NOTICE OF INTENT

Hilton Garden Inn – East Boston
100 Boardman Street

Parcel 0100522000
East Boston, Massachusetts

August 7, 2019

Applicant/Owner:
MC-EB Realty LLC c/o First Bristol Corp.
10 North Main Street
Fall River, MA 02722

Prepared By:
Bohler Engineering
45 Franklin Street, Floor 5
Boston, MA 02110

Project No. M171024

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EXECUTIVE SUMMARY

On behalf of the Applicant, Bohler Engineering is pleased to submit a Notice of Intent (NOI) for proposed work located at 100 Boardman Street in East Boston, MA.

This Notice of Intent (NOI) is filed pursuant to G.L. Chapter 131, Section 40, the Massachusetts Wetlands Protection Act (WPA) and its implementing regulations, and 310 CMR 10.00. Activities associated with the construction of the Project will be located within the coastal 100-year floodplain, which is Land Subject to Coastal Storm Flowage per 310 CMR 10.04.

The applicant, MC-EB Realty, LLC, is proposing a 46,168± GSF, 84-room building addition onto the existing Hilton Garden Inn hotel located at 100 Boardman Street in East Boston, MA. The construction of the main hotel of the Project commenced in April of 2014, and was substantially completed and occupied by October of 2015, prior to the release of revised flood maps in 2016. A Letter of Map Amendment (LOMA) Determination Document (Removal) was prepared by FEMA in October 2016 which removed the hotel structure from the flood zone, acknowledging that the on-the-ground conditions differed from the record mapping. Portions of the parking lot and sidewalk fronting Boardman Street remain within the Special Flood Hazard Area (SFHA). The 100-year floodplain in this area is Land Subject to Coastal Storm Flowage.

The previously-approved 2014 development program included the construction of a retail pad in the northeast portion of the site. This pad, originally slated for retail use, will instead be developed as landscaped open space for the hotel. Together with the hotel addition, the removal of this proposed retail pad area results in a reduction of approximately 1,500 SF of impervious area on the project site.

The existing drainage system for the main hotel, consisting of multiple Stormtech underground infiltration systems, meets BWSC's 1-inch infiltration requirement and was previously approved by BWSC under Site Plan #13227. The originally-approved basins provide a total volume of 33,628 cubic feet below outlets, which exceeds the required volume of 14,662 cubic feet based on 1" over the 4.04 acres of impervious.

In order to accommodate the conflicts that will occur with the location of the proposed building addition, portions of the existing SC-740 units will be relocated per the attached Grading & Drainage Plan. The original stormwater calculations accounted for the full development program. With the 1,500 SF reduction in impervious area, the relocated storage exceeds the required volume even further, as shown in the attached calculations. The modifications were approved by BWSC under Site Plan #18609 in April 2019.

In summary, the project proposes improvements within the coastal 100-year floodplain. Impacts will include establishing erosion control measures, landscaping, city sidewalk reconstruction, and grading activities that will not raise the existing elevations or compromise the site's floodplain capacity.

NOTICE OF INTENT (FORM 3)

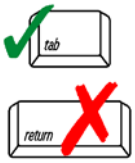
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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):

100 Boardman Street (a. Street Address) | East Boston (b. City/Town) | 02128 (c. Zip Code)

Latitude and Longitude: 42° 23' 23.75" N (d. Latitude) | 71° 0' 44.46" W (e. Longitude)

(f. Assessors Map/Plat Number) | 0100522000 (g. Parcel /Lot Number)

2. Applicant:

Jeffrey T. (a. First Name) | Karam (b. Last Name)

MC-EB Realty LLC c/o First Bristol Corp. (c. Organization)

10 North Main Street (d. Street Address)

Fall River (e. City/Town) | MA (f. State) | 02722 (g. Zip Code)

(508) 679-1180 (h. Phone Number) | (i. Fax Number) | jeffk@firstbristol.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):

Stephen (a. First Name) | Martorano (b. Last Name)

Bohler Engineering (c. Company)

45 Franklin Street, Floor 5 (d. Street Address)

Boston (e. City/Town) | MA (f. State) | 02110 (g. Zip Code)

(617) 849-8040 (h. Phone Number) | (i. Fax Number) | smartorano@bohlereng.com (j. Email address)

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

$1,050.00 (a. Total Fee Paid) | $512.50 (b. State Fee Paid) | $537.50 (c. City/Town Fee Paid)

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A. General Information (continued)

6. General Project Description:

Addition to existing hotel building and associated site and utility improvements.

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

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

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

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Suffolk	
c. Book	d. Page Number
48956	128

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.

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

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 3. cubic yards dredged	2. square feet

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) - **specify coastal or inland**

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)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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

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

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

Resource Area	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	1,894 +/- 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

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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   a. ☐ Yes ☒ No

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

   Natural Heritage and Endangered Species Program
   Division of Fisheries and Wildlife
   1 Rabbit Hill Road
   Westborough, MA 01581

   August 2017
   b. Date of map

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

   c. Submit Supplemental Information for Endangered Species Review*

      1. ☐ Percentage/acreage of property to be altered:

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

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

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

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

   (b) ☒ Photographs representative of the site

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

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

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

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

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

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

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

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

a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☒ No

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

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

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

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

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

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

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

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

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

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

   a. ☐ Yes ☒ No

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

   a. ☐ Yes ☒ No

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

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

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

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

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

D. Additional Information

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

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

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

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title

Bohler Engineering
b. Prepared By

Stephen Martorano, P.E.
c. Signed and Stamped by

d. Final Revision Date

e. Scale

See plan list, attached
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:

1039
2. Municipal Check Number

8/2/2019
3. Check date

1038
4. State Check Number

8/2/2019
5. Check date

MC-EB Realty LLC
6. Payor name on check: First Name

7. Payor name on check: Last Name

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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 8/2/19

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date 8/5/2019

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.

CITY OF BOSTON CHECKLIST

Checklist for Filing a Notice of Intent with Boston Conservation Commission

In order for the Boston Conservation Commission to effectively process your Notice of Intent, BCC requests that you complete the checklist below and include it with your submission. If you should need assistance please contact Commission Staff: 617-635-3850 (cc@boston.gov).

To the Conservation Commission:

- ☒ Two copies (a signed original and 1 copy) of a completed Notice of Intent (WPA Form 3)
- ☒ Two copies of plans (reduced to 11" X 17") in their final form with engineer's stamp affixed supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures. Plans must include existing conditions, the proposed project, erosion controls and mitigation measures, grading and spot elevations and all wetland resource areas and associated buffer zones. Some projects may require both an aerial view of the plans along with a profile view of plans depending on the scope of work.
- ☒ Two copies of an 8 ½" x 11" section of the USGS quadrangle map of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.
- ☒ (If applicable) Two copies the Federal Emergency Management Agency Flood Insurance Rate Map for the project site. FEMA Flood Maps: https://msc.fema.gov/portal.
- N/A ☐ Two copies of the determination regarding the Natural Heritage and Endangered Species Program: Review Section C. Other Applicable Standards and Requirements of the Notice of Intent, page 4 of 8, pertaining to wildlife habitat. The Conservation Commission and the Natural Heritage & Endangered Species Program have the maps necessary to make this determination.
- ☒ (If applicable) Two hard copies of a Stormwater Report to document compliance with the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q), including associated drainage calculations for rooftops, parking lots, driveways, etc., for the required design storm events.
- ☒ (If applicable) Two hard copies of the Checklist for Stormwater Report
- ☒ Details of the stormwater management system, including: catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc.
- ☒ Any photographs related to the project representing the wetland resource areas.
- ☒ Two copies of a detailed project narrative describing the following: an overview of the entire project, the work proposed within wetland resource areas and/or buffer zones; how the performance standards specific to the wetland resource areas will be met (listing out each performance standard); construction equipment and material involved; and measures to protect wetland resource areas and mitigate impacts.
- ☒ Two copies of an Abutters List, Affidavit of Service and Abutter Notification, filed concurrently with the Notice of Intent.
- ☒ (If applicable) Two copies of the BPDA Climate Resiliency Checklist (for new buildings). This can be completed online at http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines. Please print the pdf that you will receive via email after completion and include it in your submission.
- ☒ **Electronic copies. Documents may be submitted via email, or via an email link to downloadable documents.**

To minimize the use of non-recyclable materials ***please do not include vinyl or plastic binders, bindings, folders or covers with the filing.*** Staples and binder clips are good choices.

Updated 4/29/19

FILING FEE DOCUMENTATION

- **Copy of Wetland Fee Transmittal Form**
- **Copy of Check for DEP Filing Fee (State Share)**
- **Copy of Check for City of Boston Filing Fee**

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:

a. Street Address	b. City/Town
100 Boardman Street	East Boston

c. Check number	d. Fee amount
	$1,050.00

2. Applicant Mailing Address:

a. First Name	b. Last Name
Jeffrey T.	Karam

c. Organization: MC-EB Realty LLC c/o First Bristol Corp.

d. Mailing Address: P.O. Box 2516

e. City/Town	f. State	g. Zip Code
Fall River	MA	02722

h. Phone Number	i. Fax Number	j. Email Address
(508) 679-1180		jeffk@firstbristol.com

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.

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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 - new building addition	1	$1,050.00	$1,050.00

Step 5/Total Project Fee:

Step 6/Fee Payments:

Total Project Fee:	$1,050.00 (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:	$537.50 (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.)

THIS CHECK IS VOID WITHOUT A BLUE & RED BACKGROUND AND A WATERMARK - HOLD UP TO THE LIGHT TO VERIFY

MC-EB Realty LLC
Operating Account
P.O. Box 2516
Fall River, MA 02722

East Boston Savings Bank
10 Meridian Street
East Boston, MA 02128
53-7012/2110

1038

DATE: August 2, 2019

$********512.50

PAY Five Hundred Twelve and 50/100 Dollars

TO THE ORDER OF COMMONWEALTH OF MASSACHUSETTS

CHECK IS PRINTED ON SECURITY PAPER WHICH INCLUDES A MICROPRINT BORDER & FLUORESCENT FIBERS

[redacted]

THIS CHECK IS VOID WITHOUT A BLUE & RED BACKGROUND AND A WATERMARK - HOLD UP TO THE LIGHT TO VERIFY

MC-EB Realty LLC
Operating Account
P.O. Box 2516
Fall River, MA 02722

East Boston Savings Bank
10 Meridian Street
East Boston, MA 02128
53-7012/2110

1039

DATE: August 2, 2019

$******1,500.00

PAY One Thousand Five Hundred and 00/100 Dollars

TO THE ORDER OF CITY OF BOSTON

CHECK IS PRINTED ON SECURITY PAPER WHICH INCLUDES A MICROPRINT BORDER & FLUORESCENT FIBERS

[redacted]

ABUTTERS LIST

Abutter Mailing List Generator --- City of Boston Assessing Department

Enter/Select a Street Name:

CITY HALL

Find Addresses

Click an Address to find a Parcel:

Enter a Parcel ID:

0302615000

Find a Parcel

When you can see Parcels:

Click Here to Select a Parcel

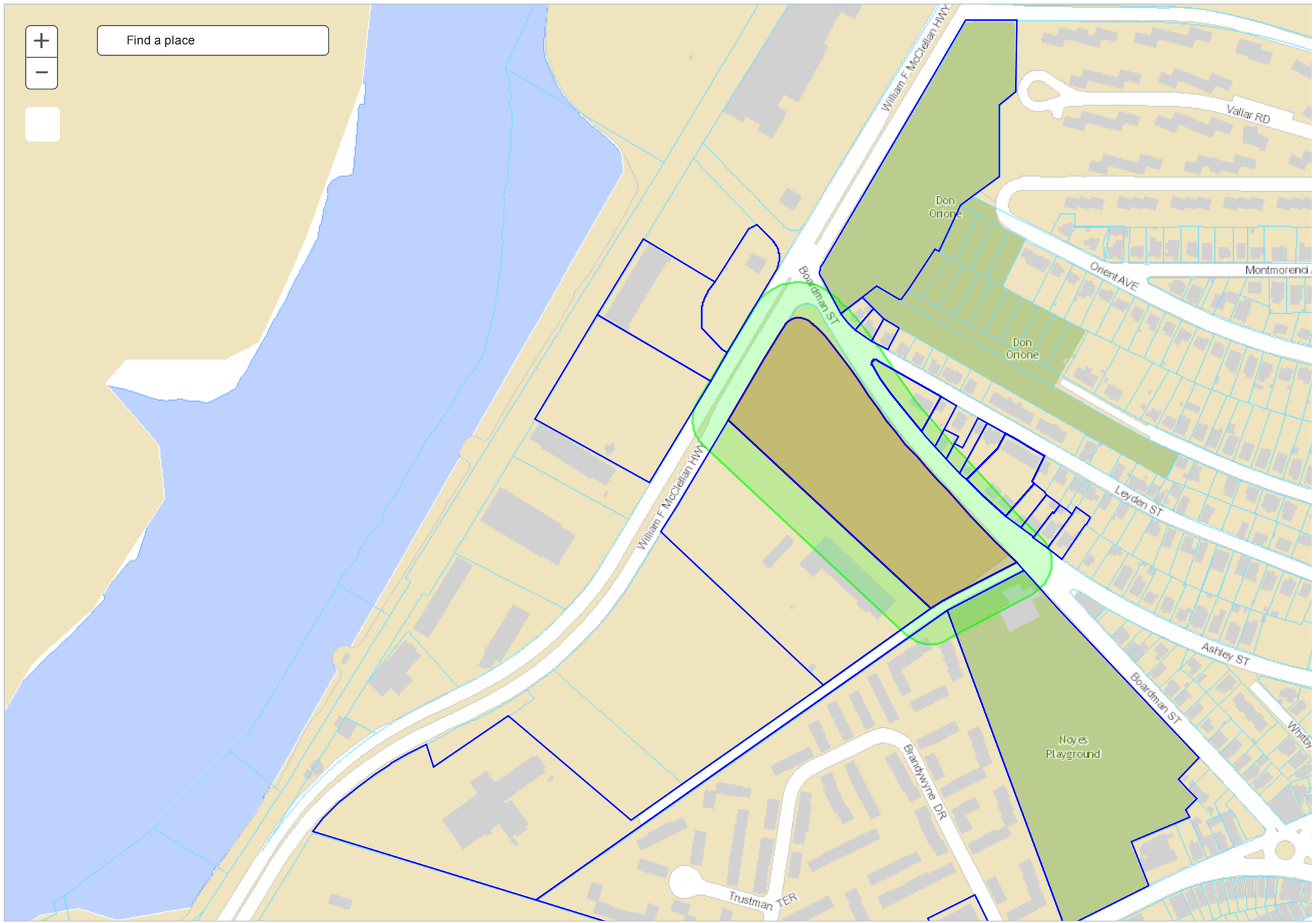
Buffer Parameters:

Distance: 100 Feet

Buffer and Select

Click here to download a CSV file (Open in Notepad, not in Excel) for Mailing list.
Click here for an instruction to convert a CSV file to Mailing Labels using MS Word.

Note: Use newer versions of browser to view this site such as IE 11+ or Chrome 47+ etc.



PID	OWNER	ADDRESSEE	MLG_ADDRESS	MLG_CITYSTATE	MLG_ZIPCODE	LOC_ADDRESS	LOC_CITY	LOC_ZIPCODE
100522000	MC-EB REALTY LLC	MC-EB REALTY LLC	PO BOX 2516	FALL RIVER MA	2722	415 WM F MCCLELLAN HW	EAST BOSTON	2128
100524000	CITY OF BOSTON	CITY OF BOSTON	BOARDMAN	EAST BOSTON MA	2128	BOARDMAN ST	EAST BOSTON	2128
100534000	BRANDYWYNE VILLAGE CO	BRANDYWYNE VILLAGE CO	151 TREMONT ST	BOSTON MA	2111	870 908A SARATOGA ST	EAST BOSTON	2128
100549001	SLUMBER TIME LLC	SLUMBER TIME LLC	1000 MARKET ST BLDG #1	PORTSMOUTH NH	3801	225 WM F MCCLELLAN HW	EAST BOSTON	2128
100549006	MCCLELLAN HIGHWAY LLP 375	MCCLELLAN HIGHWAY LLP 375	3520 PIEDMONT ROAD NE STE 41	ATLANTA GA	30305	375 WM F MCCLELLAN HW	EAST BOSTON	2128
101664000	GROSSMAN LOUIS J TRSTS	GROSSMAN LOUIS J TRSTS	PO BOX 208	MARBLEHEAD MA	1945	WM F MCCLELLAN HW	EAST BOSTON	2128
101666000	GROSSMAN BERNARD D TRSTS	GROSSMAN BERNARD D TRSTS	859 WILLARD ST #501	QUINCY MA	2169	WM F MCCLELLAN HW	EAST BOSTON	2128
101666005	PARK SHUTTLE & FLY INC	PARK SHUTTLE & FLY INC	320 WM F MCCLELLAN HW	EAST BOSTON MA	2128	WM F MCCLELLAN HW	EAST BOSTON	2128
101789000	RICHARDS JAMES M TS	RICHARDS JAMES M TS	141 ASHLEY ST	EAST BOSTON MA	2128	141 ASHLEY ST	EAST BOSTON	2128
101790000	MUNOZ STEVEN	MUNOZ STEVEN	145 ASHLEY ST	EAST BOSTON MA	2128	145 ASHLEY ST	EAST BOSTON	2128
101791000	MUSTACCHIO NICHOLAS R	MUSTACCHIO NICHOLAS R	93 BOARDMAN ST	EAST BOSTON MA	2128	93 BOARDMAN ST	EAST BOSTON	2128
101792000	MERULLO MICHAEL J	MERULLO MICHAEL J	95 BOARDMAN ST	EAST BOSTON MA	2128	95 BOARDMAN ST	EAST BOSTON	2128
101794010	BOARDMAN PLACE CONDO	BOARDMAN PLACE CONDO	99 BOARDMAN ST	EAST BOSTON MA	2128	37 -47 LEYDEN ST	EAST BOSTON	2128
101794012	WANG XIAOPING	WANG XIAOPING	47 LEYDEN ST #1	EAST BOSTON MA	2128	47 LEYDEN ST #1	EAST BOSTON	2128
101794014	NOWOSIADLY CHRISTIAN D	NOWOSIADLY CHRISTIAN D	45 LEYDEN ST #2	E BOSTON MA	2128	45 LEYDEN ST #2	EAST BOSTON	2128
101794016	SEBASTIAO KIMBERLY	SEBASTIAO KIMBERLY	43 LEYDEN ST #3	EAST BOSTON MA	2128	43 LEYDEN ST #3	EAST BOSTON	2128
101794018	FEALHABER SARA	FEALHABER SARA	41 LEYDEN ST #4	EAST BOSTON MA	2128	41 LEYDEN ST #4	EAST BOSTON	2128
101794020	KANTARIA DIVYESH D	KANTARIA DIVYESH D	39 LEYDEN ST #5	E BOSTON MA	2128	39 LEYDEN ST #5	EAST BOSTON	2128
101794022	TIMOTHE PEGGY	TIMOTHE PEGGY	2333 INADALE AVE	DALLAS TX	75228	37 LEYDEN ST #6	EAST BOSTON	2128
101794024	ZALDUMBIDE MICHAEL	ZALDUMBIDE MICHAEL	97 BOARDMAN ST #7	E BOSTON MA	2128	97 BOARDMAN ST #7	EAST BOSTON	2128
101794026	CASTRO MARCO JAMES	CASTRO MARCO JAMES	99 BOARDMAN ST #8	E BOSTON MA	2128	99 BOARDMAN ST #8	EAST BOSTON	2128
101794028	ZHU JIEBO	ZHU JIEBO	101 BOARDMAN ST #9	EAST BOSTON MA	2128	101 BOARDMAN ST #9	EAST BOSTON	2128
101794030	GOURENE VERONIQUE	GOURENE VERONIQUE	103 BOARDMAN ST #10	EAST BOSTON MA	2128	103 BOARDMAN ST #10	EAST BOSTON	2128
101794032	BRASIL ROGER	BRASIL ROGER	105 BOARDMAN ST #11	EAST BOSTON MA	2128	105 BOARDMAN ST #11	EAST BOSTON	2128
101794034	ZOLLA WILLIAM	ZOLLA WILLIAM	107 BOARDMAN ST #12	EAST BOSTON MA	2128	107 BOARDMAN ST #12	EAST BOSTON	2128
101796000	DONNELLY JOHN ETAL	DONNELLY JOHN ETAL	111 BOARDMAN	EAST BOSTON MA	2128	111 BOARDMAN ST	EAST BOSTON	2128
101797000	SKYVIEW CONDO TRUST	SKYVIEW CONDO TRUST	15 LEYDEN ST	EAST BOSTON MA	2128	115 BOARDMAN ST	EAST BOSTON	2128
101797002	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101797004	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101797006	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101797008	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101797010	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101797012	BOSTON HOUSING AUTH	BOSTON HOUSING AUTH	52 CHAUNCY ST	BOSTON MA	2111	115 BOARDMAN ST	EAST BOSTON	2128
101798000	OBRIEN MARK P	OBRIEN MARK P	23 LEYDEN ST	EAST BOSTON MA	2128	23 LEYDEN ST	EAST BOSTON	2128
101800000	MBC VENTURES LLC	MBC VENTURES LLC	20C DELCARMINE ST SUITE 101	WAKEFIELD MA	1880	33 LEYDEN ST	EAST BOSTON	2128
101801000	TUFO MARY ELIZABETH	TUFO MARY ELIZABETH	161 SUMMIT AVE	QUINCY MA	2170	35 LEYDEN ST	EAST BOSTON	2128
102051000	CAPEZZUTO RICHARD L	CAPEZZUTO RICHARD L	14 LEYDEN ST	EAST BOSTON MA	2128	14 LEYDEN ST	EAST BOSTON	2128
102052000	KNOX LINDA	KNOX LINDA	10 LEYDEN ST	EAST BOSTON MA	2128	10 LEYDEN ST	EAST BOSTON	2128
102053000	VECCHIO PRISCILLA L	VECCHIO PRISCILLA L	133 BOARDMAN ST	E BOSTON MA	2128	133 BOARDMAN ST	EAST BOSTON	2128
102279000	SONS DIVINE PROV INC	SONS DIVINE PROV INC	BOARDMAN	EAST BOSTON MA	2128	BOARDMAN ST	EAST BOSTON	2128

Notification to Abutters under the Massachusetts Wetlands Protection Act

Pursuant to the requirements of The Massachusetts Wetlands Protection Act, MGL Chapter 131, Section 40 (WPA) you are hereby notified of the following:

The Applicant, MC EB Realty LLC c/o First Bristol Corp., has filed a Notice of Intent (NOI) with the Boston Conservation Commission seeking approval for a proposed hotel addition located at a portion of 100 Boardman Street in East Boston, Massachusetts (the Project).

Portions of the Project will occur within or near Areas Subject to Protection under the WPA identified as Land Subject to Coastal Storm Flowage (LSCSF).

Information regarding the NOI may be obtained by calling the Boston Environment Department at (617) 635-3850. The NOI may be viewed at the Environment Department, Boston City Hall, Room 709, Boston, MA 02201. You may also call Stephen Martorano at (617) 849-8040, Monday through Friday between 9:00 AM and 5:00 PM, with questions or to arrange to view the NOI.

Copies of the NOI may be obtained by calling Stephen Martorano at (617) 849-8040.

The Boston Conservation Commission will hold a public hearing on Wednesday, August 21st, @ 6:00 P.M. in the Piemonte Room, Fifth Floor, One City Hall Square Boston, MA 02201 to consider the NOI filed by MC EB Realty LLC c/o First Bristol Corp. to construct a hotel addition at 100 Boardman Street. For the most up to date information on the hearing time and location, please visit https://www.boston.gov/public-notices.

Information on the NOI and the Wetlands Protection Act may also be obtained by calling the Northeast Regional Office of the Massachusetts Department of Environmental Protection at (978) 694-3200.

AFFADAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

I, Stephen Martorano, herby certify, under the pains and penalties of perjury that on August 7, 2019 Bohler Engineering MA, LLC provided notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the **DEP Guide to Abutter Notification** dated April 8, 1994, in connection with the following matter:

> A Notice of Intent filed with the Boston Conservation Commission under the Massachusetts Wetlands Protection Act by MC-EB Realty LLC c/o First Bristol Corp. on August 7, 2019, for the work associated with the construction of a hotel addition (46,168 gross square feet) at 100 Boardman Street, Boston, MA.

The form of notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.

Signature – Stephen Martorano, P.E.

8/7/2019

Date

PROJECT DESCRIPTION

1. Introduction

On behalf of the Applicant, Bohler Engineering is pleased to submit a Notice of Intent (NOI) for proposed work located at 100 Boardman Street in East Boston, MA.

This Notice of Intent (NOI) is filed pursuant to G.L. Chapter 131, Section 40, the Massachusetts Wetlands Protection Act (WPA) and its implementing regulations, and 310 CMR 10.00. Activities associated with the construction of the Project will be located within the coastal 100-year floodplain, which is Land Subject to Coastal Storm Flowage per 310 CMR 10.04.

MC-EB Realty LLC c/o First Bristol Corp. proposes to construct a 42,133-gross square foot (GSF), 5-story addition to the existing hotel at 100 Boardman Street. The existing conditions at the project site consist of a Hilton Garden Inn fronting Boardman Street, associated parking lots, and site amenities. Existing utility systems will be altered as shown on the BWSC-approved Site Plan #18609.

Area within the coastal 100-year floodplain will be redeveloped. Indirect impacts from stormwater discharges are to be mitigated through the use of sedimentation and erosion control measures during construction. A Drainage Summary detailing the compliance with the MassDEP regulations is provided in Appendix A.

2. Wetland Resource Areas

2.1 Resource Area Evaluation

Portions of the site are located within the coastal 100-year floodplain per FEMA map panel 25025C0019J, published March 16, 2016, at elevation 10 (NAVD88). Per Boston City Base, the 100-year floodplain is located at elevation 16.46 feet. The construction of the hotel component of the Project commenced in April of 2014, and was substantially completed and occupied by October of 2015, prior to the release of the revised flood maps in 2016. A Letter of Map Amendment (LOMA) Determination Document (Removal) was prepared by FEMA in October 2016 which removed the hotel structure from the flood zone, acknowledging that the on-the-ground conditions differed from the record mapping. Portions of the parking lot and sidewalk fronting Boardman Street remain within the Special Flood Hazard Area (SFHA). The 100-year floodplain in this area is Land Subject to Coastal Storm Flowage.

Survey completed in 2016 in the area of the proposed addition identified areas of the site below 16.46 BCB. The Site Development Plans provided in Attachment A show the limits of the SHFA on the site.

2.2 Regulated Area Impacts

The project proposes improvements within the coastal 100-year floodplain. Impacts will include establishing erosion control measures, landscaping, city sidewalk reconstruction,

and grading activities that will not raise the existing elevations. Reference the Site Development Plans provided in Attachment A for a full depiction of proposed activities. The erosion controls will mitigate indirect impacts from stormwater discharge during construction.

2.3 Rare Species and Habitats

There is no Priority Habitat or Estimated Habitat for rare or endangered species on site, according to the 14th edition of the Natural Heritage & Endangered Species (NHESP) Atlas, available on MassGIS.

3. Description of Work Located in Jurisdictional Area

Work proposed in Land Subject to Coastal Storm Flowage (LSCSF) includes grading; site improvements, including parking lot improvements, landscaping, and sidewalk reconstruction; and establishment of erosion control measures. The proposed construction will reduce impervious area from the approved 2014 Development Program.

The WPA does not stipulate wetland performance standards for LSCSF, however, projects must comply with the State Building Code, which incorporates standards to ensure that projects are designed to minimize impacts to the WPA-protected interests of storm damage prevention and flood control. The Boston Planning and Development Agency (BPDA) Climate Resiliency Checklist provided in Attachment B describes design conditions for long-term storm damage prevention.

4. Summary

The jurisdictional resource area applicable to this project is the 100-year floodplain (Land Subject to Coastal Storm Flowage), per the Wetland Protection Act. Proposed work in jurisdictional areas includes grading, utility improvements, site improvements, and establishing erosion control measures. The Project has been designed in accordance with the Wetlands Protection Act regulations and performance standards.

During construction appropriate BMPs will be installed, including inlet protection. Impacts to the stormwater management system are described in Appendix A, the Drainage Summary.

APPENDIX A

DRAINAGE SUMMARY

BOHLER
ENGINEERING

Drainage Summary

On behalf of MC-EB Realty LLC c/o First Bristol Corp., the Applicant, Bohler Engineering is pleased to submit a copy of the Project's stormwater checklist with the Notice of Intent Application for the Hilton Garden Inn addition located at 100 Boardman Street in East Boston, MA. The proposed work is associated with an expansion to the previously-constructed hotel, and does not alter the existing drainage patterns. The previously-constructed stormwater management system complies with the MassDEP Stormwater Management Standards.

The previously-approved 2014 development program included the construction of a retail pad in the northeast portion of the site. This pad, originally slated for retail use, will instead be developed as landscaped open space for the hotel. Together with the hotel addition, the removal of this proposed retail pad area results in a reduction of approximately 1,500 SF of impervious area on the project site, and a reduction in peak flow rates, as demonstrated in the attached Drainage Calculations.

The existing drainage system for the main hotel, consisting of multiple Stormtech underground infiltration systems, meets BWSC's 1-inch infiltration requirement and was previously approved by BWSC under Site Plan #13227. The originally-approved basins provide a total volume of 33,628 cubic feet below outlets, which exceeds the required volume of 14,662 cubic feet based on 1" over the 4.04 acres of impervious.

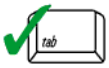
In order to accommodate the conflicts that will occur with the location of the proposed building addition, portions of the existing SC-740 units will be relocated per the attached Grading & Drainage Plan. The original stormwater calculations accounted for the potential impervious area on the retail pad. With the 1,500 SF reduction in impervious area, the relocated storage exceeds the required volume even further, as shown in the attached calculations. The modifications were approved by BWSC under Site Plan #18609 in April 2019.

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

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

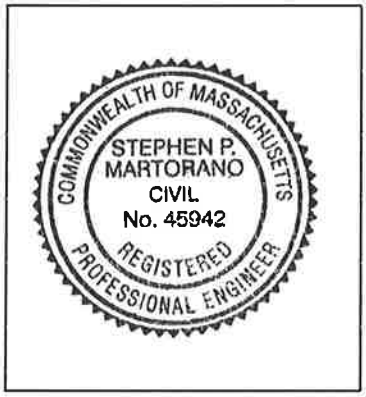
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



8/7/2019
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): _____

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:

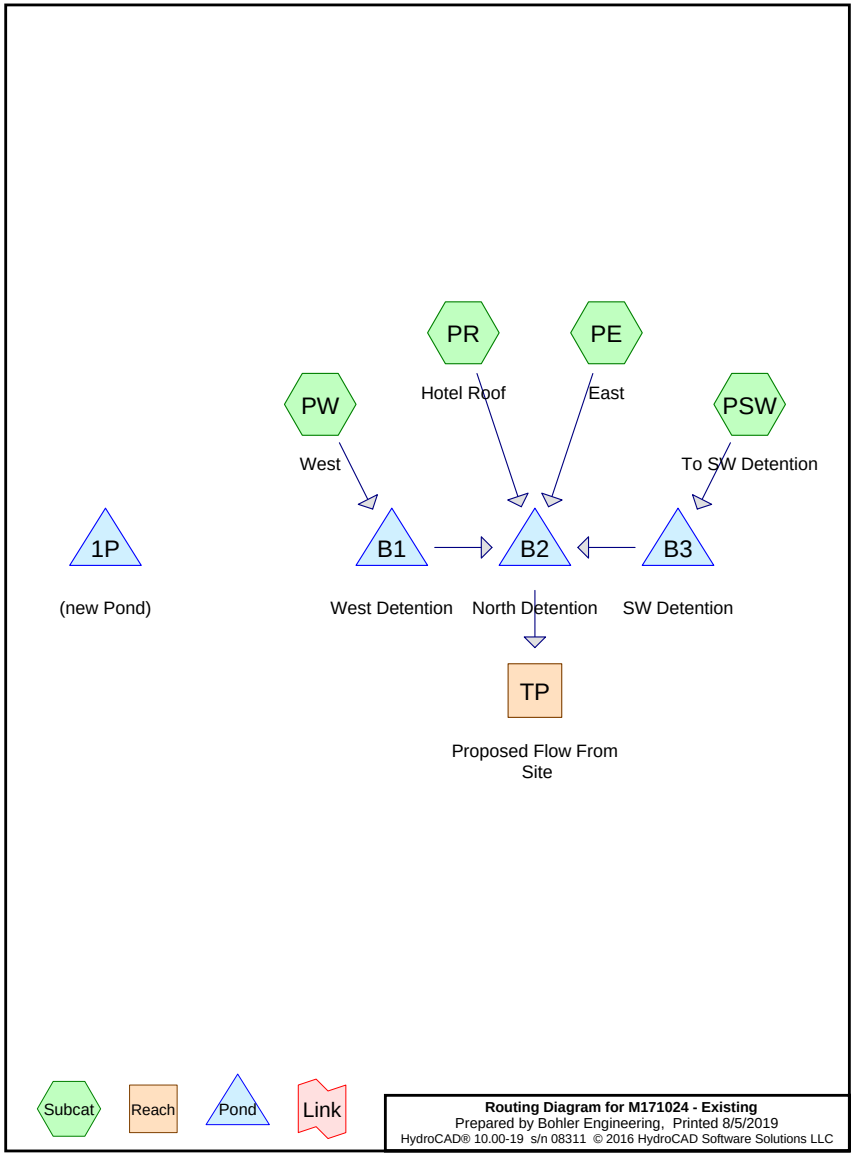
- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity 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.



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.514 ac 62.17% Impervious Runoff Depth=2.04"
Tc=6.0 min CN=89 Runoff=5.84 cfs 0.427 af

Subcatchment PR: Hotel Roof Runoff Area=0.611 ac 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=1.82 cfs 0.149 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=90 Runoff=1.17 cfs 0.086 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=2.04"
Tc=6.0 min CN=89 Runoff=5.66 cfs 0.413 af

Reach TP: Proposed Flow From Site Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1P: (new Pond) Peak Elev=0.00' Storage=0.000 af

Pond B1: West Detention Peak Elev=15.87' Storage=0.125 af Inflow=5.66 cfs 0.413 af
Discarded=0.81 cfs 0.398 af Primary=0.12 cfs 0.015 af Outflow=0.93 cfs 0.413 af

Pond B2: North Detention Peak Elev=13.72' Storage=0.259 af Inflow=7.83 cfs 0.664 af
Discarded=0.67 cfs 0.664 af Primary=0.00 cfs 0.000 af Outflow=0.67 cfs 0.664 af

Pond B3: SW Detention Peak Elev=15.05' Storage=0.040 af Inflow=1.17 cfs 0.086 af
Outflow=0.26 cfs 0.074 af

Total Runoff Area = 6.044 ac Runoff Volume = 1.074 af Average Runoff Depth = 2.13"
33.17% Pervious = 2.005 ac 66.83% Impervious = 4.039 ac

Summary for Subcatchment PE: East

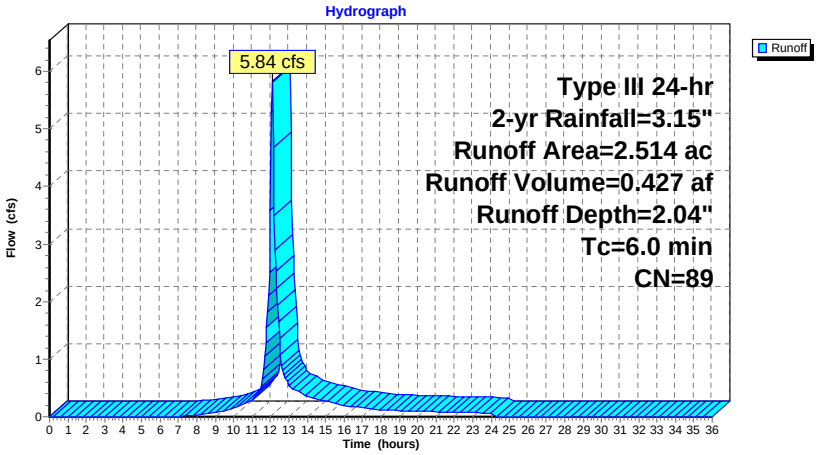
Runoff = 5.84 cfs @ 12.09 hrs, Volume= 0.427 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
1.563	98	Paved parking, HSG C
0.951	74	>75% Grass cover, Good, HSG C
2.514	89	Weighted Average
0.951		37.83% Pervious Area
1.563		62.17% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

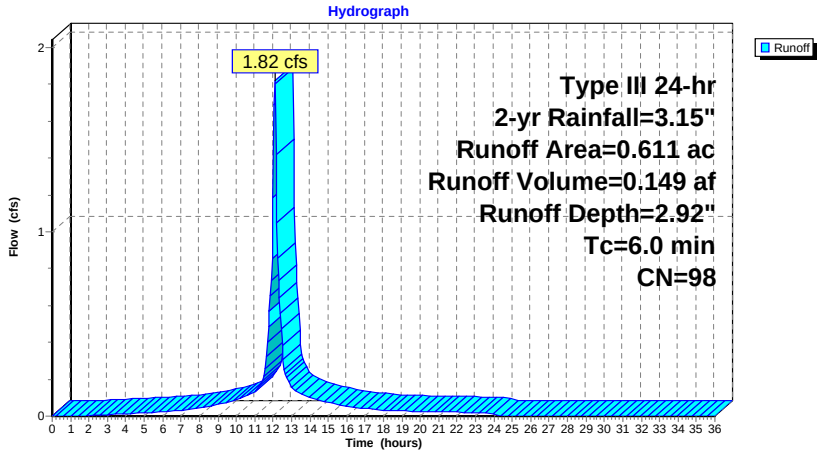
Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.149 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
0.611	98	Roofs, HSG C
0.611		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

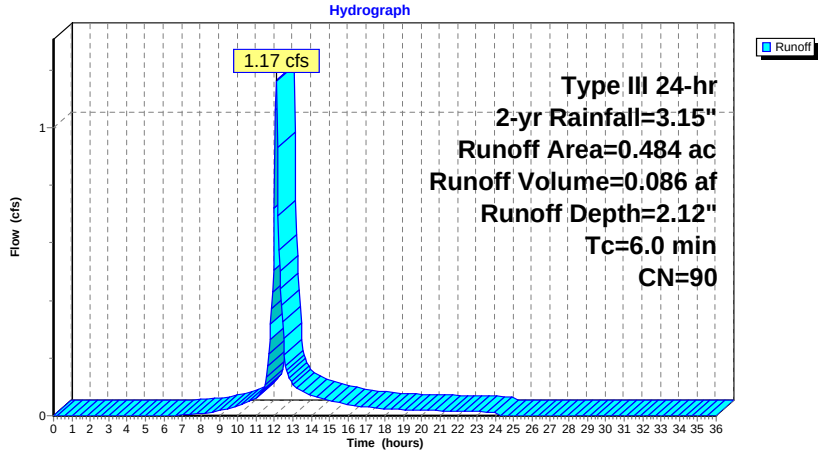
Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

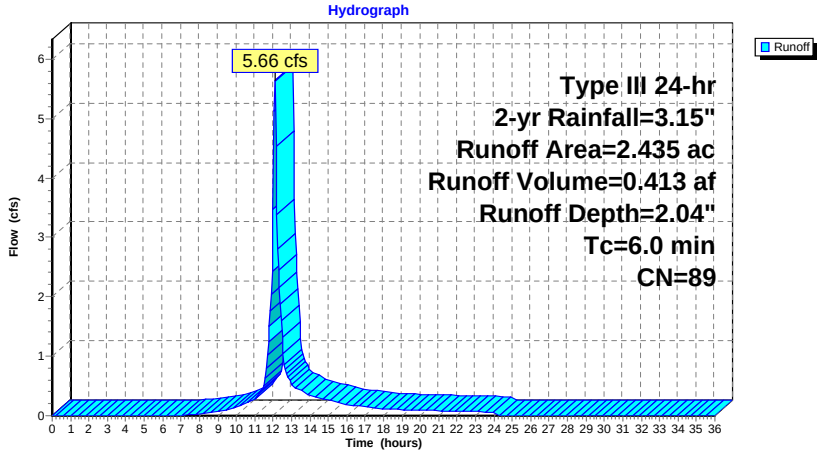
Runoff = 5.66 cfs @ 12.09 hrs, Volume= 0.413 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

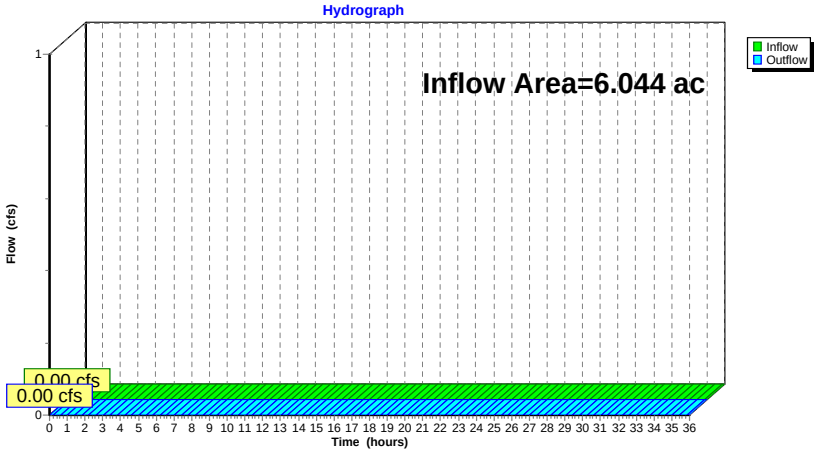


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond 1P: (new Pond)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.062 af	**44.25'W x 67.70'L x 3.50'H Field A** 0.241 af Overall - 0.085 af Embedded = 0.155 af x 40.0% Voids
#2A	0.50'	0.085 af	**ADS_StormTech SC-740 +Cap** x 81 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 9 Rows of 9 Chambers
		0.148 af	Total Available Storage

Storage Group A created with Chamber Wizard

Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 2.04" for 2-yr event
Inflow = 5.66 cfs @ 12.09 hrs, Volume= 0.413 af
Outflow = 0.93 cfs @ 12.58 hrs, Volume= 0.413 af, Atten= 84%, Lag= 29.5 min
Discarded = 0.81 cfs @ 11.70 hrs, Volume= 0.398 af
Primary = 0.12 cfs @ 12.58 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.87' @ 12.58 hrs Surf.Area= 0.293 ac Storage= 0.125 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 41.2 min (852.9 - 811.7)

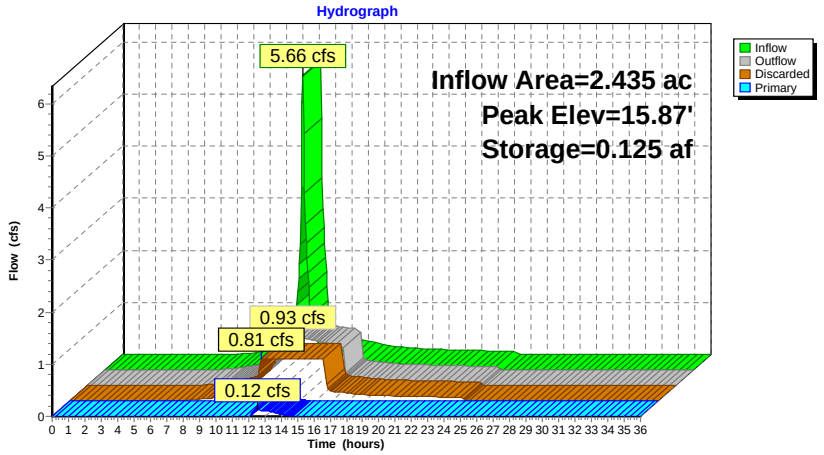
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 11.70 hrs HW=15.03' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=0.12 cfs @ 12.58 hrs HW=15.87' (Free Discharge)
└**1=Culvert** (Passes 0.12 cfs of 3.19 cfs potential flow)
  ├**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.39 fps)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 1.32" for 2-yr event
Inflow = 7.83 cfs @ 12.09 hrs, Volume= 0.664 af
Outflow = 0.67 cfs @ 11.50 hrs, Volume= 0.664 af, Atten= 91%, Lag= 0.0 min
Discarded = 0.67 cfs @ 11.50 hrs, Volume= 0.664 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 13.72' @ 13.95 hrs Surf.Area= 0.243 ac Storage= 0.259 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 144.2 min (956.6 - 812.4)

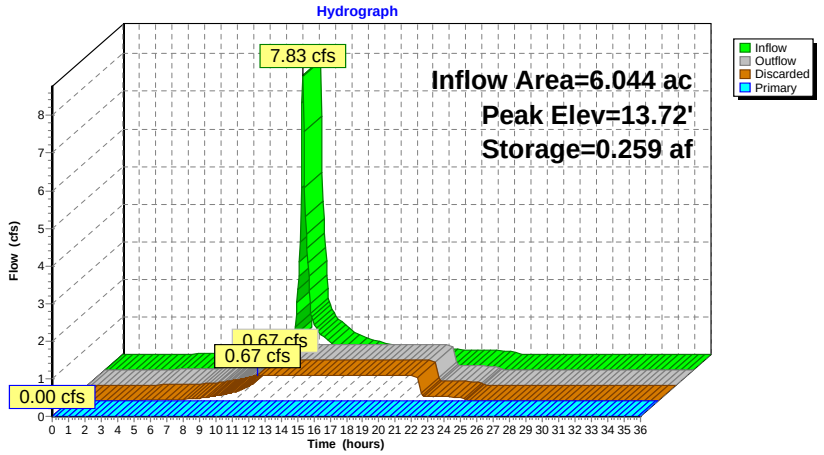
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 11.50 hrs HW=12.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.00' (Free Discharge)
└**3=Culvert** (Passes 0.00 cfs of 1.13 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 2.12" for 2-yr event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.086 af
Outflow = 0.26 cfs @ 12.51 hrs, Volume= 0.074 af, Atten= 78%, Lag= 25.0 min
Primary = 0.26 cfs @ 12.51 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.05' @ 12.51 hrs Surf.Area= 0.074 ac Storage= 0.040 af

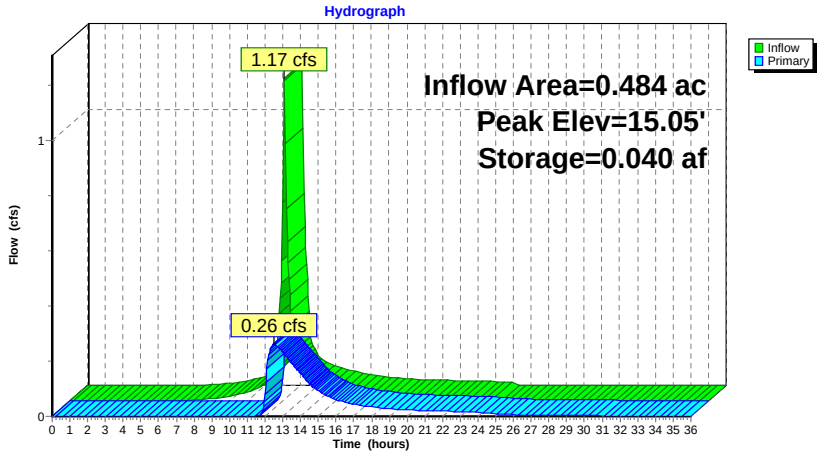
Plug-Flow detention time= 187.0 min calculated for 0.074 af (86% of inflow)
Center-of-Mass det. time= 127.2 min (934.7 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.26 cfs @ 12.51 hrs HW=15.05' (Free Discharge)
└**1=Culvert** (Passes 0.26 cfs of 3.84 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 2.98 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B3: SW Detention



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.514 ac 62.17% Impervious Runoff Depth=3.76"
Tc=6.0 min CN=89 Runoff=10.53 cfs 0.788 af

Subcatchment PR: Hotel Roof Runoff Area=0.611 ac 100.00% Impervious Runoff Depth=4.75"
Tc=6.0 min CN=98 Runoff=2.91 cfs 0.242 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=3.87"
Tc=6.0 min CN=90 Runoff=2.07 cfs 0.156 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=3.76"
Tc=6.0 min CN=89 Runoff=10.20 cfs 0.763 af

Reach TP: Proposed Flow From Site Inflow=3.02 cfs 0.243 af
Outflow=3.02 cfs 0.243 af

Pond 1P: (new Pond) Peak Elev=0.00' Storage=0.000 af

Pond B1: West Detention Peak Elev=16.90' Storage=0.284 af Inflow=10.20 cfs 0.763 af
Discarded=0.81 cfs 0.677 af Primary=0.27 cfs 0.087 af Outflow=1.08 cfs 0.763 af

Pond B2: North Detention Peak Elev=15.07' Storage=0.433 af Inflow=13.90 cfs 1.261 af
Discarded=0.67 cfs 1.018 af Primary=3.02 cfs 0.243 af Outflow=3.70 cfs 1.261 af

Pond B3: SW Detention Peak Elev=15.87' Storage=0.070 af Inflow=2.07 cfs 0.156 af
Outflow=0.46 cfs 0.144 af

Total Runoff Area = 6.044 ac Runoff Volume = 1.950 af Average Runoff Depth = 3.87"
33.17% Pervious = 2.005 ac 66.83% Impervious = 4.039 ac

Summary for Subcatchment PE: East

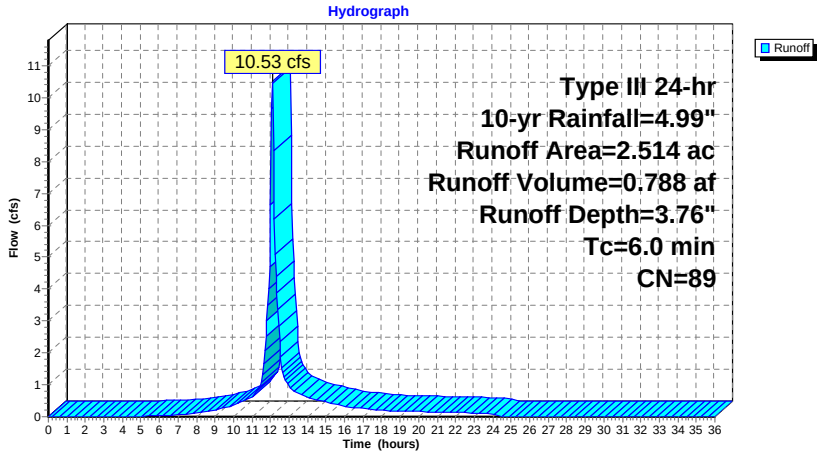
Runoff = 10.53 cfs @ 12.09 hrs, Volume= 0.788 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
1.563	98	Paved parking, HSG C
0.951	74	>75% Grass cover, Good, HSG C
2.514	89	Weighted Average
0.951		37.83% Pervious Area
1.563		62.17% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

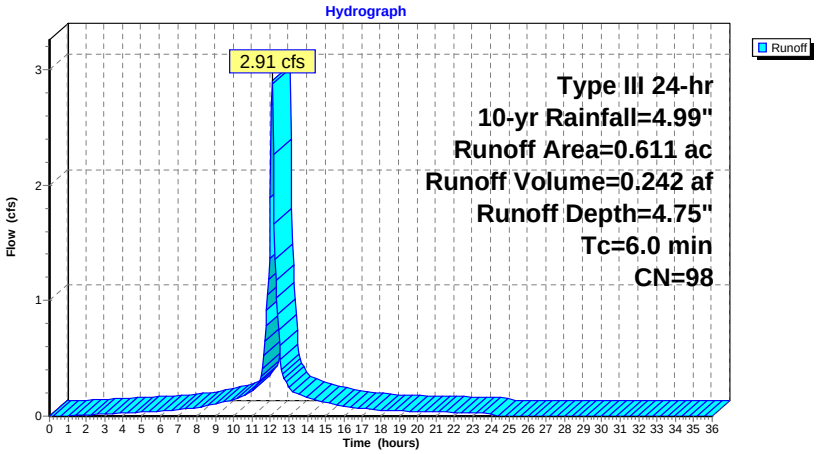
Runoff = 2.91 cfs @ 12.09 hrs, Volume= 0.242 af, Depth= 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
0.611	98	Roofs, HSG C
0.611		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

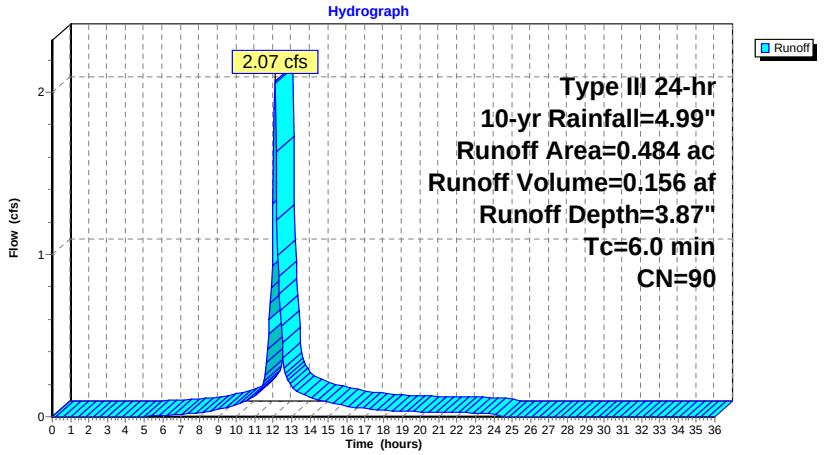
Runoff = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

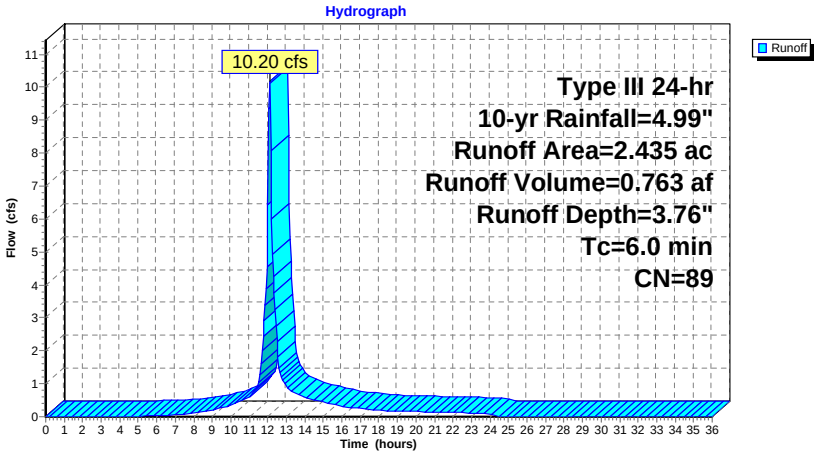
Runoff = 10.20 cfs @ 12.09 hrs, Volume= 0.763 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

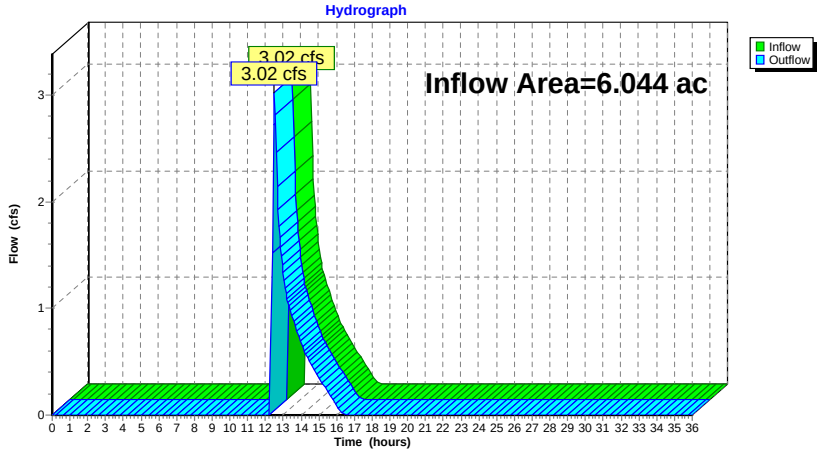


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 0.48" for 10-yr event
Inflow = 3.02 cfs @ 12.51 hrs, Volume= 0.243 af
Outflow = 3.02 cfs @ 12.51 hrs, Volume= 0.243 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond 1P: (new Pond)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.062 af	**44.25'W x 67.70'L x 3.50'H Field A** 0.241 af Overall - 0.085 af Embedded = 0.155 af x 40.0% Voids
#2A	0.50'	0.085 af	**ADS_StormTech SC-740 +Cap** x 81 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 9 Rows of 9 Chambers
		0.148 af	Total Available Storage

Storage Group A created with Chamber Wizard

Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 3.76" for 10-yr event
Inflow = 10.20 cfs @ 12.09 hrs, Volume= 0.763 af
Outflow = 1.08 cfs @ 12.86 hrs, Volume= 0.763 af, Atten= 89%, Lag= 46.0 min
Discarded = 0.81 cfs @ 11.35 hrs, Volume= 0.677 af
Primary = 0.27 cfs @ 12.86 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.90' @ 12.86 hrs Surf.Area= 0.293 ac Storage= 0.284 af

Plug-Flow detention time= 94.5 min calculated for 0.762 af (100% of inflow)
Center-of-Mass det. time= 94.4 min (888.9 - 794.5)

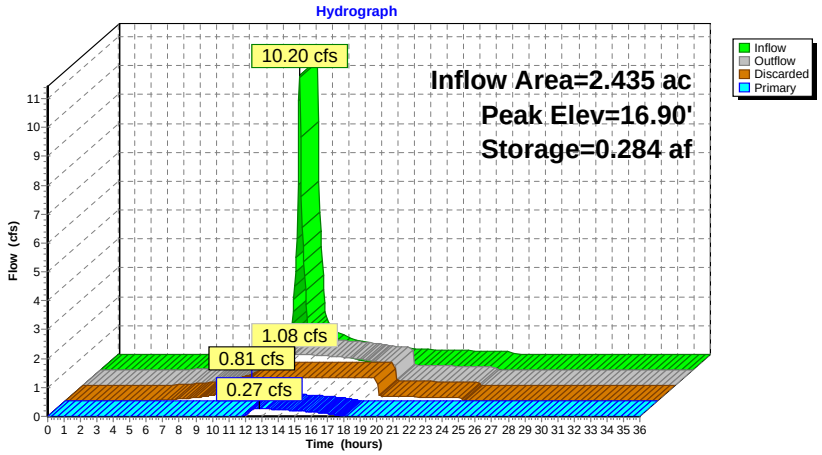
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 11.35 hrs HW=15.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=0.27 cfs @ 12.86 hrs HW=16.90' (Free Discharge)
└**1=Culvert** (Passes 0.27 cfs of 9.00 cfs potential flow)
  └**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.44 fps)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 2.50" for 10-yr event
Inflow = 13.90 cfs @ 12.09 hrs, Volume= 1.261 af
Outflow = 3.70 cfs @ 12.51 hrs, Volume= 1.261 af, Atten= 73%, Lag= 24.9 min
Discarded = 0.67 cfs @ 10.60 hrs, Volume= 1.018 af
Primary = 3.02 cfs @ 12.51 hrs, Volume= 0.243 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.07' @ 12.51 hrs Surf.Area= 0.243 ac Storage= 0.433 af

Plug-Flow detention time= 205.6 min calculated for 1.259 af (100% of inflow)
Center-of-Mass det. time= 205.3 min (1,008.2 - 802.9)

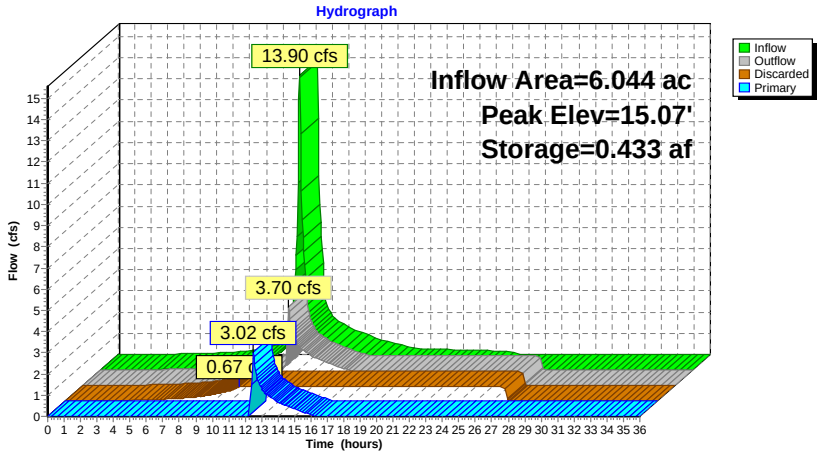
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 10.60 hrs HW=12.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=3.00 cfs @ 12.51 hrs HW=15.07' (Free Discharge)
└**3=Culvert** (Passes 3.00 cfs of 14.30 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.00 cfs @ 1.88 fps)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 3.87" for 10-yr event
Inflow = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af
Outflow = 0.46 cfs @ 12.50 hrs, Volume= 0.144 af, Atten= 78%, Lag= 24.6 min
Primary = 0.46 cfs @ 12.50 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.87' @ 12.50 hrs Surf.Area= 0.074 ac Storage= 0.070 af

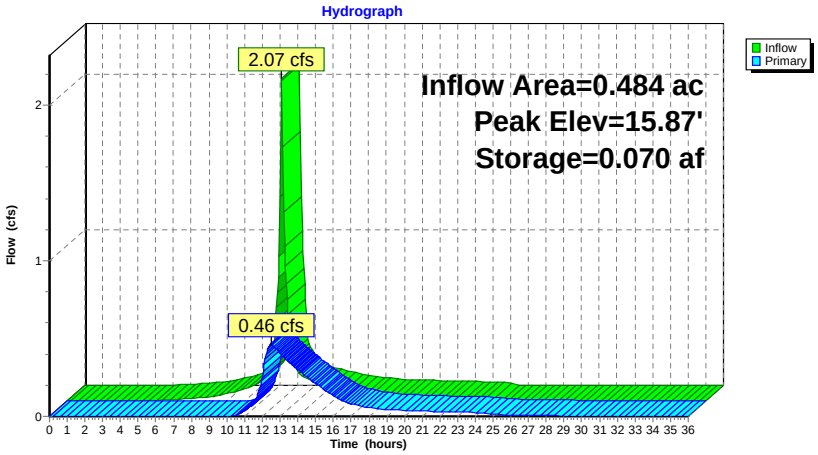
Plug-Flow detention time= 153.8 min calculated for 0.144 af (92% of inflow)
Center-of-Mass det. time= 115.1 min (905.9 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.46 cfs @ 12.50 hrs HW=15.87' (Free Discharge)
└─**1=Culvert** (Passes 0.46 cfs of 6.59 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.46 cfs @ 5.28 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B3: SW Detention



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.514 ac 62.17% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=89 Runoff=17.91 cfs 1.382 af

Subcatchment PR: Hotel Roof Runoff Area=0.611 ac 100.00% Impervious Runoff Depth=7.67"
Tc=6.0 min CN=98 Runoff=4.63 cfs 0.391 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=90 Runoff=3.48 cfs 0.271 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=89 Runoff=17.34 cfs 1.339 af

Reach TP: Proposed Flow From Site Inflow=43.53 cfs 1.220 af
Outflow=43.53 cfs 1.220 af

Pond 1P: (new Pond) Peak Elev=0.00' Storage=0.000 af

Pond B1: West Detention Peak Elev=18.40' Storage=0.322 af Inflow=17.34 cfs 1.339 af
Discarded=0.81 cfs 0.901 af Primary=14.03 cfs 0.422 af Outflow=14.84 cfs 1.323 af

Pond B2: North Detention Peak Elev=38.39' Storage=0.464 af Inflow=34.43 cfs 2.454 af
Discarded=0.67 cfs 1.216 af Primary=43.53 cfs 1.220 af Outflow=44.20 cfs 2.436 af

Pond B3: SW Detention Peak Elev=16.28' Storage=0.079 af Inflow=3.48 cfs 0.271 af
Outflow=2.96 cfs 0.259 af

Total Runoff Area = 6.044 ac Runoff Volume = 3.383 af Average Runoff Depth = 6.72"
33.17% Pervious = 2.005 ac 66.83% Impervious = 4.039 ac

Summary for Subcatchment PE: East

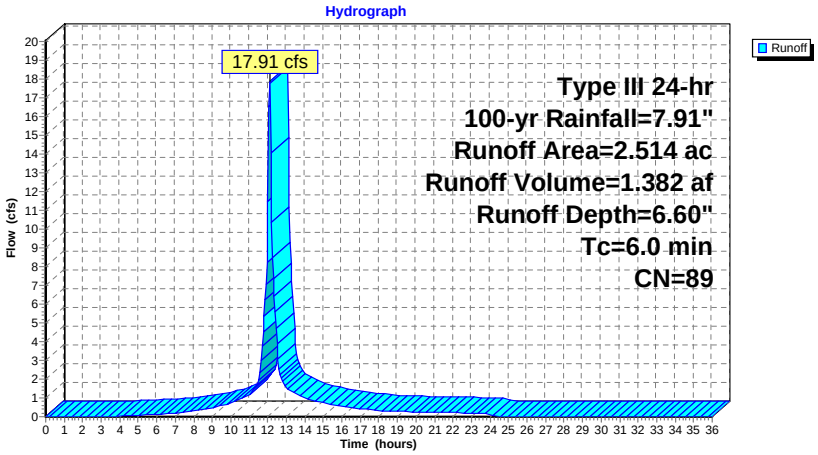
Runoff = 17.91 cfs @ 12.09 hrs, Volume= 1.382 af, Depth= 6.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
1.563	98	Paved parking, HSG C
0.951	74	>75% Grass cover, Good, HSG C
2.514	89	Weighted Average
0.951		37.83% Pervious Area
1.563		62.17% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

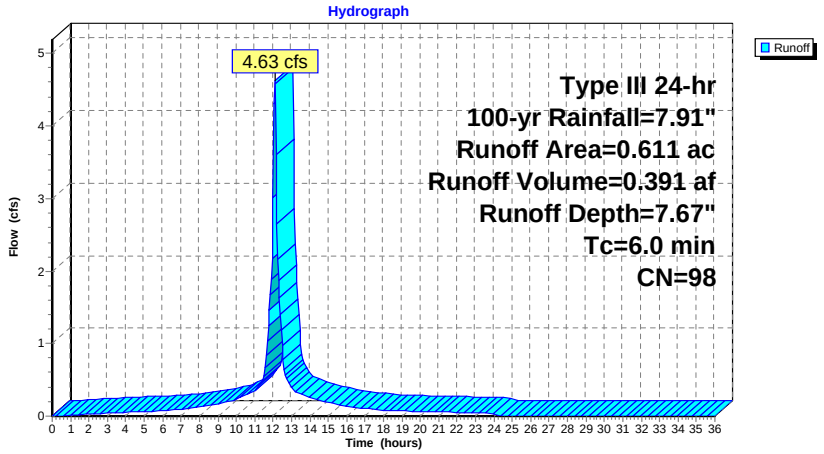
Runoff = 4.63 cfs @ 12.09 hrs, Volume= 0.391 af, Depth= 7.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
0.611	98	Roofs, HSG C
0.611		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

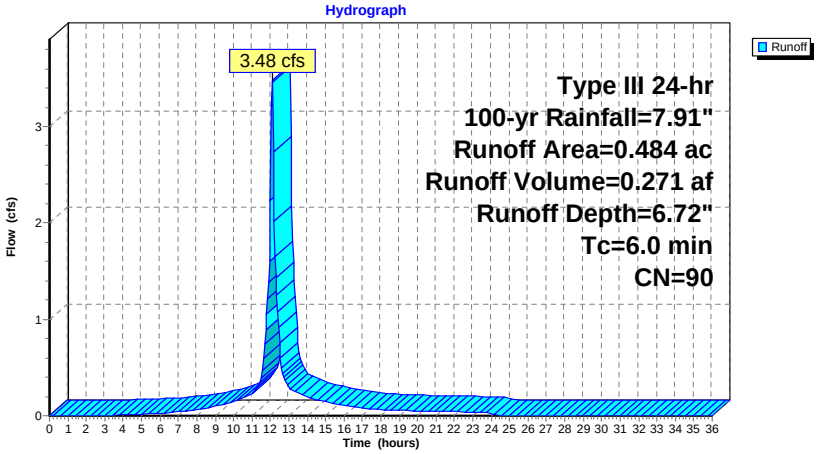
Runoff = 3.48 cfs @ 12.09 hrs, Volume= 0.271 af, Depth= 6.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

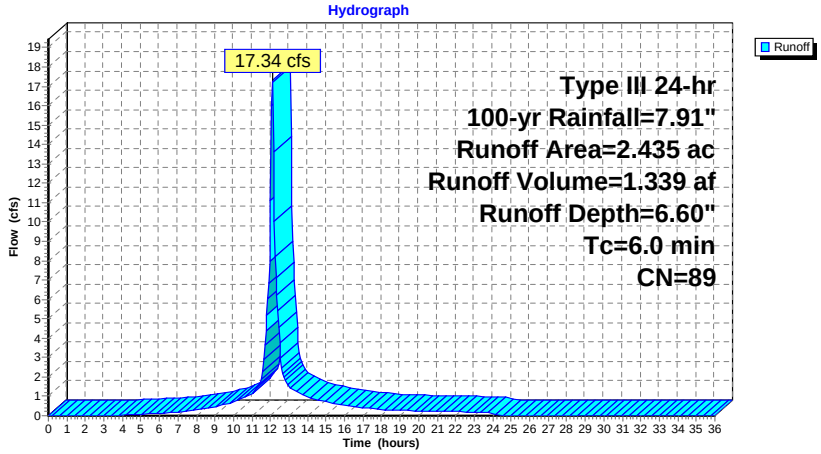
Runoff = 17.34 cfs @ 12.09 hrs, Volume= 1.339 af, Depth= 6.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

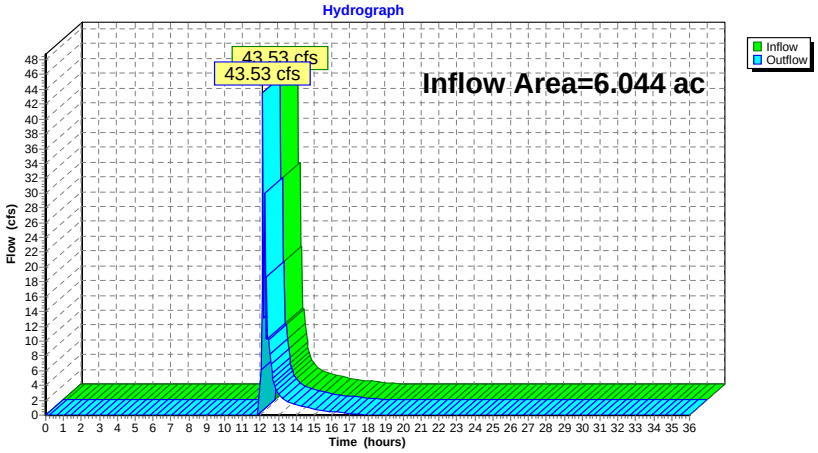


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 2.42" for 100-yr event
Inflow = 43.53 cfs @ 12.15 hrs, Volume= 1.220 af
Outflow = 43.53 cfs @ 12.15 hrs, Volume= 1.220 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond 1P: (new Pond)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.062 af	**44.25'W x 67.70'L x 3.50'H Field A** 0.241 af Overall - 0.085 af Embedded = 0.155 af x 40.0% Voids
#2A	0.50'	0.085 af	**ADS_StormTech SC-740 +Cap** x 81 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 9 Rows of 9 Chambers
		0.148 af	Total Available Storage

Storage Group A created with Chamber Wizard

Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 6.60" for 100-yr event
Inflow = 17.34 cfs @ 12.09 hrs, Volume= 1.339 af
Outflow = 14.84 cfs @ 12.16 hrs, Volume= 1.323 af, Atten= 14%, Lag= 4.3 min
Discarded = 0.81 cfs @ 10.35 hrs, Volume= 0.901 af
Primary = 14.03 cfs @ 12.16 hrs, Volume= 0.422 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 18.40' @ 12.16 hrs Surf.Area= 0.293 ac Storage= 0.322 af

Plug-Flow detention time= 89.7 min calculated for 1.321 af (99% of inflow)
Center-of-Mass det. time= 82.1 min (861.5 - 779.4)

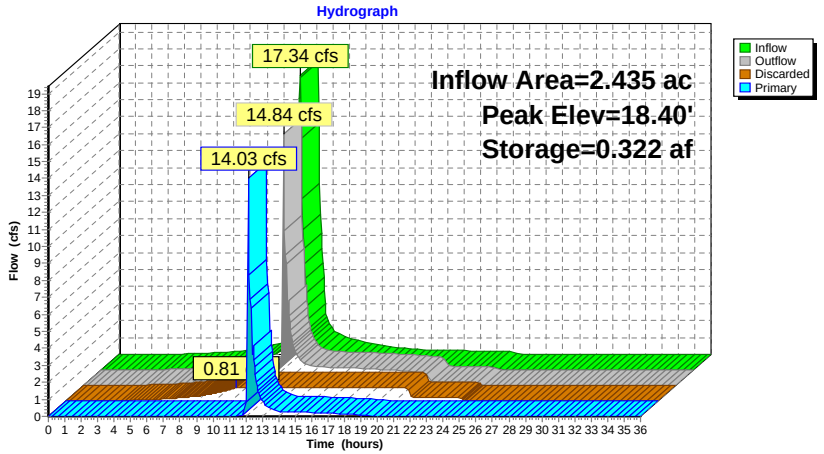
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 10.35 hrs HW=15.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=13.38 cfs @ 12.16 hrs HW=18.25' (Free Discharge)
└**1=Culvert** (Inlet Controls 13.38 cfs @ 7.57 fps)
  └**2=Sharp-Crested Rectangular Weir** (Passes < 21.73 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 0.38 cfs potential flow)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.83% Impervious, Inflow Depth = 4.87" for 100-yr event
Inflow = 34.43 cfs @ 12.15 hrs, Volume= 2.454 af
Outflow = 44.20 cfs @ 12.15 hrs, Volume= 2.436 af, Atten= 0%, Lag= 0.2 min
Discarded = 0.67 cfs @ 9.20 hrs, Volume= 1.216 af
Primary = 43.53 cfs @ 12.15 hrs, Volume= 1.220 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 38.39' @ 12.15 hrs Surf.Area= 0.243 ac Storage= 0.464 af

Plug-Flow detention time= 140.6 min calculated for 2.436 af (99% of inflow)
Center-of-Mass det. time= 135.3 min (920.0 - 784.7)

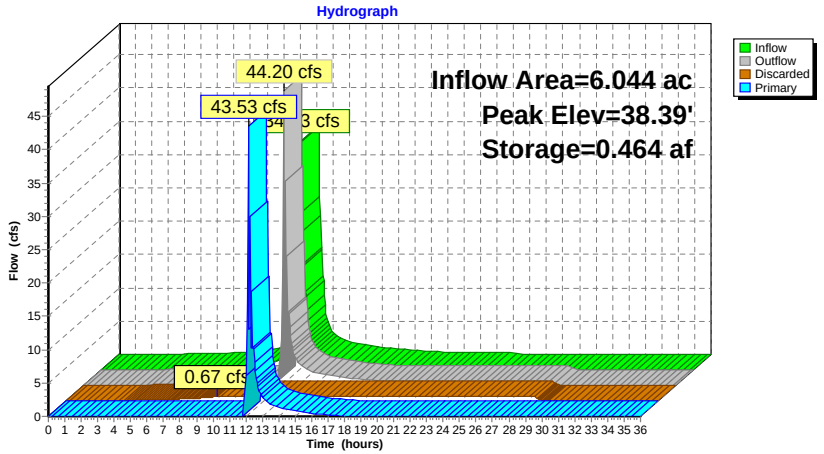
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 9.20 hrs HW=12.14' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=42.94 cfs @ 12.15 hrs HW=37.72' (Free Discharge)
└**3=Culvert** (Inlet Controls 42.94 cfs @ 24.30 fps)
└**2=Sharp-Crested Rectangular Weir** (Passes 42.94 cfs of 1,690.64 cfs potential flow)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 6.72" for 100-yr event
Inflow = 3.48 cfs @ 12.09 hrs, Volume= 0.271 af
Outflow = 2.96 cfs @ 12.14 hrs, Volume= 0.259 af, Atten= 15%, Lag= 3.2 min
Primary = 2.96 cfs @ 12.14 hrs, Volume= 0.259 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.28' @ 12.14 hrs Surf.Area= 0.074 ac Storage= 0.079 af

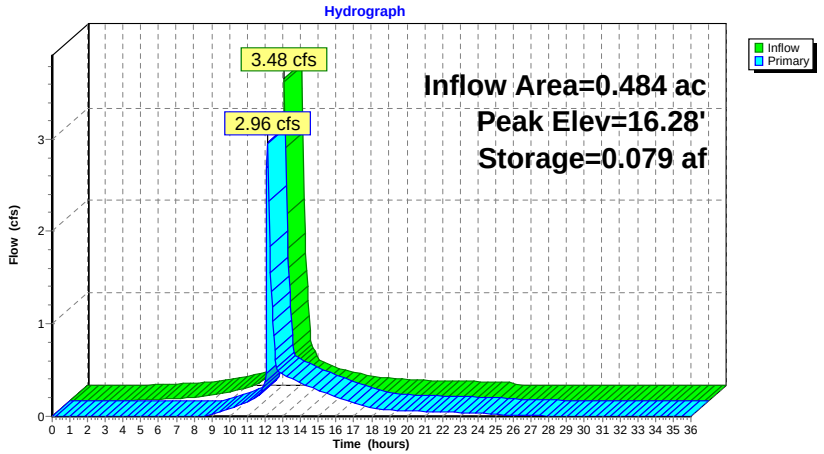
Plug-Flow detention time= 115.0 min calculated for 0.259 af (96% of inflow)
Center-of-Mass det. time= 89.9 min (866.1 - 776.2)

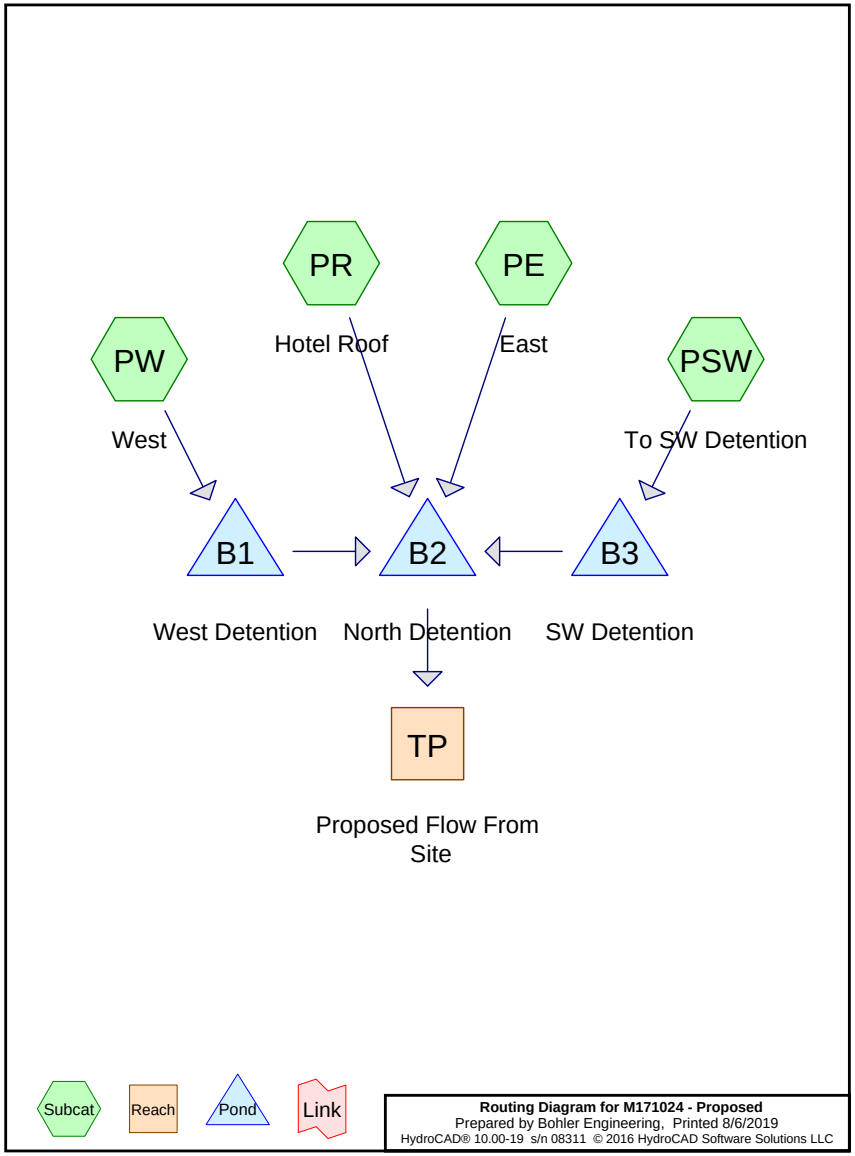
Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.89 cfs @ 12.14 hrs HW=16.28' (Free Discharge)
└**1=Culvert** (Passes 2.89 cfs of 7.40 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 6.11 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.36 cfs @ 1.72 fps)

Pond B3: SW Detention





Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.278 ac 56.76% Impervious Runoff Depth=1.95"
Tc=6.0 min CN=88 Runoff=5.09 cfs 0.371 af

Subcatchment PR: Hotel Roof Runoff Area=0.847 ac 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=2.53 cfs 0.206 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=90 Runoff=1.17 cfs 0.086 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=2.04"
Tc=6.0 min CN=89 Runoff=5.66 cfs 0.413 af

Reach TP: Proposed Flow From Site Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond B1: West Detention Peak Elev=15.87' Storage=0.125 af Inflow=5.66 cfs 0.413 af
Discarded=0.81 cfs 0.398 af Primary=0.12 cfs 0.015 af Outflow=0.93 cfs 0.413 af

Pond B2: North Detention Peak Elev=13.70' Storage=0.258 af Inflow=7.79 cfs 0.665 af
Discarded=0.67 cfs 0.665 af Primary=0.00 cfs 0.000 af Outflow=0.67 cfs 0.665 af

Pond B3: SW Detention Peak Elev=15.05' Storage=0.040 af Inflow=1.17 cfs 0.086 af
Outflow=0.26 cfs 0.074 af

Total Runoff Area = 6.044 ac Runoff Volume = 1.075 af Average Runoff Depth = 2.13"
33.74% Pervious = 2.039 ac 66.26% Impervious = 4.005 ac

Summary for Subcatchment PE: East

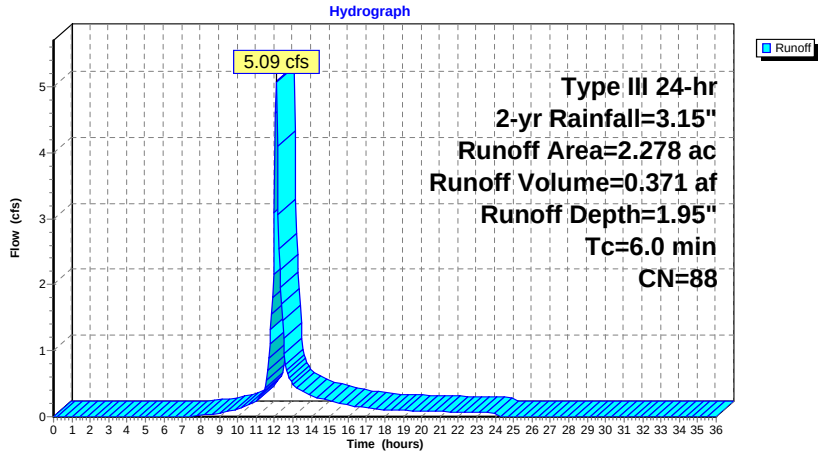
Runoff = 5.09 cfs @ 12.09 hrs, Volume= 0.371 af, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
1.293	98	Paved parking, HSG C
0.985	74	>75% Grass cover, Good, HSG C
2.278	88	Weighted Average
0.985		43.24% Pervious Area
1.293		56.76% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

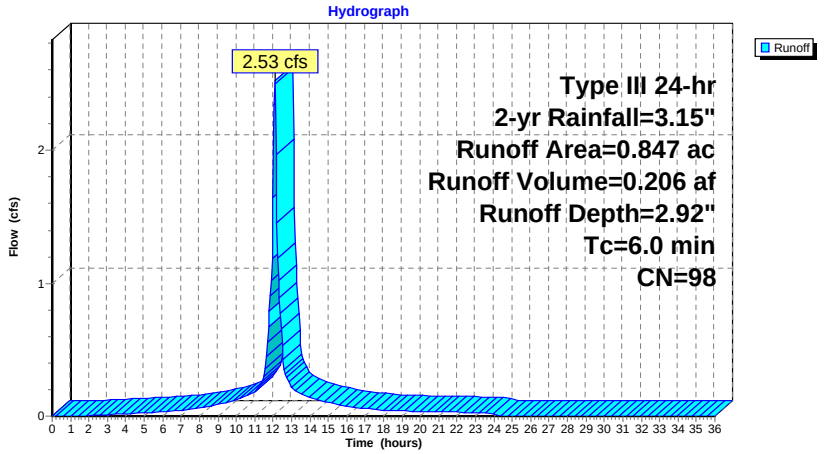
Runoff = 2.53 cfs @ 12.09 hrs, Volume= 0.206 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
0.847	98	Roofs, HSG C
0.847		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

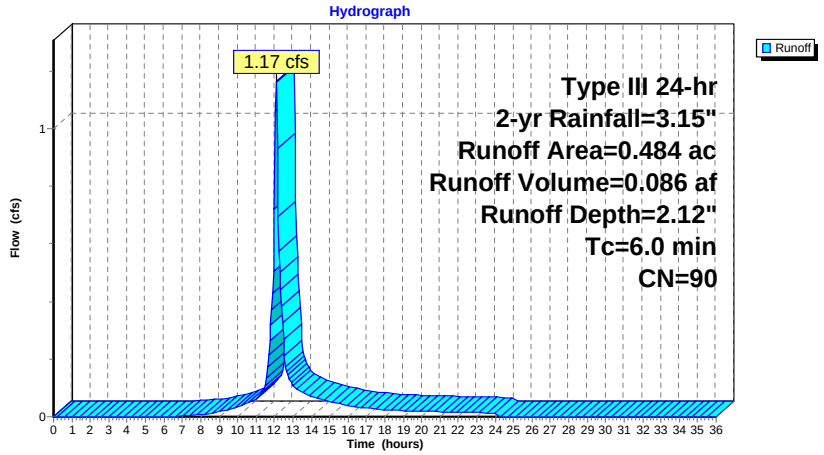
Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

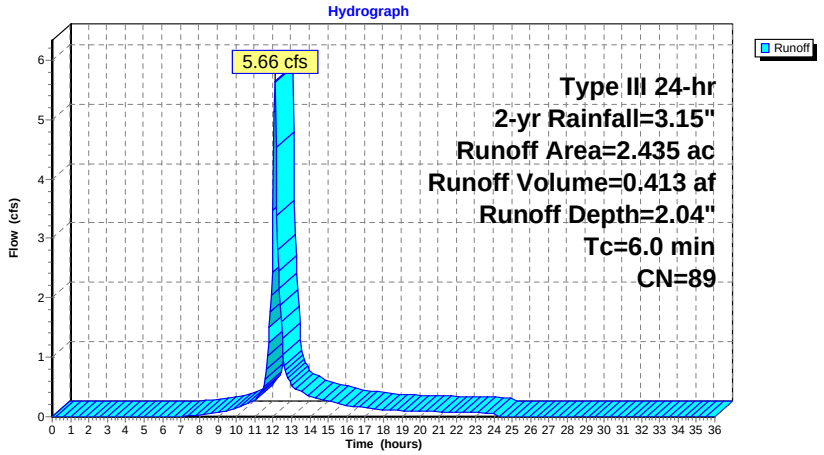
Runoff = 5.66 cfs @ 12.09 hrs, Volume= 0.413 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.15"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

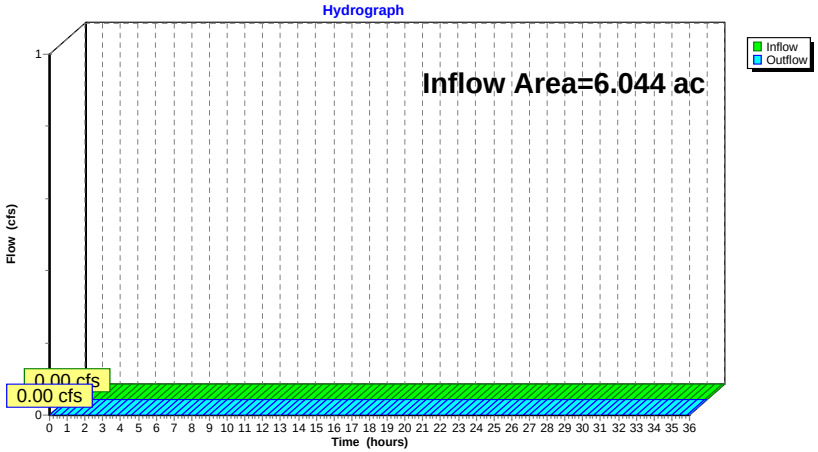


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 2.04" for 2-yr event
Inflow = 5.66 cfs @ 12.09 hrs, Volume= 0.413 af
Outflow = 0.93 cfs @ 12.58 hrs, Volume= 0.413 af, Atten= 84%, Lag= 29.5 min
Discarded = 0.81 cfs @ 11.70 hrs, Volume= 0.398 af
Primary = 0.12 cfs @ 12.58 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.87' @ 12.58 hrs Surf.Area= 0.293 ac Storage= 0.125 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 41.2 min (852.9 - 811.7)

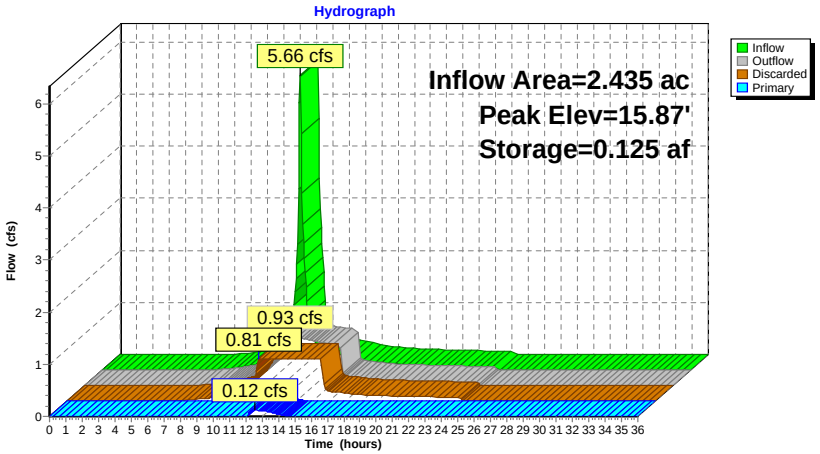
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 11.70 hrs HW=15.03' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=0.12 cfs @ 12.58 hrs HW=15.87' (Free Discharge)
└**1=Culvert** (Passes 0.12 cfs of 3.19 cfs potential flow)
  └**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.39 fps)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 1.32" for 2-yr event
Inflow = 7.79 cfs @ 12.09 hrs, Volume= 0.665 af
Outflow = 0.67 cfs @ 11.50 hrs, Volume= 0.665 af, Atten= 91%, Lag= 0.0 min
Discarded = 0.67 cfs @ 11.50 hrs, Volume= 0.665 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 13.70' @ 13.94 hrs Surf.Area= 0.243 ac Storage= 0.258 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 142.2 min (952.1 - 809.9)

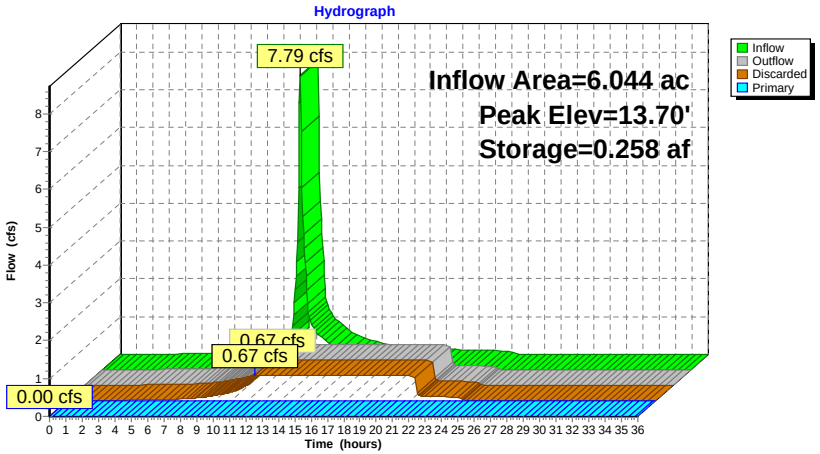
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 11.50 hrs HW=12.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.00' (Free Discharge)
└**3=Culvert** (Passes 0.00 cfs of 1.13 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 2.12" for 2-yr event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.086 af
Outflow = 0.26 cfs @ 12.51 hrs, Volume= 0.074 af, Atten= 78%, Lag= 25.0 min
Primary = 0.26 cfs @ 12.51 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.05' @ 12.51 hrs Surf.Area= 0.074 ac Storage= 0.040 af

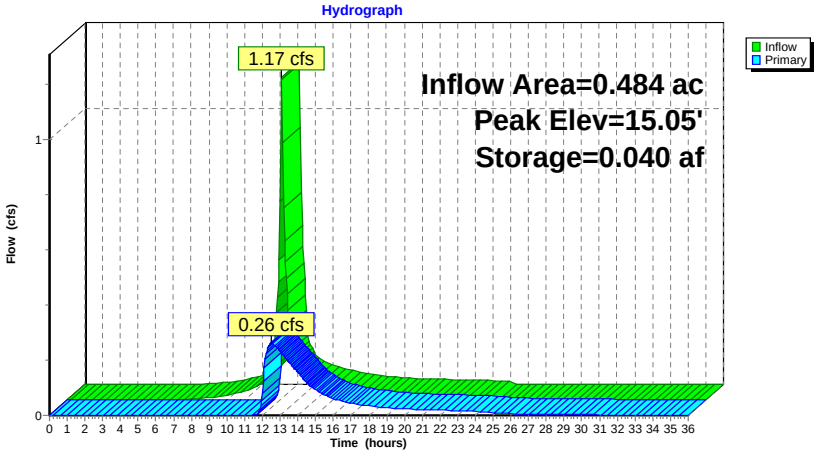
Plug-Flow detention time= 187.0 min calculated for 0.074 af (86% of inflow)
Center-of-Mass det. time= 127.2 min (934.7 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.26 cfs @ 12.51 hrs HW=15.05' (Free Discharge)
└─**1=Culvert** (Passes 0.26 cfs of 3.84 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 2.98 fps)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B3: SW Detention



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.278 ac 56.76% Impervious Runoff Depth=3.66"
Tc=6.0 min CN=88 Runoff=9.34 cfs 0.695 af

Subcatchment PR: Hotel Roof Runoff Area=0.847 ac 100.00% Impervious Runoff Depth=4.75"
Tc=6.0 min CN=98 Runoff=4.04 cfs 0.335 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=3.87"
Tc=6.0 min CN=90 Runoff=2.07 cfs 0.156 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=3.76"
Tc=6.0 min CN=89 Runoff=10.20 cfs 0.763 af

Reach TP: Proposed Flow From Site Inflow=2.94 cfs 0.240 af
Outflow=2.94 cfs 0.240 af

Pond B1: West Detention Peak Elev=16.90' Storage=0.284 af Inflow=10.20 cfs 0.763 af
Discarded=0.81 cfs 0.677 af Primary=0.27 cfs 0.087 af Outflow=1.08 cfs 0.763 af

Pond B2: North Detention Peak Elev=15.07' Storage=0.432 af Inflow=13.83 cfs 1.261 af
Discarded=0.67 cfs 1.021 af Primary=2.94 cfs 0.240 af Outflow=3.62 cfs 1.261 af

Pond B3: SW Detention Peak Elev=15.87' Storage=0.070 af Inflow=2.07 cfs 0.156 af
Outflow=0.46 cfs 0.144 af

Total Runoff Area = 6.044 ac Runoff Volume = 1.950 af Average Runoff Depth = 3.87"
33.74% Pervious = 2.039 ac 66.26% Impervious = 4.005 ac

Summary for Subcatchment PE: East

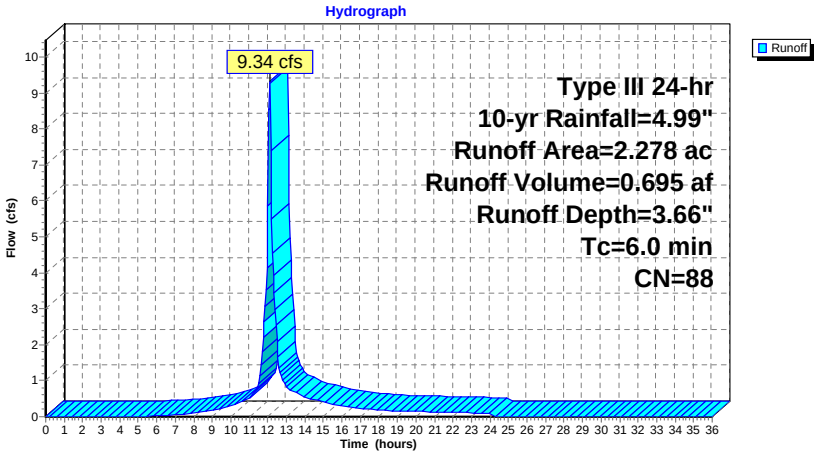
Runoff = 9.34 cfs @ 12.09 hrs, Volume= 0.695 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
1.293	98	Paved parking, HSG C
0.985	74	>75% Grass cover, Good, HSG C
2.278	88	Weighted Average
0.985		43.24% Pervious Area
1.293		56.76% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

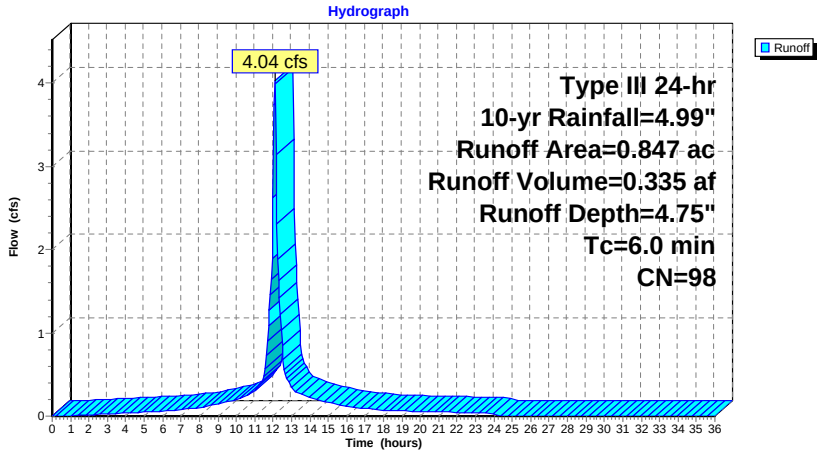
Runoff = 4.04 cfs @ 12.09 hrs, Volume= 0.335 af, Depth= 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
0.847	98	Roofs, HSG C
0.847		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

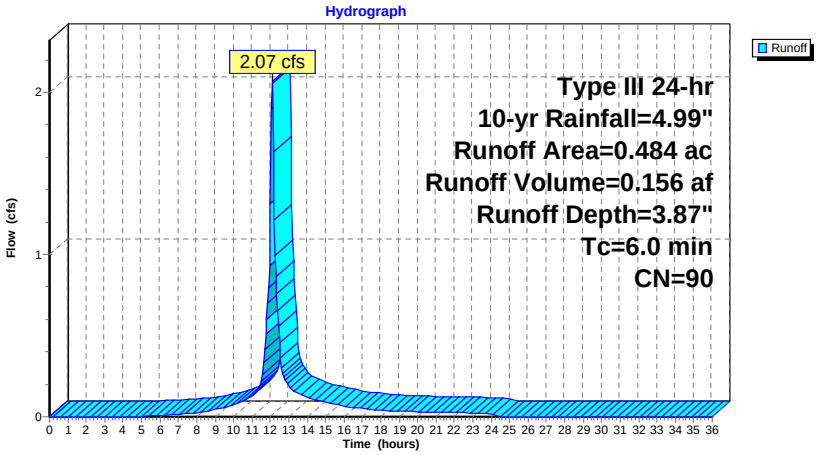
Runoff = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

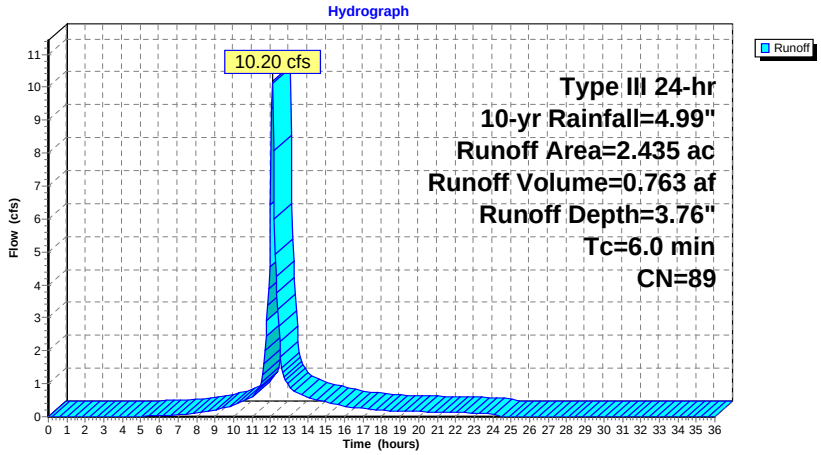
Runoff = 10.20 cfs @ 12.09 hrs, Volume= 0.763 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.99"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

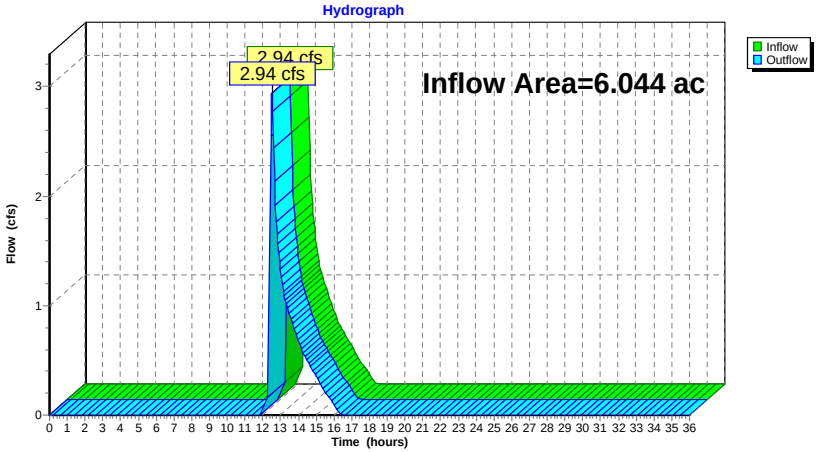


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 0.48" for 10-yr event
Inflow = 2.94 cfs @ 12.51 hrs, Volume= 0.240 af
Outflow = 2.94 cfs @ 12.51 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 3.76" for 10-yr event
Inflow = 10.20 cfs @ 12.09 hrs, Volume= 0.763 af
Outflow = 1.08 cfs @ 12.86 hrs, Volume= 0.763 af, Atten= 89%, Lag= 46.0 min
Discarded = 0.81 cfs @ 11.35 hrs, Volume= 0.677 af
Primary = 0.27 cfs @ 12.86 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.90' @ 12.86 hrs Surf.Area= 0.293 ac Storage= 0.284 af

Plug-Flow detention time= 94.5 min calculated for 0.762 af (100% of inflow)
Center-of-Mass det. time= 94.4 min (888.9 - 794.5)

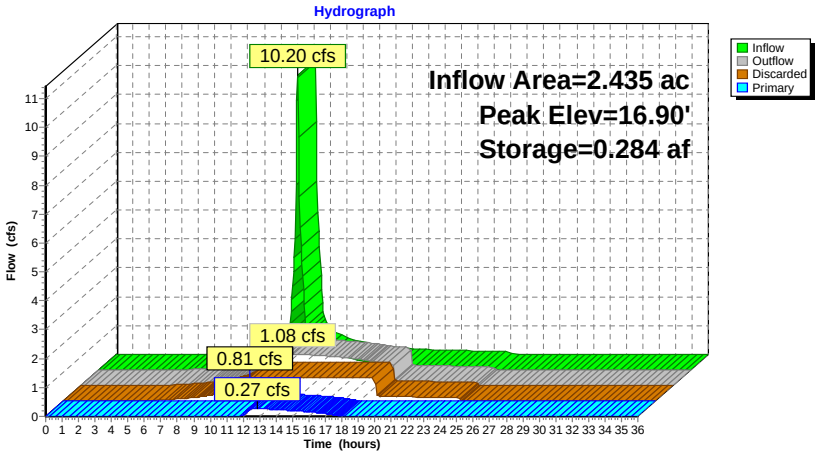
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 11.35 hrs HW=15.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=0.27 cfs @ 12.86 hrs HW=16.90' (Free Discharge)
└**1=Culvert** (Passes 0.27 cfs of 9.00 cfs potential flow)
  └**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.44 fps)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 2.50" for 10-yr event
Inflow = 13.83 cfs @ 12.09 hrs, Volume= 1.261 af
Outflow = 3.62 cfs @ 12.51 hrs, Volume= 1.261 af, Atten= 74%, Lag= 25.3 min
Discarded = 0.67 cfs @ 10.65 hrs, Volume= 1.021 af
Primary = 2.94 cfs @ 12.51 hrs, Volume= 0.240 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.07' @ 12.51 hrs Surf.Area= 0.243 ac Storage= 0.432 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 205.0 min (1,006.5 - 801.4)

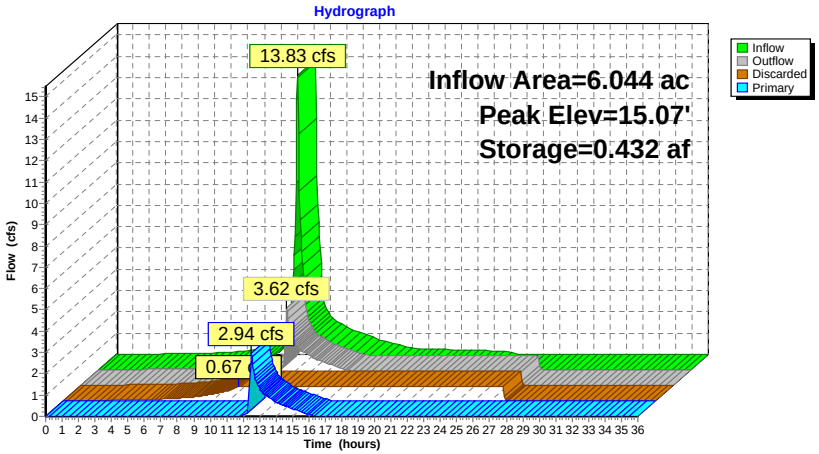
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 10.65 hrs HW=12.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=2.90 cfs @ 12.51 hrs HW=15.07' (Free Discharge)
└**3=Culvert** (Passes 2.90 cfs of 14.28 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 1.86 fps)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 3.87" for 10-yr event
Inflow = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af
Outflow = 0.46 cfs @ 12.50 hrs, Volume= 0.144 af, Atten= 78%, Lag= 24.6 min
Primary = 0.46 cfs @ 12.50 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.87' @ 12.50 hrs Surf.Area= 0.074 ac Storage= 0.070 af

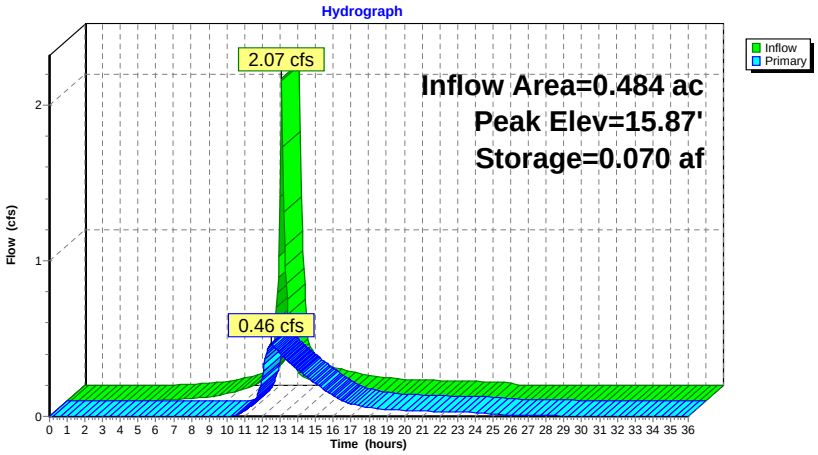
Plug-Flow detention time= 153.8 min calculated for 0.144 af (92% of inflow)
Center-of-Mass det. time= 115.1 min (905.9 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.46 cfs @ 12.50 hrs HW=15.87' (Free Discharge)
└─**1=Culvert** (Passes 0.46 cfs of 6.59 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.46 cfs @ 5.28 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B3: SW Detention



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.278 ac 56.76% Impervious Runoff Depth=4.76"
Tc=6.0 min CN=88 Runoff=11.99 cfs 0.904 af

Subcatchment PR: Hotel Roof Runoff Area=0.847 ac 100.00% Impervious Runoff Depth=5.90"
Tc=6.0 min CN=98 Runoff=4.98 cfs 0.417 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=4.98"
Tc=6.0 min CN=90 Runoff=2.63 cfs 0.201 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=4.87"
Tc=6.0 min CN=89 Runoff=13.03 cfs 0.988 af

Reach TP: Proposed Flow From Site Inflow=10.49 cfs 0.610 af
Outflow=10.49 cfs 0.610 af

Pond B1: West Detention Peak Elev=17.41' Storage=0.322 af Inflow=13.03 cfs 0.988 af
Discarded=0.81 cfs 0.777 af Primary=4.60 cfs 0.215 af Outflow=5.41 cfs 0.992 af

Pond B2: North Detention Peak Elev=15.49' Storage=0.463 af Inflow=17.55 cfs 1.724 af
Discarded=0.67 cfs 1.113 af Primary=10.49 cfs 0.610 af Outflow=11.16 cfs 1.723 af

Pond B3: SW Detention Peak Elev=16.14' Storage=0.076 af Inflow=2.63 cfs 0.201 af
Outflow=1.33 cfs 0.189 af

Total Runoff Area = 6.044 ac Runoff Volume = 2.510 af Average Runoff Depth = 4.98"
33.74% Pervious = 2.039 ac 66.26% Impervious = 4.005 ac

Summary for Subcatchment PE: East

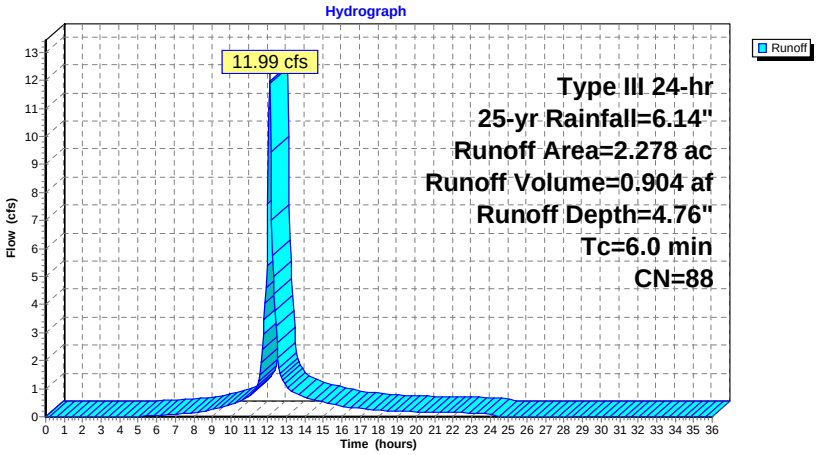
Runoff = 11.99 cfs @ 12.09 hrs, Volume= 0.904 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
1.293	98	Paved parking, HSG C
0.985	74	>75% Grass cover, Good, HSG C
2.278	88	Weighted Average
0.985		43.24% Pervious Area
1.293		56.76% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

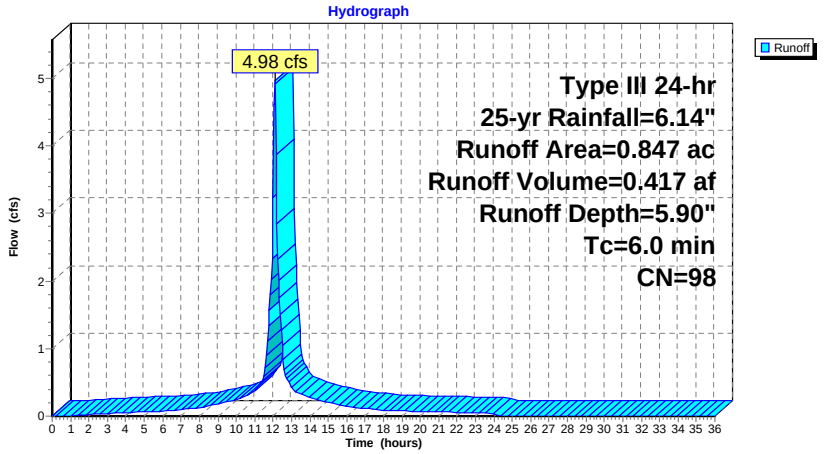
Runoff = 4.98 cfs @ 12.09 hrs, Volume= 0.417 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
0.847	98	Roofs, HSG C
0.847		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

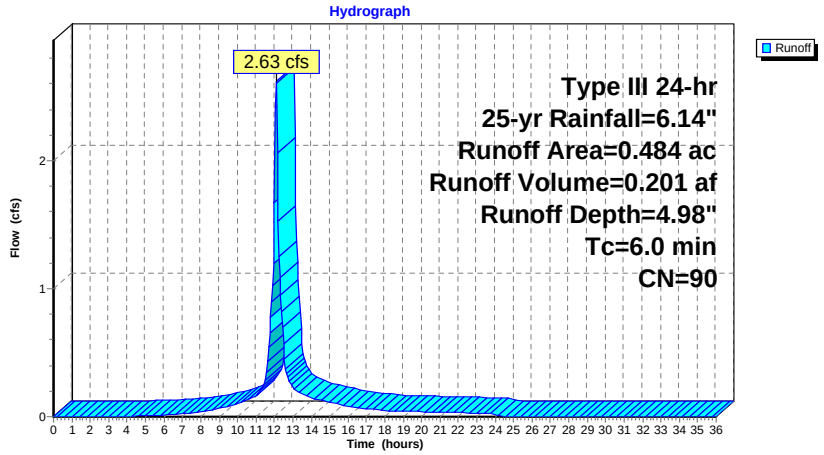
Runoff = 2.63 cfs @ 12.09 hrs, Volume= 0.201 af, Depth= 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

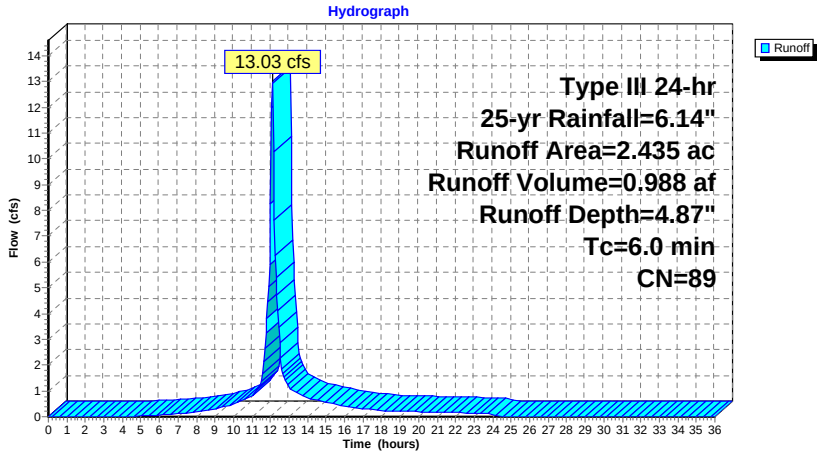
Runoff = 13.03 cfs @ 12.09 hrs, Volume= 0.988 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

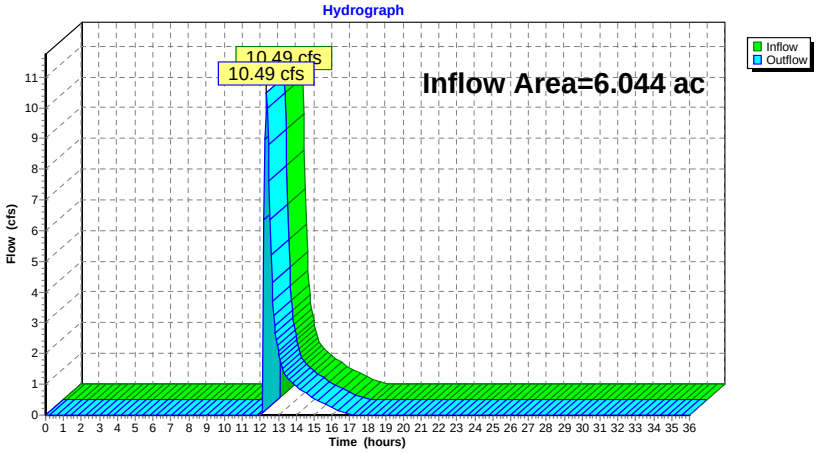


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 1.21" for 25-yr event
Inflow = 10.49 cfs @ 12.35 hrs, Volume= 0.610 af
Outflow = 10.49 cfs @ 12.35 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 4.87" for 25-yr event
Inflow = 13.03 cfs @ 12.09 hrs, Volume= 0.988 af
Outflow = 5.41 cfs @ 12.35 hrs, Volume= 0.992 af, Atten= 58%, Lag= 16.0 min
Discarded = 0.81 cfs @ 11.10 hrs, Volume= 0.777 af
Primary = 4.60 cfs @ 12.35 hrs, Volume= 0.215 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 17.41' @ 12.35 hrs Surf.Area= 0.293 ac Storage= 0.322 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 90.0 min (877.4 - 787.4)

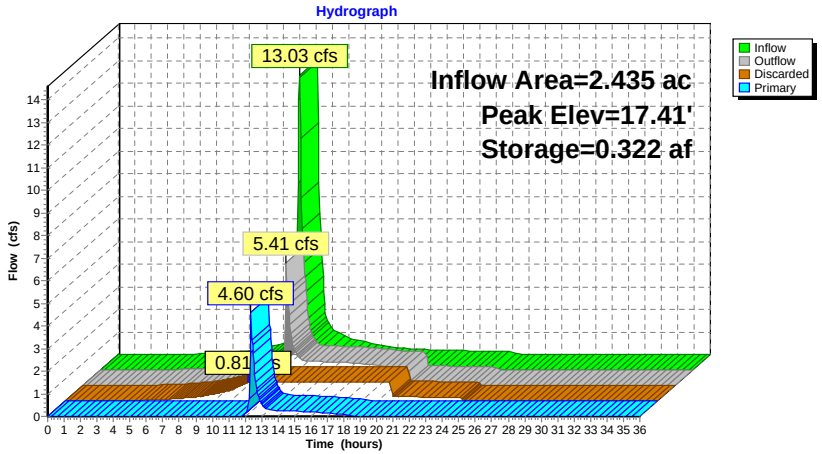
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 11.10 hrs HW=15.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=4.48 cfs @ 12.35 hrs HW=17.41' (Free Discharge)
└**1=Culvert** (Passes 4.48 cfs of 10.85 cfs potential flow)
  └**2=Sharp-Crested Rectangular Weir** (Weir Controls 4.16 cfs @ 2.08 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.32 cfs @ 6.43 fps)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 3.42" for 25-yr event
Inflow = 17.55 cfs @ 12.09 hrs, Volume= 1.724 af
Outflow = 11.16 cfs @ 12.35 hrs, Volume= 1.723 af, Atten= 36%, Lag= 15.9 min
Discarded = 0.67 cfs @ 10.05 hrs, Volume= 1.113 af
Primary = 10.49 cfs @ 12.35 hrs, Volume= 0.610 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.49' @ 12.35 hrs Surf.Area= 0.243 ac Storage= 0.463 af

Plug-Flow detention time= 167.7 min calculated for 1.721 af (100% of inflow)
Center-of-Mass det. time= 167.0 min (960.2 - 793.2)

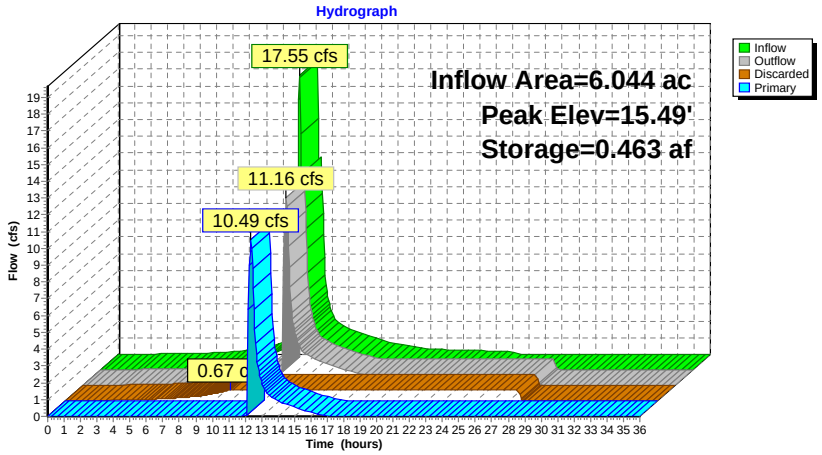
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 10.05 hrs HW=12.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=10.44 cfs @ 12.35 hrs HW=15.49' (Free Discharge)
└**3=Culvert** (Passes 10.44 cfs of 15.32 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 10.44 cfs @ 2.90 fps)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 4.98" for 25-yr event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 0.201 af
Outflow = 1.33 cfs @ 12.25 hrs, Volume= 0.189 af, Atten= 49%, Lag= 9.5 min
Primary = 1.33 cfs @ 12.25 hrs, Volume= 0.189 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.14' @ 12.25 hrs Surf.Area= 0.074 ac Storage= 0.076 af

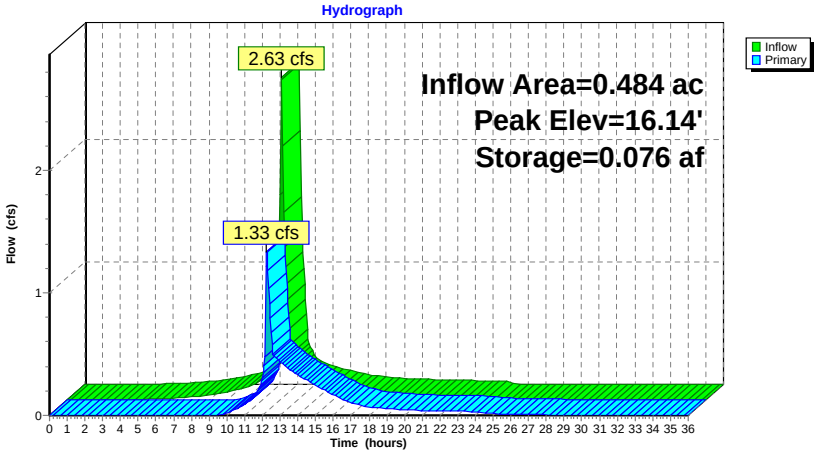
Plug-Flow detention time= 134.9 min calculated for 0.189 af (94% of inflow)
Center-of-Mass det. time= 103.5 min (887.5 - 784.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.32 cfs @ 12.25 hrs HW=16.14' (Free Discharge)
└**1=Culvert** (Passes 1.32 cfs of 7.19 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.51 cfs @ 5.84 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.81 cfs @ 1.20 fps)

Pond B3: SW Detention



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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 PE: East Runoff Area=2.278 ac 56.76% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=88 Runoff=16.04 cfs 1.230 af

Subcatchment PR: Hotel Roof Runoff Area=0.847 ac 100.00% Impervious Runoff Depth=7.67"
Tc=6.0 min CN=98 Runoff=6.42 cfs 0.541 af

Subcatchment PSW: To SW Detention Runoff Area=0.484 ac 67.15% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=90 Runoff=3.48 cfs 0.271 af

Subcatchment PW: West Runoff Area=2.435 ac 63.24% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=89 Runoff=17.34 cfs 1.339 af

Reach TP: Proposed Flow From Site Inflow=38.69 cfs 1.229 af
Outflow=38.69 cfs 1.229 af

Pond B1: West Detention Peak Elev=18.40' Storage=0.322 af Inflow=17.34 cfs 1.339 af
Discarded=0.81 cfs 0.901 af Primary=14.03 cfs 0.422 af Outflow=14.84 cfs 1.323 af

Pond B2: North Detention Peak Elev=32.90' Storage=0.464 af Inflow=34.38 cfs 2.452 af
Discarded=0.67 cfs 1.210 af Primary=38.69 cfs 1.229 af Outflow=39.36 cfs 2.439 af

Pond B3: SW Detention Peak Elev=16.28' Storage=0.079 af Inflow=3.48 cfs 0.271 af
Outflow=2.96 cfs 0.259 af

Total Runoff Area = 6.044 ac Runoff Volume = 3.381 af Average Runoff Depth = 6.71"
33.74% Pervious = 2.039 ac 66.26% Impervious = 4.005 ac

Summary for Subcatchment PE: East

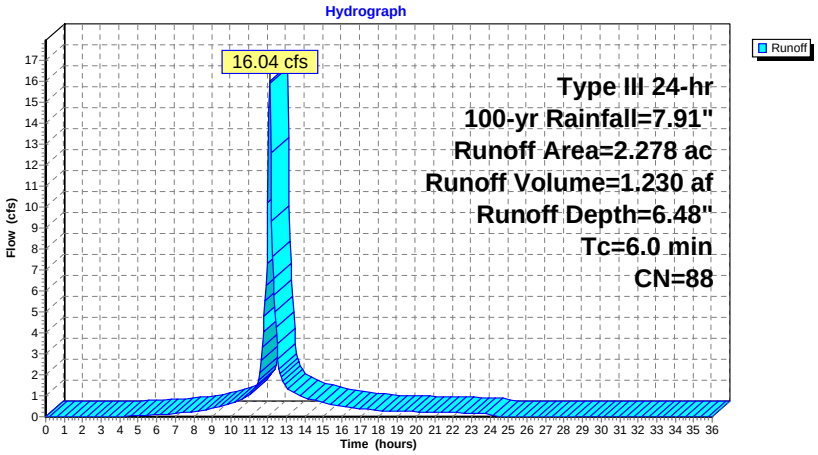
Runoff = 16.04 cfs @ 12.09 hrs, Volume= 1.230 af, Depth= 6.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
1.293	98	Paved parking, HSG C
0.985	74	>75% Grass cover, Good, HSG C
2.278	88	Weighted Average
0.985		43.24% Pervious Area
1.293		56.76% Impervious Area

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

Subcatchment PE: East



Summary for Subcatchment PR: Hotel Roof

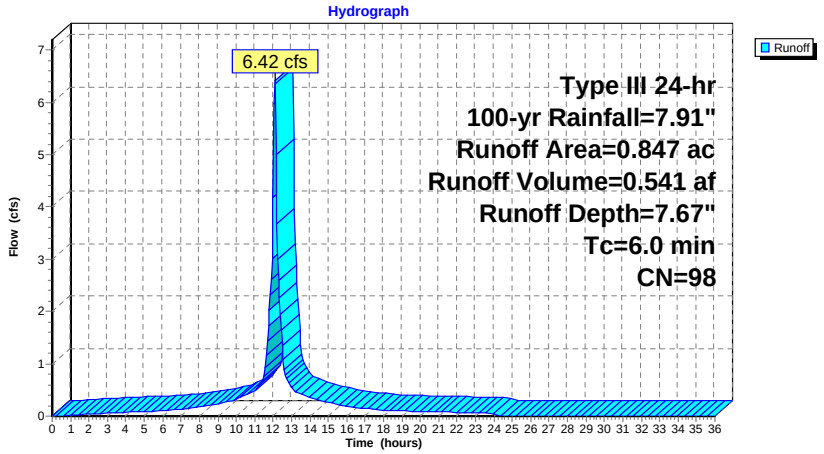
Runoff = 6.42 cfs @ 12.09 hrs, Volume= 0.541 af, Depth= 7.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
0.847	98	Roofs, HSG C
0.847		100.00% Impervious Area

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

Subcatchment PR: Hotel Roof



Summary for Subcatchment PSW: To SW Detention

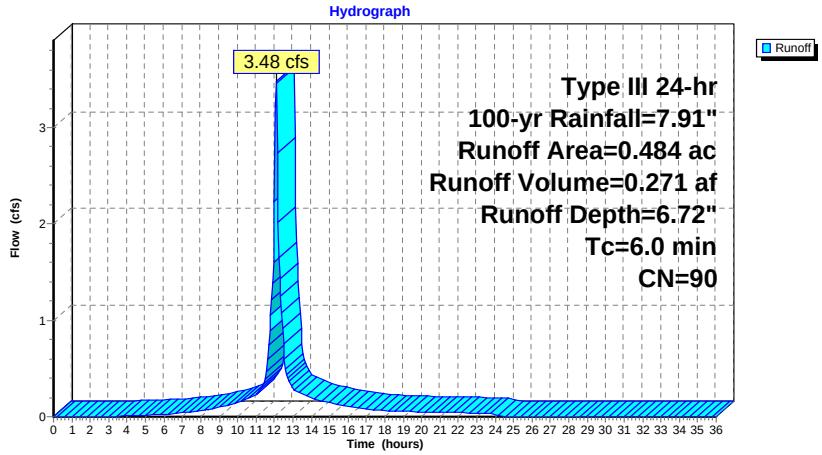
Runoff = 3.48 cfs @ 12.09 hrs, Volume= 0.271 af, Depth= 6.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
0.325	98	Paved parking, HSG C
0.159	74	>75% Grass cover, Good, HSG C
0.484	90	Weighted Average
0.159		32.85% Pervious Area
0.325		67.15% Impervious Area

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

Subcatchment PSW: To SW Detention



Summary for Subcatchment PW: West

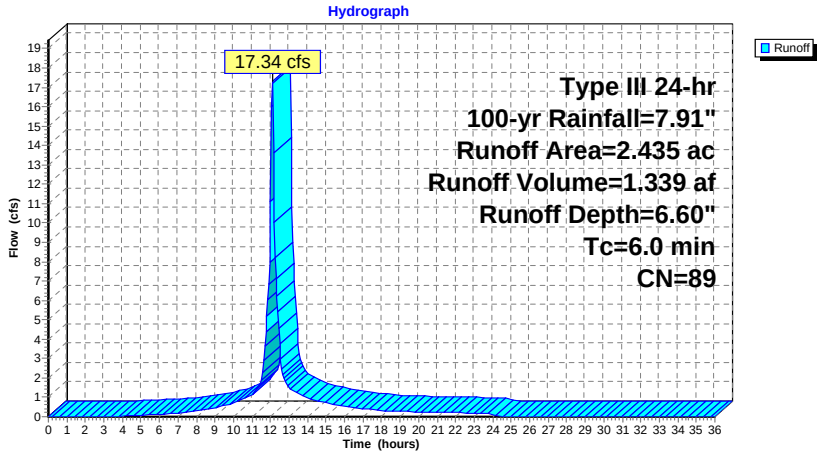
Runoff = 17.34 cfs @ 12.09 hrs, Volume= 1.339 af, Depth= 6.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.91"

Area (ac)	CN	Description
1.540	98	Paved parking, HSG C
0.895	74	>75% Grass cover, Good, HSG C
2.435	89	Weighted Average
0.895		36.76% Pervious Area
1.540		63.24% Impervious Area

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

Subcatchment PW: West

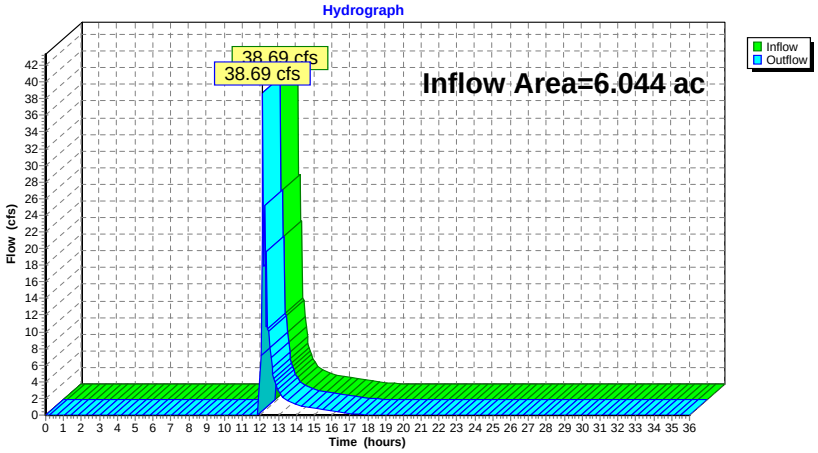


Summary for Reach TP: Proposed Flow From Site

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 2.44" for 100-yr event
Inflow = 38.69 cfs @ 12.15 hrs, Volume= 1.229 af
Outflow = 38.69 cfs @ 12.15 hrs, Volume= 1.229 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach TP: Proposed Flow From Site



Summary for Pond B1: West Detention

Inflow Area = 2.435 ac, 63.24% Impervious, Inflow Depth = 6.60" for 100-yr event
Inflow = 17.34 cfs @ 12.09 hrs, Volume= 1.339 af
Outflow = 14.84 cfs @ 12.16 hrs, Volume= 1.323 af, Atten= 14%, Lag= 4.3 min
Discarded = 0.81 cfs @ 10.35 hrs, Volume= 0.901 af
Primary = 14.03 cfs @ 12.16 hrs, Volume= 0.422 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 18.40' @ 12.16 hrs Surf.Area= 0.293 ac Storage= 0.322 af

Plug-Flow detention time= 89.7 min calculated for 1.321 af (99% of inflow)
Center-of-Mass det. time= 82.1 min (861.5 - 779.4)

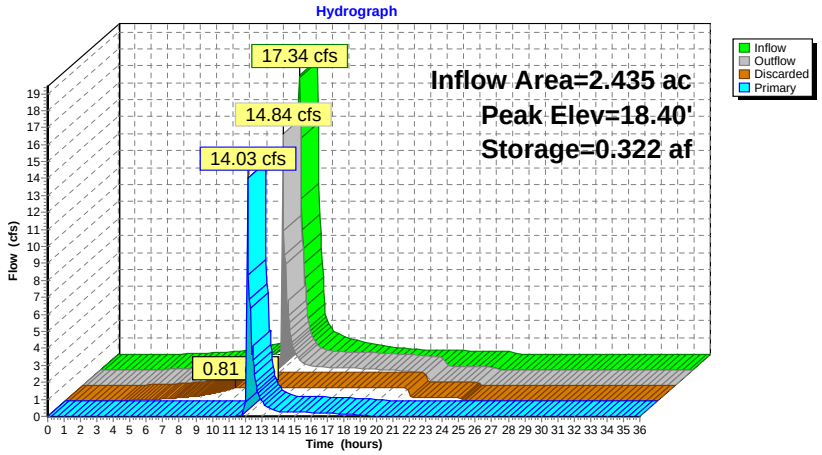
Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	0.129 af	**64.83'W x 165.00'L x 2.33'H Prismatoid** 0.572 af Overall - 0.141 af Embedded = 0.431 af x 30.0% Voids
#2	15.50'	0.141 af	**StormTech SC-310 @ 156.64' L** x 19 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 156.64'L = 324.3 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3	15.00'	0.012 af	**10.50'W x 92.00'L x 2.33'H Prismatoid** 0.052 af Overall - 0.012 af Embedded = 0.039 af x 30.0% Voids
#4	15.50'	0.012 af	**StormTech SC-310 @ 85.44' L** x 3 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 85.44'L = 176.9 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#5	15.00'	0.013 af	**14.00'W x 78.00'L x 2.33'H Prismatoid** 0.058 af Overall - 0.014 af Embedded = 0.045 af x 30.0% Voids
#6	15.50'	0.014 af	**StormTech SC-310 @ 71.20' L** x 4 Inside #5 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 71.20'L = 147.4 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.322 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	15.03'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.03' / 14.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	17.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	15.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Discarded	15.00'	**2.750 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.81 cfs @ 10.35 hrs HW=15.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.81 cfs)

Primary OutFlow Max=13.38 cfs @ 12.16 hrs HW=18.25' (Free Discharge)
└**1=Culvert** (Inlet Controls 13.38 cfs @ 7.57 fps)
  └**2=Sharp-Crested Rectangular Weir** (Passes < 21.73 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 0.38 cfs potential flow)

Pond B1: West Detention



Summary for Pond B2: North Detention

Inflow Area = 6.044 ac, 66.26% Impervious, Inflow Depth = 4.87" for 100-yr event
Inflow = 34.38 cfs @ 12.15 hrs, Volume= 2.452 af
Outflow = 39.36 cfs @ 12.15 hrs, Volume= 2.439 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.67 cfs @ 9.40 hrs, Volume= 1.210 af
Primary = 38.69 cfs @ 12.15 hrs, Volume= 1.229 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 32.90' @ 12.15 hrs Surf.Area= 0.243 ac Storage= 0.464 af

Plug-Flow detention time= 140.4 min calculated for 2.439 af (99% of inflow)
Center-of-Mass det. time= 136.1 min (920.0 - 783.9)

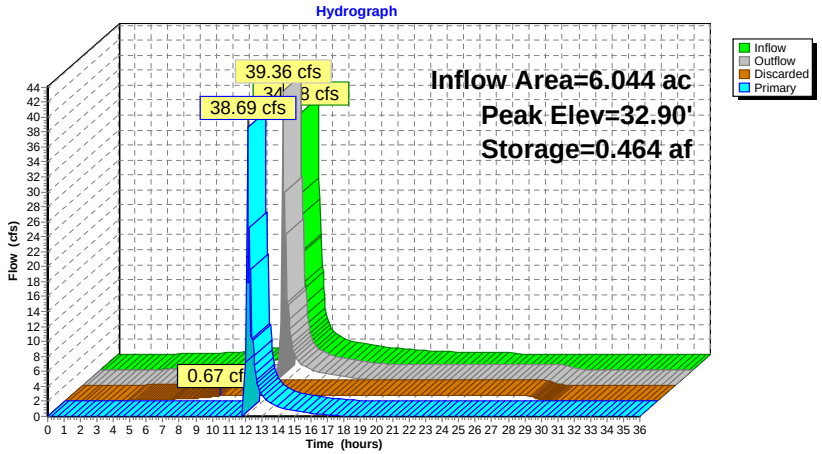
Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	0.053 af	**30.00'W x 112.00'L x 3.50'H Prismatoid** 0.270 af Overall - 0.095 af Embedded = 0.175 af x 30.0% Voids
#2	12.50'	0.095 af	**StormTech SC-740 @ 106.80' L** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 106.80'L = 689.1 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3	12.00'	0.073 af	**34.75'W x 135.00'L x 3.50'H Prismatoid** 0.377 af Overall - 0.133 af Embedded = 0.244 af x 30.0% Voids
#4	12.50'	0.133 af	**StormTech SC-740 @ 128.16' L** x 7 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 128.16'L = 826.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5	12.00'	0.041 af	**30.00'W x 85.00'L x 3.50'H Prismatoid** 0.205 af Overall - 0.070 af Embedded = 0.135 af x 30.0% Voids
#6	12.50'	0.070 af	**StormTech SC-740 @ 78.32' L** x 6 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 78.32'L = 505.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.464 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**2.750 in/hr Exfiltration over Surface area**
#2	Device 3	14.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height
#3	Primary	11.50'	**18.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.50' / 11.24' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Discarded OutFlow Max=0.67 cfs @ 9.40 hrs HW=12.29' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.67 cfs)

Primary OutFlow Max=38.05 cfs @ 12.15 hrs HW=32.25' (Free Discharge)
└**3=Culvert** (Inlet Controls 38.05 cfs @ 21.53 fps)
└**2=Sharp-Crested Rectangular Weir** (Passes 38.05 cfs of 998.91 cfs potential flow)

Pond B2: North Detention



Summary for Pond B3: SW Detention

Inflow Area = 0.484 ac, 67.15% Impervious, Inflow Depth = 6.72" for 100-yr event
Inflow = 3.48 cfs @ 12.09 hrs, Volume= 0.271 af
Outflow = 2.96 cfs @ 12.14 hrs, Volume= 0.259 af, Atten= 15%, Lag= 3.2 min
Primary = 2.96 cfs @ 12.14 hrs, Volume= 0.259 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.28' @ 12.14 hrs Surf.Area= 0.074 ac Storage= 0.079 af

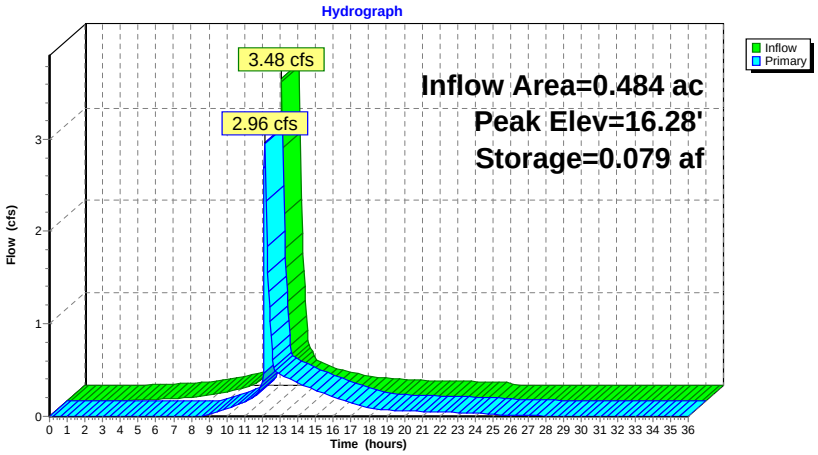
Plug-Flow detention time= 115.0 min calculated for 0.259 af (96% of inflow)
Center-of-Mass det. time= 89.9 min (866.1 - 776.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	0.040 af	**21.50'W x 150.00'L x 2.33'H Prismatoid** 0.173 af Overall - 0.041 af Embedded = 0.132 af x 30.0% Voids
#2	14.50'	0.041 af	**StormTech SC-310 @ 142.40' L** x 6 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 142.40'L = 294.8 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		0.080 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**15.0" Round Culvert** L= 148.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.00' / 12.52' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	14.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.89 cfs @ 12.14 hrs HW=16.28' (Free Discharge)
└**1=Culvert** (Passes 2.89 cfs of 7.40 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 6.11 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.36 cfs @ 1.72 fps)

Pond B3: SW Detention



CB-1

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.19
Imperviousness (%)	97

The Stormceptor System model STC 450i achieves the water quality objective removing 93% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**93**
STC 900	96
STC 1200	97
STC 1800	97
STC 2400	98
STC 3600	98
STC 4800	98
STC 6000	99
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

CB-2

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.28
Imperviousness (%)	90

The Stormceptor System model STC 450i achieves the water quality objective removing 92% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**92**
STC 900	96
STC 1200	96
STC 1800	96
STC 2400	97
STC 3600	97
STC 4800	98
STC 6000	98
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

CB-3

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.11
Imperviousness (%)	88

The Stormceptor System model STC 450i achieves the water quality objective removing 96% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**96**
STC 900	98
STC 1200	98
STC 1800	98
STC 2400	98
STC 3600	99
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

CB-13

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.5
Imperviousness (%)	32

The Stormceptor System model STC 450i achieves the water quality objective removing 93% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**93**
STC 900	96
STC 1200	97
STC 1800	97
STC 2400	98
STC 3600	98
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

CB-20

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.11
Imperviousness (%)	87

The Stormceptor System model STC 450i achieves the water quality objective removing 96% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**96**
STC 900	98
STC 1200	98
STC 1800	98
STC 2400	98
STC 3600	99
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

DMH-F

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.64
Imperviousness (%)	83

The Stormceptor System model STC 450i achieves the water quality objective removing 88% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**88**
STC 900	93
STC 1200	93
STC 1800	93
STC 2400	95
STC 3600	96
STC 4800	97
STC 6000	97
STC 7200	97
STC 11000	98
STC 13000	98
STC 16000	99

DMH-H

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.82
Imperviousness (%)	55

The Stormceptor System model STC 450i achieves the water quality objective removing 88% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**88**
STC 900	93
STC 1200	93
STC 1800	94
STC 2400	95
STC 3600	96
STC 4800	97
STC 6000	97
STC 7200	98
STC 11000	98
STC 13000	98
STC 16000	99

DMH-K

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.65
Imperviousness (%)	73

The Stormceptor System model STC 450i achieves the water quality objective removing 88% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**88**
STC 900	93
STC 1200	93
STC 1800	94
STC 2400	95
STC 3600	96
STC 4800	97
STC 6000	97
STC 7200	98
STC 11000	98
STC 13000	98
STC 16000	99

DMH-L

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.31
Imperviousness (%)	78

The Stormceptor System model STC 450i achieves the water quality objective removing 92% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**92**
STC 900	96
STC 1200	96
STC 1800	96
STC 2400	97
STC 3600	97
STC 4800	98
STC 6000	98
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

DMH-M

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.38
Imperviousness (%)	84

The Stormceptor System model STC 450i achieves the water quality objective removing 91% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**91**
STC 900	95
STC 1200	95
STC 1800	95
STC 2400	97
STC 3600	97
STC 4800	98
STC 6000	98
STC 7200	98
STC 11000	99
STC 13000	99
STC 16000	99

DMH-O

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	6/19/2013
Project Name	Hilton Garden Inn
Project Number	W111073
Location	East Boston

Designer Information

Company	Bohler
Contact	AWP

Notes

N/A

Drainage Area

Total Area (ac)	0.73
Imperviousness (%)	81

The Stormceptor System model STC 450i achieves the water quality objective removing 87% TSS for a OK-110 (sand only) particle size distribution.

Rainfall

Name	BOSTON WSFO AP
State	MA
ID	770
Years of Records	1948 to 2005
Latitude	42°21'38"N
Longitude	71°0'38"W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**87**
STC 900	92
STC 1200	92
STC 1800	93
STC 2400	95
STC 3600	95
STC 4800	96
STC 6000	97
STC 7200	97
STC 11000	98
STC 13000	98
STC 16000	99

Long-Term Pollution Prevention Plan

Proposed Hilton Garden Inn Addition

100 Boardman Street

East Boston, Massachusetts

1. Good Housekeeping Practices

The Owner/Operator shall use good housekeeping practices by following the Operation and Maintenance plans as provided within this report.

2. Provisions for storing materials and waste products inside or under cover

Hazardous materials or wastes associated with typical hotels, restaurants, or retail building use may be stored at the proposed project. Any such materials or wastes will be stored and handled in accordance with all applicable local, state, and federal regulations. In the event of a significant spill of any hazardous material or waste, emergency contact numbers are listed below.

3. Vehicle washing controls

Vehicle washing is not anticipated to occur at this site.

4. Requirements for routine inspections and maintenance of stormwater BMPs

The Owner/Operator shall maintain the BMP's by following the Operation and Maintenance Plan.

5. Spill prevention and response plan

There is very limited risk of significant spills at this site. Any spill requiring action would most likely be associated with motor vehicles. In the event of a large spill contact the following:

Mass DEP 24-hour Spill Emergency Response Notification line: 888-304-1133.

Regulatory Contacts

Contact information for reporting oil and hazardous materials releases to the EPA, DEP, and local agencies are provided below.

Agency	**Telephone**
Fire Department	911 / (617) 343-3415
Massachusetts Department of Environmental Protection	888-304-1133
United States Environmental Protection Agency	(617) 918-1279

6. Provisions for maintenance of lawns, gardens, and other landscaped areas

The use of chemical fertilizers shall be minimized or avoided where possible.

7. Provisions for solid waste management

All solid waste management systems shall be inspected and maintained in accordance with all local, state and federal requirements.

LONG TERM STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

The proposed site features a hotel. The parking lot area and its infrastructure will be the responsibility of the Owner.

Owner: MC-EB Realty, LLC
P.O. Box 2516
10 North Main Street
Fall River, Massachusetts 02722

Responsible Party: Owner

The General Contractor shall have all logs and reports as stated within the Stormwater Pollution Prevention Plan readily available at all times for inspection by the City.

Method of recording for future Owners

☐ Deed
☐ Order of Conditions
☒ Other: Approved Site Plan

COMPONENT: Catch basins

RESPONSIBILITY: Owner

ACTION: Cleaning (Sediment removal / sump cleaning) and Inspection

FREQUENCY:

1. Inspection –Two times per year
2. Cleaning – Once per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom invert of the lowest pipe in the basin.

DESCRIPTION: Basins are to be cleaned on an annual basis or when the depth of deposits is greater than or equal to one half the depth from the bottom of the sump to the invert of the lowest pipe in the basin. The Owner will inspect sumps post construction a minimum of twice per year. Precautions shall be taken to maintain the integrity of the trap hoods during cleaning. The hoods shall be inspected and repaired as necessary. Accumulated hydrocarbons shall be collected separately from accumulated sediment. All material shall be disposed of in accordance with DEP regulations.

Inspections:

- Frame and Grate
- Inlet and Outlet condition
- Cracks and settlement
- Joint failure
- Leaking
- Sediment Accumulation
- Oil/Gas Sheen in water
- Condition of trap hood
- General inspection of structure

BUDGET: Inspection/cleaning- $1,000/ yr per catch basin for semi-annual inspections and annual cleaning.

COMPONENT: Stormwater Quality Unit

RESPONSIBILITY:
During Construction: General Contractor
Post Construction: Owner

ACTION: Inspection / cleaning

FREQUENCY: Per Manufacturer's Maintenance Guidelines or once per six months whichever is more restrictive.

DESCRIPTION: See Manufacturer's Maintenance Guidelines. All accumulated materials shall be disposed of in accordance with DEP regulations.

BUDGET: Inspection/cleaning- $1,000/ yr per unit

COMPONENT: Infiltration/Detention Basins

RESPONSIBILITY:
During Construction: General Contractor
Post Construction: Owner

ACTION: Preventative Maintenance, Inspection, Cleaning

FREQUENCY:
During Construction

1. Cleaning – As needed during construction or whenever the sediment depth exceeds a depth of six (6) inches.
2. Inspection – As needed during construction but once a month at a minimum.

Post Construction

1. Preventative Maintenance- Two times per year
2. Inspection to ensure proper function – After every major storm during the first 3 months of operation and twice a year thereafter and when there are discharges through the high outlet orifice.
3. Inspect and clean pretreatment devices- Every other month is recommended and at least twice a year and after every major storm event.

DESCRIPTION: The infiltration basins shall be inspected a minimum of twice a year to ensure they are operating as intended and that all components are stable and in working order. Inspections shall be by qualified personnel assigned by the property owner. The outlet of the basin, if any, shall be inspected for erosion and sedimentation, and rip-rap shall be promptly repaired in the case of erosion. Sediment collecting in the bottom of the basin shall be inspected twice annually, and removal shall commence any time the sediment reaches a depth of six inches anywhere in the basin. Any sediments removed shall be disposed of in accordance with the latest DEP guidelines for stormwater sediment disposal.

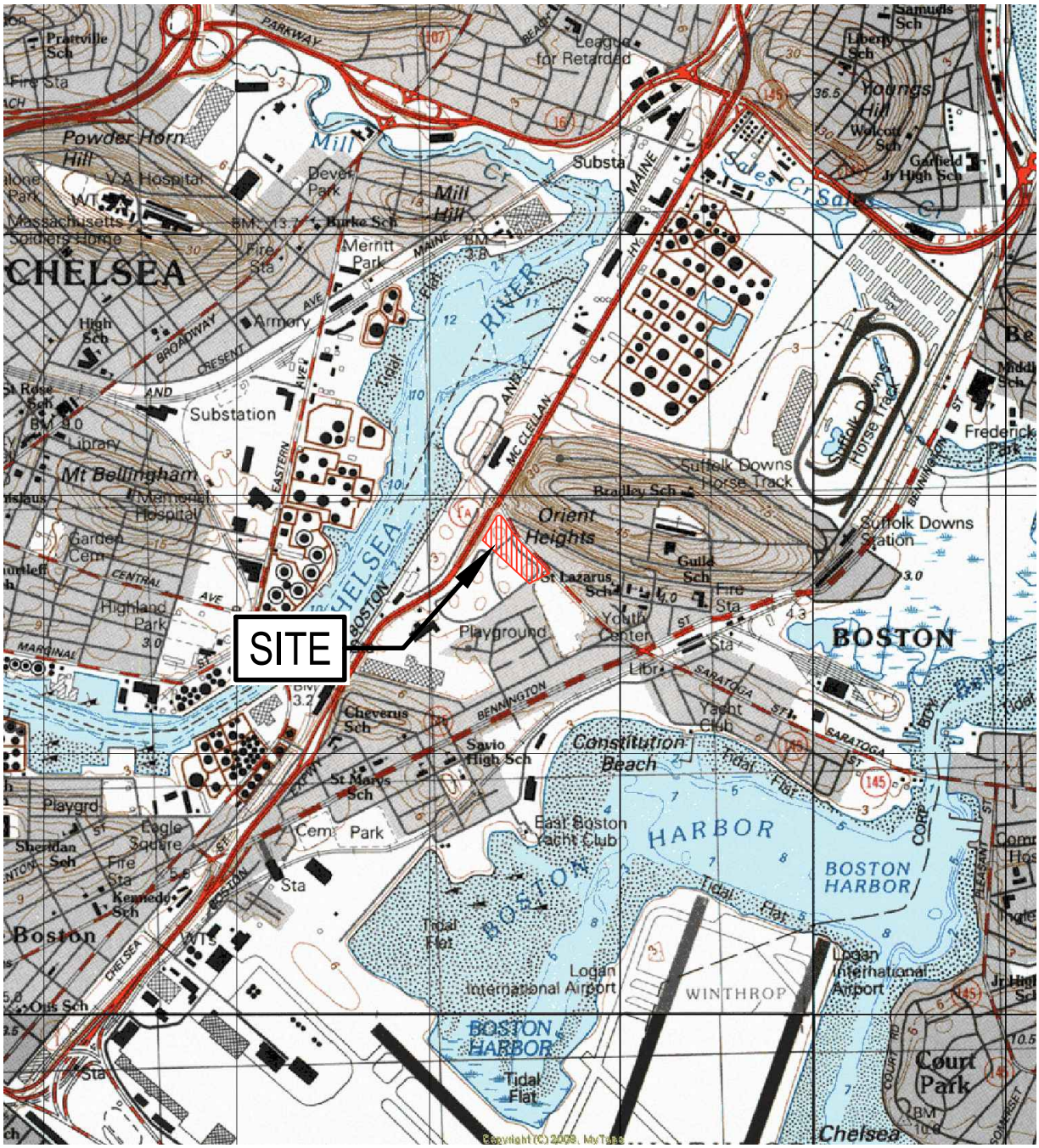
Inspections:

- Inlet and Outlet condition
- Sediment Accumulation
- Oil/Gas Sheen in water
- Condition of outlet structure
- General Inspection of basin

BUDGET: Cleaning - $1000/ yr
Inspection - $200/ yr

APPENDIX B

USGS MAP



SCALE: 1"=2000'
SOURCE: MASSGIS
USGS

PROJECT:

USGS LOCUS MAP

FOR

HILTON GARDEN INN
100 BOARDMAN STREET

CITY OF BOSTON
SUFFOLK COUNTY
MASSACHUSETTS

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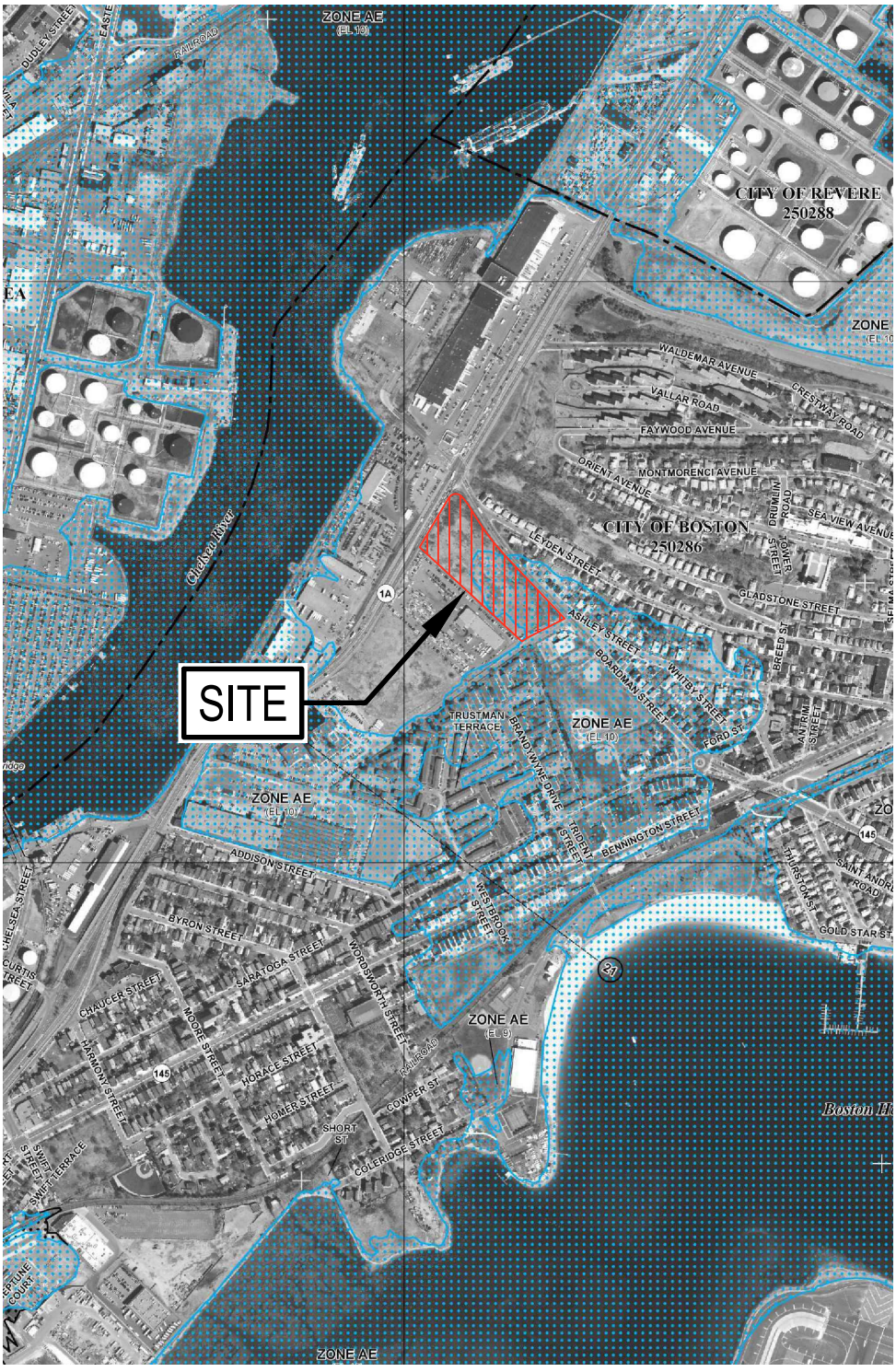
- NEW YORK METRO
- NORTHERN NEW JERSEY
- SOUTHERN NEW JERSEY
- PHILADELPHIA, PA
- PITTSBURGH, PA
- LEHIGH VALLEY, PA
- SOUTHEASTERN, PA
- REHOBOTH BEACH, DE
- BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RALEIGH, NC
- WASHINGTON, DC
- CHARLOTTE, NC
- ATLANTA, GA
- TAMPA, FL
- SOUTH FLORIDA
- DALLAS, TX

APPENDIX C

FEMA FLOOD INSURANCE RATE MAP



LEGEND

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

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

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

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

Limit of Moderate Wave Action

Limit of Moderate Wave Action coincident with Zone Break

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

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A — Cross section line

23 — 23 — Transect line

Culvert

Bridge

45° 02' 08", 93° 02' 12" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere

4989000 M — 1000-meter grid: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection

$^{489}89^{000m}$ N — 1000-meter Universal Transverse Mercator tick values, zone 19N

DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 25, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

March 16, 2016 - to change Base Flood Elevations and Special Flood Hazard Areas, to change zone designations, to update the effects of wave action, to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision and to modify Coastal Barrier Resource System units.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

SCALE: 1"=1000'
SOURCE: FEMA

PROJECT:

FEMA FLOODPLAIN MAP

FOR

HILTON GARDEN INN
100 BOARDMAN STREET

CITY OF BOSTON
SUFFOLK COUNTY
MASSACHUSETTS

BOHLER™ ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
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- SOUTHERN NEW JERSEY
- PHILADELPHIA, PA
- PITTSBURGH, PA
- LEHIGH VALLEY, PA
- SOUTHEASTERN, PA
- REHOBOTH BEACH, DE
- BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RALEIGH, NC
- WASHINGTON, DC
- CHARLOTTE, NC
- ATLANTA, GA
- TAMPA, FL
- SOUTH FLORIDA
- DALLAS, TX

Appendix D

SITE PHOTOS

SITE PHOTOS

Photo 1

Photo 2

Hilton Garden Inn – East Boston

415 William F McClellan Highway (100 Boardman Street)	**City of Boston, Suffolk County, Massachusetts**
BEMA # M171024	BOHLER ENGINEERING
Prepared by: EA / **Date taken: 2/11/2019**	
Checked by: DB / **Scale: N/A**	

SITE PHOTOS

Photo 3

Photo 4

Hilton Garden Inn – East Boston	
415 William F McClellan Highway (100 Boardman Street)	**City of Boston, Suffolk County, Massachusetts**
BEMA # M171024	BOHLER ENGINEERING
Prepared by: EA / **Date taken: 2/11/2019**	
Checked by: DB / **Scale: N/A**	

SITE PHOTOS

Photo 5

Photo 6

Hilton Garden Inn – East Boston

415 William F McClellan Highway (100 Boardman Street)	**City of Boston, Suffolk County, Massachusetts**
BEMA # M171024	BOHLER ENGINEERING
Prepared by: EA / **Date taken: 2/11/2019**	
Checked by: DB / **Scale: N/A**	

ATTACHMENT A

SITE DEVELOPMENT PLANS
(See 11”x17” Plan Set Enclosed)

Plan Title	Prepared By	Date
Topographic Plan of Land	Feldman Land Surveyors	12/6/2011
Partial Existing Conditions Plan	Feldman Land Surveyors	12/8/2016
Site Plan	Bohler Engineering	8/7/2019
Grading & Drainage Plan	Bohler Engineering	8/7/2019
Utility Plan	Bohler Engineering	8/7/2019
Soil Erosion & Sediment Control Plan	Bohler Engineering	8/7/2019
Soil Erosion Control Notes & Detail Sheet	Bohler Engineering	8/7/2019
Planting & Materials Plan	Bohler Engineering	8/7/2019

ATTACHMENT B

BOSTON PLANNING AND DEVELOPMENT AGENCY
CLIMATE RESILIENCY CHECKLIST

boston planning & development agency

Climate Resiliency Checklist

NOT FOR FILING

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

A.1 - Project Information

Project Name:	East Boston Hilton Garden Inn Guestroom Addition			
Project Address:	100 Boardman Street			
Project Address Additional:	Boston, MA 02128			
Filing Type (*select*)	*Initial (PNF, EPNF, NPC or other substantial filing)* *Design / Building Permit (prior to final design approval), or* *Construction / Certificate of Occupancy (post construction completion)*			
Filing Contact	*Jeff Karam*	*MC-EB Realty LLC c/o First Bristol Corp.*	*Email: Jeffk@firstbristol.com*	*Phone 508-679-1180*
Is MEPA approval required	*Yes*		*Date: 8/9/19*	

A.3 - Project Team

Owner / Developer:	MC-EB Realty LLC c/o First Bristol Corp.
Architect:	BMA Architects
Engineer:	Bohler Engineering
Sustainability / LEED:	AHA Consulting Engineers, Inc.
Permitting:	
Construction Management:	Dimeo Construction Company

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Hotel
List the First Floor Uses:	Guest Rooms, 1 Board
List any Critical Site Infrastructure and or Building Uses:	

Site and Building:

Site Area:	*264,645 SF*	Building Area:	*45,323 SF*
Building Height:	*53'-4" to Roof* *59'-9" to highest parapet*	Building Height:	*5 Stories*
Existing Site Elevation – Low:	*16.2± Ft BCB (site)* *15.3± Ft BCB (off-site sidewalk)*	Existing Site Elevation – High:	*18.99 ± Ft BCB*
Proposed Site Elevation – Low:	*16.2± Ft BCB (site)* *15.3± Ft BCB (off-site sidewalk)*	Proposed Site Elevation – High:	*18.99 ± Ft BCB*
Proposed First Floor Elevation:	*18.99 Ft BCB*	Below grade levels:	*0 Stories*

Article 37 Green Building:

LEED Version - Rating System :	LEED v4 BD+C	LEED Certification:	*No*
Proposed LEED rating:	*Certified*	Proposed LEED point score:	*46 Pts.*

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*(R)30c.i.*	Exposed Floor:	*(R)10c.i.*
Foundation Wall:	*(R)10c.i.*	Slab Edge (at or below grade):	*(R)5c.i.*

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*1(%)*	Wall & Spandrel Assembly Value:	*.36(U)*
Area of Framed & Insulated / Standard Wall:	*67(%)*	Wall Value	*(R)19.5c.i. (R)8*
Area of Vision Window:	*31%*	Window Glazing Assembly Value:	*.36(U)*
		Window Glazing SHGC:	*.40 (SHGC)*
Area of Doors:	*1%*	Door Assembly Value:	*.37(U)*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	*Energy Model*		
Annual Electric:	*806,025 (kWh)*	Peak Electric:	*100 (kW)*
Annual Heating:	*1.1 (MMbtu/hr)*	Peak Heating:	*(MMbtu)*
Annual Cooling:	*103 (Tons/hr)*	Peak Cooling:	*(Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	*%*	Have the local utilities reviewed the building energy performance?:	*Yes / no*
Energy Use - Below Mass. Code:	*%*	Energy Use Intensity:	*9.3 (kBtu/SF)*

Back-up / Emergency Power System

Electrical Generation Output:	*200 (kW)*	Number of Power Units:	1
System Type:	*(kW)*	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	*(kW)*	Heating:	*(MMbtu/hr)*
		Cooling:	*(Tons/hr)*

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: *297(Tons)*

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Energy analysis was started early on and evaluated several envelope alternatives as well as multiple HVAC and electrical energy efficiency measures. To reduce the annual energy consumption and GHG emissions of this building, the design team members worked collaboratively to optimize the building energy performance through an integrative design process.

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

High performance envelope (Roof U-0.032, Walls U-0.037, Slab F-0.52, Glazing U-0.36)

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

High efficiency PTAC units with occupancy controls, high efficiency DHW and low flow plumbing fixtures, energy recovery and reduced interior lighting power density.

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

None of the above strategies were used

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

None

Describe any energy efficiency assistance or support provided or to be provided to the project:

The project will apply for Energy efficiency incentives through the Mass Save program

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

Current building systems will be replaced at their end of life (approx. 20 years) with the latest in energy efficient equipment. Rooftop PV arrays will also continue to be assessed as technology and prices evolve.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:	*6 Deg.*	Temperature Range - High:	*88 Deg.*
Annual Heating Degree Days:		Annual Cooling Degree Days	

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	*3#*	Days – Above 100°:	*0#*
Number of Heatwaves / Year:	*1#*	Average Duration of Heatwave (Days):	*3 days*

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

Shade trees and shrubs will be utilized on the site to reduce the heat-island effect.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Current building systems will be replaced at their end of life (approx. 20 years) with the latest in energy efficient equipment.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

There is an existing generator on-site to support basic functions during power outages and the project has been designed with a high performance building envelope as a non-mechanical enhancement.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	*4.99 In.*	Value based on NOAA Atlas 14, Volume 10, Version 3 Latitude: 42.3899°, Longitude: -71.0123°

Describe all building and site measures for reducing storm water run-off:

The site is capable of infiltrating all of the 2-year, 24-hour storm event to groundwater. The improvement of landscape areas will also allow for additional reduction of stormwater runoff.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

Substantial on-site stormwater retention and infiltration systems have been constructed as part of this project.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?	*Yes*	What Zone:	AE
		Current FEMA SFHA Zone Base Flood Elevation:	*16.46 Ft BCB*

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site.	*Yes*

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	*19.5 Ft BCB*		
Sea Level Rise - Design Flood Elevation:	*20.5 Ft BCB*	First Floor Elevation:	*19.0 Ft BCB*
Site Elevations at Building:	*19.0 Ft BCB*	Accessible Route Elevation:	*19.0 Ft BCB*

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

The proposed addition will match the finish floor of the existing hotel, which is located 2.5' above the FEMA base flood elevation.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

The critical systems for the building are located in the original hotel. The proposed addition will connect to these systems, which are located 2.5' above the FEMA base flood elevation.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

The existing site emergency generator sits at elevation 18.7 Ft BCB, 2.2' above the FEMA base flood elevation, and critical mechanicals inside the building are at elevation 19.0 Ft BCB or higher.

Describe any strategies that would support rapid recovery after a weather event:

The lobby will be outfitted with resilient building materials that can be easily replaced after a weather event.

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

In the future, the lower level doors could be fortified by adding flood-proof doors and façade materials.

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

The on-site generator could be further elevated and ground floor electrical equipment and wiring could be replaced and re-installed at a higher elevation.

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF BOSTON, SUFFOLK COUNTY, MASSACHUSETTS	Parcel 3, Plan of Land in East Boston, as described in the Deed recorded as Document No. 201200004766 in Book 48956, Pages 128, 129, and 130, in the Office of the Registry of Deeds, Suffolk County, Massachusetts
	COMMUNITY NO: 250286	
AFFECTED MAP PANEL	NUMBER: 25025C0019J	
	DATE: 3/16/2016	
FLOODING SOURCE: CHELSEA RIVER; BOSTON HARBOR; ATLANTIC OCEAN		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.390428, -71.012464 SOURCE OF LAT & LONG: GOOGLE EARTH DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
3	--	--	100 Boardman Street	Structure	X (unshaded)	--	12.0 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Structure Removal:

The following considerations may or may not apply to the determination for your Structure:

PORTIONS OF THE PROPERTY REMAIN IN THE FLOODWAY - A portion of this property is located within the National Flood Insurance Program (NFIP) regulatory floodway for the flooding source indicated on the Determination Document while the subject of this determination is not. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in a NFIP regulatory floodway that may cause an increase in the base flood elevation. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV), or the Regional Engineer (Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA -This Determination Document has removed the subject of the determination from the Special Flood Hazard Area (SFHA). However, portions of the property may remain in the SFHA. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. When the new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

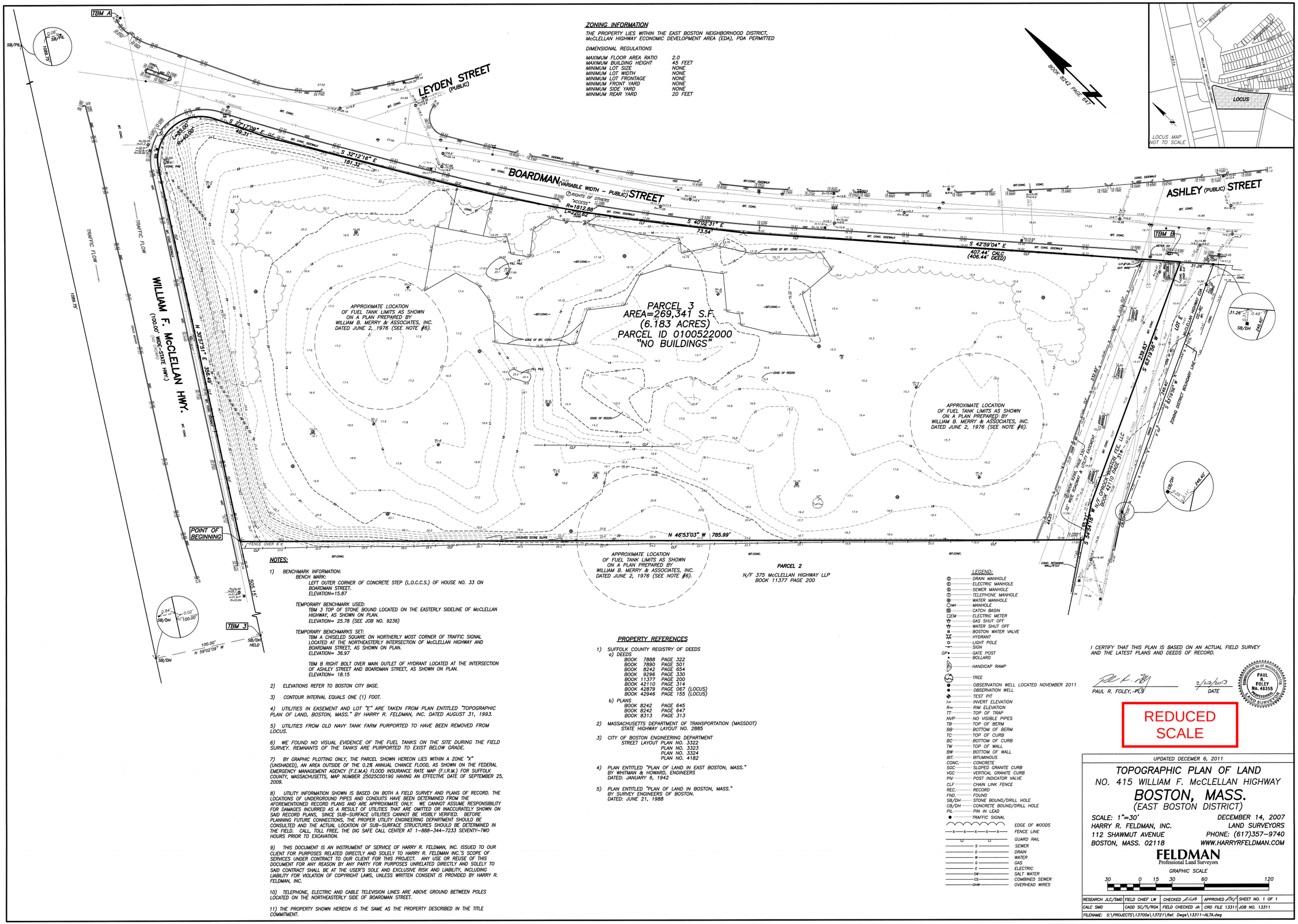
GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - The subject of this Determination Document may be located within the Coastal Barrier Resource System (CBRS). Federal financial assistance, including Federal flood insurance, is not available in CBRS areas for new construction or substantial improvements occurring after the date on which the area was declared by Congress to be part of the CBRS or otherwise protected area as required by the Coastal Barrier Resources Act (Public Law 97-348) and the Coastal Barrier Improvement Act 1990 (Public Law 101-591). This date is indicated on the National Flood Insurance Program map. For further information on this property and the CBRS or otherwise protected area designation, contact the U.S. Department of the Interior.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration



ZONING INFORMATION

THE PROPERTY LIES WITHIN THE EAST BOSTON NEIGHBORHOOD DISTRICT, McCLELLAN HIGHWAY ECONOMIC DEVELOPMENT AREA (EDA), PDA PERMITTED

DIMENSIONAL REGULATIONS

MAXIMUM FLOOR AREA RATIO	2.0
MAXIMUM BUILDING HEIGHT	45 FEET
MINIMUM LOT SIZE	NONE
MINIMUM LOT WIDTH	NONE
MINIMUM LOT FRONTAGE	NONE
MINIMUM FRONT YARD	NONE
MINIMUM SIDE YARD	NONE
MINIMUM REAR YARD	20 FEET

NOTES:

1) BENCHMARK INFORMATION:
BENCH MARK:
LEFT OUTER CORNER OF CONCRETE STEP (L.O.C.C.S.) OF HOUSE NO. 33 ON BOARDMAN STREET.
ELEVATION=15.87

TEMPORARY BENCHMARK USED:
TBM 3 TOP OF STONE BOUND LOCATED ON THE EASTERLY SIDELINE OF McCLELLAN HIGHWAY, AS SHOWN ON PLAN.
ELEVATION= 25.78 (SEE JOB NO. 9236)

TEMPORARY BENCHMARKS SET:
TBM A CHISELED SQUARE ON NORTHERLY MOST CORNER OF TRAFFIC SIGNAL LOCATED AT THE NORTHEASTERLY INTERSECTION OF McCLELLAN HIGHWAY AND BOARDMAN STREET, AS SHOWN ON PLAN.
ELEVATION= 36.97

TBM B RIGHT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT THE INTERSECTION OF ASHLEY STREET AND BOARDMAN STREET, AS SHOWN ON PLAN.
ELEVATION= 18.15

2) ELEVATIONS REFER TO BOSTON CITY BASE.

3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

4) UTILITIES IN EASEMENT AND LOT "E" ARE TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC PLAN OF LAND, BOSTON, MASS." BY HARRY R. FELDMAN, INC. DATED AUGUST 31, 1993.

5) UTILITIES FROM OLD NAVY TANK FARM PURPORTED TO HAVE BEEN REMOVED FROM LOCUS.

6) WE FOUND NO VISUAL EVIDENCE OF THE FUEL TANKS ON THE SITE DURING THE FIELD SURVEY. REMNANTS OF THE TANKS ARE PURPORTED TO EXIST BELOW GRADE.

7) BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "X" (UNSHADED), AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 25025C0019G HAVING AN EFFECTIVE DATE OF SEPTEMBER 25, 2009.

8) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND 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 PLANS, SINCE SUB-SURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUB-SURFACE 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.

9) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF HARRY R. FELDMAN, INC. ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO HARRY R. FELDMAN INC.'S 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 HARRY R. FELDMAN, INC.

10) TELEPHONE, ELECTRIC AND CABLE TELEVISION LINES ARE ABOVE GROUND BETWEEN POLES LOCATED ON THE NORTHEASTERLY SIDE OF BOARDMAN STREET.

11) THE PROPERTY SHOWN HEREON IS THE SAME AS THE PROPERTY DESCRIBED IN THE TITLE COMMITMENT.

PROPERTY REFERENCES

1) SUFFOLK COUNTY REGISTRY OF DEEDS
a) DEEDS
BOOK 7888 PAGE 322
BOOK 7890 PAGE 501
BOOK 8242 PAGE 654
BOOK 9296 PAGE 330
BOOK 11377 PAGE 200
BOOK 42110 PAGE 314
BOOK 42879 PAGE 067 (LOCUS)
BOOK 42946 PAGE 155 (LOCUS)
b) PLANS
BOOK 8242 PAGE 645
BOOK 8242 PAGE 647
BOOK 8313 PAGE 313

2) MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT)
STATE HIGHWAY LAYOUT NO. 2885

3) CITY OF BOSTON ENGINEERING DEPARTMENT
STREET LAYOUT PLAN NO. 3322
PLAN NO. 3323
PLAN NO. 3324
PLAN NO. 4182

4) PLAN ENTITLED "PLAN OF LAND IN EAST BOSTON, MASS." BY WHITMAN & HOWARD, ENGINEERS DATED: JANUARY 6, 1942

5) PLAN ENTITLED "PLAN OF LAND IN BOSTON, MASS." BY SURVEY ENGINEERS OF BOSTON. DATED: JUNE 21, 1988

LEGEND:

- DRAIN MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MH MANHOLE
- CATCH BASIN
- EM ELECTRIC METER
- GAS SHUT OFF
- WATER SHUT OFF
- BOSTON WATER VALVE
- HYDRANT
- LIGHT POLE
- SIGN
- GP GATE POST
- BOLLARD
- HANDICAP RAMP
- TREE
- OBSERVATION WELL LOCATED NOVEMBER 2011
- OBSERVATION WELL
- TEST PIT
- INV INVERT ELEVATION
- RIM ELEVATION
- TT TOP OF TRAP
- NVP NO VISIBLE PIPES
- TB TOP OF BERM
- BB BOTTOM OF BERM
- TC TOP OF CURB
- BC BOTTOM OF CURB
- TW TOP OF WALL
- BW BOTTOM OF WALL
- BIT. BITUMINOUS
- CONC. CONCRETE
- SGC SLOPED GRANITE CURB
- VGC VERTICAL GRANITE CURB
- PIV POST INDICATOR VALVE
- CLF CHAIN LINK FENCE
- REC. RECORD
- FND. FOUND
- SB/DH STONE BOUND/DRILL HOLE
- CB/DH CONCRETE BOUND/DRILL HOLE
- PIL PIN IN LEAD
- TRAFFIC SIGNAL
- EDGE OF WOODS
- FENCE LINE
- GUARD RAIL
- S SEWER
- D DRAIN
- W WATER
- G GAS
- E ELECTRIC
- SW SALT WATER
- CS COMBINED SEWER
- OHW OVERHEAD WIRES

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

PAUL R. FOLEY, PLS — DATE: 2/13/2013

PAUL R. FOLEY No. 48356 REGISTERED LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

REDUCED SCALE

UPDATED DECEMER 6, 2011

TOPOGRAPHIC PLAN OF LAND
NO. 415 WILLIAM F. McCLELLAN HIGHWAY
BOSTON, MASS.
(EAST BOSTON DISTRICT)

SCALE: 1"=30' — DECEMBER 14, 2007

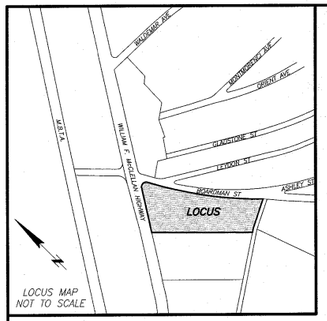
HARRY R. FELDMAN, INC. — LAND SURVEYORS
112 SHAWMUT AVENUE — PHONE: (617)357-9740
BOSTON, MASS. 02118 — WWW.HARRYRFELDMAN.COM

FELDMAN
Professional Land Surveyors

GRAPHIC SCALE
30 0 15 30 60 120

RESEARCH JLC/SMD	FIELD CHIEF LW	CHECKED LGH	APPROVED PRF	SHEET NO. 1 OF 1
CALC SMD	CADD SC/TI/RGA	FIELD CHECKED JA	CRD FILE 13311	JOB NO. 13311

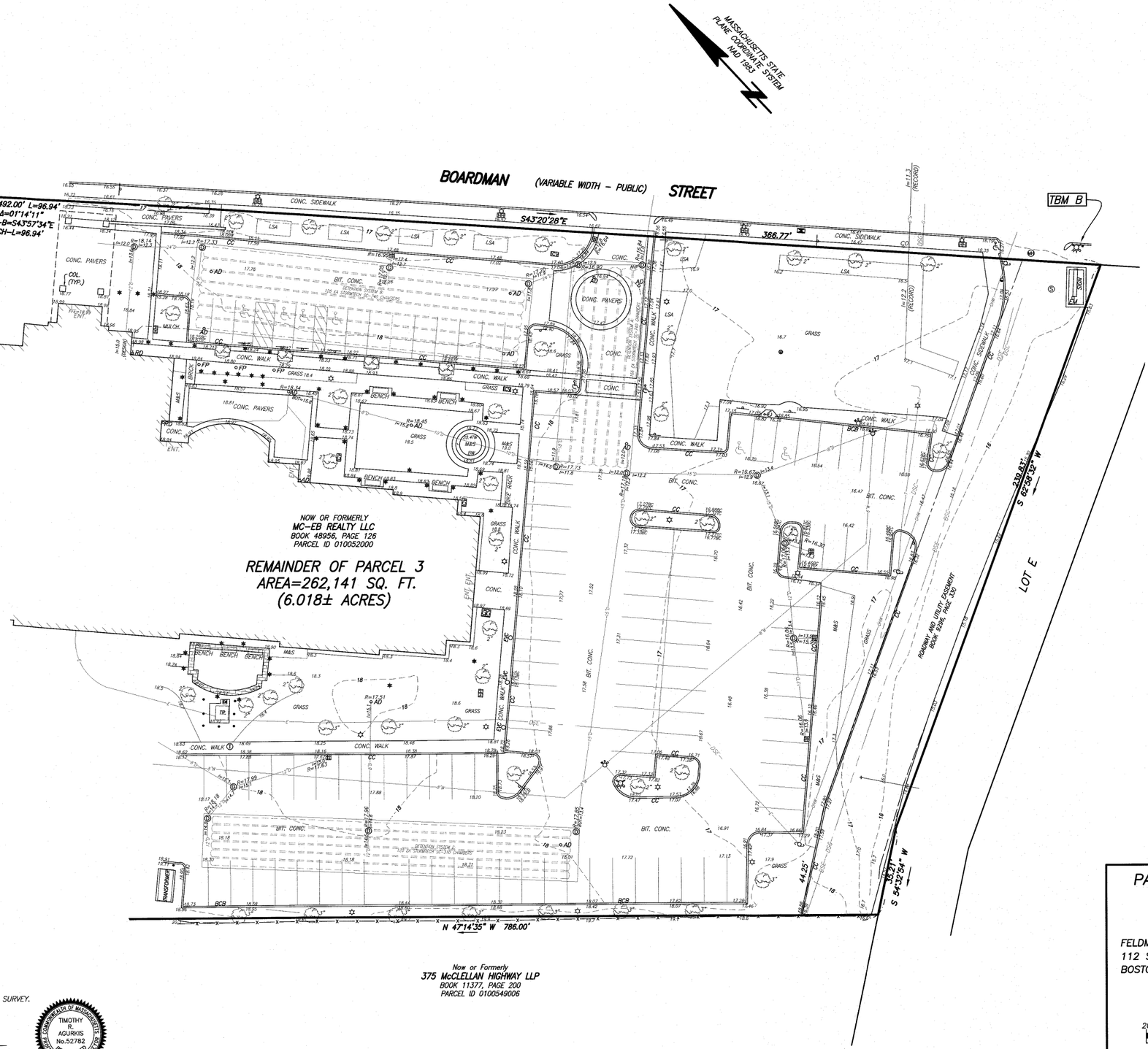
FILENAME: S:\PROJECTS\13700s\13721\Ref. Dwgs\13311-ALTA.dwg



LOCUS MAP
NOT TO SCALE

LEGEND

- (S) SEWER MANHOLE
- (D) DRAIN MANHOLE
- (E) ELECTRIC MANHOLE
- (W) WATER MANHOLE
- HYDRANT
- WATER SHUT OFF/WATER GATE
- CATCH BASIN
- UTILITY POLE
- SIGN
- GUY WIRE
- LIGHT POLE
- WALK LIGHT
- ELECTRIC HANDHOLE
- AD AREA DRAIN
- FP FLAG POLE
- BC BOTTOM OF CURB
- BCB BIT. CONC. BERM
- BIT BITUMINOUS
- BOT= BOTTOM ELEVATION
- CONC CONCRETE
- Δ= DELTA ANGLE
- ENT ENTRANCE
- EVC ELECTRIC VEHICLE CHARGER
- I= INVERT ELEVATION
- L= ARC LENGTH
- LSA LANDSCAPE AREA
- NVP NO VISIBLE PIPES
- R= RADIUS OR RIM ELEVATION
- VGC VERTICAL GRANITE CURB
- D DRAIN
- G GAS
- S SEWER
- W WATER
- DSE DIG SAFE ELECTRIC
- DSG DIG SAFE GAS
- DSC DIG SAFE CABLE



NOTES:

1) BENCH MARK INFORMATION:

BENCH MARK USED:

LEFT OUTER CORNER OF CONCRETE STEP (L.O.C.C.S.) OF HOUSE NO. 33 ON BOARDMAN STREET.
ELEVATION=15.87

TEMPORARY BENCH MARKS SET:

TBM–A – CHISELED SQUARE ON NORTHERLY MOST CORNER OF TRAFFIC SIGNAL LOCATED AT THE NORTHEASTERLY INTERSECTION OF McCLELLAN HIGHWAY AND BOARDMAN STREET.
ELEVATION= 36.97

TBM B – RIGHT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT THE INTERSECTION OF ASHLEY STREET AND BOARDMAN STREET, AS SHOWN ON PLAN.
ELEVATION= 18.15

TBM–C – RIGHT BOLT OVER MAIN OUTLET OF A HYDRANT LOCATED ON THE NORTHWESTERLY SIDE OF BOARDMAN STREET, ABOUT 60'± NORTHERLY OF LEYDEN STREET.
ELEVATION = 23.17

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 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 PLANS, 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.

REDUCED SCALE

I CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY.

TIMOTHY R. AGURKIS, PLS (M.# 52782)
TRA@FELDMANSURVEYORS.COM

8/9/18
DATE

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY R. AGURKIS No.52782 REGISTERED PROFESSIONAL LAND SURVEYOR

PARTIAL EXISTING CONDITIONS PLAN
BOARDMAN STREET
BOSTON, MASS.

FELDMAN LAND SURVEYORS
112 SHAWMUT AVENUE
BOSTON, MASS. 02118
NOVEMBER 28, 2016
PHONE: (617)357–9740
www.feldmansurveyors.com

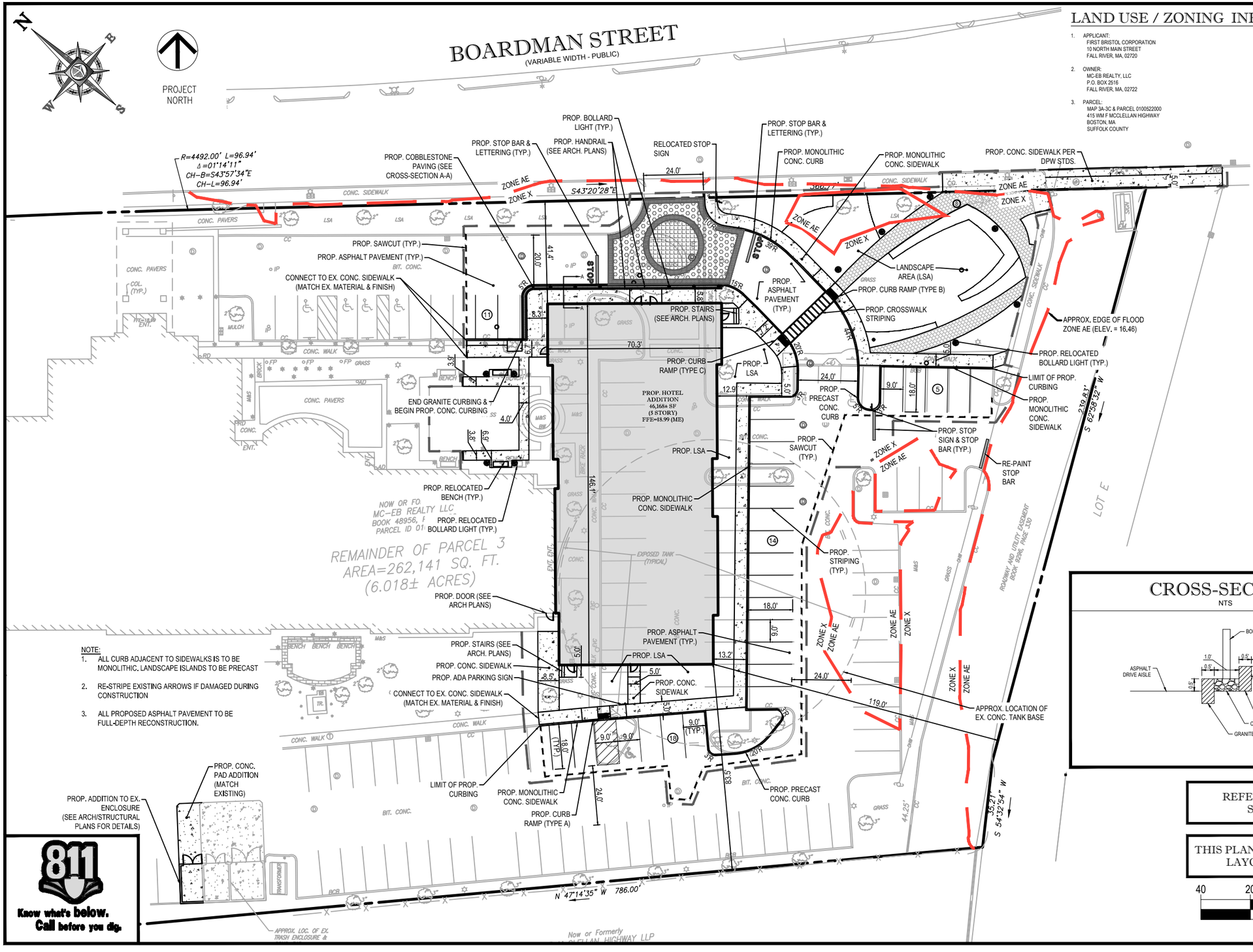
FELDMAN LAND SURVEYORS

20 0 10 20 40 80

SCALE: 1"=20'

RESEARCH TRA	FIELD CHIEF FS	PROJ MGR TRA	APPROVED TRA	SHEET NO. 1 OF 1
CALC TRA	CADD TRA	FIELD CHECKED	CRD FILE 15066	JOB NO. 154.8

FILENAME: S:\PROJECTS\15400s\15438\DWG\15438–EX.dwg



NOTE:
1. ALL CURB ADJACENT TO SIDEWALKS IS TO BE MONOLITHIC. LANDSCAPE ISLANDS TO BE PRECAST
2. RE-STRIPE EXISTING ARROWS IF DAMAGED DURING CONSTRUCTION
3. ALL PROPOSED ASPHALT PAVEMENT TO BE FULL-DEPTH RECONSTRUCTION.

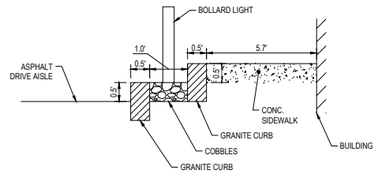
811 Know what's below. Call before you dig.

LAND USE / ZONING INFORMATION & NOTES

1. APPLICANT:
   FIRST BRISTOL CORPORATION
   10 NORTH MAIN STREET
   FALL RIVER, MA, 02720
2. OWNER:
   MC-EB REALTY, LLC
   P.O. BOX 2516
   FALL RIVER, MA, 02722
3. PARCEL:
   MAP 3A-3C & PARCEL 0100522000
   415 WM F MCCLELLAN HIGHWAY
   BOSTON, MA
   SUFFOLK COUNTY

CROSS-SECTION A-A

NTS



REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

40 20 10 0 40

1"= 40'

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING · PROGRAM MANAGEMENT · LANDSCAPE ARCHITECTURE
STRUCTURAL DESIGN · TRANSPORTATION PLANNING · ENVIRONMENTAL SERVICES
MASSACHUSETTS · NEW HAMPSHIRE · MAINE · RHODE ISLAND · CONNECTICUT · NEW YORK · NEW JERSEY · PENNSYLVANIA · MARYLAND · VIRGINIA · NORTH CAROLINA · SOUTH CAROLINA · GEORGIA · FLORIDA · TEXAS

REVISIONS

REV	DATE	COMMENT	BY
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3	02/22/19	90% PROGRESS SUBMITTAL	ADB
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9	06/26/19	DUMPSTER REV	ADB
10	08/07/19	CON COM SUBMISSION	JJW
11	08/09/19	REVISED LANDSCAPE & STAMPED SURVEY	ECA
12			
13			
14			
15			

PERMIT SET

PROJECT No.: M171024
DRAWN BY: ADB
CHECKED BY: DB
DATE: 01/08/19
SCALE: AS NOTED
CAD I.D.: M171024_SS6_Con-Com

PROJECT:
SITE DEVELOPMENT PLANS
FOR
HILTON GARDEN INN EAST BOSTON PHASE 2

LOCATION OF SITE
PARCEL 3, LOT #01005220000
100 BOARDMAN STREET
SUFFOLK COUNTY
EAST BOSTON, MA

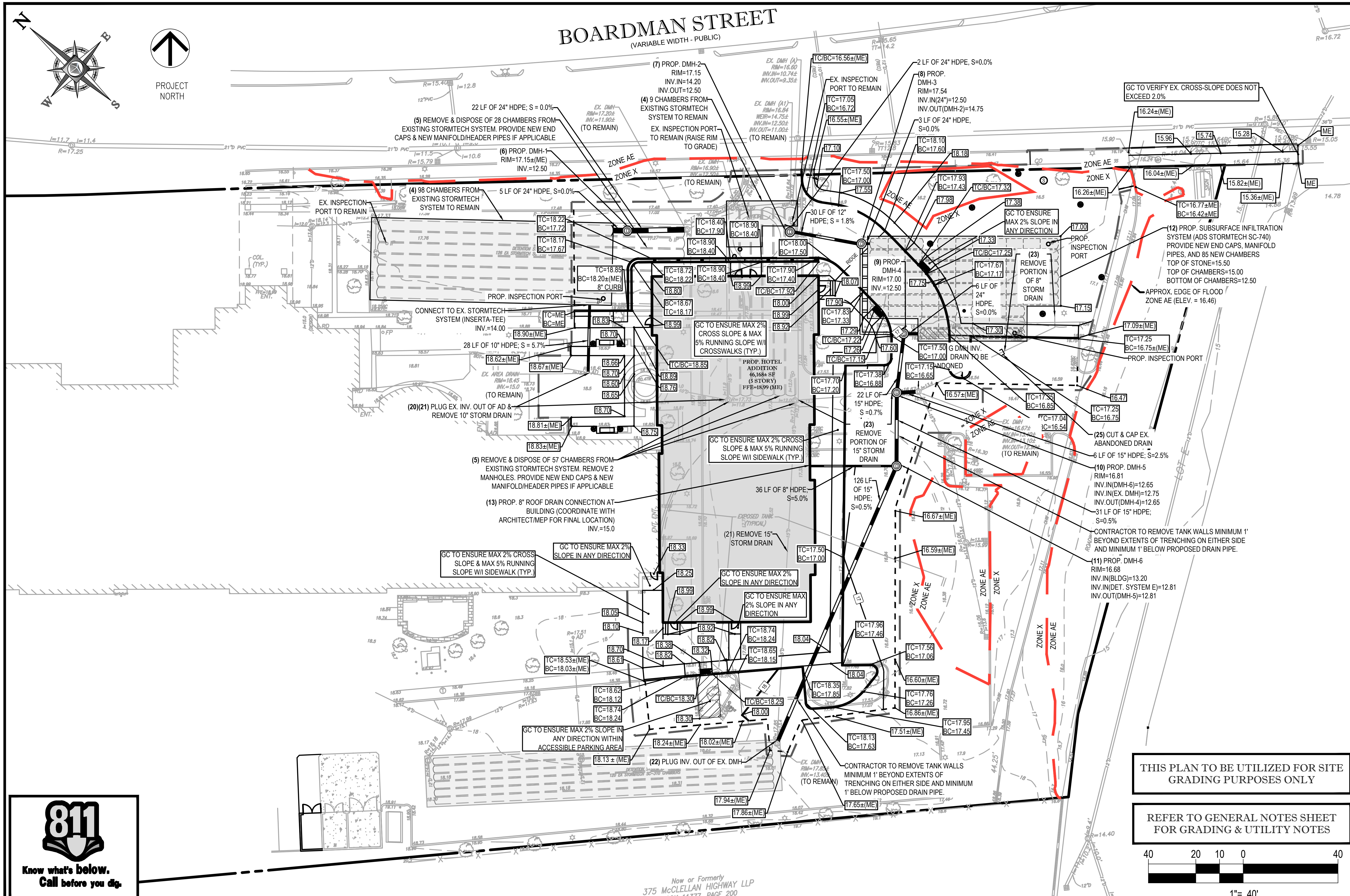
BOHLER ENGINEERING
45 FRANKLIN STREET
5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
www.BohlerEngineering.com

STEPHEN P. MARTORANO
COMMONWEALTH OF MASSACHUSETTS
No. 49944
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
4
OF 13

REV 10 - 08/09/2019



THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO GENERAL NOTES SHEET FOR GRADING & UTILITY NOTES

40 20 10 0 40

1"= 40'

811 Know what's below. Call before you dig.

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

UPSTATE NEW YORK, NEW ENGLAND, BOSTON, MA, NEW YORK, NY, NEW YORK METRO, NORTHERN NEW JERSEY, SOUTHERN NEW JERSEY, PHILADELPHIA, PA, PITTSBURGH, PA, LEHIGH VALLEY, PA, SOUTHEASTERN, PA, REHOBOTH BEACH, DE, BALTIMORE, MD, SOUTHERN MARYLAND, NORTHERN VIRGINIA, CENTRAL VIRGINIA, RALEIGH, NC, WASHINGTON, DC, CHARLOTTE, NC, ATLANTA, GA, TAMPA, FL, SOUTH FLORIDA, DALLAS, TX

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9	06/26/19	DUMPSTER REV	ADB
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12			
13			
14			
15			

PERMIT SET

PROJECT No.: M171024
DRAWN BY: ADB
CHECKED BY: DB
DATE: 01/08/19
SCALE: AS NOTED
CAD I.D.: M171024_SS6_Con-Com

PROJECT:
SITE DEVELOPMENT PLANS
FOR
HILTON GARDEN INN EAST BOSTON PHASE 2

LOCATION OF SITE
PARCEL 3, LOT #01005220000
100 BOARDMAN STREET
SUFFOLK COUNTY
EAST BOSTON, MA

BOHLER ENGINEERING
45 FRANKLIN STREET
5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
www.BohlerEngineering.com

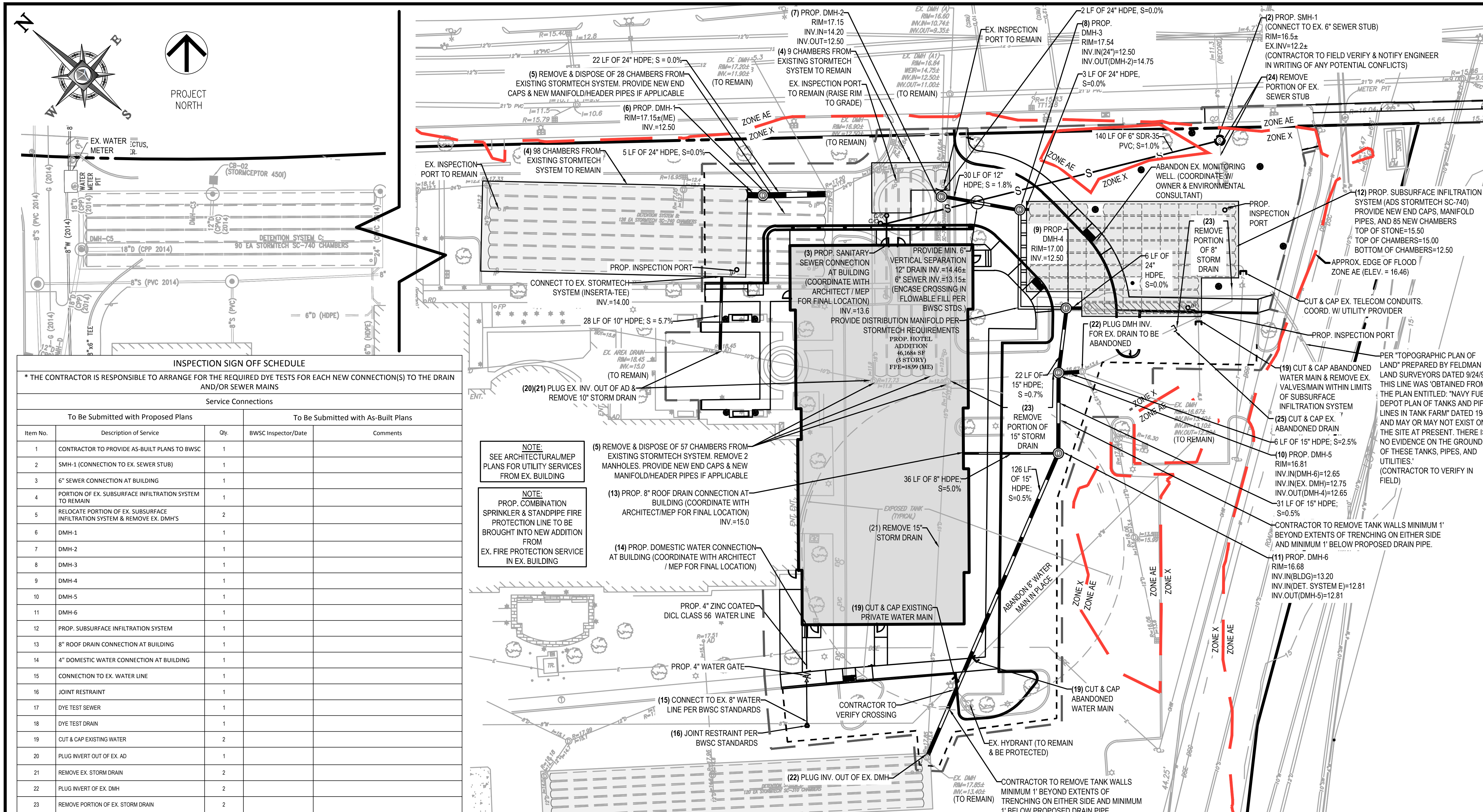
STEPHEN P. MARTORANO
CIVIL

SHEET TITLE:
GRADING & DRAINAGE PLAN

BWSC SITE PLAN #18609

SHEET NUMBER:
5
OF 13

REV 10 - 08/09/2019



INSPECTION SIGN OFF SCHEDULE

* THE CONTRACTOR IS RESPONSIBLE TO ARRANGE FOR THE REQUIRED DYE TESTS FOR EACH NEW CONNECTION(S) TO THE DRAIN AND/OR SEWER MAINS

Service Connections

To Be Submitted with Proposed Plans			To Be Submitted with As-Built Plans	
Item No.	Description of Service	Qty.	BWSC Inspector/Date	Comments
1	CONTRACTOR TO PROVIDE AS-BUILT PLANS TO BWSC	1		
2	SMH-1 (CONNECTION TO EX. SEWER STUB)	1		
3	6" SEWER CONNECTION AT BUILDING	1		
4	PORTION OF EX. SUBSURFACE INFILTRATION SYSTEM TO REMAIN	1		
5	RELOCATE PORTION OF EX. SUBSURFACE INFILTRATION SYSTEM & REMOVE EX. DMH'S	2		
6	DMH-1	1		
7	DMH-2	1		
8	DMH-3	1		
9	DMH-4	1		
10	DMH-5	1		
11	DMH-6	1		
12	PROP. SUBSURFACE INFILTRATION SYSTEM	1		
13	8" ROOF DRAIN CONNECTION AT BUILDING	1		
14	4" DOMESTIC WATER CONNECTION AT BUILDING	1		
15	CONNECTION TO EX. WATER LINE	1		
16	JOINT RESTRAINT	1		
17	DYE TEST SEWER	1		
18	DYE TEST DRAIN	1		
19	CUT & CAP EXISTING WATER	2		
20	PLUG INVERT OUT OF EX. AD	1		
21	REMOVE EX. STORM DRAIN	2		
22	PLUG INVERT OF EX. DMH	2		
23	REMOVE PORTION OF EX. STORM DRAIN	2		
24	REMOVE PORTION OF EX. SEWER STUB	1		
25	CUT & CAP EXISTING DRAIN	1		
26	4:1 I/I	1		

811 Know what's below. Call before you dig.

NOTES:

1. BASED ON THE SEWER GENERATION RATES IN THE STATE ENVIRONMENTAL CODE TITLE V (TITLE V), 310 CMR 15.203 AND THE PROJECT'S ASSUMED BUILDING PROGRAM, THE SANITARY SEWER FLOWS ARE EXPECTED TO BE APPROXIMATELY 9,240 GALLONS PER DAY (GPD) FOR THE PROPOSED 84-BEDROOM ADDITION ONTO THE HOTEL.
2. WATER, STORM DRAIN, & SANITARY SEWER IS SUBJECT TO FINAL BOSTON WATER & SEWER COMMISSION (BWSC) APPROVAL. CONTRACTOR TO ENSURE CONSTRUCTION CONFORMS TO THE FINAL BWSC APPROVED PLANS.
3. REFER TO ELECTRICAL PLAN FOR LIGHTING MODIFICATIONS.
4. DUE TO ONSITE SOIL CONDITIONS, OVER-EXCAVATION OF 1' AND REPLACEMENT WITH CRUSHED STONE SHALL BE ASSUMED FOR ALL UTILITIES. CONTRACTOR TO COORDINATE WITH OWNER FOR CONTRACTUAL REQUIREMENTS FOR MATERIAL REMOVAL.

SUMMARY OF DRAINAGE CALCULATIONS

DESIGN RUNOFF VOLUME (CRUSHED STONE INFILTRATION SYSTEM)

1-YEAR DESIGN STORM (1 INCH)
IMPERVIOUS AREA (WESTERN PLAZA) = 3,937 SF
TOTAL = 3,937 SF

RUNOFF VOLUME = 3937 SF x 1 INCH / (12 IN./FT) = 328 CF

PROP. CRUSHED STONE INFILTRATION SYSTEM
CRUSHED STONE = 382 SF x 2.5' x 0.3 = 286 CF
PERFORATED PIPE = 12" Ø = 0.785 SF x 95.4' = 75 CF
= 361 CF

TOTAL VOLUME PROVIDED = 361 CF > 328 CF = O.K.

DESIGN RUNOFF VOLUME (ADS STORMTECH/RAIN GARDEN #1)

1-YEAR DESIGN STORM (1 INCH)
IMPERVIOUS AREA (PAVEMENT) = 13,745
IMPERVIOUS AREA (BUILDING ROOF) = 27,711 SF
TOTAL = 41,456 SF

RUNOFF VOLUME = 41,456 SF x 1 INCH / (12 IN./FT) = 3,455 CF

PROP. ADS INFILTRATION CHAMBER SYSTEM
60 CHAMBERS x 45.9 CF = 2,756 CF
CRUSHED STONE = 5,190 CF x 0.3 = 1,557 CF
TOTAL = 4,313 CF

VOLUME PROVIDED BELOW LOWEST OUTLET (15.50 FT) = 3,973 CF

TOTAL VOLUME PROVIDED = 3,973 CF > 2,756 CF = O.K.

DESIGN RUNOFF VOLUME (RAIN GARDEN #2)

1-YEAR DESIGN STORM (1 INCH)
IMPERVIOUS AREA (EAST SIDEWALKS) = 1,205 SF
TOTAL = 1,205 SF

RUNOFF VOLUME = 1,205 SF x 1 INCH / (12 IN./FT) = 100 CF

PROP. RAIN GARDEN
VOLUME PROVIDED BELOW LOWEEST OUTLET (15.50) = 172 CF

TOTAL VOLUME PROVIDED =172 CF > 100 CF = O.K.

THIS PLAN TO BE UTILIZED FOR DRAINAGE & UTILITIES PURPOSES ONLY

REFER TO GENERAL NOTES SHEET FOR DRAINAGE & UTILITY NOTES

40 20 10 0 40
1"= 40'

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES
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REVISIONS

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CHECKED BY: DB
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CAD I.D.: M171024_SS6_Con-Com

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FOR
HILTON GARDEN INN EAST BOSTON PHASE 2

LOCATION OF SITE
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100 BOARDMAN STREET
SUFFOLK COUNTY
EAST BOSTON, MA

BOHLER ENGINEERING
45 FRANKLIN STREET
5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
www.BohlerEngineering.com

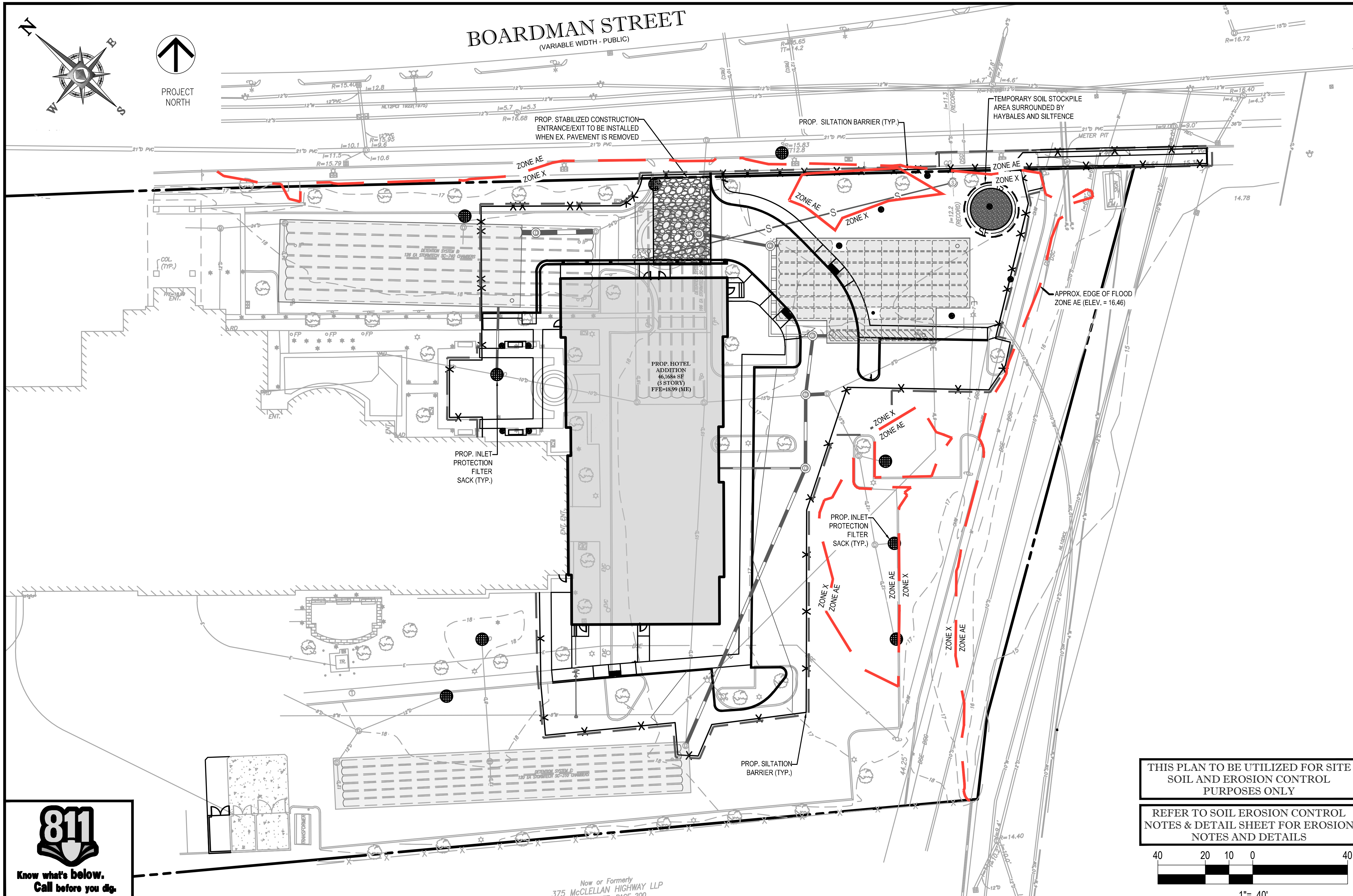
S.P. MARTORANO
COMMONWEALTH OF MASSACHUSETTS STEPHEN P. MARTORANO CIVIL REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:
DRAINAGE & UTILITY PLAN

BWSC SITE PLAN #18609

SHEET NUMBER:
6
OF 13

REV 10 - 08/09/2019



BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

UPSTATE NEW YORK ♦ NEW ENGLAND ♦ BOSTON, MA ♦ NEW YORK, NY ♦ NEW YORK METRO ♦ NORTHERN NEW JERSEY ♦ SOUTHERN NEW JERSEY ♦ PHILADELPHIA, PA ♦ PITTSBURGH, PA ♦ LEHIGH VALLEY, PA ♦ SOUTHEASTERN, PA ♦ REHOBOTH BEACH, DE ♦ BALTIMORE, MD ♦ SOUTHERN MARYLAND ♦ NORTHERN VIRGINIA ♦ CENTRAL VIRGINIA ♦ RALEIGH, NC ♦ WASHINGTON, DC ♦ CHARLOTTE, NC ♦ ATLANTA, GA ♦ TAMPA, FL ♦ SOUTH FLORIDA ♦ DALLAS, TX

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FOR
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LOCATION OF SITE
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BOSTON, MA 02110
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S.P. MARTORANO
PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS STEPHEN P. MARTORANO CIVIL No. 45942 REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:
SOIL EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
7
OF 13

REV 10 - 08/09/2019

EROSION & SEDIMENT CONTROL NOTES

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
3. SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
4. INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
7. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
8. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
   - 10.1. SIX INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
   - 10.2. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER1,000 SF).
   - 10.3. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUE-GRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS: SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.
   - 10.4. STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
12. WETLANDS WILL BE PROTECTED W/strawBALES AND/OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
13. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
14. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED,

MULCH

LOCATION	MULCH	RATE (1000 SF)
PROTECT AREA	STRAW	100 POUNDS
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS STRAW (ANCHORED)*	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELSIOR MAT	AS REQUIRED

GREATER THAN 3:1 (REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)

* A HYDRO-APPLICATION OF WOOD, OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON STRAW MULCH FOR WIND CONTROL.

MULCH ANCHORING
ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD/BLOCK); MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LBS/ACRE); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); USE OF A SERRATED STRAIGHT DISK. WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
4. CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR straw AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 200 - 300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF straw OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
7. MULCHING REQUIREMENTS:
   - 7.1. BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
   - 7.2. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
   - 7.3. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
8. AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
9. DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
10. STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
11. EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.

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Know what's below.
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CONSTRUCTION SEQUENCE

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

-INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)

-INSTALLATION OF EROSION CONTROL BARRIER (SILT FENCE AND/OR WATTLES) (AS SHOWN)

-INSTALLATION OF INLET PROTECTION IN STREET (AS SHOWN)

-DEMOLITION OF EXISTING SITE STRUCTURES (SEE DEMOLITION PLAN)

-DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES (SEE DEMOLITION PLAN)

-CLEARING AND GRUBBING

-INSTALLATION OF TEMPORARY SWALES AND SEDIMENT BASINS, IF APPLICABLE

-EARTHWORK AND EXCAVATION/FILLING AS NECESSARY

-CONSTRUCTION OF UTILITIES

-STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING

-INSTALLATION OF INLET PROTECTION OF ON-SITE UTILITIES (AS SHOWN)

-CONSTRUCTION OF BUILDINGS

-CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS

-SPREAD TOPSOIL ON SLOPED AREAS AND SEED AND MULCH

-FINAL GRADING OF ALL SLOPED AREAS

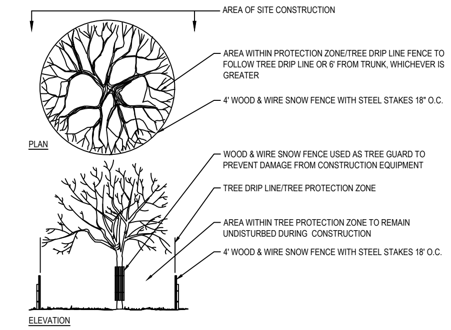
-PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.

-REMOVAL OF THE TEMPORARY SEDIMENT BASINS, IF APPLICABLE

-PAVE PARKING LOT

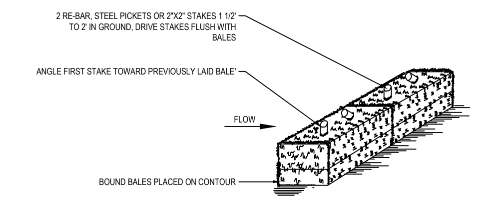
-LANDSCAPING PER LANDSCAPING PLAN

-REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER.



TREE PROTECTION DURING CONSTRUCTION

N.T.S.

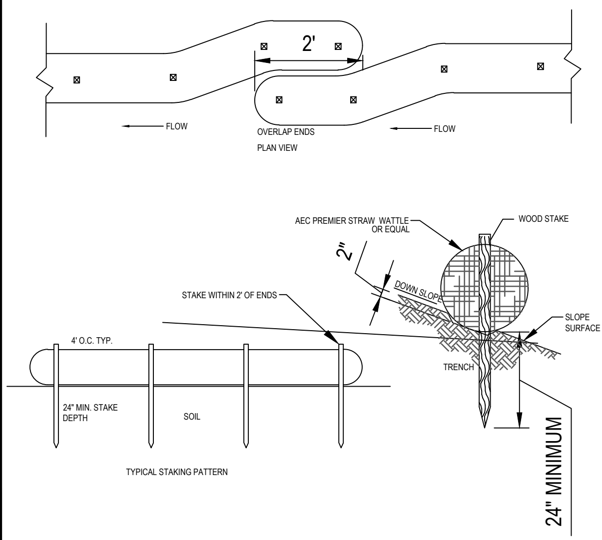


DRAINAGE AREA NO MORE THAN 1/4 AC. PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%

NOTES:
1. BALES SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

STRAW BALE DETAIL

N.T.S.



STRAW WATTLES

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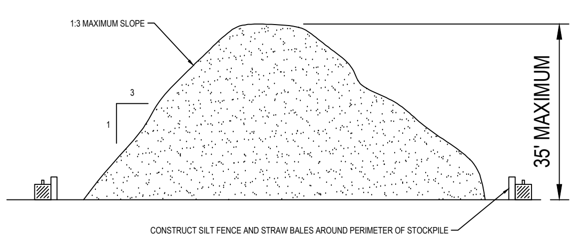
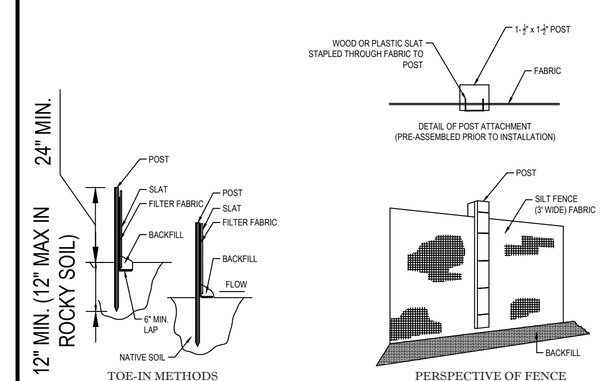


TEMPORARY STOCKPILE DETAIL

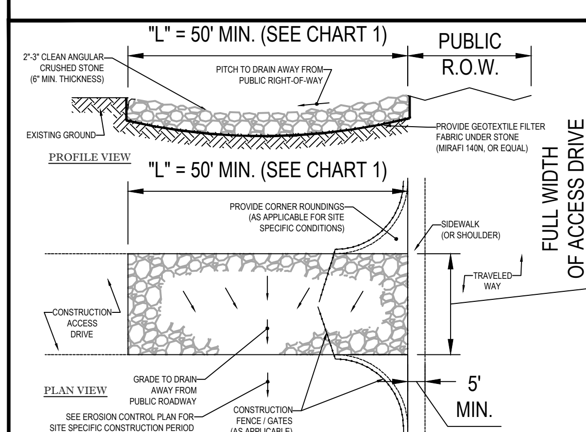
N.T.S.

INSTALLATION:
1. EXCAVATE A 6"x 6" TRENCH ALONG THE LINE OF EROSION CONTROL OF THE SITE.
2. UNROLL SILTATION FENCE AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH (NET SIDE AWAY FROM FLOW DIRECTION).
3. DRIVE THE POST INTO THE GROUND UNTIL THE NETTING IS LAYING ACROSS THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF THE FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING FABRIC FLAP ON UNDISTURBED GROUND AND PILING & TAMP- ING FILL AT THE BASE.



TYP. SILTATION FENCE DETAIL

N.T.S.



MAINTENANCE NOTES:
1. INSPECT STABILIZED CONSTRUCTION ENTRANCE / ANTI-TRACKING PAD AND SEDIMENT DISPOSAL AREA WEEKLY OR AFTER EVERY MAJOR RAIN STORM EVENT.
2. WASH WATER (IF USED) SHALL BE DIRECTED TOWARD A SEDIMENT TRAP, SUFFICIENTLY SIZED FOR SPECIFIC SITE CONDITIONS.
3. EXCESSIVELY MUD-CLOGGED STONE SHALL BE REMOVED AND REPLACED, AS NEEDED.

CHART 1

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABC BASE COURSE (1)	

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

STABILIZED CONSTRUCTION EXIT

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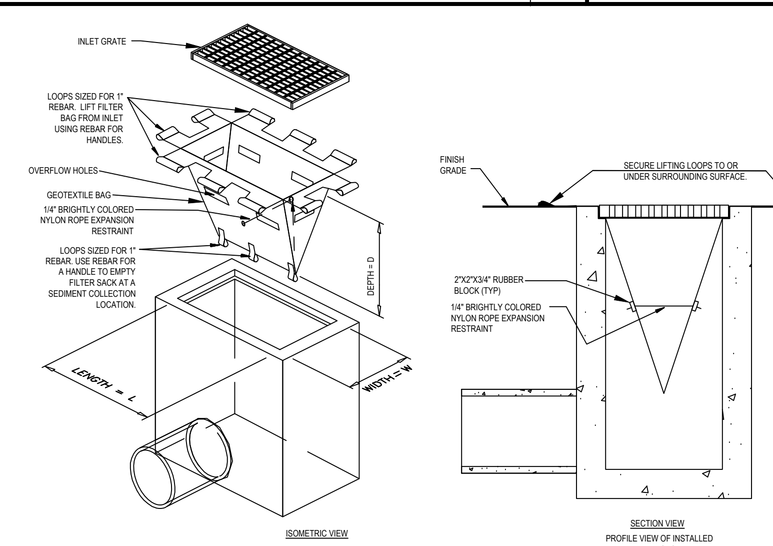


LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

1. REMOVE TRAPPED SEDIMENT WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
2. GEOTEXTILE SHALL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
3. PLACE AN OIL ADSORBENT PAD OR PILLOW OVER INLET GRATE WHEN OIL SPILLS ARE A CONCERN.
4. INSPECT PER REGULATORY REQUIREMENTS.
5. THE WIDTH, "W", OF THE FILTER SACK SHALL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
6. THE DEPTH, "D", OF THE FILTER SACK SHALL BE BETWEEN 18 INCHES AND 36 INCHES
7. THE LENGTH, "L", OF THE FILTER SACK SHALL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

DO NOT USE IN PAVED AREAS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

TO BE USED IN EXISTING RIGHT OF WAY

INLET PROTECTION FILTER SACKS (GRATED INLETS)

N.T.S.

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	BY
1	01/21/19	50% HILTON SUBMITTAL	ADB
2	02/08/19	UPDATES PER BWSC CMNTS	ADB
3	02/22/19	90% PROGRESS SUBMITTAL	ADB
4	02/26/19	BWSC SUBMITTAL	ADB
5	03/22/19	PERMIT SET	ADB
6	03/25/19	BWSC COMMENTS	ADB
7	03/29/19	CONTRACT DOCUMENTS	ADB
8	05/31/19	ASI #1	ADB
9	06/26/19	DUMPSTER REV	ADB
10	08/07/19	CON COM SUBMISSION	JJW
11	08/09/19	REVISED LANDSCAPE & STAMPED SURVEY	ECA
12			
13			
14			
15			

PERMIT SET

PROJECT No.:	M171024
DRAWN BY:	ADB
CHECKED BY:	DB
DATE:	01/08/19
SCALE:	AS NOTED
CAD I.D.:	M171024_SS6_Con-Com

PROJECT:
SITE DEVELOPMENT PLANS
FOR
HILTON GARDEN INN EAST BOSTON PHASE 2

LOCATION OF SITE
PARCEL 3, LOT #01005220000
100 BOARDMAN STREET
SUFFOLK COUNTY
EAST BOSTON, MA

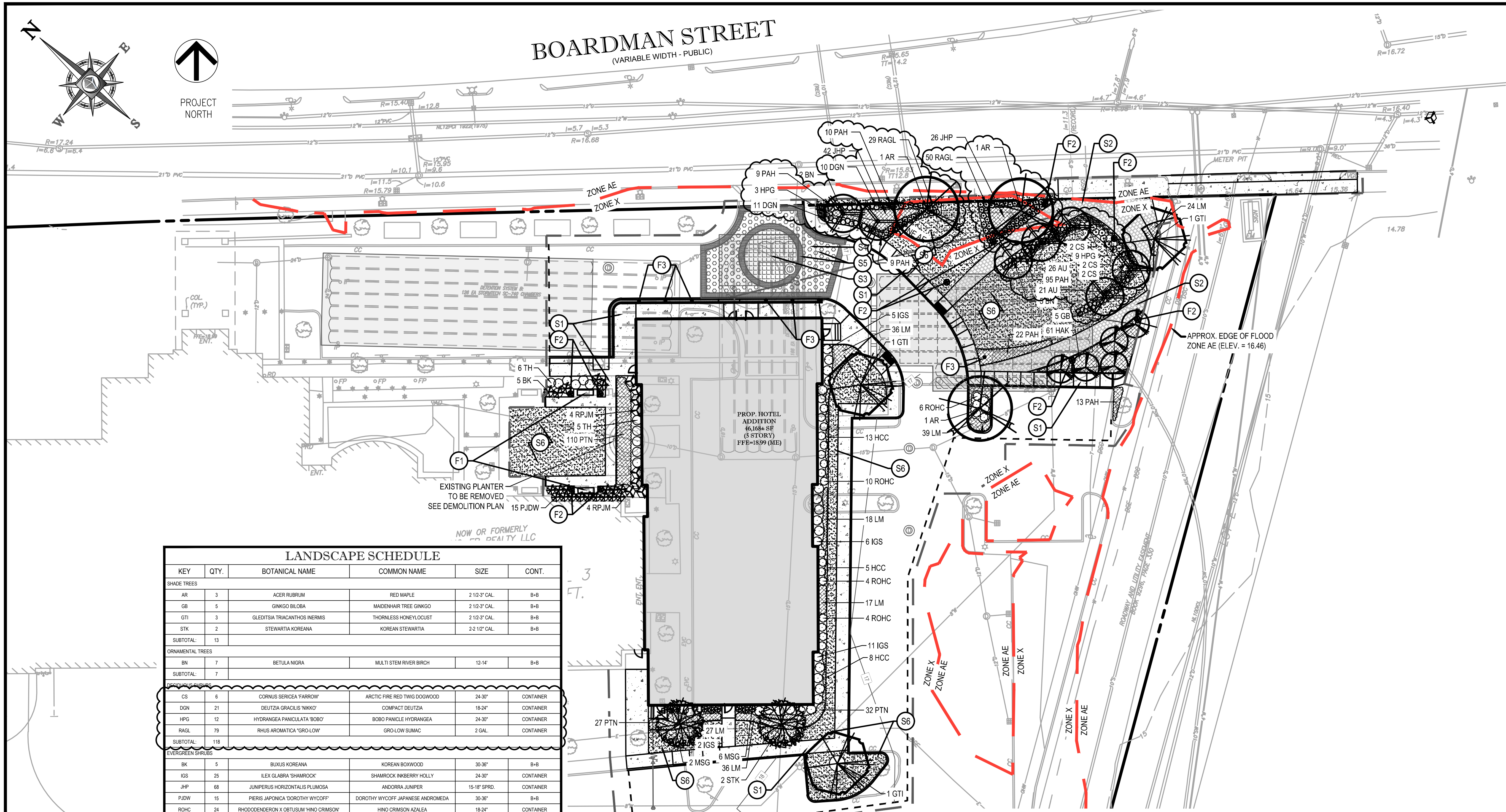
BOHLER ENGINEERING
45 FRANKLIN STREET
5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
www.BohlerEngineering.com

S.P. MARTORANO
PROFESSIONAL ENGINEER
STEPHEN P. MARTORANO CIVIL No. 45944

SHEET TITLE:
SOIL EROSION CONTROL NOTES & DETAIL SHEET

SHEET NUMBER:
8
OF 13

REV 10 - 08/09/2019



LANDSCAPE SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONT.
SHADE TREES					
AR	3	ACER RUBRUM	RED MAPLE	2 1/2-3" CAL.	B+B
GB	5	GINKGO BILOBA	MAIDENHAIR TREE GINKGO	2 1/2-3" CAL.	B+B
GTI	3	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	2 1/2-3" CAL.	B+B
STK	2	STEWARTIA KOREANA	KOREAN STEWARTIA	2-2 1/2" CAL.	B+B
SUBTOTAL:	13				
ORNAMENTAL TREES					
BN	7	BETULA NIGRA	MULTI STEM RIVER BIRCH	12-14'	B+B
SUBTOTAL:	7				
DECIDUOUS SHRUBS					
CS	6	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24-30"	CONTAINER
DGN	21	DEUTZIA GRACILIS 'NIKKO'	COMPACT DEUTZIA	18-24"	CONTAINER
HPG	12	HYDRANGEA PANICULATA 'BOBO'	BOBO PANICLE HYDRANGEA	24-30"	CONTAINER
RAGL	79	RHUS AROMATICA "GRO-LOW"	GRO-LOW SUMAC	2 GAL.	CONTAINER
SUBTOTAL:	118				
EVERGREEN SHRUBS					
BK	5	BUXUS KOREANA	KOREAN BOXWOOD	30-36"	B+B
IGS	25	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24-30"	CONTAINER
JHP	68	JUNIPERUS HORIZONTALIS PLUMOSA	ANDORRA JUNIPER	15-18" SPRD.	CONTAINER
PJDW	15	PIERIS JAPONICA 'DOROTHY WYCOFF'	DOROTHY WYCOFF JAPANESE ANDROMEDA	30-36"	B+B
ROHC	24	RHODODENDERON X OBTUSUM 'HINO CRIMSON'	HINO CRIMSON AZALEA	18-24"	CONTAINER
RPJM	8	RHODODENDRON CAROLINIANA X PJM	PJM RHODODENDRON	24-30"	B+B
TH	11	TAXUS MEDIA 'HICKSII'	HICKS YEW	30-36"	B+B
SUBTOTAL:	156				
GROUND COVERS					
AU	47	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	12-15"	CONTAINER
SUBTOTAL:	47				
PERENNIALS					
HCC	26	HEMEROCALLIS 'CHERRY CHEEKS'	CHERRY CHEEKS DAYLILY	2 GAL.	CONTAINER
PTN	169	PACHYSANDRA TERMINALES	JAPANESE SPURGE	CELL PACK	FLATS
LM	197	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LILYTURF	1 PT.	CONTAINER
SUBTOTAL:	392				
ORNAMENTAL GRASSES					
HAK	61	HAKONECHLOA MACRA 'AUREOLA'	JAPANESE FOREST GRASS	1 PT.	CONTAINER
MSG	8	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	2 GAL.	CONTAINER
PAH	158	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	2 GAL.	CONTAINER
SUBTOTAL:	227				

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OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVEL SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

THIS PLAN TO BE UTILIZED FOR LANDSCAPE AND MATERIALS PURPOSES ONLY

REFER LANDSCAPE NOTES & DETAILS SHEET FOR LANDSCAPE NOTES AND DETAILS

40 20 10 0 40
1"= 40'

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING · LAND SURVEYING · PROGRAM MANAGEMENT · LANDSCAPE ARCHITECTURE · SUSTAINABLE DESIGN · PERMITTING SERVICES · TRANSPORTATION SERVICES

REVISIONS

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12			
13			
14			
15			

PERMIT SET

PROJECT No.:	M171024
DRAWN BY:	ADB
CHECKED BY:	DB
DATE:	01/08/19
SCALE:	AS NOTED
CAD I.D.:	M171024_SS6_Con-Com

PROJECT:
SITE DEVELOPMENT PLANS
FOR
HILTON GARDEN INN EAST BOSTON PHASE 2

LOCATION OF SITE
PARCEL 3, LOT #01005220000
100 BOARDMAN STREET
SUFFOLK COUNTY
EAST BOSTON, MA

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SHEET TITLE:
PLANTING AND MATERIALS PLAN

SHEET NUMBER:
9
OF 13

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