

Notice of Intent Application



November 29, 2021

Subject Property
20 Norwood Street
Boston (Dorchester), Massachusetts

Property Owner
Cambridge Street Realty, LLC
Bruce Efron, Manager
572 Freeport Street, Unit A
Dorchester, MA 02122

Applicant
Tim Longden
1A Treetop Circle
Northborough, MA 01532

LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101
Wakefield, MA 01880
781-245-2500

www.lecenvironmental.com



November 29, 2021

Federal Express

Boston Conservation Commission
City of Boston Environmental Department
Boston City Hall, Room 709
Boston, MA 02201

**RE: Notice of Intent Application
20 Norwood Street
Assessor's Parcel ID: 1602506000
Boston (Dorchester), Massachusetts**

[LEC File #: LongT\21-281.02]

Dear Members of the Commission:

On behalf of Tim Longden, LEC Environmental Consultants, Inc., (LEC) is submitting this Notice of Intent Application to demolish a multi-family dwelling and construct a new 8-unit apartment building with ground-level parking and lobby. The entire site is located within Land Subject to Coastal Storm Flowage (LSCSF). Erosion controls and stormwater management are proposed.

This proposed work will result in an improvement over existing conditions and further protect the interests of LSCSF under the *Massachusetts Wetlands Protection Act* (M.G.L., c. 131, s. 40) and its implementing *Regulations* (310 CMR 10.00) or the *Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston City of Boston Code* (Chapter VII-I.IV, adopted 12/11/2019, the *Ordinance*) and the implementing *Boston Wetland Regulations* (approved 8/19/2020, the *Ordinance Regulations*).

Checks payable to the City of Boston for the *Act* and *Ordinance* filing fees were previously mailed to the Boston Conservation Commission. A check also has been sent to the Department of Environmental Protection Lock Box for the Commonwealth portion of the *Act* filing fee.

Thank you for consideration of this NOI Application. We look forward to discussing this project with the Commission at the December 15, 2021 Public Meeting. If you have any questions, I may be contacted in our Wakefield Office at 781-245-2500 or at rkirby@lecenvironmental.com.

Sincerely,

LEC Environmental Consultants, Inc.

Richard A. Kirby
Senior Wetland Scientist

cc: DEP, Northeast Regional Office; Cambridge Street Realty, LLC, Tim Longden

LEC Environmental Consultants, Inc.			www.lecenvironmental.com	
12 Resnik Road Suite 1 Plymouth, MA 02360 508.746.9491	380 Lowell Street Suite 101 Wakefield, MA 01880 781.245.2500	100 Grove Street Suite 302 Worcester, MA 01605 508.753.3077	P.O. Box 590 Rindge, NH 03461 603.899.6726	680 Warren Avenue Suite 3 East Providence, RI 02914 401.685.3109
PLYMOUTH, MA	WAKEFIELD, MA	WORCESTER, MA	RINDGE, NH	EAST PROVIDENCE, RI

Notice of Intent Application

- i. WPA Form 3 – Notice of Intent Application
- ii. List of Plans and Documents
- iii. WPA Appendix B – Wetland Fee Transmittal Form
- iv. Boston NOI Form
- v. Affidavit of Service
- vi. Notification to Abutters (English and Spanish), CCCS, Inc. Translation Certification, and Babel Notice
- vii. List of Abutters

NOI Application Report

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2.0	Project Context and General Site Description	1
2.1	Natural Heritage and Endangered Species Program Designation	2
3.0	FEMA Floodplain Designation-Land Subject to Coastal Storm Flowage	2
4.0	Proposed Construction	2
4.1	Means and Methods for Construction	3
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Literature Referenced

Appendices

Appendix A

Locus Maps

Figure 1: USGS Topographic Quadrangle

Figure 2: FEMA Flood Insurance Rate Map

Figure 3: MassGIS Orthophoto & NHESP Map

Figure 4: Coastal Flood Resilience Zone

Appendix B

Existing Site Plan 20 Norwood Street Dorchester, MA dated November 23, 2021, prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA dated October 28, 2020 and revised through November 23, 2021, prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA dated October 28, 2020 and revised through September 9, 2021, prepared by Civil Environmental Consultants, Inc., signed by the Boston Water and Sewer Commission (copy only)

Proposed Foundation Plan 20 Norwood Street, Dorchester, MA dated November 8, 2020, revised through November 18, 2021, prepared by Civil Environmental Consultants, Inc.

Appendix C

Drainage Report at 20 Norwood Street and HydroCAD Calculations dated November 18, 2021, prepared by Civil Environmental Consultants, Inc.

Operation and Maintenance Plan dated September, 2021, prepared by Civil Environmental Consultants, Inc.

Illicit Discharge Statement

DEP Stormwater Checklist

Appendix D

BDPA Climate Resiliency Checklist



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):

<u>20 Norwood Street</u>	<u>Boston (Dorchester)</u>	<u>02122</u>
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:		
<u>42.291140 N</u>	<u>-71.045810 W</u>	
d. Latitude	e. Longitude	
<u>Parcel ID: 1602506000</u>	<u>g. Parcel /Lot Number</u>	
f. Assessors Map/Plat Number		

2. Applicant:

<u>Tim</u>	<u>Longden</u>	
a. First Name	b. Last Name	
<u>c. Organization</u>		
<u>1A Treetop Circle</u>		
d. Street Address		
<u>Northborough</u>	<u>MA</u>	<u>01532</u>
e. City/Town	f. State	g. Zip Code
<u>508-769-8912</u>	<u>n/a</u>	<u>tlongden14@yahoo.com</u>
h. Phone Number	i. Fax Number	j. Email Address

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

<u>Bruce</u>	<u>Efron</u>	
a. First Name	b. Last Name	
<u>Cambridge Street Realty, LLC</u>		
c. Organization		
<u>572 Freeport Street, Unit A</u>		
d. Street Address		
<u>Dorchester</u>	<u>MA</u>	<u>02122</u>
e. City/Town	f. State	g. Zip Code
<u>781-290-8464</u>	<u>n/a</u>	<u>blefron@gmail.com</u>
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

<u>Richard</u>	<u>Kirby</u>	
a. First Name	b. Last Name	
<u>LEC Environmental Consultants, Inc.</u>		
c. Company		
<u>380 Lowell Street, Suite 101</u>		
d. Street Address		
<u>Wakefield</u>	<u>MA</u>	<u>01880</u>
e. City/Town	f. State	g. Zip Code
<u>781-245-2500</u>	<u>781-245-6677</u>	<u>rkirby@lecenvironmental.com</u>
h. Phone Number	i. Fax Number	j. Email address

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

<u>\$2,012.50</u>	<u>\$512.50</u>	<u>\$1,500.00</u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The Applicant proposes to demolish a multi-family dwelling and construct an apartment building within Land Subject to Coastal Storm Flowage. Erosion controls and stormwater management are proposed as part of the project. No other Wetland Resource Areas or Buffer Zones occur within the site.

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: Apartment Building

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:

Suffolk	
a. County	b. Certificate # (if registered land)
51672	140
c. Book	d. Page Number

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

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

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



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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. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> 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.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	_____	
	1. square feet	

	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	_____	_____
	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	_____	_____
	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	_____	
	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	_____	
	1. square feet	
h. <input type="checkbox"/> Salt Marshes	_____	_____
	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	_____	
	1. square feet	

	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	_____	
	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	

	1. cubic yards dredged	
l. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	_____	
	6,000± square feet	

	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

- 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**

- 2021 _____
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*

- Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage
- Assessor's Map or right-of-way plan of site

- 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 <https://www.mass.gov/endangered-species-act-mesa-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 <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; 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:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

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

- c. Is this an aquaculture project? d. Yes No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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

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

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. Yes No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. Yes No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. A portion of the site constitutes redevelopment
 3. Proprietary BMPs are included in the Stormwater Management System.
 b. No. Check why the project is exempt:
 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.

<u>Site Plan #20-467 20 Norwood Street, Dorchester, MA for Bruce Efron</u>	
a. Plan Title	
Civil Environmental Consultants, LLC	James A. Herrick
b. Prepared By	c. Signed and Stamped by
Dated 10/28/2020, revised 11/23/2021	1" = 10'
d. Final Revision Date	e. Scale
Drainage Report at 20 Norwood Street prepared by Civil Environmental Consultants, LLC	November 18, 2021
	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:

<u>1525</u>	<u>11/10/2021</u>
2. Municipal Check Number	3. Check date
<u>1526</u>	<u>11/10/2021</u>
4. State Check Number	5. Check date
<u>Diana E. & Timothy C.</u>	<u>Longden</u>
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
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date

For Conservation Commission:

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

For MassDEP:

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

Other:

If the applicant has checked the "yes" box in 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.

List of Plans and Documents

Existing Site Plan 20 Norwood Street Dorchester, MA

Dated November 23, 2021

Prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA

Dated October 28, 2020 and revised through November 18, 2021,

Prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA

Dated October 28, 2020 and revised through September 9, 2021

Prepared by Civil Environmental Consultants, Inc.

Signed by the Boston Water and Sewer Commission (copy only)

Proposed Foundation Plan 20 Norwood Street, Dorchester, MA

Dated November 8, 2020, revised through November 18, 2021

Prepared by Civil Environmental Consultants, Inc.

Drainage Report at 20 Norwood Street and HydroCAD Calculations

Dated November 18, 2021

Prepared by Civil Environmental Consultants, Inc.

Operation and Maintenance Plan

Dated September, 2021

Prepared by Civil Environmental Consultants, Inc.

Illicit Discharge Statement

DEP Stormwater Checklist



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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 3a: apartment building	1	\$2,012.50	\$2,012.50
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Step 5/Total Project Fee:			<u>\$2,012.50</u>
Step 6/Fee Payments:			
Total Project Fee:			<u>\$2,012.50</u> a. Total Fee from Step 5
State share of filing Fee:			<u>\$512.50</u> b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:			<u>\$1,500.00</u> 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.)



5. Is any portion of the proposed project jurisdictional under the Massachusetts Wetlands Protection Act M.G.L. c. 131 §40?

- Yes No

If yes, please file the WPA Form 3 - Notice of Intent with this form

6. General Information

The Applicant proposes to demolish a multi-family dwelling and construct an apartment building within LSCSF. Erosion controls and stormwater maangement are proposed.

No other Wetland Resource Areas of Buffer Zones occur on the site.

7. Project Type Checklist

- | | |
|---|---|
| a. <input type="checkbox"/> Single Family Home | b. <input type="checkbox"/> Residential Subdivision |
| c. <input type="checkbox"/> Limited Project Driveway Crossing | d. <input type="checkbox"/> Commercial/Industrial |
| e. <input type="checkbox"/> Dock/Pier | f. <input type="checkbox"/> Utilities |
| g. <input type="checkbox"/> Coastal Engineering Structure | h. <input type="checkbox"/> Agriculture – cranberries, forestry |
| i. <input type="checkbox"/> Transportation | j. <input checked="" type="checkbox"/> Other |

8. Property recorded at the Registry of Deeds

Suffolk

a. County

140

b. Page Number

51672

c. Book

n/a

d. Certificate # (if registered land)

9. Total Fee Paid

\$2,012.50

a. Total Fee Paid

\$512.50

b. State Fee Paid

\$1,500.00 + \$550.00 Ordinance Fee

c. City Fee Paid

B. BUFFER ZONE & RESOURCE AREA IMPACTS

Buffer Zone Only - Is the project located only in the Buffer Zone of a resource area protected by the Boston Wetlands Ordinance?

- Yes No

1. Coastal Resource Areas



<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Coastal Flood Resilience Zone	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> 25-foot Waterfront Area	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> 100-foot Salt Marsh Area	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> Riverfront Area	_____	_____	_____
	Square feet	Square feet	Square feet

2. Inland Resource Areas

<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Inland Flood Resilience Zone	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> Isolated Wetlands	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> Vernal Pool	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> Vernal Pool Habitat (vernal pool + 100 ft. upland area)	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> 25-foot Waterfront Area	_____	_____	_____
	Square feet	Square feet	Square feet
<input type="checkbox"/> Riverfront Area	_____	_____	_____
	Square feet	Square feet	Square feet

C. OTHER APPLICABLE STANDARDS & REQUIREMENTS

1. What other permits, variances, or approvals are required for the proposed activity described herein and what is the status of such permits, variances, or approvals?

ZBA Review: Complete

BDPA Design Review: Complete



2. 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://www.mass.gov/dfwele/dfw/nhosp/nhregmap.htm>.

- Yes No

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

A. Submit Supplemental Information for Endangered Species Review

- Percentage/acreage of property to be altered:
- (1) within wetland Resource Area _____ percentage/acreage
 - (2) outside Resource Area _____ percentage/acreage

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

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

- Yes No

If yes, provide the name of the ACEC: _____

4. Is the proposed project subject to provisions of the Massachusetts Stormwater Management Standards?

- Yes. Attach a copy of the Stormwater Checklist & Stormwater Report as required.
- Applying for a Low Impact Development (LID) site design credits
 - A portion of the site constitutes redevelopment
 - Proprietary BMPs are included in the Stormwater Management System
- No. Check below & include a narrative as to why the project is exempt
- Single-family house
 - Emergency road repair
 - Small Residential Subdivision (less than or equal to 4 single family houses or less than or equal to 4 units in a multifamily housing projects) with no discharge to Critical Areas

5. Is the proposed project subject to Boston Water and Sewer Commission Review?

- Yes No



D. 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 Protection Ordinance.

Signature of Applicant

Signature of Property Owner (if different)

Signature of Representative (if any)

11/10/21

Date

11/10/21

Date

11/9/2021

Date

AFFIDAVIT OF SERVICE

Under the *Massachusetts Wetlands Protection Act*

and *Boston Wetlands Ordinance, City of Boston Code, Ordinances, Chapter 7-1.4*

I, Sharon A. Sullivan, on behalf of Tim Longden, hereby certify under the pains and penalties of perjury that on November 17, 2021, I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and 310 CMR 10.05 (4) (a) and Boston Wetlands Ordinance, City of Boston Code, Ordinances, Chapter 7-1.4 in connection with the following matter:

A Notice of Intent Application filed under the Massachusetts Wetlands Protection Act and the City of Boston Wetlands Ordinance by LEC Environmental Consultants, Inc. on behalf of the Applicant, Tim Longden, with the City of Boston Conservation Commission on November 17, 2021 for property located at 20 Norwood Street (Assessor's Parcel ID: 1602506000) in Boston, Massachusetts.

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.

Sharon A. Sullivan
Sharon A. Sullivan
Permitting Technician

11/17/2021
Date



**NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION**

In accordance with the Massachusetts Wetlands Protection Act, Massachusetts General Laws Chapter 131, Section 40, and the Boston Wetlands Ordinance, you are hereby notified as an abutter to a project filed with the Boston Conservation Commission.

A. Tim Longden has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity is proposed is 20 Norwood Street.

C. The project involves demolition of an existing multi-family dwelling and construction of an apartment building within Land Subject to Coastal Storm Flowage.

D. Copies of the Notice of Intent may be obtained by contacting the Boston Conservation Commission at CC@boston.gov.

E. Copies of the Notice of Intent may be obtained from LEC Environmental Consultants, Inc. by contacting them at (781) 245-2500 between the hours of 8:00 a.m. and 5:00 p.m., Monday thru Friday.

F. In accordance with the **Chapter 20 of the Acts of 2021**, the public hearing will take place **virtually** at <https://zoom.us/j/6864582044>. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.

G. Information regarding the date and time of the public hearing may be obtained from the **Boston Conservation Commission** by emailing CC@boston.gov or calling (617) 635-3850 between the hours of 9 AM to 5 PM, Monday through Friday.

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

NOTE: Notice of the public hearing, including its date, time, and place, will be posted on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance. If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201.

NOTE: You also may contact the Boston Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.

NOTE: If you plan to attend the public hearing and are in need of interpretation, please notify staff at CC@boston.gov by 12 PM the day before the hearing.



**NOTIFICACIÓN PARA PROPIETARIOS Y/O VECINOS COLINDANTES
COMISIÓN DE CONSERVACIÓN DE BOSTON**

De conformidad con la Ley de Protección de los Humedales de Massachusetts, el Capítulo 131, Sección 40 de las Leyes Generales de Massachusetts y la Ordenanza sobre los Humedales de Boston, por la presente queda usted notificado como propietario o vecino colindante de un proyecto presentado ante la Comisión de Conservación de Boston.

- A. **Tim Longden** ha presentado una solicitud ante la Comisión de Conservación de Boston pidiendo permiso para modificar una zona sujeta a protección en virtud de la Ley de Protección de los Humedales (Leyes generales, capítulo 131, sección 40) y la Ordenanza sobre los Humedales de Boston.
- B. La dirección del lote donde se propone la actividad es **20 Norwood Street**.
- C. El proyecto implica la demolición de una vivienda multifamiliar existente y la construcción de un edificio de apartamentos en tierras sujetas a inundaciones causadas por tormentas costeras.
- D. Se pueden obtener copias del Aviso de Intención comunicándose con la Comisión de Conservación de Boston en **CC@boston.gov**.
- E. Las copias del Aviso de Intención pueden obtenerse a través de **LEC Environmental Consultants, Inc.**, llamando al **(781) 245-2500** de lunes a viernes de **8:00 am a 5:00 pm**.
- F. De acuerdo con el Decreto Ejecutivo de la Mancomunidad de Massachusetts que suspende ciertas disposiciones de la Ley de Reuniones Abiertas, la audiencia pública se llevará a cabo **virtualmente** en <https://zoom.us/j/6864582044>. Si no tiene acceso a Internet, puede llamar al 1-929-205-6099, introducir el número de identificación de la reunión 686 458 2044 # y utilizar # como identificación de participante.
- G. La información relativa a la fecha y hora de la audiencia pública puede solicitarse a la **Comisión de Conservación de Boston** por correo electrónico a CC@boston.gov o llamando al **(617) 635-3850** de lunes a viernes entre las **9 AM y las 5 PM**.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en el **Boston Herald** con al menos cinco (5) días de anticipación.

NOTA: La notificación de la audiencia pública, incluida la fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en la alcaldía de Boston con no menos de cuarenta y ocho (48) horas de anticipación. Si desea hacer comentarios, puede asistir a la audiencia pública o enviar comentarios por escrito a CC@boston.gov o a la alcaldía de Boston, Departamento de Medio Ambiente, Sala 709, 1 City Hall Square, Boston, MA 02201.

NOTA: También puede comunicarse con la Comisión de Conservación de Boston o con la Oficina Regional del Noreste del Departamento de Protección Ambiental para obtener más información sobre esta solicitud o la Ley de Protección de Humedales. Para comunicarse con el DEP, llame a la Región Noreste: (978) 694-3200.

NOTA: si tiene previsto asistir a la audiencia pública y necesita servicios de interpretación, sírvase informar al personal en CC@boston.gov antes de las 12 PM del día anterior a la audiencia.



November 16, 2021,

Cross Cultural Communication Systems, Inc., hereby certify, that this is a true translation of the document "Abutter Notification COVID-19 Form" from English into Spanish under CCCS Project TSP 11122104, requested by Sharon Sullivan on November 15, 2021.

It was prepared to the best of the company's ability, this 16 day of June 2021.

Translations of any materials into languages other than English are intended solely as a convenience to the non-English-reading public and are not legally binding. We have attempted to provide an accurate translation of the original material in English, but due to the nuances in translating to a foreign language, slight differences may exist.

Alejandra Lloveras

Cross Cultural Communication Systems, Inc.TM

Embracing linguistic and cultural connections!

Providing 24/7 language solutions.

Translation Services Project Manager

CCCS, Inc.TM

PO Box 2308

Woburn, MA 01888

P: (781) 729-3736 X 112 F: (781) 729-1217

P: (888) 678-CCCS X 112 (out of state)



BABEL NOTICE

English:

IMPORTANT! This document or application contains **important information** about your rights, responsibilities and/or benefits. It is crucial that you understand the information in this document and/or application, and we will provide the information in your preferred language at no cost to you. If you need them, please contact us at cc@boston.gov or 617-635-3850.

Spanish:

¡IMPORTANTE! Este documento o solicitud contiene **información importante** sobre sus derechos, responsabilidades y/o beneficios. Es fundamental que usted entienda la información contenida en este documento y/o solicitud, y le proporcionaremos la información en su idioma preferido sin costo alguno para usted. Si los necesita, póngase en contacto con nosotros en el correo electrónico cc@boston.gov o llamando al 617-635-3850.

Haitian Creole:

AVI ENPÒTAN! Dokiman oubyen aplikasyon sa genyen **enfòmasyon ki enpòtan** konsènan dwa, responsablite, ak/oswa benefis ou yo. Li enpòtan ke ou konprann enfòmasyon ki nan dokiman ak/oubyen aplikasyon sa, e n ap bay enfòmasyon an nan lang ou prefere a, san ou pa peye anyen. Si w bezwen yo, tanpri kontakte nou nan cc@boston.gov oswa 617-635-3850.

Traditional Chinese:

非常重要！這份文件或是申請表格包含關於您的權利，責任，和／或福利的重要信息。請您務必完全理解這份文件或申請表格的全部信息，這對我們來說十分重要。我們會免費給您提供翻譯服務。如果您有需要請聯系我們的郵箱 cc@boston.gov 電話# 617-635-3850..

Vietnamese:

QUAN TRỌNG! Tài liệu hoặc đơn yêu cầu này chứa **thông tin quan trọng** về các quyền, trách nhiệm và/hoặc lợi ích của bạn. Việc bạn hiểu rõ thông tin trong tài liệu và/hoặc đơn yêu cầu này rất quan trọng, và chúng tôi sẽ cung cấp thông tin bằng ngôn ngữ bạn muốn mà không tính phí. Nếu quý vị cần những dịch vụ này, vui lòng liên lạc với chúng tôi theo địa chỉ cc@boston.gov hoặc số điện thoại 617-635-3850.

Simplified Chinese:

非常重要！这份文件或是申请表格包含关于您的权利，责任，和／或福利的重要信息。请您务必完全理解这份文件或申请表格的全部信息，这对我们来说十分重要。我们会免费给您提供翻译服务。如果您有需要请联系我们的邮箱 cc@boston.gov 电话# 617-635-3850.

Cape Verdean Creole:

INPURTANTI! Es dukumentu ó aplikason ten **informason inpur tanti** sobri bu direitus, rasponsabilidadi i/ó benefisius. Ê krusial ki bu intendi informason na es dukumentu i/ó aplikason ó nu ta da informason na língua di bu preferênsia sen ninhun kustu pa bó. Si bu prisiza del, kontata-nu na cc@boston.gov ó 617-635-3850.

Arabic:

مهم! يحتوي هذا المستند أو التطبيق على معلومات مهمة حول حقوقك ومسؤولياتك أو فوائده. من الأهمية أن تفهم المعلومات الواردة في هذا المستند أو التطبيق. سوف نقدم المعلومات بلغتك المفضلة دون أي تكلفة عليك. إذا كنت في حاجة إليها، يرجى الاتصال بنا على cc@boston.gov أو 617-635-3850.

Russian:

ВАЖНО! В этом документе или заявлении содержится **важная информация** о ваших правах, обязанностях и/или льготах. Для нас очень важно, чтобы вы понимали приведенную в этом документе и/или заявлении информацию, и мы готовы бесплатно предоставить вам информацию на предпочитаемом вами языке. Если Вам они нужны, просьба связаться с нами по адресу электронной почты cc@boston.gov, либо по телефону 617-635-3850.

Portuguese:

IMPORTANTE! Este documento ou aplicativo contém **Informações importantes** sobre os seus direitos, responsabilidades e/ou benefícios. É importante que você compreenda as informações contidas neste documento e/ou aplicativo, e nós iremos fornecer as informações em seu idioma de preferência sem nenhum custo para você. Se precisar deles, fale conosco: cc@boston.gov ou 617-635-3850.

French:

IMPORTANT ! Ce document ou cette demande contient des **informations importantes** concernant vos droits, responsabilités et/ou avantages. Il est essentiel que vous compreniez les informations contenues dans ce document et/ou cette demande, que nous pouvons vous communiquer gratuitement dans la langue de votre choix. Si vous en avez besoin, veuillez nous contacter à cc@boston.gov ou au 617-635-3850.



16 NORWOOD ST DORCHESTER

DONOVAN FRANCIS W
PO BOX 113
MILTON, MA 02186

985 WM T MORRISSEY BL DORCHESTER

NINE 85 MORRISSEY BLVD LLC MASS LLC
C/O CHRISTOPHER KOKORAS
P O BOX 790
WINCHESTER, MA 01890

TOLMAN ST DORCHESTER

COMMWLTH OF MASS
TOLMAN
DORCHESTER, MA 02122

984 WM T MORRISSEY BL DORCHESTER

980 MORRISSEY BOULEVARD LLC
C/O 980 MORRISSEY BLVD LLC
80 NEPONSET AV
DORCHESTER, MA 02122

31 39 NORWOOD ST DORCHESTER

THIRTY ONE-39 NORWOOD ST LLC MASS
LLC
277 HUMPHREY ST
SWAMPSCOTT, MA 01907

32 NORWOOD ST DORCHESTER

28 NORWOOD LLC
6 WENLOCK ST
DORCHESTER, MA 02122

992 WM T MORRISSEY BL DORCHESTER

SANCHEZ JORGE
992 WM T MORRISSEY BL
DORCHESTER, MA 02122

64 TOLMAN ST DORCHESTER

RONAN 953 LLC
739 OCEAN ST
MARSHFIELD, MA 02050

39 MCKONE ST DORCHESTER

J M K W PROPERTIES INC
969 WM T MORRISSEY BLVD
DORCHESTER, MA 02122

TOLMAN ST DORCHESTER

CITY OF BOSTON CREDIT UNION
1 CITY HALL PLZ RM 242 C
BOSTON, MA 02201

20 NORWOOD ST DORCHESTER

CAMBRIDGE STREET REALTY LLC
C/O CAMBRIDGE ST REALTY LLC
P O BOX 812097
WELLESLEY, MA 02482

8 NORWOOD ST DORCHESTER

8 NORWOOD REALTY LLC
28 WINTER ST
DORCHESTER, MA 02122

41 NORWOOD ST DORCHESTER

ESS STORAGE ACQUISITION
C/O PTA-EX SITE #8505C/O PTG-EXR-SITE #8505
PO BOX 800729
DALLAS, TX 75380

996 WM T MORRISSEY BL DORCHESTER

BANH DON N
996 WM T MORRISSEY BLVD
DORCHESTER, MA 02122

35 MCKONE ST DORCHESTER

PHAM TUAN Q
35 MCKONE ST
DORCHESTER, MA 02122

958 960 WM T MORRISSEY BL DORCHESTER

980 MORRISSEY BOULEVARD LLC
C/O 980 MORRISSEY BLVD LLC
80 NEPONSET AV
DORCHESTER, MA 02122

3 NORWOOD ST DORCHESTER

3 NORWOOD STREET LLC
C/O ELINOR BANQUER
51 SAXON RD
WESTWOOD, MA 02090

NORWOOD ST DORCHESTER

GNAZZO JANE S
169 COMMONWEALTH AV
BOSTON, MA 02116

4 6 NORWOOD ST DORCHESTER

WHELAN JOHN J
4 NORWOOD ST
DORCHESTER, MA 02122

1030 WM T MORRISSEY BL DORCHESTER

GNAZZO JANE S
C/O JANE GNAZZO
169 COMMONWEALTH AV
BOSTON, MA 02116

WM T MORRISSEY BL DORCHESTER

COMMWLTH OF MASS
WM T MORRISSEY BLVD
DORCHESTER, MA 02125

1000 WM T MORRISSEY BL DORCHESTER

WHELAN JOHN J
C/O JOHN J. WHELAN
1000 WM T MORRISSEY BL
DORCHESTER, MA 02122

20 BLOOMINGTON ST DORCHESTER

TIGHE STEPHEN M
20 BLOOMINGTON ST
DORCHESTER, MA 02122

NORWOOD ST DORCHESTER

THIRTY ONE-39 NORWOOD ST LLC MASS
LLC
277 HUMPHREY ST
SWAMPSCOTT, MA 01907

980 WM T MORRISSEY BL DORCHESTER

980 MORRISSEY BOULEVARD LLC
C/O 980 MORRISSEY BLVD LLC
80 NEPONSET AV
DORCHESTER, MA 02122

24 NORWOOD ST DORCHESTER

28 NORWOOD LLC
6 WENLOCK ST
DORCHESTER, MA 02122

25 27 BLOOMINGTON ST DORCHESTER

MCGILLYCUDDY CHRISTOPHER G
C/O C MCGILLYCUDDY
25 BLOOMINGTON ST
DORCHESTER, MA 02122

37 MCKONE ST DORCHESTER

VO FAMILY TRUST
110 DAKOTA ST #1
BOSTON, MA 02124

19 39 NORWOOD ST DORCHESTER

THIRTY ONE-39 NORWOOD ST LLC MASS
LLC
277 HUMPHREY ST
SWAMPSCOTT, MA 01907

7 BLOOMINGTON ST DORCHESTER

7 BLOOMINGTON STREET REALTY TRUST
C/O KEVIN J KANE
7 BLOOMINGTON ST
DORCHESTER, MA 02122

28 NORWOOD ST DORCHESTER

28 NORWOOD LLC
6 WENLOCK ST
DORCHESTER, MA 02122

TENEAN ST DORCHESTER

MASS BAY TRANSPN AUTHOR
TENEAN
DORCHESTER, MA 02122

60 TOLMAN ST DORCHESTER

ORTIZ ELIZABETH
60 TOLMAN ST
DORCHESTER, MA 02122

9 BLOOMINGTON ST DORCHESTER

LUU QUANG A
9 BLOOMINGTON ST
DORCHESTER, MA 02122

58 TOLMAN ST DORCHESTER

RONAN 953 LLC
739 OCEAN ST
MARSHFIELD, MA 02050

TENEAN ST DORCHESTER

BRONSKI KEVIN
C/O CON O CALLAGHAN
262 EAST ST
DEDHAM, MA 02026

988 WM T MORRISSEY BL DORCHESTER

KANDALFT ALEXANDER N
988 WILLIAM T MORRISSEY BLVD
DORCHESTER, MA 02122

12 14 NORWOOD ST DORCHESTER

CONLON BRENDAN P JR
C/O BRENDAN P CONLON JR
12 NORWOOD ST
DORCHESTER, MA 02122

WM T MORRISSEY BL DORCHESTER

COMMONWEALTH OF MASS
WM T MORRISSEY BLVD
DORCHESTER, MA 02125



Notice of Intent Application

20 Norwood Street
Boston (Dorchester), Massachusetts

November 29, 2021

1.0 Introduction

On behalf of Tim Longden, LEC Environmental Consultants, Inc., (LEC) is submitting this Notice of Intent (NOI) Application to the Boston Conservation Commission (the Commission) to demolish a multi-family dwelling and construct a new 8-unit apartment building with ground-level parking and lobby. The entire site is located within Land Subject to Coastal Storm Flowage (LSCSF). Erosion controls and stormwater management are proposed.

This proposed work will result in an improvement over existing conditions and further protect the interests of LSCSF under the *Massachusetts Wetlands Protection Act* (M.G.L., c. 131, s. 40) and its implementing *Regulations* (310 CMR 10.00) or the *Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston City of Boston Code* (Chapter VII-I.IV, adopted December 11, 2019, the *Ordinance*) and the implementing *Boston Wetland Regulations* (approved August 19, 2020, the *Ordinance Regulations*).

A *Site Plan #20-467 20 Norwood Street, Dorchester, MA* dated October 28, 2020 and revised through November 23, 2021 (*Site Plan*); and *Proposed Foundation Plan* dated November 6, 2020 and revised through November 18, 2021 (*Foundation Plan*), both prepared by Civil Environmental Consultants, Inc., (Appendix B) depict the proposed site conditions. A copy of the *Site Plan* signed by the Boston Water and Sewer Commission also is included in Appendix B. Appendix C contains the *Drainage Report at 20 Norwood Street* and HydroCAD Calculations dated November 18, 2021 (*Drainage Report*); *Operation and Maintenance Plan* dated September, 2021; *Illicit Discharge Statement*; and *DEP Stormwater Checklist*, all prepared by Civil Environmental Consultants, Inc. Appendix D contains the *BDPA Climate Resiliency Checklist*.

2.0 General Site Description

The 6,000± square-foot property is located west of Route 93, east of Morrissey Boulevard, and south of Conley Street, within the southern portion of Boston, and the southeastern portion of Dorchester, Massachusetts. Multi-family dwellings and recently constructed apartment buildings associated with Norwood Street and Morrissey Boulevard occur to the northwest, southeast, and southwest of the property, while commercial development associated with Norwood Street occurs to the

northeast (Appendix A, Figures 1 and 3). The project site is currently being developed under an ‘At-Risk’ Building Permit. The building foundation and stormwater management system have been installed.

2.1 **Natural Heritage and Endangered Species Program Designation**

According to the 15th Edition of the *Massachusetts Natural Heritage Atlas* (August 1, 2021) published by the Natural Heritage & Endangered Species Program (NHESP) and the MassGIS data layer, no Priority Habitats or Estimated Habitats, Potential or Certified Vernal Pools, or rare species protectable under the *Act* or the *Massachusetts Endangered Species Act* (MGL c. 131 s. 23) are located on or nearby to the project site (Appendix A, Figure 3).

3.0 **FEMA Floodplain Designation-Land Subject to Coastal Storm Flowage**

According to the March 16, 2016 *Federal Emergency Management Agency Flood Insurance Rate Map* for Suffolk County (Community Panel Number 25025C0091J, Appendix A, Figure 2), the entire property is located within the Zone AE Base Flood Elevation 10 (NAVD 88) (Boston City Base Elevation 16.5). Accordingly, the site is located within Land Subject to Coastal Storm Flowage (LSCSF) associated with tidal portions of the Neponset River.

According to the Boston Planning & Development Agency (BDPA), the site is mapped within the Coastal Flood Resilience Zone (CFRZ, Appendix A, Figure 4).

4.0 **Proposed Construction**

The Applicant has demolished the multi-family dwelling, and proposes to construct an 8-unit, 3,769± square-foot apartment building with ground-level parking and lobby. All living space (Elevation 27.5 Boston City Base) will be elevated 11± feet above the LSCSF Elevation (Elevation 16.5 Boston City Base). The foundation will include FEMA Building Code compliant flood vents (see Appendix B) to allow for the ebb and flow of coastal flood water from within the ground-level garage. The ground-level parking garage and lobby occur at the LSCSF Elevation (16.5 Boston Datum), largely due to the elevation of the adjacent sidewalk; however; all building mechanicals (including elevator mechanicals, condensers, and heat pumps) will be located on the roof, while hot water tanks will be located on a 2-foot high elevated platform located in the lobby, or in the

units themselves. Appendix E contains the *BDPA Climate Resiliency Checklist*, with Sections A and E completed. Below is an Anticipated Construction Sequence timeline provided by the Applicant, followed by means and methods for construction.

20 Norwood St Dorchester, MA 02122
 Anticipated Construction Sequence

	2021					2022											
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Nov	Dec	
Install Erosion Controls																	
Excavate For Slab Foundation and Pour																	
Install Stormwater Management System																	
Cut Out FEMA Flood Vent Openings in Foundation Walls																	
Frame Structure																	
Install Roof																	
Connect Downspouts to Infiltration System																	
Stabalize Exposed Soil w/ Landscaping																	
Remove Erosion Controls																	
Survey As Built Plan																	
Request Con Com Cert of Compliance																	

4.1 **Means and Methods for Construction**

The Applicant’s site contractor utilized an excavator to demolish the existing house and foundation, and debris was trucked off-site for disposal. The footprint of the proposed foundation was surveyed and excavated. Forms were installed for the proposed foundation, and the concrete was poured for the frost walls and slab. The stormwater management system was installed using a smaller excavator, and installation of the stormwater units and stone. Flood vents were cut out of the foundation using a concrete saw. The Applicant will begin framing the structure and roof, followed by wall, window and roof installation, interior plumbing, electrical, drywall, and interior and exterior finish carpentry. Once painted, the roof gutters and downspouts will be installed and connected to the stormwater management system. No change in grade is proposed as part of the project, and all exposed soils will be hydroseeded or stabilized with sod. Once the site is stabilized, erosion controls will be removed. Upon project completion, the Applicant will conduct an As-Built survey, prepare an As-Built Plan and request a Certificate of Compliance from the Boston Conservation Commission.

5.0 **Mitigating Measures**

The Applicant proposes erosion controls and stormwater management to protect adjacent land and down-stream resource areas as further described below.

5.1 **Erosion Controls**

The Applicant proposes to implement a comprehensive erosion and sedimentation control program during construction based on DEP Guidelines. Straw wattles will be installed along the side and rear property boundaries, and silt sacks will be installed within the two down-gradient catch basins located within Norwood Street southeast of the site. All erosion control measures will remain in place until the project is complete and soils are stabilized. The locations and details of the erosion controls are depicted on the *Site Plan* (Appendix B).

5.2 **Stormwater Management**

The Applicant proposes two (2) 1,000-gallon drywells with a 24-inch stone surround and base located off the rear of the building to collect and infiltrate roof run-off. Stormwater run-off will be directed to the system via a series of gutters, downspouts, and conduits. The system results in net decrease in stormwater flow compared to existing conditions for the 2, 10, and 25 statistical storm events, and a slight, 0.04 CFS increase during the statistical 100-year storm event. Overflow from the system will be directed to the existing street drainage infrastructure located within Norwood Street. The Boston Sewer and Water Commission has reviewed and approved the stormwater design for the project. Appendix C contains the *Drainage Report, Operation and Maintenance Plan, Illicit Discharge Statement*; and *DEP Stormwater Checklist*.

6.0 **Climate Resiliency**

The Applicant is proposing a climate-resilient project by constructing an apartment building with a ground-level parking garage and living space elevated 11± feet above the LSCSF Elevation. The garage and lobby elevation are roughly at the LSCSF Elevation due to the existing sidewalk and street elevations. Flood vents are proposed per FEMA Building Code to allow for the ebb and flow of stormwater resulting from coastal storm events that exceed the 1% Annual Chance Flood. Elevator mechanicals and heat pumps/condensers will be installed on the roof, and hot water tanks will be installed either in the apartment units, or on a 2-foot high platform located in the lobby area, thereby situating the tanks at least 2 feet higher than the LSCSF Elevation. With anticipated sea-level rise, the LSCSF Elevation would be 19.5 (BCB) according to the BPDA, and all living space and the vast majority of building mechanicals will be located above Elevation 19.5.

The Applicant also is committed to installing a ‘cool roof’ with a lighter colored roofing membrane or coating to allow for improved solar reflection to mitigate for the heat island effect.

The project also includes a stormwater management system designed to collect and infiltrate stormwater resulting from the 2, 10, 25, and 100-year statistical storm events. Post construction run-off values decrease for the 2, 10, and 25-year statistical storm events, and increase by 0.04 CFS for the 100-year storm event. These numbers are based on precipitation data published by the Northeast Regional Climate Center at Cornell University, and are more conservative than the Technical Release 55 (TR-55) precipitation data traditionally used. Therefore, as storm intensity and frequency increase, the site will be significantly better equipped to reduce stormwater run-off compared to existing conditions.

7.0**Summary**

On behalf of Tim Longden, LEC is submitting this NOI Application to the Boston Conservation Commission (the Commission) to demolish a multi-family dwelling and construct a new 8-unit apartment building with ground-level parking and lobby. The entire site is located within LSCSF. Erosion controls and stormwater management are proposed.

This proposed work will result in an improvement over existing conditions and further protect the interests of LSCSF under the *Act*, the *Act Regulations*, the *Ordinance*, and the *Ordinance Regulations*, and climate resiliency has been incorporated into the project design.

The proposed building has been designed to comply with the City of Boston Climate Resiliency Guidance as demonstrated on the *Climate Resiliency Checklist*. Flood vents in the foundation will allow flood water to ebb and flow from the site, first-floor living space is set 11 feet above the LSCSF elevation, and building mechanicals will be located on the roof, with water tanks located 2 feet above the LSCSF Elevation or in the units themselves. Erosion controls are proposed, and stormwater management has been designed in compliance with the DEP Stormwater Management Standards. Accordingly, the Applicant requests that the Commission issue an Order of Conditions approving the project as proposed herein.

Boston Wetlands Ordinance, City of Boston Code, Ordinances, Chapter 7-1.4

Boston Wetlands Regulations, Boston Conservation Commission, August 19, 2020

Boston Planning & Development Agency Zoning Website Mapping Viewer
www.bostonplans.org

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep

Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00),
www.state.ma.us/dep

Massachusetts Natural Heritage Atlas, 15th Edition, 2021. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, Route 135, Westborough, MA 01581,
http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, A Handbook*. 89 pp.

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map, City of Boston, Massachusetts, Suffolk County, September 25, 2009 (Community Panel Number 25025C0091J).

Appendix A

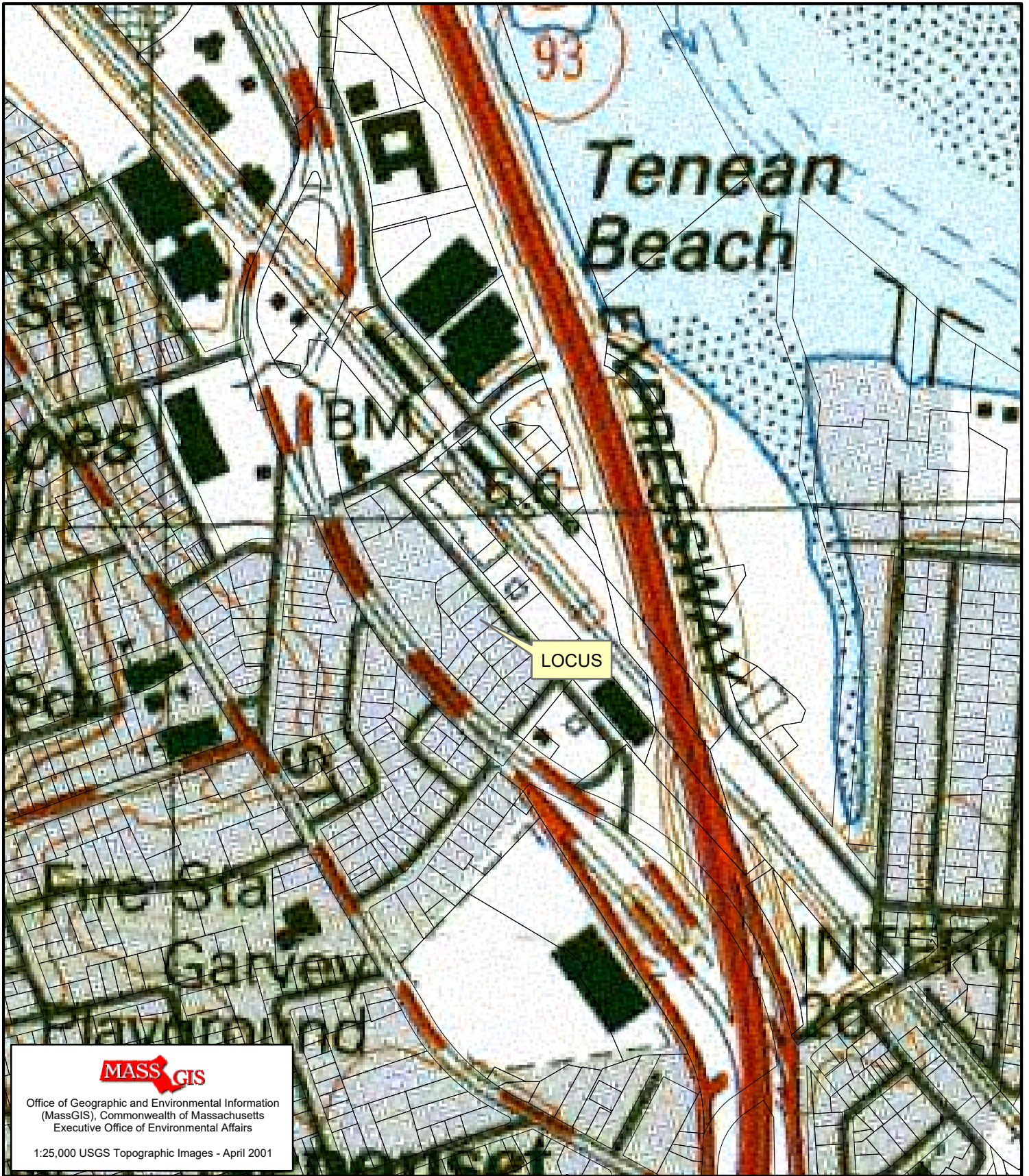
Locus Maps

Figure 1: USGS Topographic Quadrangle

Figure 2: FEMA Flood Insurance Rate Map

Figure 3: MassGIS Orthophoto & NHESP Map

Figure 4: Coastal Flood Resilience Zone

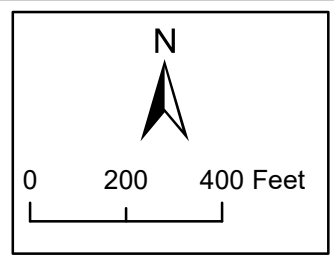


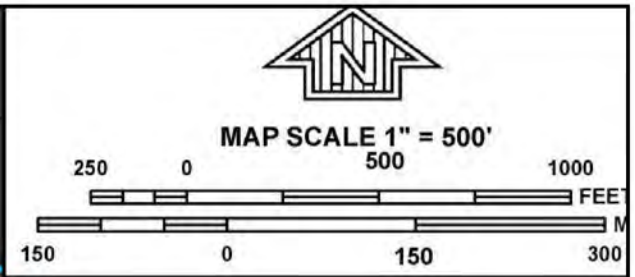
MASS GIS
 Office of Geographic and Environmental Information
 (MassGIS), Commonwealth of Massachusetts
 Executive Office of Environmental Affairs
 1:25,000 USGS Topographic Images - April 2001

LEC
 Environmental Consultants, Inc.
 Wakefield, MA
 781.245.2500
 www.lecenvironmental.com

Figure 1: USGS Topographic Map
 20 Norwood Street
 Dorchester, MA

October 20, 2021





NATIONAL FLOOD INSURANCE PROGRAM

NFIP

PANEL 0091J

FIRM

**FLOOD INSURANCE RATE MAP
SUFFOLK COUNTY,
MASSACHUSETTS
(ALL JURISDICTIONS)**

PANEL 91 OF 176
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOSTON, CITY OF	250285	0091	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25025C0091J

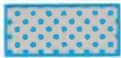
MAP REVISED
MARCH 16, 2016

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

Figure 2: 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.

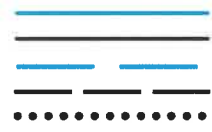


COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

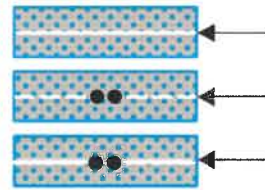


OTHERWISE PROTECTED AREAS (OPAs)

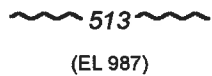
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.



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

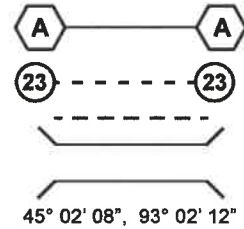


Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.



- Limit of Moderate Wave Action
- Limit of Moderate Wave Action coincident with Zone Break
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988



- Cross section line
- Transect line
- Culvert
- Bridge
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 4989000 M 1000-meter grid: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
- 4989^{000m} N 1000-meter Universal Transverse Mercator tick values, zone 19N
- DX5510 X 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

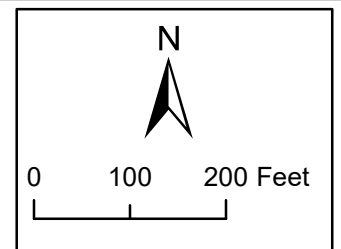
March 16, 2016 - to change Base Flood Elevations and Special Flood Hazard Areas, to change zone designations, to update the effects of wave action, to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision and to modify Coastal Barrier Resource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



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 Wakefield, MA
 781.245.2500
 www.lecenvironmental.com

Figure 3: MassGIS Orthophoto & NHESP Map
 20 Norwood Street
 Dorchester, MA

October 20, 2021





**Harborpark:
Dorchester Bay/
Neponset River
Waterfront
Map 5F/5G**

**Harborpark:
Dorchester Bay/
Neponset River
Waterfront
Map 5H**

	Dorchester Neighborhood District Boundary
	District Boundary
	Subarea Boundary
	Neighborhood Design Overlay District
	Greenbelt Protection Overlay District

1F	Residential Subdistricts One-Family Residential Subdistrict
2F	Two-Family Residential Subdistrict
3F	Three-Family Residential Subdistrict
3F-D	Triple-Decker Residential Subdistrict
MFR	Multifamily Residential Subdistrict
MFR/LS	Multifamily Residential/Local Services Subdistrict
RH	Row House Residential Subdistrict
OS-CM	Open Space Subdistricts Cemetery Open Space Subdistrict
OS-G	Community Garden Open Space Subdistrict
OS-P	Parkland Open Space Subdistrict
OS-RC	Recreation Open Space Subdistrict
OS-SL	Shoreland Open Space Subdistrict
OS-UW	Urban Wild Open Space Subdistrict
NS	Neighborhood Business Subdistricts Neighborhood Shopping Subdistrict
LC	Local Convenience Subdistrict
CC	Community Commercial Subdistrict
WS	Waterfront Service Subdistrict
LI	Local Industrial Subdistrict
CF	Community Facilities Subdistrict
CPS	Conservation Protection Subdistrict
For maximum allowed Height, FAR, and other provisions, see Article 65.	

Zoning Districts City of Boston
Map 5E
Dorchester Neighborhood District

Adopted by the
 Zoning Commission of the City of Boston
 in meeting on June 19, 2002

Robert E. Man
 Chairman

Effective: July 17, 2002
 Date of public notice: May 30, 2002
 (See St. 1956, c. 665, s.5)

As amended
 Effective: April 11, 2019
 Public Notice: March 21, 2019

DISCLAIMER

The Boston Zoning Maps, printed, or downloaded from the Boston Planning and Development Agency (BPDA) website (bostonplans.org) may not reflect the most current Maps adopted by the Boston Zoning Commission. The print versions of the Maps as approved and signed by the Zoning Commission, available at the BPDA for download as a PDF, remain the official versions of the Maps. Thus, if discrepancies exist between the official print and Internet versions of these Maps, the official print version shall be considered correct. For further information regarding the official version of the Boston Zoning Code, including both the text and maps, please consult the BPDA.

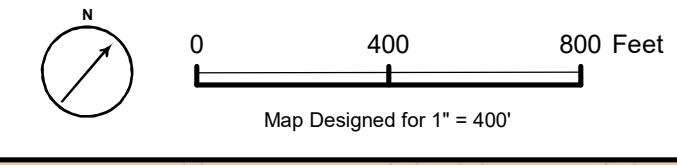


Figure 4: Coastal Flood Resilience Zone

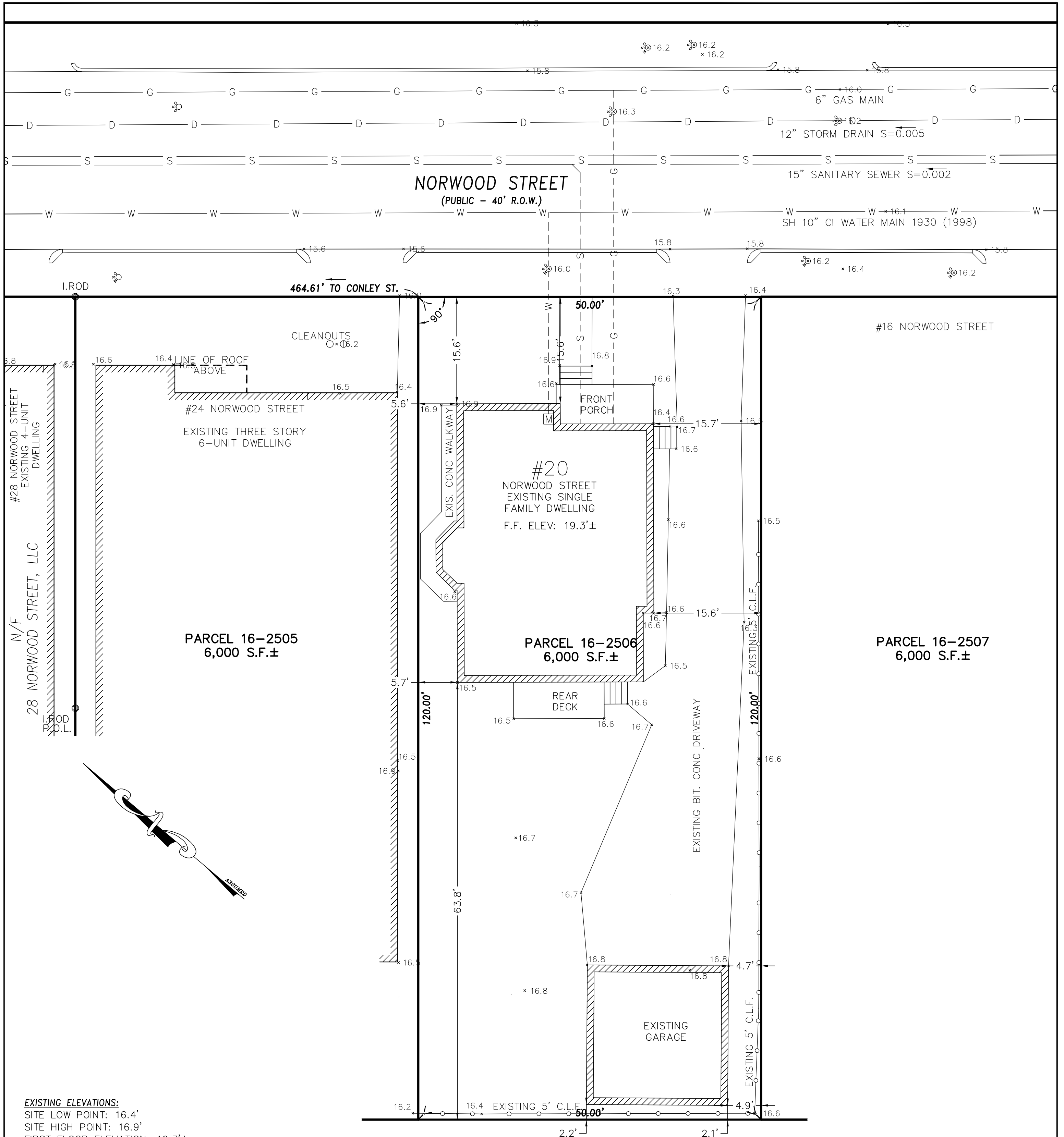
Appendix B

Existing Site Plan 20 Norwood Street Dorchester, MA
dated November 15, 2021 and revised through November 23, 2021
prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA
dated October 28, 2020 and revised through November 23, 2021,
and prepared by Civil Environmental Consultants, Inc.

Site Plan #20-467 20 Norwood Street, Dorchester, MA
dated October 28, 2020 and revised through September 9, 2021,
prepared by Civil Environmental Consultants, Inc.,
signed by the Boston Water and Sewer Commission (copy only)

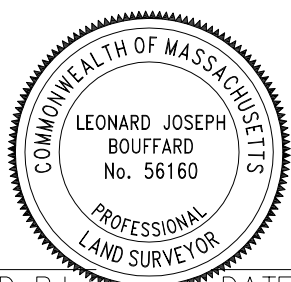
Proposed Foundation Plan 20 Norwood Street, Dorchester, MA
dated November 8, 2020, revised through November 18, 2021,
prepared by Civil Environmental Consultants, Inc.



EXISTING ELEVATIONS:
 SITE LOW POINT: 16.4'
 SITE HIGH POINT: 16.9'
 FIRST FLOOR ELEVATION: 19.3'±

NOTE: ENTIRE SITE IS LOCATED WITHIN LAND SUBJECT TO COASTAL STORM FLOWAGE PER FEMA FIRM MAP NO: 25025C0091J.

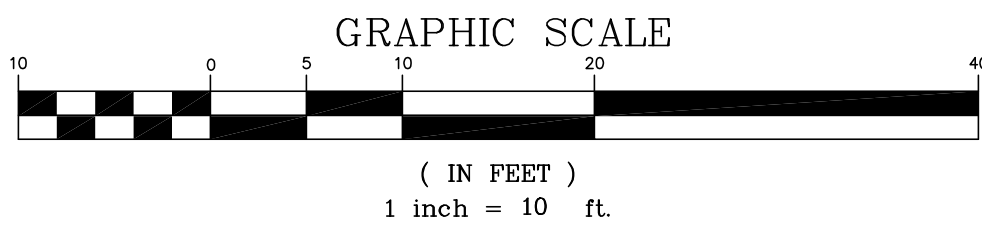
THIS PLAN REFLECTS EXISTING CONDITIONS PRIOR TO DEMOLITION OF THE DWELLINGS HEREON SHOWN AND HAS BEEN UPDATED TO SHOW ADDITIONAL INFORMATION PER CONSERVATION COMMISSION REQUEST.



LEONARD JOSEPH BOUFFARD P.L.S. DATE

REFERENCES
 DEED BK. 51,672 PG. 140
 PLAN IN BK. 1649 PG. 370

ZONING
 DORCHESTER NEIGHBORHOOD
 NS NEIGHBORHOOD SHOPPING



EXISTING SITE PLAN
 20 NORWOOD STREET
 DORCHESTER, MA
 FOR
 BRUCE EFRON

CIVIL ENVIRONMENTAL CONSULTANTS
 8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: 1 OF 1	DATE: 11/23/2021 JOB: 4272
DRAWN BY: C.R.L.	

1. ACCOUNT NUMBER	1474291
2. PARCEL NUMBER	2506
3. WARD	16
4. PROPERTY LOCATION	20 NORWOOD STREET
5. NEIGHBORHOOD	DORCHESTER
6. ZIP CODE	02122
7. OWNER ADDRESS	20 NORWOOD ST. DORCHESTER, MA 02122
8. OWNER TELEPHONE NO.	781-290-8464
9. TYPE OF PREMISE	8-FAMILY RESIDENTIAL
10. METER SIZE	1"
11. INSIDE	YES
12. OUTSIDE	NO
13. TYPE OF BUILDING	THREE STORY STEEL & WOOD FRAME
14. SEWERAGE FLOWS	14 BEDROOMS x 110 GPD = 1540 GPD
15. LAND USE CODE	A

THIS PLAN HAS BEEN CALCULATED FROM INSTRUMENT SURVEY AND FROM RECORD INFORMATION ONLY. THE ABSENCE OR EXACTNESS OF UTILITIES IS NEITHER INTENDED OR IMPLIED. THE CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL UTILITIES.

CONTRACTOR TO NOTIFY DIG-SAFE (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO CONSTRUCTION.

DRAINAGE CALCULATIONS

IMPERVIOUS AREA = 3815.6 S.F. ROOF AREA

INFILTRATE (STORE) 1" OF RUNOFF
1/12 (3815.6 S.F.) = 318.0 CU. FT.

USE 1,000 GAL. DRYWELL - SEE DETAIL
119.6 CU. FT. WITH 2 FT. CRUSHED STONE AROUND
119.6 CU. FT. x 2 = 239.2 CU. FT. CHAMBER VOLUME

VOLUME COMPUTATION EXTERIOR CRUSHED STONE
2 x (10 FT. x 10 FT. x 6.5 FT.) = 1300.0 CU. FT.
1300.0 CU. FT. - 239.2 CU. FT. (CHAMBER VOLUME) = 1060.8 CU. FT.
1060.8 CU. FT. x 0.3 (VOIDS) = 318.2 CU. FT. VOLUME Voids STORAGE
239.2 CU. FT. CHAMBER VOLUME + 318.2 CU. FT. Voids = 557.4 CU. FT.
557.4 CU. FT. TOTAL STORAGE > 318.0 CU. FT. RUNOFF CALCULATION

AFTER THE SITE PLAN IS SIGNED BY THE CHIEF ENGINEER OF THEIR DESIGNEE, A GENERAL SERVICE APPLICATION (GSA) MUST BE FILLED OUT AND SIGNED BY THE PROPERTY OWNER OR AN AGENT OF THE OWNER PRIOR TO THE TIME OF INSTALLATION OF DOMESTIC WATER SERVICE, FIRE PIPE SERVICE, BUILDING SANITARY SEWER OR BUILDING STORM DRAIN CONNECTIONS. A PREREQUISITE FOR FILING A GSA WITH THE BOSTON WATER AND SEWER COMMISSION (BWSC) FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON INSPECTORIAL SERVICES DEPARTMENT (ISD). AN INSPECTION FEE WILL BE CHARGED FOR EACH NEW WATER AND SEWER CONNECTION. TWENTY-FOUR (24) HOURS ADVANCED NOTICE IS REQUIRED FOR INSPECTION SCHEDULING. IF ANY INSPECTION DATE IS SCHEDULED ON WEEKENDS, HOLIDAYS, OR AFTER REGULAR WORK HOURS, AND THE CONTRACTOR FAILS TO NOTIFY THE BWSC INSPECTORS OF CANCELLATION IN ADVANCE, AN ADDITIONAL INSPECTION FEE WILL BE CHARGED TO THE CONTRACTOR WHEN THE JOB IS SUBSEQUENTLY RE-SCHEDULED.

NOTE: ENTIRE SITE IS LOCATED WITHIN LAND SUBJECT TO COASTAL STORM FLOWAGE PER FEMA FIRM MAP NO: 25025C0091J

PROPOSED ELEVATIONS:

SITE LOW POINT: 16.4'
SITE HIGH POINT: 16.9'
LOBBY ELEVATION: 16.5'
FIRST FLOOR ELEVATION: 27.5'

BOSTON WATER AND SEWER COMMISSION
LOCATION APPROVED UNDER THE FOLLOWING CONDITIONS

REVIEWED AND APPROVED AS TO PROPOSED CONNECTION(S) TO EXISTING WATER AND SEWER FACILITIES AS SHOWN, FOR ISSUE OF BUILDING PERMIT ONLY. ADDITIONAL PERMITS MUST BE OBTAINED FROM BWSC PRIOR TO CONNECTION TO BWSC FACILITIES. SITE PLANS ARE VALID FOR A PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL.

JOHN P. SULLIVAN JR., P.E. DATE
CHIEF ENGINEER

FOR BWSC ONLY

ALL WATER, SEWER, AND DRAIN SERVICE CONNECTIONS TO BOSTON WATER AND SEWER COMMISSION FACILITIES MUST BE PERFORMED BY A BONDED DRAIN LAYER, LICENSED BY THE BOSTON WATER AND SEWER COMMISSION.

BOSTON WATER AND SEWER COMMISSION

BACKFLOW PREVENTER INSTALLATION

APPROVAL: DATE:

CUT & CAP EXISTING SEWER SERVICE

INSPECTED BY DATE

CUT & CAP EXISTING WATER SERVICE

INSPECTED BY DATE

2" TYPE K COPPER WATER SERVICE

INSPECTED BY DATE

2" TYPE K COPPER FIRE SERVICE

INSPECTED BY DATE

6" SDR35 PVC SEWER SERVICE

INSPECTED BY DATE

SEWER CLEANOUT INSTALLATION

INSPECTED BY DATE

SEWER DYE TEST

INSPECTED BY DATE

INFILTRATION SYSTEM INSTALLATION

INSPECTED BY DATE

(2) DOWNSPOUT INSTALLATIONS

INSPECTED BY DATE

TRENCH DRAIN INSTALLATION

INSPECTED BY DATE

OIL/GRIT SEPARATOR INSTALLATION

INSPECTED BY DATE

6" SDR35 PVC DRAIN SERVICE

INSPECTED BY DATE

(2) DRAIN CLEANOUT INSTALLATIONS

INSPECTED BY DATE

DRAIN DYE TEST

INSPECTED BY DATE

AS-BUILT FEE REQUIRED

INSPECTED BY DATE

8"x3" BAR GRATING

INSPECTED BY DATE

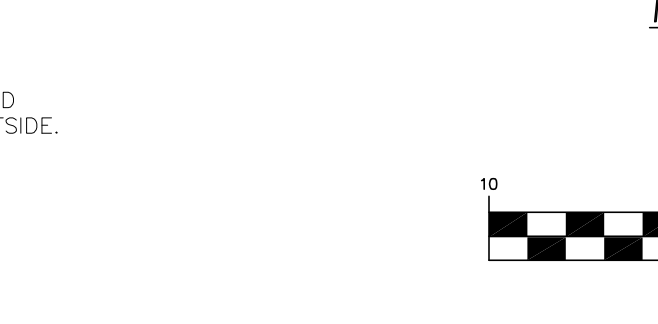
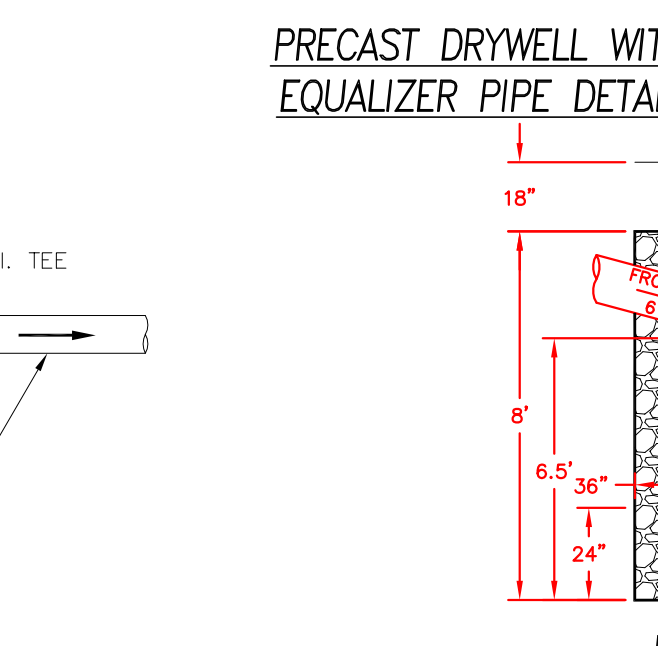
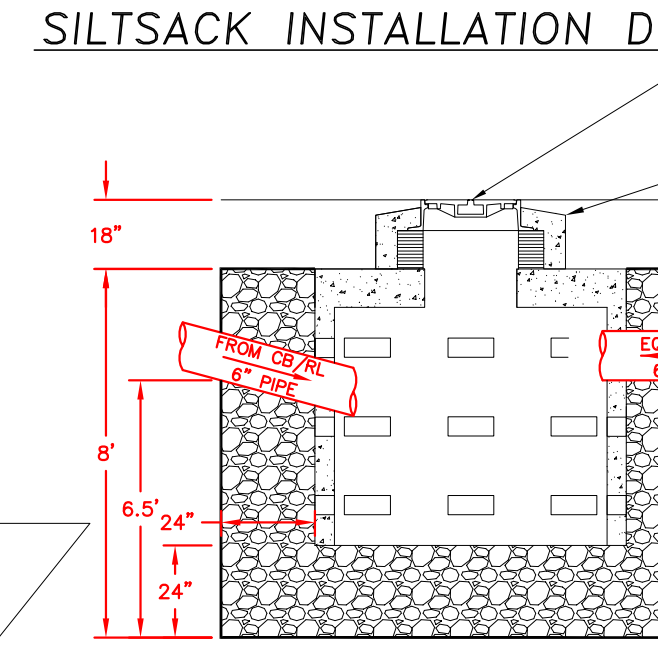
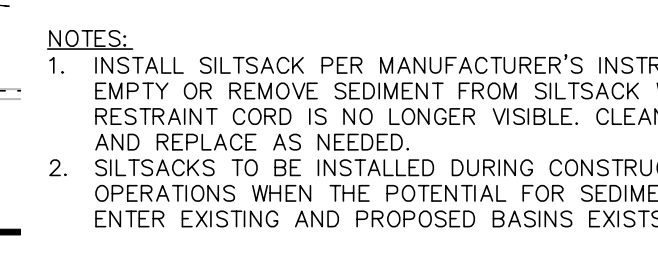
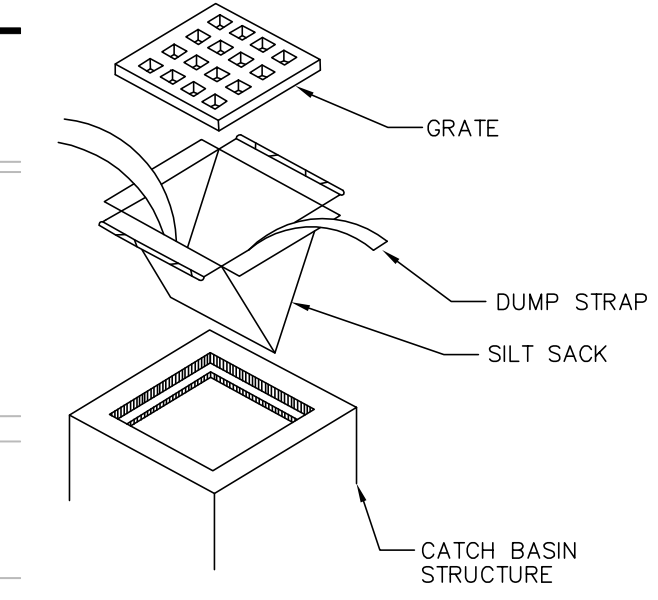
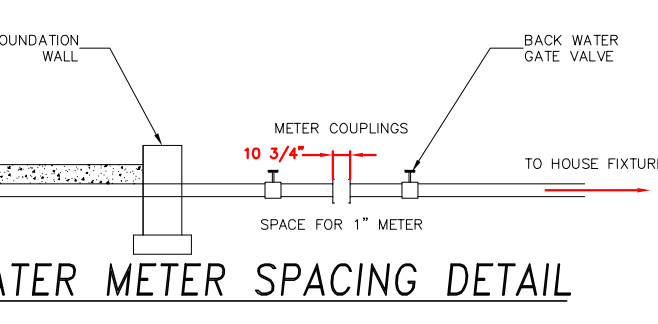
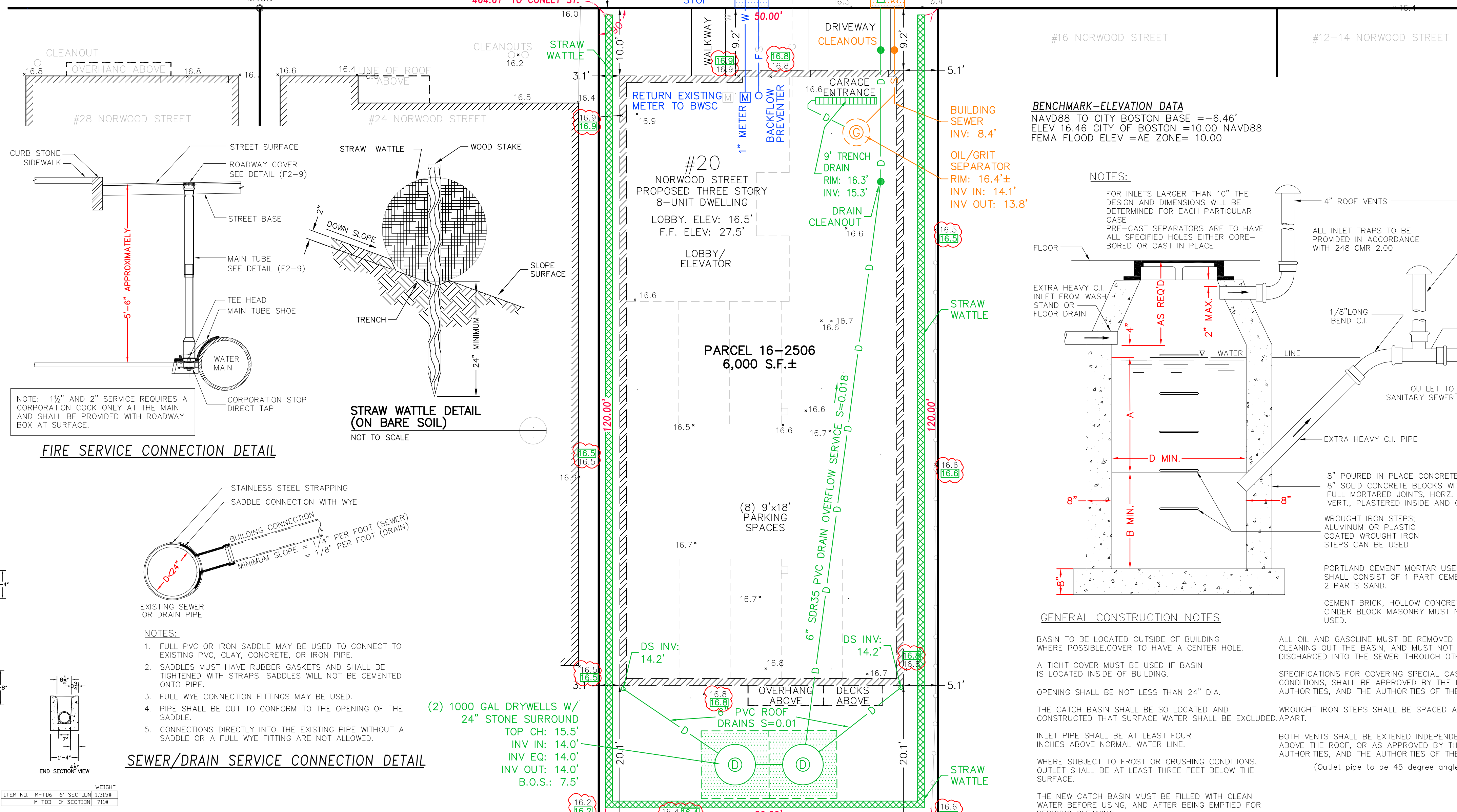
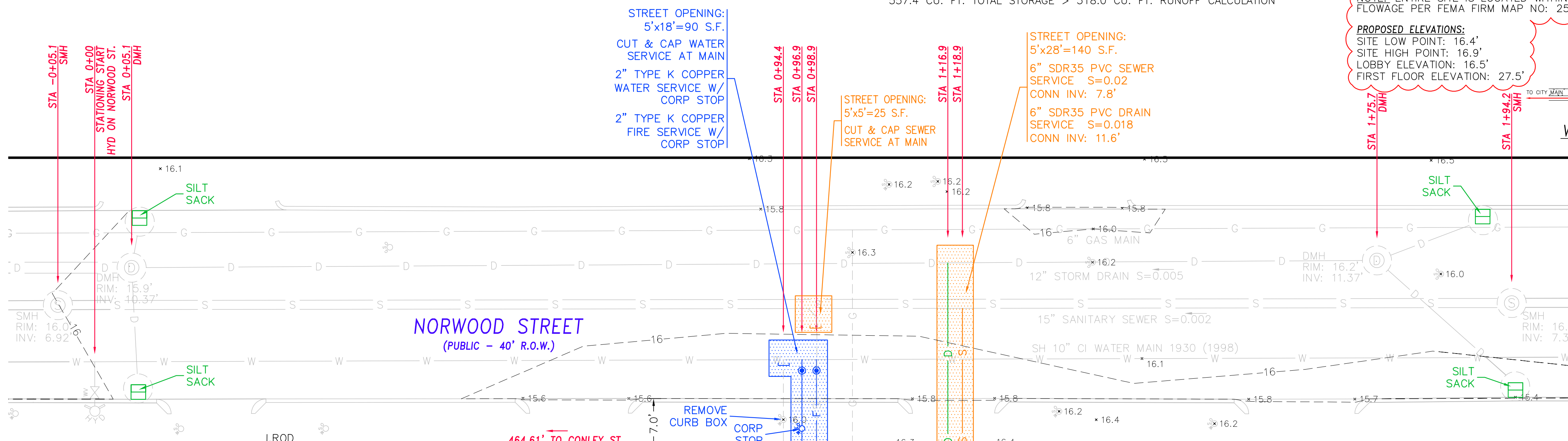
4" DIA. OUTLET

INSPECTED BY DATE

END SECTION VIEW

INSPECTED BY DATE

TRENCH DRAIN DETAIL



BENCHMARK-ELEVATION DATA

NAVD88 TO CITY BOSTON BASE = -6.46'
ELEV 16.46 CITY OF BOSTON = 10.00 NAVD88
FEMA FLOOD ELEV = AE-ZONE = 10.00

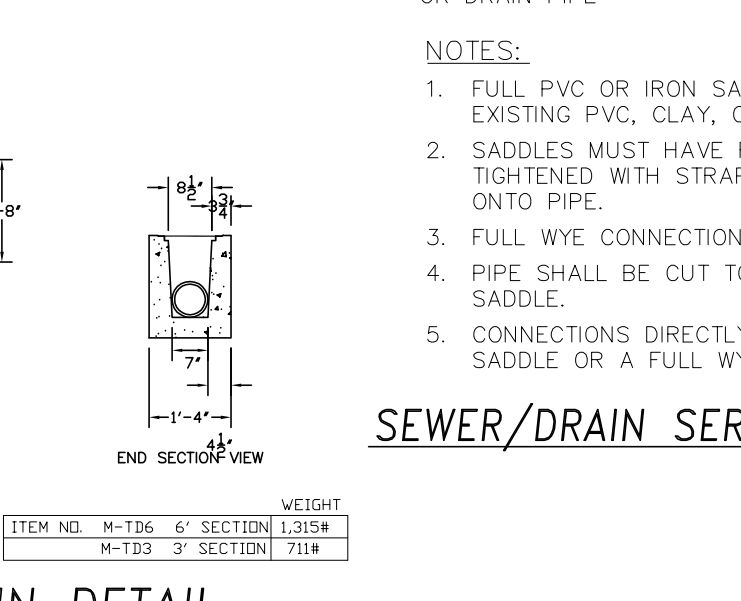
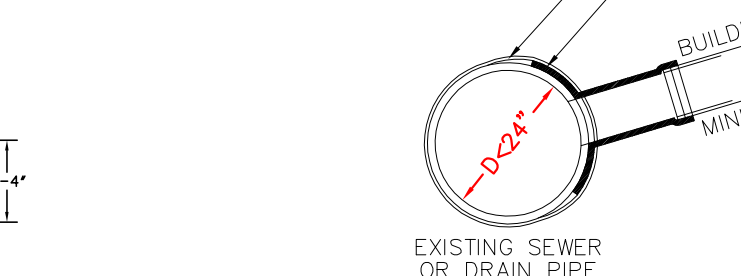
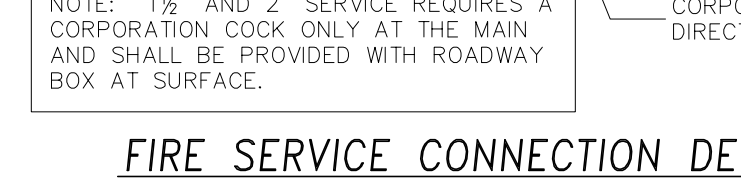
NOTES:
FOR INLETS LARGER THAN 10" THE DESIGN AND DIMENSIONS WILL BE DETERMINED FOR EACH PARTICULAR CASE.
PRE-CAST SEPARATORS ARE TO HAVE ALL SPECIFIED HOLES EITHER CORE-BORED OR CAST IN PLACE.
ALL INLET TRAPS TO BE PROVIDED IN ACCORDANCE WITH 248 CMR 2.00

GENERAL CONSTRUCTION NOTES

BASE IS TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE, COVER TO HAVE A CENTER HOLE.
A TIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.
OPENING SHALL BE NOT LESS THAN 24" DIA.
THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXCLUDED APART.
INLET PIPE SHALL BE AT LEAST FOUR INCHES ABOVE NORMAL WATER LINE.
WHERE SUBJECT TO FROST OR CRUSHING CONDITIONS, OUTLET SHALL BE AT LEAST THREE FEET BELOW THE SURFACE.
THE NEW CATCH BASIN MUST BE FILLED WITH CLEAN WATER BEFORE USING, AND AFTER BEING EMPTIED FOR PERIODIC CLEANING.

ALL OIL AND GASOLINE MUST BE REMOVED BEFORE CLEANING OUT THE BASIN, AND MUST NOT BE DISCHARGED INTO THE SEWER THROUGH OTHER FIXTURES.
SPECIFICATIONS FOR COVERING SPECIAL CASES OR CONDITIONS, SHALL BE APPROVED BY THE LOCAL AUTHORITIES, AND THE AUTHORITIES OF THE M.W.R.A.
WROUGHT IRON STEPS SHALL BE SPACED ABOUT 18" APART.
BOTH VENTS SHALL BE EXTENDED INDEPENDENTLY 18" ABOVE THE ROOF, OR AS APPROVED BY THE LOCAL AUTHORITIES, AND THE AUTHORITIES OF THE M.W.R.A.
(Outlet pipe to be 45 degree angle)

OIL/GRIT SEPARATOR DETAIL



NOTE: 1. CONCRETE: 4000 PSI MINIMUM AFTER 28 DAYS.
2. AVAILABLE IN 3" AND 6" SECTIONS.
3. CONFORMS TO W-20 LOADING.

- ACCOUNT NUMBER 1474291
- PARCEL NUMBER 2506
- WARD 18
- PROPERTY LOCATION 20 NORWOOD STREET
- NEIGHBORHOOD DORCHESTER
- ZIP CODE 02122
- OWNER ADDRESS 20 NORWOOD ST. DORCHESTER, MA 02122
- OWNER TELEPHONE NO. 781-290-8464
- TYPE OF PREMISE 8-FAMILY RESIDENTIAL
- METER SIZE 1 1/2"
- INSIDE YES
- OUTSIDE NO
- TYPE OF BUILDING THREE STORY STEEL & WOOD FRAME
- SEWERAGE FLOWS 14 BEDROOMS x 110 GPD = 1540 GPD
- LAND USE CODE A

THIS PLAN HAS BEEN CALCULATED FROM INSTRUMENT SURVEY AND FROM RECORD INFORMATION ONLY. THE ABSENCE OR EXACTNESS OF UTILITIES IS NEITHER INTENDED OR IMPLIED. THE CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL UTILITIES.

CONTRACTOR TO NOTIFY DIG-SAFE (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO CONSTRUCTION.

DRAINAGE CALCULATIONS

IMPERVIOUS AREA = 3815.6 S.F. ROOF AREA

INFILTRATE (STORE) 1" OF RUNOFF
 $1/12 (3815.6 \text{ S.F.}) = 318.0 \text{ CU. FT.}$

USE 1,000 GAL. DRYWELL - SEE DETAIL
 $119.6 \text{ CU. FT. WITH } 2 \text{ FT. CRUSHED STONE AROUND}$
 $119.6 \text{ CU. FT.} \times 2 = 239.2 \text{ CU. FT. CHAMBER VOLUME}$

VOLUME COMPUTATION EXTERIOR CRUSHED STONE
 $2 \times (10 \text{ FT.} \times 10 \text{ FT.} \times 6.5 \text{ FT.}) = 1300.0 \text{ CU. FT.}$
 $1300.0 \text{ CU. FT.} - 239.2 \text{ CU. FT. (CHAMBER VOLUME)} = 1060.8 \text{ CU. FT.}$
 $1060.8 \text{ CU. FT.} \times 0.3 \text{ (VOIDS)} = 318.2 \text{ CU. FT. VOLUME Voids STORAGE}$
 $239.2 \text{ CU. FT. CHAMBER VOLUME} + 318.2 \text{ CU. FT. Voids} = 557.4 \text{ CU. FT.}$
 $557.4 \text{ CU. FT. TOTAL STORAGE} > 318.0 \text{ CU. FT. RUNOFF CALCULATION}$

AFTER THE SITE PLAN IS SIGNED BY THE CHIEF ENGINEER OF THEIR DESIGNEE, A GENERAL SERVICE APPLICATION (GSA) MUST BE FILLED OUT AND SIGNED BY THE PROPERTY OWNER OR AN AGENT OF THE OWNER PRIOR TO THE TIME OF INSTALLATION OF DOMESTIC WATER SERVICE, FIRE PIPE SERVICE, BUILDING SANITARY SEWER OR BUILDING STORM DRAIN CONNECTIONS. A PREREQUISITE FOR FILING A GSA WITH THE BOSTON WATER AND SEWER COMMISSION (BWSC) FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON INSPECTIONAL SERVICES DEPARTMENT (ISD). AN INSPECTION FEE WILL BE CHARGED FOR EACH NEW WATER AND SEWER CONNECTION. TWENTY-FOUR (24) HOURS ADVANCED NOTICE IS REQUIRED FOR INSPECTION SCHEDULING. IF ANY INSPECTION DATE IS SCHEDULED ON WEEKENDS, HOLIDAYS, OR AFTER REGULAR WORK HOURS, AND THE CONTRACTOR FAILS TO NOTIFY THE BWSC INSPECTORS OF CANCELLATION IN ADVANCE, AN ADDITIONAL INSPECTION FEE WILL BE CHARGED TO THE CONTRACTOR WHEN THE JOB IS SUBSEQUENTLY RE-SCHEDULED.

BOSTON WATER AND SEWER COMMISSION
 LOCATION APPROVED UNDER THE FOLLOWING CONDITIONS

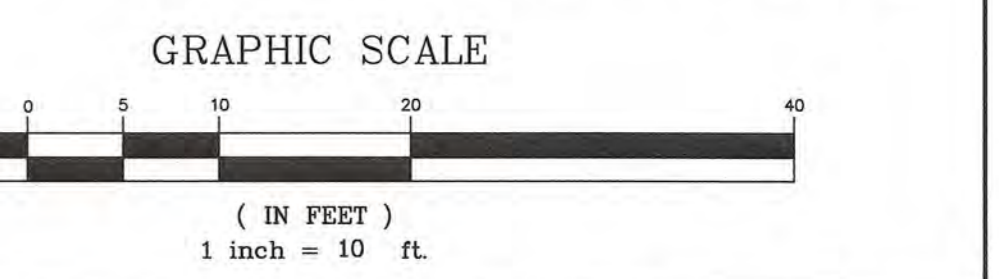
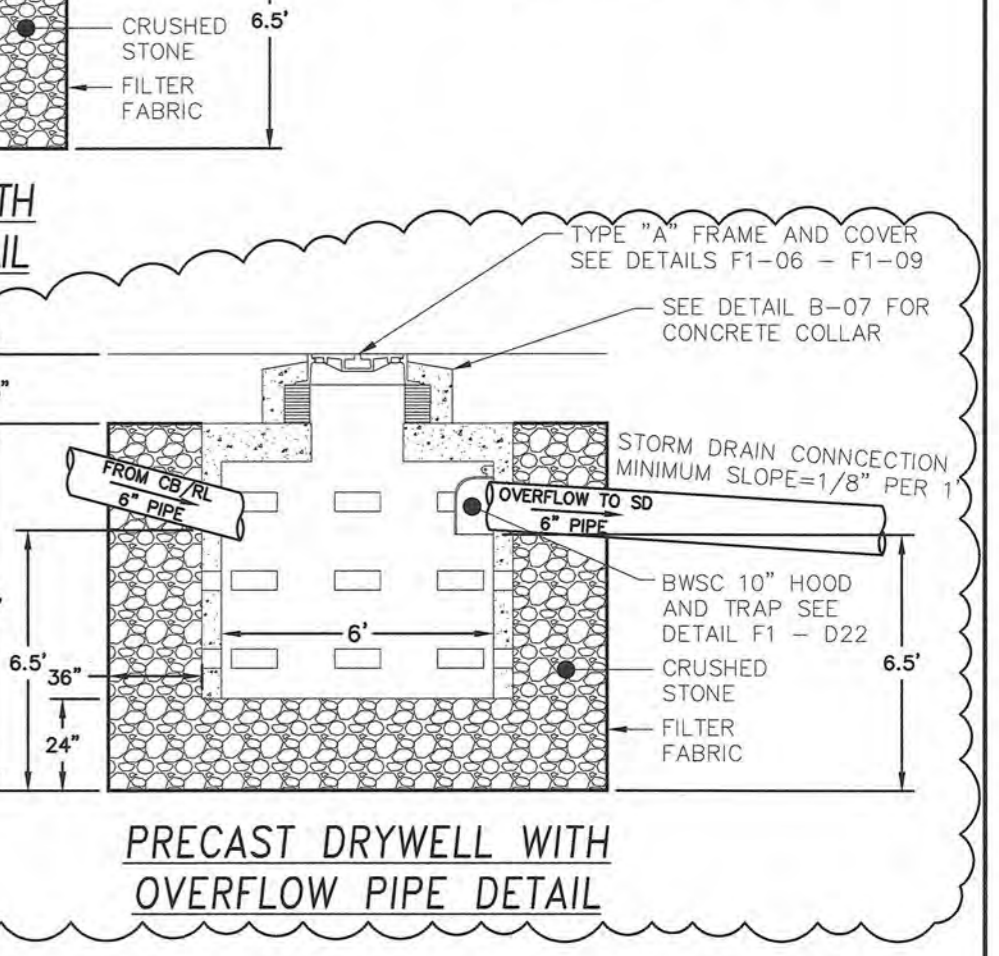
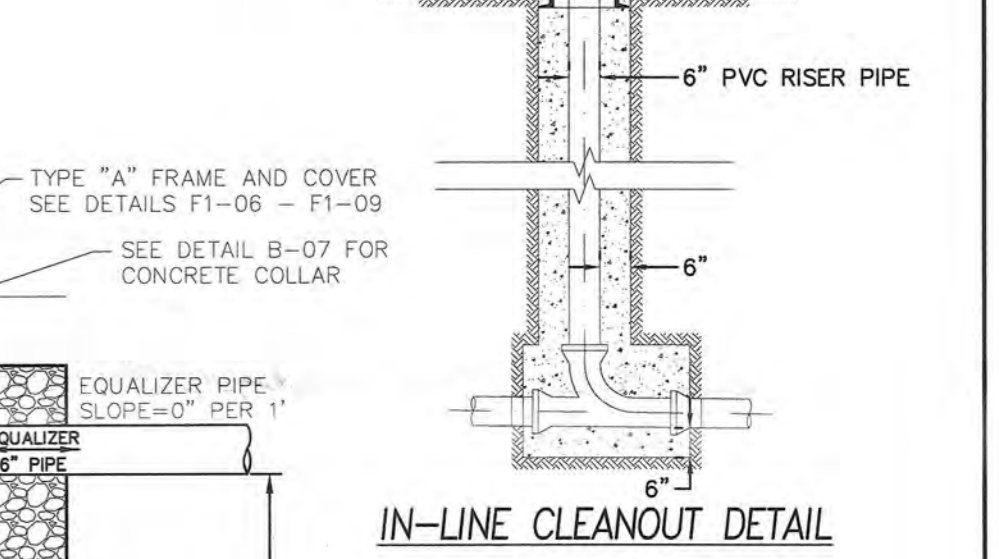
REVIEWED AND APPROVED AS TO PROPOSED CONNECTION(S) TO EXISTING WATER AND SEWER FACILITIES AS SHOWN, FOR ISSUE OF BUILDING PERMIT ONLY. ADDITIONAL PERMITS MUST BE OBTAINED PRIOR TO CONNECTION TO BWSC FACILITIES. SITE PLANS ARE VALID FOR A PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL.

JOHN P. SULLIVAN JR., P.E.
 CHIEF ENGINEER
 DATE: 11/20/20

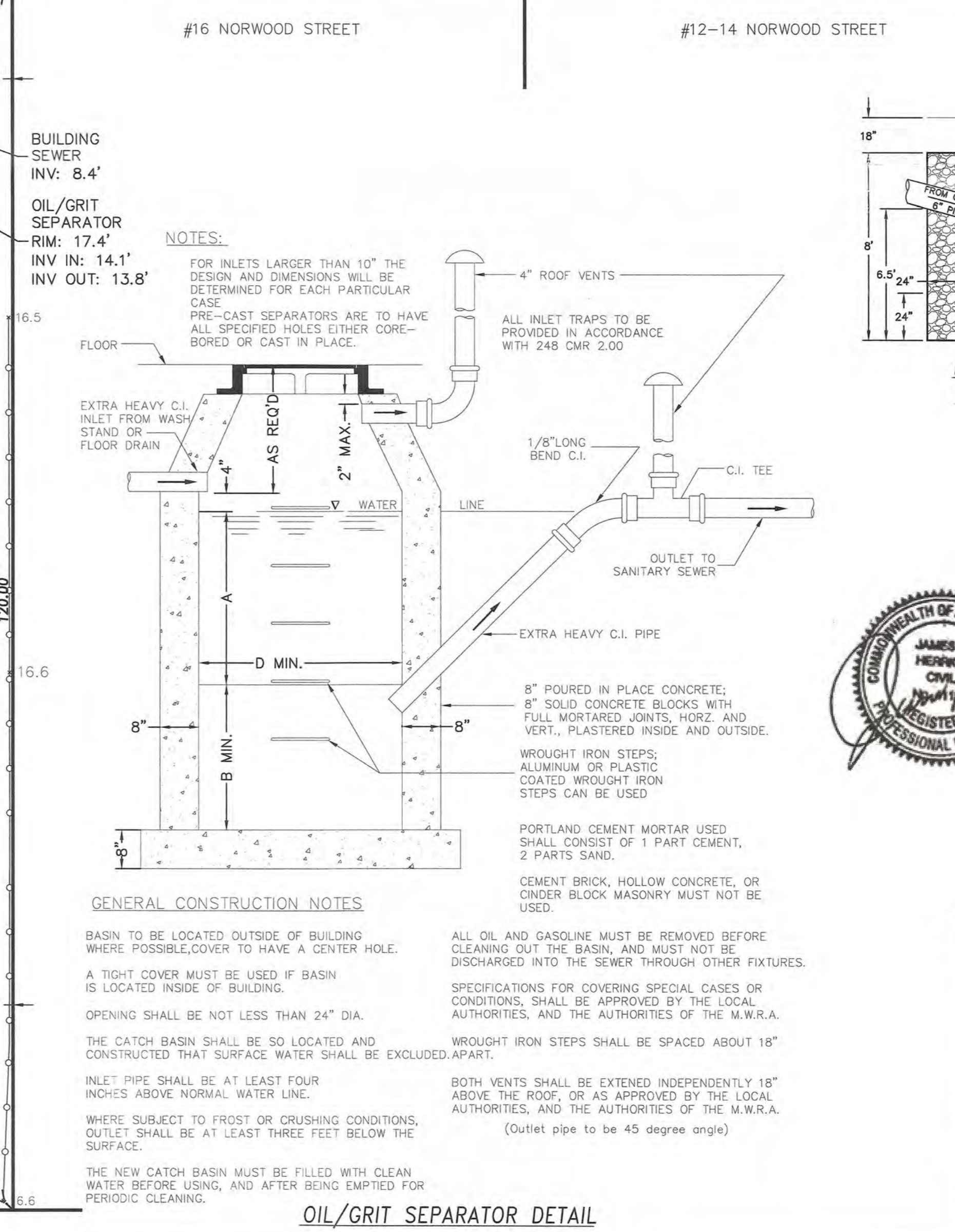
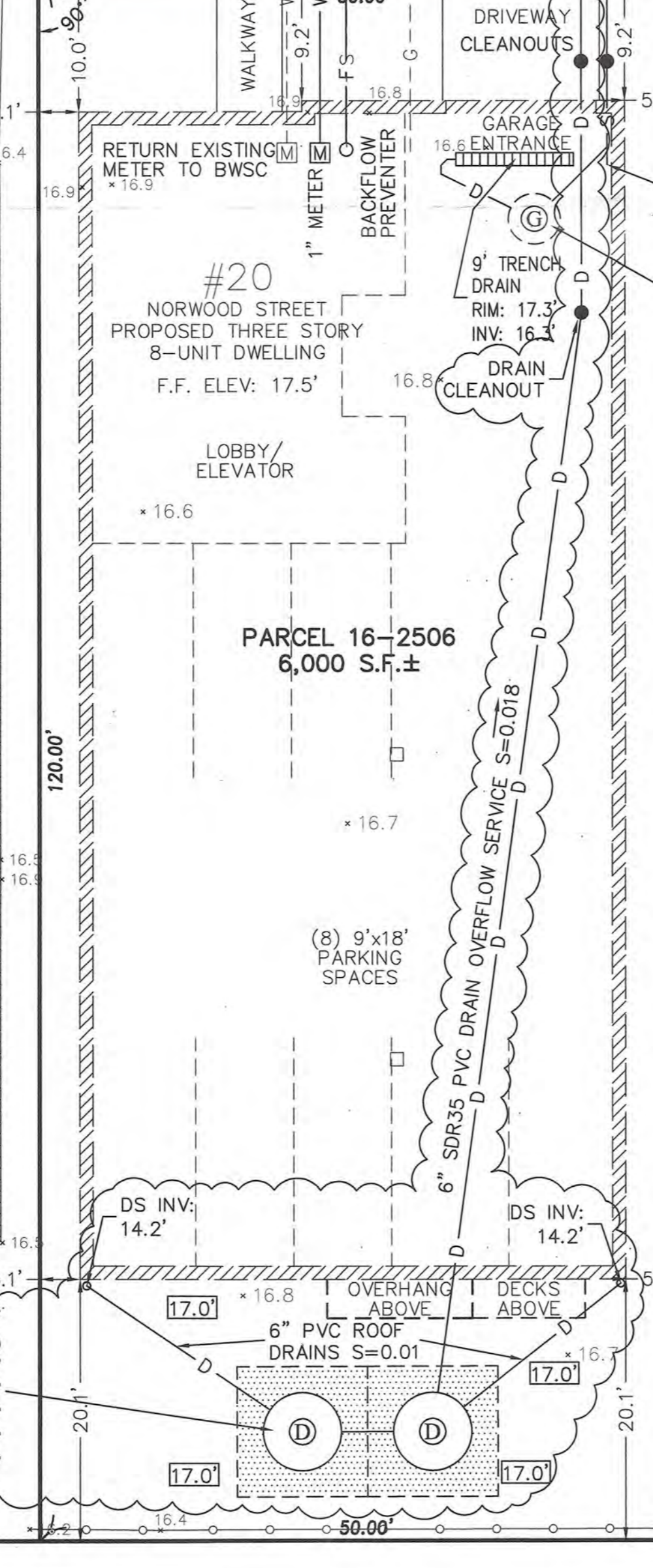
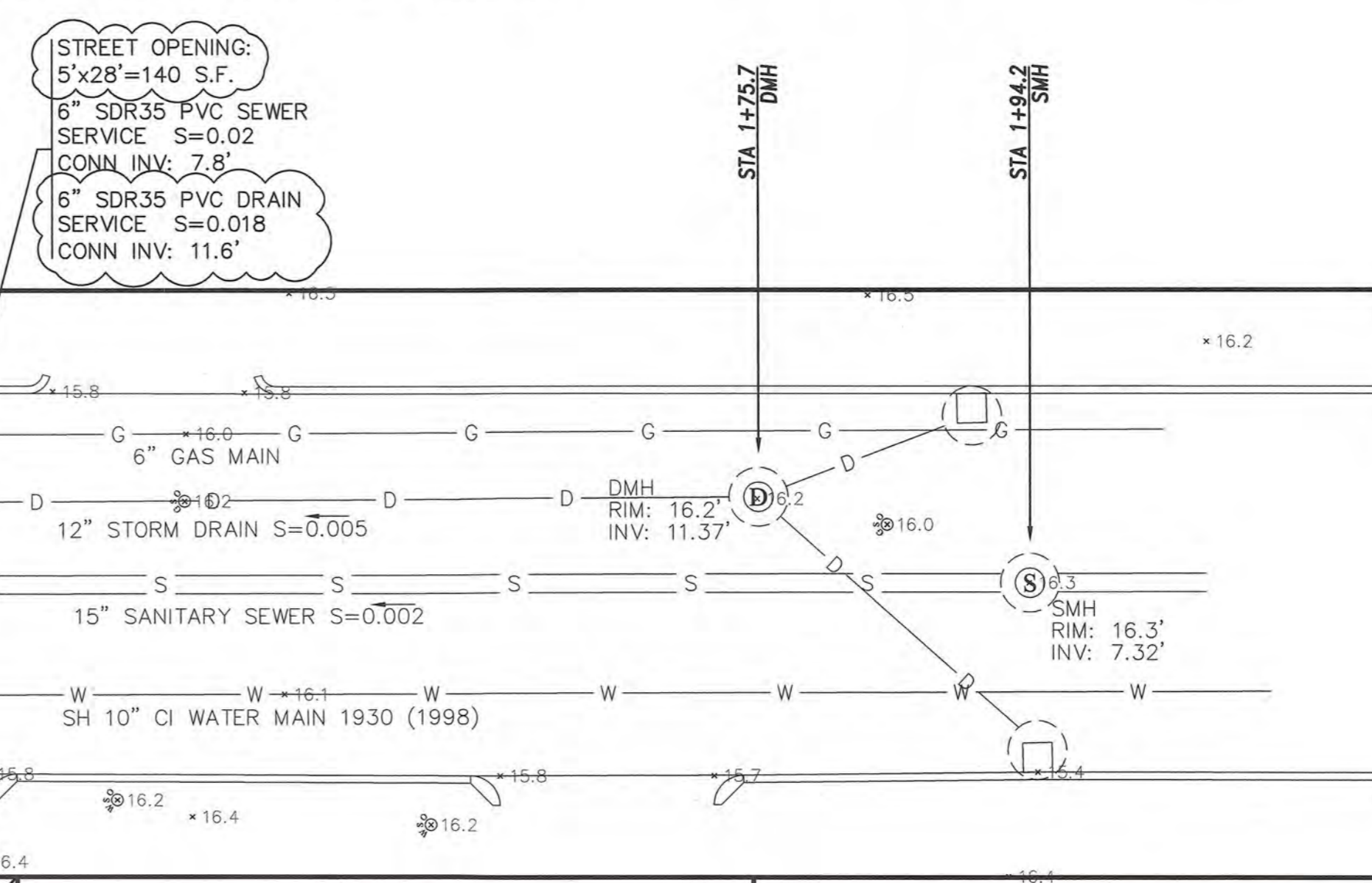
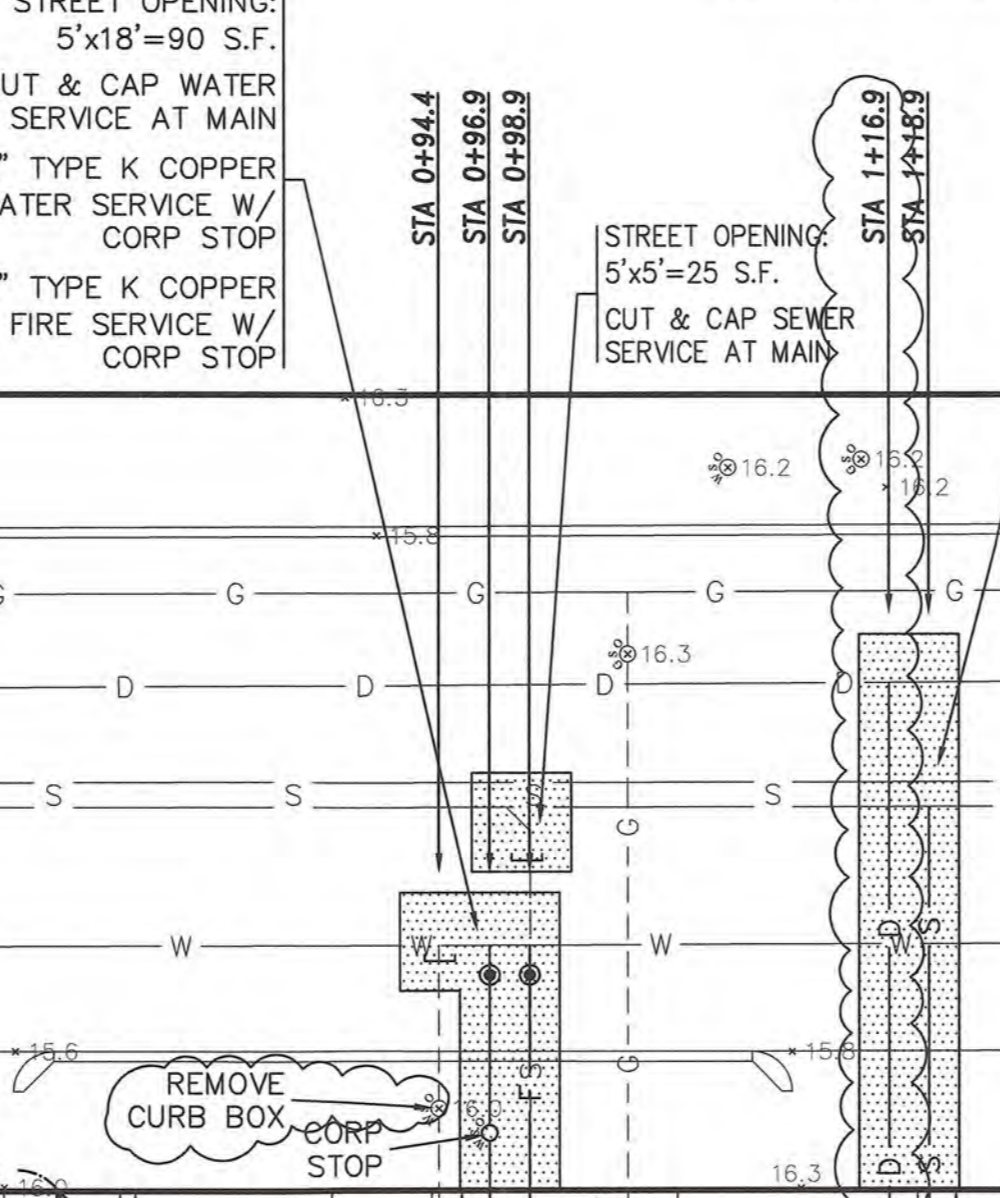
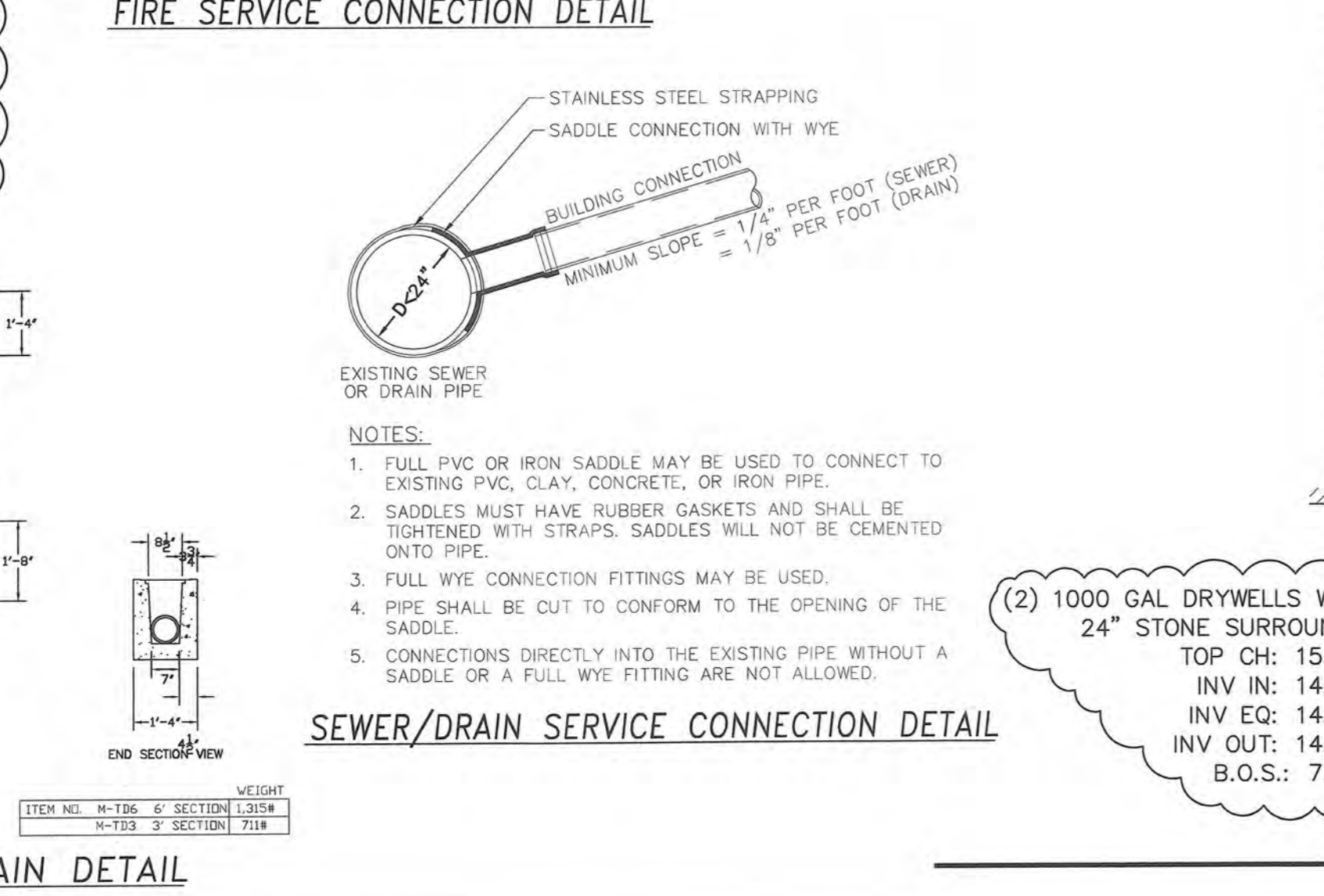
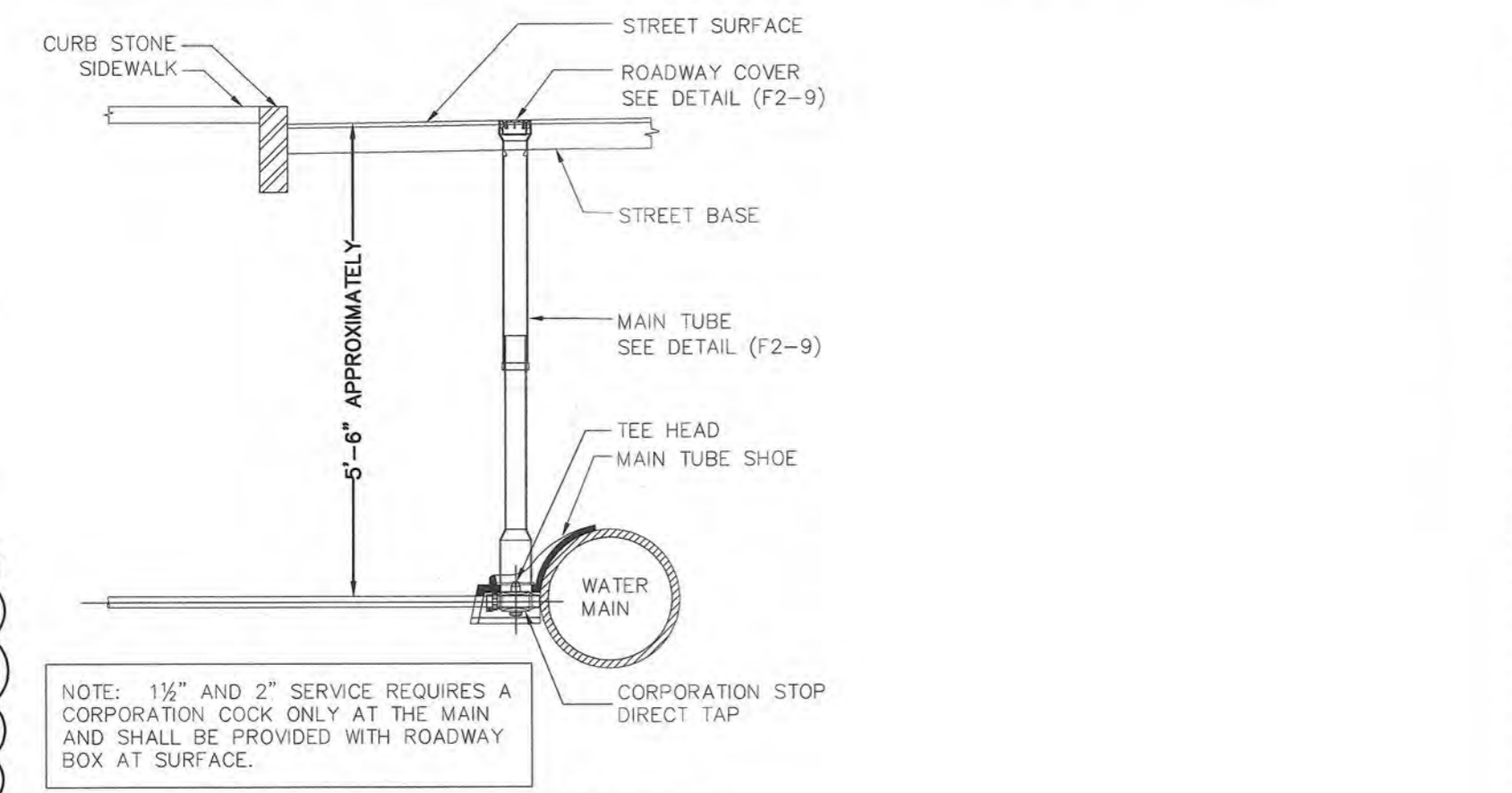
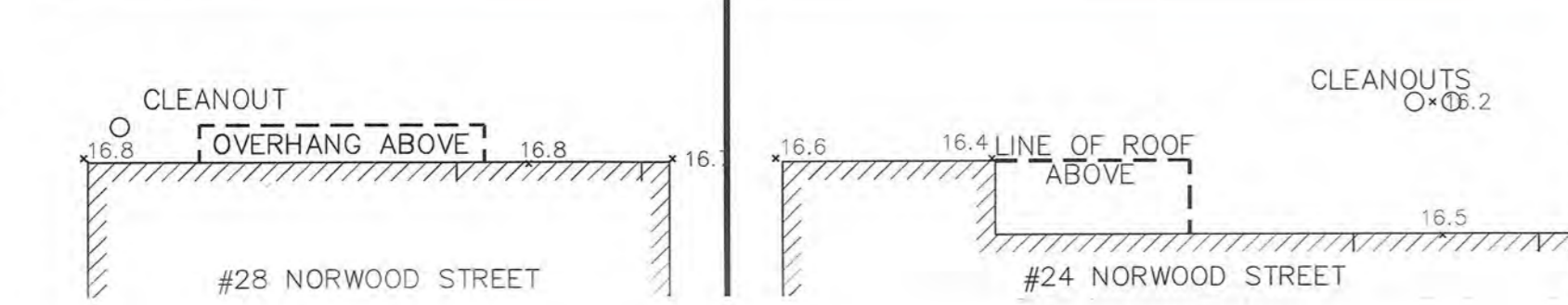
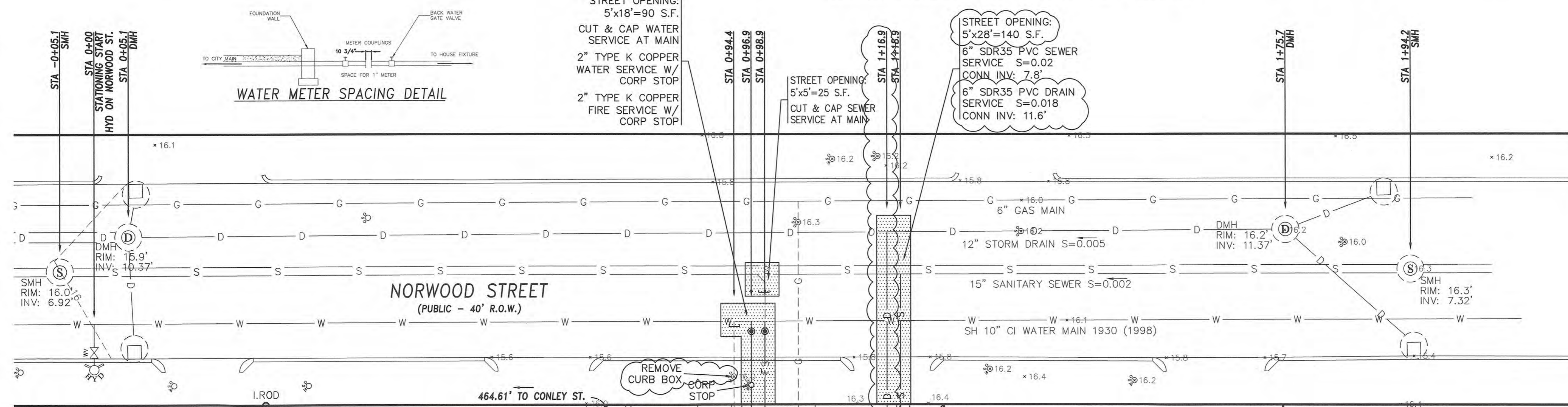
FOR BWSC ONLY
 ALL WATER, SEWER, AND DRAIN SERVICE CONNECTIONS TO BOSTON WATER AND SEWER COMMISSION FACILITIES MUST BE PERFORMED BY A BONDED DRAIN LAYER, LICENSED BY THE BOSTON WATER AND SEWER COMMISSION.

BOSTON WATER AND SEWER COMMISSION
 BACKFLOW PREVENTER INSTALLATION
 APPROVAL: [Signature] DATE: 11/20/20

NOTE:
 CLEANOUT TOP SHALL BE ENCLOSED IN CASTING AND/OR FABRICATED COVER ASSEMBLY.



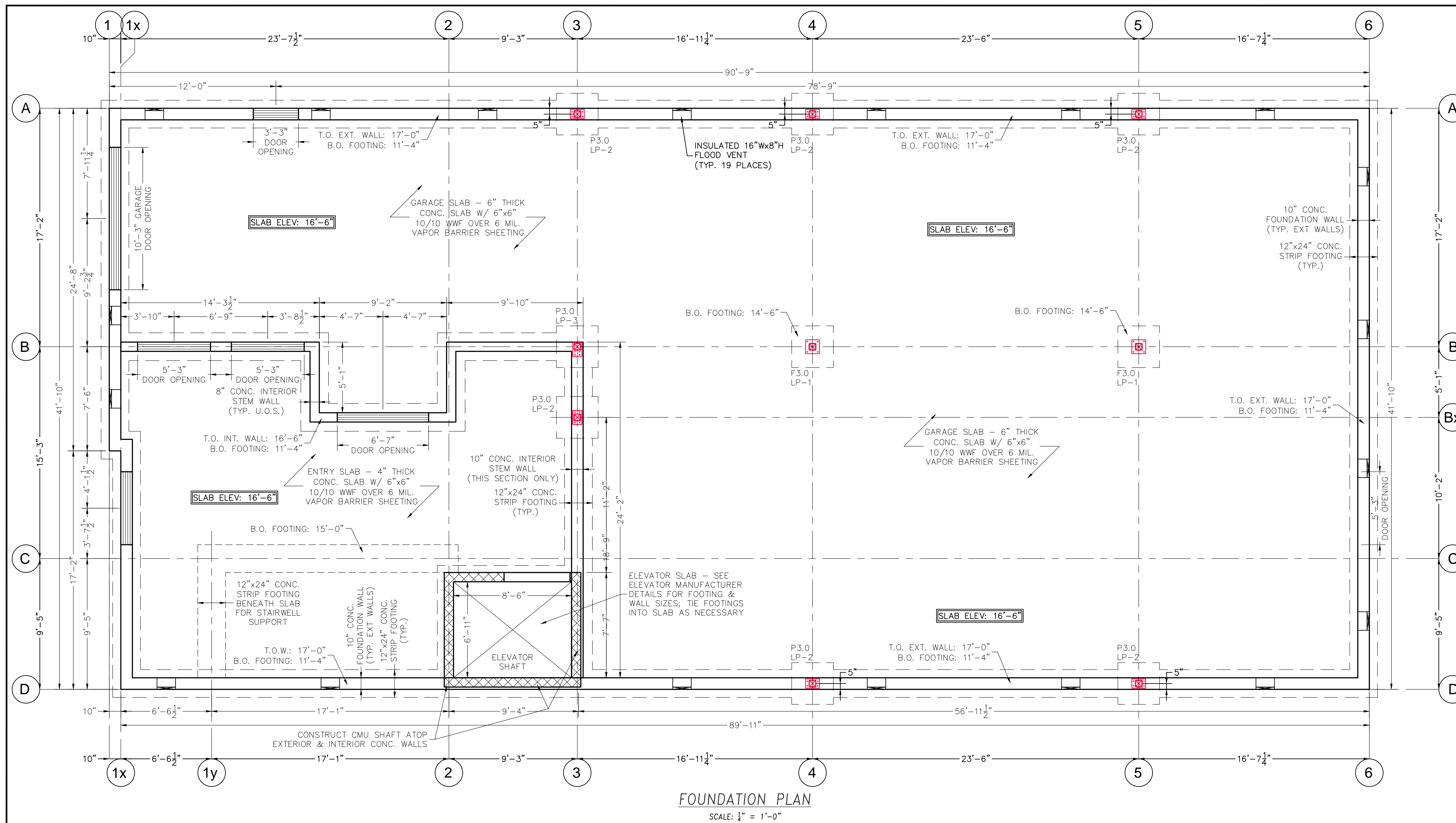
- CUT & CAP EXISTING SEWER SERVICE
- CUT & CAP EXISTING WATER SERVICE
- 2" TYPE K COPPER WATER SERVICE
- 2" TYPE K COPPER FIRE SERVICE
- 6" SDR35 PVC SEWER SERVICE
- SEWER CLEANOUT INSTALLATION
- SEWER DYE TEST
- INFILTRATION SYSTEM INSTALLATION
- (2) DOWNSPOUT INSTALLATIONS
- TRENCH DRAIN INSTALLATION
- OIL/GRIT SEPARATOR INSTALLATION
- 6" SDR35 PVC DRAIN SERVICE
- (2) DRAIN CLEANOUT INSTALLATIONS
- DRAIN DYE TEST
- AS-BUILT FEE REQUIRED
- TRENCH DRAIN DETAIL



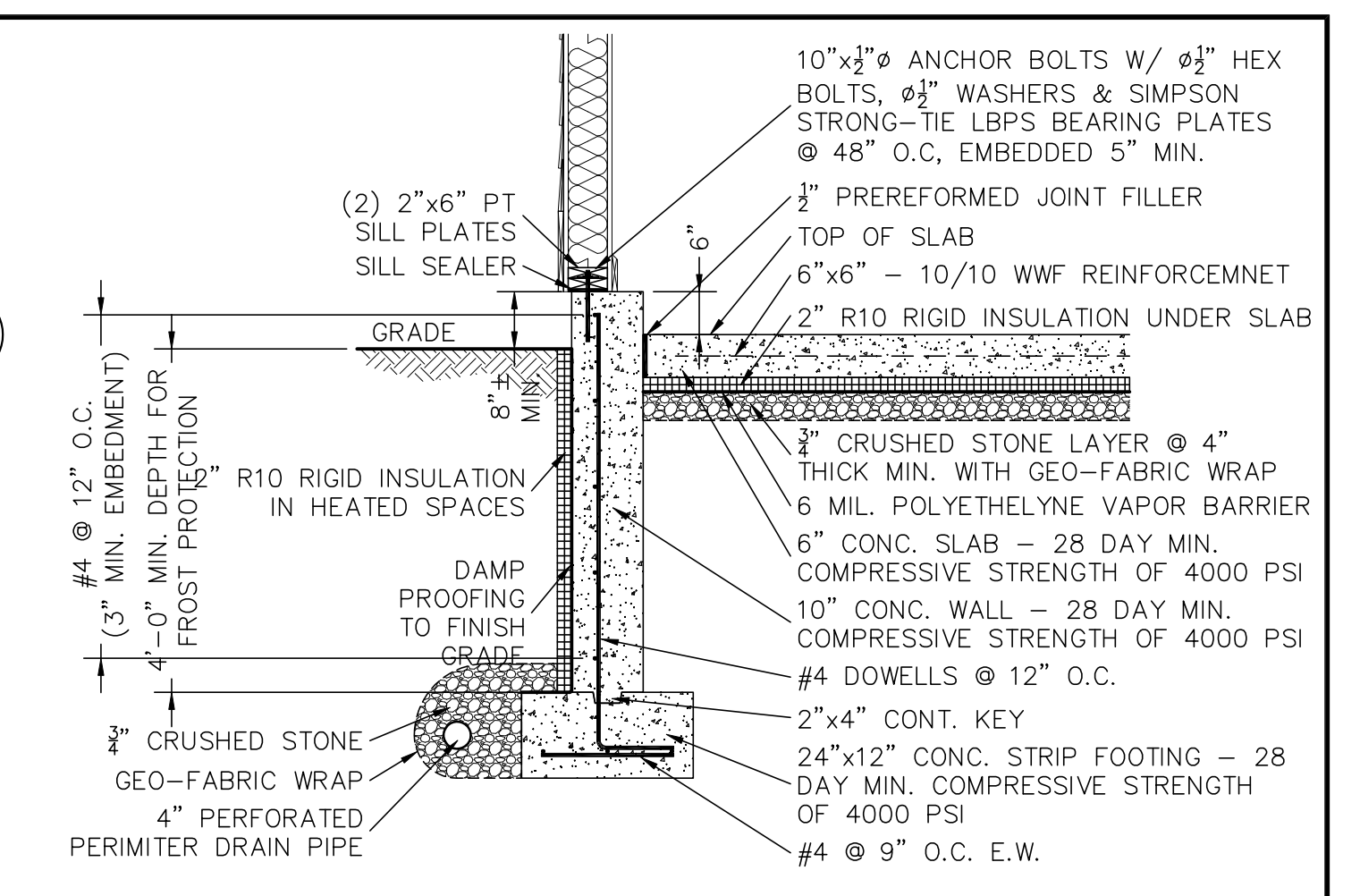
NOTES:
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 PRE-CAST SEPARATORS ARE TO HAVE ALL SPECIFIED HOLES EITHER CORE-BORED OR CAST IN PLACE.
 ALL INLET TRAPS TO BE PROVIDED IN ACCORDANCE WITH 24B CMR 2.00.
 4" ROOF VENTS
 EXTRA HEAVY C.I. INLET FROM WASH STAND OR FLOOR DRAIN
 AS RECD
 2" MAX.
 1/8" LONG BEND C.I.
 C.I. TEE
 OUTLET TO SANITARY SEWER
 EXTRA HEAVY C.I. PIPE
 8" POURED IN PLACE CONCRETE; 8" SOLID CONCRETE BLOCKS WITH FULL MORTARED JOINTS, HORZ. AND VERT., PLASTERED INSIDE AND OUTSIDE.
 WROUGHT IRON STEPS; ALUMINUM OR PLASTIC COATED WROUGHT IRON STEPS CAN BE USED.
 PORTLAND CEMENT MORTAR USED SHALL CONSIST OF 1 PART CEMENT, 2 PARTS SAND.
 CEMENT BRICK, HOLLOW CONCRETE, OR CINDER BLOCK, MASONRY MUST NOT BE USED.

GENERAL CONSTRUCTION NOTES
 BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE, COVER TO HAVE A CENTER HOLE.
 A TIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.
 OPENING SHALL BE NOT LESS THAN 24" DIA.
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 (Outlet pipe to be 45 degree angle)

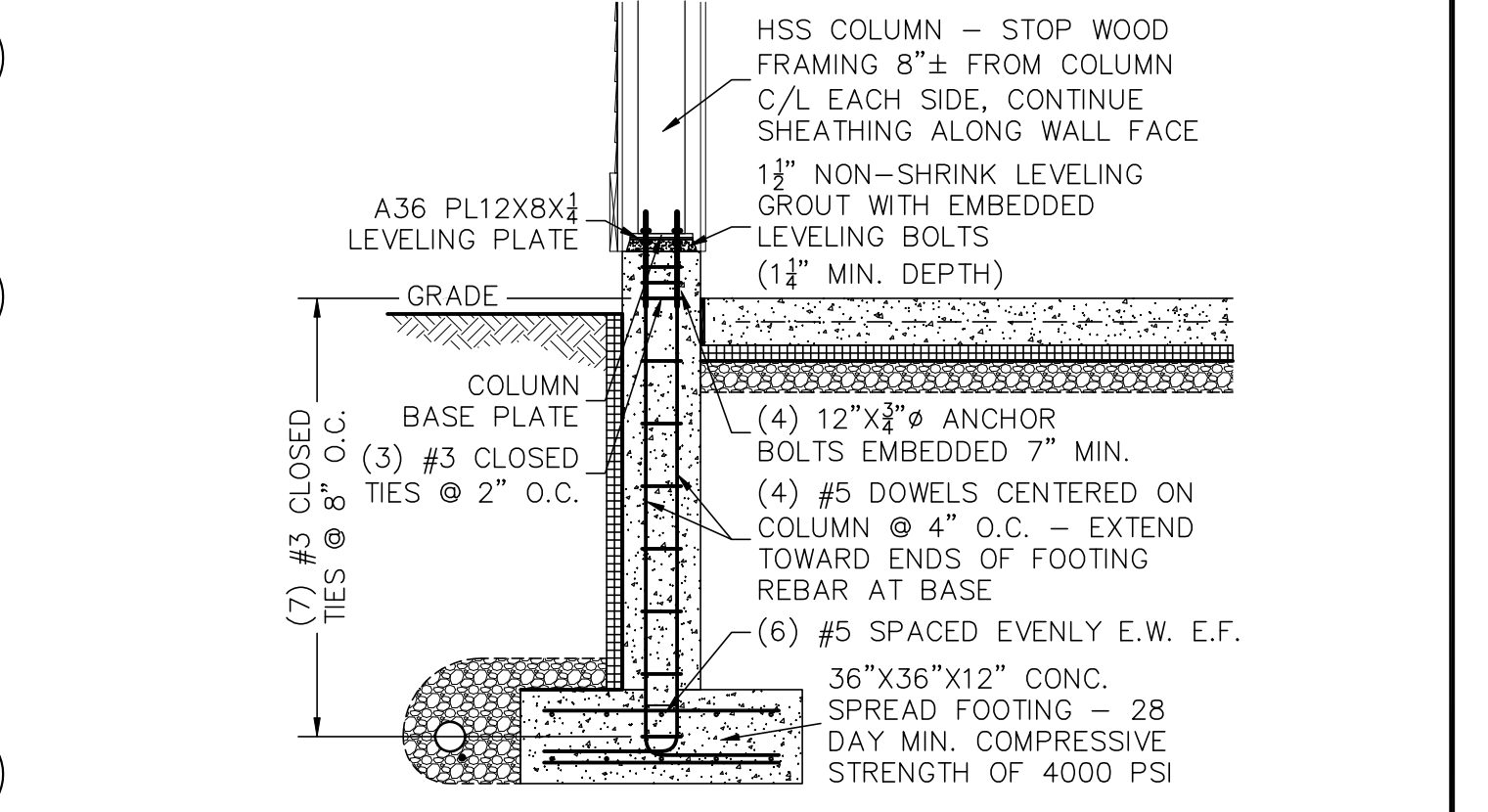
RAISED INFIL. SYS BY 1 FT. ADDED DRAIN OVERFLOW; ADDED MISSING CURB BOX REMOVAL NOTE; ADDED WATER ACCOUNT NUMBER	C.R.L.	11/9/2020
SITE PLAN #20-467 20 NORWOOD STREET DORCHESTER, MA FOR BRUCE EFRON		
CIVIL ENVIRONMENTAL CONSULTANTS, LLC 8 OAK STREET PEABODY, MA 01960 - (978) 531-1191		
SHEET NO: 1 OF 1	DATE: 10/28/2020	JOB: 4272
	DRAWN BY: C.R.L.	



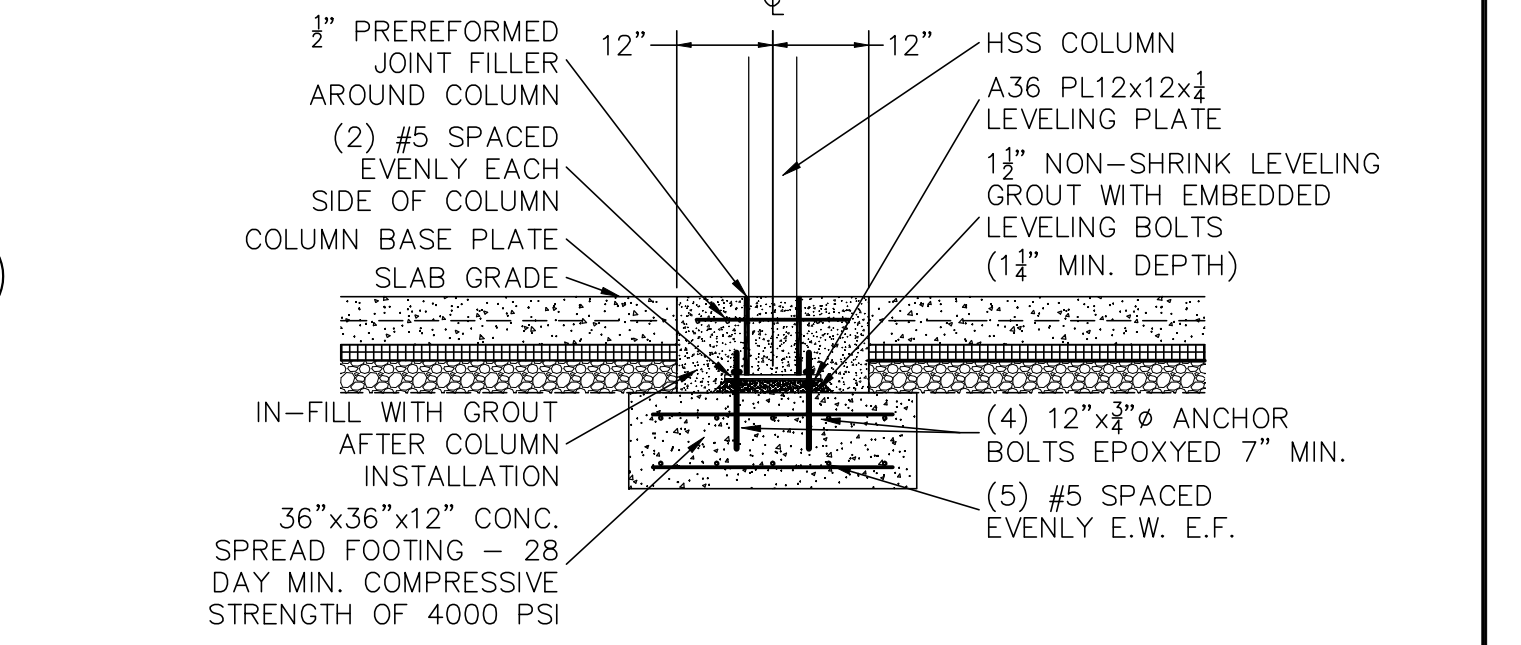
FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



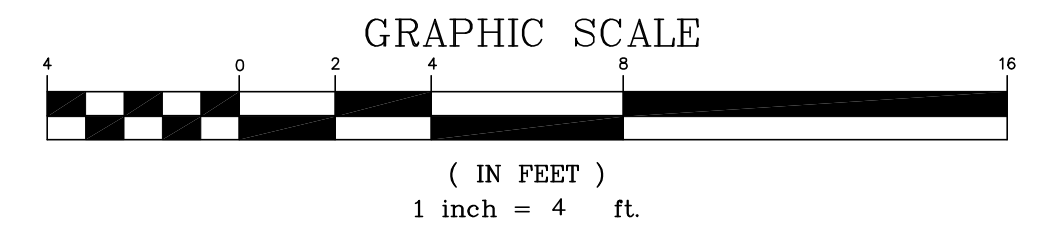
FOUNDATION WALL CROSS-SECTION
SCALE: 1/2" = 1'-0"



FOUNDATION WALL PIER COLUMN DETAIL
SCALE: 1/2" = 1'-0"

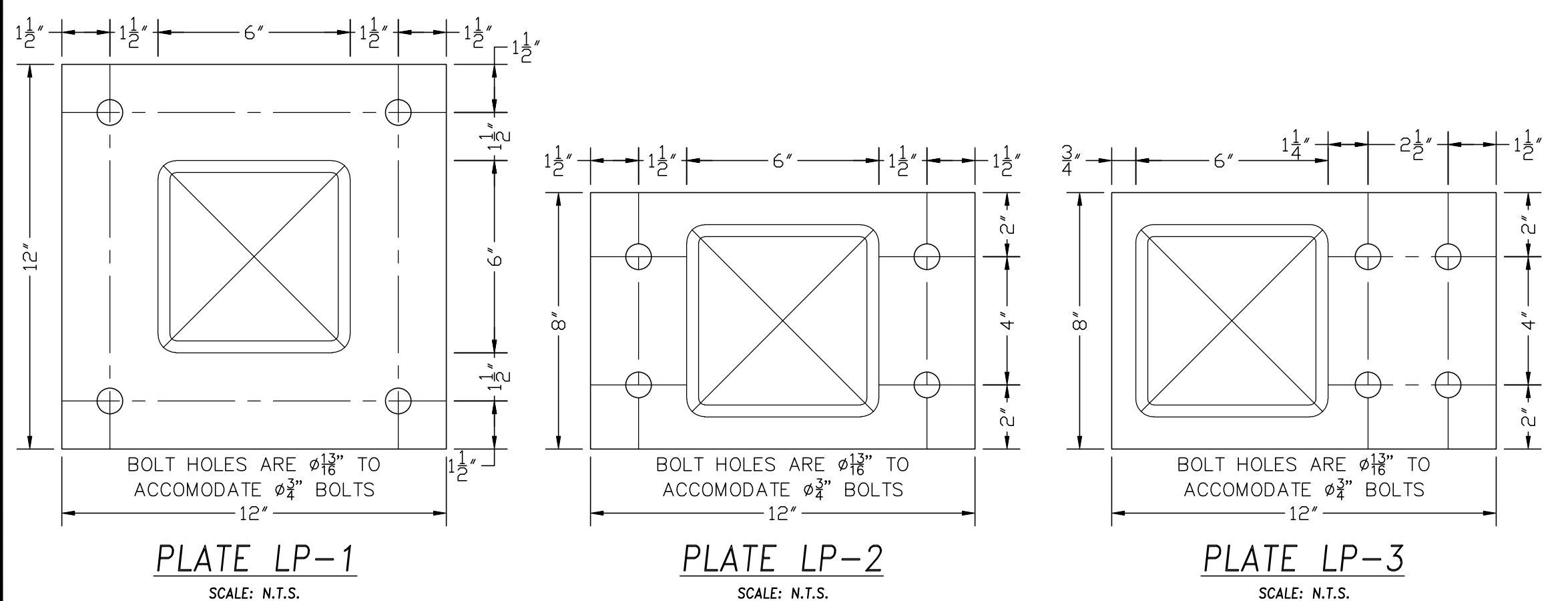


SPREAD FOOTING CROSS-SECTION
SCALE: 1/2" = 1'-0"



PROPOSED ELEVATIONS:
SITE LOW POINT: 16.4'
SITE HIGH POINT: 16.9'
LOBBY ELEVATION: 16.5'
FIRST FLOOR ELEVATION: 27.5'

NOTE: ENTIRE SITE IS LOCATED WITHIN LAND SUBJECT TO COASTAL STORM FLOWAGE PER FEMA FIRM MAP NO: 25025C0091J



LEVELING PLATE SCHEDULE

PLATE	NUMBER	SIZE	NOTES
LP-1	2	12"X12"Wx4"D	A36 STEEL
LP-2	4	12"X8"Wx4"D	A36 STEEL
LP-3	1	12"X8"Wx4"D	A36 STEEL

FOOTING SCHEDULE

FOOTING	NUMBER	SIZE	REBAR
F3.0	2	36"X36"Wx12"D	(5) #5 E.W. SPACED EVENLY E.F.
P3.0	6	BASE: 36"X36"Wx12"D PIER: 10"X10"Wx5.4"D	(5) #5 E.W. SPACED EVENLY E.F.

LEGEND

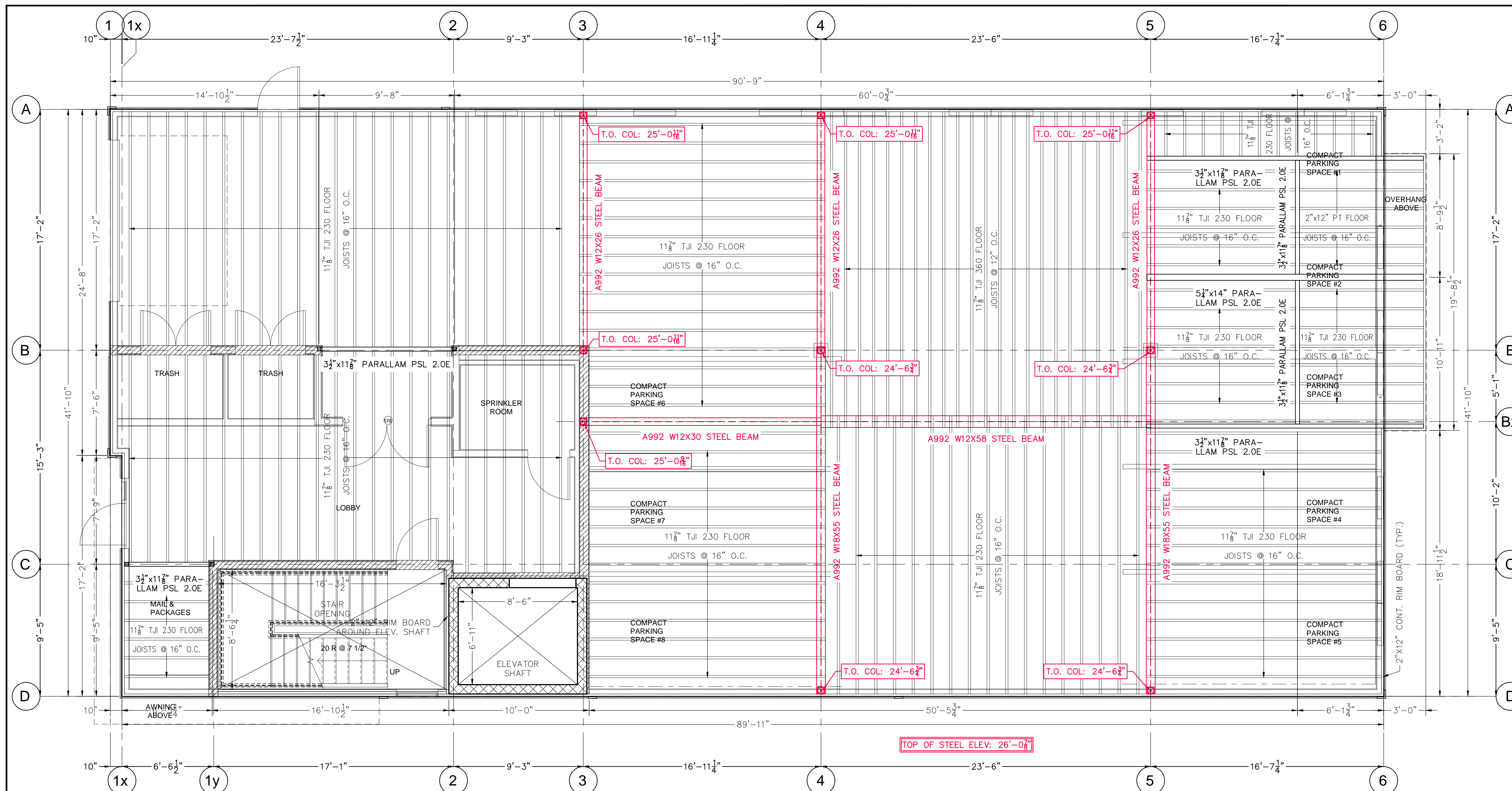
- A500 Gr. B HSS6X6X3/8 COLUMN
- 7"X7" PARALLAM PSL POST 1.8E
- 5"X5 1/2" PARALLAM PSL POST 1.8E
- 5"X3 3/4" PARALLAM PSL POST 1.8E
- 3"X3 3/4" PARALLAM PSL POST 1.8E
- FRAMED BEARING WALL
- CMU BEARING WALL

	ADDED PROP. ELEVATIONS & FEMA NOTE PER CONCOM REQ.	C.R.L.	11/18/2021
	CHG. ELEVATOR PIT TO MATCH NEW MRL ELEVATOR	C.R.L.	9/21/2021
	ADDED FLOOD VENTS PER CONSERVATION COMMISSION SUBMITTAL	C.R.L.	9/9/2021
	CORRECTED TOP OF COLUMN ELEV'S FOR COL'S B4, B5, D4 & D5	C.R.L.	8/23/2021
	ADDED TOP OF STEEL/TOP OF COLUMN ELEV'S TO SHEET S-2.0	C.R.L.	8/16/2021
	ADJ. FOUNDATION GRADES PER FIELD CONDITIONS	C.R.L.	7/21/2021

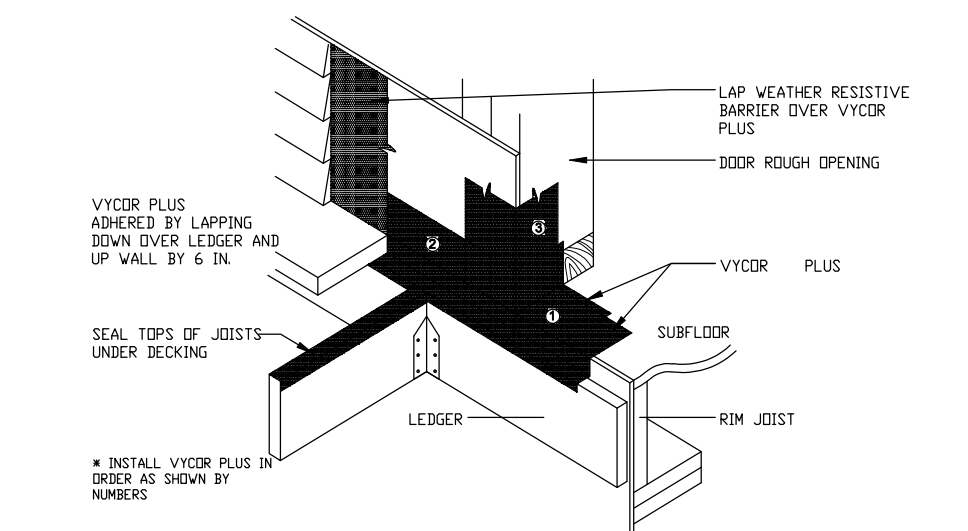
PROPOSED FOUNDATION PLAN
20 NORWOOD STREET
DORCHESTER, MA
FOR
BRUCE EFRON

CIVIL ENVIRONMENTAL CONSULTANTS
8 OAK STREET PEABODY, MA 01960 978-531-1191

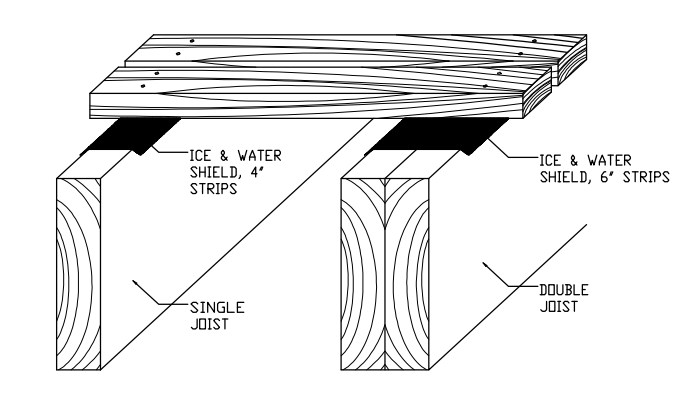
SHEET NO: S-1.0 DATE: 11/6/2020 JOB: 4272
DRAWN BY: C.R.L.



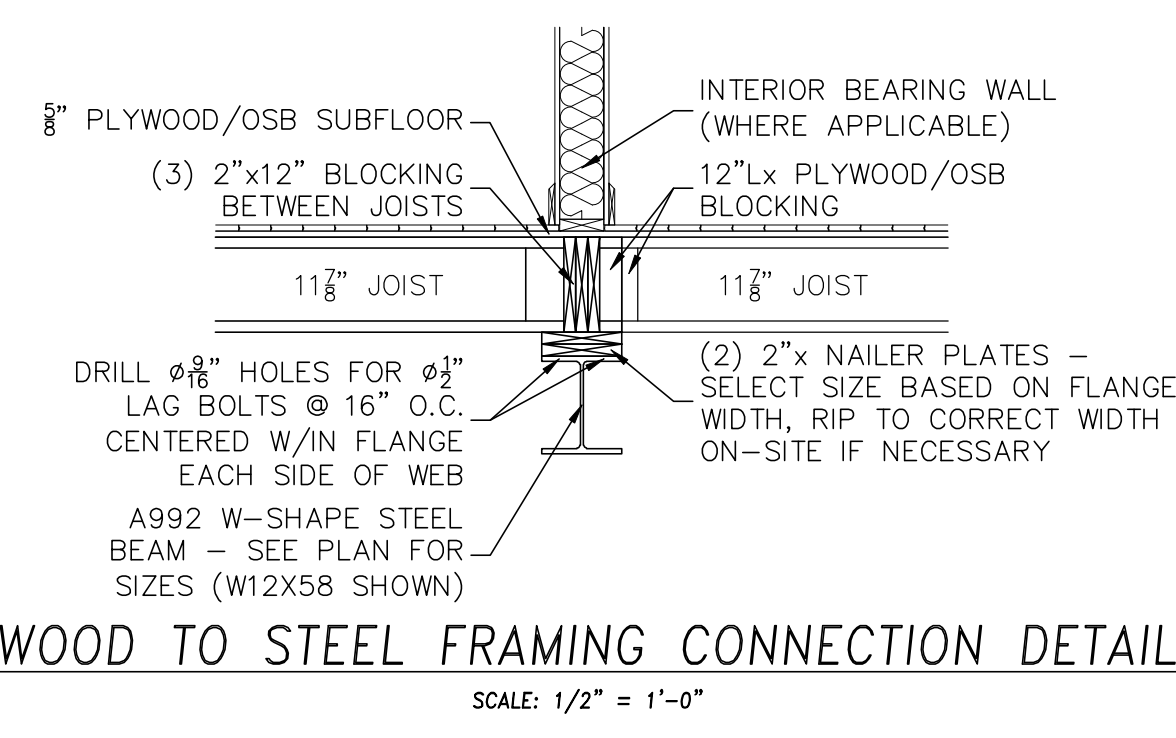
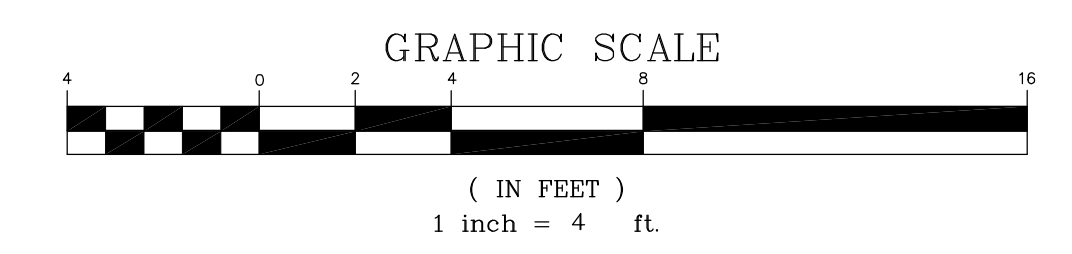
FIRST FLOOR FRAMING PLAN
SCALE: 1/4" = 1'-0"



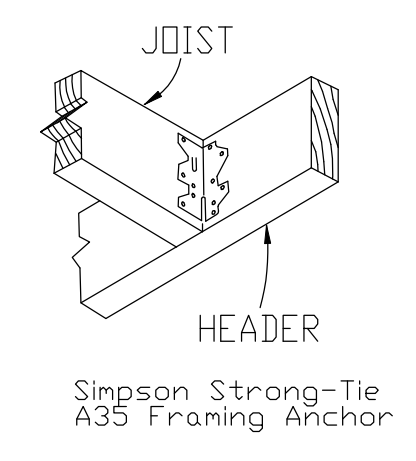
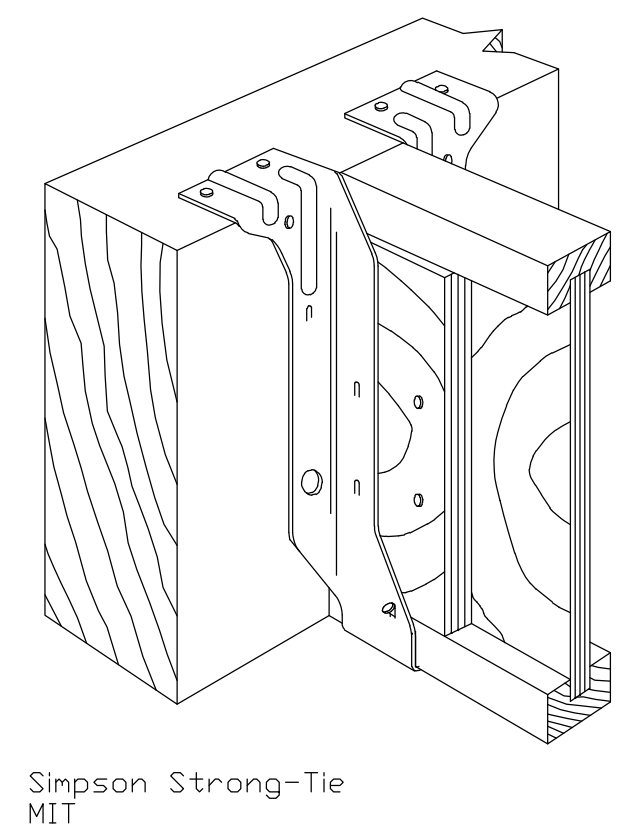
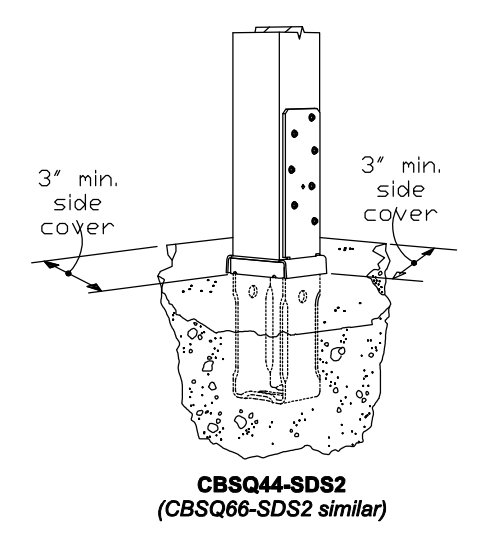
TYPICAL DECK DETAIL @ DOOR
SCALE: NTS



TYPICAL DECK DETAIL
SCALE: NTS



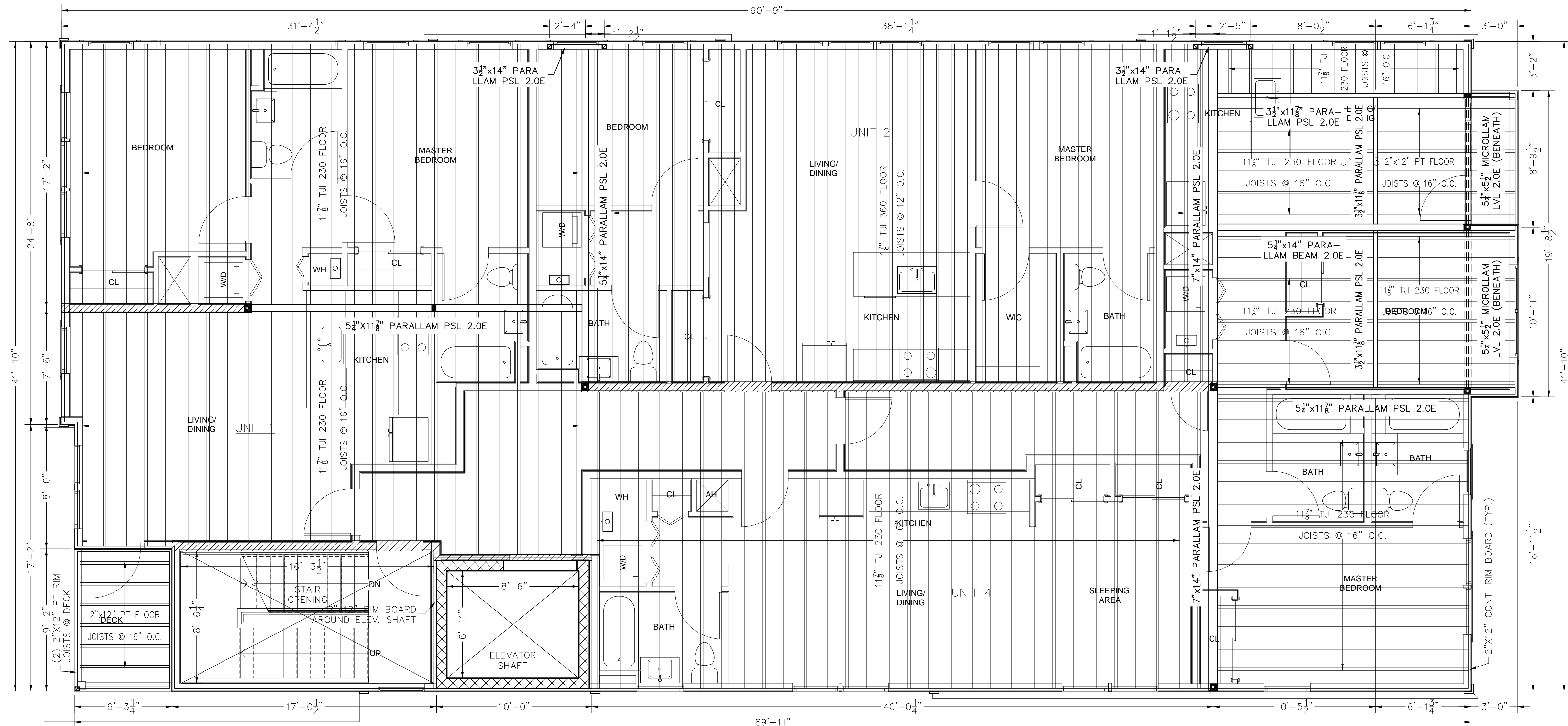
- LEGEND**
- ⊠ - A500 Gr. B HSS6X6X3/8 COLUMN
 - ▣ - 7"x7" PARALLAM PSL POST 1.8E
 - - 5 1/2"x5 1/2" PARALLAM PSL POST 1.8E
 - - 5 1/2"x3 3/4" PARALLAM PSL POST 1.8E
 - - 3 1/2"x3 3/4" PARALLAM PSL POST 1.8E
 - ▨ - FRAMED BEARING WALL
 - ▩ - CMU BEARING WALL



⚠	ADDED PROP. ELEVATIONS & FEMA NOTE PER CONCOM REQ.	C.R.L.	11/18/2021
⚠	CHG. ELEVATOR PIT TO MATCH NEW MRL ELEVATOR	C.R.L.	9/21/2021
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⚠	CORRECTED TOP OF COLUMN ELEV'S FOR COL'S B4, B5, D4 & D5	C.R.L.	8/23/2021
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⚠	ADJ. FOUNDATION GRADES PER FIELD CONDITIONS	C.R.L.	7/21/2021

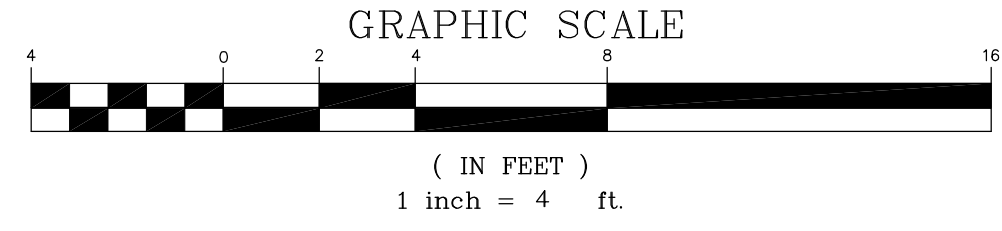
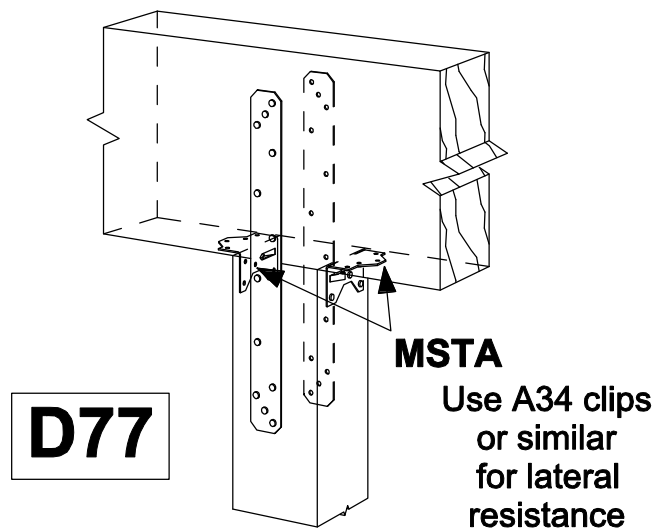
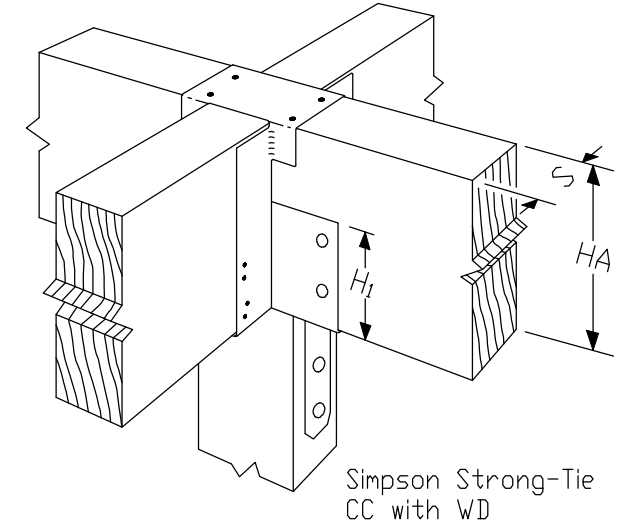
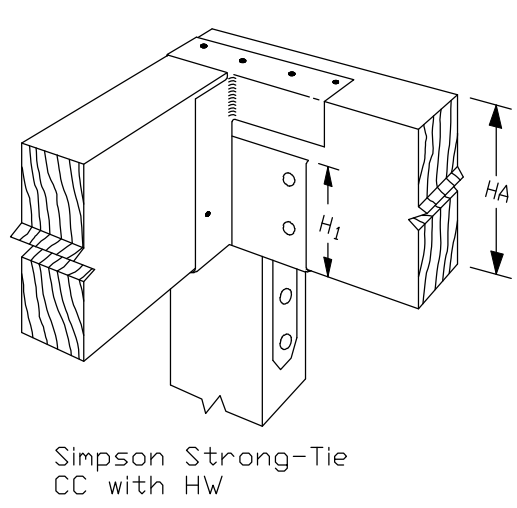
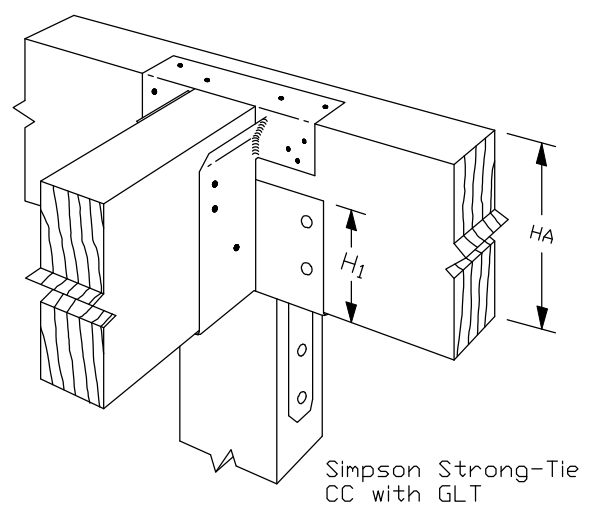
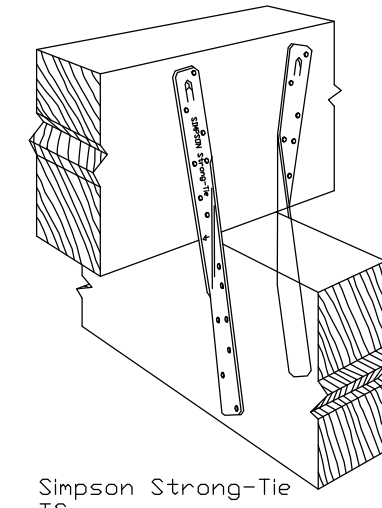
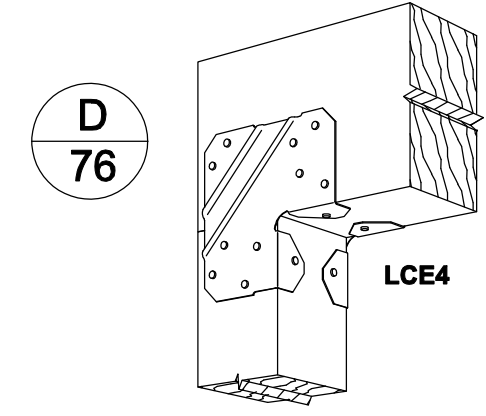
PROPOSED STRUCTURAL PLANS
20 NORWOOD STREET
DORCHESTER, MA
FOR
BRUCE EFRON
CIVIL ENVIRONMENTAL CONSULTANTS
 8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: S-2.0 DATE: 11/6/2020 JOB: 4272
 DRAWN BY: C.R.L.



SECOND FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"



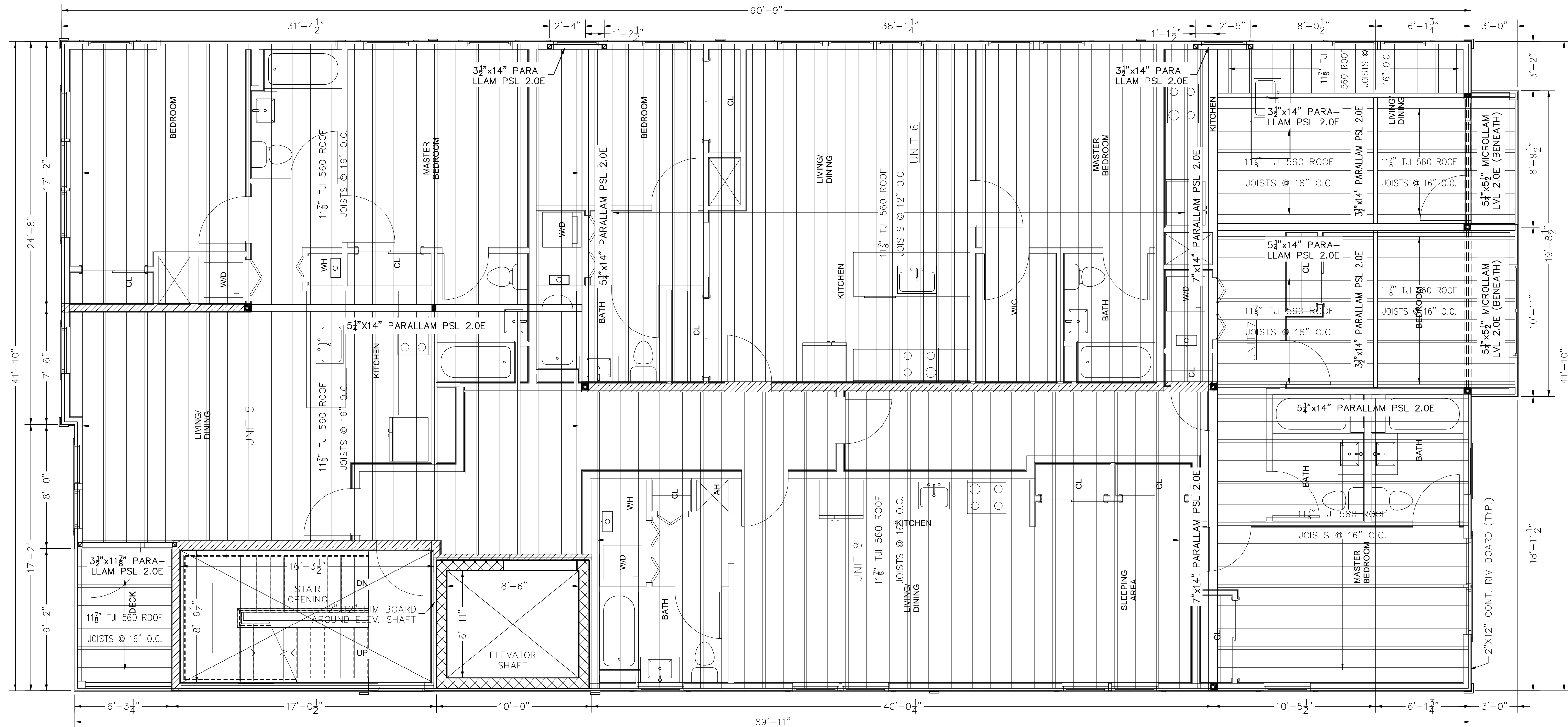
⚠	ADDED PROP. ELEVATIONS & FEMA NOTE PER CONCOM REQ.	C.R.L.	11/18/2021
⚠	CHG. ELEVATOR PIT TO MATCH NEW MRL ELEVATOR	C.R.L.	9/21/2021
⚠	ADDED FLOOD VENTS PER CONSERVATION COMMISSION SUBMITTAL	C.R.L.	9/9/2021
⚠	CORRECTED TOP OF COLUMN ELEV'S FOR COL'S B4, B5, D4 & D5	C.R.L.	8/23/2021
⚠	ADDED TOP OF STEEL/TOP OF COLUMN ELEV'S TO SHEET S-2.0	C.R.L.	8/16/2021
⚠	ADJ. FOUNDATION GRADES PER FIELD CONDITIONS	C.R.L.	7/21/2021

PROPOSED STRUCTURAL PLANS
20 NORWOOD STREET
DORCHESTER, MA
 FOR
BRUCE EFRON
CIVIL ENVIRONMENTAL CONSULTANTS
 8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: S-2.1 DATE: 11/6/2020 JOB: 4272
 DRAWN BY: C.R.L.

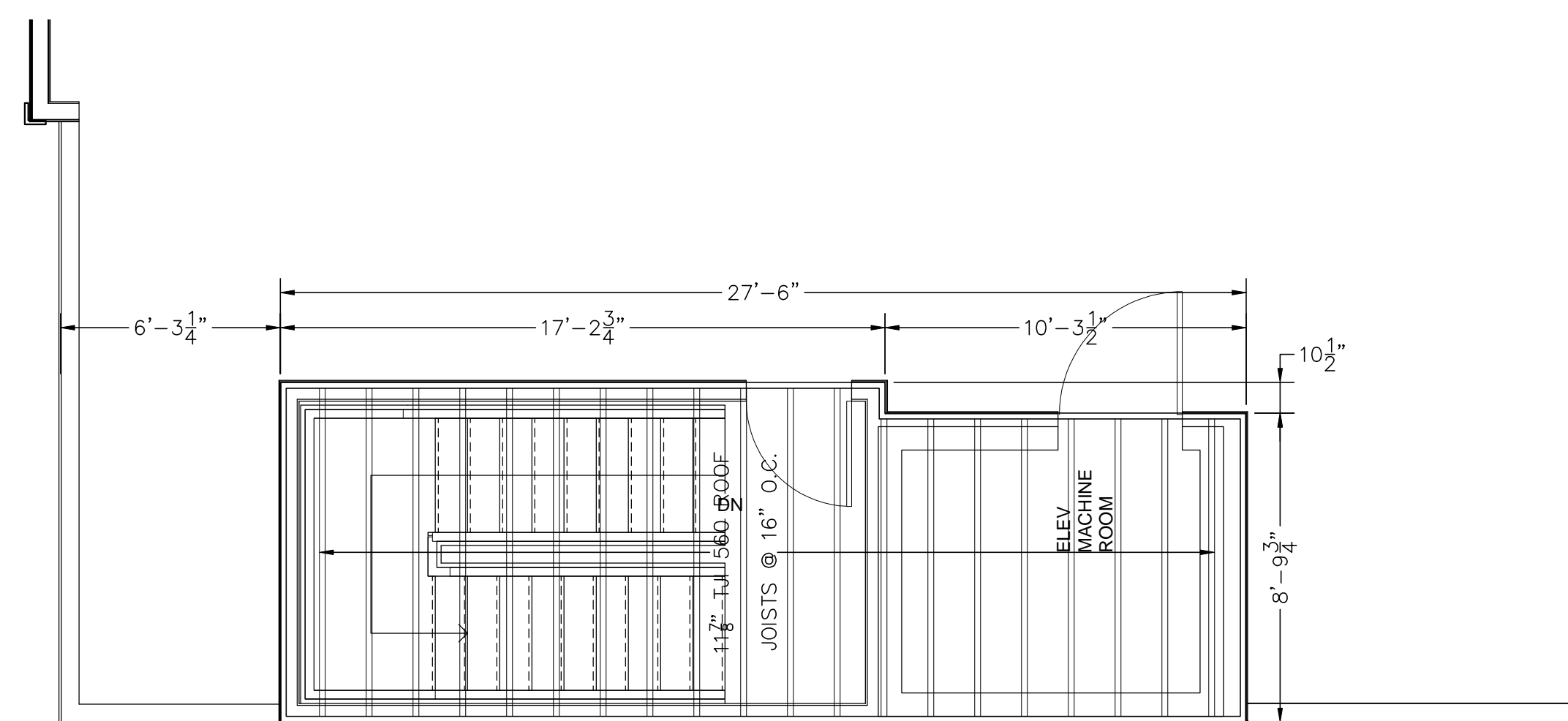


- LEGEND**
- ⊠ - A500 Gr. B HSS6X6X3/8 COLUMN
 - ▣ - 7"x7" PARALLAM PSL POST 1.8E
 - - 5 1/2"x5 1/2" PARALLAM PSL POST 1.8E
 - - 5 1/2"x3 1/2" PARALLAM PSL POST 1.8E
 - - 3 1/2"x3 1/2" PARALLAM PSL POST 1.8E
 - ▨ - FRAMED BEARING WALL
 - ▩ - CMU BEARING WALL



ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

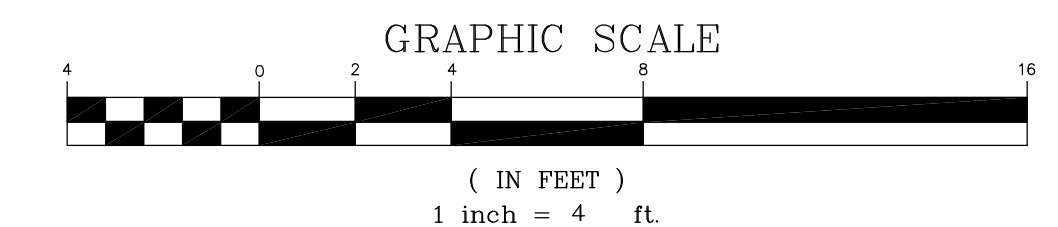


HEADHOUSE ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

LEGEND

- A500 Gr. B HSS6x6x3/8 COLUMN
- 7"x7" PARALLAM PSL POST 1.8E
- 5 1/2"x5 1/2" PARALLAM PSL POST 1.8E
- 5 1/2"x3 1/2" PARALLAM PSL POST 1.8E
- 3 1/2"x3 1/2" PARALLAM PSL POST 1.8E
- FRAMED BEARING WALL
- CMU BEARING WALL



	ADDED PROP. ELEVATIONS & FEMA NOTE PER CONCOM REQ.	C.R.L.	11/18/2021
	CHG. ELEVATOR PIT TO MATCH NEW MRL ELEVATOR	C.R.L.	9/21/2021
	ADDED FLOOD VENTS PER CONSERVATION COMMISSION SUBMITTAL	C.R.L.	9/9/2021
	CORRECTED TOP OF COLUMN ELEV'S FOR COL'S B4, B5, D4 & D5	C.R.L.	8/23/2021
	ADDED TOP OF STEEL/TOP OF COLUMN ELEV'S TO SHEET S-2.0	C.R.L.	8/16/2021
	ADJ. FOUNDATION GRADES PER FIELD CONDITIONS	C.R.L.	7/21/2021



PROPOSED STRUCTURAL PLANS
20 NORWOOD STREET
DORCHESTER, MA
 FOR
BRUCE EFRON
 CIVIL ENVIRONMENTAL CONSULTANTS
 8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: S-2.3 DATE: 11/6/2020 JOB: 4272
 DRAWN BY: C.R.L.

Appendix C

Drainage Report at 20 Norwood Street and HydroCAD Calculations
dated November 18, 2021, prepared by Civil Environmental Consultants, Inc.

Operation and Maintenance Plan dated September, 2021,
prepared by Civil Environmental Consultants, Inc.

Illicit Discharge Statement

DEP Stormwater Checklist

DRAINAGE REPORT

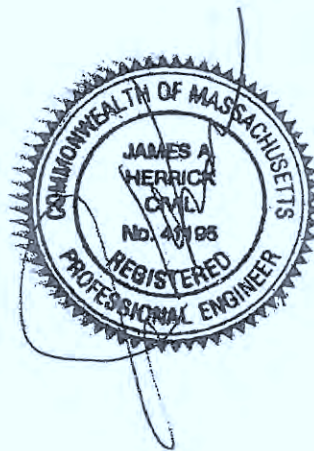
at

20 Norwood Street

Dorchester(Boston), MA

September 2021

Revised November 18, 2021



Drainage Report
20 Norwood Street
Dorchester(Boston) MA

Sept 2021

General

This Report is Enclosed to accompany the drainage details shown on the site plan, submitted for the construction of the 20 Norwood Street project.

The soil classification for this site has been determined to be HSG-A from soil conservation classifications and test pits on site. The Rawl's Infiltration Rate for C Soils is 2.41 inches per hr.

Drainage Analysis showing peak runoff for the pre and post 2 yr., 10 yr, 25 yr., and 100 yr. Storms and post analysis of impervious roof and driveway for the storms is provided herein.

The Roof Stormwater runoff will be Collected on site by Downspouts and then flow into the site's proposed 2 1000 gallon Drywells System that have a 2' stone surround and base and then either infiltrate into the Soil or for larger more infrequent storms, excess capacity will discharge via 6" pvc pipe into the City of Boston Stormwater Drainage System.

The Drawdown of the infiltration system is less than the 72hr maximum the MA stormwater Management handbook guidelines require.

Methodology

Hydrocad Software Solutions LLC's Hydro-Cad Software was used to analyze pre and post developed site conditions to determine time of concentration, composite runoff numbers, rainfall intensity, and storm runoff.

The table below summarize the computations for the SITE showing that the post developed flows from the construction of project do not increase the amount of flow from the predeveloped area of the site.

Year	Existing Storm Sub Area Total Site	Developed Sub Area	Outflow	Difference Outflow - Existing
	2S	1S		
2Yr.	0.21 CFS	0.26 CFS	0.00 CFS	-0.21 CFS
10 Yr.	0.32 CFS	0.39 CFS	0.09 CFS	-0.23 CFS
25 Yr.	0.40 CFS	0.49	0.39 CFS	-0.01 CFS
100 Yr.	0.57	0.70	0.61 CFS	+0.04 CFS

The Net Resultant is a Reduction of Stormwater flow for all Design Storms EXCEPT the 100 yr storm.

20 NORWOOD STREET GROUNDWATER RECHARGE CALCULATIONS

IMPERVIOUS AREA

3815.6 sq.ft.

INFILTRATE 1" OF RAINFALL

$3815.6/12 = 318$ CU.FT. RECHARGE CALCULATION

2 1000 GALLON DRYWELL INFILTRATION SYSTEM

VOLUME OF CHAMBER 239.2 CU.FT.

VOLUME OF STONE CALCULATION

$20' \times 10' \times 6.5' = 1300$ CU.FT.

1300 CU.FT. STONE - 239.2 CU.FT. CHAMBER VOLUME

$= 1060.8$ CU.FT. VOLUME STONE X 0.3 (VOIDS) = 318.2 CU.FT. TOTAL VOID STORAGE

318.2 VOID STORAGE + 239.2 CHAMBER STORAGE = 557.4 CU.FT. TOTAL STORAGE

557.4 CU.FT. SYSTEM STORAGE > 318 CU.FT. REQUIRED STORAGE VOLUME

MA Stormwater Standards Compliance

Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The proposed project's Stormwater Management system consists of 2 1000 gallon drywell's with an overflow drain which shall be connected to The City of Boston Stormwater Drain System. No discharges of stormwater will flow offsite directly into waters or wetlands of the Commonwealth of Massachusetts.

Standard 2: Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The stormwater management system is designed so that post-development peak discharge rates do not exceed the pre-developed discharge rate for most cases. See table in the Methodology Section. For the 2, 10, & 25 year storms, the peak outflow does not exceed the pre-developed discharge rate. The 100 year storm does exceed the discharge rate by 0.04 CFS(cubic feet per second), however this project lies within Land Subject to Coastal Storm Flowage. The discharge of stormwater is subsurface and any overflow is routed into The City of Boston's Stormwater-Drain System.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The proposed stormwater Management System- which consists of 2 1000 gallon drywells surrounded by 24" of crushed stone- will infiltrate stormwater into the ground, ensuring that the annual recharge to groundwater will not be lost, in fact, this system ensures that the vast majority of stormwater from rain events are infiltrated into the ground on site.

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

By definition in the Stormwater Handbook Volume 2 Chapter 1 table 2.1 no pretreatment of runoff from non metal roofs is required. The project's proposed building does not have a metal roof and covers of the vast majority of the site, thus all stormwater from rain events onto the building roof is routed to the infiltration via downspouts from the roof, thus there is no requirement for TSS Removal for the project due to not needing pretreatment.

Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

The proposed project is a redevelopment into a residential building from a single family dwelling, there are no higher potential pollutant loads anticipated on the site. Inside the garage there will be an oil/grit separator which will be connected into a trench drain inside the garage to collect any stormwater that enters the garage. This system is self contained and is connected to the City of Boston's Sewer System as per City of Boston Regulations.

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

Project site is not in a Zone II or Interim Wellhead Protection Area or other critical areas.

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

The proposed project is a redevelopment project, and meets Standard 2 and Standard 3
The proposed project meets the pretreatment standard 4 due to it only being roof runoff and no pretreatment is required per the Stormwater Handbook Volum 2 Chapter 1 Table 2.1.
The proposed project meets standard 5 due to there being no higher pollutant loads from the site.
The proposed project complies with all other requirements of the Stormwater Management Standards and improves upon existing conditions.

Standard 8: A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

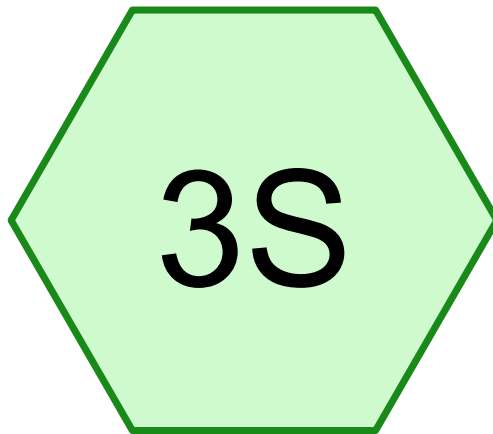
The proposed site will implement erosion control barrier around the site to prevent erosion sediment and other pollutant sources during construction. A silt sack shall be installed in the nearest catch basins to collect sediment and erosion runoff.

Standard 9: A Long -Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

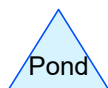
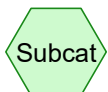
A long term O & M plan will be developed and implemented to ensure that the stormwater management system functions as designed, See O & M plan.

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

There will be no illicit discharges into the stormwater management system see illicit discharge form.



existing dwelling



Routing Diagram for 20 norwood

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20 norwood

Prepared by Civil Environmental Consultants LLC

Printed 11/18/2021

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Page 2

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 4035 MA Boston Suffolk County

20 norwood

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Page 3

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.031	98	Paved parking, HSG A (3S)
0.040	98	Unconnected roofs, HSG A (3S)
0.071	98	TOTAL AREA

20 norwood

Prepared by Civil Environmental Consultants LLC

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30 Norwood Existing
NRCC 24-hr D 2-Year Rainfall=3.26"

Printed 11/18/2021

Page 4

Summary for Subcatchment 3S: existing dwelling

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.21 cfs @ 12.11 hrs, Volume= 0.016 af, Depth> 2.70"

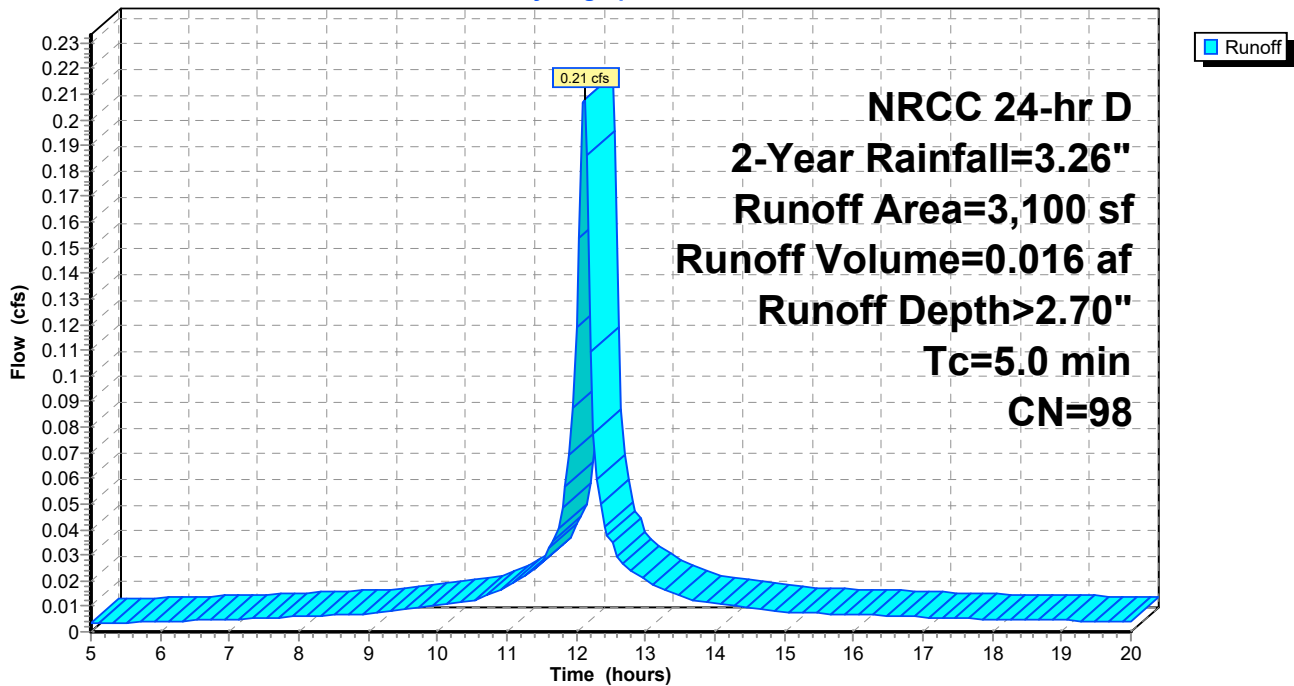
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,752	98	Unconnected roofs, HSG A
1,348	98	Paved parking, HSG A
3,100	98	Weighted Average
3,100		100.00% Impervious Area
1,752		56.52% Unconnected

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

Subcatchment 3S: existing dwelling

Hydrograph



20 norwood

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30 Norwood Existing

NRCC 24-hr D 2-Year Rainfall=3.26"

Printed 11/18/2021

Page 5

Hydrograph for Subcatchment 3S: existing dwelling

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.12	0.00	17.75	2.91	2.68	0.01
5.25	0.29	0.13	0.00	18.00	2.92	2.69	0.00
5.50	0.30	0.15	0.00	18.25	2.94	2.71	0.00
5.75	0.32	0.16	0.00	18.50	2.96	2.73	0.00
6.00	0.34	0.17	0.00	18.75	2.97	2.74	0.00
6.25	0.35	0.19	0.00	19.00	2.99	2.76	0.00
6.50	0.37	0.20	0.00	19.25	3.00	2.77	0.00
6.75	0.39	0.22	0.00	19.50	3.02	2.79	0.00
7.00	0.41	0.24	0.00	19.75	3.03	2.80	0.00
7.25	0.43	0.26	0.01	20.00	3.05	2.82	0.00
7.50	0.45	0.27	0.01				
7.75	0.47	0.29	0.01				
8.00	0.50	0.32	0.01				
8.25	0.52	0.34	0.01				
8.50	0.55	0.36	0.01				
8.75	0.57	0.38	0.01				
9.00	0.60	0.41	0.01				
9.25	0.63	0.44	0.01				
9.50	0.66	0.46	0.01				
9.75	0.69	0.50	0.01				
10.00	0.73	0.53	0.01				
10.25	0.77	0.57	0.01				
10.50	0.81	0.61	0.01				
10.75	0.87	0.66	0.01				
11.00	0.93	0.72	0.02				
11.25	1.00	0.79	0.02				
11.50	1.09	0.88	0.03				
11.75	1.23	1.02	0.04				
12.00	1.56	1.34	0.12				
12.25	2.03	1.80	0.08				
12.50	2.17	1.94	0.04				
12.75	2.26	2.03	0.03				
13.00	2.33	2.11	0.02				
13.25	2.39	2.17	0.02				
13.50	2.45	2.22	0.01				
13.75	2.49	2.26	0.01				
14.00	2.53	2.30	0.01				
14.25	2.57	2.34	0.01				
14.50	2.60	2.37	0.01				
14.75	2.63	2.40	0.01				
15.00	2.66	2.43	0.01				
15.25	2.69	2.46	0.01				
15.50	2.71	2.48	0.01				
15.75	2.74	2.51	0.01				
16.00	2.76	2.53	0.01				
16.25	2.79	2.56	0.01				
16.50	2.81	2.58	0.01				
16.75	2.83	2.60	0.01				
17.00	2.85	2.62	0.01				
17.25	2.87	2.64	0.01				
17.50	2.89	2.66	0.01				

20 norwood

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30 Norwood Existing
 NRCC 24-hr D 10-Year Rainfall=4.90"
 Printed 11/18/2021
 Page 6

Summary for Subcatchment 3S: existing dwelling

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.32 cfs @ 12.11 hrs, Volume= 0.024 af, Depth> 4.12"

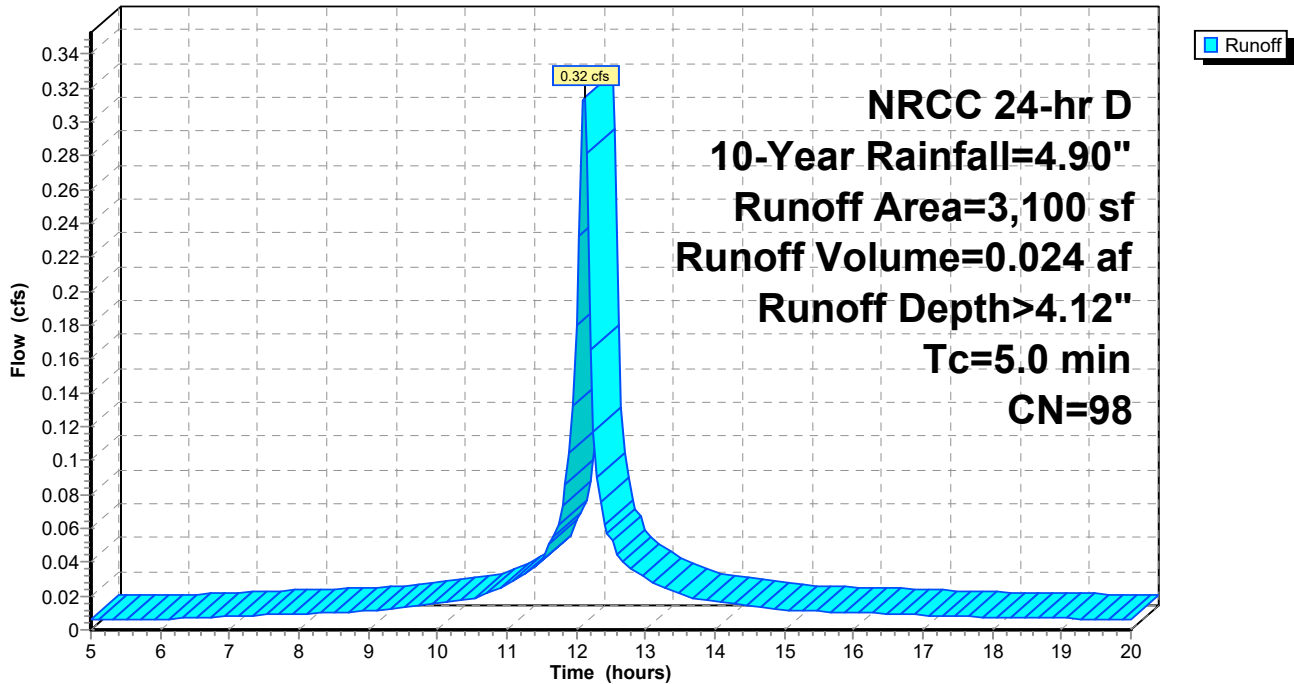
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,752	98	Unconnected roofs, HSG A
1,348	98	Paved parking, HSG A
3,100	98	Weighted Average
3,100		100.00% Impervious Area
1,752		56.52% Unconnected

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

Subcatchment 3S: existing dwelling

Hydrograph



20 norwood

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30 Norwood Existing
NRCC 24-hr D 10-Year Rainfall=4.90"

Printed 11/18/2021

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Hydrograph for Subcatchment 3S: existing dwelling

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.41	0.24	0.01	17.75	4.37	4.13	0.01
5.25	0.43	0.26	0.01	18.00	4.40	4.16	0.01
5.50	0.46	0.28	0.01	18.25	4.42	4.18	0.01
5.75	0.48	0.30	0.01	18.50	4.44	4.21	0.01
6.00	0.50	0.32	0.01	18.75	4.47	4.23	0.01
6.25	0.53	0.35	0.01	19.00	4.49	4.26	0.01
6.50	0.56	0.37	0.01	19.25	4.52	4.28	0.01
6.75	0.59	0.40	0.01	19.50	4.54	4.30	0.01
7.00	0.62	0.42	0.01	19.75	4.56	4.33	0.01
7.25	0.65	0.45	0.01	20.00	4.58	4.35	0.01
7.50	0.68	0.48	0.01				
7.75	0.71	0.51	0.01				
8.00	0.75	0.55	0.01				
8.25	0.78	0.58	0.01				
8.50	0.82	0.62	0.01				
8.75	0.86	0.66	0.01				
9.00	0.90	0.69	0.01				
9.25	0.94	0.74	0.01				
9.50	0.99	0.78	0.01				
9.75	1.04	0.83	0.01				
10.00	1.10	0.89	0.02				
10.25	1.16	0.95	0.02				
10.50	1.22	1.01	0.02				
10.75	1.30	1.08	0.02				
11.00	1.39	1.17	0.03				
11.25	1.51	1.29	0.03				
11.50	1.64	1.42	0.04				
11.75	1.85	1.63	0.06				
12.00	2.35	2.12	0.18				
12.25	3.05	2.82	0.12				
12.50	3.26	3.03	0.05				
12.75	3.39	3.16	0.04				
13.00	3.51	3.27	0.03				
13.25	3.60	3.37	0.03				
13.50	3.68	3.44	0.02				
13.75	3.74	3.51	0.02				
14.00	3.80	3.57	0.02				
14.25	3.86	3.62	0.02				
14.50	3.91	3.67	0.01				
14.75	3.96	3.72	0.01				
15.00	4.00	3.77	0.01				
15.25	4.04	3.81	0.01				
15.50	4.08	3.84	0.01				
15.75	4.12	3.88	0.01				
16.00	4.15	3.92	0.01				
16.25	4.19	3.95	0.01				
16.50	4.22	3.99	0.01				
16.75	4.25	4.02	0.01				
17.00	4.28	4.05	0.01				
17.25	4.31	4.08	0.01				
17.50	4.34	4.11	0.01				

20 norwood

Prepared by Civil Environmental Consultants LLC
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Summary for Subcatchment 3S: existing dwelling

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.40 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 5.23"

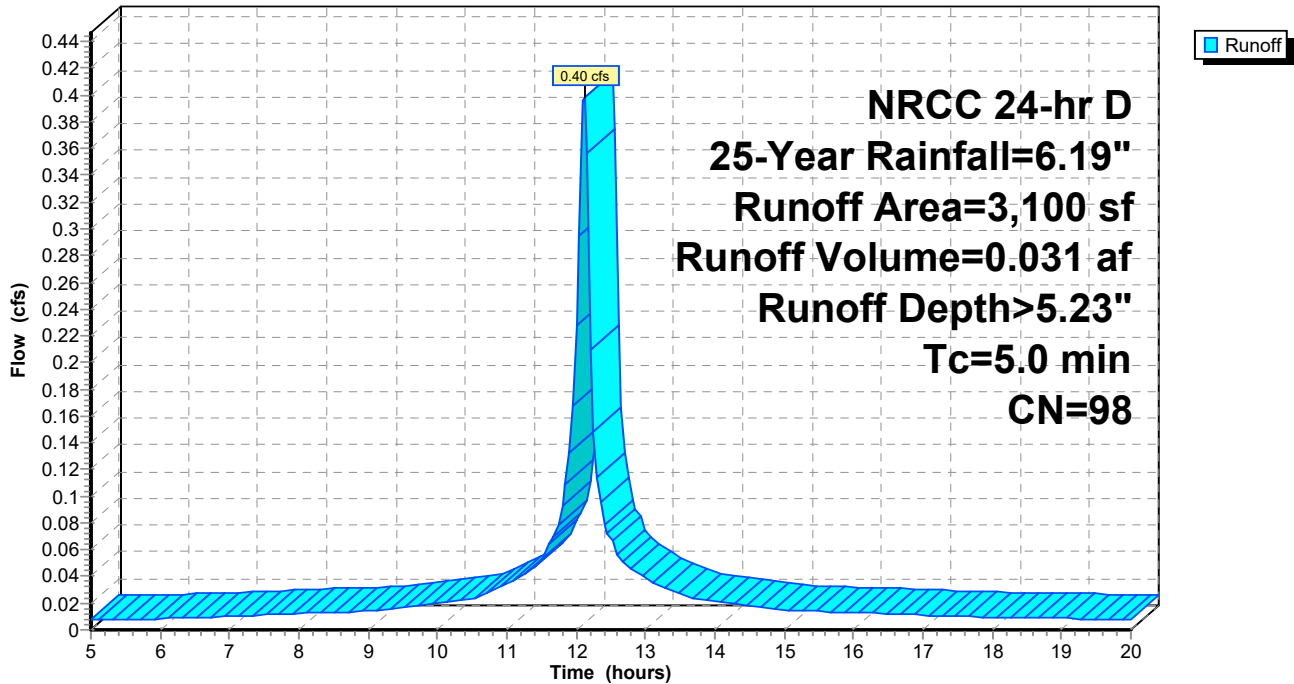
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-Year Rainfall=6.19"

Area (sf)	CN	Description
1,752	98	Unconnected roofs, HSG A
1,348	98	Paved parking, HSG A
3,100	98	Weighted Average
3,100		100.00% Impervious Area
1,752		56.52% Unconnected

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

Subcatchment 3S: existing dwelling

Hydrograph



20 norwood

Prepared by Civil Environmental Consultants LLC

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30 Norwood Existing

NRCC 24-hr D 25-Year Rainfall=6.19"

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Hydrograph for Subcatchment 3S: existing dwelling

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.51	0.33	0.01	17.75	5.52	5.28	0.01
5.25	0.54	0.36	0.01	18.00	5.55	5.31	0.01
5.50	0.58	0.39	0.01	18.25	5.58	5.35	0.01
5.75	0.61	0.42	0.01	18.50	5.61	5.38	0.01
6.00	0.64	0.44	0.01	18.75	5.65	5.41	0.01
6.25	0.67	0.48	0.01	19.00	5.68	5.44	0.01
6.50	0.70	0.51	0.01	19.25	5.70	5.47	0.01
6.75	0.74	0.54	0.01	19.50	5.73	5.50	0.01
7.00	0.78	0.58	0.01	19.75	5.76	5.52	0.01
7.25	0.82	0.61	0.01	20.00	5.79	5.55	0.01
7.50	0.86	0.65	0.01				
7.75	0.90	0.69	0.01				
8.00	0.94	0.74	0.01				
8.25	0.99	0.78	0.01				
8.50	1.04	0.83	0.01				
8.75	1.09	0.87	0.01				
9.00	1.14	0.92	0.01				
9.25	1.19	0.98	0.02				
9.50	1.25	1.04	0.02				
9.75	1.32	1.10	0.02				
10.00	1.39	1.17	0.02				
10.25	1.46	1.25	0.02				
10.50	1.55	1.33	0.02				
10.75	1.64	1.42	0.03				
11.00	1.76	1.54	0.03				
11.25	1.90	1.68	0.04				
11.50	2.07	1.85	0.05				
11.75	2.34	2.11	0.08				
12.00	2.97	2.73	0.23				
12.25	3.85	3.62	0.15				
12.50	4.12	3.88	0.07				
12.75	4.29	4.05	0.05				
13.00	4.43	4.20	0.04				
13.25	4.55	4.31	0.03				
13.50	4.64	4.41	0.03				
13.75	4.73	4.49	0.02				
14.00	4.80	4.57	0.02				
14.25	4.87	4.64	0.02				
14.50	4.94	4.70	0.02				
14.75	5.00	4.76	0.02				
15.00	5.05	4.82	0.02				
15.25	5.10	4.87	0.01				
15.50	5.15	4.92	0.01				
15.75	5.20	4.96	0.01				
16.00	5.25	5.01	0.01				
16.25	5.29	5.05	0.01				
16.50	5.33	5.10	0.01				
16.75	5.37	5.14	0.01				
17.00	5.41	5.18	0.01				
17.25	5.45	5.21	0.01				
17.50	5.49	5.25	0.01				

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30 Norwood Existing
NRCC 24-hr D 100-Year Rainfall=8.83"

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Summary for Subcatchment 3S: existing dwelling

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.57 cfs @ 12.11 hrs, Volume= 0.044 af, Depth> 7.49"

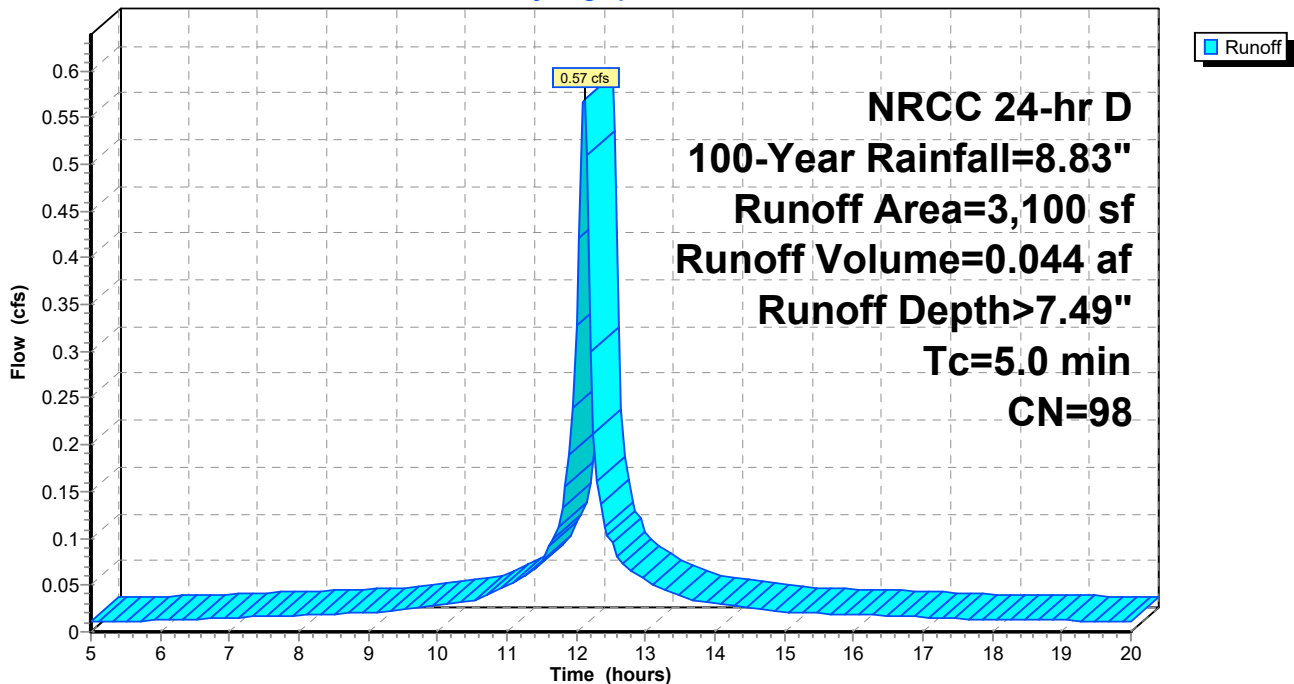
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.83"

Area (sf)	CN	Description
1,752	98	Unconnected roofs, HSG A
1,348	98	Paved parking, HSG A
3,100	98	Weighted Average
3,100		100.00% Impervious Area
1,752		56.52% Unconnected

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

Subcatchment 3S: existing dwelling

Hydrograph



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30 Norwood Existing

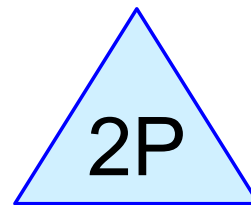
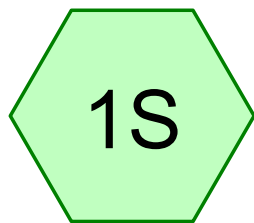
NRCC 24-hr D 100-Year Rainfall=8.83"

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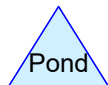
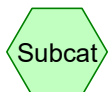
Hydrograph for Subcatchment 3S: existing dwelling

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.73	0.54	0.01	17.75	7.87	7.63	0.01
5.25	0.78	0.58	0.01	18.00	7.92	7.68	0.01
5.50	0.82	0.62	0.01	18.25	7.97	7.73	0.01
5.75	0.86	0.66	0.01	18.50	8.01	7.77	0.01
6.00	0.91	0.70	0.01	18.75	8.05	7.81	0.01
6.25	0.96	0.75	0.01	19.00	8.10	7.86	0.01
6.50	1.00	0.80	0.01	19.25	8.14	7.90	0.01
6.75	1.06	0.85	0.01	19.50	8.18	7.94	0.01
7.00	1.11	0.90	0.02	19.75	8.22	7.98	0.01
7.25	1.16	0.95	0.02	20.00	8.26	8.02	0.01
7.50	1.22	1.01	0.02				
7.75	1.28	1.07	0.02				
8.00	1.35	1.13	0.02				
8.25	1.41	1.19	0.02				
8.50	1.48	1.26	0.02				
8.75	1.55	1.33	0.02				
9.00	1.62	1.40	0.02				
9.25	1.70	1.48	0.02				
9.50	1.78	1.56	0.02				
9.75	1.88	1.65	0.03				
10.00	1.98	1.75	0.03				
10.25	2.09	1.86	0.03				
10.50	2.21	1.98	0.03				
10.75	2.34	2.12	0.04				
11.00	2.51	2.28	0.05				
11.25	2.71	2.48	0.06				
11.50	2.96	2.73	0.07				
11.75	3.34	3.10	0.11				
12.00	4.23	3.99	0.33				
12.25	5.49	5.26	0.21				
12.50	5.87	5.63	0.10				
12.75	6.12	5.88	0.07				
13.00	6.32	6.08	0.06				
13.25	6.49	6.25	0.05				
13.50	6.62	6.39	0.04				
13.75	6.74	6.50	0.03				
14.00	6.85	6.61	0.03				
14.25	6.95	6.71	0.03				
14.50	7.05	6.81	0.03				
14.75	7.13	6.89	0.02				
15.00	7.21	6.97	0.02				
15.25	7.28	7.04	0.02				
15.50	7.35	7.11	0.02				
15.75	7.42	7.18	0.02				
16.00	7.48	7.24	0.02				
16.25	7.55	7.31	0.02				
16.50	7.61	7.37	0.02				
16.75	7.67	7.43	0.02				
17.00	7.72	7.48	0.02				
17.25	7.77	7.53	0.02				
17.50	7.83	7.59	0.01				



Proposed Building

(new Pond)



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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 4035 MA Boston Suffolk County

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.088	98	Unconnected roofs, HSG A (1S)
0.088	98	TOTAL AREA

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	2P	14.00	11.60	120.0	0.0200	0.010	6.0	0.0	0.0

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Summary for Subcatchment 1S: Proposed Building

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.26 cfs @ 12.11 hrs, Volume= 0.020 af, Depth> 2.70"

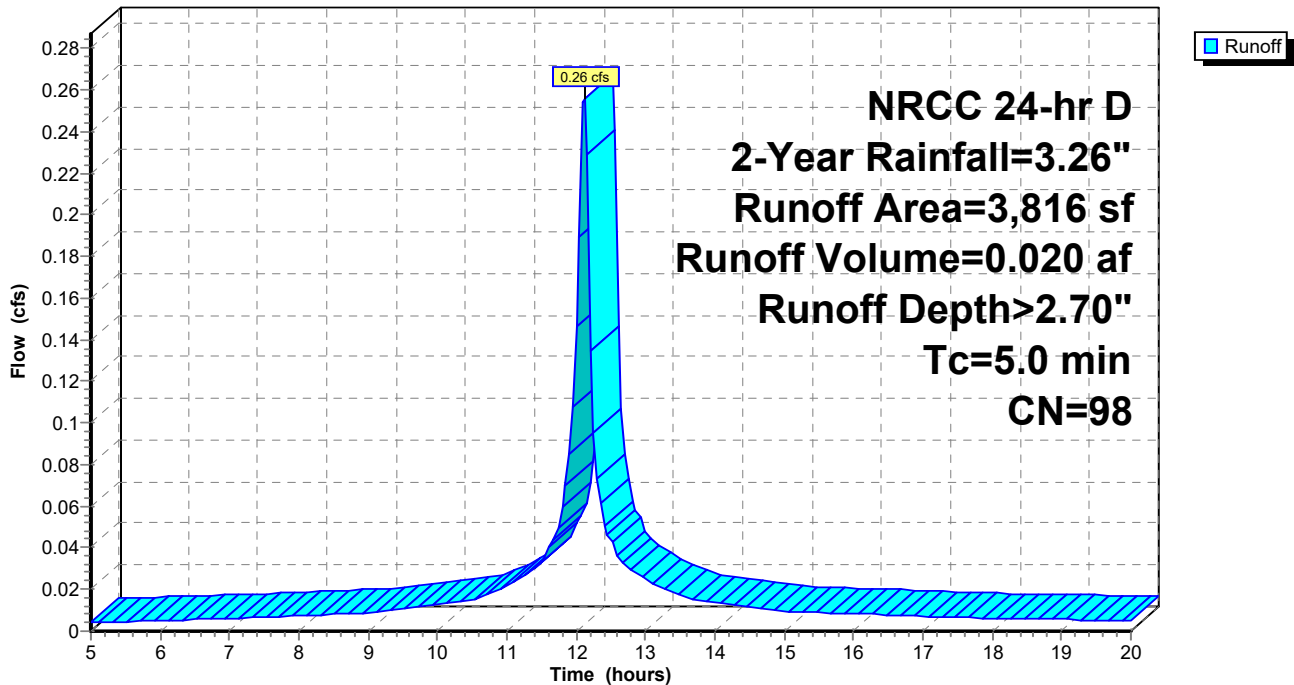
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.26"

Area (sf)	CN	Description
3,816	98	Unconnected roofs, HSG A
3,816		100.00% Impervious Area
3,816		100.00% Unconnected

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

Subcatchment 1S: Proposed Building

Hydrograph



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Hydrograph for Subcatchment 1S: Proposed Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.12	0.00	17.75	2.91	2.68	0.01
5.25	0.29	0.13	0.00	18.00	2.92	2.69	0.01
5.50	0.30	0.15	0.00	18.25	2.94	2.71	0.01
5.75	0.32	0.16	0.00	18.50	2.96	2.73	0.01
6.00	0.34	0.17	0.00	18.75	2.97	2.74	0.01
6.25	0.35	0.19	0.01	19.00	2.99	2.76	0.01
6.50	0.37	0.20	0.01	19.25	3.00	2.77	0.01
6.75	0.39	0.22	0.01	19.50	3.02	2.79	0.01
7.00	0.41	0.24	0.01	19.75	3.03	2.80	0.01
7.25	0.43	0.26	0.01	20.00	3.05	2.82	0.01
7.50	0.45	0.27	0.01				
7.75	0.47	0.29	0.01				
8.00	0.50	0.32	0.01				
8.25	0.52	0.34	0.01				
8.50	0.55	0.36	0.01				
8.75	0.57	0.38	0.01				
9.00	0.60	0.41	0.01				
9.25	0.63	0.44	0.01				
9.50	0.66	0.46	0.01				
9.75	0.69	0.50	0.01				
10.00	0.73	0.53	0.01				
10.25	0.77	0.57	0.01				
10.50	0.81	0.61	0.01				
10.75	0.87	0.66	0.02				
11.00	0.93	0.72	0.02				
11.25	1.00	0.79	0.03				
11.50	1.09	0.88	0.03				
11.75	1.23	1.02	0.05				
12.00	1.56	1.34	0.15				
12.25	2.03	1.80	0.09				
12.50	2.17	1.94	0.04				
12.75	2.26	2.03	0.03				
13.00	2.33	2.11	0.03				
13.25	2.39	2.17	0.02				
13.50	2.45	2.22	0.02				
13.75	2.49	2.26	0.01				
14.00	2.53	2.30	0.01				
14.25	2.57	2.34	0.01				
14.50	2.60	2.37	0.01				
14.75	2.63	2.40	0.01				
15.00	2.66	2.43	0.01				
15.25	2.69	2.46	0.01				
15.50	2.71	2.48	0.01				
15.75	2.74	2.51	0.01				
16.00	2.76	2.53	0.01				
16.25	2.79	2.56	0.01				
16.50	2.81	2.58	0.01				
16.75	2.83	2.60	0.01				
17.00	2.85	2.62	0.01				
17.25	2.87	2.64	0.01				
17.50	2.89	2.66	0.01				

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NRCC 24-hr D 2-Year Rainfall=3.26"
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Summary for Pond 2P: (new Pond)

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac, 100.00% Impervious, Inflow Depth > 2.70" for 2-Year event
Inflow = 0.26 cfs @ 12.11 hrs, Volume= 0.020 af
Outflow = 0.02 cfs @ 10.65 hrs, Volume= 0.016 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.02 cfs @ 10.65 hrs, Volume= 0.016 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 13.33' @ 13.62 hrs Surf.Area= 0.006 ac Storage= 0.008 af

Plug-Flow detention time= 148.9 min calculated for 0.016 af (80% of inflow)
Center-of-Mass det. time= 86.1 min (825.1 - 738.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.17'	0.007 af	19.33'W x 14.50'L x 4.83'H Field A 0.031 af Overall - 0.008 af Embedded = 0.023 af x 30.0% Voids
#2A	12.17'	0.006 af	Shea Dry Well 1000gal x 2 Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf 2 Chambers in 2 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	10.17'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.00'	6.0" Round Culvert L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 14.00' / 11.60' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 10.65 hrs HW=10.22' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=10.17' (Free Discharge)

↑2=**Culvert** (Controls 0.00 cfs)

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Pond 2P: (new Pond) - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectagular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf
Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

68.0" Wide + 48.0" Spacing = 116.0" C-C Row Spacing

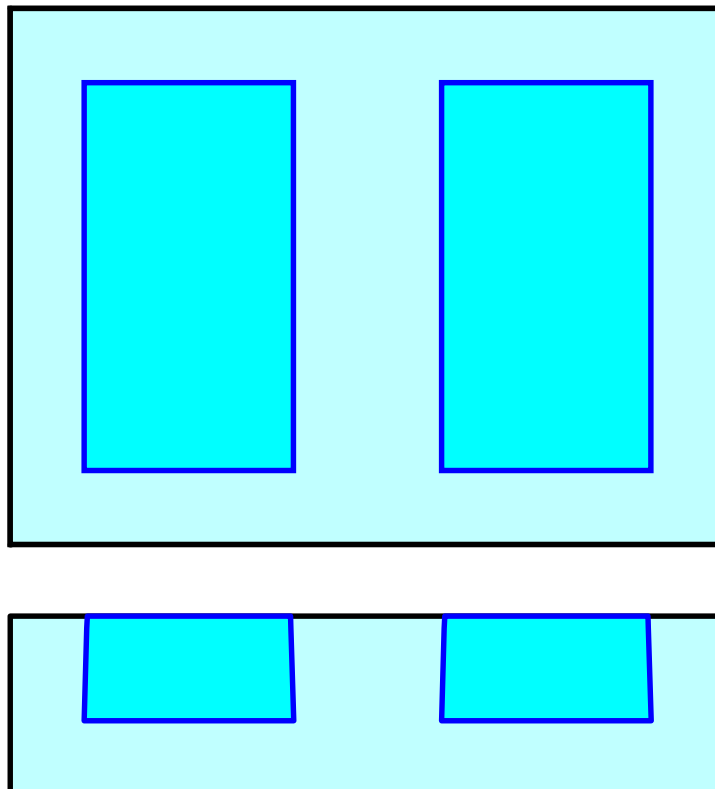
1 Chambers/Row x 10.50' Long = 10.50' Row Length +24.0" End Stone x 2 = 14.50' Base Length
2 Rows x 68.0" Wide + 48.0" Spacing x 1 + 24.0" Side Stone x 2 = 19.33' Base Width
24.0" Base + 34.0" Chamber Height = 4.83' Field Height

2 Chambers x 128.6 cf = 257.2 cf Chamber Storage
2 Chambers x 165.9 cf = 331.8 cf Displacement

1,354.1 cf Field - 331.8 cf Chambers = 1,022.2 cf Stone x 30.0% Voids = 306.7 cf Stone Storage

Chamber Storage + Stone Storage = 563.9 cf = 0.013 af
Overall Storage Efficiency = 41.6%
Overall System Size = 14.50' x 19.33' x 4.83'

2 Chambers
50.2 cy Field
37.9 cy Stone



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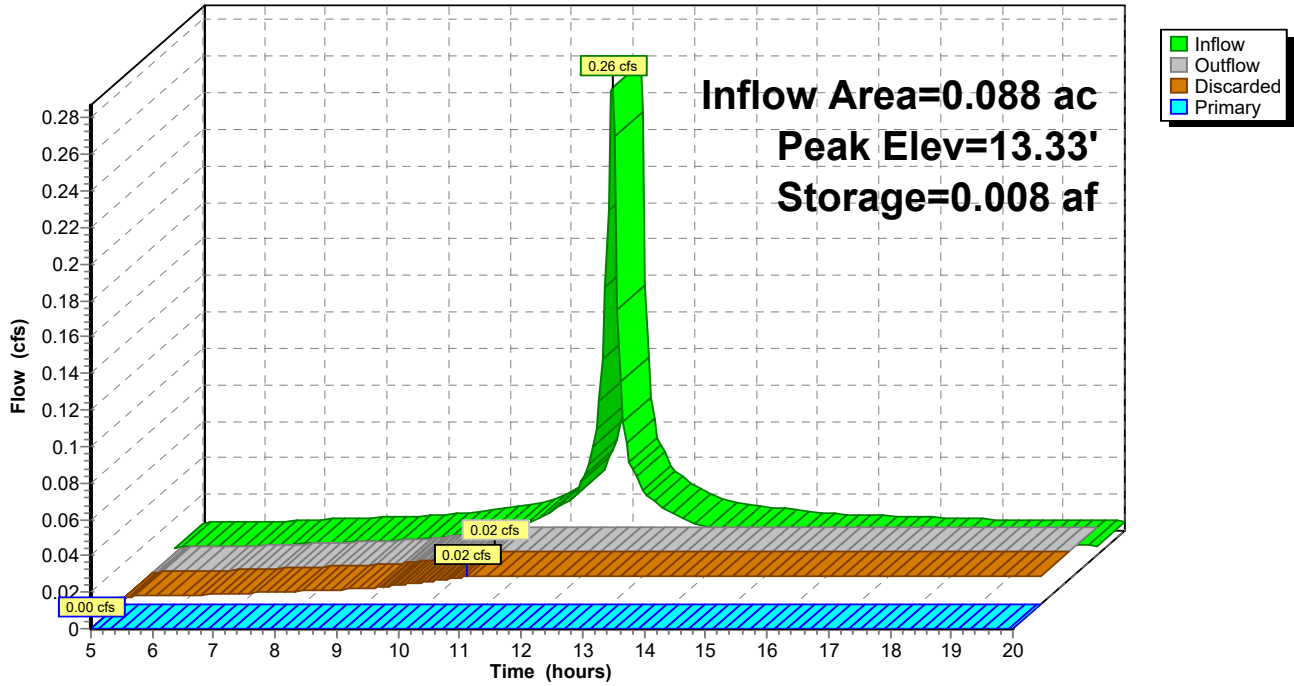
30 Norwood Proposed
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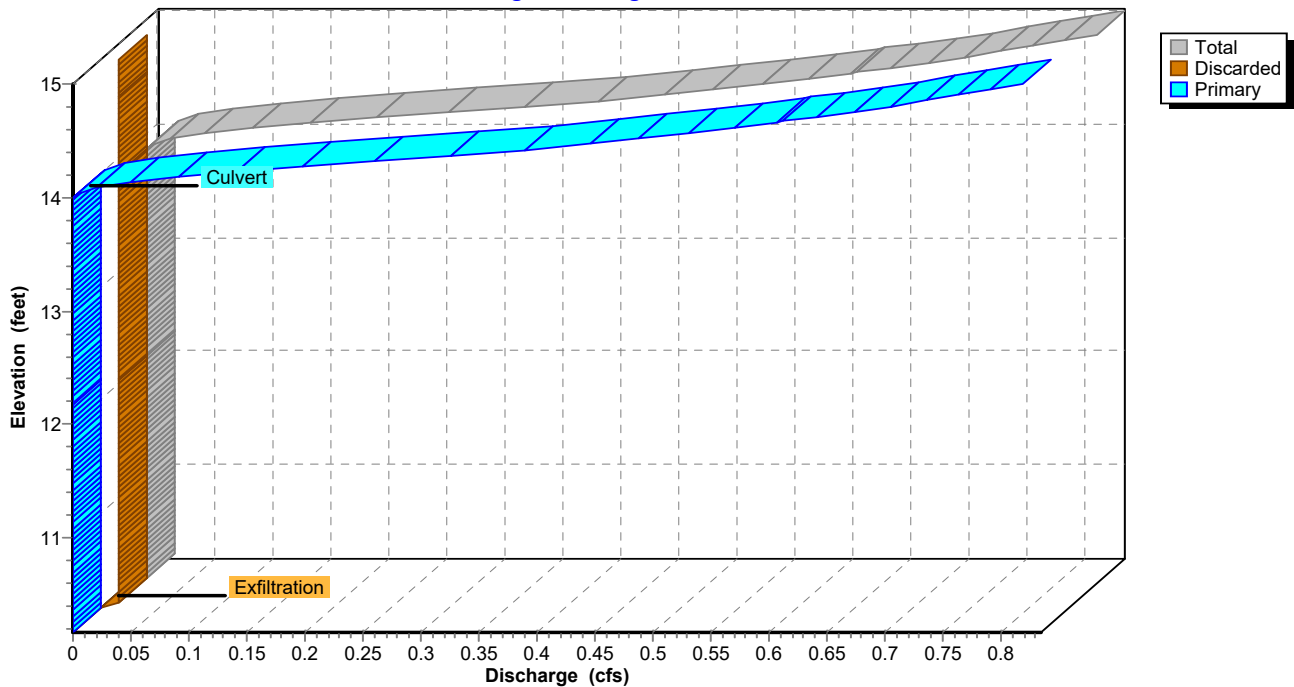
Pond 2P: (new Pond)

Hydrograph

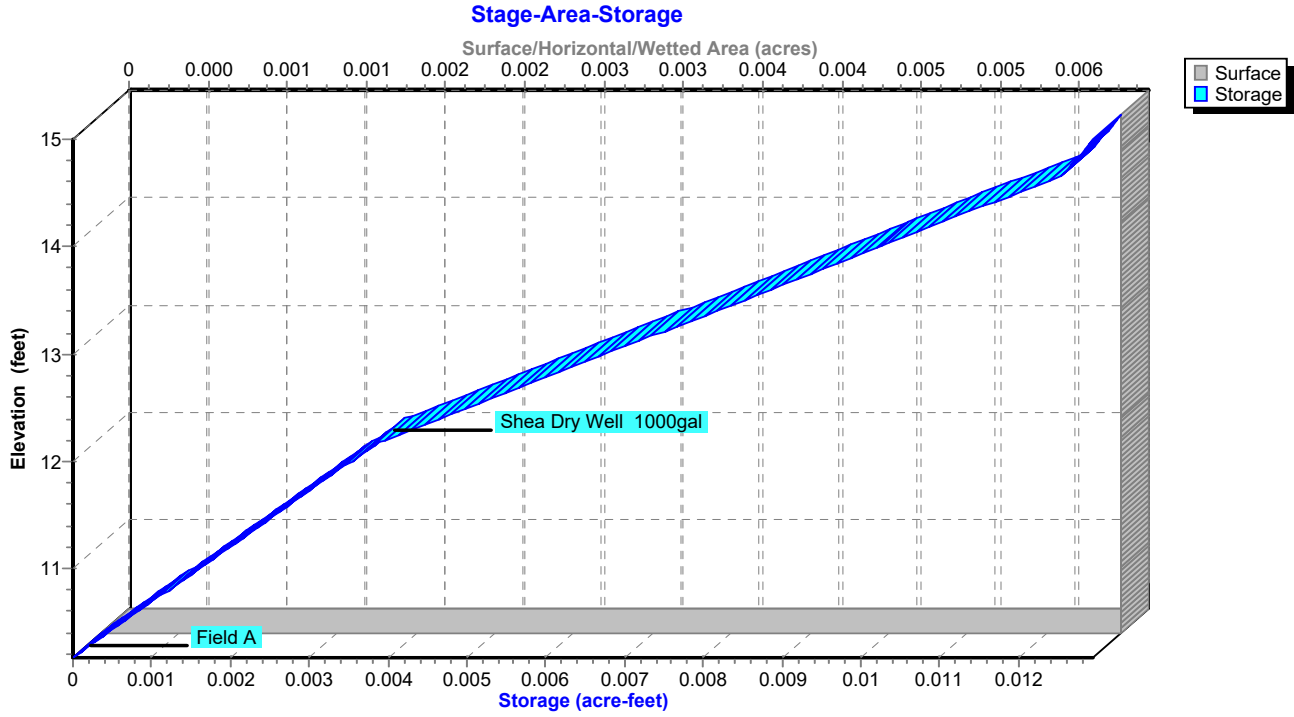


Pond 2P: (new Pond)

Stage-Discharge



Pond 2P: (new Pond)



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Hydrograph for Pond 2P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	10.17	0.00	0.00	0.00
5.50	0.00	0.000	10.18	0.00	0.00	0.00
6.00	0.00	0.000	10.18	0.00	0.00	0.00
6.50	0.01	0.000	10.19	0.01	0.01	0.00
7.00	0.01	0.000	10.19	0.01	0.01	0.00
7.50	0.01	0.000	10.19	0.01	0.01	0.00
8.00	0.01	0.000	10.19	0.01	0.01	0.00
8.50	0.01	0.000	10.19	0.01	0.01	0.00
9.00	0.01	0.000	10.20	0.01	0.01	0.00
9.50	0.01	0.000	10.20	0.01	0.01	0.00
10.00	0.01	0.000	10.21	0.01	0.01	0.00
10.50	0.01	0.000	10.21	0.01	0.01	0.00
11.00	0.02	0.000	10.27	0.02	0.02	0.00
11.50	0.03	0.001	10.51	0.02	0.02	0.00
12.00	0.15	0.003	11.51	0.02	0.02	0.00
12.50	0.04	0.007	13.07	0.02	0.02	0.00
13.00	0.03	0.008	13.27	0.02	0.02	0.00
13.50	0.02	0.008	13.33	0.02	0.02	0.00
14.00	0.01	0.008	13.32	0.02	0.02	0.00
14.50	0.01	0.008	13.29	0.02	0.02	0.00
15.00	0.01	0.008	13.24	0.02	0.02	0.00
15.50	0.01	0.007	13.16	0.02	0.02	0.00
16.00	0.01	0.007	13.08	0.02	0.02	0.00
16.50	0.01	0.007	12.99	0.02	0.02	0.00
17.00	0.01	0.006	12.89	0.02	0.02	0.00
17.50	0.01	0.006	12.79	0.02	0.02	0.00
18.00	0.01	0.006	12.68	0.02	0.02	0.00
18.50	0.01	0.005	12.56	0.02	0.02	0.00
19.00	0.01	0.005	12.45	0.02	0.02	0.00
19.50	0.01	0.004	12.33	0.02	0.02	0.00
20.00	0.01	0.004	12.20	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: (new Pond)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
10.17	0.00	0.00	0.00	12.72	0.02	0.02	0.00
10.22	0.02	0.02	0.00	12.77	0.02	0.02	0.00
10.27	0.02	0.02	0.00	12.82	0.02	0.02	0.00
10.32	0.02	0.02	0.00	12.87	0.02	0.02	0.00
10.37	0.02	0.02	0.00	12.92	0.02	0.02	0.00
10.42	0.02	0.02	0.00	12.97	0.02	0.02	0.00
10.47	0.02	0.02	0.00	13.02	0.02	0.02	0.00
10.52	0.02	0.02	0.00	13.07	0.02	0.02	0.00
10.57	0.02	0.02	0.00	13.12	0.02	0.02	0.00
10.62	0.02	0.02	0.00	13.17	0.02	0.02	0.00
10.67	0.02	0.02	0.00	13.22	0.02	0.02	0.00
10.72	0.02	0.02	0.00	13.27	0.02	0.02	0.00
10.77	0.02	0.02	0.00	13.32	0.02	0.02	0.00
10.82	0.02	0.02	0.00	13.37	0.02	0.02	0.00
10.87	0.02	0.02	0.00	13.42	0.02	0.02	0.00
10.92	0.02	0.02	0.00	13.47	0.02	0.02	0.00
10.97	0.02	0.02	0.00	13.52	0.02	0.02	0.00
11.02	0.02	0.02	0.00	13.57	0.02	0.02	0.00
11.07	0.02	0.02	0.00	13.62	0.02	0.02	0.00
11.12	0.02	0.02	0.00	13.67	0.02	0.02	0.00
11.17	0.02	0.02	0.00	13.72	0.02	0.02	0.00
11.22	0.02	0.02	0.00	13.77	0.02	0.02	0.00
11.27	0.02	0.02	0.00	13.82	0.02	0.02	0.00
11.32	0.02	0.02	0.00	13.87	0.02	0.02	0.00
11.37	0.02	0.02	0.00	13.92	0.02	0.02	0.00
11.42	0.02	0.02	0.00	13.97	0.02	0.02	0.00
11.47	0.02	0.02	0.00	14.02	0.02	0.02	0.00
11.52	0.02	0.02	0.00	14.07	0.03	0.02	0.02
11.57	0.02	0.02	0.00	14.12	0.06	0.02	0.04
11.62	0.02	0.02	0.00	14.17	0.10	0.02	0.08
11.67	0.02	0.02	0.00	14.22	0.15	0.02	0.13
11.72	0.02	0.02	0.00	14.27	0.21	0.02	0.19
11.77	0.02	0.02	0.00	14.32	0.27	0.02	0.26
11.82	0.02	0.02	0.00	14.37	0.34	0.02	0.32
11.87	0.02	0.02	0.00	14.42	0.40	0.02	0.39
11.92	0.02	0.02	0.00	14.47	0.46	0.02	0.45
11.97	0.02	0.02	0.00	14.52	0.51	0.02	0.49
12.02	0.02	0.02	0.00	14.57	0.55	0.02	0.53
12.07	0.02	0.02	0.00	14.62	0.59	0.02	0.58
12.12	0.02	0.02	0.00	14.67	0.63	0.02	0.61
12.17	0.02	0.02	0.00	14.72	0.66	0.02	0.65
12.22	0.02	0.02	0.00	14.77	0.70	0.02	0.68
12.27	0.02	0.02	0.00	14.82	0.73	0.02	0.71
12.32	0.02	0.02	0.00	14.87	0.76	0.02	0.74
12.37	0.02	0.02	0.00	14.92	0.79	0.02	0.77
12.42	0.02	0.02	0.00	14.97	0.82	0.02	0.80
12.47	0.02	0.02	0.00				
12.52	0.02	0.02	0.00				
12.57	0.02	0.02	0.00				
12.62	0.02	0.02	0.00				
12.67	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: (new Pond)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
10.17	0.006	0.000	12.72	0.006	0.006
10.22	0.006	0.000	12.77	0.006	0.006
10.27	0.006	0.000	12.82	0.006	0.006
10.32	0.006	0.000	12.87	0.006	0.006
10.37	0.006	0.000	12.92	0.006	0.006
10.42	0.006	0.000	12.97	0.006	0.007
10.47	0.006	0.001	13.02	0.006	0.007
10.52	0.006	0.001	13.07	0.006	0.007
10.57	0.006	0.001	13.12	0.006	0.007
10.62	0.006	0.001	13.17	0.006	0.007
10.67	0.006	0.001	13.22	0.006	0.008
10.72	0.006	0.001	13.27	0.006	0.008
10.77	0.006	0.001	13.32	0.006	0.008
10.82	0.006	0.001	13.37	0.006	0.008
10.87	0.006	0.001	13.42	0.006	0.008
10.92	0.006	0.001	13.47	0.006	0.008
10.97	0.006	0.002	13.52	0.006	0.009
11.02	0.006	0.002	13.57	0.006	0.009
11.07	0.006	0.002	13.62	0.006	0.009
11.12	0.006	0.002	13.67	0.006	0.009
11.17	0.006	0.002	13.72	0.006	0.009
11.22	0.006	0.002	13.77	0.006	0.009
11.27	0.006	0.002	13.82	0.006	0.010
11.32	0.006	0.002	13.87	0.006	0.010
11.37	0.006	0.002	13.92	0.006	0.010
11.42	0.006	0.002	13.97	0.006	0.010
11.47	0.006	0.003	14.02	0.006	0.010
11.52	0.006	0.003	14.07	0.006	0.010
11.57	0.006	0.003	14.12	0.006	0.011
11.62	0.006	0.003	14.17	0.006	0.011
11.67	0.006	0.003	14.22	0.006	0.011
11.72	0.006	0.003	14.27	0.006	0.011
11.77	0.006	0.003	14.32	0.006	0.011
11.82	0.006	0.003	14.37	0.006	0.012
11.87	0.006	0.003	14.42	0.006	0.012
11.92	0.006	0.003	14.47	0.006	0.012
11.97	0.006	0.003	14.52	0.006	0.012
12.02	0.006	0.004	14.57	0.006	0.012
12.07	0.006	0.004	14.62	0.006	0.012
12.12	0.006	0.004	14.67	0.006	0.013
12.17	0.006	0.004	14.72	0.006	0.013
12.22	0.006	0.004	14.77	0.006	0.013
12.27	0.006	0.004	14.82	0.006	0.013
12.32	0.006	0.004	14.87	0.006	0.013
12.37	0.006	0.005	14.92	0.006	0.013
12.42	0.006	0.005	14.97	0.006	0.013
12.47	0.006	0.005			
12.52	0.006	0.005			
12.57	0.006	0.005			
12.62	0.006	0.005			
12.67	0.006	0.006			

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Summary for Subcatchment 1S: Proposed Building

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.39 cfs @ 12.11 hrs, Volume= 0.030 af, Depth> 4.12"

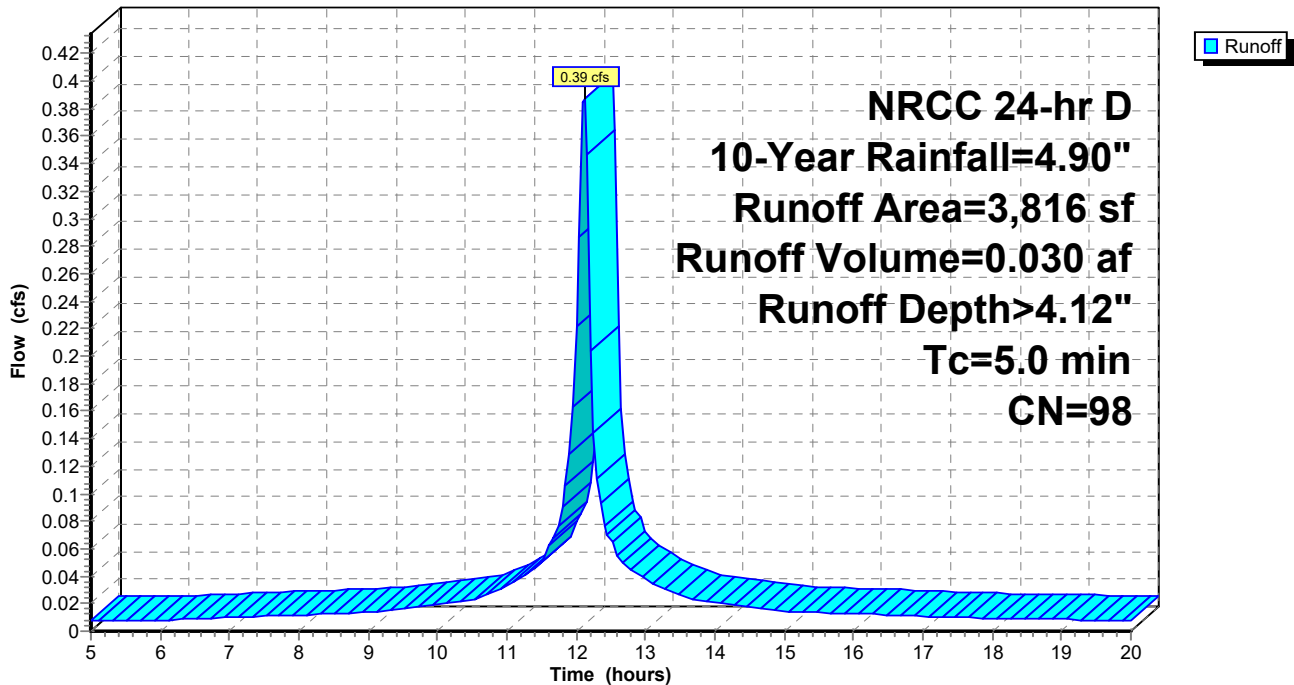
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.90"

Area (sf)	CN	Description
3,816	98	Unconnected roofs, HSG A
3,816		100.00% Impervious Area
3,816		100.00% Unconnected

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

Subcatchment 1S: Proposed Building

Hydrograph



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Hydrograph for Subcatchment 1S: Proposed Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.41	0.24	0.01	17.75	4.37	4.13	0.01
5.25	0.43	0.26	0.01	18.00	4.40	4.16	0.01
5.50	0.46	0.28	0.01	18.25	4.42	4.18	0.01
5.75	0.48	0.30	0.01	18.50	4.44	4.21	0.01
6.00	0.50	0.32	0.01	18.75	4.47	4.23	0.01
6.25	0.53	0.35	0.01	19.00	4.49	4.26	0.01
6.50	0.56	0.37	0.01	19.25	4.52	4.28	0.01
6.75	0.59	0.40	0.01	19.50	4.54	4.30	0.01
7.00	0.62	0.42	0.01	19.75	4.56	4.33	0.01
7.25	0.65	0.45	0.01	20.00	4.58	4.35	0.01
7.50	0.68	0.48	0.01				
7.75	0.71	0.51	0.01				
8.00	0.75	0.55	0.01				
8.25	0.78	0.58	0.01				
8.50	0.82	0.62	0.01				
8.75	0.86	0.66	0.01				
9.00	0.90	0.69	0.01				
9.25	0.94	0.74	0.02				
9.50	0.99	0.78	0.02				
9.75	1.04	0.83	0.02				
10.00	1.10	0.89	0.02				
10.25	1.16	0.95	0.02				
10.50	1.22	1.01	0.02				
10.75	1.30	1.08	0.03				
11.00	1.39	1.17	0.03				
11.25	1.51	1.29	0.04				
11.50	1.64	1.42	0.05				
11.75	1.85	1.63	0.08				
12.00	2.35	2.12	0.22				
12.25	3.05	2.82	0.14				
12.50	3.26	3.03	0.07				
12.75	3.39	3.16	0.05				
13.00	3.51	3.27	0.04				
13.25	3.60	3.37	0.03				
13.50	3.68	3.44	0.03				
13.75	3.74	3.51	0.02				
14.00	3.80	3.57	0.02				
14.25	3.86	3.62	0.02				
14.50	3.91	3.67	0.02				
14.75	3.96	3.72	0.02				
15.00	4.00	3.77	0.01				
15.25	4.04	3.81	0.01				
15.50	4.08	3.84	0.01				
15.75	4.12	3.88	0.01				
16.00	4.15	3.92	0.01				
16.25	4.19	3.95	0.01				
16.50	4.22	3.99	0.01				
16.75	4.25	4.02	0.01				
17.00	4.28	4.05	0.01				
17.25	4.31	4.08	0.01				
17.50	4.34	4.11	0.01				

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Summary for Pond 2P: (new Pond)

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac, 100.00% Impervious, Inflow Depth > 4.12" for 10-Year event
 Inflow = 0.39 cfs @ 12.11 hrs, Volume= 0.030 af
 Outflow = 0.10 cfs @ 12.33 hrs, Volume= 0.022 af, Atten= 74%, Lag= 13.1 min
 Discarded = 0.02 cfs @ 9.45 hrs, Volume= 0.017 af
 Primary = 0.09 cfs @ 12.33 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 14.17' @ 12.33 hrs Surf.Area= 0.006 ac Storage= 0.011 af

Plug-Flow detention time= 124.7 min calculated for 0.022 af (73% of inflow)
 Center-of-Mass det. time= 50.7 min (787.0 - 736.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.17'	0.007 af	19.33'W x 14.50'L x 4.83'H Field A 0.031 af Overall - 0.008 af Embedded = 0.023 af x 30.0% Voids
#2A	12.17'	0.006 af	Shea Dry Well 1000gal x 2 Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf 2 Chambers in 2 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	10.17'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.00'	6.0" Round Culvert L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 14.00' / 11.60' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 9.45 hrs HW=10.22' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.08 cfs @ 12.33 hrs HW=14.17' (Free Discharge)

↑2=**Culvert** (Inlet Controls 0.08 cfs @ 1.41 fps)

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Pond 2P: (new Pond) - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectagular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf
Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

68.0" Wide + 48.0" Spacing = 116.0" C-C Row Spacing

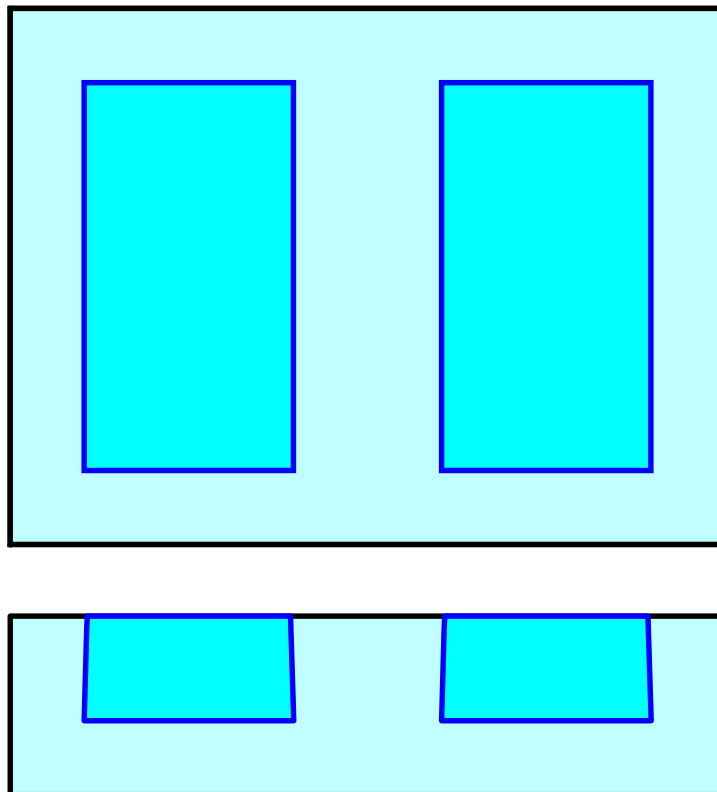
1 Chambers/Row x 10.50' Long = 10.50' Row Length +24.0" End Stone x 2 = 14.50' Base Length
2 Rows x 68.0" Wide + 48.0" Spacing x 1 + 24.0" Side Stone x 2 = 19.33' Base Width
24.0" Base + 34.0" Chamber Height = 4.83' Field Height

2 Chambers x 128.6 cf = 257.2 cf Chamber Storage
2 Chambers x 165.9 cf = 331.8 cf Displacement

1,354.1 cf Field - 331.8 cf Chambers = 1,022.2 cf Stone x 30.0% Voids = 306.7 cf Stone Storage

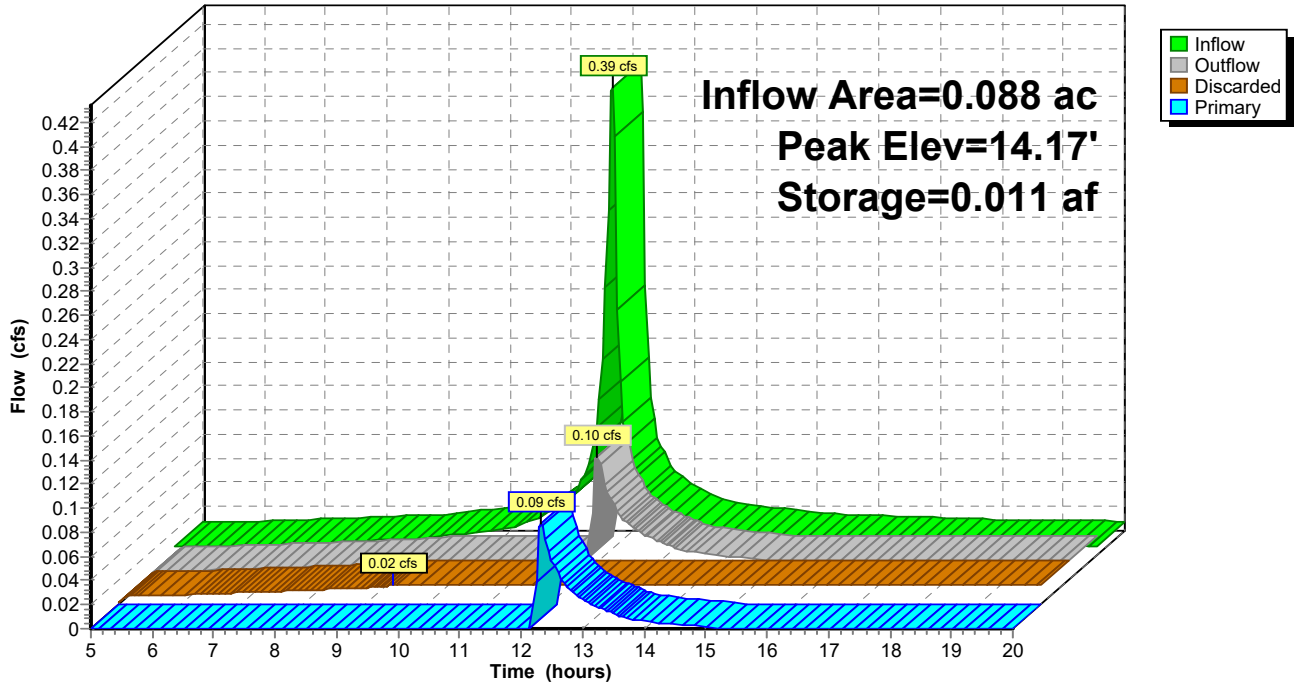
Chamber Storage + Stone Storage = 563.9 cf = 0.013 af
Overall Storage Efficiency = 41.6%
Overall System Size = 14.50' x 19.33' x 4.83'

2 Chambers
50.2 cy Field
37.9 cy Stone



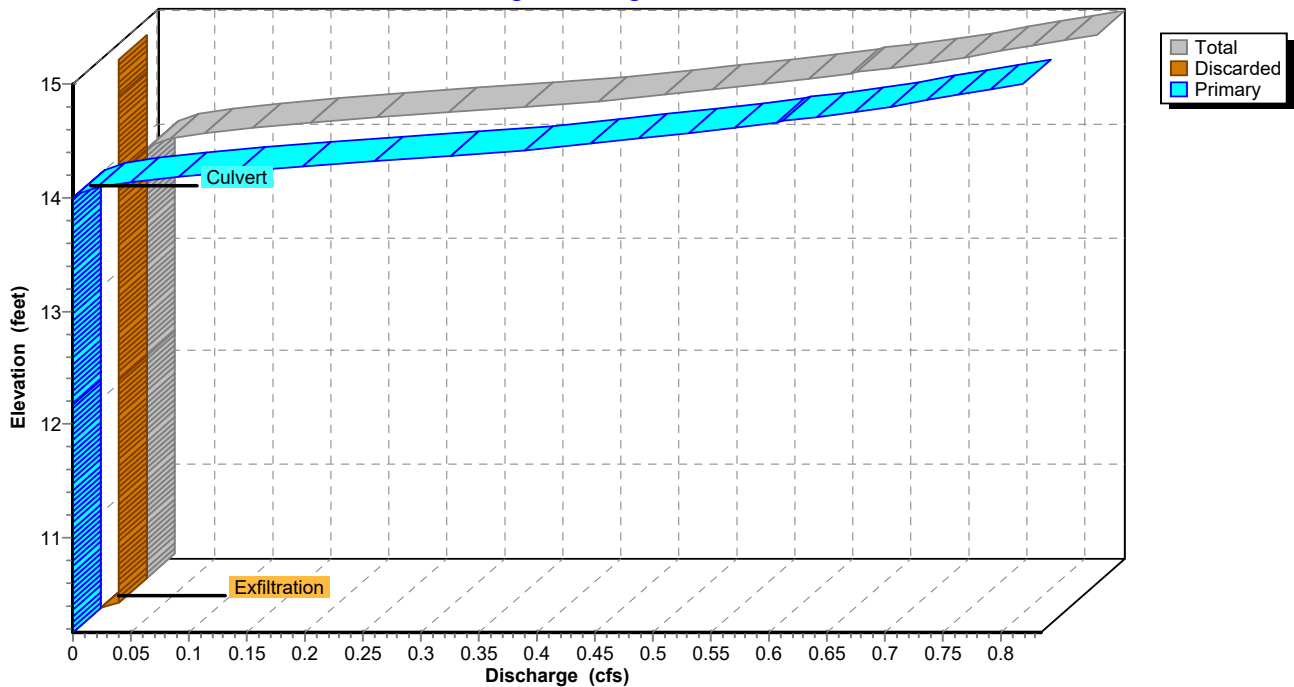
Pond 2P: (new Pond)

Hydrograph

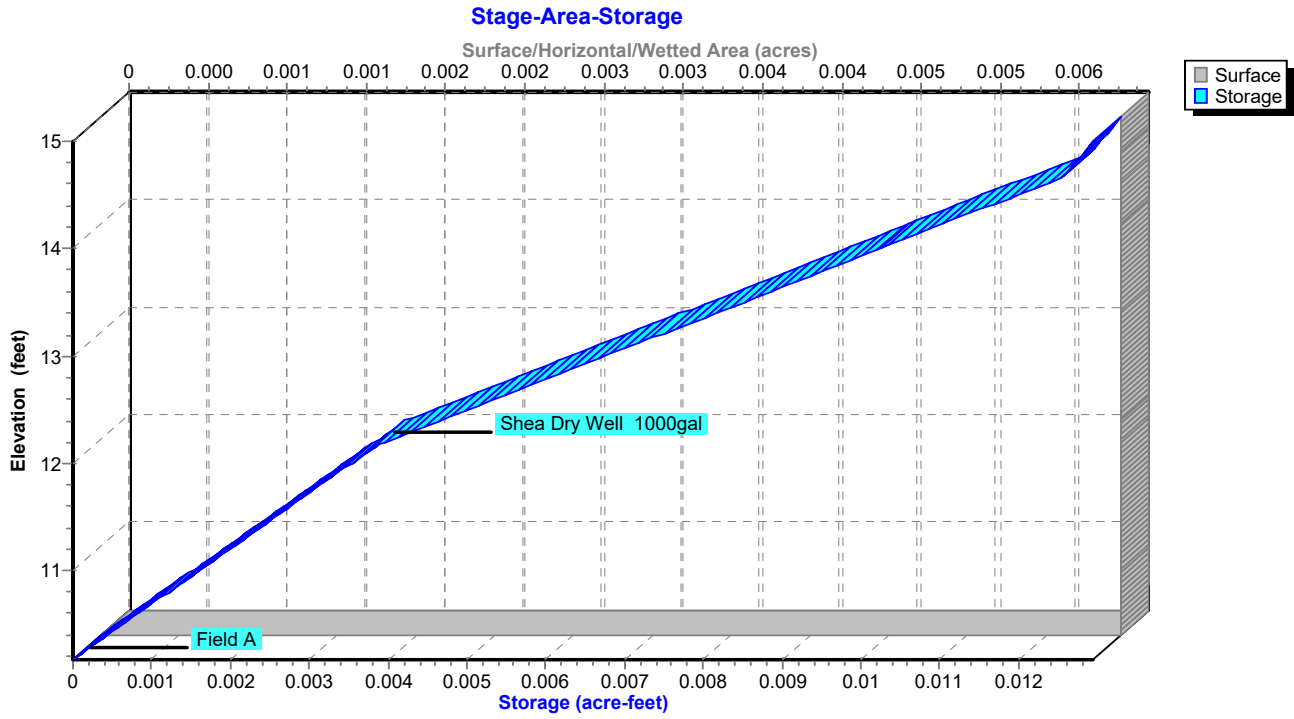


Pond 2P: (new Pond)

Stage-Discharge



Pond 2P: (new Pond)



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Hydrograph for Pond 2P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.01	0.000	10.18	0.00	0.00	0.00
5.50	0.01	0.000	10.19	0.01	0.01	0.00
6.00	0.01	0.000	10.19	0.01	0.01	0.00
6.50	0.01	0.000	10.20	0.01	0.01	0.00
7.00	0.01	0.000	10.20	0.01	0.01	0.00
7.50	0.01	0.000	10.20	0.01	0.01	0.00
8.00	0.01	0.000	10.21	0.01	0.01	0.00
8.50	0.01	0.000	10.21	0.01	0.01	0.00
9.00	0.01	0.000	10.21	0.01	0.01	0.00
9.50	0.02	0.000	10.22	0.02	0.02	0.00
10.00	0.02	0.000	10.27	0.02	0.02	0.00
10.50	0.02	0.000	10.39	0.02	0.02	0.00
11.00	0.03	0.001	10.65	0.02	0.02	0.00
11.50	0.05	0.002	11.19	0.02	0.02	0.00
12.00	0.22	0.005	12.56	0.02	0.02	0.00
12.50	0.07	0.011	14.14	0.07	0.02	0.06
13.00	0.04	0.011	14.09	0.04	0.02	0.02
13.50	0.03	0.010	14.06	0.03	0.02	0.01
14.00	0.02	0.010	14.04	0.02	0.02	0.01
14.50	0.02	0.010	14.03	0.02	0.02	0.00
15.00	0.01	0.010	14.01	0.02	0.02	0.00
15.50	0.01	0.010	13.99	0.02	0.02	0.00
16.00	0.01	0.010	13.96	0.02	0.02	0.00
16.50	0.01	0.010	13.92	0.02	0.02	0.00
17.00	0.01	0.010	13.87	0.02	0.02	0.00
17.50	0.01	0.010	13.80	0.02	0.02	0.00
18.00	0.01	0.009	13.73	0.02	0.02	0.00
18.50	0.01	0.009	13.65	0.02	0.02	0.00
19.00	0.01	0.009	13.56	0.02	0.02	0.00
19.50	0.01	0.008	13.48	0.02	0.02	0.00
20.00	0.01	0.008	13.39	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: (new Pond)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
10.17	0.00	0.00	0.00	12.72	0.02	0.02	0.00
10.22	0.02	0.02	0.00	12.77	0.02	0.02	0.00
10.27	0.02	0.02	0.00	12.82	0.02	0.02	0.00
10.32	0.02	0.02	0.00	12.87	0.02	0.02	0.00
10.37	0.02	0.02	0.00	12.92	0.02	0.02	0.00
10.42	0.02	0.02	0.00	12.97	0.02	0.02	0.00
10.47	0.02	0.02	0.00	13.02	0.02	0.02	0.00
10.52	0.02	0.02	0.00	13.07	0.02	0.02	0.00
10.57	0.02	0.02	0.00	13.12	0.02	0.02	0.00
10.62	0.02	0.02	0.00	13.17	0.02	0.02	0.00
10.67	0.02	0.02	0.00	13.22	0.02	0.02	0.00
10.72	0.02	0.02	0.00	13.27	0.02	0.02	0.00
10.77	0.02	0.02	0.00	13.32	0.02	0.02	0.00
10.82	0.02	0.02	0.00	13.37	0.02	0.02	0.00
10.87	0.02	0.02	0.00	13.42	0.02	0.02	0.00
10.92	0.02	0.02	0.00	13.47	0.02	0.02	0.00
10.97	0.02	0.02	0.00	13.52	0.02	0.02	0.00
11.02	0.02	0.02	0.00	13.57	0.02	0.02	0.00
11.07	0.02	0.02	0.00	13.62	0.02	0.02	0.00
11.12	0.02	0.02	0.00	13.67	0.02	0.02	0.00
11.17	0.02	0.02	0.00	13.72	0.02	0.02	0.00
11.22	0.02	0.02	0.00	13.77	0.02	0.02	0.00
11.27	0.02	0.02	0.00	13.82	0.02	0.02	0.00
11.32	0.02	0.02	0.00	13.87	0.02	0.02	0.00
11.37	0.02	0.02	0.00	13.92	0.02	0.02	0.00
11.42	0.02	0.02	0.00	13.97	0.02	0.02	0.00
11.47	0.02	0.02	0.00	14.02	0.02	0.02	0.00
11.52	0.02	0.02	0.00	14.07	0.03	0.02	0.02
11.57	0.02	0.02	0.00	14.12	0.06	0.02	0.04
11.62	0.02	0.02	0.00	14.17	0.10	0.02	0.08
11.67	0.02	0.02	0.00	14.22	0.15	0.02	0.13
11.72	0.02	0.02	0.00	14.27	0.21	0.02	0.19
11.77	0.02	0.02	0.00	14.32	0.27	0.02	0.26
11.82	0.02	0.02	0.00	14.37	0.34	0.02	0.32
11.87	0.02	0.02	0.00	14.42	0.40	0.02	0.39
11.92	0.02	0.02	0.00	14.47	0.46	0.02	0.45
11.97	0.02	0.02	0.00	14.52	0.51	0.02	0.49
12.02	0.02	0.02	0.00	14.57	0.55	0.02	0.53
12.07	0.02	0.02	0.00	14.62	0.59	0.02	0.58
12.12	0.02	0.02	0.00	14.67	0.63	0.02	0.61
12.17	0.02	0.02	0.00	14.72	0.66	0.02	0.65
12.22	0.02	0.02	0.00	14.77	0.70	0.02	0.68
12.27	0.02	0.02	0.00	14.82	0.73	0.02	0.71
12.32	0.02	0.02	0.00	14.87	0.76	0.02	0.74
12.37	0.02	0.02	0.00	14.92	0.79	0.02	0.77
12.42	0.02	0.02	0.00	14.97	0.82	0.02	0.80
12.47	0.02	0.02	0.00				
12.52	0.02	0.02	0.00				
12.57	0.02	0.02	0.00				
12.62	0.02	0.02	0.00				
12.67	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: (new Pond)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
10.17	0.006	0.000	12.72	0.006	0.006
10.22	0.006	0.000	12.77	0.006	0.006
10.27	0.006	0.000	12.82	0.006	0.006
10.32	0.006	0.000	12.87	0.006	0.006
10.37	0.006	0.000	12.92	0.006	0.006
10.42	0.006	0.000	12.97	0.006	0.007
10.47	0.006	0.001	13.02	0.006	0.007
10.52	0.006	0.001	13.07	0.006	0.007
10.57	0.006	0.001	13.12	0.006	0.007
10.62	0.006	0.001	13.17	0.006	0.007
10.67	0.006	0.001	13.22	0.006	0.008
10.72	0.006	0.001	13.27	0.006	0.008
10.77	0.006	0.001	13.32	0.006	0.008
10.82	0.006	0.001	13.37	0.006	0.008
10.87	0.006	0.001	13.42	0.006	0.008
10.92	0.006	0.001	13.47	0.006	0.008
10.97	0.006	0.002	13.52	0.006	0.009
11.02	0.006	0.002	13.57	0.006	0.009
11.07	0.006	0.002	13.62	0.006	0.009
11.12	0.006	0.002	13.67	0.006	0.009
11.17	0.006	0.002	13.72	0.006	0.009
11.22	0.006	0.002	13.77	0.006	0.009
11.27	0.006	0.002	13.82	0.006	0.010
11.32	0.006	0.002	13.87	0.006	0.010
11.37	0.006	0.002	13.92	0.006	0.010
11.42	0.006	0.002	13.97	0.006	0.010
11.47	0.006	0.003	14.02	0.006	0.010
11.52	0.006	0.003	14.07	0.006	0.010
11.57	0.006	0.003	14.12	0.006	0.011
11.62	0.006	0.003	14.17	0.006	0.011
11.67	0.006	0.003	14.22	0.006	0.011
11.72	0.006	0.003	14.27	0.006	0.011
11.77	0.006	0.003	14.32	0.006	0.011
11.82	0.006	0.003	14.37	0.006	0.012
11.87	0.006	0.003	14.42	0.006	0.012
11.92	0.006	0.003	14.47	0.006	0.012
11.97	0.006	0.003	14.52	0.006	0.012
12.02	0.006	0.004	14.57	0.006	0.012
12.07	0.006	0.004	14.62	0.006	0.012
12.12	0.006	0.004	14.67	0.006	0.013
12.17	0.006	0.004	14.72	0.006	0.013
12.22	0.006	0.004	14.77	0.006	0.013
12.27	0.006	0.004	14.82	0.006	0.013
12.32	0.006	0.004	14.87	0.006	0.013
12.37	0.006	0.005	14.92	0.006	0.013
12.42	0.006	0.005	14.97	0.006	0.013
12.47	0.006	0.005			
12.52	0.006	0.005			
12.57	0.006	0.005			
12.62	0.006	0.005			
12.67	0.006	0.006			

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Summary for Subcatchment 1S: Proposed Building

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.038 af, Depth> 5.23"

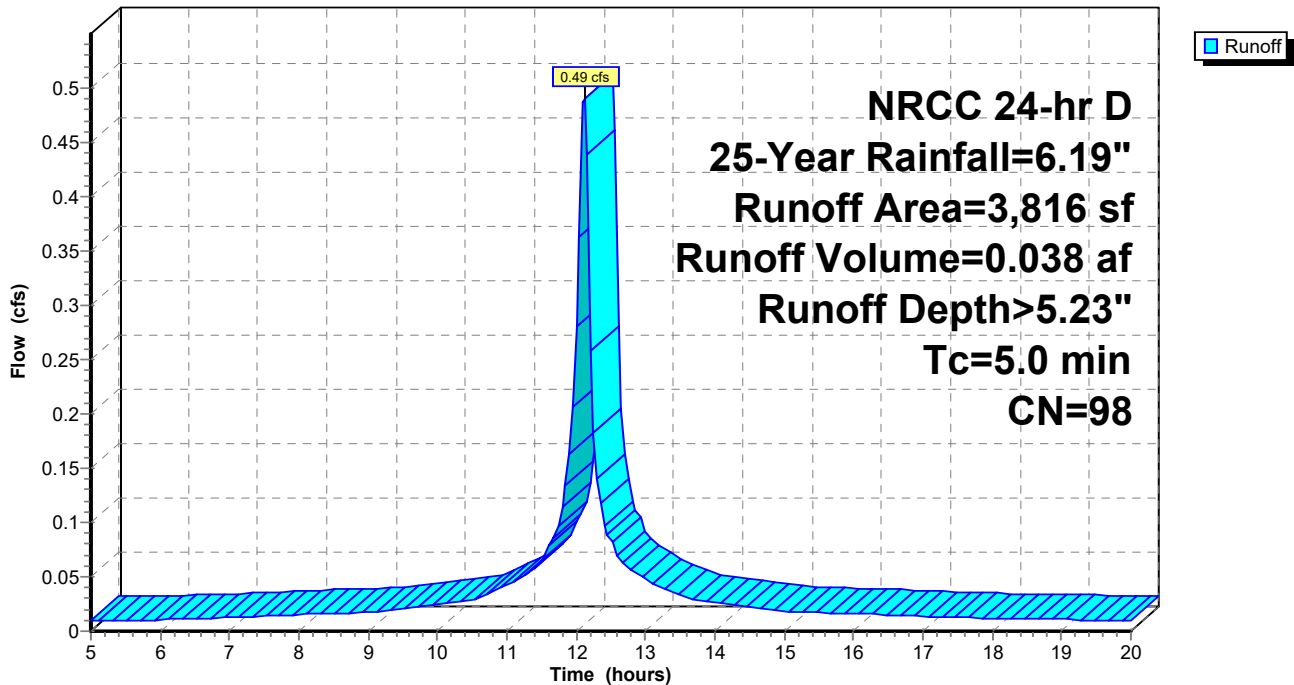
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.19"

Area (sf)	CN	Description
3,816	98	Unconnected roofs, HSG A
3,816		100.00% Impervious Area
3,816		100.00% Unconnected

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

Subcatchment 1S: Proposed Building

Hydrograph



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Hydrograph for Subcatchment 1S: Proposed Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.51	0.33	0.01	17.75	5.52	5.28	0.01
5.25	0.54	0.36	0.01	18.00	5.55	5.31	0.01
5.50	0.58	0.39	0.01	18.25	5.58	5.35	0.01
5.75	0.61	0.42	0.01	18.50	5.61	5.38	0.01
6.00	0.64	0.44	0.01	18.75	5.65	5.41	0.01
6.25	0.67	0.48	0.01	19.00	5.68	5.44	0.01
6.50	0.70	0.51	0.01	19.25	5.70	5.47	0.01
6.75	0.74	0.54	0.01	19.50	5.73	5.50	0.01
7.00	0.78	0.58	0.01	19.75	5.76	5.52	0.01
7.25	0.82	0.61	0.01	20.00	5.79	5.55	0.01
7.50	0.86	0.65	0.01				
7.75	0.90	0.69	0.01				
8.00	0.94	0.74	0.02				
8.25	0.99	0.78	0.02				
8.50	1.04	0.83	0.02				
8.75	1.09	0.87	0.02				
9.00	1.14	0.92	0.02				
9.25	1.19	0.98	0.02				
9.50	1.25	1.04	0.02				
9.75	1.32	1.10	0.02				
10.00	1.39	1.17	0.03				
10.25	1.46	1.25	0.03				
10.50	1.55	1.33	0.03				
10.75	1.64	1.42	0.03				
11.00	1.76	1.54	0.04				
11.25	1.90	1.68	0.05				
11.50	2.07	1.85	0.06				
11.75	2.34	2.11	0.10				
12.00	2.97	2.73	0.28				
12.25	3.85	3.62	0.18				
12.50	4.12	3.88	0.09				
12.75	4.29	4.05	0.06				
13.00	4.43	4.20	0.05				
13.25	4.55	4.31	0.04				
13.50	4.64	4.41	0.03				
13.75	4.73	4.49	0.03				
14.00	4.80	4.57	0.03				
14.25	4.87	4.64	0.02				
14.50	4.94	4.70	0.02				
14.75	5.00	4.76	0.02				
15.00	5.05	4.82	0.02				
15.25	5.10	4.87	0.02				
15.50	5.15	4.92	0.02				
15.75	5.20	4.96	0.02				
16.00	5.25	5.01	0.02				
16.25	5.29	5.05	0.02				
16.50	5.33	5.10	0.01				
16.75	5.37	5.14	0.01				
17.00	5.41	5.18	0.01				
17.25	5.45	5.21	0.01				
17.50	5.49	5.25	0.01				

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Summary for Pond 2P: (new Pond)

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac, 100.00% Impervious, Inflow Depth > 5.23" for 25-Year event
Inflow = 0.49 cfs @ 12.11 hrs, Volume= 0.038 af
Outflow = 0.41 cfs @ 12.17 hrs, Volume= 0.029 af, Atten= 17%, Lag= 3.6 min
Discarded = 0.02 cfs @ 8.30 hrs, Volume= 0.018 af
Primary = 0.39 cfs @ 12.17 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 14.43' @ 12.17 hrs Surf.Area= 0.006 ac Storage= 0.012 af

Plug-Flow detention time= 104.0 min calculated for 0.029 af (76% of inflow)
Center-of-Mass det. time= 34.1 min (769.3 - 735.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.17'	0.007 af	19.33'W x 14.50'L x 4.83'H Field A 0.031 af Overall - 0.008 af Embedded = 0.023 af x 30.0% Voids
#2A	12.17'	0.006 af	Shea Dry Well 1000gal x 2 Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf 2 Chambers in 2 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	10.17'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.00'	6.0" Round Culvert L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 14.00' / 11.60' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 8.30 hrs HW=10.22' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.35 cfs @ 12.17 hrs HW=14.39' (Free Discharge)

↑2=**Culvert** (Inlet Controls 0.35 cfs @ 2.13 fps)

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Pond 2P: (new Pond) - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectagular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf
Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

68.0" Wide + 48.0" Spacing = 116.0" C-C Row Spacing

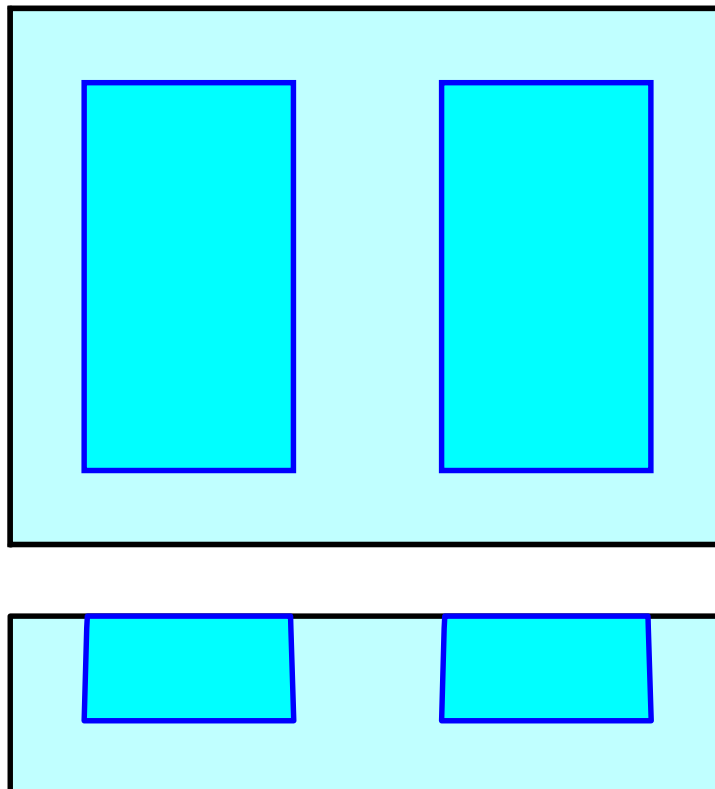
1 Chambers/Row x 10.50' Long = 10.50' Row Length +24.0" End Stone x 2 = 14.50' Base Length
2 Rows x 68.0" Wide + 48.0" Spacing x 1 + 24.0" Side Stone x 2 = 19.33' Base Width
24.0" Base + 34.0" Chamber Height = 4.83' Field Height

2 Chambers x 128.6 cf = 257.2 cf Chamber Storage
2 Chambers x 165.9 cf = 331.8 cf Displacement

1,354.1 cf Field - 331.8 cf Chambers = 1,022.2 cf Stone x 30.0% Voids = 306.7 cf Stone Storage

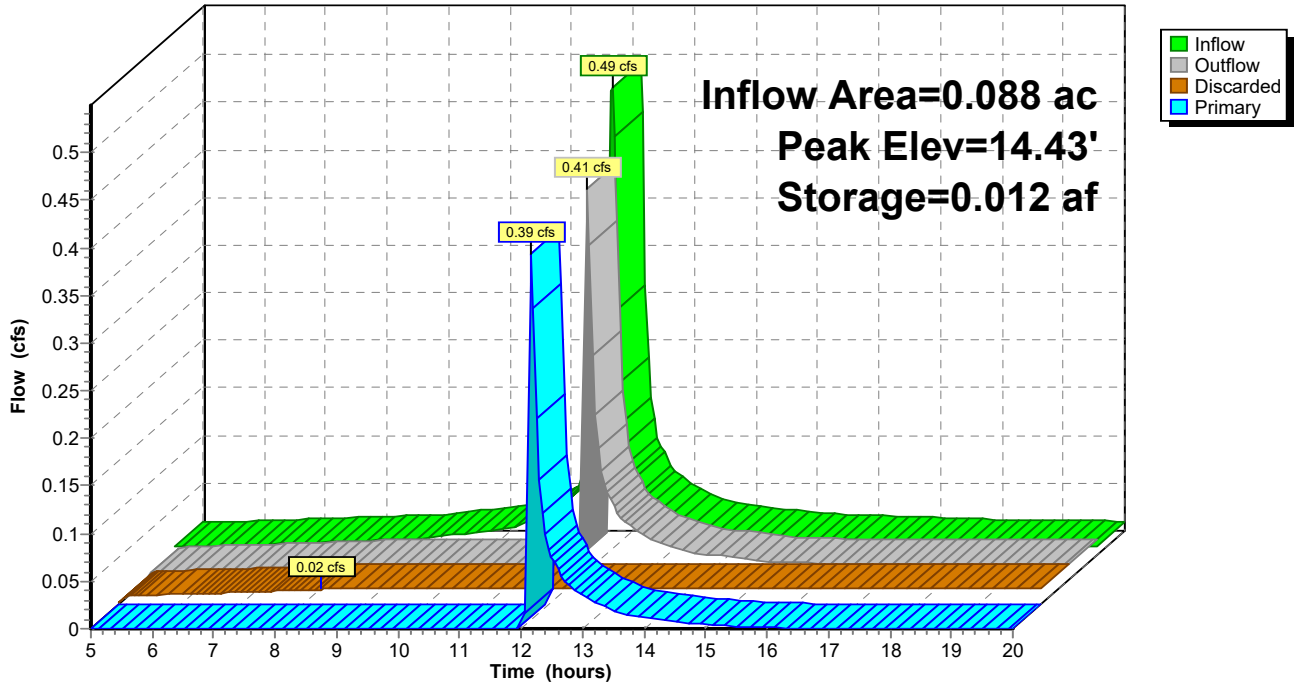
Chamber Storage + Stone Storage = 563.9 cf = 0.013 af
Overall Storage Efficiency = 41.6%
Overall System Size = 14.50' x 19.33' x 4.83'

2 Chambers
50.2 cy Field
37.9 cy Stone



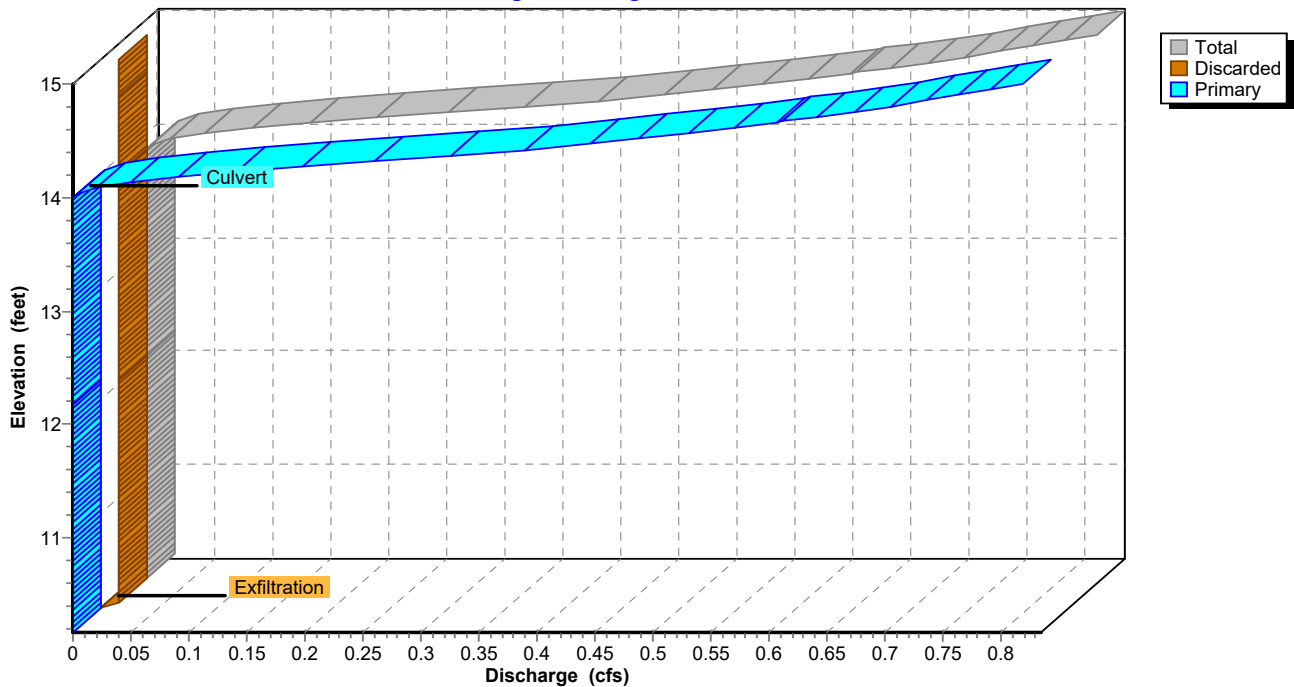
Pond 2P: (new Pond)

Hydrograph

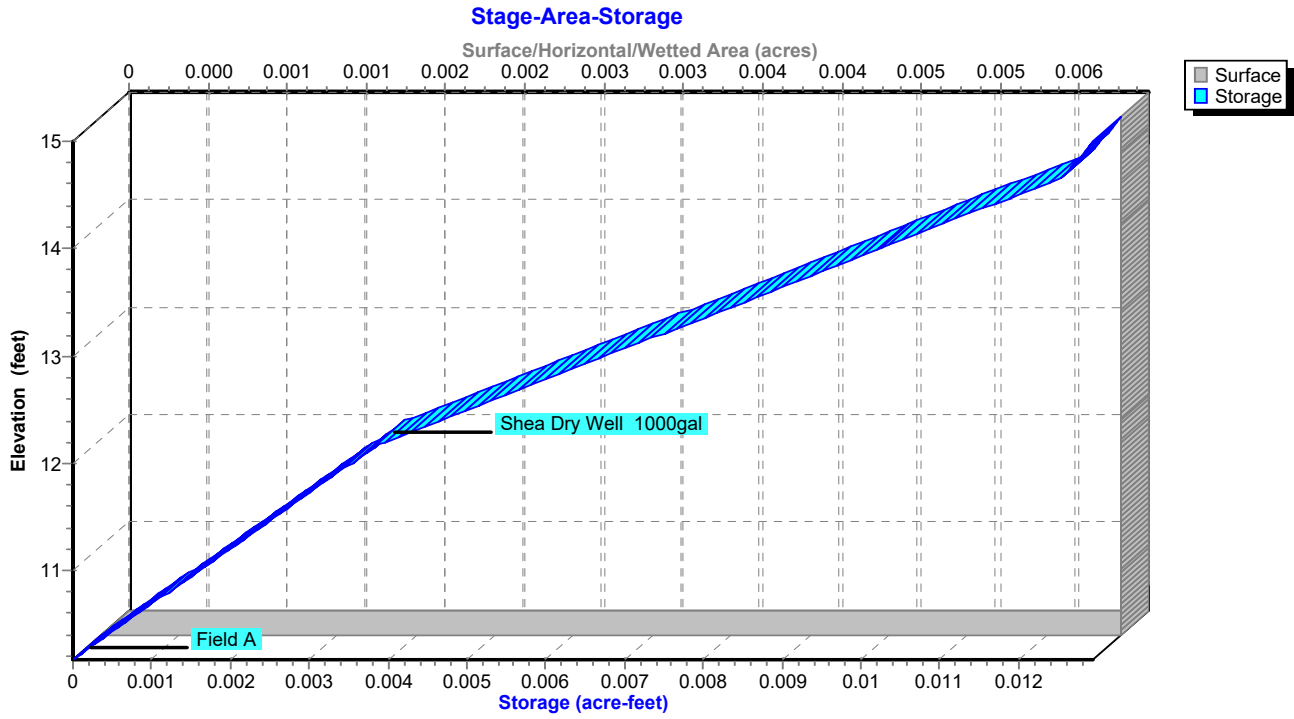


Pond 2P: (new Pond)

Stage-Discharge



Pond 2P: (new Pond)



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Hydrograph for Pond 2P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.01	0.000	10.18	0.00	0.00	0.00
5.50	0.01	0.000	10.20	0.01	0.01	0.00
6.00	0.01	0.000	10.20	0.01	0.01	0.00
6.50	0.01	0.000	10.20	0.01	0.01	0.00
7.00	0.01	0.000	10.21	0.01	0.01	0.00
7.50	0.01	0.000	10.21	0.01	0.01	0.00
8.00	0.02	0.000	10.22	0.01	0.01	0.00
8.50	0.02	0.000	10.22	0.02	0.02	0.00
9.00	0.02	0.000	10.25	0.02	0.02	0.00
9.50	0.02	0.000	10.33	0.02	0.02	0.00
10.00	0.03	0.001	10.49	0.02	0.02	0.00
10.50	0.03	0.001	10.73	0.02	0.02	0.00
11.00	0.04	0.002	11.14	0.02	0.02	0.00
11.50	0.06	0.003	11.92	0.02	0.02	0.00
12.00	0.28	0.008	13.27	0.02	0.02	0.00
12.50	0.09	0.011	14.16	0.09	0.02	0.08
13.00	0.05	0.011	14.11	0.05	0.02	0.04
13.50	0.03	0.011	14.08	0.04	0.02	0.02
14.00	0.03	0.010	14.06	0.03	0.02	0.01
14.50	0.02	0.010	14.05	0.02	0.02	0.01
15.00	0.02	0.010	14.04	0.02	0.02	0.00
15.50	0.02	0.010	14.02	0.02	0.02	0.00
16.00	0.02	0.010	14.01	0.02	0.02	0.00
16.50	0.01	0.010	14.00	0.02	0.02	0.00
17.00	0.01	0.010	13.98	0.02	0.02	0.00
17.50	0.01	0.010	13.95	0.02	0.02	0.00
18.00	0.01	0.010	13.91	0.02	0.02	0.00
18.50	0.01	0.010	13.86	0.02	0.02	0.00
19.00	0.01	0.010	13.80	0.02	0.02	0.00
19.50	0.01	0.009	13.74	0.02	0.02	0.00
20.00	0.01	0.009	13.67	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: (new Pond)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
10.17	0.00	0.00	0.00	12.72	0.02	0.02	0.00
10.22	0.02	0.02	0.00	12.77	0.02	0.02	0.00
10.27	0.02	0.02	0.00	12.82	0.02	0.02	0.00
10.32	0.02	0.02	0.00	12.87	0.02	0.02	0.00
10.37	0.02	0.02	0.00	12.92	0.02	0.02	0.00
10.42	0.02	0.02	0.00	12.97	0.02	0.02	0.00
10.47	0.02	0.02	0.00	13.02	0.02	0.02	0.00
10.52	0.02	0.02	0.00	13.07	0.02	0.02	0.00
10.57	0.02	0.02	0.00	13.12	0.02	0.02	0.00
10.62	0.02	0.02	0.00	13.17	0.02	0.02	0.00
10.67	0.02	0.02	0.00	13.22	0.02	0.02	0.00
10.72	0.02	0.02	0.00	13.27	0.02	0.02	0.00
10.77	0.02	0.02	0.00	13.32	0.02	0.02	0.00
10.82	0.02	0.02	0.00	13.37	0.02	0.02	0.00
10.87	0.02	0.02	0.00	13.42	0.02	0.02	0.00
10.92	0.02	0.02	0.00	13.47	0.02	0.02	0.00
10.97	0.02	0.02	0.00	13.52	0.02	0.02	0.00
11.02	0.02	0.02	0.00	13.57	0.02	0.02	0.00
11.07	0.02	0.02	0.00	13.62	0.02	0.02	0.00
11.12	0.02	0.02	0.00	13.67	0.02	0.02	0.00
11.17	0.02	0.02	0.00	13.72	0.02	0.02	0.00
11.22	0.02	0.02	0.00	13.77	0.02	0.02	0.00
11.27	0.02	0.02	0.00	13.82	0.02	0.02	0.00
11.32	0.02	0.02	0.00	13.87	0.02	0.02	0.00
11.37	0.02	0.02	0.00	13.92	0.02	0.02	0.00
11.42	0.02	0.02	0.00	13.97	0.02	0.02	0.00
11.47	0.02	0.02	0.00	14.02	0.02	0.02	0.00
11.52	0.02	0.02	0.00	14.07	0.03	0.02	0.02
11.57	0.02	0.02	0.00	14.12	0.06	0.02	0.04
11.62	0.02	0.02	0.00	14.17	0.10	0.02	0.08
11.67	0.02	0.02	0.00	14.22	0.15	0.02	0.13
11.72	0.02	0.02	0.00	14.27	0.21	0.02	0.19
11.77	0.02	0.02	0.00	14.32	0.27	0.02	0.26
11.82	0.02	0.02	0.00	14.37	0.34	0.02	0.32
11.87	0.02	0.02	0.00	14.42	0.40	0.02	0.39
11.92	0.02	0.02	0.00	14.47	0.46	0.02	0.45
11.97	0.02	0.02	0.00	14.52	0.51	0.02	0.49
12.02	0.02	0.02	0.00	14.57	0.55	0.02	0.53
12.07	0.02	0.02	0.00	14.62	0.59	0.02	0.58
12.12	0.02	0.02	0.00	14.67	0.63	0.02	0.61
12.17	0.02	0.02	0.00	14.72	0.66	0.02	0.65
12.22	0.02	0.02	0.00	14.77	0.70	0.02	0.68
12.27	0.02	0.02	0.00	14.82	0.73	0.02	0.71
12.32	0.02	0.02	0.00	14.87	0.76	0.02	0.74
12.37	0.02	0.02	0.00	14.92	0.79	0.02	0.77
12.42	0.02	0.02	0.00	14.97	0.82	0.02	0.80
12.47	0.02	0.02	0.00				
12.52	0.02	0.02	0.00				
12.57	0.02	0.02	0.00				
12.62	0.02	0.02	0.00				
12.67	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: (new Pond)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
10.17	0.006	0.000	12.72	0.006	0.006
10.22	0.006	0.000	12.77	0.006	0.006
10.27	0.006	0.000	12.82	0.006	0.006
10.32	0.006	0.000	12.87	0.006	0.006
10.37	0.006	0.000	12.92	0.006	0.006
10.42	0.006	0.000	12.97	0.006	0.007
10.47	0.006	0.001	13.02	0.006	0.007
10.52	0.006	0.001	13.07	0.006	0.007
10.57	0.006	0.001	13.12	0.006	0.007
10.62	0.006	0.001	13.17	0.006	0.007
10.67	0.006	0.001	13.22	0.006	0.008
10.72	0.006	0.001	13.27	0.006	0.008
10.77	0.006	0.001	13.32	0.006	0.008
10.82	0.006	0.001	13.37	0.006	0.008
10.87	0.006	0.001	13.42	0.006	0.008
10.92	0.006	0.001	13.47	0.006	0.008
10.97	0.006	0.002	13.52	0.006	0.009
11.02	0.006	0.002	13.57	0.006	0.009
11.07	0.006	0.002	13.62	0.006	0.009
11.12	0.006	0.002	13.67	0.006	0.009
11.17	0.006	0.002	13.72	0.006	0.009
11.22	0.006	0.002	13.77	0.006	0.009
11.27	0.006	0.002	13.82	0.006	0.010
11.32	0.006	0.002	13.87	0.006	0.010
11.37	0.006	0.002	13.92	0.006	0.010
11.42	0.006	0.002	13.97	0.006	0.010
11.47	0.006	0.003	14.02	0.006	0.010
11.52	0.006	0.003	14.07	0.006	0.010
11.57	0.006	0.003	14.12	0.006	0.011
11.62	0.006	0.003	14.17	0.006	0.011
11.67	0.006	0.003	14.22	0.006	0.011
11.72	0.006	0.003	14.27	0.006	0.011
11.77	0.006	0.003	14.32	0.006	0.011
11.82	0.006	0.003	14.37	0.006	0.012
11.87	0.006	0.003	14.42	0.006	0.012
11.92	0.006	0.003	14.47	0.006	0.012
11.97	0.006	0.003	14.52	0.006	0.012
12.02	0.006	0.004	14.57	0.006	0.012
12.07	0.006	0.004	14.62	0.006	0.012
12.12	0.006	0.004	14.67	0.006	0.013
12.17	0.006	0.004	14.72	0.006	0.013
12.22	0.006	0.004	14.77	0.006	0.013
12.27	0.006	0.004	14.82	0.006	0.013
12.32	0.006	0.004	14.87	0.006	0.013
12.37	0.006	0.005	14.92	0.006	0.013
12.42	0.006	0.005	14.97	0.006	0.013
12.47	0.006	0.005			
12.52	0.006	0.005			
12.57	0.006	0.005			
12.62	0.006	0.005			
12.67	0.006	0.006			

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NRCC 24-hr D 100-Year Rainfall=8.83"

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Summary for Subcatchment 1S: Proposed Building

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.70 cfs @ 12.11 hrs, Volume= 0.055 af, Depth > 7.49"

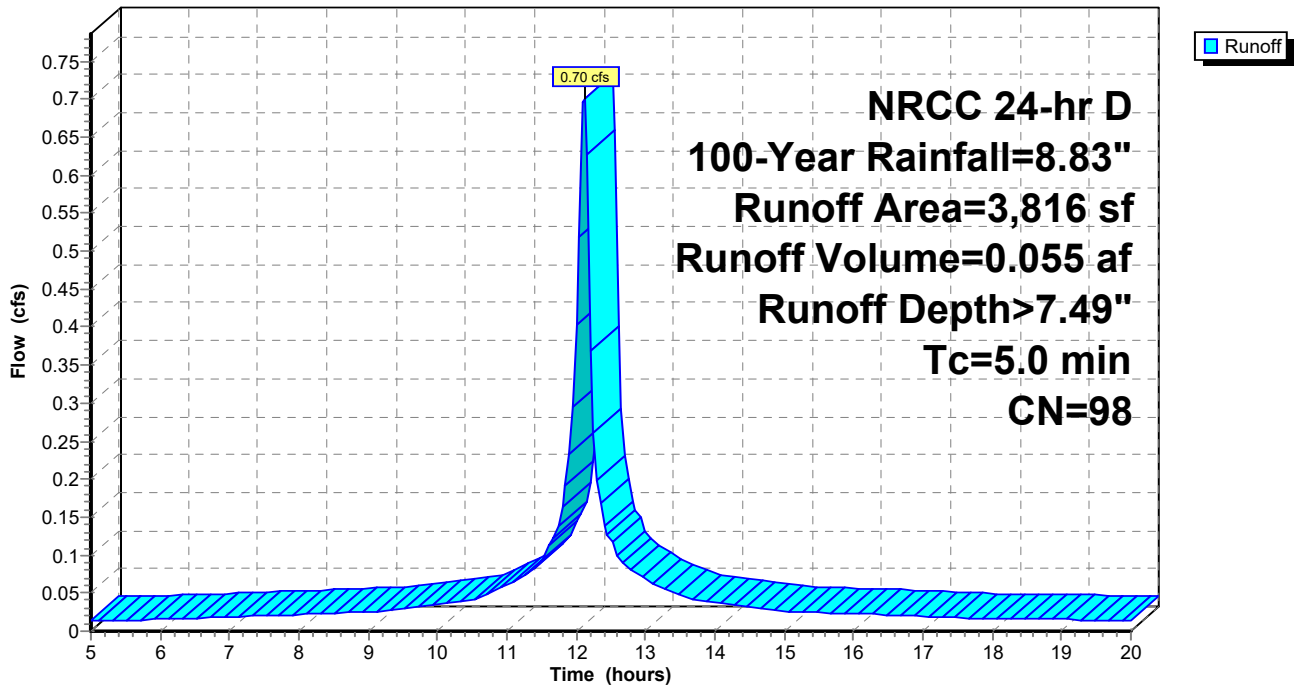
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.83"

Area (sf)	CN	Description
3,816	98	Unconnected roofs, HSG A
3,816		100.00% Impervious Area
3,816		100.00% Unconnected

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

Subcatchment 1S: Proposed Building

Hydrograph



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Hydrograph for Subcatchment 1S: Proposed Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.73	0.54	0.01	17.75	7.87	7.63	0.02
5.25	0.78	0.58	0.01	18.00	7.92	7.68	0.02
5.50	0.82	0.62	0.01	18.25	7.97	7.73	0.02
5.75	0.86	0.66	0.01	18.50	8.01	7.77	0.02
6.00	0.91	0.70	0.02	18.75	8.05	7.81	0.02
6.25	0.96	0.75	0.02	19.00	8.10	7.86	0.02
6.50	1.00	0.80	0.02	19.25	8.14	7.90	0.01
6.75	1.06	0.85	0.02	19.50	8.18	7.94	0.01
7.00	1.11	0.90	0.02	19.75	8.22	7.98	0.01
7.25	1.16	0.95	0.02	20.00	8.26	8.02	0.01
7.50	1.22	1.01	0.02				
7.75	1.28	1.07	0.02				
8.00	1.35	1.13	0.02				
8.25	1.41	1.19	0.02				
8.50	1.48	1.26	0.02				
8.75	1.55	1.33	0.02				
9.00	1.62	1.40	0.03				
9.25	1.70	1.48	0.03				
9.50	1.78	1.56	0.03				
9.75	1.88	1.65	0.03				
10.00	1.98	1.75	0.04				
10.25	2.09	1.86	0.04				
10.50	2.21	1.98	0.04				
10.75	2.34	2.12	0.05				
11.00	2.51	2.28	0.06				
11.25	2.71	2.48	0.07				
11.50	2.96	2.73	0.09				
11.75	3.34	3.10	0.14				
12.00	4.23	3.99	0.40				
12.25	5.49	5.26	0.26				
12.50	5.87	5.63	0.12				
12.75	6.12	5.88	0.08				
13.00	6.32	6.08	0.07				
13.25	6.49	6.25	0.06				
13.50	6.62	6.39	0.05				
13.75	6.74	6.50	0.04				
14.00	6.85	6.61	0.04				
14.25	6.95	6.71	0.04				
14.50	7.05	6.81	0.03				
14.75	7.13	6.89	0.03				
15.00	7.21	6.97	0.03				
15.25	7.28	7.04	0.03				
15.50	7.35	7.11	0.02				
15.75	7.42	7.18	0.02				
16.00	7.48	7.24	0.02				
16.25	7.55	7.31	0.02				
16.50	7.61	7.37	0.02				
16.75	7.67	7.43	0.02				
17.00	7.72	7.48	0.02				
17.25	7.77	7.53	0.02				
17.50	7.83	7.59	0.02				

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Summary for Pond 2P: (new Pond)

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac, 100.00% Impervious, Inflow Depth > 7.49" for 100-Year event
Inflow = 0.70 cfs @ 12.11 hrs, Volume= 0.055 af
Outflow = 0.62 cfs @ 12.15 hrs, Volume= 0.045 af, Atten= 11%, Lag= 2.2 min
Discarded = 0.02 cfs @ 6.25 hrs, Volume= 0.019 af
Primary = 0.61 cfs @ 12.15 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 14.66' @ 12.15 hrs Surf.Area= 0.006 ac Storage= 0.013 af

Plug-Flow detention time= 85.4 min calculated for 0.044 af (81% of inflow)
Center-of-Mass det. time= 26.3 min (760.6 - 734.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	10.17'	0.007 af	19.33'W x 14.50'L x 4.83'H Field A 0.031 af Overall - 0.008 af Embedded = 0.023 af x 30.0% Voids
#2A	12.17'	0.006 af	Shea Dry Well 1000gal x 2 Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf 2 Chambers in 2 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	10.17'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.00'	6.0" Round Culvert L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 14.00' / 11.60' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 6.25 hrs HW=10.22' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.61 cfs @ 12.15 hrs HW=14.66' (Free Discharge)

↑2=Culvert (Inlet Controls 0.61 cfs @ 3.08 fps)

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Pond 2P: (new Pond) - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectagular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf
Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

68.0" Wide + 48.0" Spacing = 116.0" C-C Row Spacing

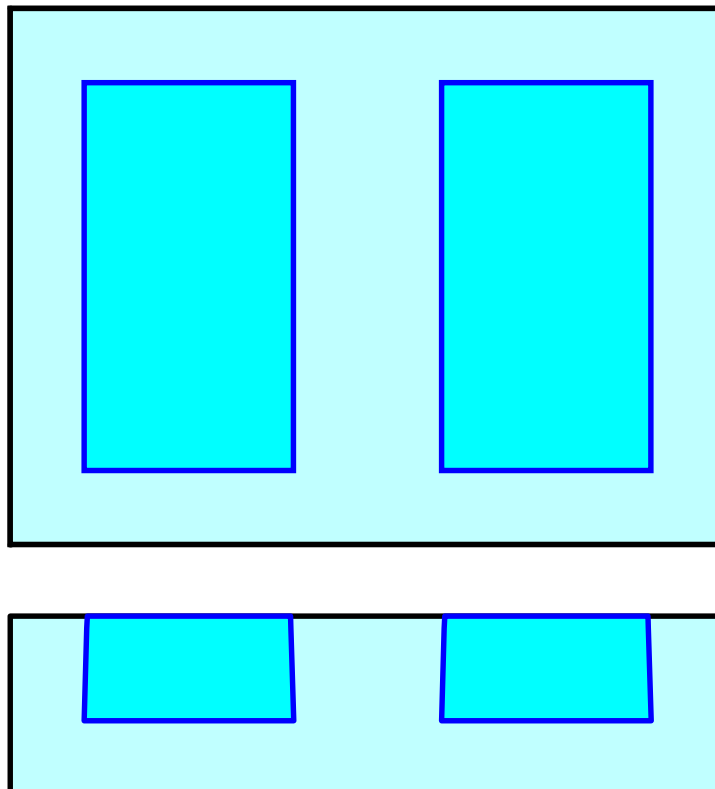
1 Chambers/Row x 10.50' Long = 10.50' Row Length +24.0" End Stone x 2 = 14.50' Base Length
2 Rows x 68.0" Wide + 48.0" Spacing x 1 + 24.0" Side Stone x 2 = 19.33' Base Width
24.0" Base + 34.0" Chamber Height = 4.83' Field Height

2 Chambers x 128.6 cf = 257.2 cf Chamber Storage
2 Chambers x 165.9 cf = 331.8 cf Displacement

1,354.1 cf Field - 331.8 cf Chambers = 1,022.2 cf Stone x 30.0% Voids = 306.7 cf Stone Storage

Chamber Storage + Stone Storage = 563.9 cf = 0.013 af
Overall Storage Efficiency = 41.6%
Overall System Size = 14.50' x 19.33' x 4.83'

2 Chambers
50.2 cy Field
37.9 cy Stone



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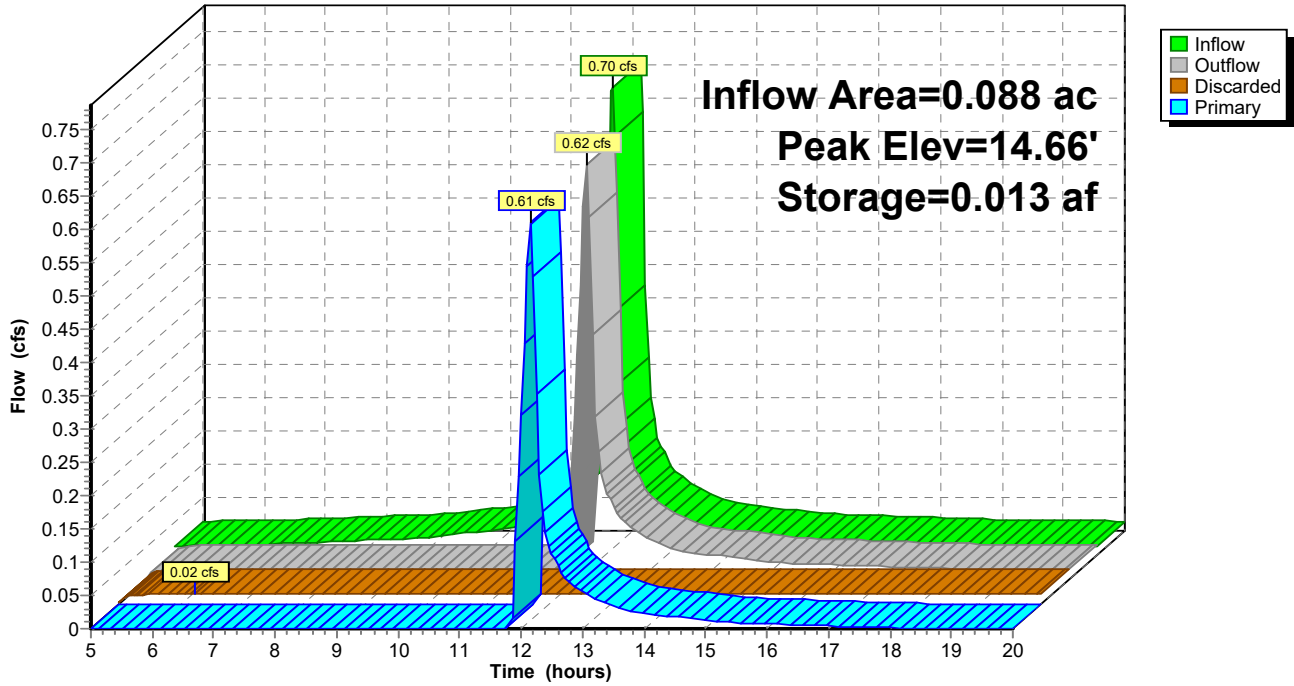
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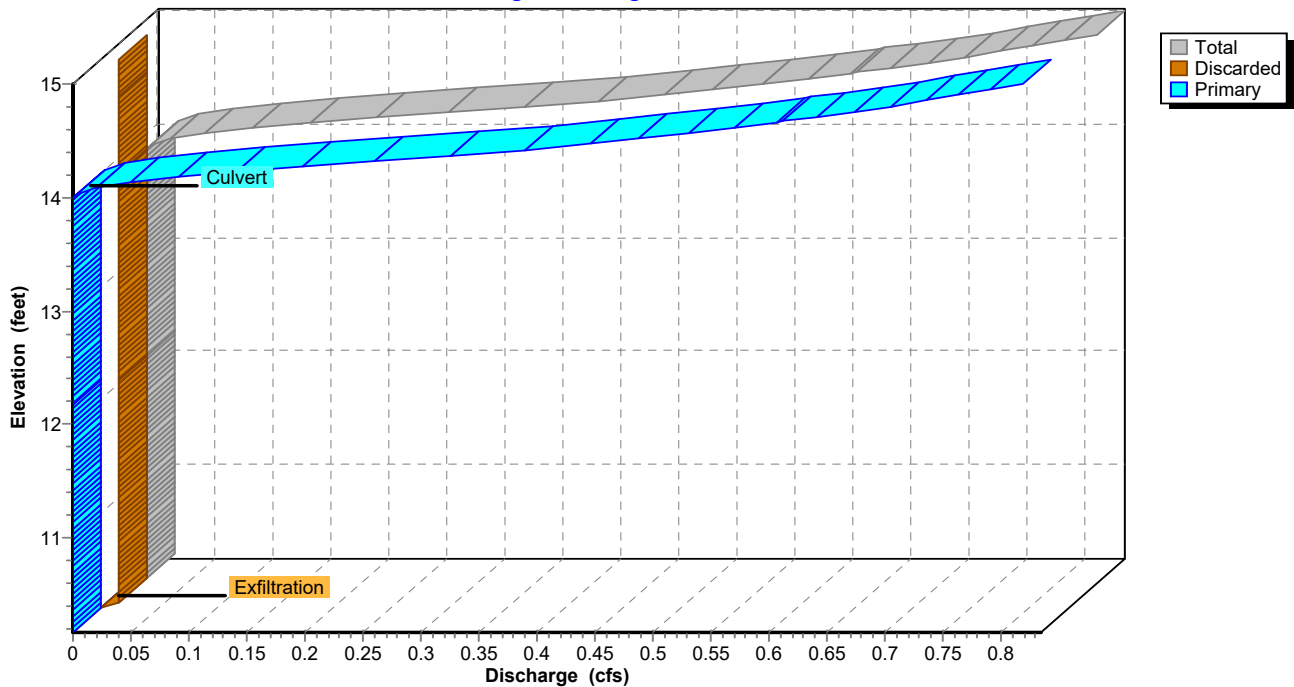
Pond 2P: (new Pond)

Hydrograph

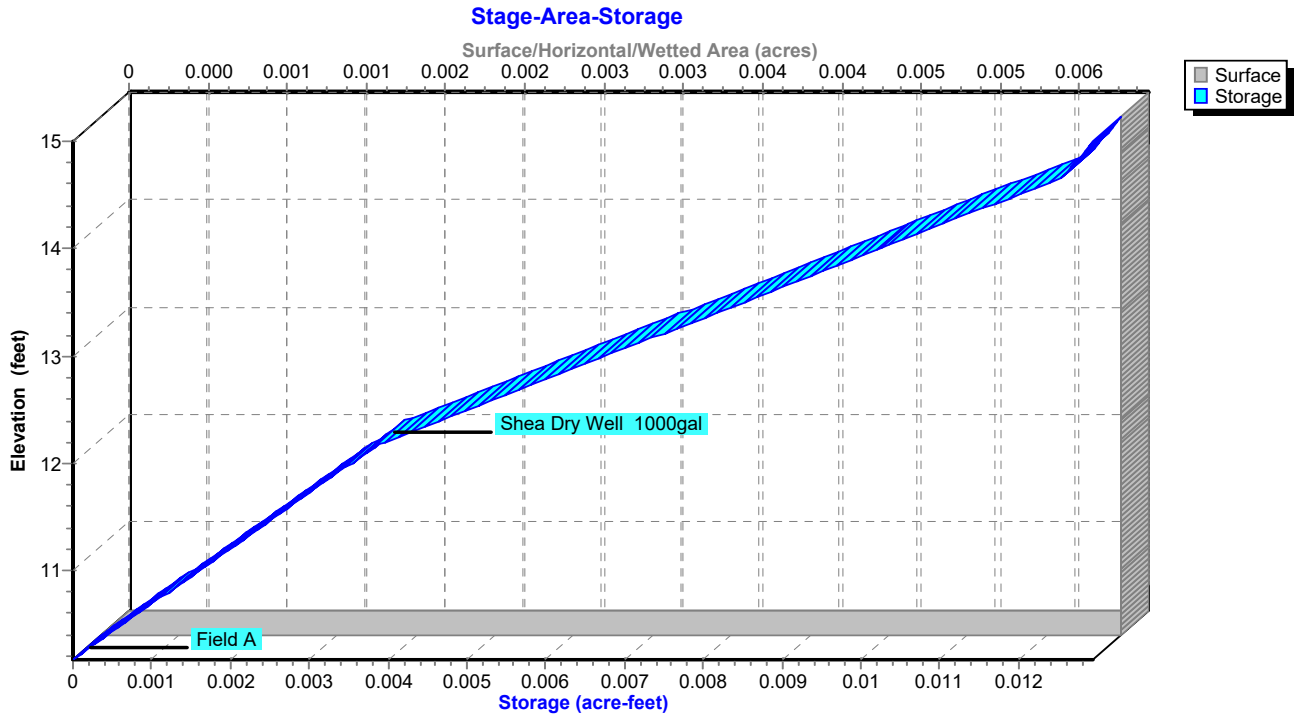


Pond 2P: (new Pond)

Stage-Discharge



Pond 2P: (new Pond)



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Hydrograph for Pond 2P: (new Pond)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.01	0.000	10.18	0.00	0.00	0.00
5.50	0.01	0.000	10.22	0.01	0.01	0.00
6.00	0.02	0.000	10.22	0.02	0.02	0.00
6.50	0.02	0.000	10.23	0.02	0.02	0.00
7.00	0.02	0.000	10.27	0.02	0.02	0.00
7.50	0.02	0.000	10.35	0.02	0.02	0.00
8.00	0.02	0.001	10.47	0.02	0.02	0.00
8.50	0.02	0.001	10.62	0.02	0.02	0.00
9.00	0.03	0.001	10.81	0.02	0.02	0.00
9.50	0.03	0.002	11.07	0.02	0.02	0.00
10.00	0.04	0.002	11.45	0.02	0.02	0.00
10.50	0.04	0.003	11.94	0.02	0.02	0.00
11.00	0.06	0.005	12.45	0.02	0.02	0.00
11.50	0.09	0.007	13.15	0.02	0.02	0.00
12.00	0.40	0.012	14.37	0.34	0.02	0.32
12.50	0.12	0.011	14.20	0.13	0.02	0.11
13.00	0.07	0.011	14.14	0.07	0.02	0.06
13.50	0.05	0.011	14.10	0.05	0.02	0.03
14.00	0.04	0.011	14.09	0.04	0.02	0.02
14.50	0.03	0.011	14.08	0.03	0.02	0.02
15.00	0.03	0.010	14.06	0.03	0.02	0.01
15.50	0.02	0.010	14.05	0.02	0.02	0.01
16.00	0.02	0.010	14.05	0.02	0.02	0.01
16.50	0.02	0.010	14.04	0.02	0.02	0.01
17.00	0.02	0.010	14.04	0.02	0.02	0.00
17.50	0.02	0.010	14.03	0.02	0.02	0.00
18.00	0.02	0.010	14.02	0.02	0.02	0.00
18.50	0.02	0.010	14.00	0.02	0.02	0.00
19.00	0.02	0.010	14.00	0.02	0.02	0.00
19.50	0.01	0.010	13.99	0.02	0.02	0.00
20.00	0.01	0.010	13.98	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: (new Pond)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
10.17	0.00	0.00	0.00	12.72	0.02	0.02	0.00
10.22	0.02	0.02	0.00	12.77	0.02	0.02	0.00
10.27	0.02	0.02	0.00	12.82	0.02	0.02	0.00
10.32	0.02	0.02	0.00	12.87	0.02	0.02	0.00
10.37	0.02	0.02	0.00	12.92	0.02	0.02	0.00
10.42	0.02	0.02	0.00	12.97	0.02	0.02	0.00
10.47	0.02	0.02	0.00	13.02	0.02	0.02	0.00
10.52	0.02	0.02	0.00	13.07	0.02	0.02	0.00
10.57	0.02	0.02	0.00	13.12	0.02	0.02	0.00
10.62	0.02	0.02	0.00	13.17	0.02	0.02	0.00
10.67	0.02	0.02	0.00	13.22	0.02	0.02	0.00
10.72	0.02	0.02	0.00	13.27	0.02	0.02	0.00
10.77	0.02	0.02	0.00	13.32	0.02	0.02	0.00
10.82	0.02	0.02	0.00	13.37	0.02	0.02	0.00
10.87	0.02	0.02	0.00	13.42	0.02	0.02	0.00
10.92	0.02	0.02	0.00	13.47	0.02	0.02	0.00
10.97	0.02	0.02	0.00	13.52	0.02	0.02	0.00
11.02	0.02	0.02	0.00	13.57	0.02	0.02	0.00
11.07	0.02	0.02	0.00	13.62	0.02	0.02	0.00
11.12	0.02	0.02	0.00	13.67	0.02	0.02	0.00
11.17	0.02	0.02	0.00	13.72	0.02	0.02	0.00
11.22	0.02	0.02	0.00	13.77	0.02	0.02	0.00
11.27	0.02	0.02	0.00	13.82	0.02	0.02	0.00
11.32	0.02	0.02	0.00	13.87	0.02	0.02	0.00
11.37	0.02	0.02	0.00	13.92	0.02	0.02	0.00
11.42	0.02	0.02	0.00	13.97	0.02	0.02	0.00
11.47	0.02	0.02	0.00	14.02	0.02	0.02	0.00
11.52	0.02	0.02	0.00	14.07	0.03	0.02	0.02
11.57	0.02	0.02	0.00	14.12	0.06	0.02	0.04
11.62	0.02	0.02	0.00	14.17	0.10	0.02	0.08
11.67	0.02	0.02	0.00	14.22	0.15	0.02	0.13
11.72	0.02	0.02	0.00	14.27	0.21	0.02	0.19
11.77	0.02	0.02	0.00	14.32	0.27	0.02	0.26
11.82	0.02	0.02	0.00	14.37	0.34	0.02	0.32
11.87	0.02	0.02	0.00	14.42	0.40	0.02	0.39
11.92	0.02	0.02	0.00	14.47	0.46	0.02	0.45
11.97	0.02	0.02	0.00	14.52	0.51	0.02	0.49
12.02	0.02	0.02	0.00	14.57	0.55	0.02	0.53
12.07	0.02	0.02	0.00	14.62	0.59	0.02	0.58
12.12	0.02	0.02	0.00	14.67	0.63	0.02	0.61
12.17	0.02	0.02	0.00	14.72	0.66	0.02	0.65
12.22	0.02	0.02	0.00	14.77	0.70	0.02	0.68
12.27	0.02	0.02	0.00	14.82	0.73	0.02	0.71
12.32	0.02	0.02	0.00	14.87	0.76	0.02	0.74
12.37	0.02	0.02	0.00	14.92	0.79	0.02	0.77
12.42	0.02	0.02	0.00	14.97	0.82	0.02	0.80
12.47	0.02	0.02	0.00				
12.52	0.02	0.02	0.00				
12.57	0.02	0.02	0.00				
12.62	0.02	0.02	0.00				
12.67	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: (new Pond)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
10.17	0.006	0.000	12.72	0.006	0.006
10.22	0.006	0.000	12.77	0.006	0.006
10.27	0.006	0.000	12.82	0.006	0.006
10.32	0.006	0.000	12.87	0.006	0.006
10.37	0.006	0.000	12.92	0.006	0.006
10.42	0.006	0.000	12.97	0.006	0.007
10.47	0.006	0.001	13.02	0.006	0.007
10.52	0.006	0.001	13.07	0.006	0.007
10.57	0.006	0.001	13.12	0.006	0.007
10.62	0.006	0.001	13.17	0.006	0.007
10.67	0.006	0.001	13.22	0.006	0.008
10.72	0.006	0.001	13.27	0.006	0.008
10.77	0.006	0.001	13.32	0.006	0.008
10.82	0.006	0.001	13.37	0.006	0.008
10.87	0.006	0.001	13.42	0.006	0.008
10.92	0.006	0.001	13.47	0.006	0.008
10.97	0.006	0.002	13.52	0.006	0.009
11.02	0.006	0.002	13.57	0.006	0.009
11.07	0.006	0.002	13.62	0.006	0.009
11.12	0.006	0.002	13.67	0.006	0.009
11.17	0.006	0.002	13.72	0.006	0.009
11.22	0.006	0.002	13.77	0.006	0.009
11.27	0.006	0.002	13.82	0.006	0.010
11.32	0.006	0.002	13.87	0.006	0.010
11.37	0.006	0.002	13.92	0.006	0.010
11.42	0.006	0.002	13.97	0.006	0.010
11.47	0.006	0.003	14.02	0.006	0.010
11.52	0.006	0.003	14.07	0.006	0.010
11.57	0.006	0.003	14.12	0.006	0.011
11.62	0.006	0.003	14.17	0.006	0.011
11.67	0.006	0.003	14.22	0.006	0.011
11.72	0.006	0.003	14.27	0.006	0.011
11.77	0.006	0.003	14.32	0.006	0.011
11.82	0.006	0.003	14.37	0.006	0.012
11.87	0.006	0.003	14.42	0.006	0.012
11.92	0.006	0.003	14.47	0.006	0.012
11.97	0.006	0.003	14.52	0.006	0.012
12.02	0.006	0.004	14.57	0.006	0.012
12.07	0.006	0.004	14.62	0.006	0.012
12.12	0.006	0.004	14.67	0.006	0.013
12.17	0.006	0.004	14.72	0.006	0.013
12.22	0.006	0.004	14.77	0.006	0.013
12.27	0.006	0.004	14.82	0.006	0.013
12.32	0.006	0.004	14.87	0.006	0.013
12.37	0.006	0.005	14.92	0.006	0.013
12.42	0.006	0.005	14.97	0.006	0.013
12.47	0.006	0.005			
12.52	0.006	0.005			
12.57	0.006	0.005			
12.62	0.006	0.005			
12.67	0.006	0.006			

Exhibit A

**OPERATION AND MAINTENANCE PLAN
PROPOSED DRAINAGE SYSTEM – POST CONSTRUCTION**

DATED: September, 2021

**Assessor's Parcel ID 1602506000
20 Norwood Street Dorchester(Boston)**

Owner: cambridge street Realty LLC
c/o bruce efron Manager
P O BOX 812097
WELLESLEY MA 02482

Party Responsible for Operations and Maintenance:

Bruce Efron
P O BOX 812097
WELLESLEY MA 02482

Source of Funding:

Operation and Maintenance of this storm water management system will be the responsibility of the property owner to include its successor and/or assigns, as the same may appear on record with the appropriate record of deeds.

Post Construction Inspection and Maintenance:

DO NOT STOCKPILE ANYTHING, INCLUDING SNOW OR DEBRIS ON OR AROUND THE STORMWATER SYSTEM

Drain Lines

After Construction, the drain lines shall be inspected after every major storm for the first few months to ensure proper functions. Presence of accumulated sand and silt would indicate that a drainline has been damaged and may need to be replace. Thereafter, the drain lines shall be inspected at least once per year.

Infiltration System

After construction, the Cultec Infiltration System shall be inspected for proper function after every major storm event until the site is completely developed and stabilized. After the site has been stabilized, the storm water infiltration system shall be inspected via the inspection ports at least twice per year or if lack of performance is observed and necessary corrective measures shall be performed to maintain infiltration capacity; as required by the MA Storm water Management Handbook. Inspections shall include measuring the water level in the system after a major storm event, and performing necessary corrective action if water is observed 72 hours following the storm.

Inspections

Yearly Inspections of the storm water management system shall be performed. The owner shall be responsible for the maintenance or if necessary, for securing the services of a professional (inspector) on an on-going basis. The inspector shall review the project with respect to the following:

- Proper Maintenance and performance of the storm water Management System
- Review of the system to determine any damaged or ineffective components.
- Corrective Actions

The inspector shall prepare a report documenting the findings and should request the required maintenance or repair for the pollution prevention controls when the inspector finds that it is necessary for the control to be effective. The inspector shall notify the owner to make the changes.

For additional information, refer to Performance, Standards and Guidelines for Storm water Management in Massachusetts, published by the Department of Environmental Protection

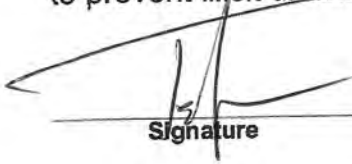
Snow Disposal

Snow Disposal is to be located adjacent to or on impervious surfaces. At these locations, the snow meltwater can filter to the soil, leaving behind sand and debris which can be removed in the springtime. Snow shall not be piled upon the subsurface infiltration system to ensure that the system is not compromised due to excessive weight sitting on it for extended periods of time. Debris from snow melt should be cleared from the site and properly disposed of at the end of the snow season and no later than May 15.

For additional information, refer to Performance, Standards and Guidelines for Storm water Management in Massachusetts, published by the Department of Environmental Protection

ILLICIT DISCHARGE COMPLIANCE STATEMENT

I verify that no illicit discharges exist from 20 Norwood Street Dorchester(Boston) MA project. Through the implementation of the Operation and Maintenance Plan, measures are set forth to prevent illicit discharges from entering the stormwater management drainage system.


Signature

Timothy Langden
Print Name

11/18/2021
Date

Agent
Title

Langden Realty LLC
Company

Signature

Print Name

Date

Title

Company

Note: This certification must be signed before stormwater is conveyed to the proposed stormwater drainage system in accordance with Standard 10 of the Massachusetts Stormwater Management Standards.



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 8²
- 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

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.

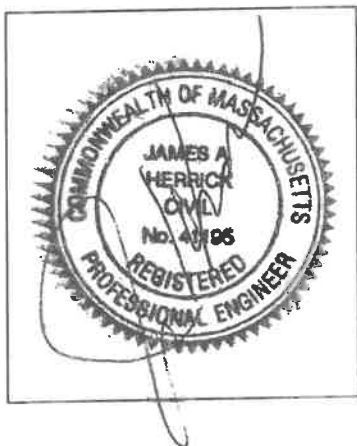
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



James A. Herrick 2/24/20

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 Field¹
- 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:

- 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.

Appendix D

BDPA Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).

A.1 - Project Information

Project Name:	20 Norwood Street		
Project Address:	20 Norwood Street, Dorchester, MA 02122		
Project Address Additional:			
Filing Type (select)	Notice of Intent (NOI) Application		
Filing Contact	Rich Kirby	LEC Environmental Consultants, Inc.	380 Lowell Street, Suite 101, Wakefield, MA 01880
Is MEPA approval required	No		

A.3 - Project Team

Owner / Developer:	Cambridge Street Realty, LLC		
Architect:	Khalsa Design Inc.		
Engineer:	Christian Ludlow, Civil Environmental Consultants, 8 Oak Street, Peabody, MA 01960		
Sustainability / LEED:	N/A		
Permitting:	Rich Kirby, LEC Environmental Consultants, Inc., 380 Lowell Street, Suite 101, Wakefield, MA 01880		
Construction Management:	Tim Longden, 1A Treetop Circle, Northborough, MA 01532		

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Multifamily Housing
List the First Floor Uses:	Lobby, Parking
List any Critical Site Infrastructure and or Building Uses:	Basic utilities, i.e. waster, sewer, electric.

Site and Building: PLEASE CONFIRM NUMBERS ARE CORRECT

Site Area:	6,000 sf	Building Area:	3,769 sf
Building Height:	31'-0	Building Height:	3 stories (including ground-level garage)
Existing Site Elevation – Low:	16.4'	Existing Site Elevation – High:	16.9'
Proposed Site Elevation – Low:	16.4'	Proposed Site Elevation – High:	16.9'
Proposed First Floor Elevation:	Lobby: 16.5' Living Space: 27.5'	Below grade levels:	0

Article 37 Green Building:

LEED Version - Rating System:

Proposed LEED rating:

LEED Certification:

Proposed LEED point score:

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:

Foundation Wall:

Exposed Floor:

Slab Edge (at or below grade):

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

Area of Opaque Curtain Wall & Spandrel Assembly:

Area of Framed & Insulated / Standard Wall:

Area of Vision Window:

Area of Doors:

Wall & Spandrel Assembly Value:

Wall Value:

Window Glazing Assembly Value:

Window Glazing SHGC:

Door Assembly Value:

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined

Annual Electric:

Annual Heating:

Annual Cooling:

Energy Use - Below ASHRAE 90.1 - 2013:

Energy Use - Below Mass. Code:

Peak Electric:

Peak Heating:

Peak Cooling:

Have the local utilities reviewed the building energy performance?:

Energy Use Intensity:

Back-up / Emergency Power System

Electrical Generation Output:

System Type:

Number of Power Units:

Fuel Source:

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

Electric:

Heating:

Cooling:

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:

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

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

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

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

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

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

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):

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:

Temperature Range - High:

Annual Heating Degree Days:

Annual Cooling Degree Days:

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

Days - Above 90°:

Days – Above 100°:

Number of Heatwaves / Year:

Average Duration of Heatwave (Days):

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

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:

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:

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:

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

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):

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?	<input type="text" value="Yes"/>	What Zone:	<input type="text" value="AE"/>
Current FEMA SFHA Zone Base Flood Elevation:			<input type="text" value="10"/>

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.

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:	<input type="text" value="16.5 Ft BCB"/>		
Sea Level Rise - Design Flood Elevation:	<input type="text" value="16.5 Ft BCB"/>	First Floor Elevation:	<input type="text" value="27.5 FF Living Space Ft BCB"/>
Site Elevations at Building:	<input type="text" value="16.9 Ft BCB"/>	Accessible Route Elevation:	<input type="text" value="16.5 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.:

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.:

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:

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

Avoiding/limiting mechanicals in lobby. FEMA flood vents allow flood water to recede quickly.

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.:

Living space is elevated 11 feet from LSCSF Elevation. Lobby is 0'- ½" above LSCSF Elevation. Mechanicals on roof.

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

Coord with local and city agencies to consider and address future sea level rise.

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