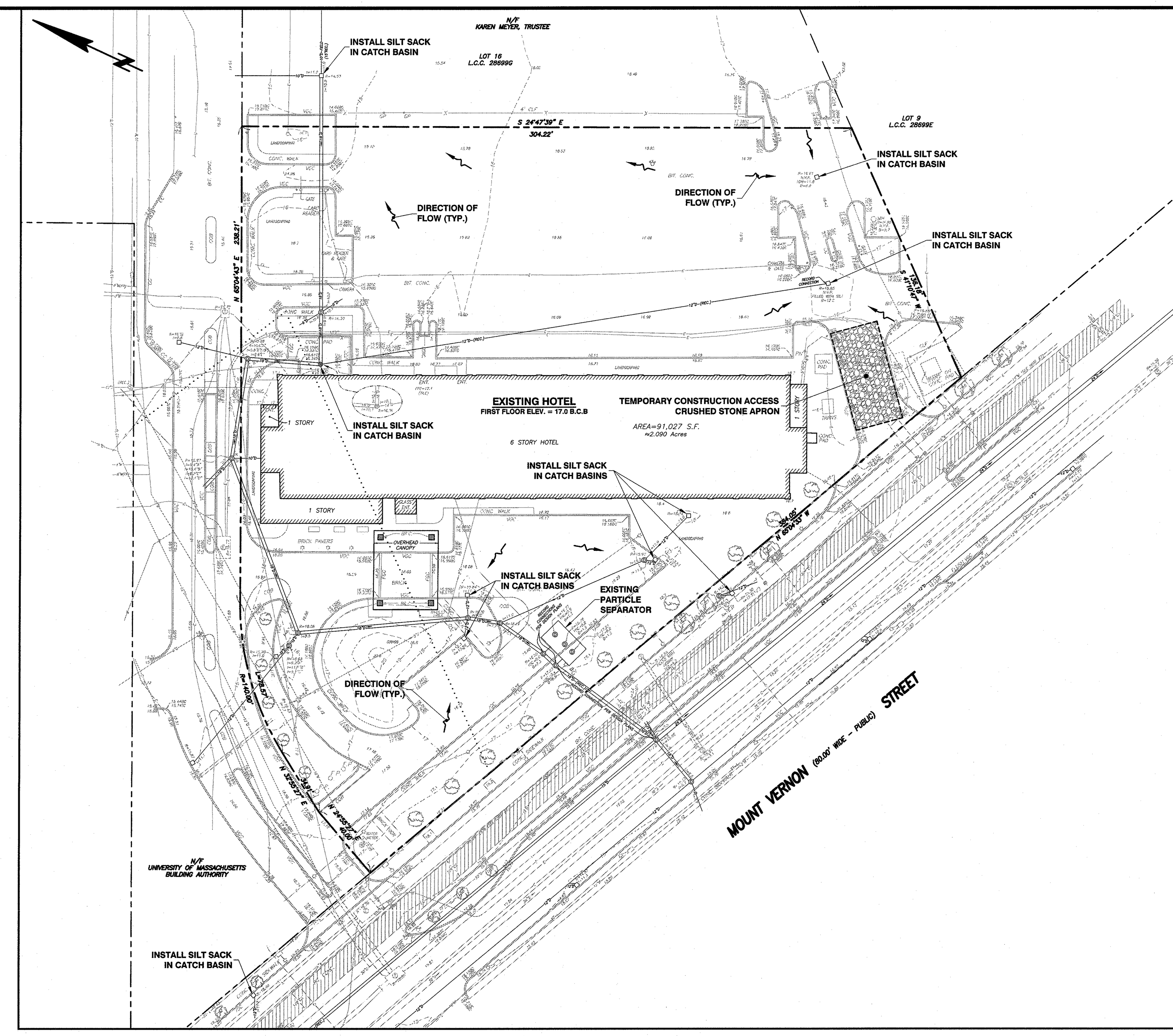
- End posts can be surface mounted or recess mounted. Architectural coverplates can be applied to match building finishes.
- Intermediate posts require RC beam foundation. This can be under final surfacing finish with drilled in stainless steel sockets, or with cast in baseplates.
- Systems can be retrospectively fitted to any suitable foundation.
- Every system is bespoke designed using CAD and drawings provided.

BESPOKE CAD DRAWINGS



Attachment D

EROSION CONTROL PLAN

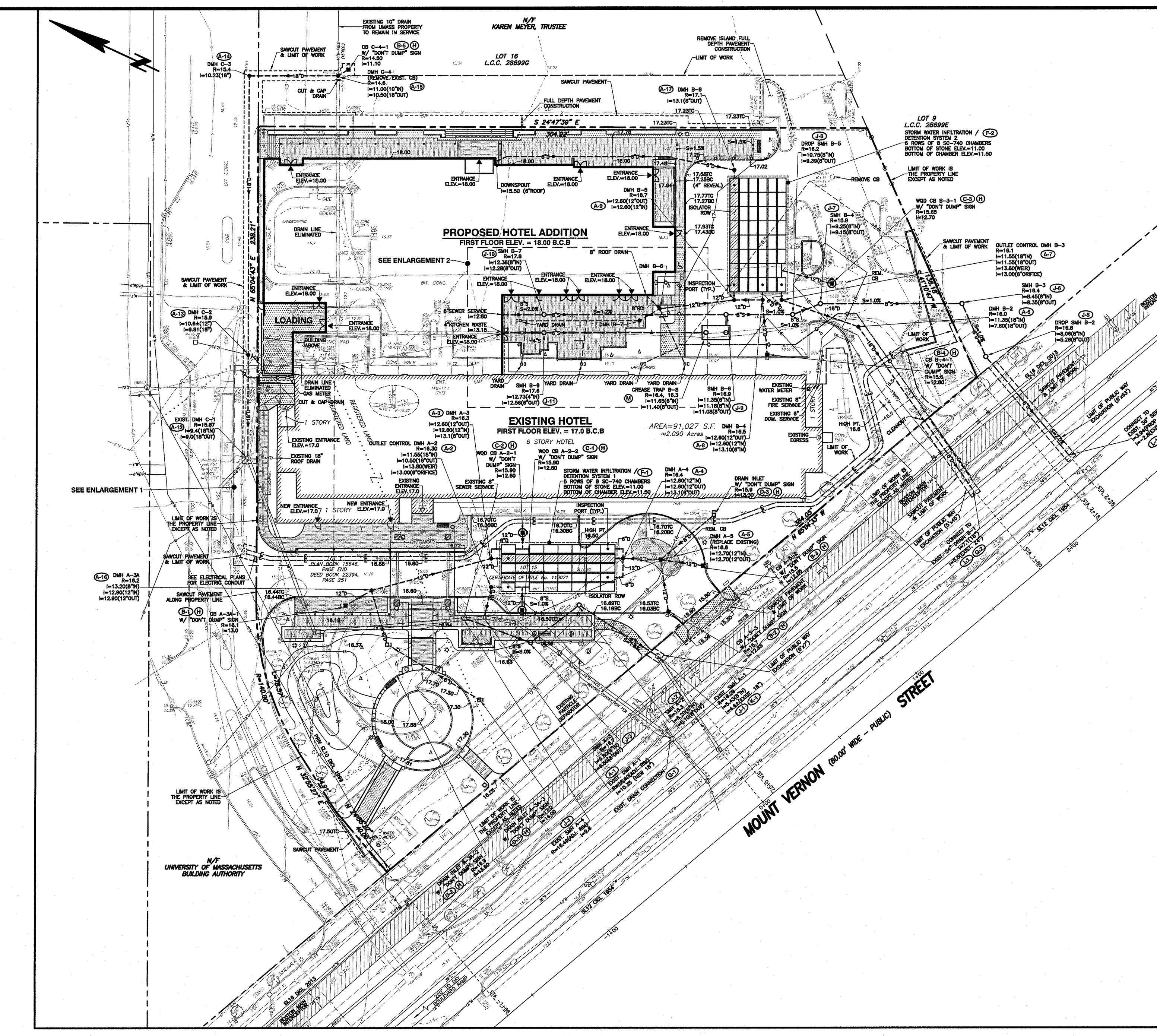


EXISTING SITE WITH EROSION CONTROLS

SCALE: 1" = 40'

40 0 20 40 80

HORIZONTAL GRAPHIC SCALE IN FEET



PROPOSED SITE

SCALE: 1" = 40'

40 0 20 40 80

HORIZONTAL GRAPHIC SCALE IN FEET

OPERATION AND MAINTENANCE PLAN
BAYSIDE DOUBLETREE HOTEL EXPANSION
BOSTON, MA

INTRODUCTION

THE PROPOSED PROJECT WILL INCLUDE THE CONSTRUCTION OF AN ADDITION TO AN EXISTING HOTEL ON THE NORTH SIDE OF MOUNT VERNON STREET AS WELL AS IMPROVEMENTS TO THE ASSOCIATED PARKING, LANDSCAPED AREAS, UTILITIES AND STORMWATER MANAGEMENT SYSTEM. THE PROPOSED STORMWATER MANAGEMENT SYSTEM WILL INCLUDE DEEP SUMP CATCH BASINS WITH OIL TRAP HOODS AND TWO INFILTRATION/DETENTION SYSTEMS.

THE PROPOSED PROJECT INCLUDES WORK THAT COMES UNDER THE JURISDICTION OF THE BOSTON CONSERVATION COMMISSION. IT IS ANTICIPATED THAT THE CONSERVATION COMMISSION WILL ISSUE AN ORDER OF CONDITIONS, A COPY OF WHICH THE CONTRACTOR MUST RETAIN ONSITE, AND MUST COMPLY WITH ALL CONDITIONS STATED THEREIN. THE PURPOSE OF THE ORDERS IS TO MINIMIZE THE POTENTIAL OF SILTATION OF RESOURCE AREAS FROM BOTH OVERLAND FLOW AND PIPE FLOW. THE FOLLOWING NOTES AND DETAILS ARE INTENDED TO BE A MINIMUM SET OF GUIDELINES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR IMPLEMENTATION. SHOULD ADDITIONAL CONTROL BE REQUIRED, THE CONTRACTOR SHALL TAKE WHATEVER STEPS ARE NECESSARY.

THE PROJECT SITE IS PRESENTLY OCCUPIED BY A 6 STORY HOTEL BUILDING LOCATED IN THE CENTER OF THE PROJECT LOT. THE MAIN DRIVE, ENTRANCEWAY, A SMALL PARKING AREA, AND LANDSCAPED AREA ARE LOCATED SOUTHEAST OF THE EXISTING BUILDING. PARKING AND LANDSCAPED AREAS COVER THE NORTHWEST HALF OF THE PROJECT SITE.

TOPOGRAPHY OF THE SITE IS GENERALLY FLAT WITH A HIGH ELEVATION IN THE LANDSCAPED AREA SOUTH OF THE EXISTING HOTEL AT ELEVATION 20.6± (BCB) AND A LOW ELEVATION OF 14.9± (BCB) LOCATED AT THE NORTHEASTERN CORNER OF THE PROJECT SITE IN THE MAIN PARKING AREA.

STORMWATER FROM THE PROJECT SITE PRESENTLY FLOWS TO THE EXISTING ONSITE DRAIN SYSTEM. STORMWATER FROM THE EXISTING DRAIN SYSTEM IS CONVEYED TO A LARGE WATER QUALITY DEVICE BEFORE DISCHARGE TO THE MOUNT VERNON STREET DRAIN SYSTEM. STORMWATER FROM THIS SITE EVENTUALLY FLOWS TO THE DORCHESTER BAY. THERE ARE NO WETLAND RESOURCE AREAS WITHIN THE VICINITY OF THE PROJECT SITE.

THE PROJECT SITE IS WITHIN FLOOD ZONE AE AS SHOWN ON THE FLOOD INSURANCE RATE MAP DATED MARCH 16, 2016. THE FLOOD ELEVATION IS 11.0 NAVD88 OR 17.46 BCB.

SILTATION CONTROLS

THE FIRST PHASE OF CONSTRUCTION WILL CONSIST OF THE PLACEMENT OF SILTATION CONTROLS IN ACCORDANCE WITH THE DETAIL AND AT THE LOCATION INDICATED ON THE PLANS. NO FURTHER CONSTRUCTION ACTIVITY WILL TAKE PLACE UNTIL THE SILTATION CONTROLS ARE INSPECTED AND APPROVED. NO ENCROACHMENT OR ALTERATION SHALL OCCUR BEYOND THE EROSION CONTROL BARRIERS. EROSION CONTROL BARRIERS SHALL BE MAINTAINED AND REPLACED, IF NECESSARY, THROUGHOUT THE COURSE OF CONSTRUCTION.

SITE CONSTRUCTION

PRIOR TO CONSTRUCTION THE PROPOSED LOCATION OF EARTH STOCKPILES SHALL BE SHOWN ON A PLAN AND SHALL BE APPROVED BY THE ENGINEER. STOCKPILES THAT ARE TO BE LEFT FOR MORE THAN FOURTEEN (14) DAYS SHALL BE SHAPED AND SECURED BY SILTATION CONTROLS AROUND THE DOWNSTREAM PERIMETER AND SHALL BE STABILIZED BY TEMPORARY SEEDING OR NETTING. DEMOLITION OF THE EXISTING BUILDING AND THE SITE GRADING OPERATION WILL COMMENCE. TOPSOIL ON THE SITE WILL BE STOCKPILED SEPARATELY AND THE PILE STABILIZED. THE SITE WILL BE GRADED TO SUBGRADE WITH THE EXCESS SOIL STOCKPILED IN THE DESIGNATED AREAS AND THE UTILITIES INSTALLED.

ALL UNVEGETATED AREAS, INCLUDING STOCKPILES, THAT WILL REMAIN UNVEGETATED FOR GREATER THAN 14 DAYS SHOULD BE MULCHED OR SEEDED WITHIN 7 DAYS OF THEIR GRADING. THE PERIMETER SEDIMENTATION CONTROLS AT THE STOCKPILES SHOULD BE IN PLACE AT THE END OF EACH DAY AND BEFORE RAIN EVENTS.

DURING THE CONSTRUCTION OF THE DRAINAGE SYSTEM, CARE MUST BE TAKEN TO PREVENT SILTATION FROM ENTERING THE SYSTEM. DRAINAGE PIPES IN OPEN EXCAVATIONS SHALL NOT REMAIN OPEN OVERNIGHT. WOVEN GEOTEXILE MATERIAL SHALL BE PLACED IN THE CATCH BASINS UNTIL THE BINDER COURSE HAS BEEN PLACED. THE SILT AND SAND, WHICH MAY ACCUMULATE AROUND THE CATCH BASINS, SHALL BE REMOVED AFTER EVERY RAINSTORM. CATCH BASINS SHALL BE SET TO BINDER GRADE UNTIL IMMEDIATELY PRIOR TO PLACEMENT OF THE TOP COURSE, AT WHICH TIME THEY WILL BE SET AT FINAL GRADE. THE DRAINAGE SYSTEM SHALL BE CLEANED PRIOR TO ACCEPTANCE.

WORK SHALL COMMENCE AS SOON AS PRACTICAL ON THE PERIMETER DISTURBED AREAS NOT TO BE PAVED. FOUR INCHES (4") OF TOPSOIL IS TO BE PLACED IN THESE AREAS AND THE AREAS HYDROSEEDED. ALL AREAS SHALL BE STABILIZED WITHIN SIXTY (60) DAYS OF DISTURBANCE. WHEN WEATHER CONDITIONS DO NOT PERMIT STABILIZATION BY SEEDING, HAY MULCH, STRAW MATS, JUTE NETTING OR OTHER APPROVED MEANS SHALL BE USED FOR TEMPORARY STABILIZATION.

INSPECTION AND MAINTENANCE

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FORMULATE A SCHEDULE FOR INSPECTION AND MAINTENANCE OF THE EROSION CONTROL MEASURES. THIS SCHEDULE SHALL ESTABLISH, AT A MINIMUM, THE WEEKLY INSPECTIONS OF THE SEDIMENTATION CONTROLS, STOCKPILES, CATCH BASINS, UNSTABILIZED AREAS WITHIN THE SITE AND A REPORT OF ANY REQUIRED MAINTENANCE. THE SCHEDULE WILL ALSO APPOINT AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PERFORMING THE WEEKLY INSPECTIONS.

DURING THE WEEKLY INSPECTION, AND AT ANY TIME DURING THE COURSE OF CONSTRUCTION, THE ENGINEER, THE OWNER OR THE INDIVIDUAL RESPONSIBLE FOR THE EROSION CONTROL MEASURES MAY DIRECT THE CONTRACTOR TO TAKE IMMEDIATE ACTION TO CORRECT A DEFICIENCY OR TO INCREASE THE EROSION CONTROL MEASURES.

ADDITIONAL REQUIREMENTS

THE CONTRACTOR SHALL EMPLOY MEASURES TO CONTROL DUST DURING CONSTRUCTION. ALL DEBRIS SHALL BE PROPERLY CONTAINED AND DISPOSED OF.

MOUNT VERNON STREET SHALL BE SWEPT CLEAN OF ANY SOILS TRACKED ONTO THE PAVEMENT FROM VEHICLES EXITING THE SITE.

A SUPPLY OF STRAW WATTLES AND SILTATION FENCE SHALL BE KEPT ON SITE TO PROVIDE FOR ADDITIONAL SILTATION CONTROL, AS MAY BE REQUIRED. ANY CONSTRUCTION EQUIPMENT OBSERVED LEAKING OR DRIPPING OIL SHALL BE REMOVED FROM THE SITE. NO CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED WITHIN 100 FEET OF ANY WETLANDS. TEMPORARY GRASS STABILIZATION SHALL BE APPLIED AT RATE OF 4-POUNDS/1,000 SF. AND CONFORM TO THE FOLLOWING MIX SUMMARIZED IN TABLE 1.

TABLE 1
SEED MIXTURE

SEED	% WEIGHT	
	MIN.	MAX.
WINTER RYE	80	
RED FESCUE (CREEPING)	4	
PERENNIAL RYE GRASS	3	
RED CLOVER	3	
OTHER CROP GRASS	0.5	
NOXIOUS WEED SEED		0.5
INERT MATTER		1

CONSTRUCTION SCHEDULE

A. PRIOR TO CONSTRUCTION, CONSTRUCTION FENCING WILL BE PLACED AT THE LIMITS OF WORK, AS INDICATED ON THE SITE DRAWINGS.

B. UTILITY RELOCATION WORK WILL COMMENCE

C. THE EXCAVATION WORK FOR THE BUILDING CONSTRUCTION WILL THEN COMMENCE.

D. BUILDING FOUNDATION WORK SHALL THEN COMMENCE.

E. UTILITY CONSTRUCTION WILL COMMENCE.

F. ADDITIONAL SILTATION FENCE OR STRAW WATTLES WILL BE ADDED AS CONSTRUCTION PROCEEDS WHERE REQUIRED TO CONTROL EROSION. SEDIMENTATION CONTROLS SHALL BE INSTALLED ALONG THE DOWNHILL SIDE OF ALL SOIL STOCKPILES.

G. CATCH BASINS SHALL HAVE A GEOTEXTILE BAG OR SILT SACK INSTALLED UNTIL THE PARKING AREA IS PAVED.

H. THE INFILTRATION SYSTEMS SHALL BE INSTALLED AFTER THE FOUNDATION WORK IS COMPLETE.

I. THE PAVEMENT SUBGRADE WILL THEN BE GRADED, AND THE GRAVEL AND THE BITUMINOUS BASE COURSE PLACED. THIS SHALL BE COMPLETED AS SOON AS PRACTICAL AFTER THE SITE CLEARING.

J. ALL DISTURBED AREAS NOT ALREADY STABILIZED WILL THEN BE COVERED WITH A MINIMUM OF 4-INCHES OF TOPSOIL AND SEEDED.

K. THE DRAINAGE SYSTEM SHALL BE COMPLETELY OPERATIONAL PRIOR TO ANY PAVING OR THE BUILDING ROOF DRAINS BEING INSTALLED.

L. THE BUILDING ROOF DRAINS WILL BE IN OPERATION IMMEDIATELY AFTER THE ROOF IS COMPLETED.

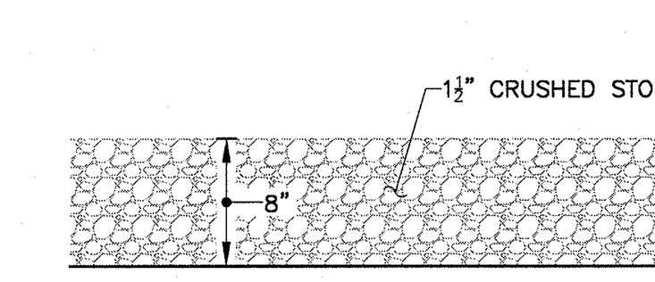
M. ALL DRAINAGE STRUCTURES WILL BE CLEANED UPON COMPLETION OF CONSTRUCTION.

N. THE SILTATION CONTROLS SHALL BE REMOVED AFTER THE SITE HAS STABILIZED.

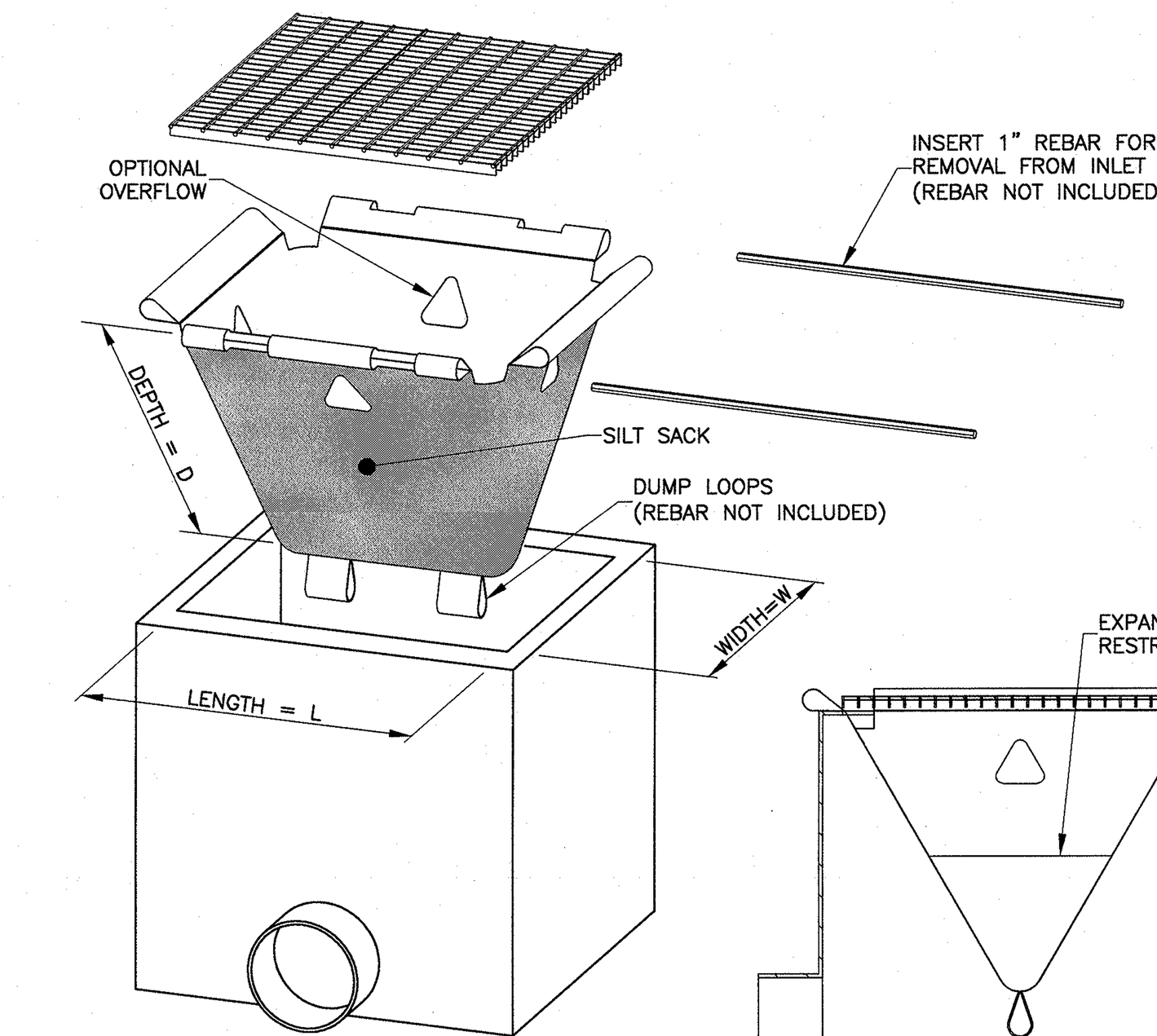
BMP MAINTENANCE SCHEDULE FOR CONSTRUCTED SITE

1. INSPECT CATCH BASINS QUARTERLY IF ALL TRIBUTARY AREAS ARE STABILIZED WITH VEGETATION OR MONTHLY IF NOT. CLEAN OUT IF MORE THAN 1/4 FULL OF SEDIMENT (1 FOOT DEEP IN A 4-FOOT SUMP). INSPECT AND CLEAN AS NECESSARY AFTER INTENSE RAINFALL AND AS SOON AS PRACTICAL AFTER WINTER SANDING.
2. KEEP ALL PERVIOUS SITE AREAS STABILIZED AT ALL TIMES. KEEP ANY STOCKPILED EARTH COVERED. REMOVE LEAVES AND TRIMMINGS FROM SITE.
3. THE VORTSENTRY INLETS SHALL BE MAINTAINED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DURING THE FIRST YEAR THE DEVICE IS TO BE MONITORED TWO TIMES AND THE SEDIMENT REMOVED WHEN IT REACHES A 2-FOOT DEPTH. BASED ON THE MONITORING RESULTS FROM THE FIRST YEAR, A CLEANING SCHEDULE SHALL BE ESTABLISHED BASED ON A 2-FOOT SEDIMENT DEPTH REMOVAL. THE VORTSENTRY UNITS SHALL BE INSPECTED A MINIMUM OF TWICE PER YEAR THEREAFTER.
4. THE INFILTRATION SYSTEMS SHOULD BE CHECKED FOR SEDIMENT ON A YEARLY BASIS. A LOG OF THE SEDIMENT DEPTH SHOULD BE MAINTAINED. MEASURE THE SEDIMENT DEPTH VISUALLY BY OPENING THE INSPECTION PORT AND WITH THE USE OF A FLASHLIGHT AND MEASURING ROD. IF SEDIMENT REACHES A THREE-INCH DEPTH, THE SEDIMENT IS TO BE REMOVED BY VACUUM OR JET SPRAY.
5. SWEEP PARKING AREAS TWICE PER YEAR, IN THE SPRING AFTER WINTER SANDING AND AGAIN IN THE LATE FALL. THE USE OF A REGENERATIVE AIR SWEEPER WILL BE THE PREFERRED METHOD OF CLEANING THE PAVEMENT.
6. MINIMIZE THE USE OF SAND AND CHEMICALS FOR WINTER DE-ICING OF PAVEMENT AREAS. DO NOT USE SALT IN THE PARKING AREAS FOR DE-ICING.
7. IT IS ANTICIPATED THAT CORCORAN JENNISON CO. WILL BE THE OWNER AND RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE SITE. THEIR ADDRESS IS:

CORCORAN JENNISON CO.
ATTN. TOM DEVANE
150 MOUNT VERNON STREET
BOSTON, MA 02125
TEL. 617-822-7222



TYPICAL SECTION
CONSTRUCTION ACCESS
CRUSHED STONE APRON
(NOT TO SCALE)



SIZE L" x W" x D"

SECTION

SILK SACK DETAIL
(NOT TO SCALE)

20 0 10 20 40

HORIZONTAL GRAPHIC SCALE IN FEET

FILE REFERENCES

1. EXISTING PROPERTY LINE, TOPOGRAPHIC AND UTILITY INFORMATION HAS BEEN TAKEN FROM A DIGITAL FILE RECEIVED ON JUNE 15, 2017 AND NAMED "13725B-TOPO2 (submit 2017-06-15).dwg" OF A PLAN TITLED "TOPOGRAPHIC PLAN, 236 MOUNT VERNON STREET, BOSTON (DORCHESTER DISTRICT) MASS.", PLAN DATED APRIL 11, 2014 AND LAST REVISED FEBRUARY 14, 2017. PLAN PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA.
2. BUILDING ADDITION FOOTPRINT AND ASSOCIATED ARCHITECTURAL FEATURES HAS BEEN TAKEN FROM A DIGITAL FILE FILE RECEIVED ON JUNE 13, 2017 AND NAMED "FloorPlan-LEVEL1.dwg". THE DIGITAL FILE WAS PREPARED BY ARROWSTREET ARCHITECTURE AND DESIGN OF BOSTON, MA.

File Name: C:\3492\3492-S18.dwg Saved 8/28/2017 3:20 PM Plotted: Aug 28, 2017 3:20:54pm
Tab: C7-EROSION Plot Style: 1050C.ctb Plotted By: John Getherall

CLIENT / OWNER:

BAYSIDE CLUB HOTEL, LLC

DOUBLETREE CLUB BY HILTON BOSTON BAYSIDE

ARCHITECT:

ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

CONSULTANT:

H.W. Moore
ASSOCIATES, INC.
CIVIL ENGINEERING | LAND PLANNING
121 E. Berkeley Street, 4th Floor, Boston, MA 02118
tel: 617-357-8145 fax: 617-357-9495
hwmoore.com

PROJECT INFO:

BAYSIDE DOUBLETREE HOTEL EXPANSION

240 MT. VERNON STREET, BOSTON, MA 02125

ISSUANCE:

PERMIT DOCUMENTS

STAMP:

JAMES M. WHITE CIVIL No. 32146 REGISTERED PROFESSIONAL ENGINEER

Revisions

No.	Date	Description
1	07/14/2017	BWSC SUBMISSION
2	08/28/2017	BWSC COMMENTS REVISION

Key Plan

Drawing Title

EROSION CONTROL PLAN
BWSC #17329

Project No.	13010
Drawn By	
Date	11 AUGUST 2017
Scale	1" = 20'

Drawing Number

C-7

3492-S18.dwg Saved: 8/28/2017 3:20 PM Plotted: Aug 28, 2017 3:20:pm

Attachment E

CLIMATE CHANGE QUESTIONNAIRE

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at http://www.cityofboston.gov/climate

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/)
3. Army Corps of Engineers guidance on sea level rise (http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 (http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf)
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current Climate Change Preparedness & Resiliency Checklist.

A.1 - Project Information

Project Name:	Bayside Doubletree Hotel Expansion and Renovation
Project Address Primary:	240 Mount Vernon Street, Boston, MA 02125
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	Thomas J. Devane, Jr. Project Director, tdevane@corcoranjennison.com Corcoran Jennison Companies, 617.822.7222

A.2 - Team Description

Owner / Developer:	Bayside Club Hotel LLC c/o Corcoran Jennison Company, Inc.
Architect:	Arrowstreet Inc.
Engineer (building systems):	Wozny Barbar and Associates
Sustainability / LEED:	Arrowstreet Inc. / Fort Point Associates, Inc.
Permitting:	Fort Point Associates, Inc.
Construction Management:	
Climate Change Expert:	

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

PNF / Expanded PNF Submission	~~Draft / Final Project Impact Report Submission~~	***BRA Board Approved***	~~Notice of Project Change~~
~~Planned Development Area~~	~~BRA Final Design Approved~~	~~Under Construction~~	~~Construction just completed:~~

A.4 - Building Classification and Description

List the principal Building Uses:	Hotel, Restaurant, Ballroom and Meeting Function Spaces
List the First Floor Uses:	Hotel, Restaurant, Ballroom and Meeting Function Spaces

What is the principal Construction Type – select most appropriate type?

~~Wood Frame~~	***Masonry***	***Steel Frame***	***Concrete***

Describe the building?

Site Area:	*91,0127 SF*	Building Area:	*79,500 Gross SF*
Building Height:	*54 Ft. 4 In.*	Number of Stories:	*6 Flrs.*
First Floor Elevation (reference Boston City Base):	*18.0' Elev.*	Are there below grade spaces/levels, if yes how many:	*No*

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	***New Construction***	~~Core & Shell~~	~~Healthcare~~	~~Schools~~
	~~Retail~~	~~Homes Midrise~~	~~Homes~~	~~Other~~
Select LEED Outcome:	***Certified***	~~Silver~~	~~Gold~~	~~Platinum~~

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	*No*	Certified:	*No*

A.6 - Building Energy

What are the base and peak operating energy loads for the building?

Electric:	*420 (kW)*	Heating:	*1.9 (MMBtu/hr)*
What is the planned building Energy Use Intensity:	*80 (kbut/SF or kWh/SF)*	Cooling:	*170 (Tons/hr)*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*40 (kW)*	Heating:	*TBD (MMBtu/hr)*
		Cooling:	*TBD (Tons/hr)*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*Generator for minimum life safety*		Fuel Source:	*Gas*
System Type and Number of Units:	Combustion Engine	Gas Turbine	Combine Heat and Power	*(Units)*

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	~~10 Years~~	~~25 Years~~	***50 Years***	~~75 Years~~

What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	~~10 Years~~	~~25 Years~~	***50 Years***	~~75 Years~~

What time span of future Climate Conditions was considered?

Select most appropriate:	~~10 Years~~	~~25 Years~~	***50 Years***	~~75 Years~~

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

0/100 Deg.

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

100 Deg.	*8 Hours*	*7 Events / yr.*

What Drought characteristics will be used for project planning – Duration and Frequency?

45 Days	*1 Event / yr.*

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

60 Inches / yr.	*4.5 Inches*	*10 Events / yr.*

What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

105 Peak Wind	*3 Seconds*	*50 Year Storm*

B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:	*5%*
How is performance determined:	

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	***High performance building envelop***	***High performance lighting & controls***	~~Building day lighting~~	***EnergyStar equip. / appliances***
	High performance HVAC equipment	***Energy recovery ventilation***	~~No active cooling~~	~~No active heating~~
Describe any added measures:				

What are the insulation (R) values for building envelop elements?

Roof:	*R = 32 ci*	Walls / Curtain Wall Assembly:	*R = 17 to 18 at Walls*
Foundation:	*R = 6*	Basement / Slab:	*R = 11*
Windows:	*R = / U = 0.35 to 0.38*	Doors:	*R = / U =0 .37*

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

~~On site clean energy / CHP system(s)~~	~~Building wide power dimming~~	~~Thermal energy storage systems~~	~~Ground source heat pump~~
~~On site Solar PV~~	~~On site Solar Thermal~~	~~Wind power~~	***None***
Describe any added measures:			

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:	~~Connected to local distributed electrical~~	~~Building will be Smart Grid ready~~	~~Connected to distributed steam, hot, chilled water~~	~~Distributed thermal energy ready~~

Will the building remain operable without utility power for an extended period?

	No	If yes, for how long:	*Days*
If Yes, is building "Islandable?			
If Yes, describe strategies:			

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:	~~Solar oriented – longer south walls~~	~~Prevailing winds oriented~~	~~External shading devices~~	~~Tuned glazing,~~
	~~Building cool zones~~	~~Operable windows~~	~~Natural ventilation~~	~~Building shading~~
	~~Potable water for drinking / food preparation~~	~~Potable water for sinks / sanitary systems~~	~~Waste water storage capacity~~	***High Performance Building Envelope***
Describe any added measures:				

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:	***High reflective paving materials***	***Shade trees & shrubs***	***High reflective roof materials***	***Vegetated roofs***
Describe other strategies:				

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	~~On-site retention systems & ponds~~	***Infiltration galleries & areas***	~~vegetated water capture systems~~	***Vegetated roofs***
Describe other strategies:				

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	***Hardened building structure & elements***	***Buried utilities & hardened infrastructure***	~~Hazard removal & protective landscapes~~	~~Soft & permeable surfaces (water infiltration)~~
Describe other strategies:				

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

	No	By placing the first floor level at 18.0' BCB with dryflood proofing up to 19.0' BCB, we believe this will preclude the building from flooding.

Describe site conditions?

Site Elevation – Low/High Points:	*Low 15.1' High 20.6' Boston City Base Elev.(Ft.)*	*Existing first floor is 17.1' BCB, the new addition first floor is at 18.0' BCB*
Building Proximity to Water:	*900 Ft.*	

Is the site or building located in any of the following?

Coastal Zone:	*Yes (per CZM)*	Velocity Zone:	*No*
Flood Zone:	*Yes (per FEMA)*	Area Prone to Flooding:	*No*

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	*No*	Future floodplain delineation updates:	*No*

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

The site is within the FEMA designated flood zone

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. ***Otherwise you have completed the questionnaire; thank you!***

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	*1 Ft.*	Frequency of storms:	*1 per 100 years*

C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:	*19.0 Boston City Base Elev.(Ft.)*	First Floor Elevation:	*18.0 Boston City Base Elev. (Ft.)*

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

	Yes	If Yes, to what elevation	*19.0 Boston City Base Elev. (Ft.)*

If Yes, describe:	Existing building is at 17.0' BCB and was retrofitted with removable flood control barriers to be put into place in an event of a storm. New building addition will have removable flood control barriers which will be put into place in an event of a storm.

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1st Floor.	~~Water tight utility conduits~~	~~Waste water back flow prevention~~	~~Storm water back flow prevention~~

Were the differing effects of fresh water and salt water flooding considered:

No

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

No	If yes, to what height above 100 Year Floodplain:	*Boston City Base Elev. (Ft.)*

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

	No
If Yes, describe:	

Will the building remain occupiable without utility power during an extended period of inundation:

No	If Yes, for how long:	*days*

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

The new building addition will have dry floodproofing measures at the first floor, up to 19.0' BCB (1.5 feet above base flood elevation). Floodproofing measures include concrete curb and waterproofing at the base exterior walls and removable flood control barriers

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:	*Yes*	***Hardened / Resilient Ground Floor Construction***	***Temporary shutters and or barricades Existing building was retrofitted for temporary flood barricades***	~~Resilient site design, materials and construction~~

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	*No*	Surrounding site elevation can be raised	Building ground floor can be raised	Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	*No*	Solar PV	Solar Thermal	Clean Energy / CHP System(s)

		Potable water storage	Wastewater storage	Back up energy systems & fuel
Describe any specific or additional strategies:				

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov