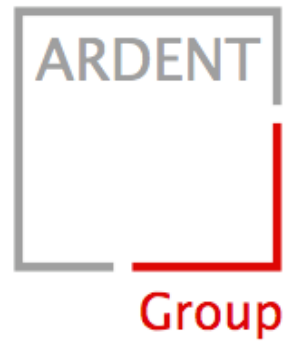


*"Environmental & Energy Solutions, Inc.
is now Ardent Group, Inc."*

March 22, 2022

Notice of Intent Application: Additional Information
32 Norwood Street
Boston, Massachusetts
Ardent file ECLP-1521



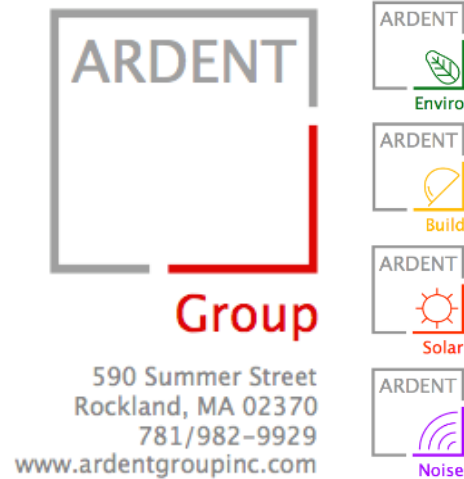
590 Summer Street
Rockland, MA 02370
781/982-9929
www.ardentgroupinc.com



*"Environmental & Energy Solutions, Inc.
is now Ardent Group, Inc."*

March 22, 2022

Boston Conservation Commission
City of Boston Environment Department
1 City Hall Square, Boston City Hall, Room 709
Boston, MA 02201



Re: Notice of Intent Application: Additional Information
32 Norwood Street
Boston, Massachusetts
Ardent ECLP-1521

Dear Members of the Commission:

On behalf of Teddy Ahern, Ardent Group, Inc. (**Ardent**) is pleased to present this Notice of Intent Application: Additional Information for property referenced as 32 Norwood Street, Boston, Massachusetts (the property). Mr. Ahern has successfully completed numerous similar projects on Norwood Street and looks forward to working with the Conservation Commission on this project. The additional information requested by the Commission from review of the previous March 2, 2022 submission is included below and attached.

Attached please find two checks made payable to the City of Boston for the *Act* and *Ordinance* filing fees. An electronic payment also has been sent to the Massachusetts Department of Environmental Protection for the Commonwealth portion of the *Act* filing fee. Additionally, the BWSC review has been completed and the approval is also included.

Thank you for consideration of this NOI Application: Additional Information. We look forward to discussing this project with the Commission at the next commission meeting on April 6, 2022. If you have any questions, please do not hesitate to contact me 781-982-9929 or at j.dorsett@ardentgroupinc.com.

Sincerely,

Ardent Group, Inc.

A handwritten signature in black ink, appearing to read "J. Dorsett".

Joseph Dorsett, Jr.
President

A handwritten signature in black ink, appearing to read "Shawn E. Callaghan".

Shawn Callaghan
Environmental Scientist

Responses to comments from the March 2, 2022 Conservation Commission review

- *The translation certification was not included with the abutter notice materials.*
 - Included.
- *Additionally, we will need a version of the affidavit of service with either a wet signature or an electronically verified digital signature. We cannot accept just a typed signature.*
 - Included.
- *The Boston NOI form was completed using an old version of the form. Please use [this](#) version of the form instead.*
 - New form included.
- *No fee was included with the filing.*
 - Fee was included but was lost at the office. Two new checks for the filing fees have been included.
- *The illicit discharge statement was not signed.*
 - The signed statement is included.
- *The project narrative should include more details on the means and methods of the proposed demolition and construction.*
 - The former multi-family dwelling at 32 Norwood Street has been demolished and removed from the property. Equipment, including front loader with a bucket, mini excavator, and bobcat demolished the former building, loaded the demolition waste into trucks, and disposed of it in accordance with applicable local, state, and federal regulations. The construction of a new six-unit apartment building with ground level garage parking and lobby was recently completed. The construction included site work and grading, erection of the building, utility connections, and installation of stormwater management systems.
- *If any landscaping is proposed, please discuss that in the narrative as well.*
 - There is a landscaped area to the north of the building, along Norwood Street.
- *Additionally, the climate resiliency discussion in the narrative should also include a discussion on heat island impacts.*
 - The project will have minimal impact to the heat island effect in the area. The neighborhood is currently developed with dwellings and commercial buildings. Although the new apartment building at 32 Norwood Street adds additional lot coverage with a larger building, the negative impact on heat island effect would not be significant. Methods to help mitigate the heat island effect include the use of energy efficient heating and cooling systems and enhanced insulation and ventilation in the building.
- *The FFE listed on the Climate Resiliency Checklist does not match the FFE shown on the plan set. Please make sure to differentiate between the proposed FFE and LFE in both locations.*
 - Updated on the checklist.
- *Additionally, I could not match the proposed site high listed on the Climate Resiliency Checklist with the elevations on the proposed conditions plan.*

- The site high has been updated on both the proposed conditions plan and climate resiliency checklist (16.7').
- *The plan set does not show the elevation/extent of the floodplain.*
 - Note added to the proposed plot plan indicating that the entire property is located in the 100-year floodplain (Zone AE).

CIVIL ENVIRONMENTAL CONSULTANTS LLC
ENGINEERS AND LAND SURVEYORS

8 Oak Street
Peabody, MA 01960
Phone (978) 531-1191
Fax (978) 531-5501
ceclandsurvey@comcast.net

March 23, 2022

28 Norwood LLC
6 Wenlock Street
Dorchester MA 02122

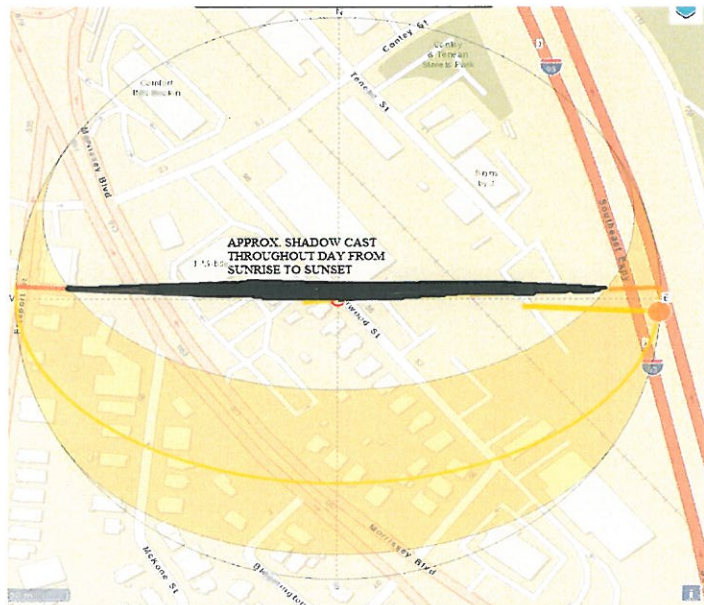
Re: Urban Heat Island for 32 Norwood Street Dorchester, MA

To Whom it May Concern,

In regards to The Change to the Urban Heat Island effect in the immediate vicinity of 32 Norwood Street Dorchester, MA; The previous structure was a 1-1/2 story dwelling with an impervious driveway leading to a garage that covered approximately 2100 Square feet of the subject parcel. The sun would hit the roof of both structures and driveway for the majority of the day.

The proposed structure and driveway will occupy approximately 4000 square feet of the subject parcel, essentially doubling the amount of impervious area which would absorb the heat from the sun. however, during the day, the shadow cast by this structure will be significantly larger than the shadow that was cast by the original dwelling and garage on the lot, creating a shade canyon beside the building as the day progresses, which would reduce the amount of sunlight hitting the surrounding area vs what currently exists.

The shadow cast by this structure will vary during the day, from a discernible shadow at sunrise of over 300 hundred feet long, down to a 35 foot shadow at mid-day to a discernible shadow over 300 hundred feet long at sunset, this shadow will cause the area inside the area to receive less sun, thus reducing impact of the heat island effect wherever the shadow hits.
(see attached image with the entire shadow arc for a 40' structure at 32 Norwood during the day)



cont.

CIVIL ENVIRONMENTAL CONSULTANTS LLC
ENGINEERS AND LAND SURVEYORS

8 Oak Street
Peabody, MA 01960
Phone (978) 531-1191
Fax (978) 531-5501
ceclandsurvey@comcast.net

March 23, 2022

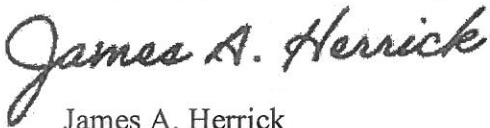
28 Norwood LLC
6 Wenlock Street
Dorchester MA 02122

Re: Urban Heat Island for 32 Norwood Street Dorchester, MA

cont,

Other Ways to mitigate the heat island impact due to this structure would be to have roof of the structure have a white coating on it reflecting a significant portion of the heat from the sun vs absorbing the sun's heat into the roof and releasing this absorbed heat later in the day after the sun sets, thus slowing down the rate as which the temperature drops during the night.

Very truly yours



James A. Herrick



A. GENERAL INFORMATION

1. Project Location

32 Norwood Street	Boston	02122
_____	_____	_____
a. Street Address	b. City/Town	c. Zip Code
1602503000		
_____	_____	_____
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant

Teddy	Ahern	28 Norwood LLC
_____	_____	_____
a. First Name	b. Last Name	c. Company
37 Wenlock Street		
_____	_____	_____
d. Mailing Address		
Boston	MA	02122
_____	_____	_____
e. City/Town	f. State	g. Zip Code
617-510-1013	teddyahern@yahoo.com	
_____	_____	_____
h. Phone Number	i. Fax Number	j. Email address

3. Property Owner

Teddy	Ahern	28 Norwood LLC
_____	_____	_____
a. First Name	b. Last Name	c. Company
_____	_____	_____
d. Mailing Address		
Boston	MA	02122
_____	_____	_____
e. City/Town	f. State	g. Zip Code
617-510-1013	teddyahern@yahoo.com	
_____	_____	_____
h. Phone Number	i. Fax Number	j. Email address

Check if more than one owner

(If there is more than one property owner, please attach a list of these property owners to this form.)

4. Representative (if any)

Joseph	Dorsett	Ardent Group, Inc.
_____	_____	_____
a. First Name	b. Last Name	c. Company
590 Summer Street		
_____	_____	_____
d. Mailing Address		
Rockland	MA	02370
_____	_____	_____
e. City/Town	f. State	g. Zip Code
617-699-7513	j.dorsett@ardentgroupinc.com	
_____	_____	_____
h. Phone Number	i. Fax Number	j. Email address



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 project involves demolition of a two-story, multi-family residential building and the construction of a three-story, six unit apartment building within LSCSF. Erosion controls and stormwater management are proposed for the property. No additional wetland resource areas, watercourses, or buffer zones occur on the property.

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

<u>Suffolk</u>	<u>249</u>
a. County	b. Page Number
<u>61792</u>	_____
c. Book	d. Certificate # (if registered land)

9. Total Fee Paid

<u>\$2,574.54</u>	<u>\$524.54</u>	<u>\$1,500 (filing) & \$550 (other)</u>
a. Total Fee Paid	b. State Fee Paid	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?

MADEP NOI - submitted, BWSC site plan sign off - approved, Building permit - approved



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

Date

Signature of Property Owner (if different)

Date

Signature of Representative (if any)

Date

REFERENCES

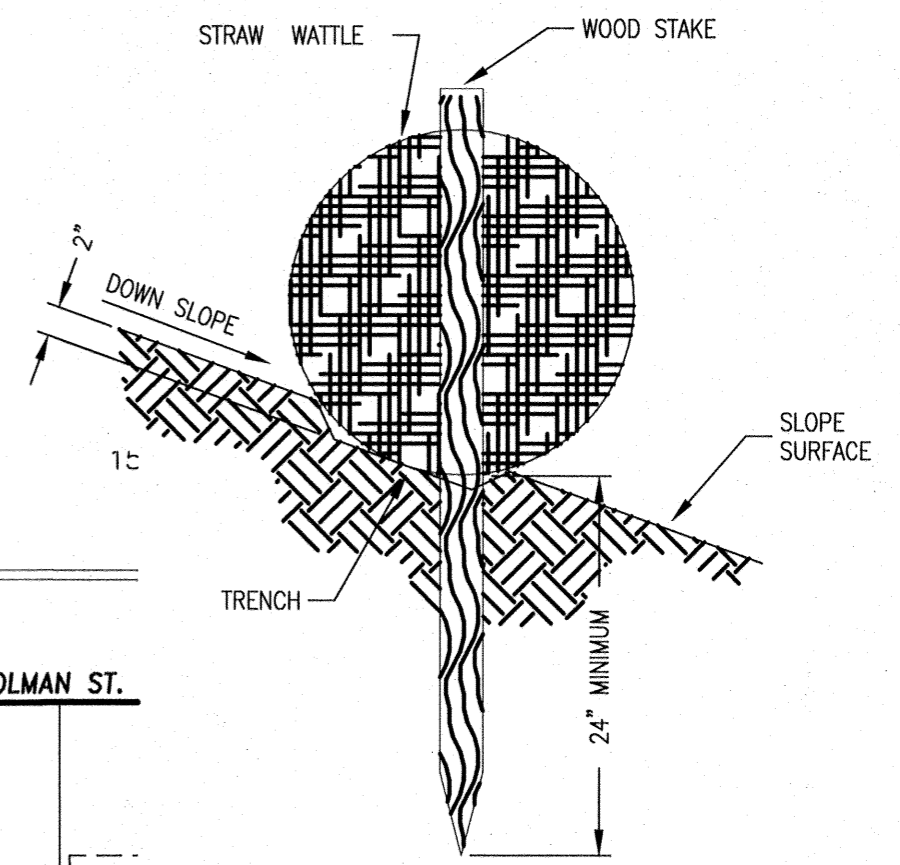
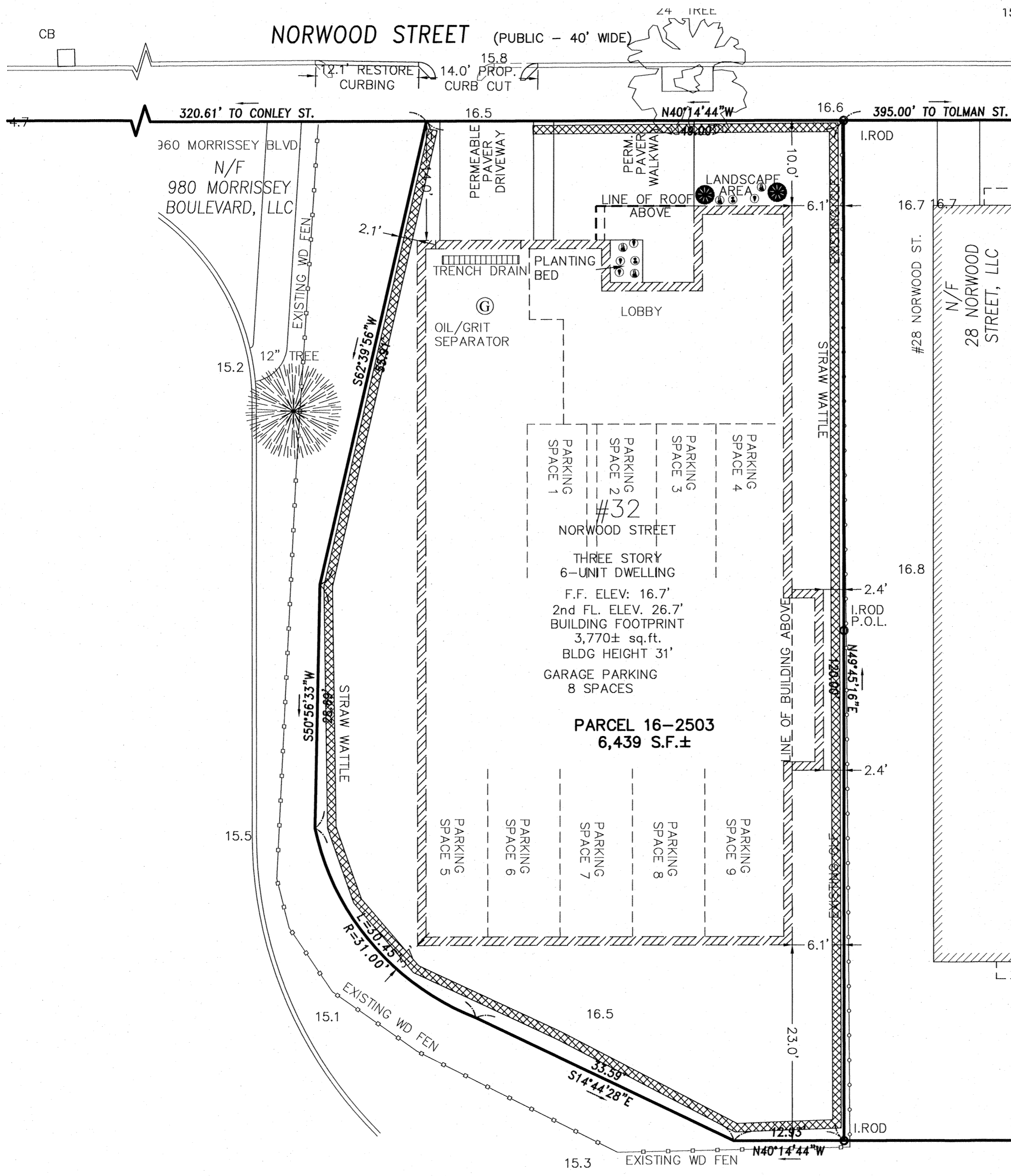
DEED BK. 59,275 PG. 256
 PLAN IN BK. 1649 PG. 370

ZONING

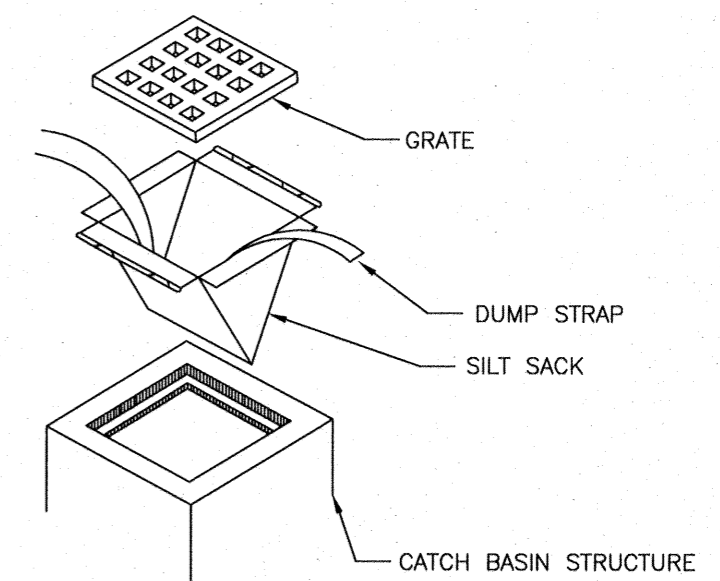
DORCHESTER NEIGHBORHOOD
 NS NEIGHBORHOOD SHOPPING

THE ENTIRE PROPERTY IS LOCATED IN THE 100-YEAR
 FLOODPLAIN (ZONE AE - EL. 10 NAVD88)

NOTE: INSTALL SILT SACK IN
 CATCH BASIN DOWNSTREAM
 FROM 32 NORWOOD ~108' FROM PROPERTY LINE

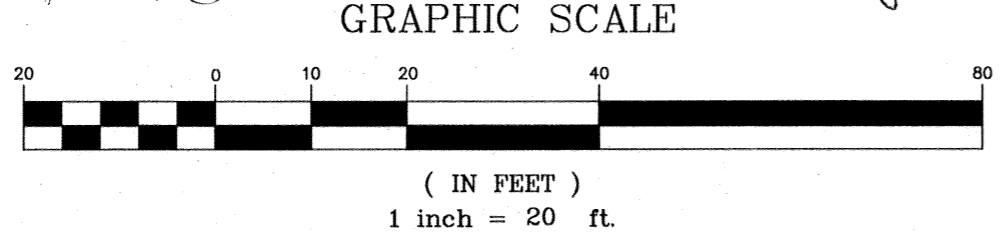
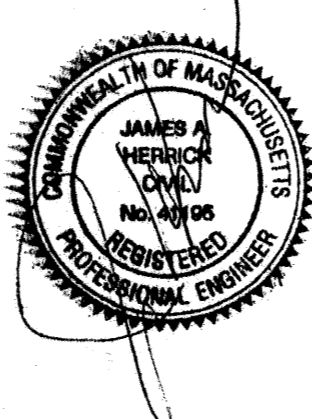
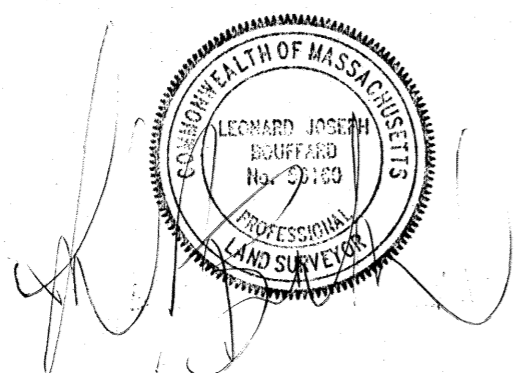


STRAW WATTLE DETAIL
 (ON BARE SOIL)
 NOT TO SCALE



- NOTES:**
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
 2. SILTSACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING AND PROPOSED BASINS EXISTS.

SILTSACK INSTALLATION DETAIL



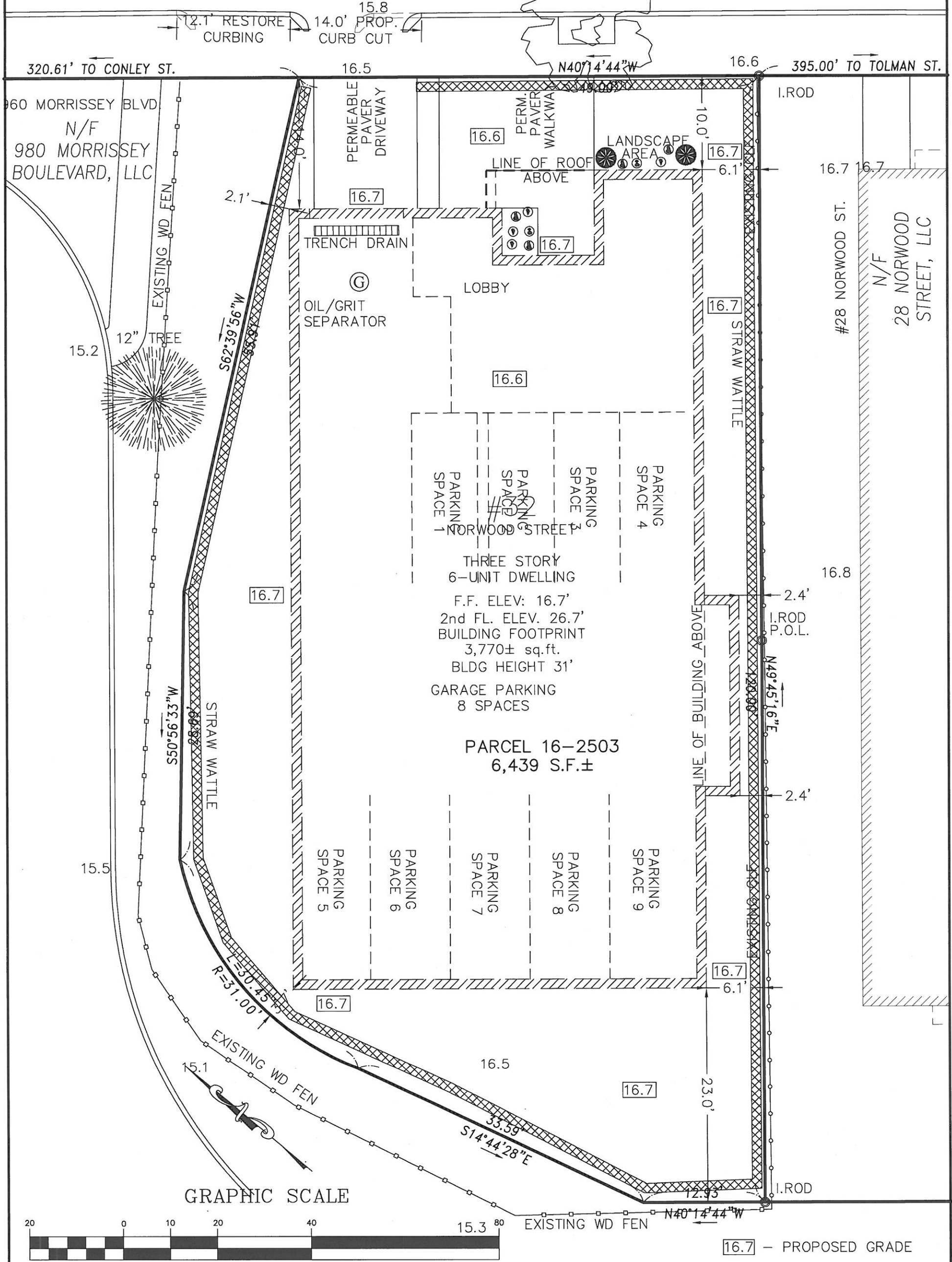
REVISION PER CONCOM COMMENTS	L.J.B.	3/9/2022
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EROSION & SEDIMENT CONTROL PLAN
32 NORWOOD STREET
DORCHESTER, MA
FOR
28 NORWOOD STREET LLC
CIVIL ENVIRONMENTAL CONSULTANTS

8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: 1 OF 1	DATE: 2/11/2022	JOB: 3868
DRAWN BY: L.J.B.		

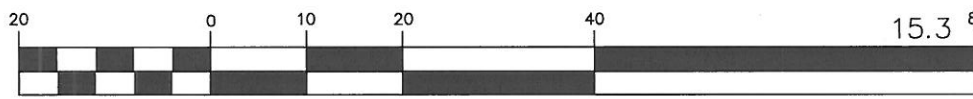
NORWOOD STREET (PUBLIC - 40' WIDE)



THREE STORY
6-UNIT DWELLING
F.F. ELEV: 16.7'
2nd FL. ELEV. 26.7'
BUILDING FOOTPRINT
3,770± sq.ft.
BLDG HEIGHT 31'
GARAGE PARKING
8 SPACES

PARCEL 16-2503
6,439 S.F.±

GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

REFERENCES
DEED BK. 59,275 PG. 256
PLAN IN BK. 1649 PG. 370

ZONING
DORCHESTER NEIGHBORHOOD
NS NEIGHBORHOOD SHOPPING

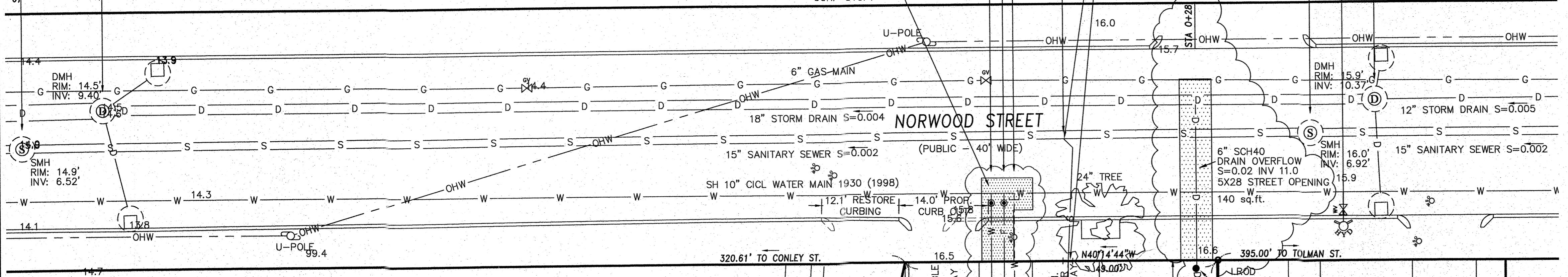
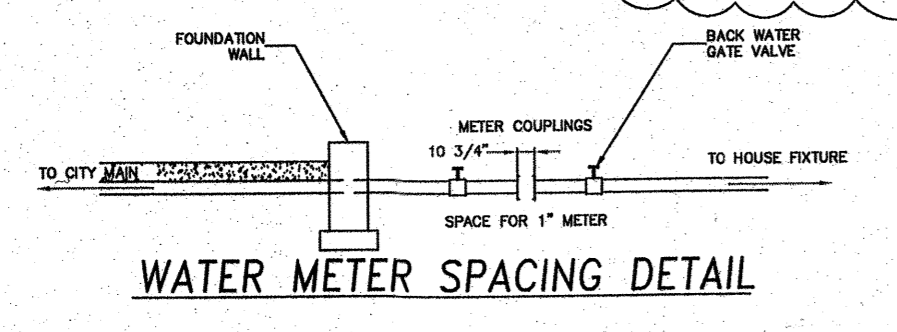
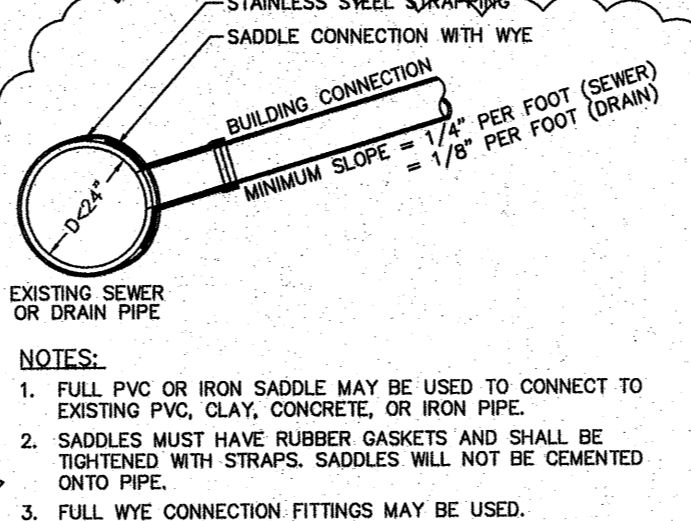
LEONARD JOSEPH BOUFFARD
No. 56160
PROFESSIONAL LAND SURVEYOR

[Signature]

PROPOSED PLOT PLAN 32 NORWOOD STREET DORCHESTER, MA FOR 28 NORWOOD LLC	
CIVIL ENVIRONMENTAL CONSULTANTS LLC 8 OAK STREET PEABODY, MA 01960 (978)531-1191	
SHEET NO: 1 OF 1	DATE 2/3/2022 JOB NO: 3868 DRAWN BY: L.J.B.

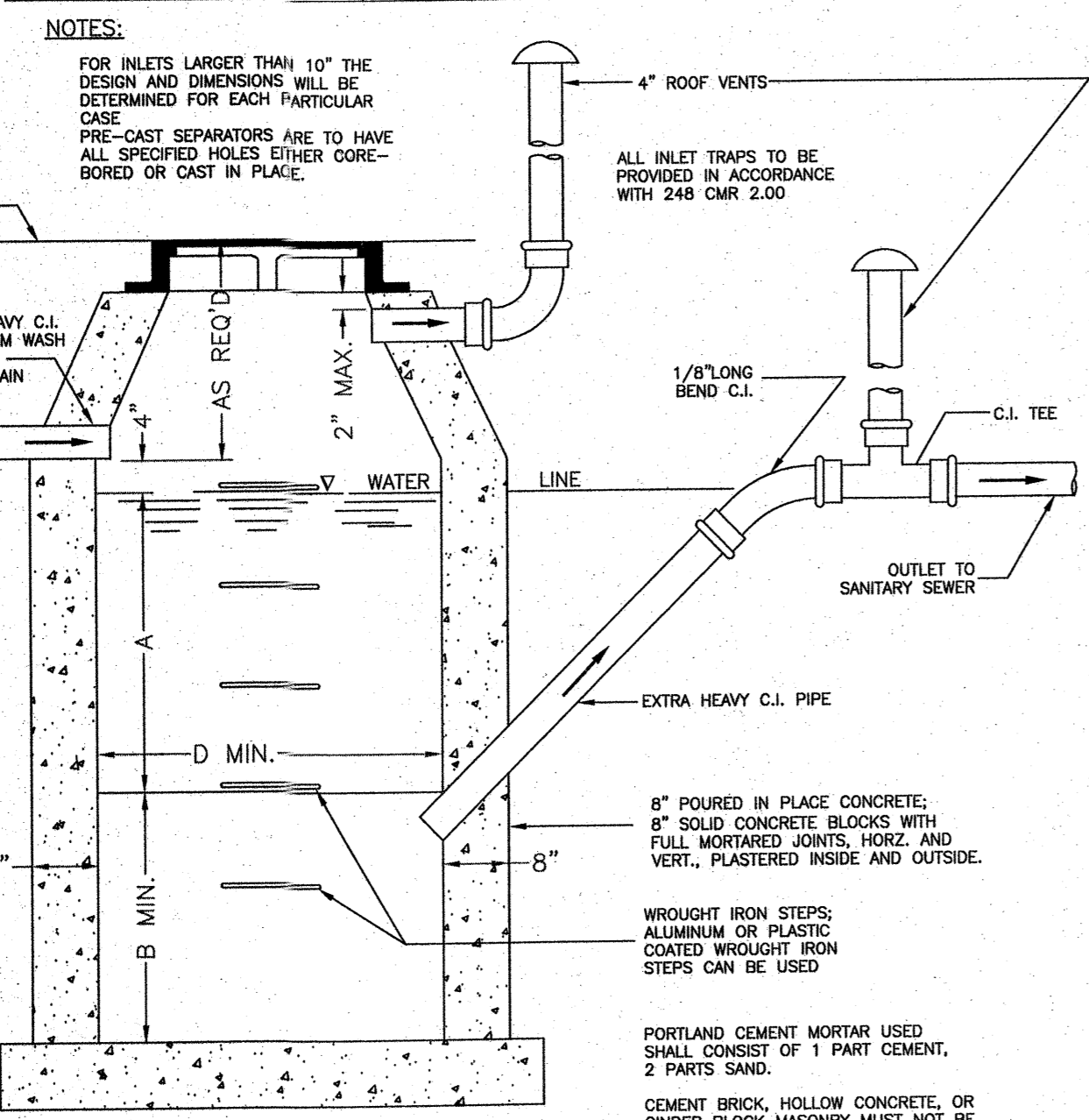
1. ACCOUNT NUMBER	1474305
2. PARCEL NUMBER	2503
3. WARD	18
4. PROPERTY LOCATION	32 NORWOOD STREET
5. NEIGHBORHOOD	DORCHESTER
6. ZIP CODE	02122
7. OWNER ADDRESS	6 WENLOCK RD. DORCHESTER, MA 02122
8. OWNER TELEPHONE NO.	PERRY BRUNO - 508-437-5575
9. TYPE OF PREMISE	EIGHT FAMILY RESIDENTIAL
10. METER SIZE	1"
11. INSIDE	YES
12. OUTSIDE	NO
13. TYPE OF BUILDING	THREE STORY WOOD FRAME
14. SEWERAGE FLOWS	8 BEDROOMS x 110 GPD = 880 GPD
15. LAND USE CODE	A

32 NORWOOD STREET GROUNDWATER RECHARGE CALCULATIONS IMPERVIOUS AREA
 3860.9 sq.ft.
 INFILTRATE 1" OF RAINFALL
 $3860.9/12 = 321.7$ CU.FT. RECHARGE CALCULATION
 3 1000 GALLON DRYWELL INFILTRATION SYSTEM
 VOLUME OF CHAMBER 385.8 CU.FT.
 VOLUME OF STONE CALCULATION
 $13.5 \times 7.67 \times 3.5 = 362.4$ CU.FT. STONE VOLUME PER CHAMBER
 362.4×3 CHAMBERS = 1087.2 CU.FT. TOTAL STONE VOLUME
 1087.2 CU.FT. STONE = 385.8 CU.FT. CHAMBER VOLUME
 $= 701.4$ CU.FT. VOLUME STONE X 0.3 (VOIDS) = 210.4 CU.FT. TOTAL VOID STORAGE
 210.4 VOID STORAGE + 385.8 CHAMBER STORAGE = 596.2 CU.FT. TOTAL STORAGE
 596.2 CU.FT. SYSTEM STORAGE > 321.7 CU.FT. REQUIRED STORAGE VOLUME



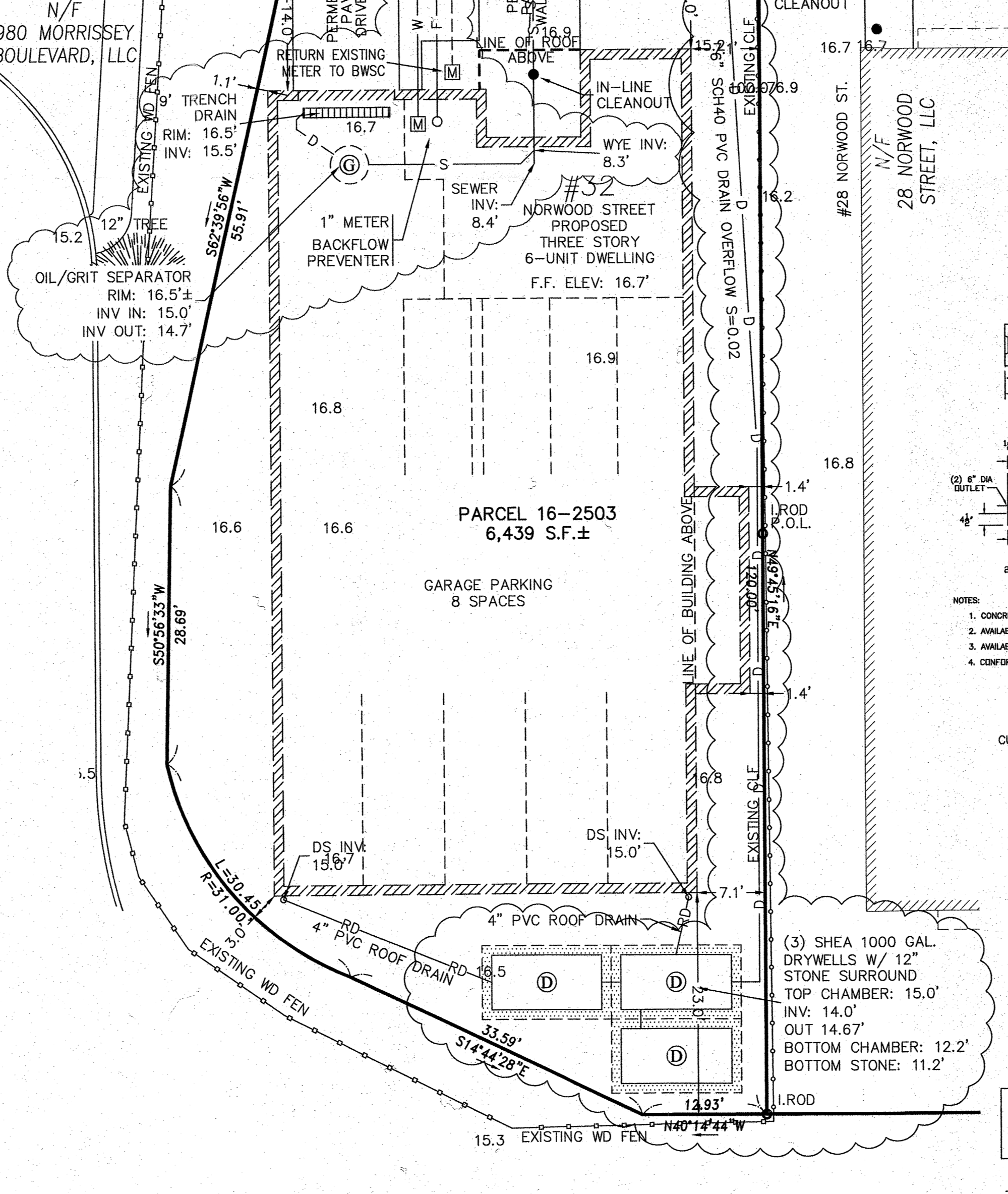
6" SCH40 PVC DRAIN OVERFLOW W/CLEANOUT	INSPECTED BY _____ DATE _____
ASBUILT FEE COLLECTED	_____
TEMP. CUT & CAP EXISTING SEWER SERVICE	INSPECTED BY _____ DATE _____
CUT & CAP EXISTING WATER SERVICE	INSPECTED BY _____ DATE _____
2" TYPE K COPPER WATER SERVICE	INSPECTED BY _____ DATE _____
2" TYPE K COPPER FIRE SERVICE	INSPECTED BY _____ DATE _____
6" SDR35 PVC SEWER SERVICE RECONNECTION	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 _____
OIL/GRIT SEPARATOR INSTALLATION	INSPECTED BY _____ DATE _____

INLET	D	A	B	INLET	D	A	B
4"	3'-6"	3'-0"	2'-6"	8"	5'-0"	6'-0"	5'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"
5"	3'-6"	3'-0"	2'-6"	8"	5'-6"	6'-6"	4'-0"



GENERAL CONSTRUCTION NOTES
 BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE 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.
 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.

OIL/GRIT SEPARATOR DETAIL



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.

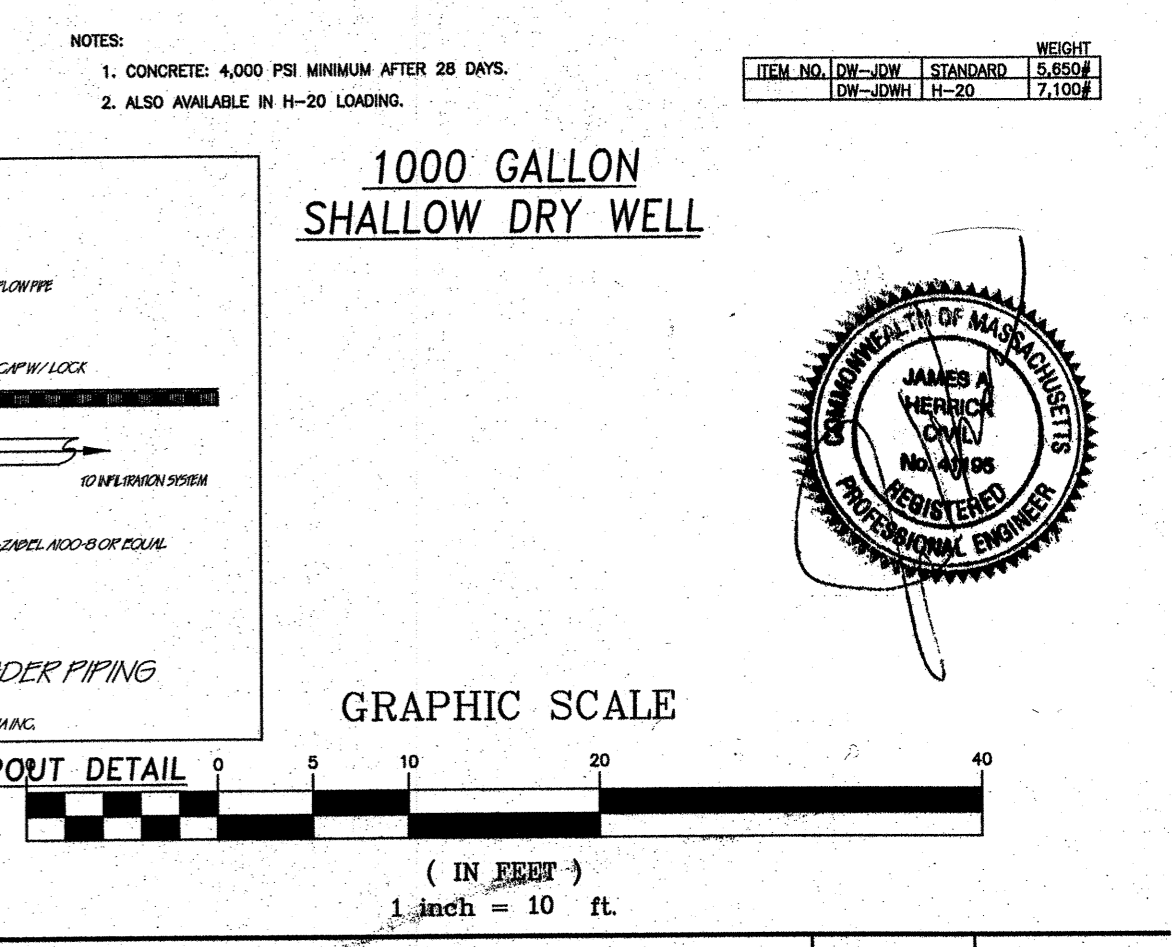
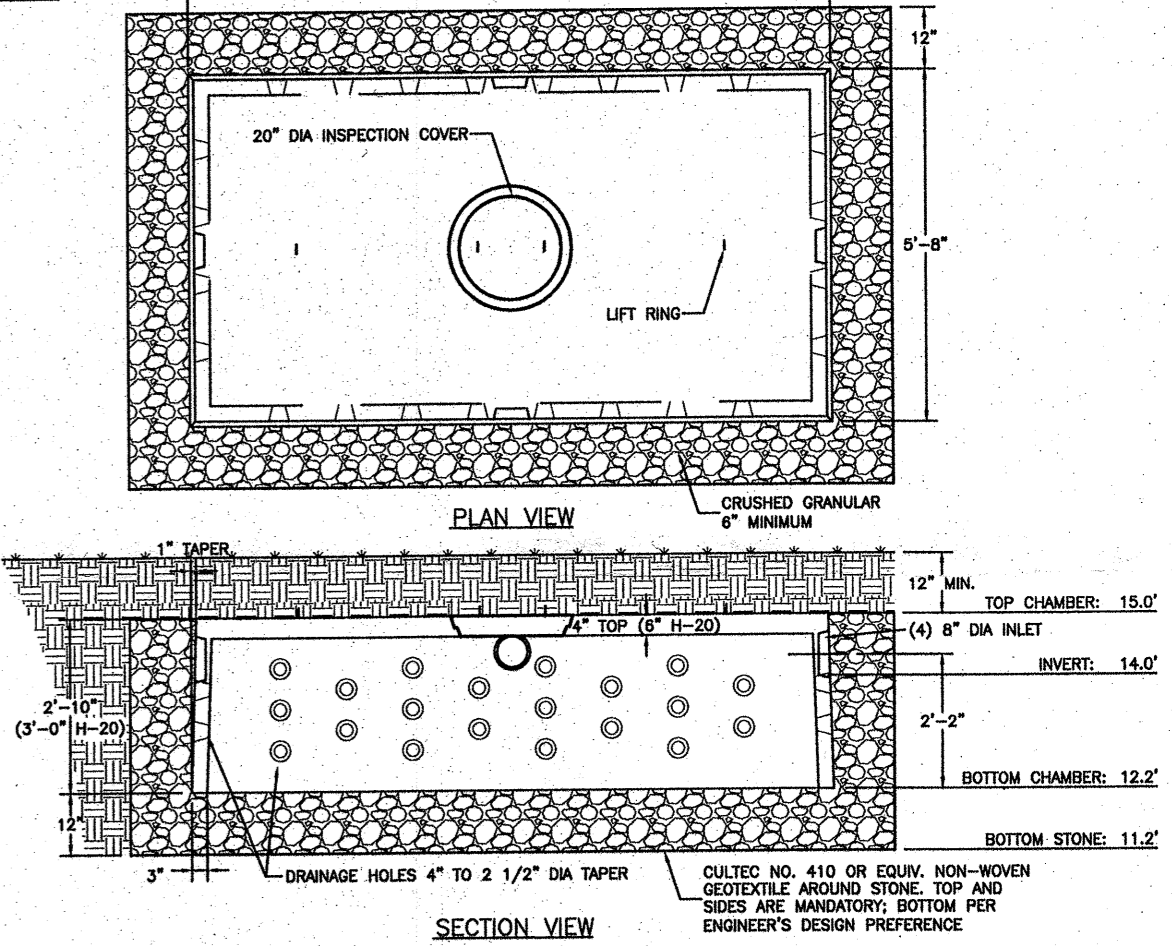
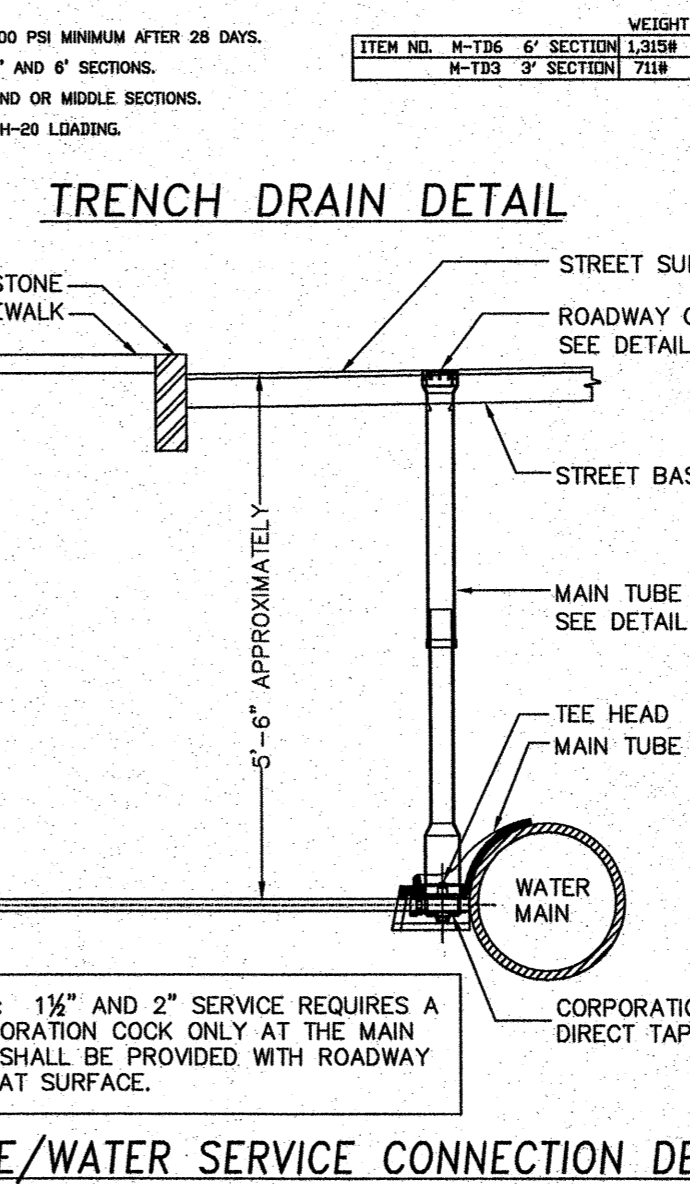
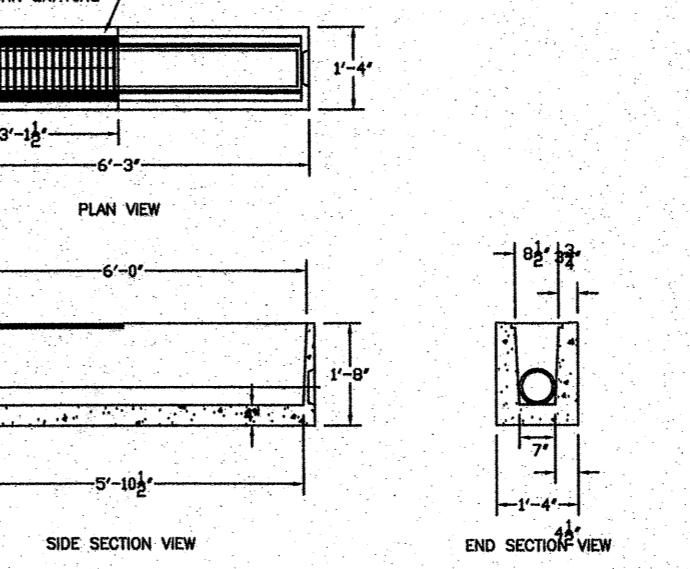
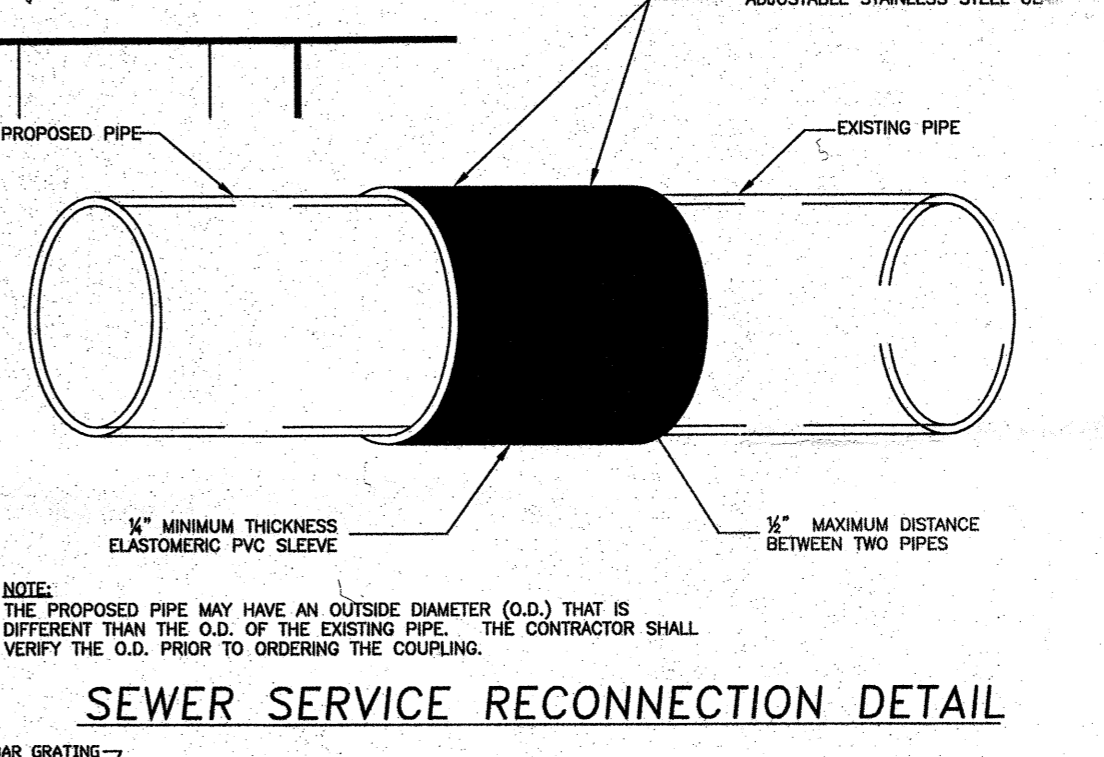
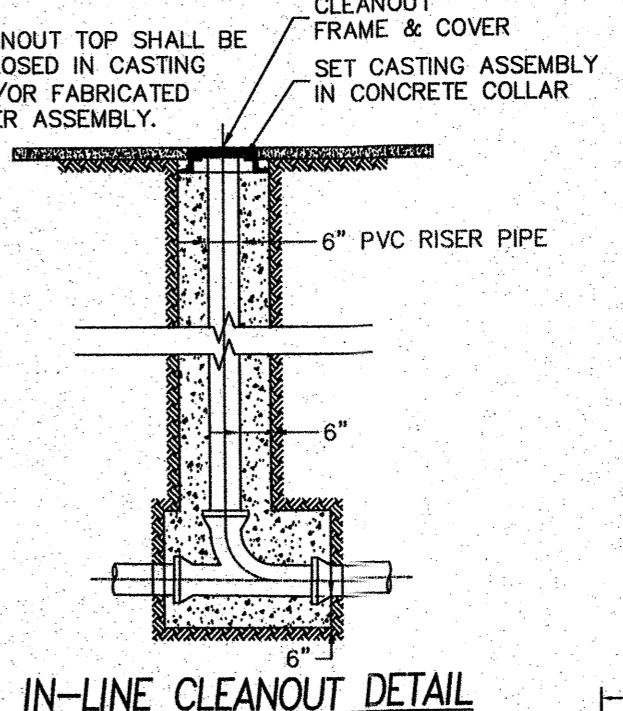
THIS PLAN HAS BEEN CALCULATED FROM INSTRUMENT SURVEY AND FROM RECORD INFORMATION ONLY. THE ABSENCE OR EXACTNESS OF UTILITIES IS NEITHER INTENDED OR IMPLIED. THE CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL UTILITIES.

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

NOTE: ALL ELEVATIONS SHOWN ARE BASED ON BOSTON CITY BASE

NOTE: EXISTING SEWER SERVICE TO BE VIDEOTAPE EVALUATED PRIOR TO APPROVAL.

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

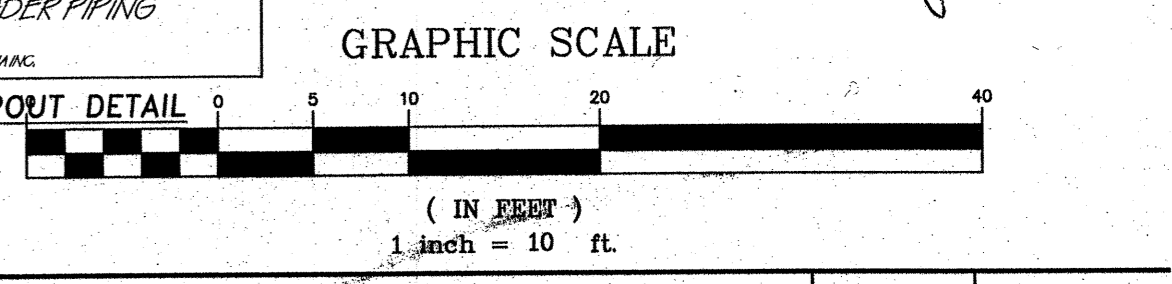
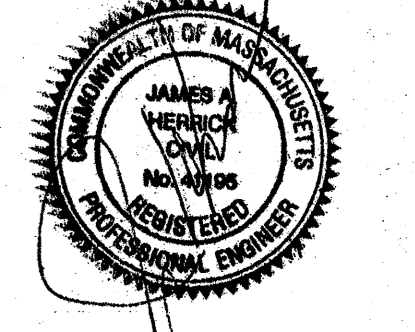


REVISE INFILTRATION DUE TO CONCOM REQUIREMENTS	C.R.L.	1/27/2022
MIRRORED BLDG. PER BPDA REQUEST, ADJUSTED WTR. SVC. LOCN'S	C.R.L.	3/19/2021

SITE PLAN #21-076
 32 NORWOOD STREET
 DORCHESTER, MA
 FOR
 PERRY BRUNO

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

SHEET NO: 1 OF 1
 DATE: 2/16/2021 JOB: 3868
 DRAWN BY: C.R.L.



REFERENCES

DEED BK. 59,275 PG. 256
PLAN IN BK. 1649 PG. 370

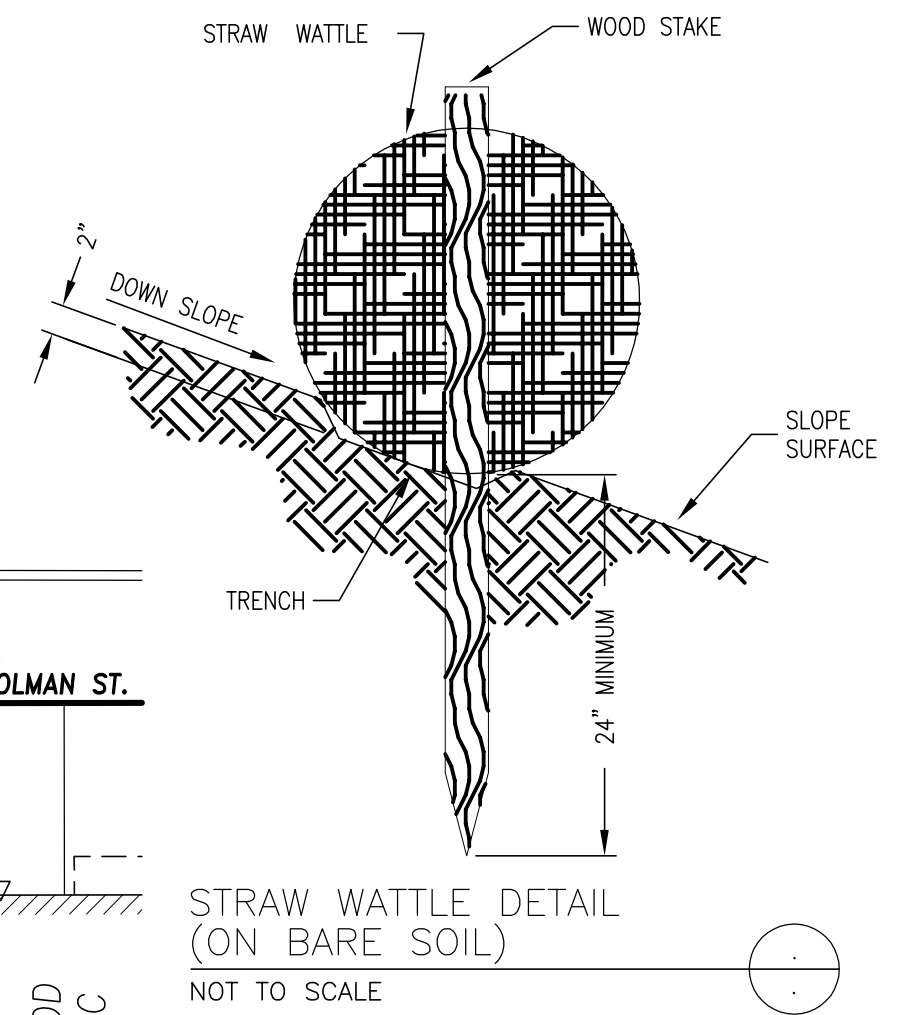
ZONING

DORCHESTER NEIGHBORHOOD
NS NEIGHBORHOOD SHOPPING

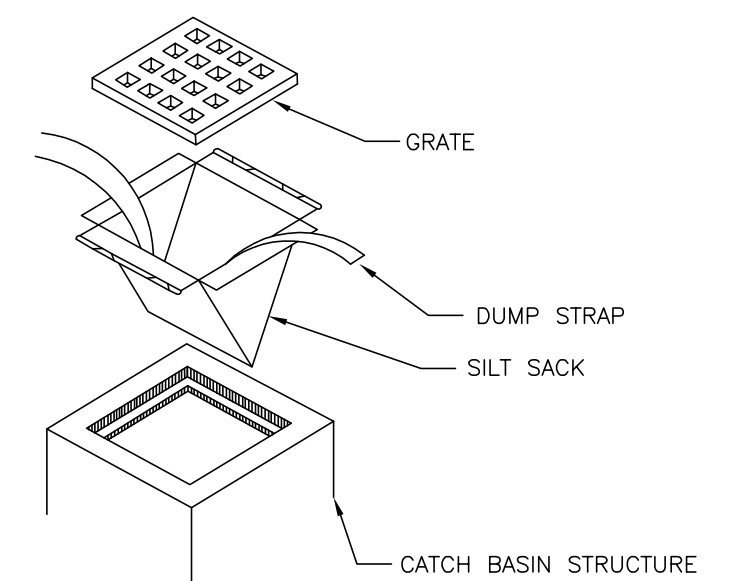
THE ENTIRE PROPERTY IS LOCATED IN THE 100-YEAR
FLOODPLAIN (ZONE AE - EL. 10 NAVD88)

NOTE: INSTALL SILT SACK IN
CATCH BASIN DOWNSTREAM
FROM 32 NORWOOD ~108' FROM PROPERTY LINE

THIS PLAN SHOWS ACTIONS WHICH HAVE ALREADY
BEEN COMPLETED AS OF 3/23/2022



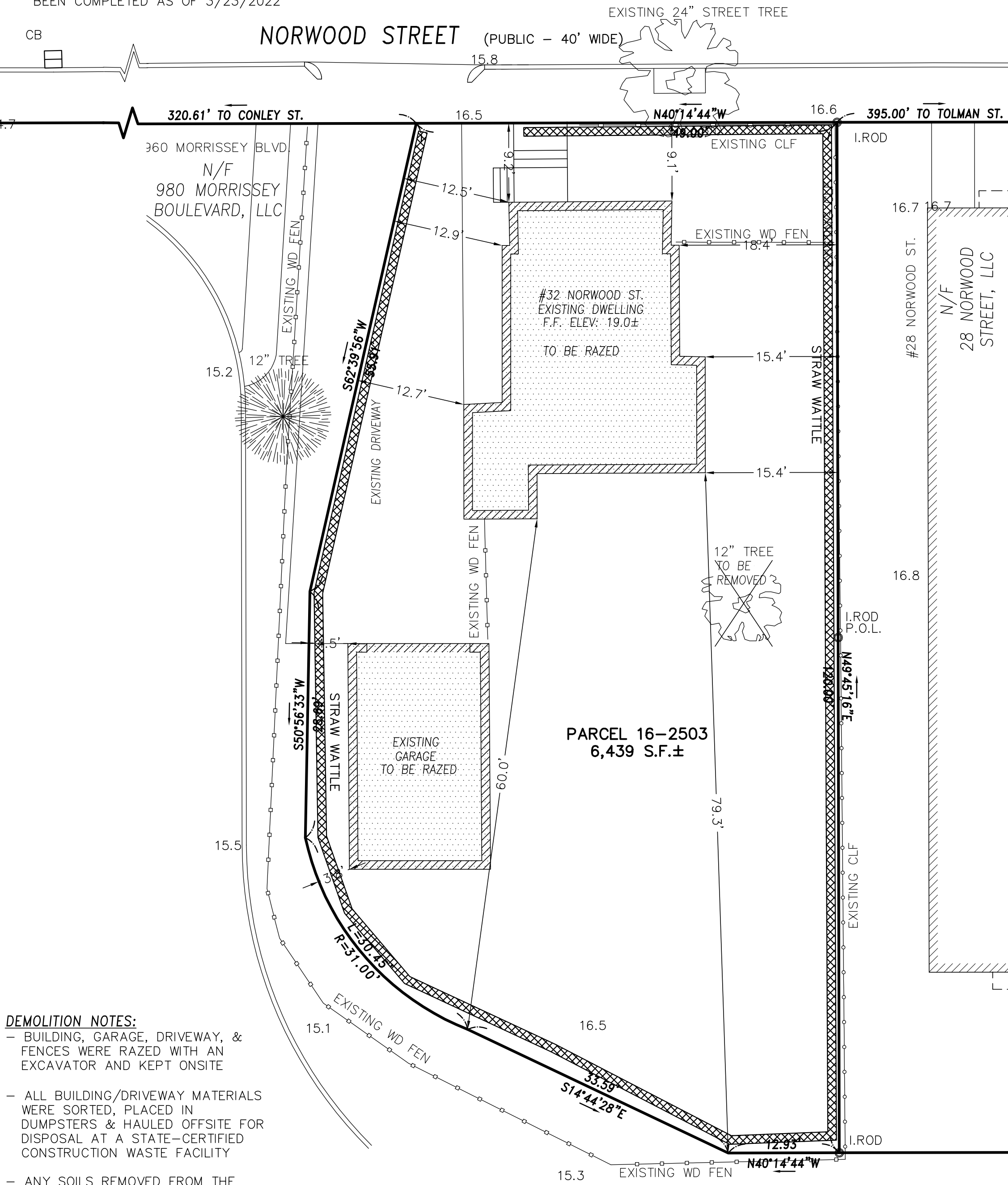
STRAW WATTLE DETAIL
(ON BARE SOIL)
NOT TO SCALE



NOTES:

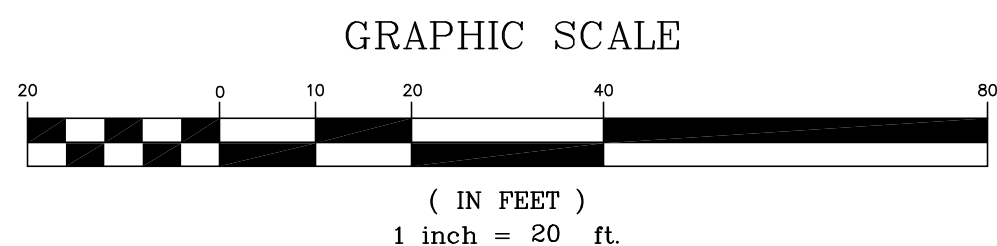
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILTSACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING AND PROPOSED BASINS EXISTS.

SILTSACK INSTALLATION DETAIL



DEMOLITION NOTES:

- BUILDING, GARAGE, DRIVEWAY, & FENCES WERE RAZED WITH AN EXCAVATOR AND KEPT ONSITE
- ALL BUILDING/DRIVEWAY MATERIALS WERE SORTED, PLACED IN DUMPSTERS & HAULED OFFSITE FOR DISPOSAL AT A STATE-CERTIFIED CONSTRUCTION WASTE FACILITY
- ANY SOILS REMOVED FROM THE SITE WERE DISPOSED OF PROPERLY PER STATE DEP REQUIREMENTS



DEMOLITION PLAN
32 NORWOOD STREET
DORCHESTER, MA
FOR
28 NORWOOD STREET LLC
CIVIL ENVIRONMENTAL CONSULTANTS

8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: 1 OF 1

DATE: 3/23/2022 JOB: 3868

DRAWN BY: C.R.L.

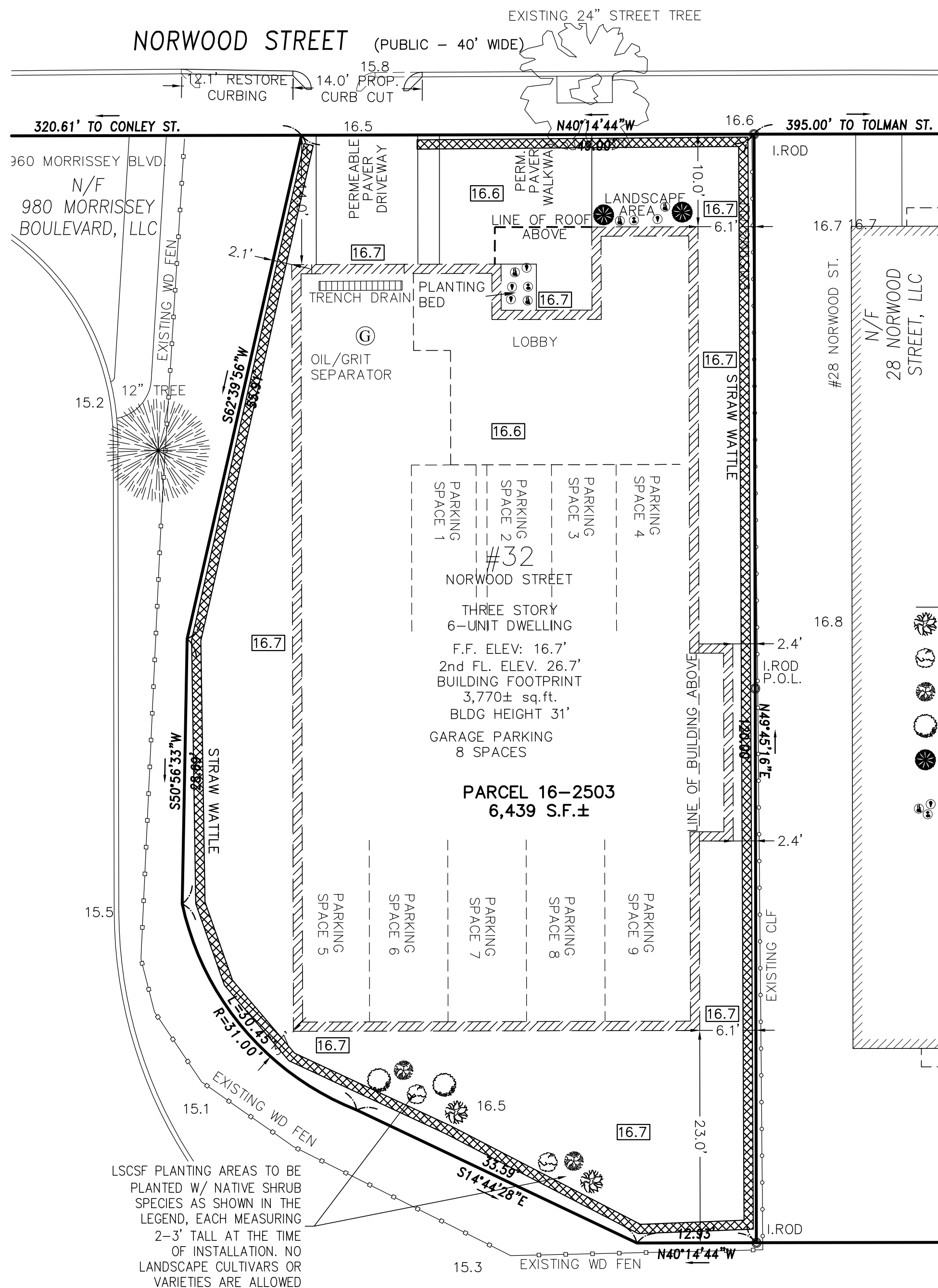
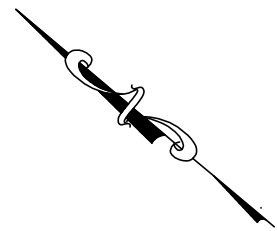
REFERENCES

DEED BK. 59,275 PG. 256
 PLAN IN BK. 1649 PG. 370

ZONING

DORCHESTER NEIGHBORHOOD
 NS NEIGHBORHOOD SHOPPING

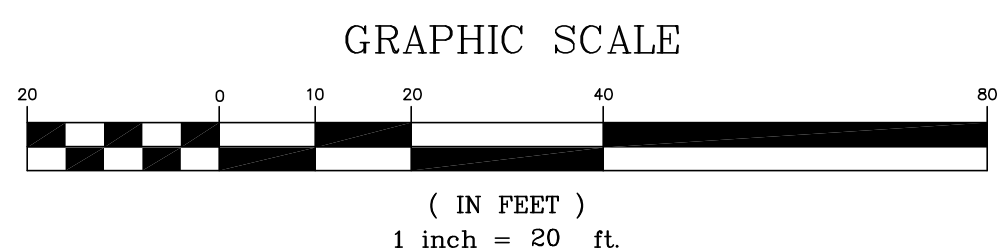
THE ENTIRE PROPERTY IS LOCATED IN THE 100-YEAR
 FLOODPLAIN (ZONE AE - EL. 10 NAVD88)



LEGEND

- (2) WITCH HAZEL (HAMAELIS VIRGINIANA)
- (2) GRAY DOGWOOD (CORNUS SERICEA)
- (2) AMERICAN HAZELNUT (CORYLUS AMERICANA)
- (2) HIGHBRUSH BLUEBERRY (VACCINIUM CORYBOSUM)
- (2) SHRUB ARBORVITAE - GOLDEN GLOBE STYLE OR EQUIVALENT
- VARIOUS FLOWERING, PERENNIAL & ANNUAL

LSCSF PLANTING AREAS TO BE PLANTED W/ NATIVE SHRUB SPECIES AS SHOWN IN THE LEGEND, EACH MEASURING 2-3' TALL AT THE TIME OF INSTALLATION. NO LANDSCAPE CULTIVARS OR VARIETIES ARE ALLOWED



PROPOSED LANDSCAPING PLAN
 32 NORWOOD STREET
 DORCHESTER, MA
 FOR
 28 NORWOOD STREET LLC
 CIVIL ENVIRONMENTAL CONSULTANTS

8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: 1 OF 1

DATE: 3/23/2022 JOB: 3868

DRAWN BY: L.J.B.



**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

I, _____, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A _____ was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by _____ for _____ located at _____.

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

Name

Date

CERTIFICATE OF GOOD FAITH ACCURACY OF TRANSLATION


I, Río Hernández, do hereby state:

That a translator officially affiliated with the Translation Center at the University of Massachusetts Amherst and competent in both **English** and **Spanish** has made a good faith translation of the attached documents,

Notification to Abutters from the Boston Conservation Commission concerning a Notice of Intent filed by Teddy Ahern seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act and Boston Wetlands Ordinance

From English to Spanish.
(source language) (target language)

I hereby certify that the same is a true and complete translation to the best of my knowledge, ability and belief.



Río Hernández, Project Manager
Translation Center
University of Massachusetts Amherst



**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. Teddy Ahern ha presentado una solicitud a 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 32 Norwood Street.
- C. El proyecto consiste en demolición de una vivienda multifamiliar existente y construcción de un edificio de apartamentos en terreno sujeto a inundaciones 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 de la notificación de intención pueden obtenerse en Ardent Group, Inc., llamando al (781)982-9929 entre las 9:00 am y 5:00 pm, de lunes a viernes.
- 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 puede acceder a Internet, puede llamar al 1-929-205-6099, ingresar ID de reunión 686 458 2044 # y usar # como su ID 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) 635-4416 entre las 9 AM y las 5 PM, de lunes a viernes.

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 antelación.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en el Ayuntamiento de Boston con no menos de cuarenta y ocho (48) horas de antelación. Si desea formular comentarios, puede asistir a la audiencia pública o enviarlos por escrito a CC@boston.gov o al Ayuntamiento 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.



City of Boston
Environment



City of Boston
Mayor Martin J. Walsh

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.

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

A.1 - Project Information

Project Name:	32 Norwood Street		
Project Address:	32 Norwood Street, Dorchester, MA 02122		
Project Address Additional:			
Filing Type (select)	Notice of Intent (NOI) Application		
Filing Contact	Joseph Dorsett	j.dorsett@ardentgroupinc.com	617-699-7513
Is MEPA approval required	No		

A.3 - Project Team

Owner / Developer:	28 Norwood, LLC
Architect:	Khalsa Design, Inc.
Engineer:	Christian Ludlow, Civil Environmental Consultants, 8 Oak Street, Peabody, MA 01960
Sustainability / LEED:	N/A
Permitting:	Joseph Dorsett, Ardent Group, Inc., 590 Summer Street, Rockland, MA 02370
Construction Management:	Teddy Ahern, 37 Wenlock Street, Boston, MA 02122

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Multi-family housing
List the First Floor Uses:	Lobby, Parking
List any Critical Site Infrastructure and or Building Uses:	Basic utilities, i.e. water, sewer, electric

Site and Building:

Site Area:	6,439 SF	Building Area:	3,770 SF
Building Height:	31 Ft	Building Height:	3 Stories (incl. ground level garage)
Existing Site Elevation – Low:	16.5 Ft BCB	Existing Site Elevation – High:	16.9 Ft BCB
Proposed Site Elevation – Low:	16.5 Ft BCB	Proposed Site Elevation – High:	16.7 Ft BCB
Proposed First Floor Elevation:	Lobby: 16.7' Living space: 26.7'	Below grade levels:	0 Stories

Article 37 Green Building:

LEED Version - Rating System :		LEED Certification:	Yes / No
--------------------------------	--	---------------------	----------

Proposed LEED rating:

Certified/Silver/ Gold/Platinum

Proposed LEED point score:

Pts.

Building Envelope

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

Roof:	(R)	Exposed Floor:	(R)
Foundation Wall:	(R)	Slab Edge (at or below grade):	(R)

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

Area of Opaque Curtain Wall & Spandrel Assembly:	(%)	Wall & Spandrel Assembly Value:	(U)
Area of Framed & Insulated / Standard Wall:	(%)	Wall Value	(R)
Area of Vision Window:	%	Window Glazing Assembly Value:	(U)
		Window Glazing SHGC:	(SHGC)
Area of Doors:	%	Door Assembly Value:	(U)

Energy Loads and Performance

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

Annual Electric:	(kWh)	Peak Electric:	(kW)
Annual Heating:	(MMbtu/hr)	Peak Heating:	(MMbtu)
Annual Cooling:	(Tons/hr)	Peak Cooling:	(Tons)
Energy Use - Below ASHRAE 90.1 - 2013:	%	Have the local utilities reviewed the building energy performance?:	Yes / no
Energy Use - Below Mass. Code:	%	Energy Use Intensity:	(kBtu/SF)

Back-up / Emergency Power System

Electrical Generation Output:	(kW)	Number of Power Units:	
System Type:	(kW)	Fuel Source:	

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

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

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

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

B.1 – GHG Emissions - Design Conditions

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

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: Deg.

Temperature Range - High: Deg.

Annual Heating Degree Days:

Annual Cooling Degree Days

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

Days - Above 90°: #

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: In.

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="16.5Ft BCB"/>

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

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="19.5 Ft BCB"/>		
Sea Level Rise - Design Flood Elevation:	<input type="text" value="20.5 Ft BCB"/>	First Floor Elevation:	<input type="text" value="26.7 Ft BCB"/>
Site Elevations at Building:	<input type="text" value="16.7 Ft BCB"/>	Accessible Route Elevation:	<input type="text" value="16.7 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 10.2 feet above LSCSF Elevation. Lobby is 0.2' 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:

Coordination 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

ILLICIT DISCHARGE COMPLIANCE STATEMENT

I verify that no illicit discharges exist from 32 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

Print Name

Date

Title

Company

Signature

Print Name

Date

Title

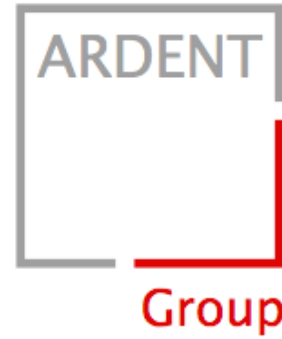
Company

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.

*"Environmental & Energy Solutions, Inc.
is now Ardent Group, Inc."*

February 24, 2022

Notice of Intent Application
32 Norwood Street
Boston, Massachusetts
Ardent file ECLP-1521



590 Summer Street
Rockland, MA 02370
781/982-9929
www.ardentgroupinc.com



*"Environmental & Energy Solutions, Inc.
is now Ardent Group, Inc."*

February 24, 2022

Boston Conservation Commission
City of Boston Environment Department
1 City Hall Square, Boston City Hall, Room 709
Boston, MA 02201

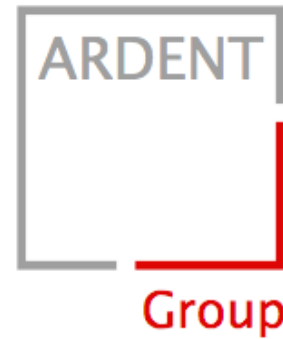
Re: Notice of Intent Application
32 Norwood Street
Boston, Massachusetts
Ardent ECLP-1521

Dear Members of the Commission:

On behalf of Teddy Ahern, Ardent Group, Inc. (Ardent) is pleased to present this Notice of Intent Application for property referenced as 32 Norwood Street, Boston, Massachusetts (the property). The proposed project involves the demolition of a multi-family dwelling and construction of a new six-unit apartment building with ground level, garage parking. The property is located within Land Subject To Coastal Storm Flowage (LSCSF). Erosion controls and stormwater management are proposed for the property. No additional wetland resource areas, watercourses, or buffer zones occur on the property.

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*).

Attached please find two checks made payable to the City of Boston for the *Act* and *Ordinance* filing fees. A check also has been sent to the Massachusetts Department of Environmental Protection Lock Box for the Commonwealth portion of the *Act* filing fee.



590 Summer Street
Rockland, MA 02370
781/982-9929
www.ardentgroupinc.com



Thank you for consideration of this NOI Application. We look forward to discussing this project with the Commission at the next commission meeting on March 16, 2022. If you have any questions, please do not hesitate to contact me 781-982-9929 or at j.dorsett@ardentgroupinc.com.

Sincerely,

Ardent Group, Inc.



Joseph Dorsett, Jr.
President



Shawn Callaghan
Environmental Scientist

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TRANSMITTAL LETTER

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STORM FLOWAGE**

4.0 PROPOSED CONSTRUCTION

5.0 MITIGATING MEASURES

5.1 Erosion and Sedimentation Controls

5.2 Stormwater Management

6.0 CLIMATE RESILIENCY

7.0 SUMMARY

8.0 REFERENCES

APPENDIX A - WPA Form 3 – Notice of Intent Application

APPENDIX B - Boston Notice of Intent Form

APPENDIX C - Project Plans

APPENDIX D - USGS, FEMA & NHESP Maps

**APPENDIX E - Stormwater Report and Checklist, Illicit Discharge Statement, and
Operations & Maintenance Plan**

APPENDIX F - Abutters Information

APPENDIX G - BPDA Climate Resiliency Checklist

1.0 INTRODUCTION

On behalf of Teddy Ahern, Ardent Group, Inc. (**Ardent**) is pleased to present this Notice of Intent Application for property referenced as 32 Norwood Street, Boston, Massachusetts (the property). The proposed project involves the demolition of a multi-family dwelling and construction of a new six-unit apartment building with ground level, garage parking. The property is located within Land Subject To Coastal Storm Flowage (LSCSF). Erosion controls and stormwater management are proposed for the property. No additional wetland resource areas, watercourses, or buffer zones occur on the property.

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The MADEP Notice of Intent (NOI) form is provided in Appendix A and the Boston NOI is provided in Appendix B. Project plans that detail the proposed work are provided in Appendix C, including existing conditions, proposed improvements and work, erosion controls, and stormwater management. USGS, FEMA, and NHESP mapping are included in Appendix D. A stormwater report and checklist, illicit discharge statement, and operations and maintenance plan are included in Appendix E. Appendix F contains the abutters information, while Appendix G contains the BPDA Climate Resiliency Checklist.

2.0 PROPERTY DESCRIPTION

The property is comprised of an irregularly-shaped land parcel totaling 0.13 acres. The property address is 32 Norwood Street, Boston, Massachusetts. The parcel ID is 1602503000. See Appendix C and D for details. The property is located in the southern portion of Boston and the southeastern portion of Dorchester. Multi-family dwellings and recently constructed apartment buildings associated with Norwood Street and Morrissey Boulevard occur to the south and southeast of the property, while commercial development associated with Norwood Street occurs to the north, northeast, and northwest. The project site is currently occupied by a 1,008 square foot single-family dwelling constructed in 1860 and an accessory garage structure.

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 current MassGIS data layer, no Priority Habitats or Estimated Habitats, Potential or Certified Vernal Pools, or rare species protectable under the *Wetlands Protection Act* or the *Massachusetts Endangered Species Act* (MGL c. 131 s. 23) are located on or nearby the project site. See Appendix D for details.

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, (See Appendix D), 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.

4.0 PROPOSED CONSTRUCTION

The Applicant proposes to construct a 6-unit, 3,770± square-foot apartment building with ground-level garage parking and lobby. All living space (Elevation 26.7' Boston City Base (BCB) Datum) will be elevated 10.2± feet above the LSCSF Elevation (Elevation 16.5' BCB). The foundation will include FEMA Building Code compliant flood vents 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 approximately 0.2± feet above the LSCSF Elevation (16.5' BCB), 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. See Appendix E for the *BDPA Climate Resiliency Checklist*, with Sections A and E completed.

5.0 MITIGATING MEASURES

5.1 Erosion and Sedimentation Controls

The Applicant proposes to implement a comprehensive erosion and sedimentation control program during construction based on MADEP guidelines and regulations. Straw wattles will be installed along the perimeter of the property boundaries, and a silt sack will be installed within the closest catch basin located within Norwood Street approximately 108 feet north of the property. 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 project plans in Appendix C.

5.2 Stormwater Management

The Applicant proposes three (3) 1,000-gallon drywells with a 12-inch stone surround and base located off the rear of the building to collect and infiltrate roof runoff. Stormwater runoff will be directed to the system via a series of gutters, downspouts, and conduits. The system results in a net decrease in stormwater flow compared to existing conditions for the 2-, 10-, and 25-year statistical storm events, and a slight, 0.37 cubic feet per second (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 Water and Sewer Commission (BWSC) is currently reviewing the stormwater design for the project. See Appendix C for the Stormwater Management Plan and Appendix E for the Stormwater Report and 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 all living spaces elevated 10.2± 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 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 runoff values decrease for the 2-, 10-, and 25-year statistical storm events, and increase by 0.37 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 TR-55 precipitation data traditionally used. Therefore, as storm intensity and frequency increase, the site will be significantly better equipped to reduce and manage stormwater runoff compared to existing conditions.

7.0 SUMMARY

On behalf of Teddy Ahern, Ardent is submitting this NOI Application to the Boston Conservation Commission to demolish a multi-family dwelling and construct a new 6-unit apartment building with ground-level parking and lobby. The entire site is located within LSCSF. Erosion controls and stormwater management are proposed. No additional wetland resource areas, watercourses, or buffer zones occur on the property.

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 10.2 feet above the LSCSF elevation, and building mechanicals will be located on the roof, with hot 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 MADEP Stormwater Management Standards. Accordingly, the Applicant requests that the Commission issue an Order of Conditions approving the project as proposed herein.

8.0 REFERENCES

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).

Checklist for Filing a Notice of Intent with Boston Conservation Commission

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

Please Submit the Following to the Conservation Commission:

- Two copies (a signed original and 1 copy) of a completed Notice of Intent (WPA Form 3)
- Two copies (a signed original and 1 copy) of a completed Boston Notice of Intent (Local Form)
- Two copies of plans (reduced to 11" X 17") in their final form with engineer's stamp affixed supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures. Plans must include existing conditions, the proposed project, erosion controls and mitigation measures, grading and spot elevations and all wetland resource areas and associated buffer zones. Some projects may require both an aerial view of the plans along with a profile view of plans depending on the scope of work.
- Two copies of an 8 ½" x 11" section of the [USGS quadrangle map](#) of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.
- (If applicable) Two copies the Federal Emergency Management Agency Flood Insurance Rate Map for the project site. FEMA Flood Maps: <https://msc.fema.gov/portal>.
- Two copies of the determination regarding the Natural Heritage and Endangered Species Program: Review Section C. Other Applicable Standards and Requirements of the Notice of Intent, page 4 of 8, pertaining to wildlife habitat. The Conservation Commission and the [Natural Heritage & Endangered Species Program](#) have the maps necessary to make this determination.
- (If applicable) Two hard copies of a Stormwater Report to document compliance with the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q), including associated drainage calculations for rooftops, parking lots, driveways, etc., for the required design storm events.
- (If applicable) A narrative detailing best management practices for stormwater management as set forth in the Stormwater Management Standards of the Massachusetts Department of Environmental Protection and any separate standards and guidelines prepared by the City and the Boston Water and Sewer Commission.
- (If applicable) Two hard copies of the Checklist for Stormwater Report
- Details of the stormwater management system, including: catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc.
- Any photographs related to the project representing the wetland resource areas.
- Two copies of a detailed project narrative describing the following: an overview of the entire project, the work proposed within wetland resource areas and/or buffer zones; how the performance standards specific to the wetland resource areas will be met (listing out each performance standard); a consideration of the effect that projected sea level rise, changes in storm intensity and frequency, and other consequences of climate change may have on the resource areas and proposed activities; construction equipment and material involved; and measures to protect wetland resource areas and mitigate impacts. The applicant shall also include narrative on how they plan to integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future.
- Two copies of an Abutters List, Affidavit of Service and [Abutter Notification](#), filed concurrently with the Notice of Intent. Abutter notices shall be sent in both English and the second most commonly spoken language(s) in the neighborhood(s) where the project is proposed. Notices shall also include Babel notice cards for additional translation and language access services. [All abutters within 300' of the project](#)

Checklist for Filing a Notice of Intent with Boston Conservation Commission

[property line](#) must be notified including those in a neighboring municipality. In such an instance, a copy of the filing must also be sent to the local Conservation Commission of the neighboring municipality.
EXCEPTION: When work is in land under water bodies and waterways or on a tract of land greater than 50 acres, written notification must only be given to abutters within 300 feet of the “project site.”

- ☑ Two copies of the BPDA Climate Resiliency Checklist (for new buildings). This can be completed online at <http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines>. Please print the pdf that you will receive via email after completion and include it in your submission.
- ☑ **Electronic copies.** Documents may be submitted via email, or via an email link to downloadable documents.



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

APPENDIX A - WPA Form 3 – Notice of Intent Application

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

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

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1341055
City/Town:BOSTON

A.General Information

1. Project Location:

a. Street Address 32 NORWOOD STREET
b. City/Town BOSTON c. Zip Code 02122
d. Latitude 42.29145N e. Longitude 71.04625W
f. Map/Plat # 1602503000 g.Parcel/Lot # 1602503000

2. Applicant:

Individual Organization

a. First Name TEDDY b.Last Name AHERN
c. Organization 28 NORWOOD LLC
d. Mailing Address 28 NORWOOD STREET
e. City/Town BOSTON f. State MA g. Zip Code 02122
h. Phone Number 617-510-1013 i. Fax j. Email teddyahern@yahoo.com

3.Property Owner:

more than one owner

a. First Name TEDDY b. Last Name AHERN
c. Organization 28 NORWOOD LLC
d. Mailing Address 28 NORWOOD STREET
e. City/Town BOSTON f.State MA g. Zip Code 02122
h. Phone Number 617-510-1013 i. Fax j.Email teddyahern@yahoo.com

4.Representative:

a. First Name JOSEPH b. Last Name DORSETT
c. Organization ARDENT GROUP, INC.
d. Mailing Address 590 SUMMER STREET
e. City/Town ROCKLAND f. State MA g. Zip Code 02370
h.Phone Number 617-699-7513 i.Fax j.Email j.dorsett@ardentgroupinc.com

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

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

6.General Project Description:

THE PROJECT INVOLVES DEMOLITION OF A TWO-STORY RESIDENTIAL DWELLING AND THE CONSTRUCTION OF AN APARTMENT BUILDING WITHIN LSCSF. EROSION CONTROLS AND STORMWATER MANAGEMENT ARE PROPOSED FOR THE PROPERTY. NO ADDITIONAL WETLAND RESOURCE AREAS, WATERCOURSES, OR BUFFER ZONES OCCUR ON THE PROPERTY.

7a.Project Type:

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

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 #:
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City/Town:BOSTON

- 9. Transportation 10. Other

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

- 1. Yes No
2. Limited Project
If yes, describe which limited project applies to this project:

8. Property recorded at the Registry of Deeds for:

a. County: b. Certificate: c. Book: d. Page:
SUFFOLK 61792 249

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

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

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

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

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Bank, Bordering Vegetated Wetland, Land under Waterbodies and Waterways, Bordering Land Subject to Flooding, Isolated Land Subject to Flooding, and Riverfront Area.

Massachusetts Department of Environmental Protection

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- 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)

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

a. <input type="checkbox"/> Designated Port Areas	Indicate size under	Land under the ocean below,
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes, below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	6,439 1. square feet	

4.Restoration/Enhancement

Restoration/Replacement

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

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

□ **Massachusetts Department of Environmental Protection**
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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1341055
City/Town:BOSTON

5. Projects Involves Stream Crossings

Project Involves Streams Crossings

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

a. number of new stream crossings

b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

a. Yes No

If yes, include proof of mailing or hand delivery of NOI to:
Natural Heritage and Endangered Species
Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map: FROM MAP VIEWER

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

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

1. Percentage/acreage of property to be altered:

(a) within Wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

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

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

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

b. Photographs representative of the site

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

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

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

d. Vegetation cover type map of site

e. Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

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

2. Separate MESA review ongoing.

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

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

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1341055
City/Town:BOSTON

a. NHESP Tracking Number

b. Date submitted to NHESP

3. Separate MESA review completed.

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

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

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

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

b. Yes No

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

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

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 S. Rodney French Blvd
New Bedford, MA 02744

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

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

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

a. Yes No

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

b. ACEC Name

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

a. Yes No

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

a. Yes No

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

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

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

2. A portion of the site constitutes redevelopment

3. Proprietary BMPs are included in the Stormwater Management System

b. No, Explain why the project is exempt:

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

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

Provided by MassDEP:

MassDEP File #:

eDEP Transaction #:1341055

City/Town:BOSTON

-
1. Single Family Home
 2. Emergency Road Repair
 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

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

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

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

a. Plan Title: b. Plan Prepared By: c. Plan Signed/Stamped By: c. Revised Final Date: e. Scale:

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

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

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1341055
City/Town:BOSTON

E. Fees

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

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

_____	_____
2. Municipal Check Number	3. Check date
_____	_____
4. State Check Number	5. Check date
_____	_____
6. Payer name on check: First Name	7. Payer name on check: Last Name

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(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 Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

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

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

Provided by MassDEP:
 MassDEP File #:
 eDEP Transaction #:1341055
 City/Town: BOSTON

A. Applicant Information

1. Applicant:

a. First Name	TEDDY	b. Last Name	AHERN		
c. Organization	28 NORWOOD LLC				
d. Mailing Address	28 NORWOOD STREET				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02122
h. Phone Number	6175101013	i. Fax		j. Email	teddyahern@yahoo.com

2. Property Owner: (if different)

a. First Name	TEDDY	b. Last Name	AHERN		
c. Organization	28 NORWOOD LLC				
d. Mailing Address	28 NORWOOD STREET				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02122
h. Phone Number	6175101013	i. Fax		j. Email	teddyahern@yahoo.com

3. Project Location:

a. Street Address	32 NORWOOD STREET	b. City/Town	BOSTON
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Are you exempted from Fee? (YOU HAVE SELECTED 'NO')

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

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

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

B. Fees

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
B.) EACH BUILDING (FOR DEVELOPMENT) INCLUDING SITE;	1	1050.00		1050.00
		City/Town share of filling fee	State share of filing fee	Total Project Fee
		\$537.50	\$512.50	\$1,050.00

APPENDIX B - Boston Notice of Intent Form



A. GENERAL INFORMATION

1. Project Location

32 Norwood Street		Boston	02122
_____		_____	_____
a. Street Address		b. City/Town	c. Zip Code
1602503000		_____	
_____		_____	
f. Assessors Map/Plat Number		g. Parcel /Lot Number	

2. Applicant

Teddy		Ahern	28 Norwood LLC
_____		_____	_____
a. First Name		b. Last Name	c. Company
37 Wenlock Street			

d. Mailing Address			
Boston		MA	02122
_____		_____	_____
e. City/Town		f. State	g. Zip Code
617-510-1013		teddyahern@yahoo.com	
_____		_____	
h. Phone Number	i. Fax Number	j. Email address	

3. Property Owner

Teddy		Ahern	28 Norwood LLC
_____		_____	_____
a. First Name		b. Last Name	c. Company
37 Wenlock Street			

d. Mailing Address			
Boston		MA	02122
_____		_____	_____
e. City/Town		f. State	g. Zip Code
617-510-1013		teddyahern@yahoo.com	
_____		_____	
h. Phone Number	i. Fax Number	j. Email address	

Check if more than one owner

(If there is more than one property owner, please attach a list of these property owners to this form.)

4. Representative (if any)

Joseph		Dorsett	Ardent Group, Inc.
_____		_____	_____
a. First Name		b. Last Name	c. Company
590 Summer Street			

d. Mailing Address			
Rockland		MA	02370
_____		_____	_____
e. City/Town		f. State	g. Zip Code
617-699-7513		j.dorsett@ardentgroupinc.com	
_____		_____	
h. Phone Number	i. Fax Number	j. Email address	



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 project involves demolition of a two-story, multi-family residential building and the construction of a three-story, six unit apartment building within LSCSF. Erosion controls and stormwater management are proposed for the property. No additional wetland resource areas, watercourses, or buffer zones occur on the property.

7. Project Type Checklist

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

8. Property recorded at the Registry of Deeds

Suffolk	249
a. County	b. Page Number
61792	
c. Book	d. Certificate # (if registered land)

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



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

Date

Signature of Property Owner (if different)

Date

Signature of Representative (if any)

Date

APPENDIX C - Project Plans

NORWOOD STREET (PUBLIC - 40' WIDE)
15.8

320.61' TO CONLEY ST.

16.5

16.6

395.00' TO TOLMAN ST.

960 MORRISSEY BLVD
N/F
980 MORRISSEY BOULEVARD, LLC

EXISTING WD FEN

12" TREE

15.2

S62°39'56"W
55.91'

EXISTING DRIVEWAY

12.5'

12.9'

16.7

#32 NORWOOD ST.
EXISTING DWELLING

EXISTING WD FEN

18.4'

EXISTING CLF

16.7

N/F
28 NORWOOD STREET, LLC

16.7

#28 NORWOOD ST.

12.7'

16.8

EXISTING WD FEN

15.4'

15.4'

16.9

12" TREE

PARCEL 16-2503
6,439 S.F.±

I.ROD
P.O.L.

N49°45'16"E
120.00'

16.6

4.5'

S50°56'33"W

28.69'

EXISTING GARAGE

60.0'

15.5

3.8'

L=30.45'
R=31.00'

EXISTING WD FEN

15.1

16.7

16.5

33.59'
S14°44'28"E

16.8

EXISTING CLF

GRAPHIC SCALE



(IN FEET)

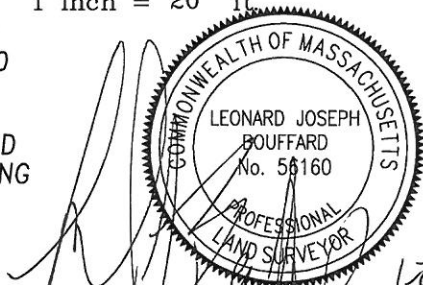
1 inch = 20 ft

REFERENCES

DEED BK. 59,275 PG. 256
PLAN IN BK. 1649 PG. 370

ZONING

DORCHESTER NEIGHBORHOOD
NS NEIGHBORHOOD SHOPPING



1-27-2022

EXISTING PLOT PLAN
32 NORWOOD STREET
DORCHESTER, MA

FOR
28 NORWOOD LLC

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

SHEET NO: 1 OF 1

DATE 1/27/2022 JOB NO: 3868
DRAWN BY: L.J.B.

NORWOOD STREET (PUBLIC - 40' WIDE)

15.8



320.61' TO CONLEY ST.

16.5

16.6

395.00' TO TOLMAN ST.

960 MORRISSEY BLVD.
N/F
980 MORRISSEY BOULEVARD, LLC

EXISTING WD FEN

12" TREE

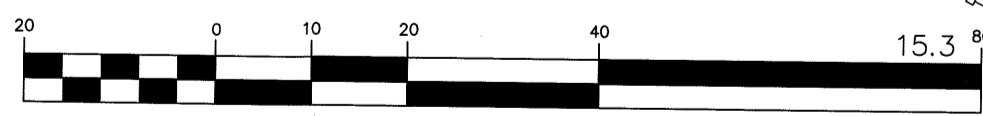
S62°39'56"W
55.91'

S50°56'33"W
28.69'

L=30.45'
R=31.00'

EXISTING WD FEN

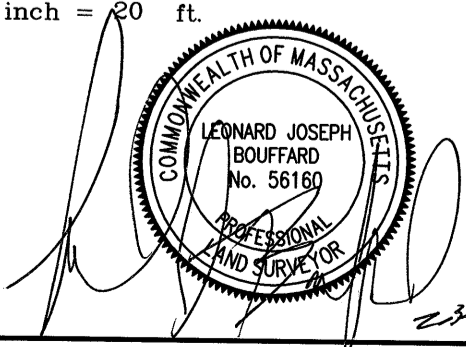
GRAPHIC SCALE



REFERENCES
DEED BK. 59,275 PG. 256
PLAN IN BK. 1649 PG. 370

ZONING
DORCHESTER NEIGHBORHOOD
NS NEIGHBORHOOD SHOPPING

(IN FEET)
1 inch = 20 ft.



PERMEABLE PAVER DRIVEWAY

PERM. PAVER WALKWAY

LINE OF ROOF ABOVE

TRENCH DRAIN

OIL/GRIT SEPARATOR

LOBBY

PARKING SPACE 1
PARKING SPACE 2
PARKING SPACE 3
PARKING SPACE 4

THREE STORY 6-UNIT DWELLING
F.F. ELEV: 16.7'
2nd FL. ELEV. 26.7'
BUILDING FOOTPRINT 3,770± sq.ft.
BLDG HEIGHT 31'
GARAGE PARKING 8 SPACES

PARCEL 16-2503
6,439 S.F.±

PARKING SPACE 5
PARKING SPACE 6
PARKING SPACE 7
PARKING SPACE 8
PARKING SPACE 9

MOVING TO ENT

EXISTING CLF

EXISTING WD FEN

N40°14'44"W

PROPOSED PLOT PLAN
32 NORWOOD STREET
DORCHESTER, MA
FOR
28 NORWOOD LLC

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

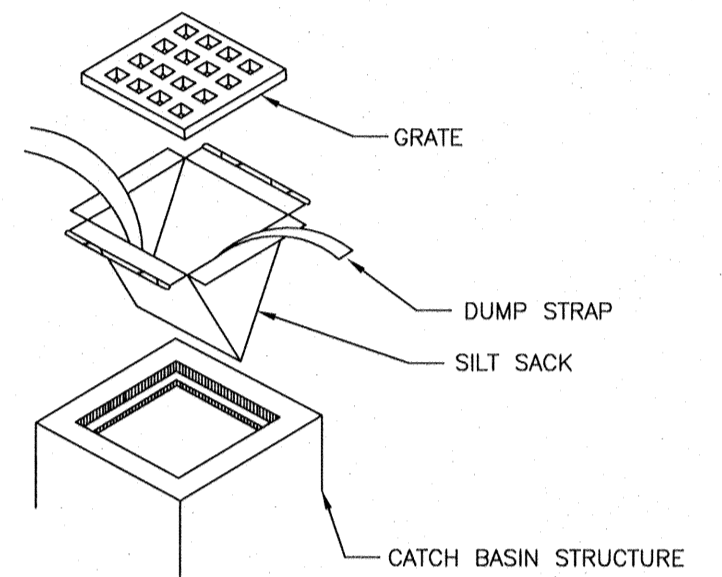
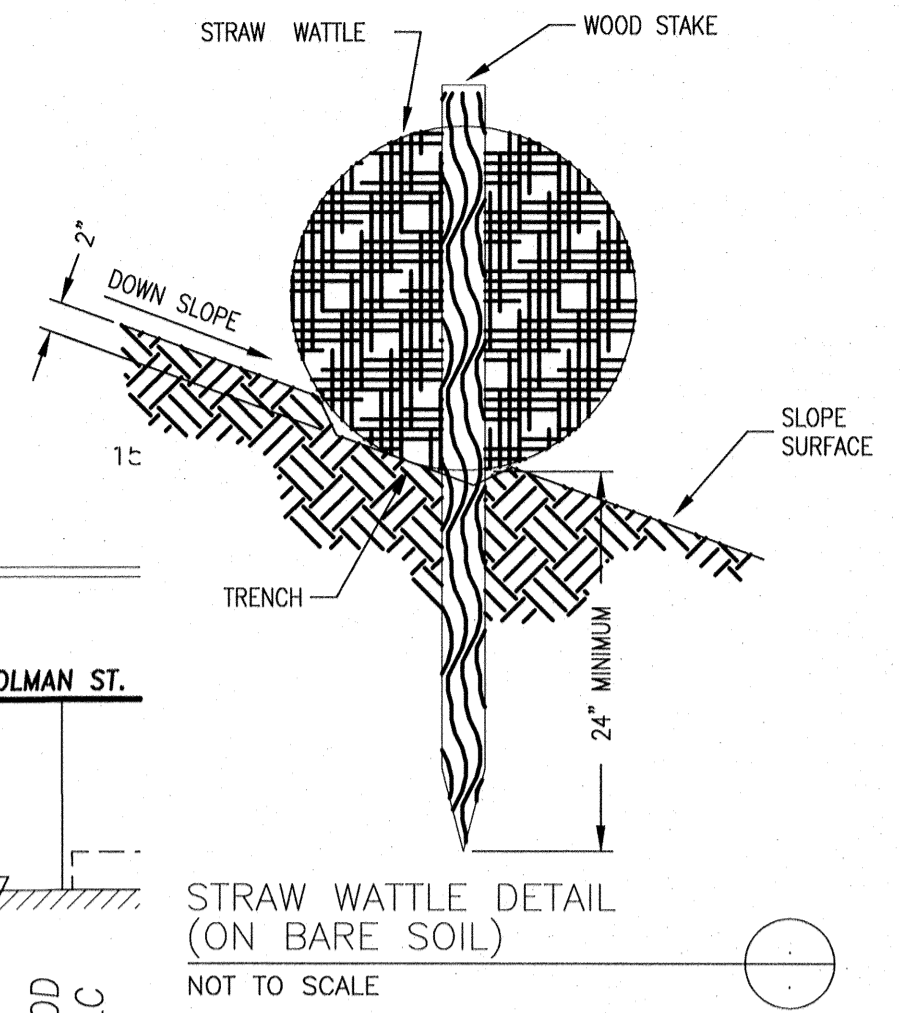
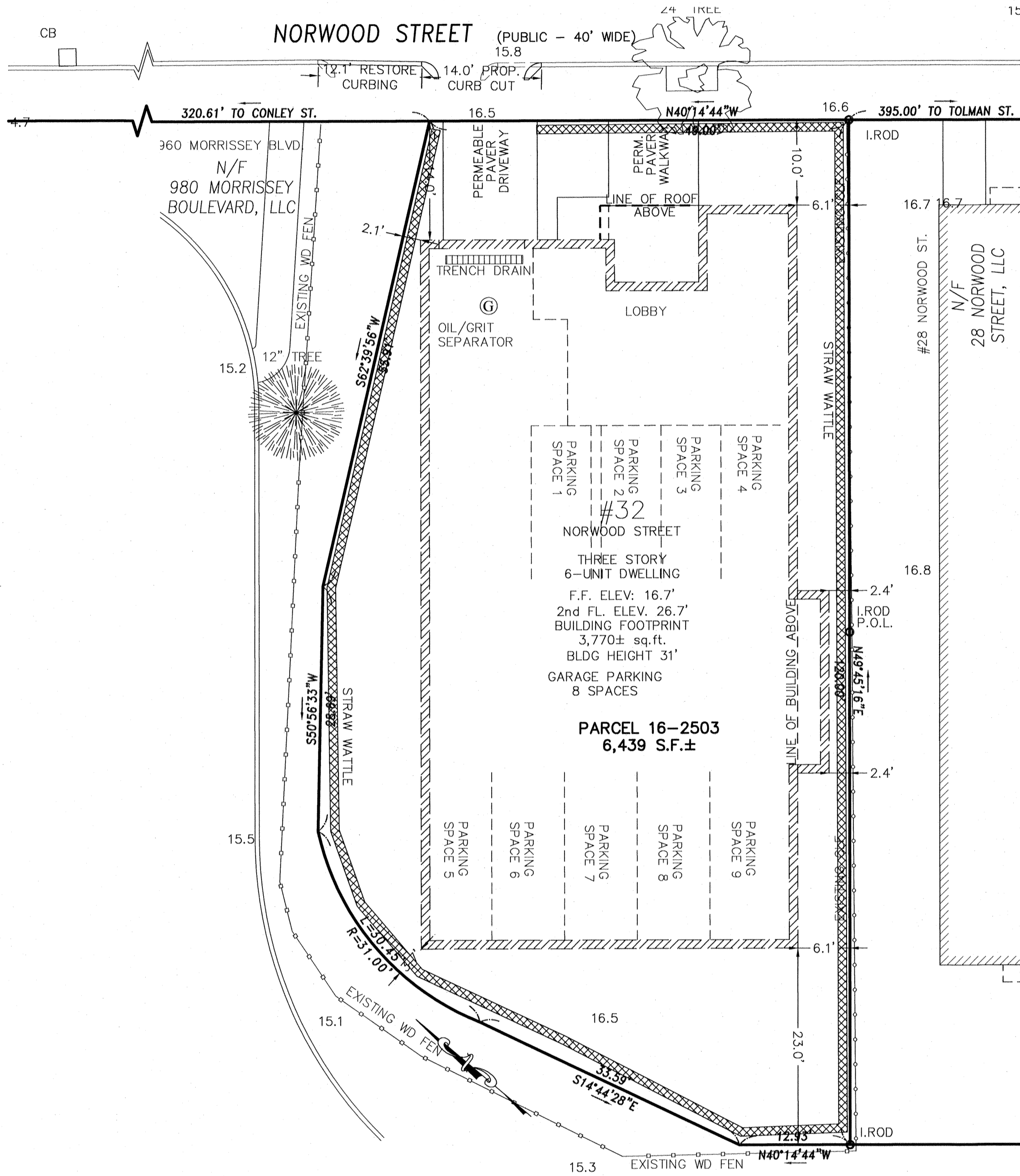
SHEET NO: 1 OF 1

DATE 2/3/2022 JOB NO: 3868
DRAWN BY: L.J.B.

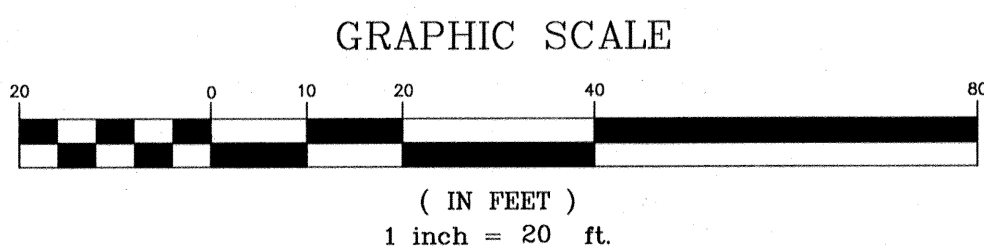
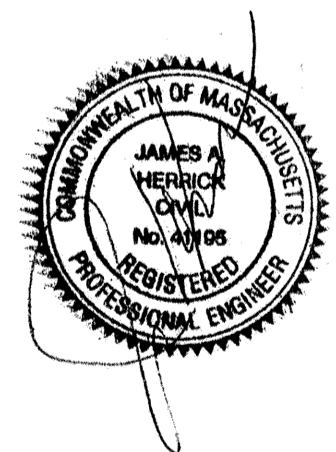
REFERENCES
 DEED BK. 59,275 PG. 256
 PLAN IN BK. 1649 PG. 370

ZONING
 DORCHESTER NEIGHBORHOOD
 NS NEIGHBORHOOD SHOPPING

NOTE: INSTALL SILT SACK IN
 CATCH BASIN DOWNSTREAM
 FROM 32 NORWOOD ~108' FROM PROPERTY LINE



- NOTES:**
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
 2. SILTSACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING AND PROPOSED BASINS EXISTS.



EROSION & SEDIMENT CONTROL PLAN
32 NORWOOD STREET
DORCHESTER, MA
FOR
28 NORWOOD STREET LLC

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

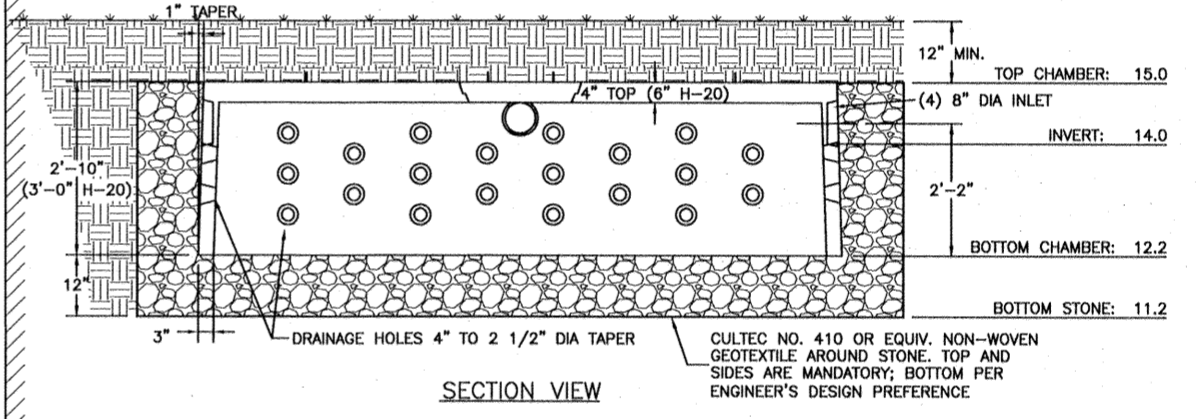
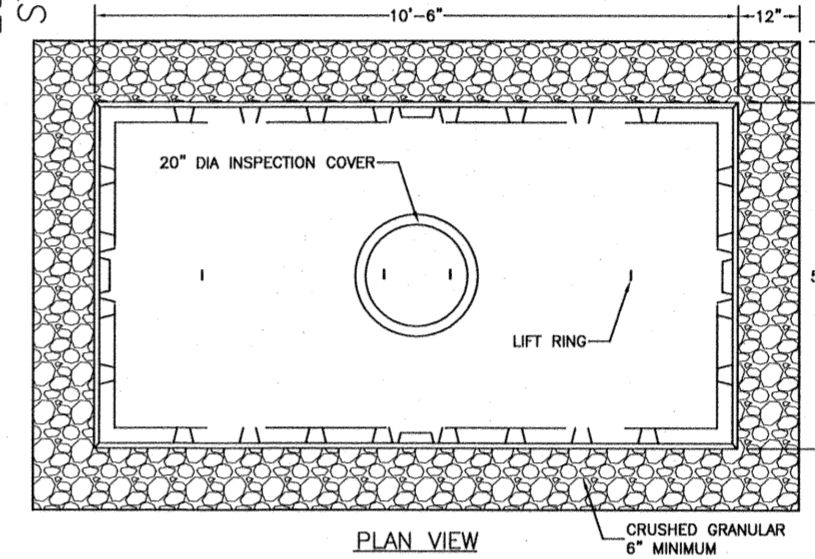
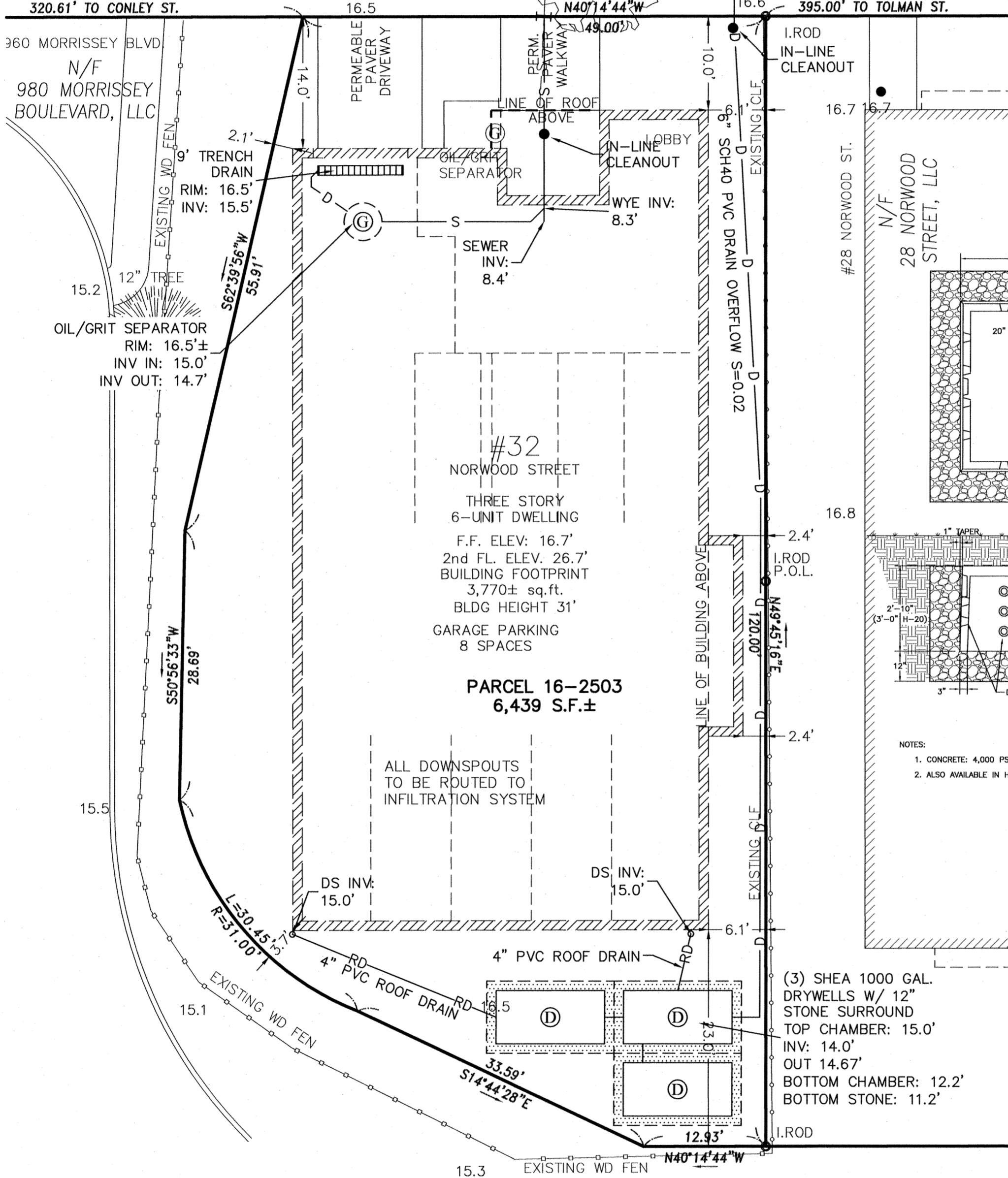
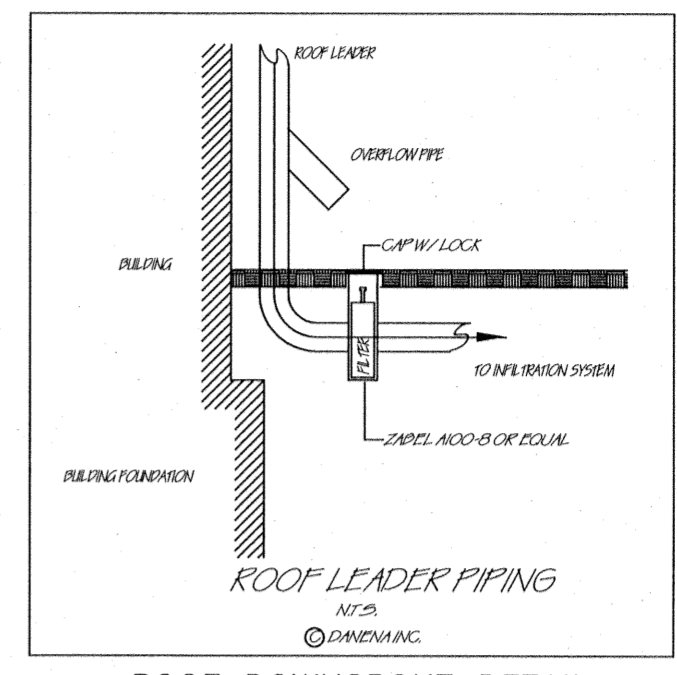
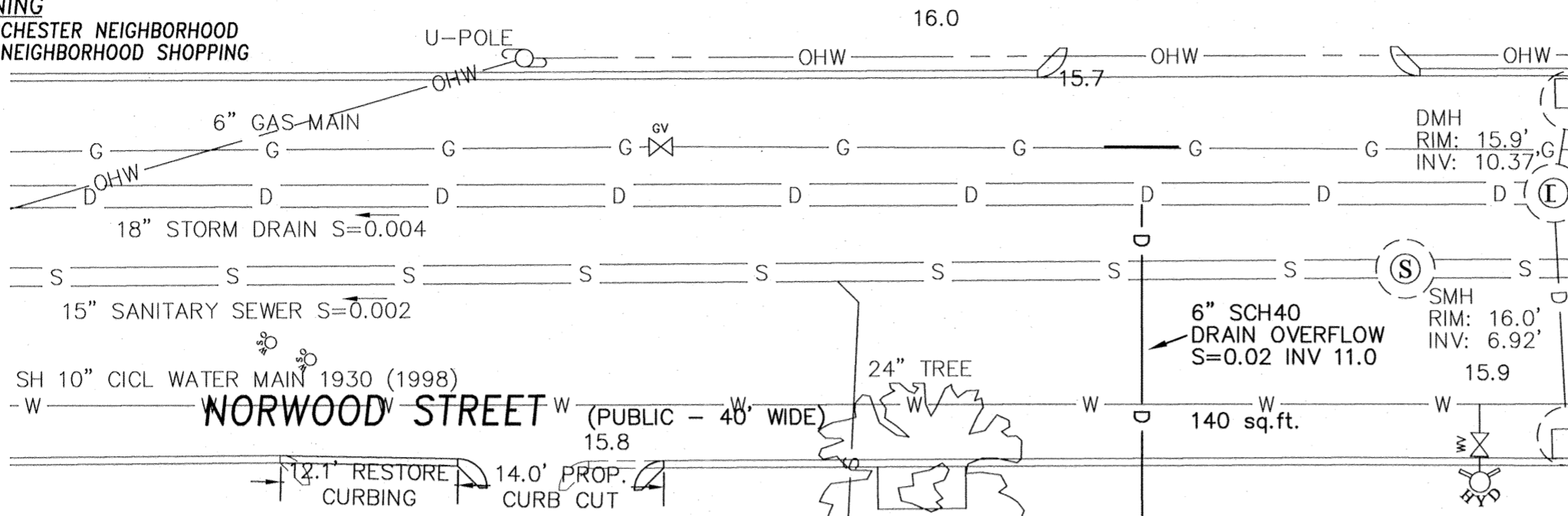
SHEET NO: 1 OF 1

DATE: 2/11/2022 JOB: 3868

DRAWN BY: L.J.B.

REFERENCES
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 PLAN IN BK. 1649 PG. 370

ZONING
 DORCHESTER NEIGHBORHOOD
 NS NEIGHBORHOOD SHOPPING

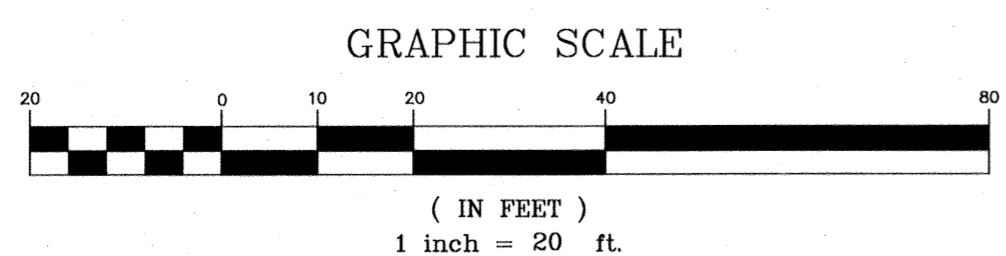
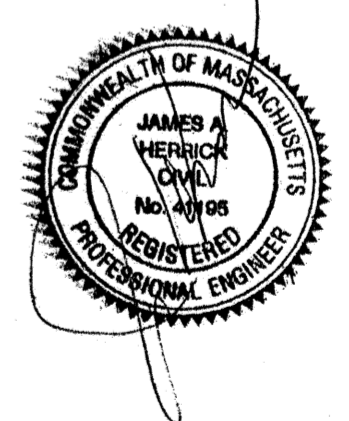


NOTES:
 1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
 2. ALSO AVAILABLE IN H-20 LOADING.

ITEM NO.	QTY	DESCRIPTION	STANDARD	WEIGHT
1	1	1000 GALLON DRYWELL	5,650#	
2	1	STONE SURROUND	7,100#	

**1000 GALLON
 SHALLOW DRY WELL**

(3) SHEA 1000 GAL.
 DRYWELLS W/ 12"
 STONE SURROUND
 TOP CHAMBER: 15.0'
 INV: 14.0'
 OUT 14.67'
 BOTTOM CHAMBER: 12.2'
 BOTTOM STONE: 11.2'

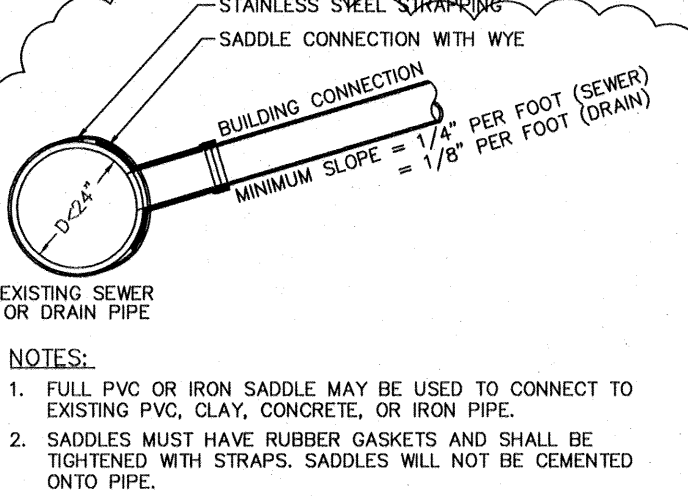


STORMWATER MANAGEMENT PLAN
 32 NORWOOD STREET
 DORCHESTER, MA
 FOR
 28 NORWOOD STREET LLC
 CIVIL ENVIRONMENTAL CONSULTANTS
 8 OAK STREET PEABODY, MA 01960 978-531-1191

SHEET NO: 1 OF 1
 DATE: 2/10/2022 JOB: 3868
 DRAWN BY: L.J.B.

1. ACCOUNT NUMBER 1474305
 2. PARCEL NUMBER 2503
 3. WARD 16
 4. PROPERTY LOCATION 32 NORWOOD STREET
 5. NEIGHBORHOOD DORCHESTER
 6. ZIP CODE 02122
 7. OWNER ADDRESS 6 WENLOCK RD. DORCHESTER, MA 02122
 8. OWNER TELEPHONE NO. PERRY BRUNO - 508-437-5575
 9. TYPE OF PREMISE EIGHT FAMILY RESIDENTIAL
 10. METER SIZE 1"
 11. INSIDE YES
 12. OUTSIDE NO
 13. TYPE OF BUILDING THREE STORY WOOD FRAME
 14. SEWERAGE FLOWS 8 BEDROOMS x 110 GPD = 880 GPD
 15. LAND USE CODE A

32 NORWOOD STREET GROUNDWATER RECHARGE CALCULATIONS
 IMPERVIOUS AREA 3860.9 sq.ft.
 INFILTRATE 1" OF RAINFALL 3860.9/12 = 321.7 CU.FT. RECHARGE CALCULATION
 3 1000 GALLON DRYWELL INFILTRATION SYSTEM VOLUME OF CHAMBER 385.8 CU.FT.
 VOLUME OF STONE CALCULATION 13.5'x7.67'x3.5' = 362.4 CU.FT. STONE VOLUME PER CHAMBER
 362.4 CU.FT. x 3 CHAMBERS = 1087.2 CU.FT. TOTAL STONE VOLUME
 1087.2 CU.FT. STONE - 385.8 CU.FT. CHAMBER VOLUME = 701.4 CU.FT. VOLUME STONE x 0.3 (VOIDS) = 210.4 CU.FT. TOTAL STORAGE
 210.4 VOID STORAGE + 385.8 CHAMBER STORAGE = 596.2 CU.FT. SYSTEM STORAGE > 321.7 CU.FT. REQUIRED STORAGE VOLUME



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 FROM BWSC PRIOR TO CONNECTION TO BWSC FACILITIES. SITE PLANS ARE VALID FOR A PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL.

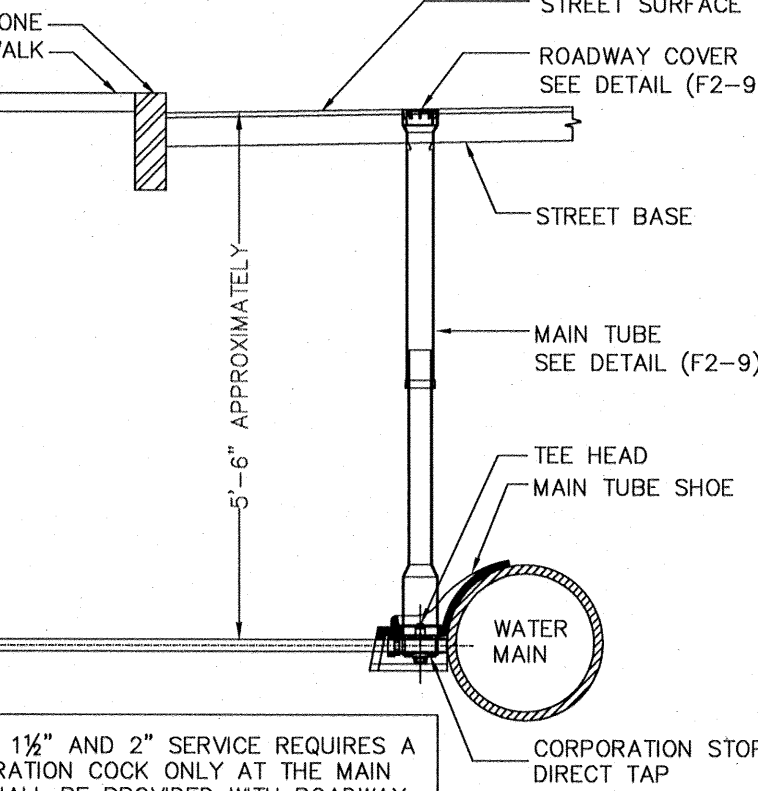
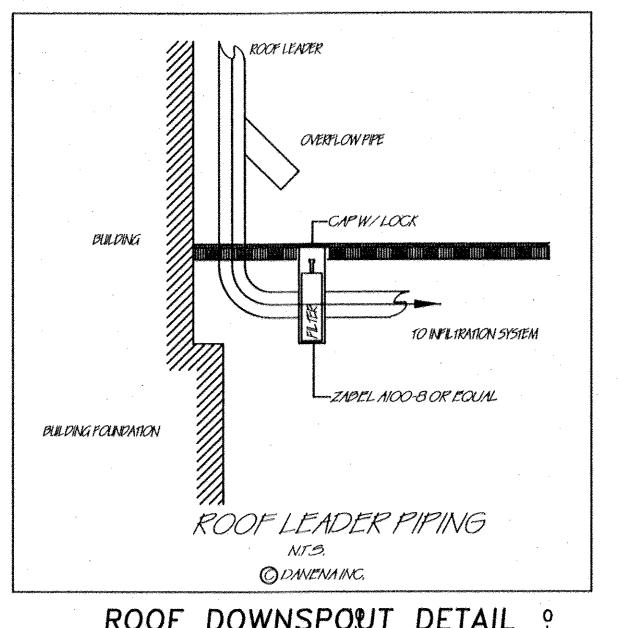
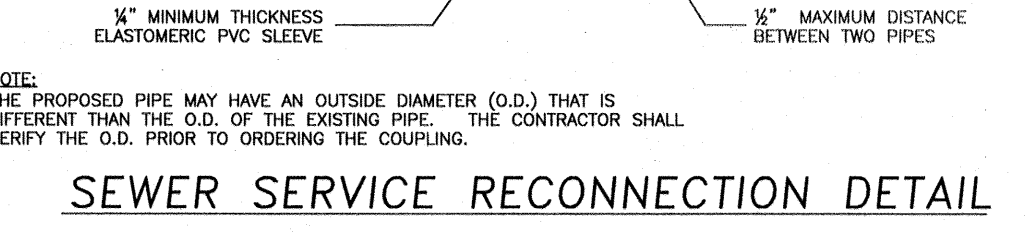
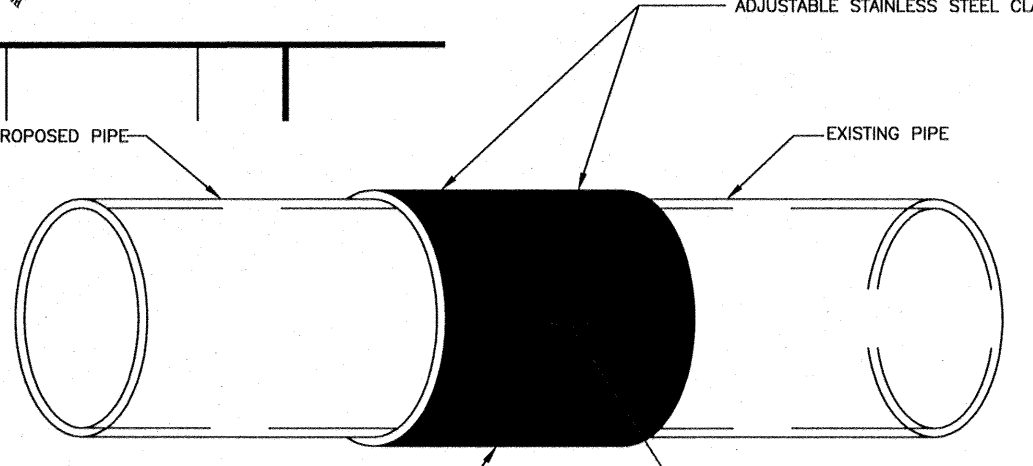
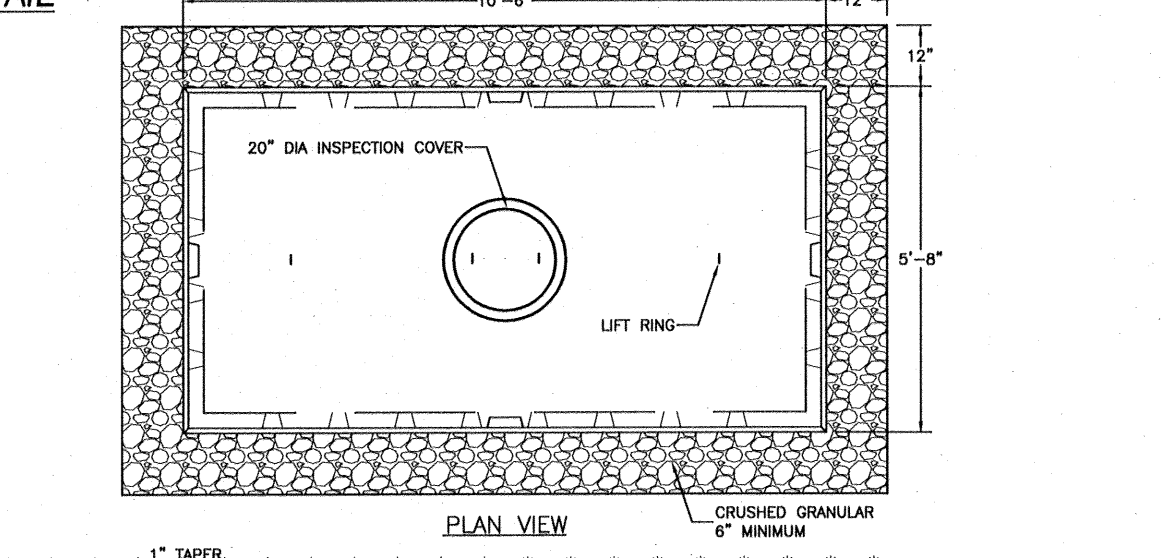
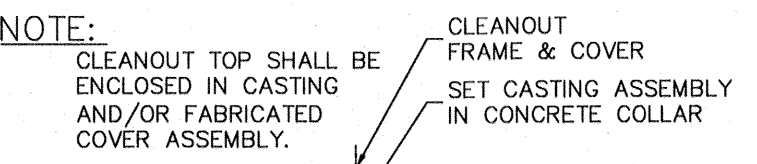
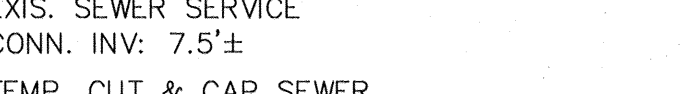
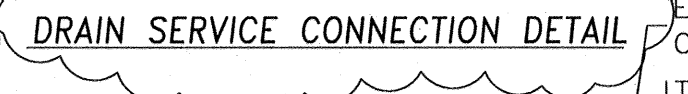
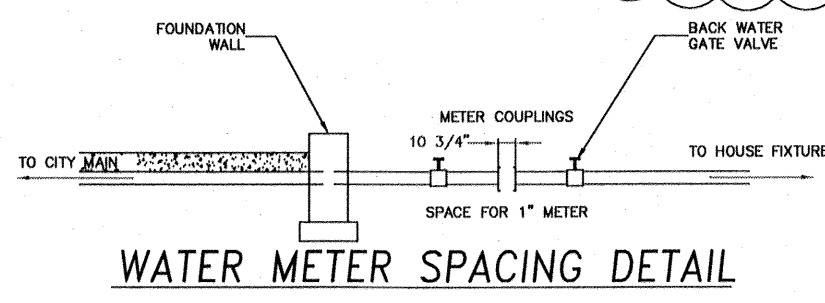
JOHN P. SULLIVAN JR., P.E.
 CHIEF ENGINEER

FOR BWSC ONLY

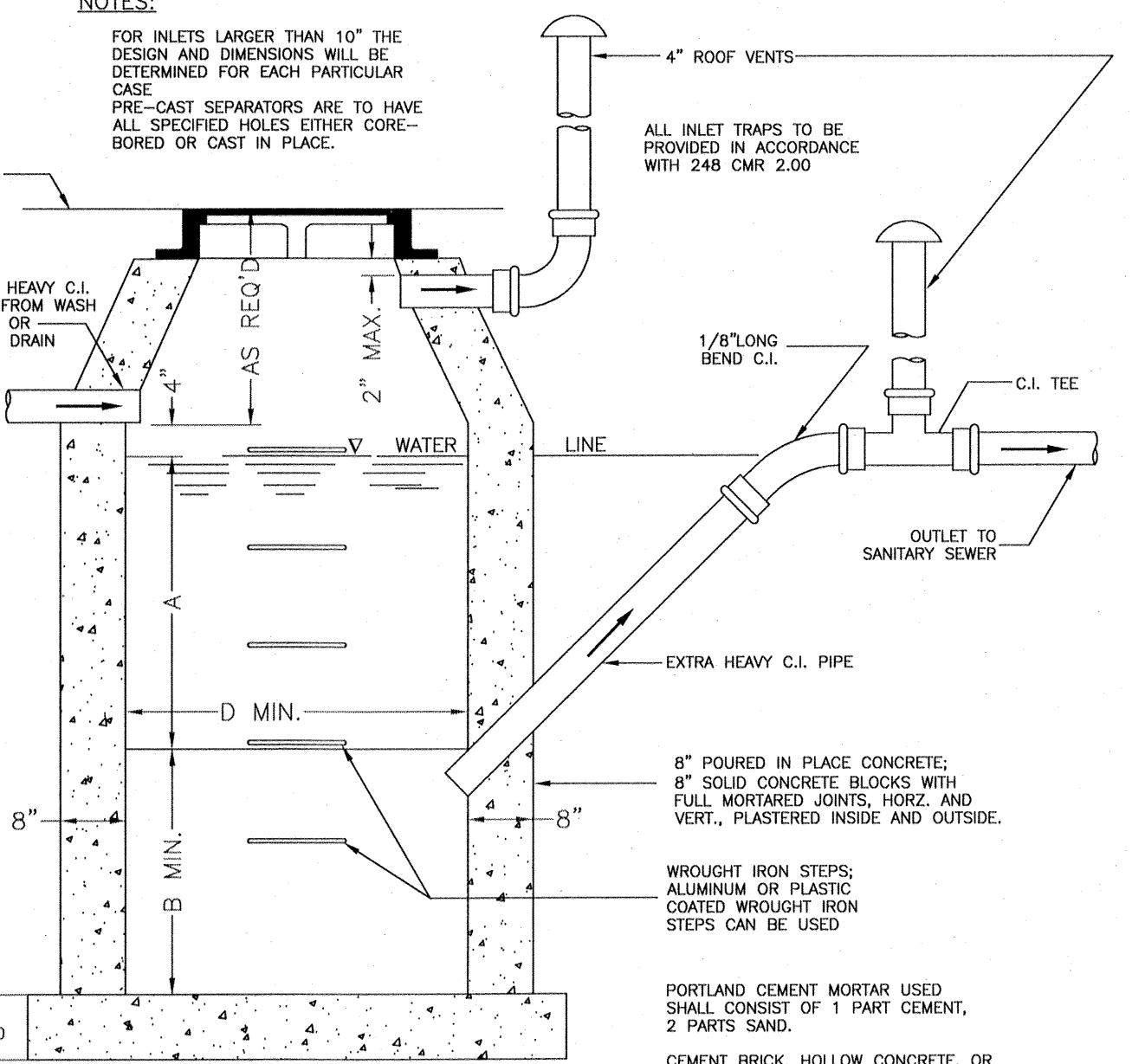
ALL WATER, SEWER, AND DRAIN SERVICE CONNECTIONS TO BOSTON WATER AND SEWER COMMISSION FACILITIES MUST BE PERFORMED BY A BONDED DRAIN LAYER, LICENSED BY THE BOSTON WATER AND SEWER COMMISSION.

BOSTON WATER AND SEWER COMMISSION
 BACKFLOW PREVENTER INSTALLATION

APPROVAL: _____ DATE: _____



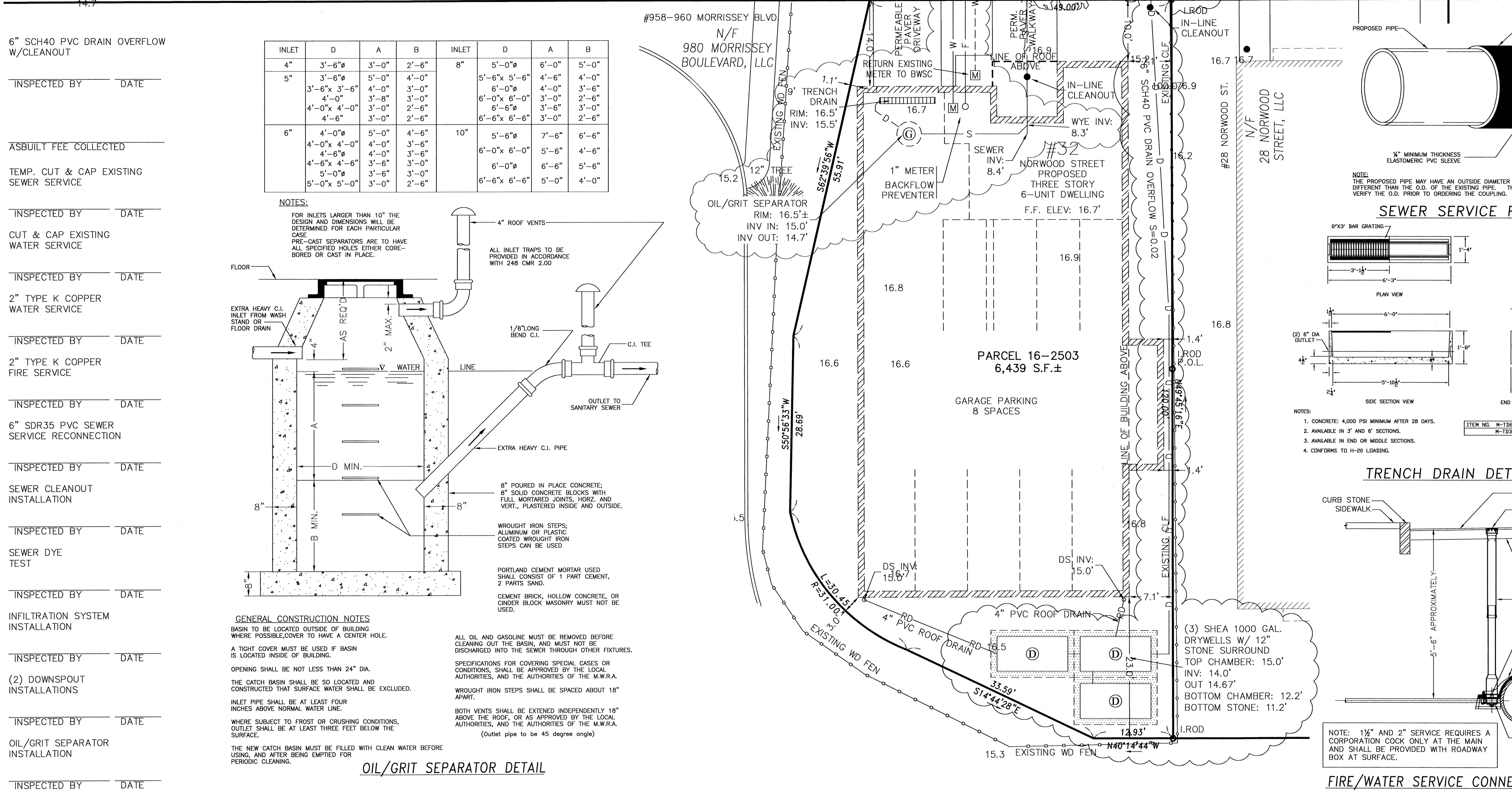
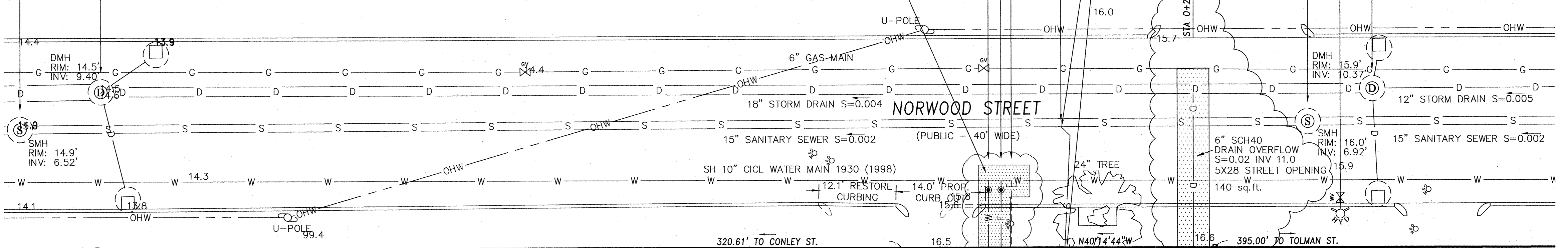
INLET	D	A	B	INLET	D	A	B
4"	3'-6"	3'-0"	2'-6"	8"	5'-0"	6'-0"	5'-0"
5"	3'-6"	3'-6"	4'-0"	4'-0"	6'-0"	4'-0"	3'-6"
4'-0"	3'-8"	3'-0"	3'-0"	6'-0"	6'-0"	3'-0"	2'-6"
4'-0"	4'-0"	3'-0"	2'-6"	6'-6"	6'-6"	3'-6"	3'-0"
4'-6"	3'-0"	3'-0"	2'-6"	6'-6"	6'-6"	3'-0"	2'-6"
6"	4'-0"	5'-0"	4'-6"	10"	5'-6"	7'-6"	6'-6"
4'-0"	4'-0"	4'-0"	3'-6"	6'-0"	6'-0"	5'-6"	4'-6"
4'-6"	4'-6"	3'-6"	3'-0"	6'-0"	6'-0"	6'-6"	5'-6"
5'-0"	3'-6"	3'-0"	3'-0"	6'-0"	6'-0"	5'-0"	4'-0"



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.
 THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXCLUDED.
 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)

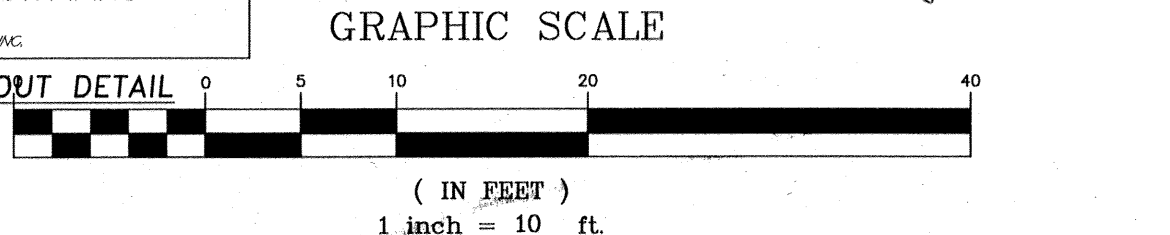
6" SCH40 PVC DRAIN OVERFLOW W/CLEANOUT
 INSPECTED BY _____ DATE _____
 ASBUILT FEE COLLECTED _____
 TEMP. CUT & CAP EXISTING SEWER SERVICE
 INSPECTED BY _____ DATE _____
 CUT & CAP EXISTING WATER SERVICE
 INSPECTED BY _____ DATE _____
 2" TYPE K COPPER WATER SERVICE
 INSPECTED BY _____ DATE _____
 2" TYPE K COPPER FIRE SERVICE
 INSPECTED BY _____ DATE _____
 6" SDR35 PVC SEWER SERVICE RECONNECTION
 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 _____
 OIL/GRIT SEPARATOR INSTALLATION
 INSPECTED BY _____ DATE _____



NOTES:
 1. CONCRETE: 4000 PSI MINIMUM AFTER 28 DAYS.
 2. ALSO AVAILABLE IN H-20 LOADING.

NOTES:
 1. CONCRETE: 4000 PSI MINIMUM AFTER 28 DAYS.
 2. AVAILABLE IN 3' AND 6' SECTIONS.
 3. AVAILABLE IN END OR MIDDLE SECTIONS.
 4. CONFORMS TO H-20 LOADING.

ITEM NO.	DR.-DIM.	STANDARD	WEIGHT
M-126	6' SECTION	1.315#	
M-128	3' SECTION	71#	

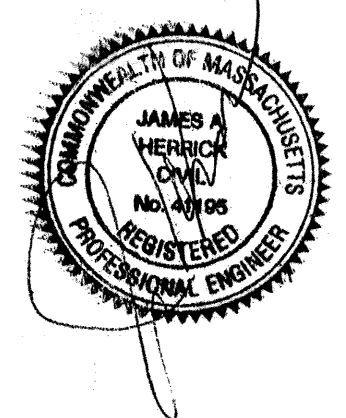


REVISION	REVISION DESCRIPTION	C.R.L.	DATE
1	REVISE INFILTRATION DUE TO CONCOM REQUIREMENTS	C.R.L.	1/27/2022
2	MIRRORED BLDG. PER BPDA REQUEST, ADJUSTED WTR. SVC. LOC'N'S	C.R.L.	3/19/2021

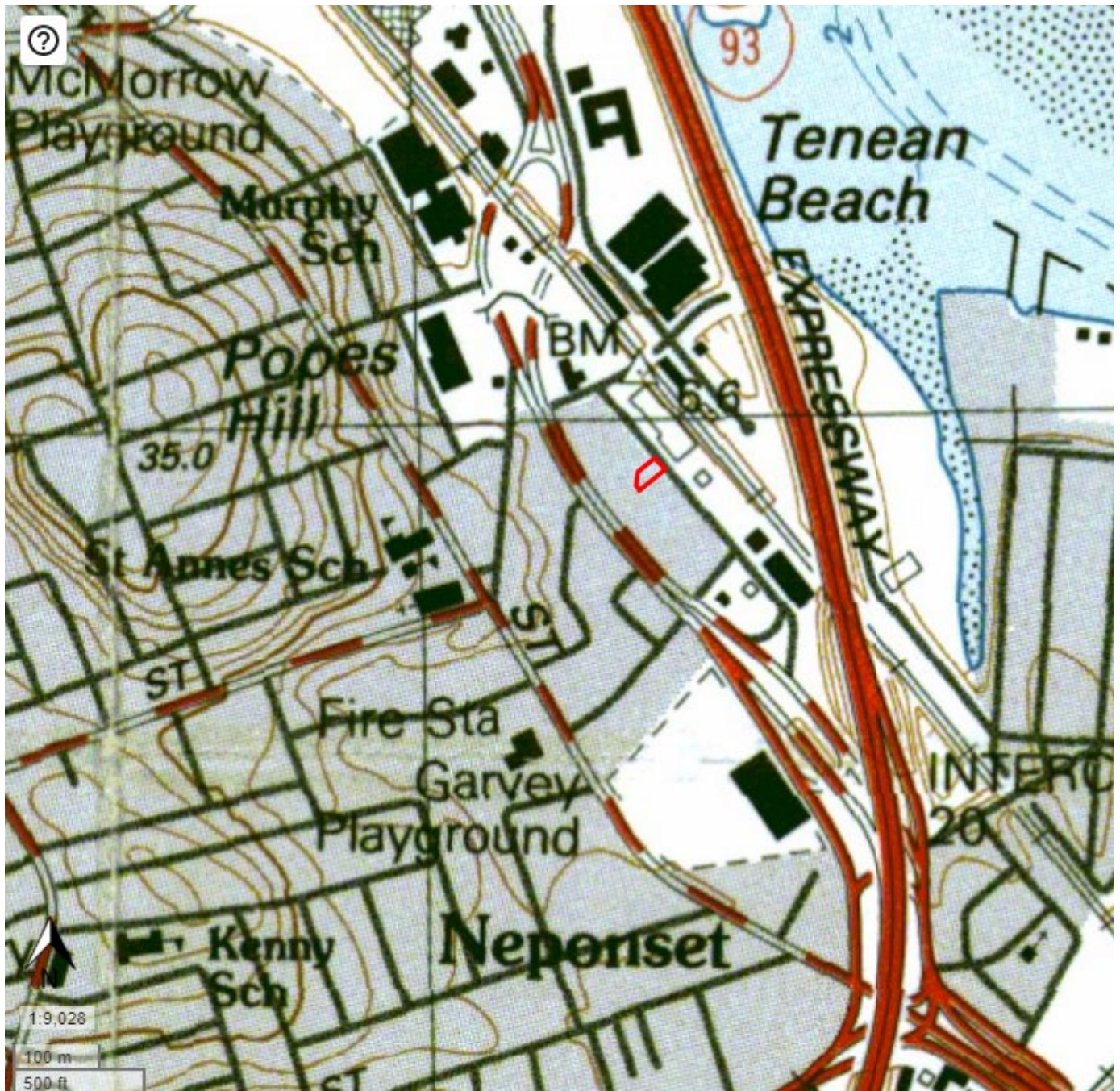
SITE PLAN #21-076
 32 NORWOOD STREET
 DORCHESTER, MA
 FOR
 PERRY BRUNO

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

SHEET NO: 1 OF 1
 DATE: 2/16/2021 JOB: 3868
 DRAWN BY: C.R.L.



APPENDIX D - USGS, FEMA & NHESP Maps



Source: MassMapper



590 Summer Street
 Rockland, MA 02370
 781/982-9929
 www.ardentgroupinc.com

FIGURE 1 – USGS Topographic Quadrangle

32 Norwood Street
 Boston, MA

Ardent File ECLP-1521

National Flood Hazard Layer FIRMette Figure 2



71°3'5"W 42°17'43"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

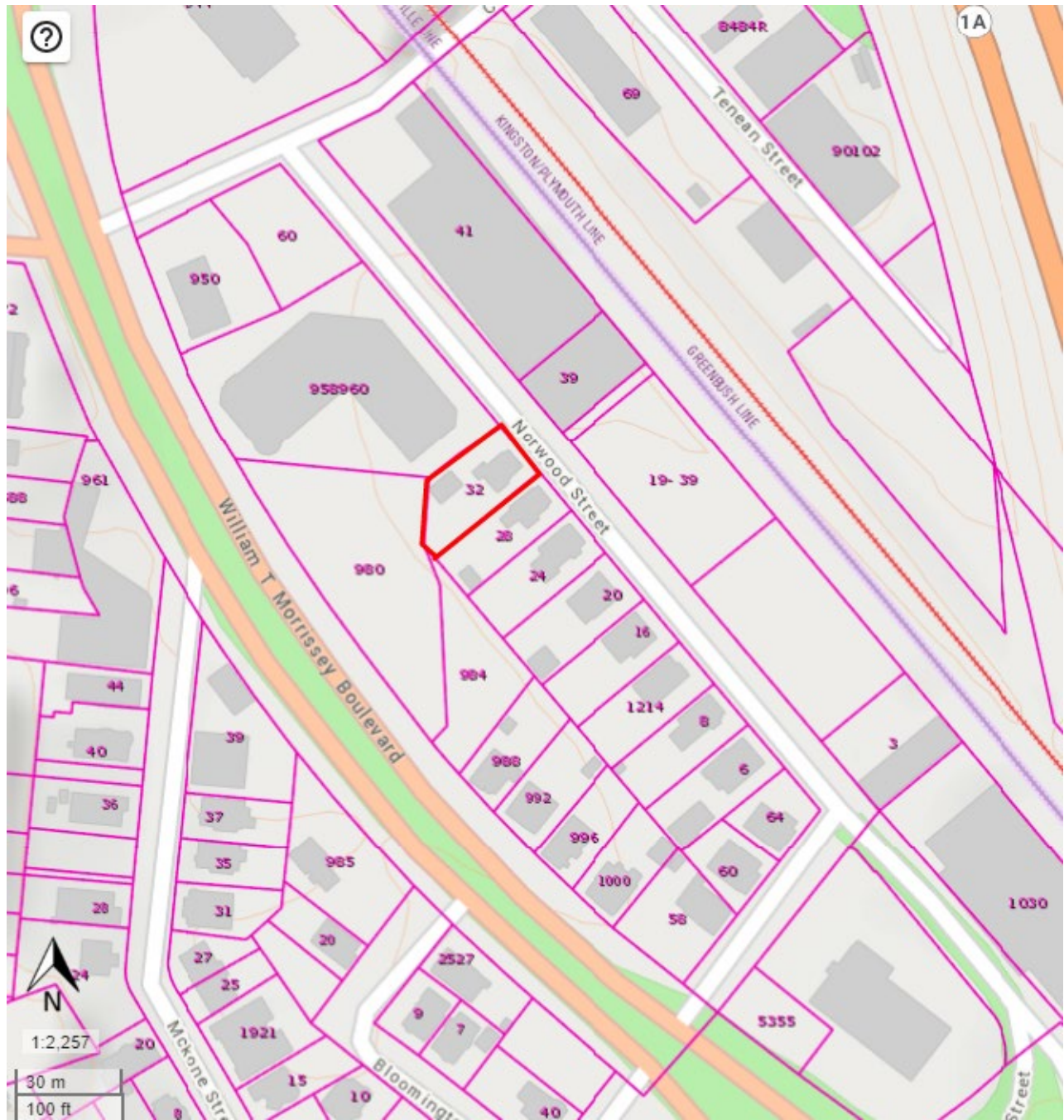
SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i> With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> Effective LOMRs Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Available No Digital Data Available Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

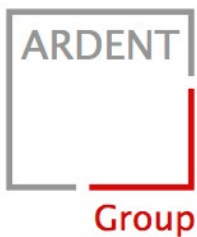
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **2/2/2022 at 6:50 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Source: MassMapper







590 Summer Street
 Rockland, MA 02370
 781/982-9929
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FIGURE 3 – Natural Heritage & Endangered Species Map

32 Norwood Street
 Boston, MA

Ardent File ECLP-1521

Legend

-  NHESP Certified Vernal Pool
-  NHESP Potential Vernal Pool
-  NHESP Estimated Habitats of Rare Wildlife (2022)
-  NHESP Priority Habitats of Rare Species (2022)

**APPENDIX E - Stormwater Report and Checklist,
Illicit Discharge Statement, and Operations & Maintenance Plan**

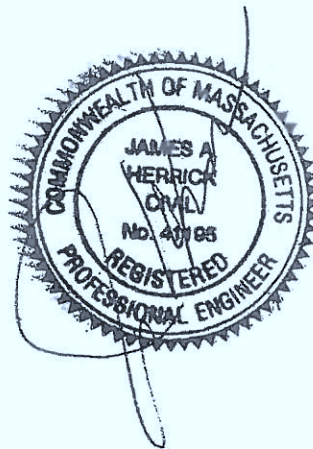
DRAINAGE REPORT

at

32 Norwood Street

Dorchester(Boston), MA

January 27, 2022



Drainage Report
32 Norwood Street
Dorchester(Boston) MA

January 2022

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 A Soils-ranges from 2.41 to 8.27 inches per hr for the purpose of this report 2.41 inches per hr will be used.

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 3 1000 gallon Drywells System that have a 1' 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
	3S	1S		
2Yr.	0.08 CFS	0.27 CFS	0.02 CFS	-0.06 CFS
10 Yr.	0.24 CFS	0.51 CFS	0.09 CFS	-0.15 CFS
25 Yr.	0.39 CFS	0.71 CFS	0.28 CFS	-0.11 CFS
100 Yr.	0.73 CFS	1.13 CFS	1.10 CFS	+0.37 CFS

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

32 NORWOOD STREET GROUNDWATER RECHARGE CALCULATIONS

IMPERVIOUS AREA

3860.9 sq.ft.

INFILTRATE 1" OF RAINFALL

$3860.9/12 = 321.7$ CU.FT. RECHARGE CALCULATION

3 1000 GALLON DRYWELL INFILTRATION SYSTEM

VOLUME OF CHAMBER 385.8 CU.FT.

VOLUME OF STONE CALCULATION

$13.5' \times 7.67' \times 3.5' = 362.4$ CU.FT. STONE VOLUME PER CHAMBER

362.4 CU.FT. X 3 CHAMBERS = 1087.2 CU.FT. TOTAL STONE VOLUME

1087.2 CU.FT. STONE - 385.8 CU.FT CHAMBER VOLUME

= 701.4 CU.FT. VOLUME STONE X 0.3 (VOIDS) = 210.4 CU.FT. TOTAL VOID STORAGE

210.4 VOID STORAGE + 385.8 CHAMBER STORAGE = 596.2 CU.FT. TOTAL STORAGE

596.2 CU.FT. SYSTEM STORAGE > 321.7 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 3 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 0.37 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 3 1000 gallon drywells surrounded by 12" 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.

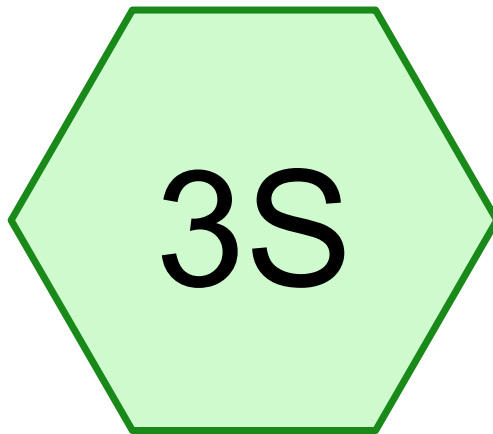
The proposed site will implement erosion control barrier around the site to prevent erosion sediment and other pollutant sources during construction. A silt sack shall be installed in the nearest catch basins to collect sediment and erosion runoff.

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.

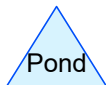
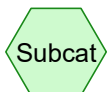
A long term O & M plan will be developed and implemented to ensure that the stormwater management system functions as designed, See O & M plan.

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 32 Norwood



Routing Diagram for 32 norwood

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32 norwood

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Page 2

Project Notes

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

32 norwood

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Page 3

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.101	49	50-75% Grass cover, Fair, HSG A (3S)
0.019	98	Paved parking, HSG A (3S)
0.028	98	Roofs, HSG A (3S)
0.148	64	TOTAL AREA

32 norwood

Prepared by Civil Environmental Consultants LLC

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Summary for Subcatchment 3S: Existing 32 Norwood

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

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.006 af, Depth> 0.49"

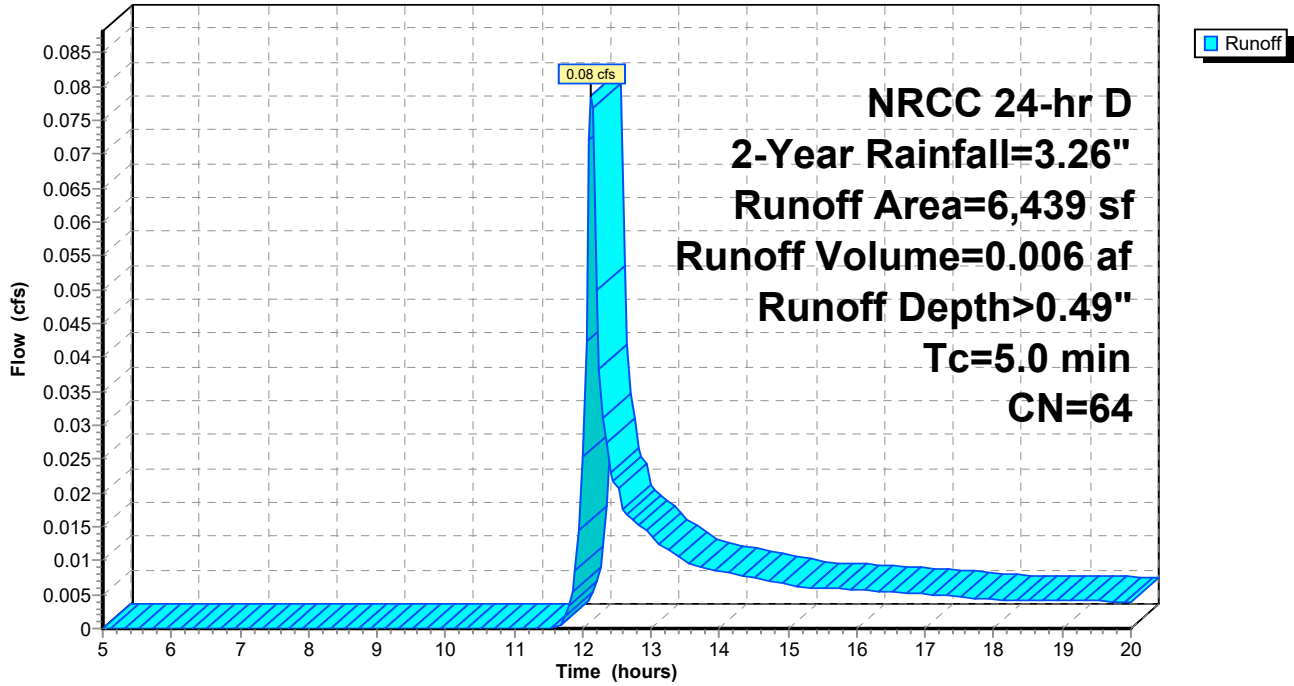
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,200	98	Roofs, HSG A
825	98	Paved parking, HSG A
4,414	49	50-75% Grass cover, Fair, HSG A
6,439	64	Weighted Average
4,414		68.55% Pervious Area
2,025		31.45% Impervious Area

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

Subcatchment 3S: Existing 32 Norwood

Hydrograph



32 norwood

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

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Hydrograph for Subcatchment 3S: Existing 32 Norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00	17.75	2.91	0.43	0.00
5.25	0.29	0.00	0.00	18.00	2.92	0.44	0.00
5.50	0.30	0.00	0.00	18.25	2.94	0.44	0.00
5.75	0.32	0.00	0.00	18.50	2.96	0.45	0.00
6.00	0.34	0.00	0.00	18.75	2.97	0.46	0.00
6.25	0.35	0.00	0.00	19.00	2.99	0.46	0.00
6.50	0.37	0.00	0.00	19.25	3.00	0.47	0.00
6.75	0.39	0.00	0.00	19.50	3.02	0.48	0.00
7.00	0.41	0.00	0.00	19.75	3.03	0.48	0.00
7.25	0.43	0.00	0.00	20.00	3.05	0.49	0.00
7.50	0.45	0.00	0.00				
7.75	0.47	0.00	0.00				
8.00	0.50	0.00	0.00				
8.25	0.52	0.00	0.00				
8.50	0.55	0.00	0.00				
8.75	0.57	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.63	0.00	0.00				
9.50	0.66	0.00	0.00				
9.75	0.69	0.00	0.00				
10.00	0.73	0.00	0.00				
10.25	0.77	0.00	0.00				
10.50	0.81	0.00	0.00				
10.75	0.87	0.00	0.00				
11.00	0.93	0.00	0.00				
11.25	1.00	0.00	0.00				
11.50	1.09	0.00	0.00				
11.75	1.23	0.00	0.00				
12.00	1.56	0.03	0.03				
12.25	2.03	0.12	0.04				
12.50	2.17	0.16	0.02				
12.75	2.26	0.19	0.02				
13.00	2.33	0.21	0.01				
13.25	2.39	0.23	0.01				
13.50	2.45	0.25	0.01				
13.75	2.49	0.27	0.01				
14.00	2.53	0.28	0.01				
14.25	2.57	0.29	0.01				
14.50	2.60	0.31	0.01				
14.75	2.63	0.32	0.01				
15.00	2.66	0.33	0.01				
15.25	2.69	0.34	0.01				
15.50	2.71	0.35	0.01				
15.75	2.74	0.36	0.01				
16.00	2.76	0.37	0.01				
16.25	2.79	0.38	0.01				
16.50	2.81	0.39	0.01				
16.75	2.83	0.40	0.01				
17.00	2.85	0.41	0.01				
17.25	2.87	0.41	0.00				
17.50	2.89	0.42	0.00				

32 norwood

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32 Norwood Existing Site
 NRCC 24-hr D 10-Year Rainfall=4.90"
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Summary for Subcatchment 3S: Existing 32 Norwood

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

Runoff = 0.24 cfs @ 12.12 hrs, Volume= 0.016 af, Depth> 1.31"

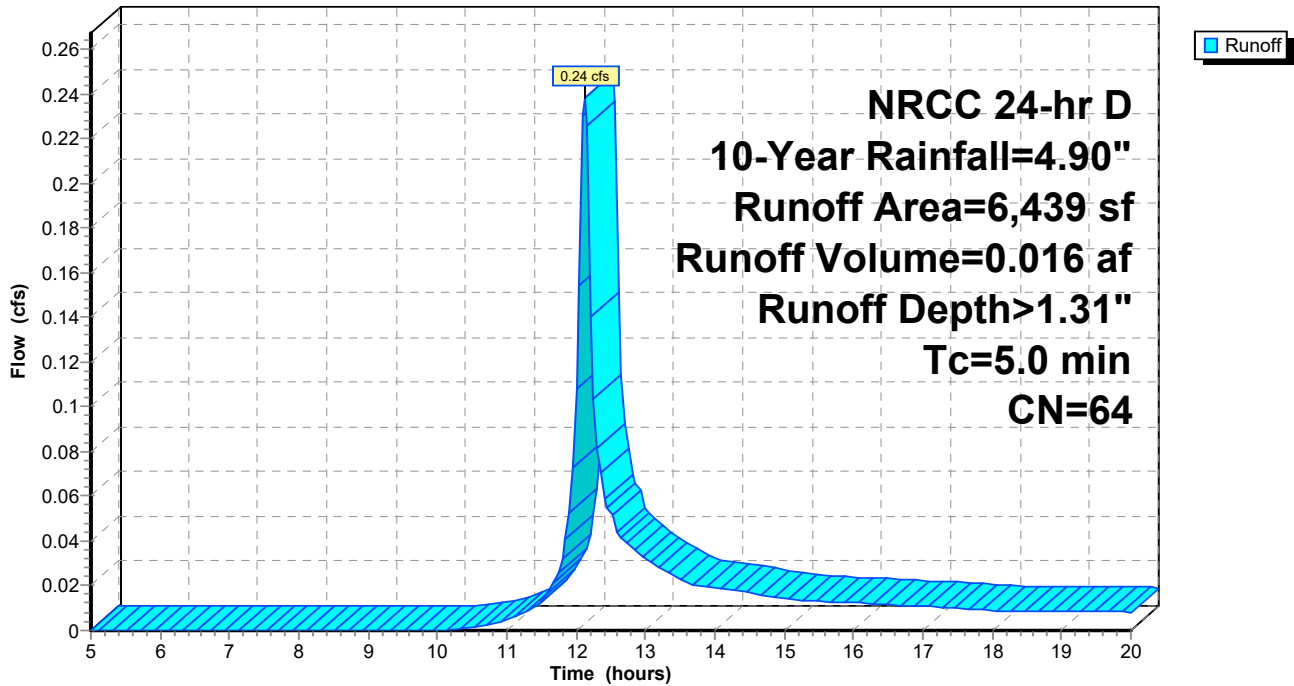
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,200	98	Roofs, HSG A
825	98	Paved parking, HSG A
4,414	49	50-75% Grass cover, Fair, HSG A
6,439	64	Weighted Average
4,414		68.55% Pervious Area
2,025		31.45% Impervious Area

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

Subcatchment 3S: Existing 32 Norwood

Hydrograph



32 norwood

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32 Norwood Existing Site

NRCC 24-hr D 10-Year Rainfall=4.90"

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Hydrograph for Subcatchment 3S: Existing 32 Norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.41	0.00	0.00	17.75	4.37	1.19	0.01
5.25	0.43	0.00	0.00	18.00	4.40	1.20	0.01
5.50	0.46	0.00	0.00	18.25	4.42	1.22	0.01
5.75	0.48	0.00	0.00	18.50	4.44	1.23	0.01
6.00	0.50	0.00	0.00	18.75	4.47	1.25	0.01
6.25	0.53	0.00	0.00	19.00	4.49	1.26	0.01
6.50	0.56	0.00	0.00	19.25	4.52	1.28	0.01
6.75	0.59	0.00	0.00	19.50	4.54	1.29	0.01
7.00	0.62	0.00	0.00	19.75	4.56	1.30	0.01
7.25	0.65	0.00	0.00	20.00	4.58	1.32	0.01
7.50	0.68	0.00	0.00				
7.75	0.71	0.00	0.00				
8.00	0.75	0.00	0.00				
8.25	0.78	0.00	0.00				
8.50	0.82	0.00	0.00				
8.75	0.86	0.00	0.00				
9.00	0.90	0.00	0.00				
9.25	0.94	0.00	0.00				
9.50	0.99	0.00	0.00				
9.75	1.04	0.00	0.00				
10.00	1.10	0.00	0.00				
10.25	1.16	0.00	0.00				
10.50	1.22	0.00	0.00				
10.75	1.30	0.01	0.00				
11.00	1.39	0.01	0.00				
11.25	1.51	0.02	0.01				
11.50	1.64	0.04	0.01				
11.75	1.85	0.08	0.03				
12.00	2.35	0.22	0.11				
12.25	3.05	0.49	0.10				
12.50	3.26	0.59	0.05				
12.75	3.39	0.65	0.04				
13.00	3.51	0.71	0.03				
13.25	3.60	0.76	0.03				
13.50	3.68	0.80	0.02				
13.75	3.74	0.83	0.02				
14.00	3.80	0.86	0.02				
14.25	3.86	0.89	0.02				
14.50	3.91	0.92	0.02				
14.75	3.96	0.95	0.02				
15.00	4.00	0.97	0.01				
15.25	4.04	1.00	0.01				
15.50	4.08	1.02	0.01				
15.75	4.12	1.04	0.01				
16.00	4.15	1.06	0.01				
16.25	4.19	1.08	0.01				
16.50	4.22	1.10	0.01				
16.75	4.25	1.12	0.01				
17.00	4.28	1.14	0.01				
17.25	4.31	1.15	0.01				
17.50	4.34	1.17	0.01				

32 norwood

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32 Norwood Existing Site
NRCC 24-hr D 25-Year Rainfall=6.19"

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Summary for Subcatchment 3S: Existing 32 Norwood

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

Runoff = 0.39 cfs @ 12.12 hrs, Volume= 0.026 af, Depth > 2.11"

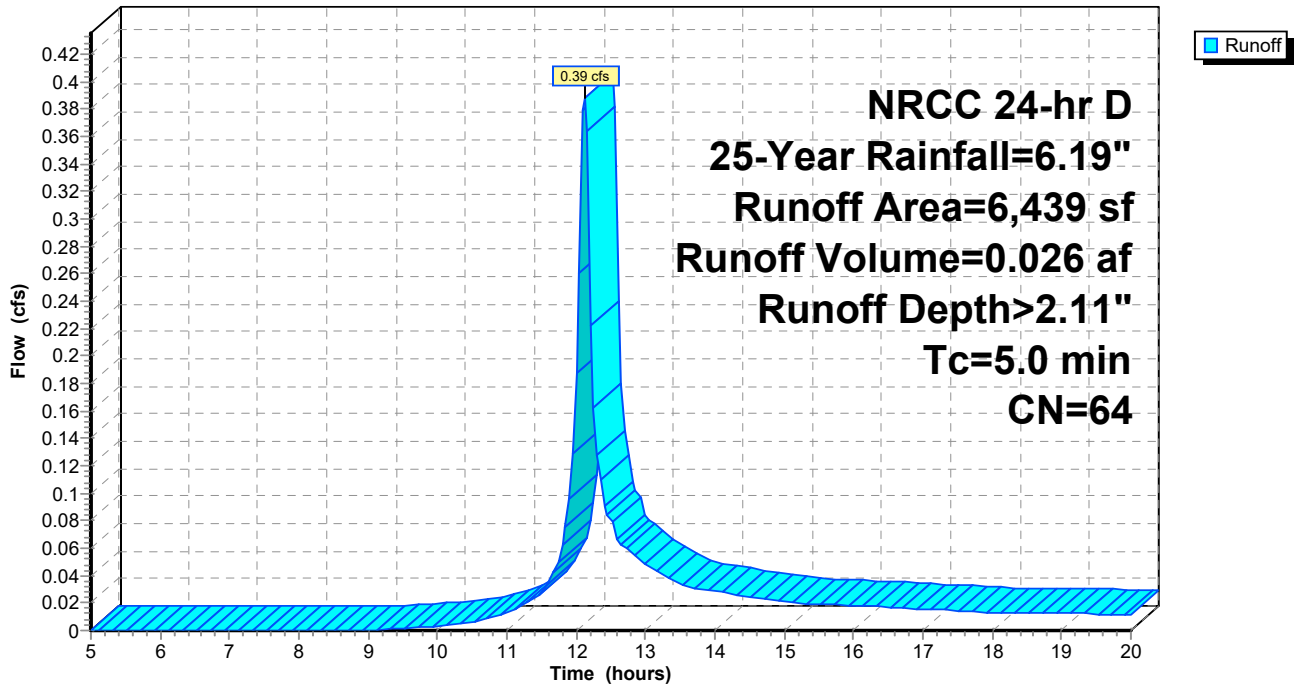
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.19"

Area (sf)	CN	Description
1,200	98	Roofs, HSG A
825	98	Paved parking, HSG A
4,414	49	50-75% Grass cover, Fair, HSG A
6,439	64	Weighted Average
4,414		68.55% Pervious Area
2,025		31.45% Impervious Area

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

Subcatchment 3S: Existing 32 Norwood

Hydrograph



32 norwood

Prepared by Civil Environmental Consultants LLC

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32 Norwood Existing Site

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

Printed 2/9/2022

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Hydrograph for Subcatchment 3S: Existing 32 Norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.51	0.00	0.00	17.75	5.52	1.93	0.01
5.25	0.54	0.00	0.00	18.00	5.55	1.95	0.01
5.50	0.58	0.00	0.00	18.25	5.58	1.97	0.01
5.75	0.61	0.00	0.00	18.50	5.61	1.99	0.01
6.00	0.64	0.00	0.00	18.75	5.65	2.01	0.01
6.25	0.67	0.00	0.00	19.00	5.68	2.03	0.01
6.50	0.70	0.00	0.00	19.25	5.70	2.06	0.01
6.75	0.74	0.00	0.00	19.50	5.73	2.08	0.01
7.00	0.78	0.00	0.00	19.75	5.76	2.10	0.01
7.25	0.82	0.00	0.00	20.00	5.79	2.12	0.01
7.50	0.86	0.00	0.00				
7.75	0.90	0.00	0.00				
8.00	0.94	0.00	0.00				
8.25	0.99	0.00	0.00				
8.50	1.04	0.00	0.00				
8.75	1.09	0.00	0.00				
9.00	1.14	0.00	0.00				
9.25	1.19	0.00	0.00				
9.50	1.25	0.00	0.00				
9.75	1.32	0.01	0.00				
10.00	1.39	0.01	0.00				
10.25	1.46	0.02	0.00				
10.50	1.55	0.03	0.01				
10.75	1.64	0.04	0.01				
11.00	1.76	0.06	0.01				
11.25	1.90	0.09	0.02				
11.50	2.07	0.14	0.03				
11.75	2.34	0.22	0.05				
12.00	2.97	0.45	0.19				
12.25	3.85	0.89	0.16				
12.50	4.12	1.04	0.08				
12.75	4.29	1.14	0.06				
13.00	4.43	1.22	0.05				
13.25	4.55	1.29	0.04				
13.50	4.64	1.35	0.03				
13.75	4.73	1.41	0.03				
14.00	4.80	1.45	0.03				
14.25	4.87	1.50	0.03				
14.50	4.94	1.54	0.02				
14.75	5.00	1.58	0.02				
15.00	5.05	1.62	0.02				
15.25	5.10	1.65	0.02				
15.50	5.15	1.68	0.02				
15.75	5.20	1.71	0.02				
16.00	5.25	1.74	0.02				
16.25	5.29	1.77	0.02				
16.50	5.33	1.80	0.02				
16.75	5.37	1.83	0.02				
17.00	5.41	1.85	0.02				
17.25	5.45	1.88	0.02				
17.50	5.49	1.90	0.01				

32 norwood

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32 Norwood Existing Site
NRCC 24-hr D 100-Year Rainfall=8.83"
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Summary for Subcatchment 3S: Existing 32 Norwood

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

Runoff = 0.73 cfs @ 12.12 hrs, Volume= 0.049 af, Depth> 3.98"

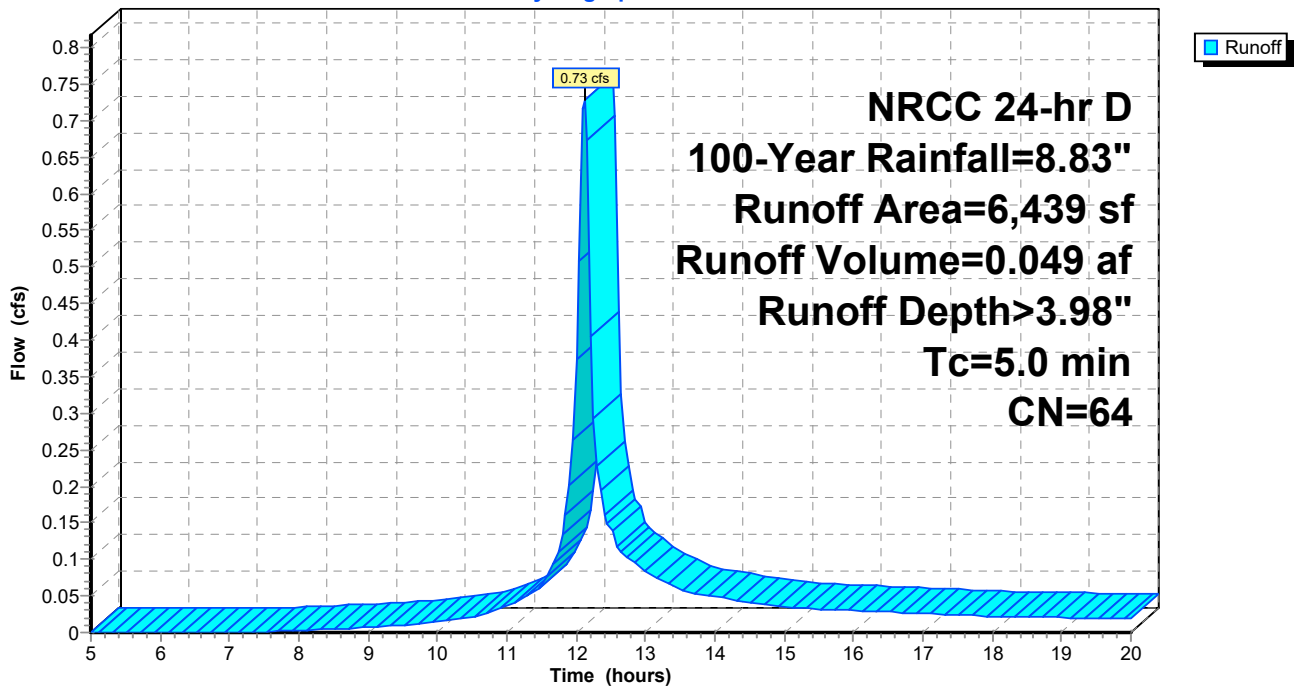
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.83"

Area (sf)	CN	Description
1,200	98	Roofs, HSG A
825	98	Paved parking, HSG A
4,414	49	50-75% Grass cover, Fair, HSG A
6,439	64	Weighted Average
4,414		68.55% Pervious Area
2,025		31.45% Impervious Area

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

Subcatchment 3S: Existing 32 Norwood

Hydrograph



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32 Norwood Existing Site

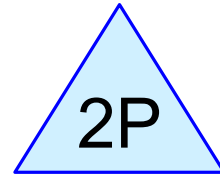
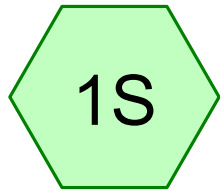
NRCC 24-hr D 100-Year Rainfall=8.83"

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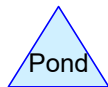
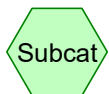
Hydrograph for Subcatchment 3S: Existing 32 Norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.73	0.00	0.00	17.75	7.87	3.68	0.02
5.25	0.78	0.00	0.00	18.00	7.92	3.72	0.02
5.50	0.82	0.00	0.00	18.25	7.97	3.75	0.02
5.75	0.86	0.00	0.00	18.50	8.01	3.79	0.02
6.00	0.91	0.00	0.00	18.75	8.05	3.82	0.02
6.25	0.96	0.00	0.00	19.00	8.10	3.86	0.02
6.50	1.00	0.00	0.00	19.25	8.14	3.89	0.02
6.75	1.06	0.00	0.00	19.50	8.18	3.92	0.02
7.00	1.11	0.00	0.00	19.75	8.22	3.96	0.02
7.25	1.16	0.00	0.00	20.00	8.26	3.99	0.02
7.50	1.22	0.00	0.00				
7.75	1.28	0.00	0.00				
8.00	1.35	0.01	0.00				
8.25	1.41	0.01	0.00				
8.50	1.48	0.02	0.00				
8.75	1.55	0.03	0.01				
9.00	1.62	0.04	0.01				
9.25	1.70	0.05	0.01				
9.50	1.78	0.07	0.01				
9.75	1.88	0.09	0.01				
10.00	1.98	0.11	0.01				
10.25	2.09	0.14	0.02				
10.50	2.21	0.17	0.02				
10.75	2.34	0.22	0.03				
11.00	2.51	0.27	0.04				
11.25	2.71	0.35	0.05				
11.50	2.96	0.45	0.06				
11.75	3.34	0.62	0.11				
12.00	4.23	1.10	0.37				
12.25	5.49	1.91	0.29				
12.50	5.87	2.17	0.14				
12.75	6.12	2.35	0.10				
13.00	6.32	2.50	0.08				
13.25	6.49	2.62	0.07				
13.50	6.62	2.72	0.06				
13.75	6.74	2.81	0.05				
14.00	6.85	2.89	0.05				
14.25	6.95	2.96	0.05				
14.50	7.05	3.04	0.04				
14.75	7.13	3.10	0.04				
15.00	7.21	3.16	0.04				
15.25	7.28	3.22	0.03				
15.50	7.35	3.27	0.03				
15.75	7.42	3.32	0.03				
16.00	7.48	3.37	0.03				
16.25	7.55	3.42	0.03				
16.50	7.61	3.47	0.03				
16.75	7.67	3.52	0.03				
17.00	7.72	3.56	0.03				
17.25	7.77	3.60	0.02				
17.50	7.83	3.64	0.02				



proposed 32 norwood

infiltration



Routing Diagram for 32 norwood

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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)
0.056	49	50-75% Grass cover, Fair, HSG A (1S)
0.003	98	Paved parking, HSG A (1S)
0.089	98	Roofs, HSG A (1S)
0.148	80	TOTAL AREA

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Page 4**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	14.67	11.00	181.0	0.0203	0.010	6.0	0.0	0.0

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

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Summary for Subcatchment 1S: proposed 32 norwood

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

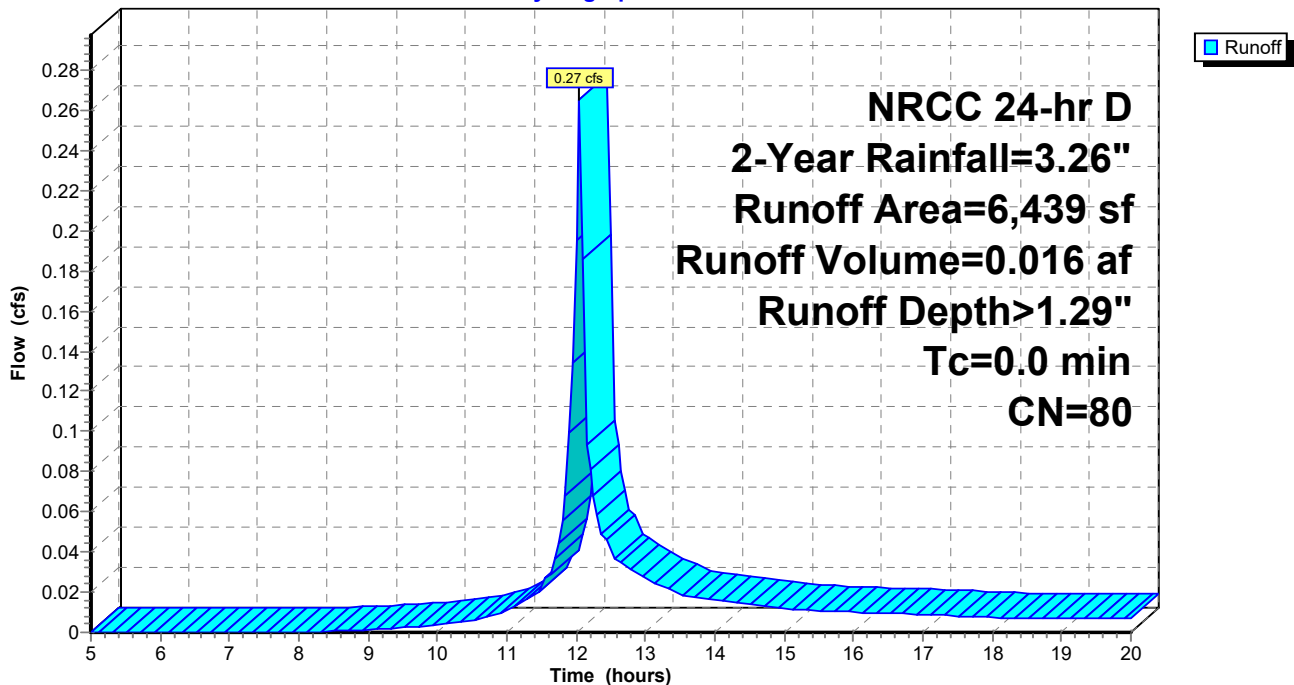
Runoff = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af, Depth> 1.29"

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
3,861	98	Roofs, HSG A
150	98	Paved parking, HSG A
2,428	49	50-75% Grass cover, Fair, HSG A
6,439	80	Weighted Average
2,428		37.71% Pervious Area
4,011		62.29% Impervious Area

Subcatchment 1S: proposed 32 norwood

Hydrograph



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32 Norwood Proposed Site
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Hydrograph for Subcatchment 1S: proposed 32 norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00	17.75	2.91	1.18	0.01
5.25	0.29	0.00	0.00	18.00	2.92	1.19	0.01
5.50	0.30	0.00	0.00	18.25	2.94	1.21	0.01
5.75	0.32	0.00	0.00	18.50	2.96	1.22	0.01
6.00	0.34	0.00	0.00	18.75	2.97	1.23	0.01
6.25	0.35	0.00	0.00	19.00	2.99	1.24	0.01
6.50	0.37	0.00	0.00	19.25	3.00	1.25	0.01
6.75	0.39	0.00	0.00	19.50	3.02	1.26	0.01
7.00	0.41	0.00	0.00	19.75	3.03	1.28	0.01
7.25	0.43	0.00	0.00	20.00	3.05	1.29	0.01
7.50	0.45	0.00	0.00				
7.75	0.47	0.00	0.00				
8.00	0.50	0.00	0.00				
8.25	0.52	0.00	0.00				
8.50	0.55	0.00	0.00				
8.75	0.57	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.63	0.01	0.00				
9.50	0.66	0.01	0.00				
9.75	0.69	0.01	0.00				
10.00	0.73	0.02	0.00				
10.25	0.77	0.03	0.00				
10.50	0.81	0.04	0.01				
10.75	0.87	0.05	0.01				
11.00	0.93	0.06	0.01				
11.25	1.00	0.08	0.02				
11.50	1.09	0.11	0.02				
11.75	1.23	0.17	0.04				
12.00	1.56	0.32	0.20				
12.25	2.03	0.58	0.07				
12.50	2.17	0.67	0.04				
12.75	2.26	0.73	0.03				
13.00	2.33	0.78	0.03				
13.25	2.39	0.82	0.02				
13.50	2.45	0.85	0.02				
13.75	2.49	0.88	0.02				
14.00	2.53	0.91	0.02				
14.25	2.57	0.94	0.02				
14.50	2.60	0.96	0.01				
14.75	2.63	0.98	0.01				
15.00	2.66	1.00	0.01				
15.25	2.69	1.02	0.01				
15.50	2.71	1.04	0.01				
15.75	2.74	1.06	0.01				
16.00	2.76	1.08	0.01				
16.25	2.79	1.09	0.01				
16.50	2.81	1.11	0.01				
16.75	2.83	1.12	0.01				
17.00	2.85	1.14	0.01				
17.25	2.87	1.15	0.01				
17.50	2.89	1.17	0.01				

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Summary for Pond 2P: infiltration

Inflow Area = 0.148 ac, 62.29% Impervious, Inflow Depth > 1.29" for 2-Year event
Inflow = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af
Outflow = 0.02 cfs @ 11.40 hrs, Volume= 0.013 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.40 hrs, Volume= 0.013 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 / 2
Peak Elev= 13.27' @ 14.02 hrs Surf.Area= 0.007 ac Storage= 0.007 af

Plug-Flow detention time= 168.4 min calculated for 0.013 af (79% of inflow)
Center-of-Mass det. time= 106.9 min (914.6 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.20'	0.004 af	23.00'W x 12.50'L x 3.83'H Field A 0.025 af Overall - 0.011 af Embedded = 0.014 af x 30.0% Voids
#2A	12.20'	0.009 af	Shea Dry Well 1000gal x 3 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 3 Chambers in 3 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.20'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.67'	6.0" Round Culvert L= 181.0' Ke= 0.500 Inlet / Outlet Invert= 14.67' / 11.00' S= 0.0203 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 11.40 hrs HW=11.24' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=11.20' (Free Discharge)

↑2=Culvert (Controls 0.00 cfs)

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Pond 2P: infiltration - 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 + 24.0" Spacing = 92.0" C-C Row Spacing

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

3 Rows x 68.0" Wide + 24.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width

12.0" Base + 34.0" Chamber Height = 3.83' Field Height

3 Chambers x 128.6 cf = 385.8 cf Chamber Storage

3 Chambers x 165.9 cf = 497.8 cf Displacement

1,101.2 cf Field - 497.8 cf Chambers = 603.4 cf Stone x 30.0% Voids = 181.0 cf Stone Storage

Chamber Storage + Stone Storage = 566.9 cf = 0.013 af

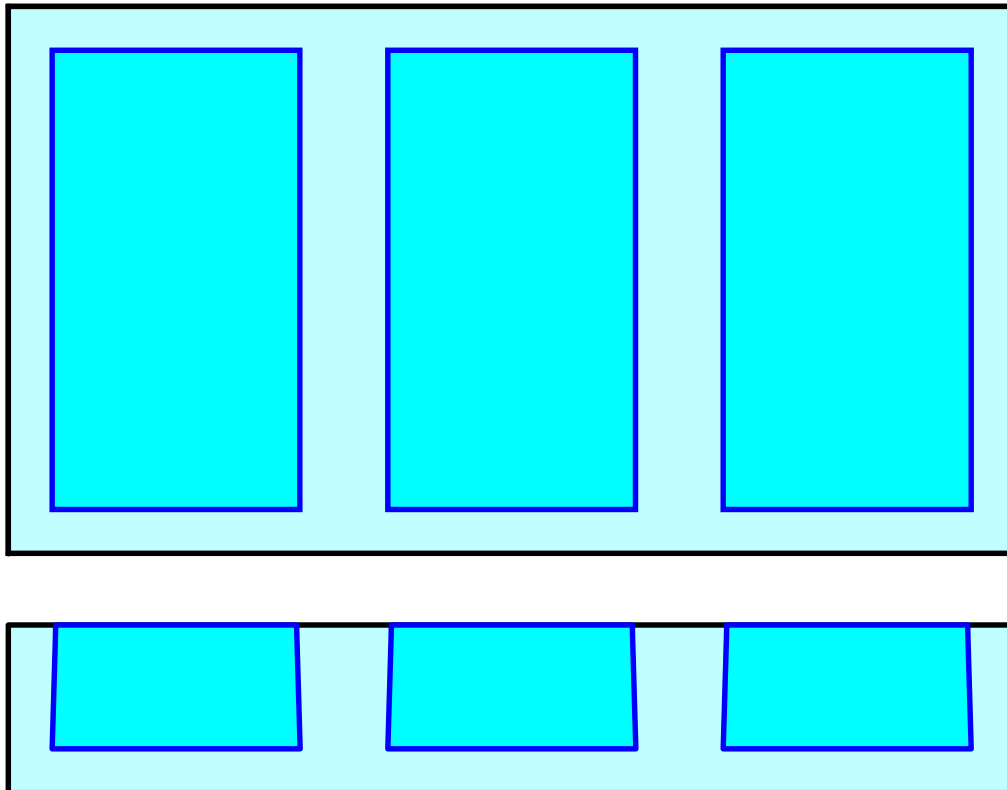
Overall Storage Efficiency = 51.5%

Overall System Size = 12.50' x 23.00' x 3.83'

3 Chambers

40.8 cy Field

22.3 cy Stone



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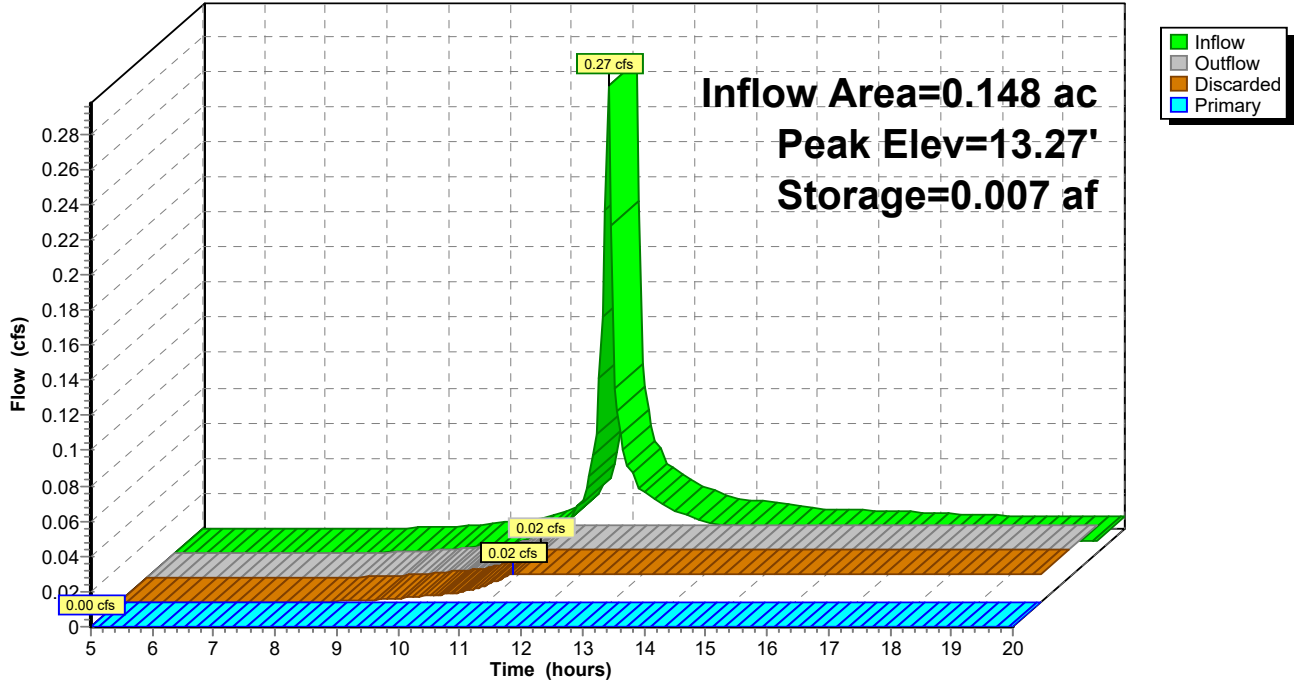
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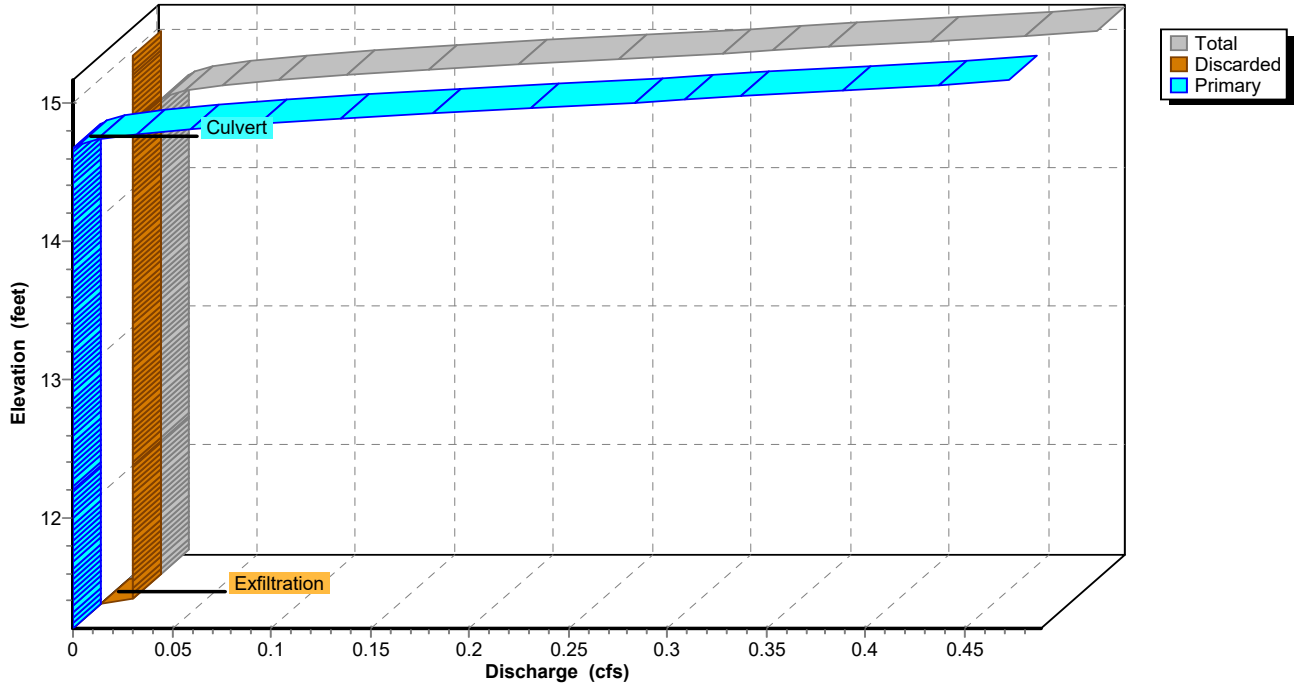
Pond 2P: infiltration

Hydrograph

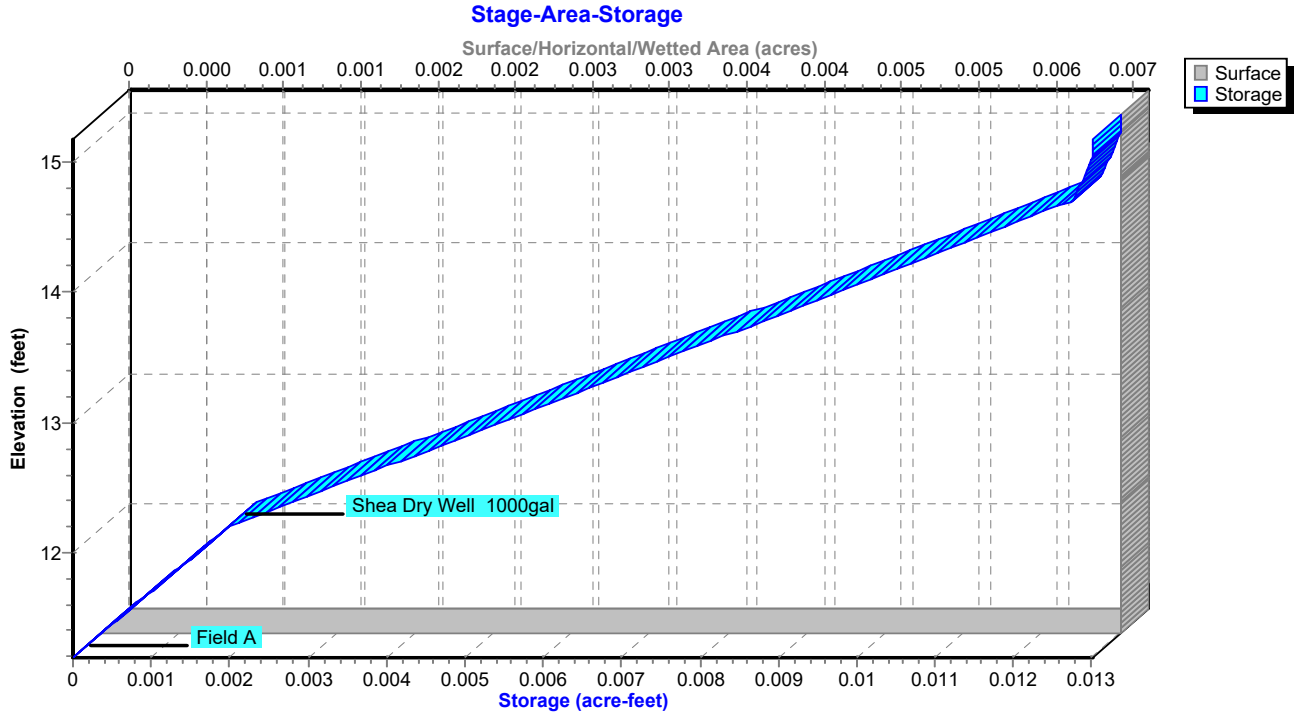


Pond 2P: infiltration

Stage-Discharge



Pond 2P: infiltration



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Hydrograph for Pond 2P: infiltration

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	11.20	0.00	0.00	0.00
5.50	0.00	0.000	11.20	0.00	0.00	0.00
6.00	0.00	0.000	11.20	0.00	0.00	0.00
6.50	0.00	0.000	11.20	0.00	0.00	0.00
7.00	0.00	0.000	11.20	0.00	0.00	0.00
7.50	0.00	0.000	11.20	0.00	0.00	0.00
8.00	0.00	0.000	11.20	0.00	0.00	0.00
8.50	0.00	0.000	11.20	0.00	0.00	0.00
9.00	0.00	0.000	11.20	0.00	0.00	0.00
9.50	0.00	0.000	11.21	0.00	0.00	0.00
10.00	0.00	0.000	11.21	0.00	0.00	0.00
10.50	0.01	0.000	11.21	0.01	0.01	0.00
11.00	0.01	0.000	11.22	0.01	0.01	0.00
11.50	0.02	0.000	11.26	0.02	0.02	0.00
12.00	0.20	0.002	12.22	0.02	0.02	0.00
12.50	0.04	0.006	13.04	0.02	0.02	0.00
13.00	0.03	0.006	13.19	0.02	0.02	0.00
13.50	0.02	0.007	13.26	0.02	0.02	0.00
14.00	0.02	0.007	13.27	0.02	0.02	0.00
14.50	0.01	0.007	13.26	0.02	0.02	0.00
15.00	0.01	0.006	13.23	0.02	0.02	0.00
15.50	0.01	0.006	13.18	0.02	0.02	0.00
16.00	0.01	0.006	13.13	0.02	0.02	0.00
16.50	0.01	0.006	13.07	0.02	0.02	0.00
17.00	0.01	0.005	13.00	0.02	0.02	0.00
17.50	0.01	0.005	12.93	0.02	0.02	0.00
18.00	0.01	0.005	12.85	0.02	0.02	0.00
18.50	0.01	0.004	12.77	0.02	0.02	0.00
19.00	0.01	0.004	12.68	0.02	0.02	0.00
19.50	0.01	0.004	12.59	0.02	0.02	0.00
20.00	0.01	0.003	12.51	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
11.20	0.00	0.00	0.00	13.75	0.02	0.02	0.00
11.25	0.02	0.02	0.00	13.80	0.02	0.02	0.00
11.30	0.02	0.02	0.00	13.85	0.02	0.02	0.00
11.35	0.02	0.02	0.00	13.90	0.02	0.02	0.00
11.40	0.02	0.02	0.00	13.95	0.02	0.02	0.00
11.45	0.02	0.02	0.00	14.00	0.02	0.02	0.00
11.50	0.02	0.02	0.00	14.05	0.02	0.02	0.00
11.55	0.02	0.02	0.00	14.10	0.02	0.02	0.00
11.60	0.02	0.02	0.00	14.15	0.02	0.02	0.00
11.65	0.02	0.02	0.00	14.20	0.02	0.02	0.00
11.70	0.02	0.02	0.00	14.25	0.02	0.02	0.00
11.75	0.02	0.02	0.00	14.30	0.02	0.02	0.00
11.80	0.02	0.02	0.00	14.35	0.02	0.02	0.00
11.85	0.02	0.02	0.00	14.40	0.02	0.02	0.00
11.90	0.02	0.02	0.00	14.45	0.02	0.02	0.00
11.95	0.02	0.02	0.00	14.50	0.02	0.02	0.00
12.00	0.02	0.02	0.00	14.55	0.02	0.02	0.00
12.05	0.02	0.02	0.00	14.60	0.02	0.02	0.00
12.10	0.02	0.02	0.00	14.65	0.02	0.02	0.00
12.15	0.02	0.02	0.00	14.70	0.02	0.02	0.00
12.20	0.02	0.02	0.00	14.75	0.04	0.02	0.02
12.25	0.02	0.02	0.00	14.80	0.07	0.02	0.05
12.30	0.02	0.02	0.00	14.85	0.11	0.02	0.09
12.35	0.02	0.02	0.00	14.90	0.16	0.02	0.14
12.40	0.02	0.02	0.00	14.95	0.22	0.02	0.20
12.45	0.02	0.02	0.00	15.00	0.28	0.02	0.27
12.50	0.02	0.02	0.00	15.05	0.35	0.02	0.34
12.55	0.02	0.02	0.00	15.10	0.42	0.02	0.40
12.60	0.02	0.02	0.00	15.15	0.47	0.02	0.46
12.65	0.02	0.02	0.00				
12.70	0.02	0.02	0.00				
12.75	0.02	0.02	0.00				
12.80	0.02	0.02	0.00				
12.85	0.02	0.02	0.00				
12.90	0.02	0.02	0.00				
12.95	0.02	0.02	0.00				
13.00	0.02	0.02	0.00				
13.05	0.02	0.02	0.00				
13.10	0.02	0.02	0.00				
13.15	0.02	0.02	0.00				
13.20	0.02	0.02	0.00				
13.25	0.02	0.02	0.00				
13.30	0.02	0.02	0.00				
13.35	0.02	0.02	0.00				
13.40	0.02	0.02	0.00				
13.45	0.02	0.02	0.00				
13.50	0.02	0.02	0.00				
13.55	0.02	0.02	0.00				
13.60	0.02	0.02	0.00				
13.65	0.02	0.02	0.00				
13.70	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: infiltration

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
11.20	0.007	0.000	13.75	0.007	0.009
11.25	0.007	0.000	13.80	0.007	0.009
11.30	0.007	0.000	13.85	0.007	0.009
11.35	0.007	0.000	13.90	0.007	0.009
11.40	0.007	0.000	13.95	0.007	0.010
11.45	0.007	0.000	14.00	0.007	0.010
11.50	0.007	0.001	14.05	0.007	0.010
11.55	0.007	0.001	14.10	0.007	0.010
11.60	0.007	0.001	14.15	0.007	0.010
11.65	0.007	0.001	14.20	0.007	0.011
11.70	0.007	0.001	14.25	0.007	0.011
11.75	0.007	0.001	14.30	0.007	0.011
11.80	0.007	0.001	14.35	0.007	0.011
11.85	0.007	0.001	14.40	0.007	0.011
11.90	0.007	0.001	14.45	0.007	0.012
11.95	0.007	0.001	14.50	0.007	0.012
12.00	0.007	0.002	14.55	0.007	0.012
12.05	0.007	0.002	14.60	0.007	0.012
12.10	0.007	0.002	14.65	0.007	0.013
12.15	0.007	0.002	14.70	0.007	0.013
12.20	0.007	0.002	14.75	0.007	0.013
12.25	0.007	0.002	14.80	0.007	0.013
12.30	0.007	0.002	14.85	0.007	0.013
12.35	0.007	0.003	14.90	0.007	0.013
12.40	0.007	0.003	14.95	0.007	0.013
12.45	0.007	0.003	15.00	0.007	0.013
12.50	0.007	0.003	15.05	0.007	0.013
12.55	0.007	0.003	15.10	0.007	0.013
12.60	0.007	0.004	15.15	0.007	0.013
12.65	0.007	0.004			
12.70	0.007	0.004			
12.75	0.007	0.004			
12.80	0.007	0.005			
12.85	0.007	0.005			
12.90	0.007	0.005			
12.95	0.007	0.005			
13.00	0.007	0.005			
13.05	0.007	0.006			
13.10	0.007	0.006			
13.15	0.007	0.006			
13.20	0.007	0.006			
13.25	0.007	0.007			
13.30	0.007	0.007			
13.35	0.007	0.007			
13.40	0.007	0.007			
13.45	0.007	0.007			
13.50	0.007	0.008			
13.55	0.007	0.008			
13.60	0.007	0.008			
13.65	0.007	0.008			
13.70	0.007	0.008			

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32 Norwood Proposed Site
NRCC 24-hr D 10-Year Rainfall=4.90"

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Summary for Subcatchment 1S: proposed 32 norwood

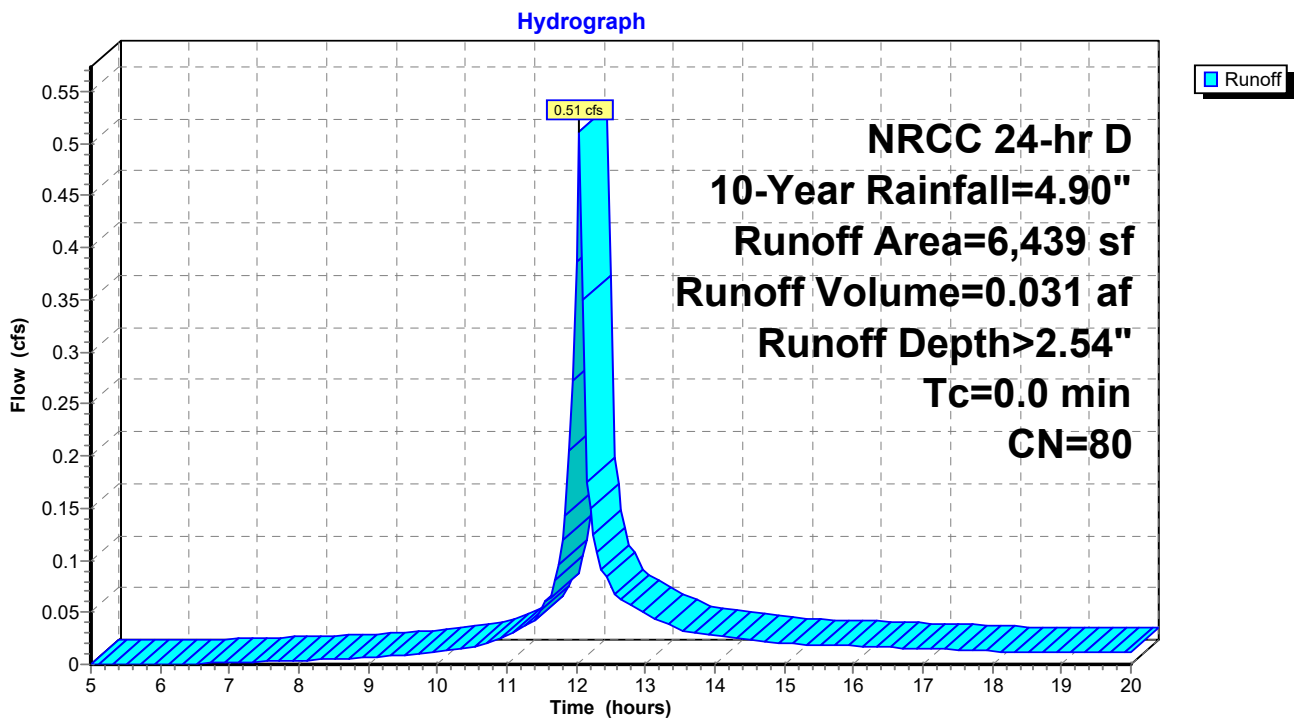
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.51 cfs @ 12.05 hrs, Volume= 0.031 af, Depth> 2.54"

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
3,861	98	Roofs, HSG A
150	98	Paved parking, HSG A
2,428	49	50-75% Grass cover, Fair, HSG A
6,439	80	Weighted Average
2,428		37.71% Pervious Area
4,011		62.29% Impervious Area

Subcatchment 1S: proposed 32 norwood



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NRCC 24-hr D 10-Year Rainfall=4.90"

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Hydrograph for Subcatchment 1S: proposed 32 norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.41	0.00	0.00	17.75	4.37	2.35	0.01
5.25	0.43	0.00	0.00	18.00	4.40	2.37	0.01
5.50	0.46	0.00	0.00	18.25	4.42	2.39	0.01
5.75	0.48	0.00	0.00	18.50	4.44	2.41	0.01
6.00	0.50	0.00	0.00	18.75	4.47	2.43	0.01
6.25	0.53	0.00	0.00	19.00	4.49	2.46	0.01
6.50	0.56	0.00	0.00	19.25	4.52	2.47	0.01
6.75	0.59	0.00	0.00	19.50	4.54	2.49	0.01
7.00	0.62	0.01	0.00	19.75	4.56	2.51	0.01
7.25	0.65	0.01	0.00	20.00	4.58	2.53	0.01
7.50	0.68	0.01	0.00				
7.75	0.71	0.02	0.00				
8.00	0.75	0.02	0.00				
8.25	0.78	0.03	0.00				
8.50	0.82	0.04	0.00				
8.75	0.86	0.05	0.01				
9.00	0.90	0.06	0.01				
9.25	0.94	0.07	0.01				
9.50	0.99	0.08	0.01				
9.75	1.04	0.10	0.01				
10.00	1.10	0.12	0.01				
10.25	1.16	0.14	0.01				
10.50	1.22	0.16	0.02				
10.75	1.30	0.19	0.02				
11.00	1.39	0.23	0.03				
11.25	1.51	0.29	0.04				
11.50	1.64	0.36	0.05				
11.75	1.85	0.47	0.10				
12.00	2.35	0.78	0.39				
12.25	3.05	1.29	0.12				
12.50	3.26	1.45	0.08				
12.75	3.39	1.55	0.06				
13.00	3.51	1.64	0.05				
13.25	3.60	1.72	0.04				
13.50	3.68	1.78	0.03				
13.75	3.74	1.83	0.03				
14.00	3.80	1.88	0.03				
14.25	3.86	1.92	0.03				
14.50	3.91	1.97	0.02				
14.75	3.96	2.01	0.02				
15.00	4.00	2.04	0.02				
15.25	4.04	2.08	0.02				
15.50	4.08	2.11	0.02				
15.75	4.12	2.14	0.02				
16.00	4.15	2.17	0.02				
16.25	4.19	2.20	0.02				
16.50	4.22	2.23	0.02				
16.75	4.25	2.25	0.02				
17.00	4.28	2.28	0.02				
17.25	4.31	2.30	0.01				
17.50	4.34	2.33	0.01				

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NRCC 24-hr D 10-Year Rainfall=4.90"

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Summary for Pond 2P: infiltration

Inflow Area = 0.148 ac, 62.29% Impervious, Inflow Depth > 2.54" for 10-Year event
Inflow = 0.51 cfs @ 12.05 hrs, Volume= 0.031 af
Outflow = 0.09 cfs @ 12.47 hrs, Volume= 0.019 af, Atten= 83%, Lag= 25.5 min
Discarded = 0.02 cfs @ 10.55 hrs, Volume= 0.015 af
Primary = 0.07 cfs @ 12.47 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 14.84' @ 12.47 hrs Surf.Area= 0.007 ac Storage= 0.013 af

Plug-Flow detention time= 150.4 min calculated for 0.019 af (62% of inflow)
Center-of-Mass det. time= 63.8 min (852.1 - 788.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.20'	0.004 af	23.00'W x 12.50'L x 3.83'H Field A 0.025 af Overall - 0.011 af Embedded = 0.014 af x 30.0% Voids
#2A	12.20'	0.009 af	Shea Dry Well 1000gal x 3 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 3 Chambers in 3 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.20'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.67'	6.0" Round Culvert L= 181.0' Ke= 0.500 Inlet / Outlet Invert= 14.67' / 11.00' S= 0.0203 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 10.55 hrs HW=11.24' (Free Discharge)

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

Primary OutFlow Max=0.06 cfs @ 12.47 hrs HW=14.82' (Free Discharge)

↑**2=Culvert** (Inlet Controls 0.06 cfs @ 1.31 fps)

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Pond 2P: infiltration - 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 + 24.0" Spacing = 92.0" C-C Row Spacing

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

3 Rows x 68.0" Wide + 24.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width

12.0" Base + 34.0" Chamber Height = 3.83' Field Height

3 Chambers x 128.6 cf = 385.8 cf Chamber Storage

3 Chambers x 165.9 cf = 497.8 cf Displacement

1,101.2 cf Field - 497.8 cf Chambers = 603.4 cf Stone x 30.0% Voids = 181.0 cf Stone Storage

Chamber Storage + Stone Storage = 566.9 cf = 0.013 af

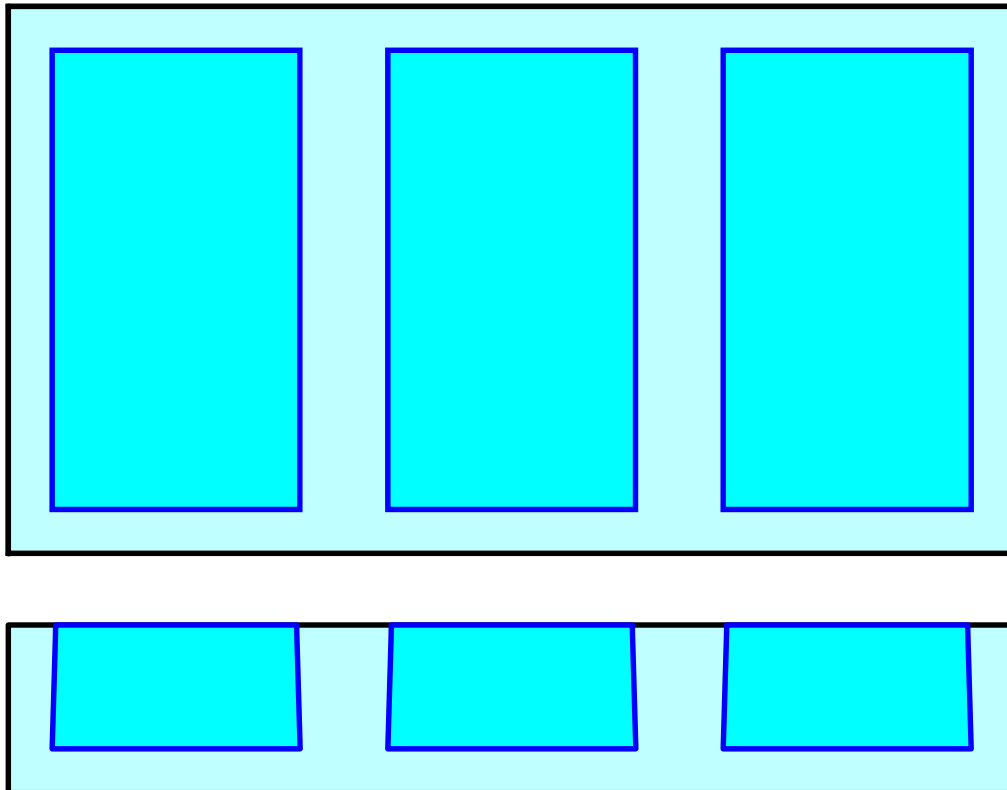
Overall Storage Efficiency = 51.5%

Overall System Size = 12.50' x 23.00' x 3.83'

3 Chambers

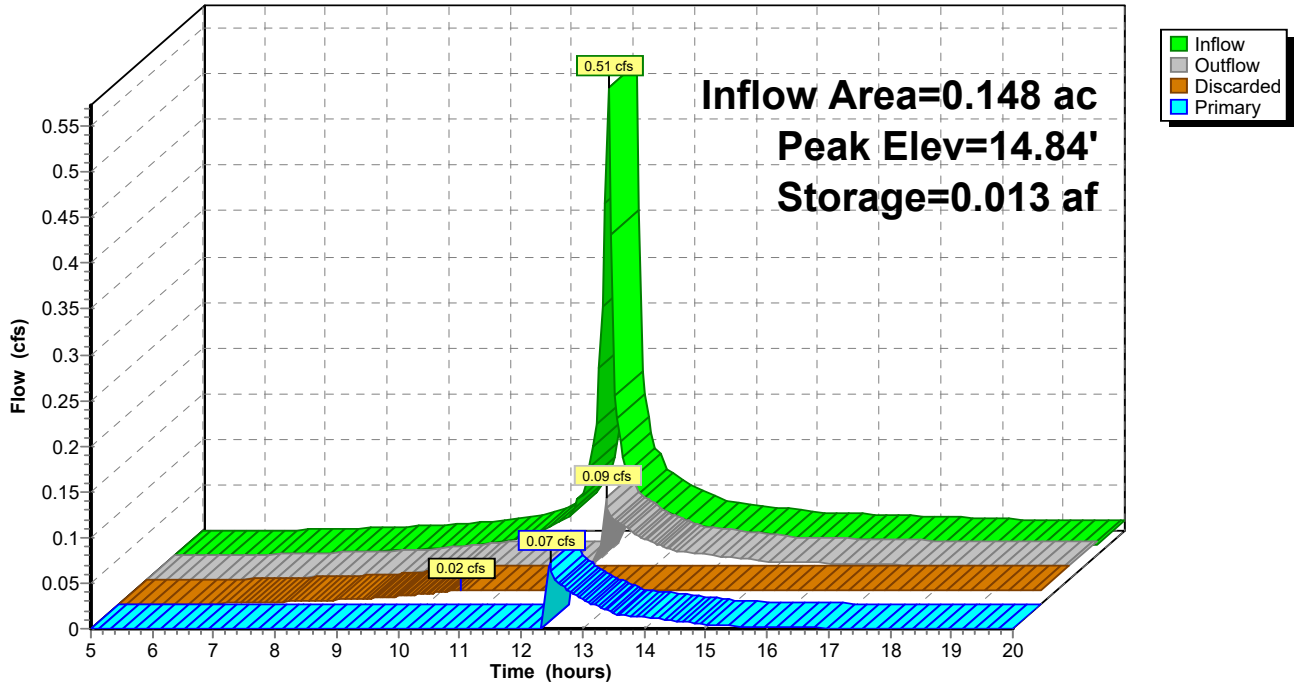
40.8 cy Field

22.3 cy Stone



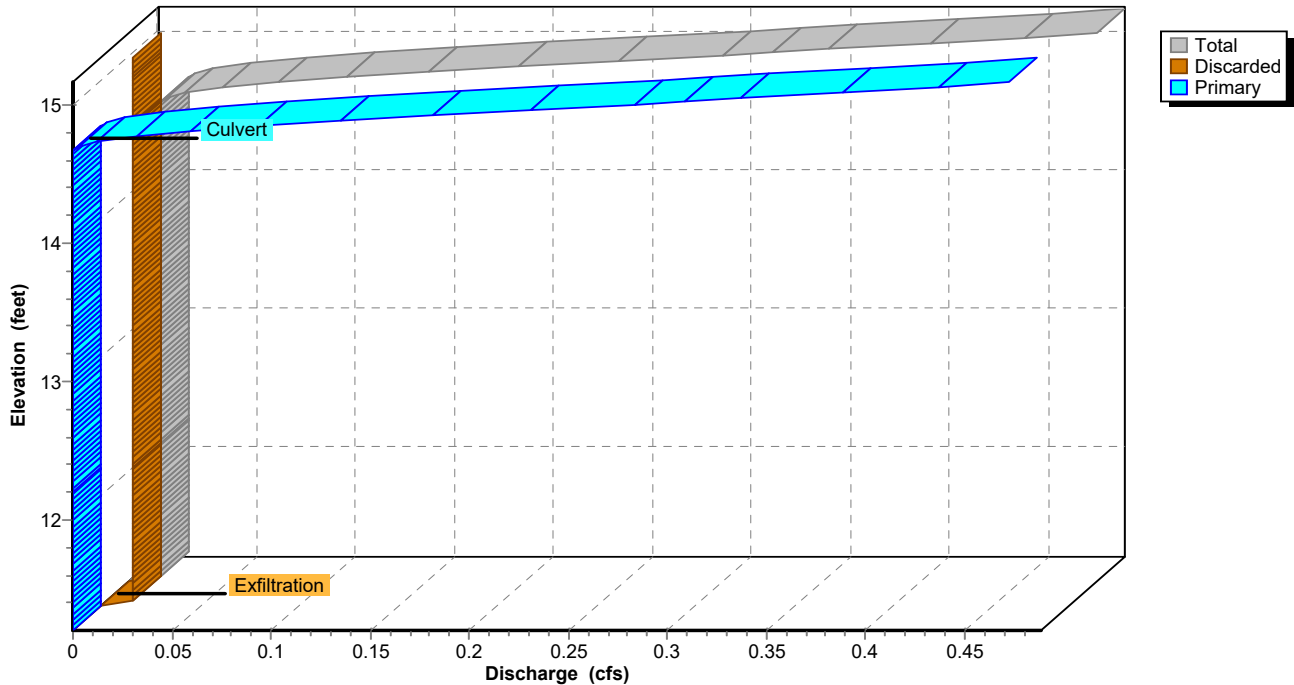
Pond 2P: infiltration

Hydrograph

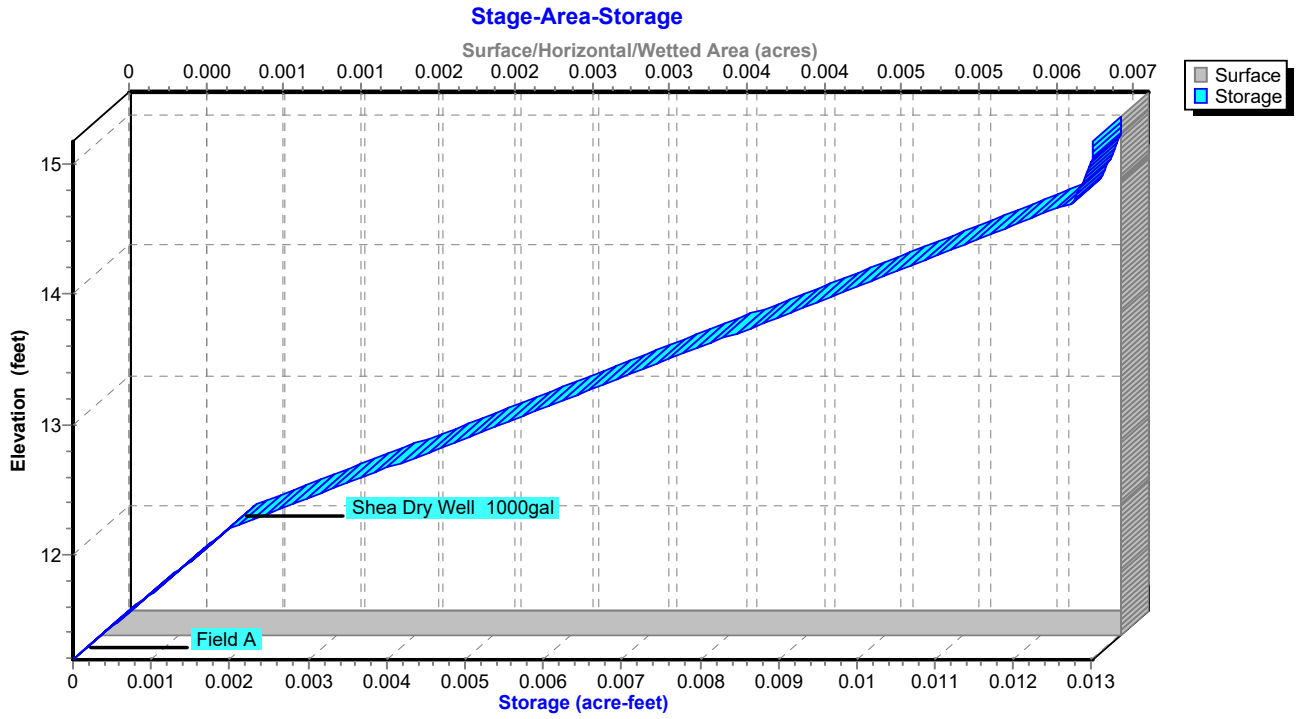


Pond 2P: infiltration

Stage-Discharge



Pond 2P: infiltration



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Hydrograph for Pond 2P: infiltration

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	11.20	0.00	0.00	0.00
5.50	0.00	0.000	11.20	0.00	0.00	0.00
6.00	0.00	0.000	11.20	0.00	0.00	0.00
6.50	0.00	0.000	11.20	0.00	0.00	0.00
7.00	0.00	0.000	11.20	0.00	0.00	0.00
7.50	0.00	0.000	11.21	0.00	0.00	0.00
8.00	0.00	0.000	11.21	0.00	0.00	0.00
8.50	0.00	0.000	11.21	0.00	0.00	0.00
9.00	0.01	0.000	11.22	0.01	0.01	0.00
9.50	0.01	0.000	11.22	0.01	0.01	0.00
10.00	0.01	0.000	11.23	0.01	0.01	0.00
10.50	0.02	0.000	11.24	0.02	0.02	0.00
11.00	0.03	0.000	11.35	0.02	0.02	0.00
11.50	0.05	0.001	11.79	0.02	0.02	0.00
12.00	0.39	0.006	13.12	0.02	0.02	0.00
12.50	0.08	0.013	14.82	0.08	0.02	0.06
13.00	0.05	0.013	14.77	0.05	0.02	0.03
13.50	0.03	0.013	14.74	0.03	0.02	0.02
14.00	0.03	0.013	14.73	0.03	0.02	0.01
14.50	0.02	0.013	14.72	0.02	0.02	0.01
15.00	0.02	0.013	14.71	0.02	0.02	0.00
15.50	0.02	0.013	14.70	0.02	0.02	0.00
16.00	0.02	0.013	14.70	0.02	0.02	0.00
16.50	0.02	0.013	14.69	0.02	0.02	0.00
17.00	0.02	0.013	14.68	0.02	0.02	0.00
17.50	0.01	0.013	14.66	0.02	0.02	0.00
18.00	0.01	0.012	14.64	0.02	0.02	0.00
18.50	0.01	0.012	14.60	0.02	0.02	0.00
19.00	0.01	0.012	14.56	0.02	0.02	0.00
19.50	0.01	0.012	14.52	0.02	0.02	0.00
20.00	0.01	0.012	14.48	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
11.20	0.00	0.00	0.00	13.75	0.02	0.02	0.00
11.25	0.02	0.02	0.00	13.80	0.02	0.02	0.00
11.30	0.02	0.02	0.00	13.85	0.02	0.02	0.00
11.35	0.02	0.02	0.00	13.90	0.02	0.02	0.00
11.40	0.02	0.02	0.00	13.95	0.02	0.02	0.00
11.45	0.02	0.02	0.00	14.00	0.02	0.02	0.00
11.50	0.02	0.02	0.00	14.05	0.02	0.02	0.00
11.55	0.02	0.02	0.00	14.10	0.02	0.02	0.00
11.60	0.02	0.02	0.00	14.15	0.02	0.02	0.00
11.65	0.02	0.02	0.00	14.20	0.02	0.02	0.00
11.70	0.02	0.02	0.00	14.25	0.02	0.02	0.00
11.75	0.02	0.02	0.00	14.30	0.02	0.02	0.00
11.80	0.02	0.02	0.00	14.35	0.02	0.02	0.00
11.85	0.02	0.02	0.00	14.40	0.02	0.02	0.00
11.90	0.02	0.02	0.00	14.45	0.02	0.02	0.00
11.95	0.02	0.02	0.00	14.50	0.02	0.02	0.00
12.00	0.02	0.02	0.00	14.55	0.02	0.02	0.00
12.05	0.02	0.02	0.00	14.60	0.02	0.02	0.00
12.10	0.02	0.02	0.00	14.65	0.02	0.02	0.00
12.15	0.02	0.02	0.00	14.70	0.02	0.02	0.00
12.20	0.02	0.02	0.00	14.75	0.04	0.02	0.02
12.25	0.02	0.02	0.00	14.80	0.07	0.02	0.05
12.30	0.02	0.02	0.00	14.85	0.11	0.02	0.09
12.35	0.02	0.02	0.00	14.90	0.16	0.02	0.14
12.40	0.02	0.02	0.00	14.95	0.22	0.02	0.20
12.45	0.02	0.02	0.00	15.00	0.28	0.02	0.27
12.50	0.02	0.02	0.00	15.05	0.35	0.02	0.34
12.55	0.02	0.02	0.00	15.10	0.42	0.02	0.40
12.60	0.02	0.02	0.00	15.15	0.47	0.02	0.46
12.65	0.02	0.02	0.00				
12.70	0.02	0.02	0.00				
12.75	0.02	0.02	0.00				
12.80	0.02	0.02	0.00				
12.85	0.02	0.02	0.00				
12.90	0.02	0.02	0.00				
12.95	0.02	0.02	0.00				
13.00	0.02	0.02	0.00				
13.05	0.02	0.02	0.00				
13.10	0.02	0.02	0.00				
13.15	0.02	0.02	0.00				
13.20	0.02	0.02	0.00				
13.25	0.02	0.02	0.00				
13.30	0.02	0.02	0.00				
13.35	0.02	0.02	0.00				
13.40	0.02	0.02	0.00				
13.45	0.02	0.02	0.00				
13.50	0.02	0.02	0.00				
13.55	0.02	0.02	0.00				
13.60	0.02	0.02	0.00				
13.65	0.02	0.02	0.00				
13.70	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: infiltration

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
11.20	0.007	0.000	13.75	0.007	0.009
11.25	0.007	0.000	13.80	0.007	0.009
11.30	0.007	0.000	13.85	0.007	0.009
11.35	0.007	0.000	13.90	0.007	0.009
11.40	0.007	0.000	13.95	0.007	0.010
11.45	0.007	0.000	14.00	0.007	0.010
11.50	0.007	0.001	14.05	0.007	0.010
11.55	0.007	0.001	14.10	0.007	0.010
11.60	0.007	0.001	14.15	0.007	0.010
11.65	0.007	0.001	14.20	0.007	0.011
11.70	0.007	0.001	14.25	0.007	0.011
11.75	0.007	0.001	14.30	0.007	0.011
11.80	0.007	0.001	14.35	0.007	0.011
11.85	0.007	0.001	14.40	0.007	0.011
11.90	0.007	0.001	14.45	0.007	0.012
11.95	0.007	0.001	14.50	0.007	0.012
12.00	0.007	0.002	14.55	0.007	0.012
12.05	0.007	0.002	14.60	0.007	0.012
12.10	0.007	0.002	14.65	0.007	0.013
12.15	0.007	0.002	14.70	0.007	0.013
12.20	0.007	0.002	14.75	0.007	0.013
12.25	0.007	0.002	14.80	0.007	0.013
12.30	0.007	0.002	14.85	0.007	0.013
12.35	0.007	0.003	14.90	0.007	0.013
12.40	0.007	0.003	14.95	0.007	0.013
12.45	0.007	0.003	15.00	0.007	0.013
12.50	0.007	0.003	15.05	0.007	0.013
12.55	0.007	0.003	15.10	0.007	0.013
12.60	0.007	0.004	15.15	0.007	0.013
12.65	0.007	0.004			
12.70	0.007	0.004			
12.75	0.007	0.004			
12.80	0.007	0.005			
12.85	0.007	0.005			
12.90	0.007	0.005			
12.95	0.007	0.005			
13.00	0.007	0.005			
13.05	0.007	0.006			
13.10	0.007	0.006			
13.15	0.007	0.006			
13.20	0.007	0.006			
13.25	0.007	0.007			
13.30	0.007	0.007			
13.35	0.007	0.007			
13.40	0.007	0.007			
13.45	0.007	0.007			
13.50	0.007	0.008			
13.55	0.007	0.008			
13.60	0.007	0.008			
13.65	0.007	0.008			
13.70	0.007	0.008			

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32 Norwood Proposed Site
NRCC 24-hr D 25-Year Rainfall=6.19"

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Summary for Subcatchment 1S: proposed 32 norwood

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

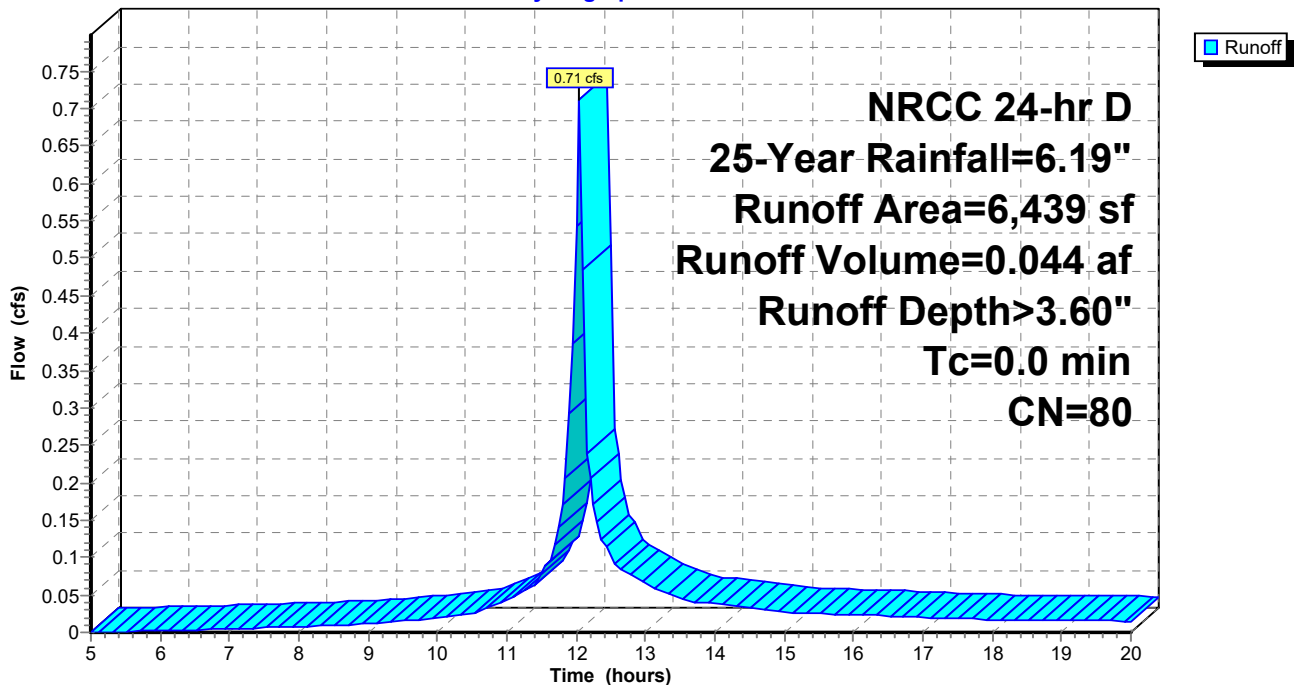
Runoff = 0.71 cfs @ 12.05 hrs, Volume= 0.044 af, Depth> 3.60"

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
3,861	98	Roofs, HSG A
150	98	Paved parking, HSG A
2,428	49	50-75% Grass cover, Fair, HSG A
6,439	80	Weighted Average
2,428		37.71% Pervious Area
4,011		62.29% Impervious Area

Subcatchment 1S: proposed 32 norwood

Hydrograph



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32 Norwood Proposed Site

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

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Hydrograph for Subcatchment 1S: proposed 32 norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.51	0.00	0.00	17.75	5.52	3.35	0.02
5.25	0.54	0.00	0.00	18.00	5.55	3.38	0.02
5.50	0.58	0.00	0.00	18.25	5.58	3.41	0.02
5.75	0.61	0.00	0.00	18.50	5.61	3.44	0.02
6.00	0.64	0.01	0.00	18.75	5.65	3.46	0.02
6.25	0.67	0.01	0.00	19.00	5.68	3.49	0.02
6.50	0.70	0.02	0.00	19.25	5.70	3.52	0.02
6.75	0.74	0.02	0.00	19.50	5.73	3.54	0.02
7.00	0.78	0.03	0.00	19.75	5.76	3.57	0.02
7.25	0.82	0.04	0.01	20.00	5.79	3.59	0.02
7.50	0.86	0.04	0.01				
7.75	0.90	0.06	0.01				
8.00	0.94	0.07	0.01				
8.25	0.99	0.08	0.01				
8.50	1.04	0.09	0.01				
8.75	1.09	0.11	0.01				
9.00	1.14	0.13	0.01				
9.25	1.19	0.15	0.01				
9.50	1.25	0.17	0.02				
9.75	1.32	0.20	0.02				
10.00	1.39	0.23	0.02				
10.25	1.46	0.27	0.02				
10.50	1.55	0.31	0.03				
10.75	1.64	0.36	0.03				
11.00	1.76	0.42	0.04				
11.25	1.90	0.50	0.06				
11.50	2.07	0.61	0.08				
11.75	2.34	0.78	0.14				
12.00	2.97	1.22	0.54				
12.25	3.85	1.92	0.17				
12.50	4.12	2.14	0.10				
12.75	4.29	2.28	0.08				
13.00	4.43	2.40	0.06				
13.25	4.55	2.50	0.05				
13.50	4.64	2.58	0.04				
13.75	4.73	2.65	0.04				
14.00	4.80	2.72	0.04				
14.25	4.87	2.78	0.04				
14.50	4.94	2.84	0.03				
14.75	5.00	2.89	0.03				
15.00	5.05	2.94	0.03				
15.25	5.10	2.98	0.03				
15.50	5.15	3.03	0.03				
15.75	5.20	3.07	0.02				
16.00	5.25	3.11	0.02				
16.25	5.29	3.15	0.02				
16.50	5.33	3.19	0.02				
16.75	5.37	3.22	0.02				
17.00	5.41	3.26	0.02				
17.25	5.45	3.29	0.02				
17.50	5.49	3.32	0.02				

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Summary for Pond 2P: infiltration

Inflow Area = 0.148 ac, 62.29% Impervious, Inflow Depth > 3.60" for 25-Year event
Inflow = 0.71 cfs @ 12.05 hrs, Volume= 0.044 af
Outflow = 0.28 cfs @ 12.11 hrs, Volume= 0.029 af, Atten= 60%, Lag= 3.8 min
Discarded = 0.02 cfs @ 9.65 hrs, Volume= 0.016 af
Primary = 0.27 cfs @ 12.11 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 15.01' @ 12.11 hrs Surf.Area= 0.007 ac Storage= 0.013 af

Plug-Flow detention time= 121.2 min calculated for 0.029 af (66% of inflow)
Center-of-Mass det. time= 39.6 min (817.4 - 777.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.20'	0.004 af	23.00'W x 12.50'L x 3.83'H Field A 0.025 af Overall - 0.011 af Embedded = 0.014 af x 30.0% Voids
#2A	12.20'	0.009 af	Shea Dry Well 1000gal x 3 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 3 Chambers in 3 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.20'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.67'	6.0" Round Culvert L= 181.0' Ke= 0.500 Inlet / Outlet Invert= 14.67' / 11.00' S= 0.0203 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 9.65 hrs HW=11.24' (Free Discharge)

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

Primary OutFlow Max=0.24 cfs @ 12.11 hrs HW=14.97' (Free Discharge)

↑**2=Culvert** (Inlet Controls 0.24 cfs @ 1.88 fps)

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Pond 2P: infiltration - 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 + 24.0" Spacing = 92.0" C-C Row Spacing

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

3 Rows x 68.0" Wide + 24.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width

12.0" Base + 34.0" Chamber Height = 3.83' Field Height

3 Chambers x 128.6 cf = 385.8 cf Chamber Storage

3 Chambers x 165.9 cf = 497.8 cf Displacement

1,101.2 cf Field - 497.8 cf Chambers = 603.4 cf Stone x 30.0% Voids = 181.0 cf Stone Storage

Chamber Storage + Stone Storage = 566.9 cf = 0.013 af

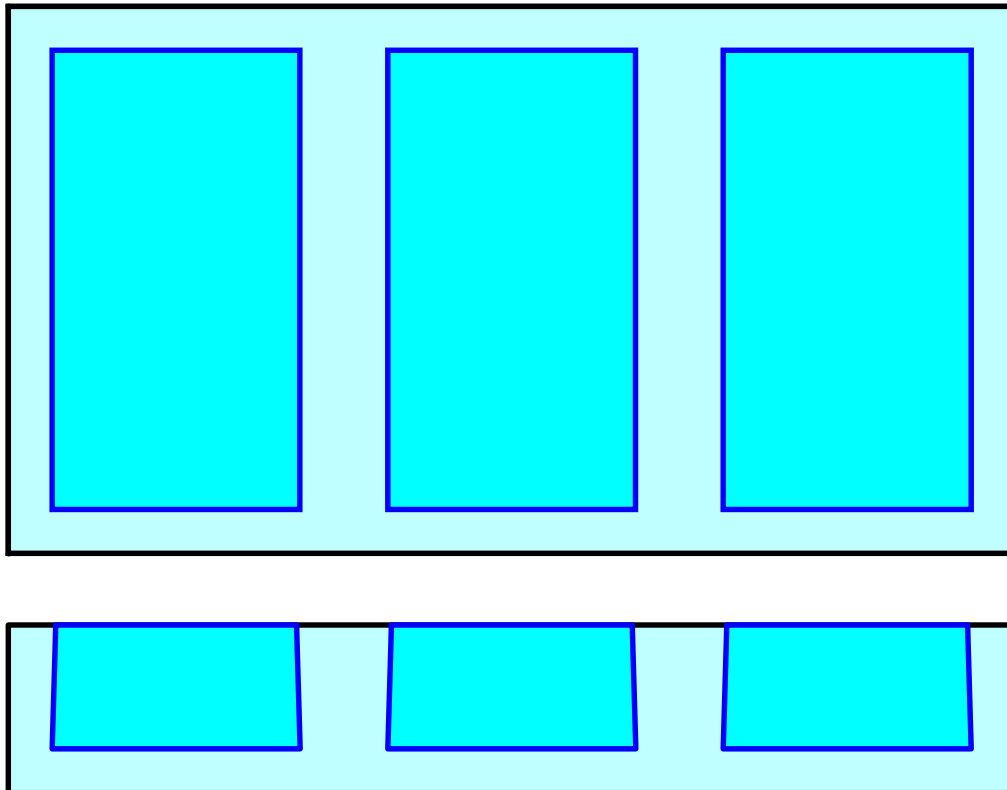
Overall Storage Efficiency = 51.5%

Overall System Size = 12.50' x 23.00' x 3.83'

3 Chambers

40.8 cy Field

22.3 cy Stone



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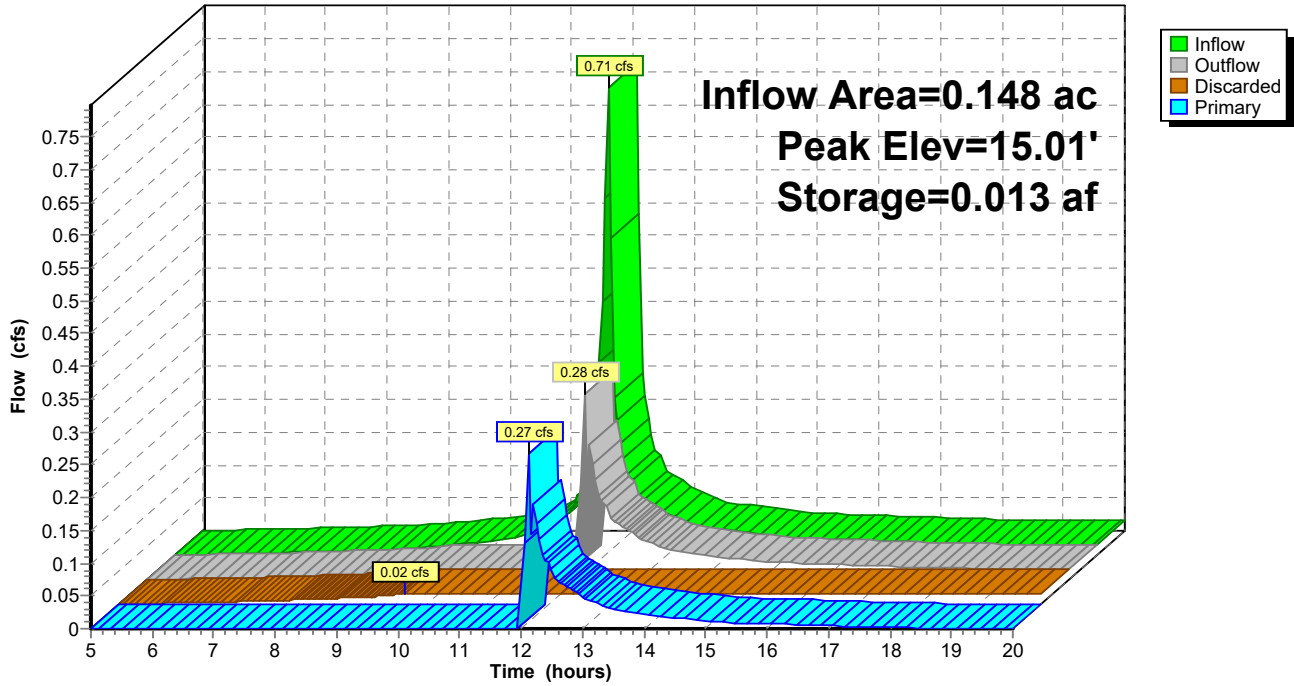
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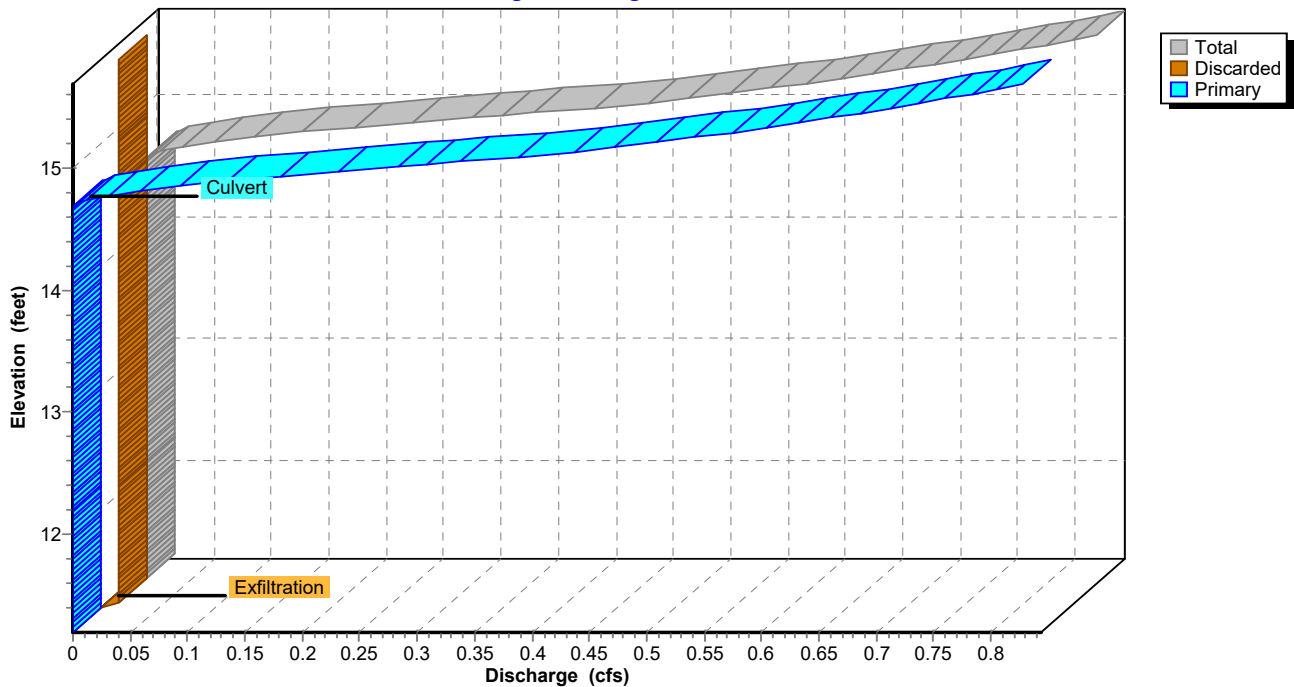
Pond 2P: infiltration

Hydrograph

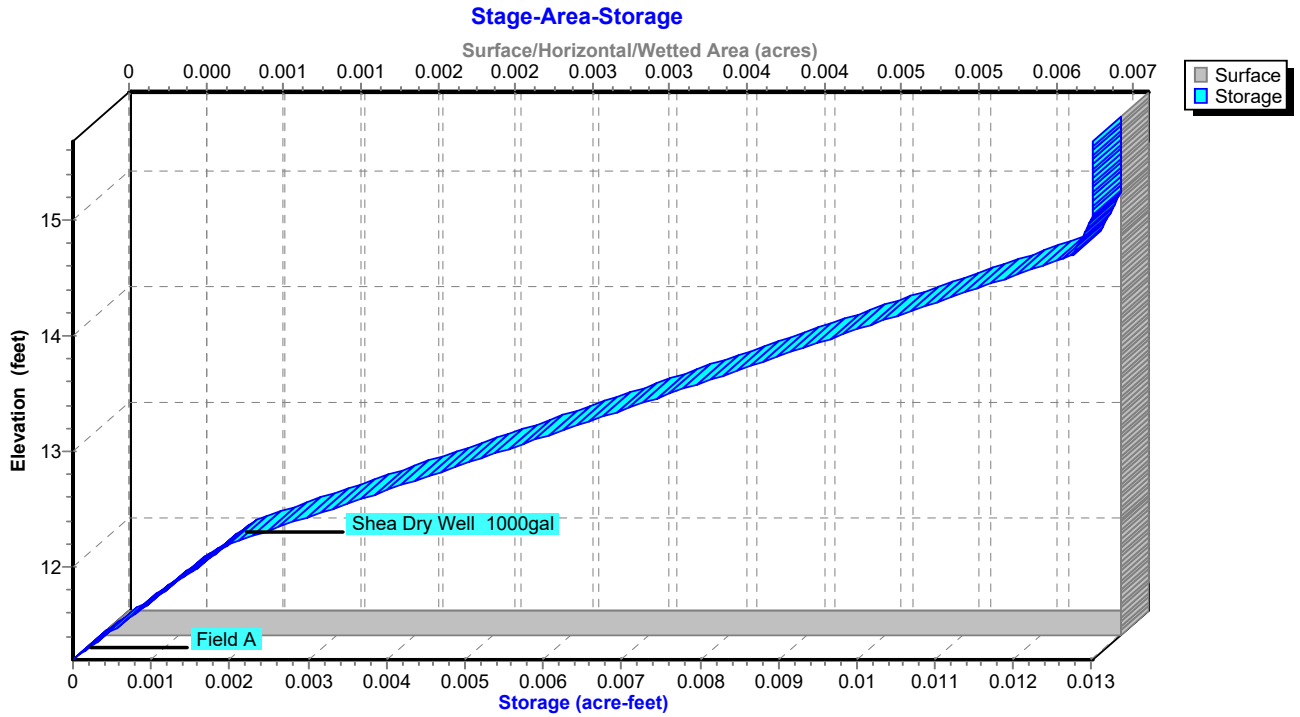


Pond 2P: infiltration

Stage-Discharge



Pond 2P: infiltration



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Hydrograph for Pond 2P: infiltration

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	11.20	0.00	0.00	0.00
5.50	0.00	0.000	11.20	0.00	0.00	0.00
6.00	0.00	0.000	11.20	0.00	0.00	0.00
6.50	0.00	0.000	11.21	0.00	0.00	0.00
7.00	0.00	0.000	11.21	0.00	0.00	0.00
7.50	0.01	0.000	11.21	0.01	0.01	0.00
8.00	0.01	0.000	11.22	0.01	0.01	0.00
8.50	0.01	0.000	11.22	0.01	0.01	0.00
9.00	0.01	0.000	11.23	0.01	0.01	0.00
9.50	0.02	0.000	11.24	0.01	0.01	0.00
10.00	0.02	0.000	11.27	0.02	0.02	0.00
10.50	0.03	0.000	11.41	0.02	0.02	0.00
11.00	0.04	0.001	11.78	0.02	0.02	0.00
11.50	0.08	0.003	12.39	0.02	0.02	0.00
12.00	0.54	0.010	14.06	0.02	0.02	0.00
12.50	0.10	0.013	14.85	0.11	0.02	0.09
13.00	0.06	0.013	14.80	0.07	0.02	0.05
13.50	0.04	0.013	14.77	0.05	0.02	0.03
14.00	0.04	0.013	14.75	0.04	0.02	0.02
14.50	0.03	0.013	14.74	0.03	0.02	0.02
15.00	0.03	0.013	14.73	0.03	0.02	0.01
15.50	0.03	0.013	14.72	0.03	0.02	0.01
16.00	0.02	0.013	14.72	0.02	0.02	0.01
16.50	0.02	0.013	14.71	0.02	0.02	0.01
17.00	0.02	0.013	14.71	0.02	0.02	0.00
17.50	0.02	0.013	14.70	0.02	0.02	0.00
18.00	0.02	0.013	14.69	0.02	0.02	0.00
18.50	0.02	0.013	14.68	0.02	0.02	0.00
19.00	0.02	0.013	14.68	0.02	0.02	0.00
19.50	0.02	0.013	14.67	0.02	0.02	0.00
20.00	0.02	0.013	14.66	0.02	0.02	0.00

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Stage-Discharge for Pond 2P: infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
11.20	0.00	0.00	0.00	13.75	0.02	0.02	0.00
11.25	0.02	0.02	0.00	13.80	0.02	0.02	0.00
11.30	0.02	0.02	0.00	13.85	0.02	0.02	0.00
11.35	0.02	0.02	0.00	13.90	0.02	0.02	0.00
11.40	0.02	0.02	0.00	13.95	0.02	0.02	0.00
11.45	0.02	0.02	0.00	14.00	0.02	0.02	0.00
11.50	0.02	0.02	0.00	14.05	0.02	0.02	0.00
11.55	0.02	0.02	0.00	14.10	0.02	0.02	0.00
11.60	0.02	0.02	0.00	14.15	0.02	0.02	0.00
11.65	0.02	0.02	0.00	14.20	0.02	0.02	0.00
11.70	0.02	0.02	0.00	14.25	0.02	0.02	0.00
11.75	0.02	0.02	0.00	14.30	0.02	0.02	0.00
11.80	0.02	0.02	0.00	14.35	0.02	0.02	0.00
11.85	0.02	0.02	0.00	14.40	0.02	0.02	0.00
11.90	0.02	0.02	0.00	14.45	0.02	0.02	0.00
11.95	0.02	0.02	0.00	14.50	0.02	0.02	0.00
12.00	0.02	0.02	0.00	14.55	0.02	0.02	0.00
12.05	0.02	0.02	0.00	14.60	0.02	0.02	0.00
12.10	0.02	0.02	0.00	14.65	0.02	0.02	0.00
12.15	0.02	0.02	0.00	14.70	0.02	0.02	0.00
12.20	0.02	0.02	0.00	14.75	0.04	0.02	0.02
12.25	0.02	0.02	0.00	14.80	0.07	0.02	0.05
12.30	0.02	0.02	0.00	14.85	0.11	0.02	0.09
12.35	0.02	0.02	0.00	14.90	0.16	0.02	0.14
12.40	0.02	0.02	0.00	14.95	0.22	0.02	0.20
12.45	0.02	0.02	0.00	15.00	0.28	0.02	0.27
12.50	0.02	0.02	0.00	15.05	0.35	0.02	0.34
12.55	0.02	0.02	0.00	15.10	0.42	0.02	0.40
12.60	0.02	0.02	0.00	15.15	0.47	0.02	0.46
12.65	0.02	0.02	0.00	15.20	0.52	0.02	0.50
12.70	0.02	0.02	0.00	15.25	0.56	0.02	0.54
12.75	0.02	0.02	0.00	15.30	0.60	0.02	0.58
12.80	0.02	0.02	0.00	15.35	0.64	0.02	0.62
12.85	0.02	0.02	0.00	15.40	0.67	0.02	0.66
12.90	0.02	0.02	0.00	15.45	0.70	0.02	0.69
12.95	0.02	0.02	0.00	15.50	0.74	0.02	0.72
13.00	0.02	0.02	0.00	15.55	0.77	0.02	0.75
13.05	0.02	0.02	0.00	15.60	0.80	0.02	0.78
13.10	0.02	0.02	0.00	15.65	0.82	0.02	0.81
13.15	0.02	0.02	0.00				
13.20	0.02	0.02	0.00				
13.25	0.02	0.02	0.00				
13.30	0.02	0.02	0.00				
13.35	0.02	0.02	0.00				
13.40	0.02	0.02	0.00				
13.45	0.02	0.02	0.00				
13.50	0.02	0.02	0.00				
13.55	0.02	0.02	0.00				
13.60	0.02	0.02	0.00				
13.65	0.02	0.02	0.00				
13.70	0.02	0.02	0.00				

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Stage-Area-Storage for Pond 2P: infiltration

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
11.20	0.007	0.000	13.75	0.007	0.009
11.25	0.007	0.000	13.80	0.007	0.009
11.30	0.007	0.000	13.85	0.007	0.009
11.35	0.007	0.000	13.90	0.007	0.009
11.40	0.007	0.000	13.95	0.007	0.010
11.45	0.007	0.000	14.00	0.007	0.010
11.50	0.007	0.001	14.05	0.007	0.010
11.55	0.007	0.001	14.10	0.007	0.010
11.60	0.007	0.001	14.15	0.007	0.010
11.65	0.007	0.001	14.20	0.007	0.011
11.70	0.007	0.001	14.25	0.007	0.011
11.75	0.007	0.001	14.30	0.007	0.011
11.80	0.007	0.001	14.35	0.007	0.011
11.85	0.007	0.001	14.40	0.007	0.011
11.90	0.007	0.001	14.45	0.007	0.012
11.95	0.007	0.001	14.50	0.007	0.012
12.00	0.007	0.002	14.55	0.007	0.012
12.05	0.007	0.002	14.60	0.007	0.012
12.10	0.007	0.002	14.65	0.007	0.013
12.15	0.007	0.002	14.70	0.007	0.013
12.20	0.007	0.002	14.75	0.007	0.013
12.25	0.007	0.002	14.80	0.007	0.013
12.30	0.007	0.002	14.85	0.007	0.013
12.35	0.007	0.003	14.90	0.007	0.013
12.40	0.007	0.003	14.95	0.007	0.013
12.45	0.007	0.003	15.00	0.007	0.013
12.50	0.007	0.003	15.05	0.007	0.013
12.55	0.007	0.003	15.10	0.007	0.013
12.60	0.007	0.004	15.15	0.007	0.013
12.65	0.007	0.004	15.20	0.007	0.013
12.70	0.007	0.004	15.25	0.007	0.013
12.75	0.007	0.004	15.30	0.007	0.013
12.80	0.007	0.005	15.35	0.007	0.013
12.85	0.007	0.005	15.40	0.007	0.013
12.90	0.007	0.005	15.45	0.007	0.013
12.95	0.007	0.005	15.50	0.007	0.013
13.00	0.007	0.005	15.55	0.007	0.013
13.05	0.007	0.006	15.60	0.007	0.013
13.10	0.007	0.006	15.65	0.007	0.013
13.15	0.007	0.006			
13.20	0.007	0.006			
13.25	0.007	0.007			
13.30	0.007	0.007			
13.35	0.007	0.007			
13.40	0.007	0.007			
13.45	0.007	0.007			
13.50	0.007	0.008			
13.55	0.007	0.008			
13.60	0.007	0.008			
13.65	0.007	0.008			
13.70	0.007	0.008			

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Summary for Subcatchment 1S: proposed 32 norwood

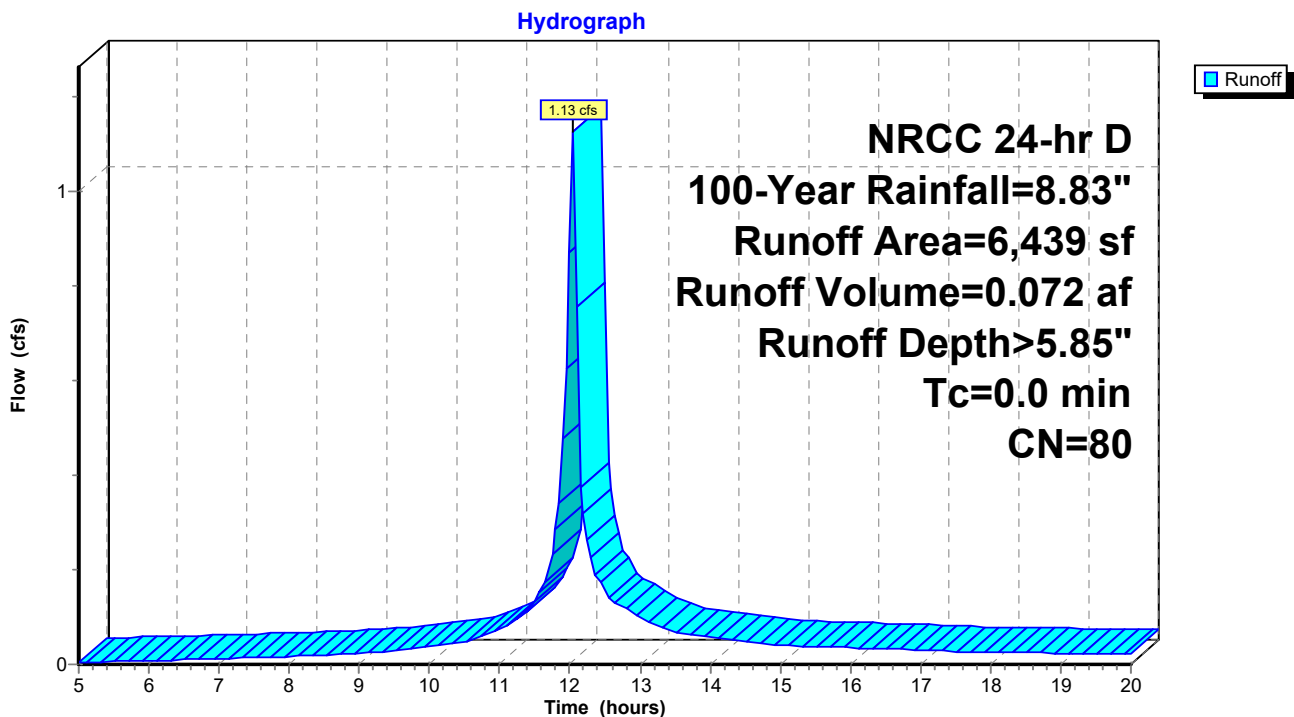
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.13 cfs @ 12.05 hrs, Volume= 0.072 af, Depth> 5.85"

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
3,861	98	Roofs, HSG A
150	98	Paved parking, HSG A
2,428	49	50-75% Grass cover, Fair, HSG A
6,439	80	Weighted Average
2,428		37.71% Pervious Area
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Subcatchment 1S: proposed 32 norwood



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Hydrograph for Subcatchment 1S: proposed 32 norwood

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.73	0.02	0.00	17.75	7.87	5.51	0.03
5.25	0.78	0.03	0.00	18.00	7.92	5.55	0.03
5.50	0.82	0.04	0.01	18.25	7.97	5.59	0.02
5.75	0.86	0.05	0.01	18.50	8.01	5.63	0.02
6.00	0.91	0.06	0.01	18.75	8.05	5.67	0.02
6.25	0.96	0.07	0.01	19.00	8.10	5.71	0.02
6.50	1.00	0.08	0.01	19.25	8.14	5.75	0.02
6.75	1.06	0.10	0.01	19.50	8.18	5.79	0.02
7.00	1.11	0.12	0.01	19.75	8.22	5.83	0.02
7.25	1.16	0.14	0.01	20.00	8.26	5.87	0.02
7.50	1.22	0.16	0.01				
7.75	1.28	0.19	0.02				
8.00	1.35	0.21	0.02				
8.25	1.41	0.24	0.02				
8.50	1.48	0.28	0.02				
8.75	1.55	0.31	0.02				
9.00	1.62	0.35	0.02				
9.25	1.70	0.39	0.03				
9.50	1.78	0.44	0.03				
9.75	1.88	0.49	0.03				
10.00	1.98	0.55	0.04				
10.25	2.09	0.62	0.04				
10.50	2.21	0.69	0.05				
10.75	2.34	0.78	0.06				
11.00	2.51	0.89	0.07				
11.25	2.71	1.04	0.10				
11.50	2.96	1.22	0.13				
11.75	3.34	1.51	0.23				
12.00	4.23	2.23	0.87				
12.25	5.49	3.33	0.26				
12.50	5.87	3.67	0.16				
12.75	6.12	3.89	0.12				
13.00	6.32	4.07	0.10				
13.25	6.49	4.22	0.08				
13.50	6.62	4.35	0.07				
13.75	6.74	4.46	0.06				
14.00	6.85	4.56	0.06				
14.25	6.95	4.65	0.05				
14.50	7.05	4.74	0.05				
14.75	7.13	4.82	0.05				
15.00	7.21	4.89	0.04				
15.25	7.28	4.95	0.04				
15.50	7.35	5.02	0.04				
15.75	7.42	5.08	0.04				
16.00	7.48	5.14	0.04				
16.25	7.55	5.20	0.03				
16.50	7.61	5.26	0.03				
16.75	7.67	5.31	0.03				
17.00	7.72	5.36	0.03				
17.25	7.77	5.41	0.03				
17.50	7.83	5.46	0.03				

32 norwood

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NRCC 24-hr D 100-Year Rainfall=8.83"
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Summary for Pond 2P: infiltration

[82] Warning: Early inflow requires earlier time span
[93] Warning: Storage range exceeded by 1.20'

Inflow Area = 0.148 ac, 62.29% Impervious, Inflow Depth > 5.85" for 100-Year event
Inflow = 1.13 cfs @ 12.05 hrs, Volume= 0.072 af
Outflow = 1.10 cfs @ 12.05 hrs, Volume= 0.059 af, Atten= 3%, Lag= 0.0 min
Discarded = 0.02 cfs @ 7.95 hrs, Volume= 0.018 af
Primary = 1.08 cfs @ 12.05 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 16.23' @ 12.05 hrs Surf.Area= 0.007 ac Storage= 0.013 af

Plug-Flow detention time= 81.6 min calculated for 0.059 af (81% of inflow)
Center-of-Mass det. time= 23.2 min (787.5 - 764.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	11.20'	0.004 af	23.00'W x 12.50'L x 3.83'H Field A 0.025 af Overall - 0.011 af Embedded = 0.014 af x 30.0% Voids
#2A	12.20'	0.009 af	Shea Dry Well 1000gal x 3 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 3 Chambers in 3 Rows
		0.013 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	11.20'	2.410 in/hr Exfiltration over Surface area
#2	Primary	14.67'	6.0" Round Culvert L= 181.0' Ke= 0.500 Inlet / Outlet Invert= 14.67' / 11.00' S= 0.0203 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.02 cfs @ 7.95 hrs HW=11.24' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.06 cfs @ 12.05 hrs HW=16.18' (Free Discharge)
↑2=Culvert (Inlet Controls 1.06 cfs @ 5.40 fps)

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Pond 2P: infiltration - 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 + 24.0" Spacing = 92.0" C-C Row Spacing

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

3 Rows x 68.0" Wide + 24.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width

12.0" Base + 34.0" Chamber Height = 3.83' Field Height

3 Chambers x 128.6 cf = 385.8 cf Chamber Storage

3 Chambers x 165.9 cf = 497.8 cf Displacement

1,101.2 cf Field - 497.8 cf Chambers = 603.4 cf Stone x 30.0% Voids = 181.0 cf Stone Storage

Chamber Storage + Stone Storage = 566.9 cf = 0.013 af

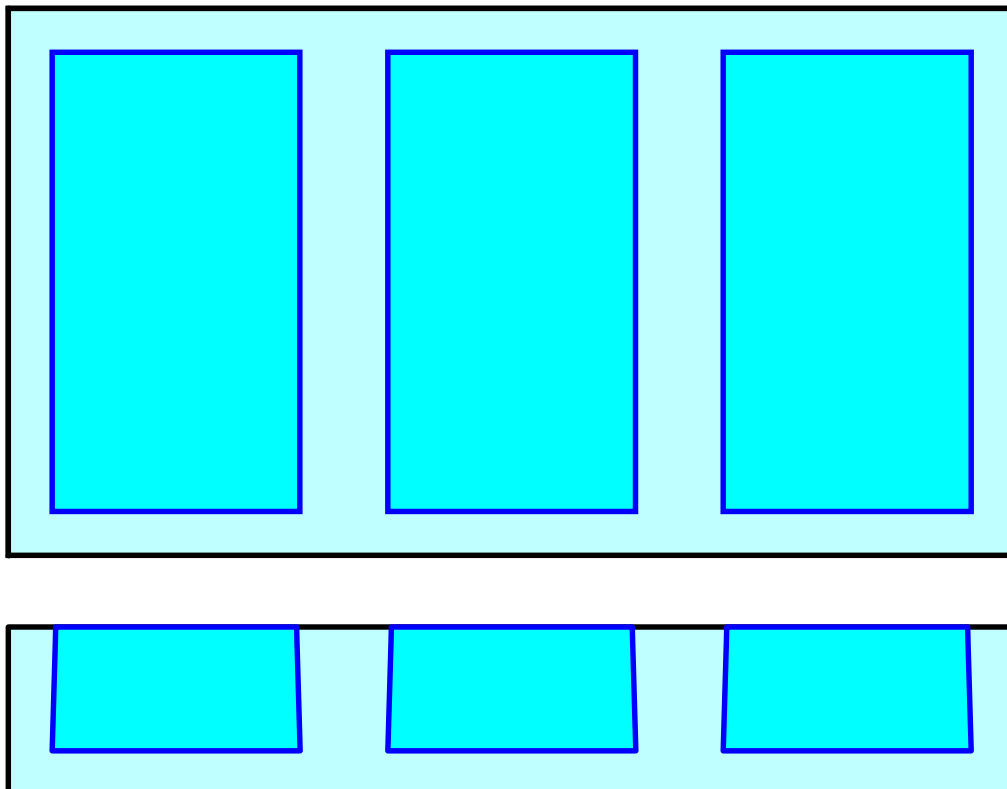
Overall Storage Efficiency = 51.5%

Overall System Size = 12.50' x 23.00' x 3.83'

3 Chambers

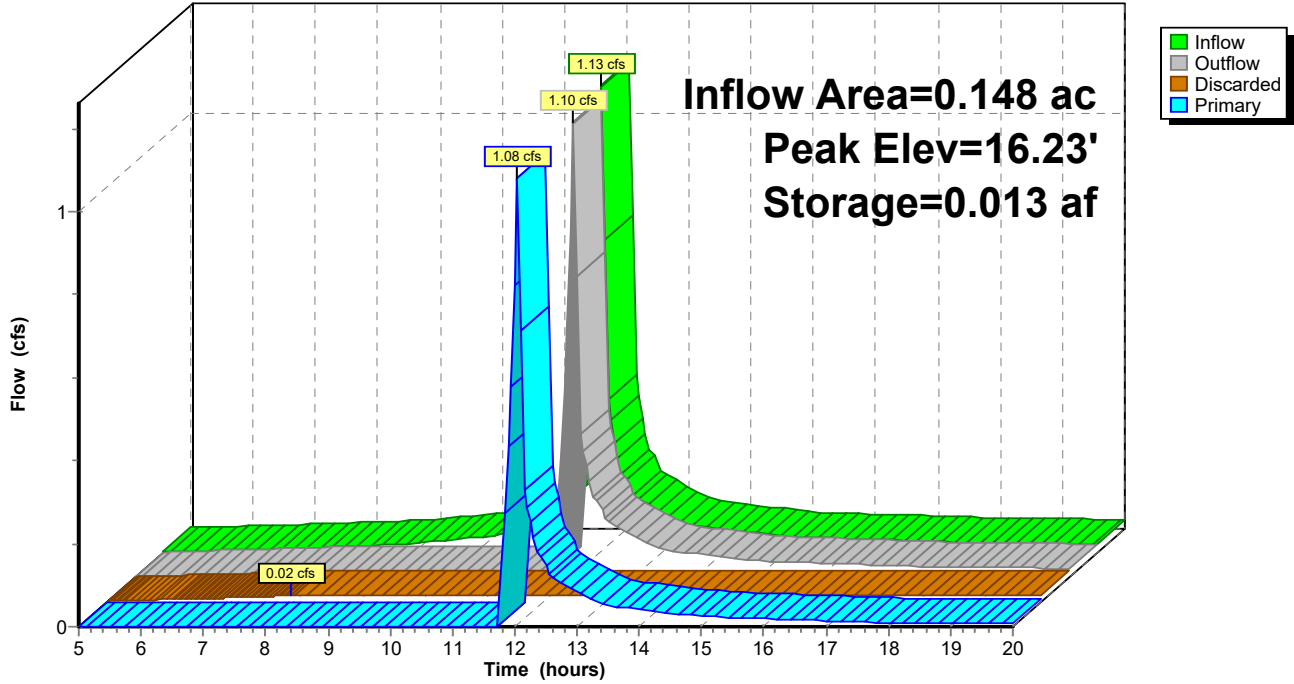
40.8 cy Field

22.3 cy Stone



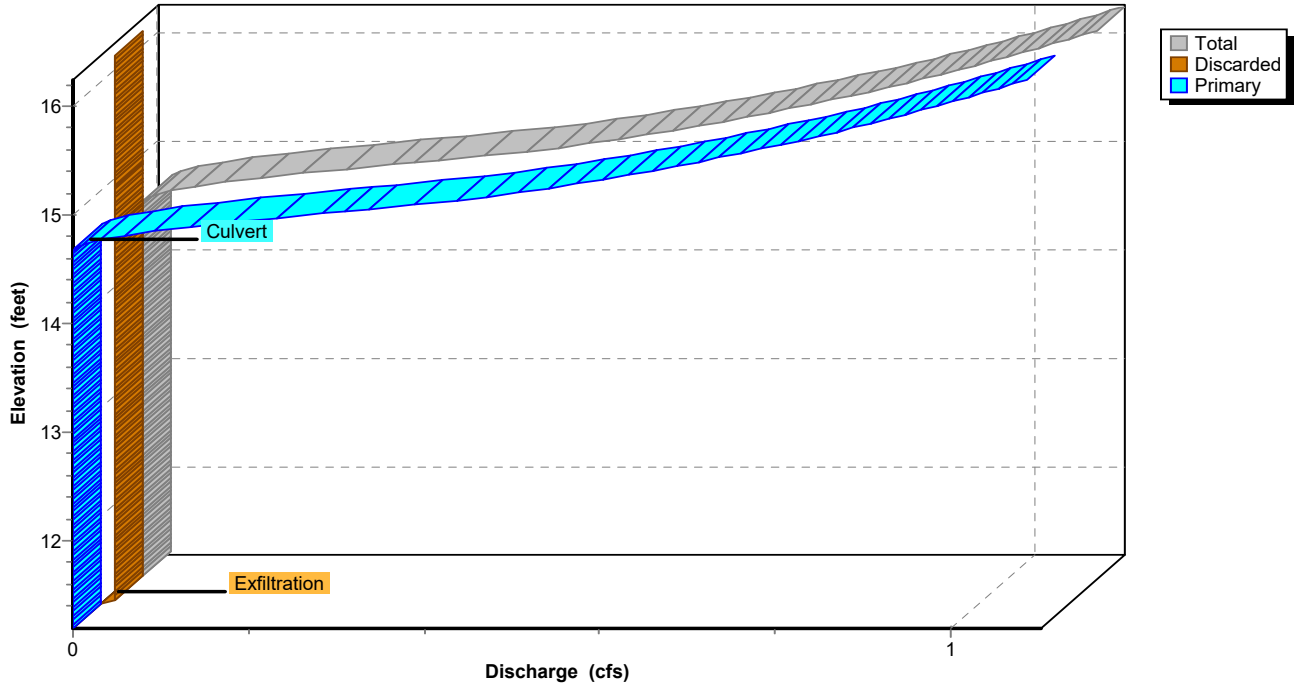
Pond 2P: infiltration

Hydrograph

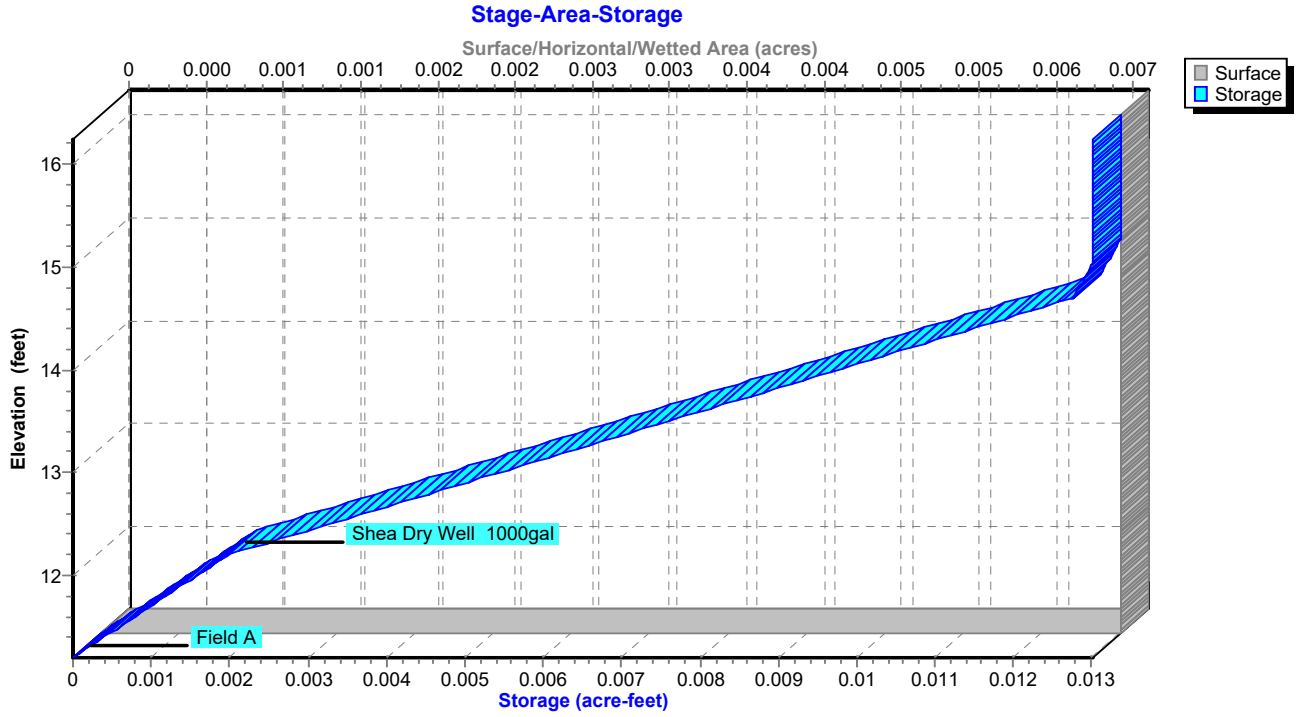


Pond 2P: infiltration

Stage-Discharge



Pond 2P: infiltration



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Hydrograph for Pond 2P: infiltration

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	11.20	0.00	0.00	0.00
5.50	0.01	0.000	11.21	0.01	0.01	0.00
6.00	0.01	0.000	11.22	0.01	0.01	0.00
6.50	0.01	0.000	11.22	0.01	0.01	0.00
7.00	0.01	0.000	11.23	0.01	0.01	0.00
7.50	0.01	0.000	11.23	0.01	0.01	0.00
8.00	0.02	0.000	11.24	0.02	0.02	0.00
8.50	0.02	0.000	11.29	0.02	0.02	0.00
9.00	0.02	0.000	11.40	0.02	0.02	0.00
9.50	0.03	0.001	11.62	0.02	0.02	0.00
10.00	0.04	0.002	12.00	0.02	0.02	0.00
10.50	0.05	0.003	12.36	0.02	0.02	0.00
11.00	0.07	0.004	12.78	0.02	0.02	0.00
11.50	0.13	0.008	13.56	0.02	0.02	0.00
12.00	0.87	0.013	15.68	0.84	0.02	0.82
12.50	0.16	0.013	14.90	0.16	0.02	0.15
13.00	0.10	0.013	14.84	0.10	0.02	0.08
13.50	0.07	0.013	14.80	0.07	0.02	0.05
14.00	0.06	0.013	14.79	0.06	0.02	0.04
14.50	0.05	0.013	14.78	0.05	0.02	0.03
15.00	0.04	0.013	14.76	0.04	0.02	0.03
15.50	0.04	0.013	14.75	0.04	0.02	0.02
16.00	0.04	0.013	14.75	0.04	0.02	0.02
16.50	0.03	0.013	14.74	0.03	0.02	0.02
17.00	0.03	0.013	14.74	0.03	0.02	0.01
17.50	0.03	0.013	14.73	0.03	0.02	0.01
18.00	0.03	0.013	14.72	0.03	0.02	0.01
18.50	0.02	0.013	14.72	0.02	0.02	0.01
19.00	0.02	0.013	14.72	0.02	0.02	0.01
19.50	0.02	0.013	14.72	0.02	0.02	0.01
20.00	0.02	0.013	14.71	0.02	0.02	0.01

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Stage-Discharge for Pond 2P: infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
11.20	0.00	0.00	0.00
11.30	0.02	0.02	0.00
11.40	0.02	0.02	0.00
11.50	0.02	0.02	0.00
11.60	0.02	0.02	0.00
11.70	0.02	0.02	0.00
11.80	0.02	0.02	0.00
11.90	0.02	0.02	0.00
12.00	0.02	0.02	0.00
12.10	0.02	0.02	0.00
12.20	0.02	0.02	0.00
12.30	0.02	0.02	0.00
12.40	0.02	0.02	0.00
12.50	0.02	0.02	0.00
12.60	0.02	0.02	0.00
12.70	0.02	0.02	0.00
12.80	0.02	0.02	0.00
12.90	0.02	0.02	0.00
13.00	0.02	0.02	0.00
13.10	0.02	0.02	0.00
13.20	0.02	0.02	0.00
13.30	0.02	0.02	0.00
13.40	0.02	0.02	0.00
13.50	0.02	0.02	0.00
13.60	0.02	0.02	0.00
13.70	0.02	0.02	0.00
13.80	0.02	0.02	0.00
13.90	0.02	0.02	0.00
14.00	0.02	0.02	0.00
14.10	0.02	0.02	0.00
14.20	0.02	0.02	0.00
14.30	0.02	0.02	0.00
14.40	0.02	0.02	0.00
14.50	0.02	0.02	0.00
14.60	0.02	0.02	0.00
14.70	0.02	0.02	0.00
14.80	0.07	0.02	0.05
14.90	0.16	0.02	0.14
15.00	0.28	0.02	0.27
15.10	0.42	0.02	0.40
15.20	0.52	0.02	0.50
15.30	0.60	0.02	0.58
15.40	0.67	0.02	0.66
15.50	0.74	0.02	0.72
15.60	0.80	0.02	0.78
15.70	0.85	0.02	0.83
15.80	0.90	0.02	0.89
15.90	0.95	0.02	0.94
16.00	1.00	0.02	0.98
16.10	1.04	0.02	1.03
16.20	1.09	0.02	1.07

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Stage-Area-Storage for Pond 2P: infiltration

Elevation (feet)	Surface (acres)	Storage (acre-feet)
11.20	0.007	0.000
11.30	0.007	0.000
11.40	0.007	0.000
11.50	0.007	0.001
11.60	0.007	0.001
11.70	0.007	0.001
11.80	0.007	0.001
11.90	0.007	0.001
12.00	0.007	0.002
12.10	0.007	0.002
12.20	0.007	0.002
12.30	0.007	0.002
12.40	0.007	0.003
12.50	0.007	0.003
12.60	0.007	0.004
12.70	0.007	0.004
12.80	0.007	0.005
12.90	0.007	0.005
13.00	0.007	0.005
13.10	0.007	0.006
13.20	0.007	0.006
13.30	0.007	0.007
13.40	0.007	0.007
13.50	0.007	0.008
13.60	0.007	0.008
13.70	0.007	0.008
13.80	0.007	0.009
13.90	0.007	0.009
14.00	0.007	0.010
14.10	0.007	0.010
14.20	0.007	0.011
14.30	0.007	0.011
14.40	0.007	0.011
14.50	0.007	0.012
14.60	0.007	0.012
14.70	0.007	0.013
14.80	0.007	0.013
14.90	0.007	0.013
15.00	0.007	0.013
15.10	0.007	0.013
15.20	0.007	0.013
15.30	0.007	0.013
15.40	0.007	0.013
15.50	0.007	0.013
15.60	0.007	0.013
15.70	0.007	0.013
15.80	0.007	0.013
15.90	0.007	0.013
16.00	0.007	0.013
16.10	0.007	0.013
16.20	0.007	0.013



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 must be submitted with the Stormwater Report.

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

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



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

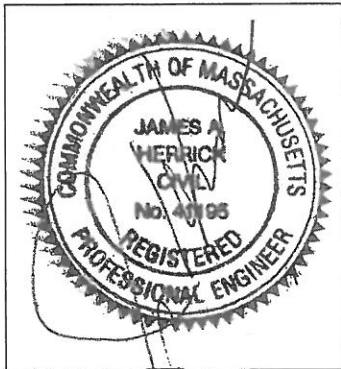
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



James A. Herrick
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)

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;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

Standard 6: Critical Areas

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



Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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



Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 9: Operation and Maintenance Plan

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

Standard 10: Prohibition of Illicit Discharges

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

ILLICIT DISCHARGE COMPLIANCE STATEMENT

I verify that no illicit discharges exist from 32 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

Print Name

Date

Title

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.

**OPERATION AND MAINTENANCE PLAN
PROPOSED DRAINAGE SYSTEM – POST CONSTRUCTION
DATED: January, 2022**

**Assessor's Parcel ID 1602503000
32 Norwood Street Dorchester(Boston)**

Owner: 28 Norwood LLC
6 Wenlock Street
Dorchester MA 02122

Party Responsible for Operations and Maintenance:
28 Norwood LLC
6 Wenlock Street
Dorchester MA 02122

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 Drywell 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

APPENDIX F - Abutters Information

ABUTTERS LIST

OWNER	ADDRESSEE	MAILING_ADDRESS	CITY	STATE	ZIPCODE
980 MORRISSEY BOULEVARD LLC	C/O 980 MORRISSEY BLVD LLC	80 NEPONSET AV	DORCHESTER	MA	02122
28 NORWOOD LLC		6 WENLOCK ST	DORCHESTER	MA	02122
NINE 85 MORRISSEY BLVD LLC MASS LLC	C/O CHRISTOPHER KOKORAS	P O BOX 790	WINCHESTER	MA	02122
ESS STORAGE ACQUISITION	C/O PTA-EX SITE #8505C/O PTG-EXR-SITE #8505	PO BOX 800729	DALLAS	TX	75380
8 NORWOOD REALTY LLC		28 WINTER ST	DORCHESTER	MA	02122
WHELAN JOHN J	C/O JOHN J. WHELAN	1000 WM T MORRISSEY BL	DORCHESTER	MA	02122
980 MORRISSEY BOULEVARD LLC	C/O 980 MORRISSEY BLVD LLC	80 NEPONSET AV	DORCHESTER	MA	02122
BANH DON N		996 WM T MORRISSEY BLVD	DORCHESTER	MA	02122
THIRTY ONE-39 NORWOOD ST LLC MASS LLC		277 HUMPHREY ST	SWAMPSCOTT	MA	01907
THIRTY ONE-39 NORWOOD ST LLC MASS LLC		277 HUMPHREY ST	SWAMPSCOTT	MA	01907
980 MORRISSEY BOULEVARD LLC	C/O 980 MORRISSEY BLVD LLC	80 NEPONSET AV	DORCHESTER	MA	02122
COMMWLTH OF MASS		WM T MORRISSEY BLVD	DORCHESTER	MA	02125
CULHANE PATRICK M JR	C/O PATRICK M CULHANE JR	40 MCKONE ST #2	DORCHESTER	MA	02122
FORTY-2-44 MCKONE ST CONDO	C/O RICHARD MULVEY TS	40 MCKONE ST	DORCHESTER	MA	02122
PHAM TUAN Q		35 MCKONE ST	DORCHESTER	MA	02122
980 MORRISSEY BOULEVARD LLC	C/O 980 MORRISSEY BLVD LLC	80 NEPONSET AV	DORCHESTER	MA	02122
CAMBRIDGE STREET REALTY LLC	C/O CAMBRIDGE ST REALTY LLC	P O BOX 812097	WELLESLEY	MA	02482
GEARY MICHAEL J		40 MCKONE ST #1	DORCHESTER	MA	02122
28 NORWOOD LLC		6 WENLOCK ST	DORCHESTER	MA	02122
SANCHEZ JORGE		992 WM T MORRISSEY BL	DORCHESTER	MA	02122
BARRON JOSEPH G ETAL	C/O JIFFY LUBE #1632	PO BOX 4369	HOUSTON	TX	77210
GNAZZO JANE S		169 COMMONWEALTH AV	BOSTON	MA	02116
LAVEY JEFFREY		42 44 MCKONE ST #44	DORCHESTER	MA	02122
VO FAMILY TRUST		110 DAKOTA ST #1	BOSTON	MA	02124
J M K W PROPERTIES INC		969 WM T MORRISSEY BLVD	DORCHESTER	MA	02122
WILLIAM KELLY SQUARE LLC		103 CLAYTON ST	DORCHESTER	MA	02122
WHELAN JOHN J		4 NORWOOD ST	DORCHESTER	MA	02122
THIRTY ONE-39 NORWOOD ST LLC MASS LLC		277 HUMPHREY ST	SWAMPSCOTT	MA	01907
28 NORWOOD LLC		6 WENLOCK ST	DORCHESTER	MA	02122
MASS BAY TRANSPN AUTHOR		TENEAN	DORCHESTER	MA	02122
ARREDONDO LISA		42 MCKONE ST	DORCHESTER	MA	02122
MCDONAGH MICHAEL		40 MCKONE ST #3	DORCHESTER	MA	02122
CALLANAN JOSEPH (TS)	C/O NANCY CALLANAN	102 RIVER ROAD	HANOVER	MA	02339
DONOVAN FRANCIS W		PO BOX 113	MILTON	MA	02186
BRONSKI KEVIN	C/O CON O CALLAGHAN	262 EAST ST	DEDHAM	MA	02026
KANDALAFT ALEXANDER N		988 WILLIAM T MORRISSEY BLVD	DORCHESTER	MA	02122
FORTY MCKONE ST CONDO TRUST	C/O RICHARD MULVEY TS	40 MCKONE ST	DORCHESTER	MA	02122
CONLON BRENDAN P JR	C/O BRENDAN P CONLON JR	12 NORWOOD ST	DORCHESTER	MA	02122



**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

I, _____, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A _____ was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by _____ for _____ located at _____.

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

Shawn Callaghan

Name

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. _____ 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 _____.

C. The project involves _____.

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 _____ by contacting them at _____ between the hours of _____, _____.

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. **Teddy Ahern** ha presentado una solicitud a 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 **32 Norwood Street**

C. El proyecto consiste en **Demolición de una vivienda** multifamiliar existente y construcción de un edificio de apartamentos dentro de Terrenos Sujetos a Flujo de 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 de la notificación de intención pueden obtenerse a través de **Ardent Group, Inc.** llamando al **(781) 982-9929** de lunes a viernes de **9:00 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 puede acceder a Internet, puede llamar al 1-929-205-6099, ingresar ID de reunión 686 458 2044 # y usar # como su ID 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) 635-4416** entre las **9 AM y las 5 PM, de lunes a viernes**.

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 antelación.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en el Ayuntamiento de Boston con no menos de cuarenta y ocho (48) horas de antelación. Si desea formular comentarios, puede asistir a la audiencia pública o enviarlos por escrito a CC@boston.gov o al Ayuntamiento 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.



City of Boston
Environment



City of Boston
Mayor Martin J. Walsh

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.



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 فوائدك. 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.



APPENDIX G - BPDA Climate Resiliency Checklist

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

A.1 - Project Information

Project Name:	32 Norwood Street		
Project Address:	32 Norwood Street, Dorchester, MA 02122		
Project Address Additional:			
Filing Type (select)	Notice of Intent (NOI) Application		
Filing Contact	Joseph Dorsett	j.dorsett@ardentgroupinc.com	617-699-7513
Is MEPA approval required	No		

A.3 - Project Team

Owner / Developer:	28 Norwood, LLC		
Architect:	Khalsa Design, Inc.		
Engineer:	Christian Ludlow, Civil Environmental Consultants, 8 Oak Street, Peabody, MA 01960		
Sustainability / LEED:	N/A		
Permitting:	Joseph Dorsett, Ardent Group, Inc., 590 Summer Street, Rockland, MA 02370		
Construction Management:	Teddy Ahern, 37 Wenlock Street, Boston, MA 02122		

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Multi-family housing
List the First Floor Uses:	Lobby, Parking
List any Critical Site Infrastructure and or Building Uses:	Basic utilities, i.e. water, sewer, electric

Site and Building:

Site Area:	6,439 SF	Building Area:	3,770 SF
Building Height:	31 Ft	Building Height:	3 Stories (incl. ground level garage)
Existing Site Elevation – Low:	16.5 Ft BCB	Existing Site Elevation – High:	16.9 Ft BCB
Proposed Site Elevation – Low:	16.5 Ft BCB	Proposed Site Elevation – High:	16.9 Ft BCB
Proposed First Floor Elevation:	26.7 Ft BCB	Below grade levels:	0 Stories

Article 37 Green Building:

LEED Version - Rating System :		LEED Certification:	Yes / No
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Proposed LEED rating:

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:	<input type="text" value="(R)"/>	Exposed Floor:	<input type="text" value="(R)"/>
Foundation Wall:	<input type="text" value="(R)"/>	Slab Edge (at or below grade):	<input type="text" value="(R)"/>

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

Area of Opaque Curtain Wall & Spandrel Assembly:	<input style="width: 100px;" type="text" value="(%)"/>	Wall & Spandrel Assembly Value:	<input style="width: 100px;" type="text" value="(U)"/>
Area of Framed & Insulated / Standard Wall:	<input style="width: 100px;" type="text" value="(%)"/>	Wall Value	<input style="width: 100px;" type="text" value="(R)"/>
Area of Vision Window:	<input style="width: 100px;" type="text" value="%"/>	Window Glazing Assembly Value:	<input style="width: 100px;" type="text" value="(U)"/>
		Window Glazing SHGC:	<input style="width: 100px;" type="text" value="(SHGC)"/>
Area of Doors:	<input style="width: 100px;" type="text" value="%"/>	Door Assembly Value:	<input style="width: 100px;" type="text" value="(U)"/>

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined			
Annual Electric:	<input style="width: 100px;" type="text" value="(kWh)"/>	Peak Electric:	<input style="width: 100px;" type="text" value="(kW)"/>
Annual Heating:	<input style="width: 100px;" type="text" value="(MMbtu/hr)"/>	Peak Heating:	<input style="width: 100px;" type="text" value="(MMbtu)"/>
Annual Cooling:	<input style="width: 100px;" type="text" value="(Tons/hr)"/>	Peak Cooling:	<input style="width: 100px;" type="text" value="(Tons)"/>
Energy Use - Below ASHRAE 90.1 - 2013:	<input style="width: 100px;" type="text" value="%"/>	Have the local utilities reviewed the building energy performance?:	<input style="width: 100px;" type="text" value="Yes / no"/>
Energy Use - Below Mass. Code:	<input style="width: 100px;" type="text" value="%"/>	Energy Use Intensity:	<input style="width: 100px;" type="text" value="(kBtu/SF)"/>

Back-up / Emergency Power System

Electrical Generation Output:	<input style="width: 100px;" type="text" value="(kW)"/>	Number of Power Units:	<input style="width: 100px;" type="text"/>
System Type:	<input style="width: 100px;" type="text" value="(kW)"/>	Fuel Source:	<input style="width: 100px;" type="text"/>

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

Electric:	<input style="width: 100px;" type="text" value="(kW)"/>	Heating:	<input style="width: 100px;" type="text" value="(MMbtu/hr)"/>
		Cooling:	<input style="width: 100px;" type="text" value="(Tons/hr)"/>

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

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

B.1 – GHG Emissions - Design Conditions

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

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: Deg.

Temperature Range - High: Deg.

Annual Heating Degree Days:

Annual Cooling Degree Days:

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

Days - Above 90°: #

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: In.

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="16.5Ft BCB"/>

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site.	<input type="text" value="Yes"/>
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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="19.5 Ft BCB"/>		
Sea Level Rise - Design Flood Elevation:	<input type="text" value="20.5 Ft BCB"/>	First Floor Elevation:	<input type="text" value="26.7 Ft BCB"/>
Site Elevations at Building:	<input type="text" value="16.9 Ft BCB"/>	Accessible Route Elevation:	<input type="text" value="16.7 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 10.2 feet above LSCSF Elevation. Lobby is 0.2' 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:

Coordination 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