

C0906-011
April 21, 2021

Ms. Juliet Walker Planning Director
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

**Re: Site Review Permit & Lot Line Revision Applications
Proposed Mixed Use Development 53 Green Street, Portsmouth, NH**

Dear Juliet:

On behalf of Stone Creek Realty, LLC (owner), and CPI Management, LLC (applicant), we are pleased to submit the following supplemental information to support a request for a Site Review Permit and Lot Line Revision Permit for the above referenced project:

- One (1) full size & one (1) half size copy of the Site Plan Set, last revised April 21, 2021;
- One (1) copy of the Aerial Site Plan, last revised April 21, 2021;
- One (1) copy of the Grade Plane Exhibit, last revised April 21, 2021;
- One (1) copy of the Community Space Exhibit, last revised April 21, 2021;
- One (1) copy of the Fire Truck Turning Exhibit, last revised April 21, 2021;
- One (1) copy of the Wetland Buffer Impervious Surface Exhibit, last revised April 21, 2021;
- One (1) copy of the Site Traffic Exhibit, dated April 21, 2021;
- One (1) copy of the Drainage Analysis, last revised April 21, 2021;
- One (1) copy of the Trip Generation Analysis, last revised April 21, 2021;
- One (1) copy of the TAC Comment Response, dated April 21, 2021

The enclosed revised plans and supplemental materials have been provided to address comments received from the Technical Advisory Committee (TAC) in correspondence dated April 5, 2021 and at their meeting held on April 6, 2021.

We respectfully request to be placed on the TAC meeting agenda for May 4, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.



Patrick M. Crimmins, PE
Senior Project Manager



Neil A. Hansen, PE
Project Engineer

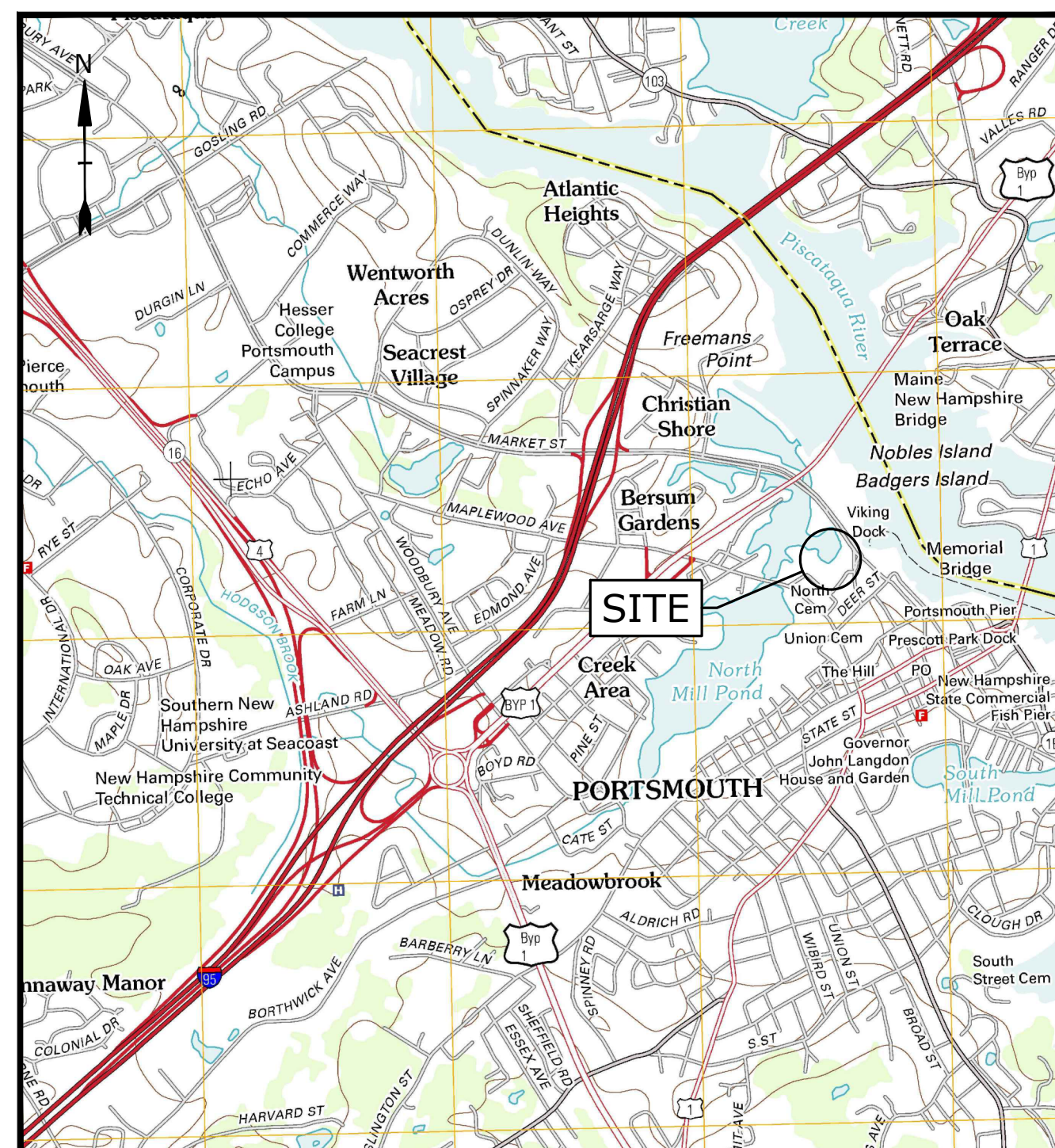
Cc: Stone Creek Realty, LLC (via e-mail)
CPI Management, LLC (via e-mail)

PROPOSED MIXED USE DEVELOPMENT

53 GREEN STREET
 PORTSMOUTH, NEW HAMPSHIRE
 JANUARY 27, 2021
 LAST REVISED: APRIL 21, 2021



LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	4/21/2021
1 OF 2	EXISTING CONDITIONS PLAN	11/1/2019
2 OF 2	EXISTING CONDITIONS PLAN	11/1/2019
C-101	DEMOLITION PLAN	4/21/2021
C-102.1	SITE PLAN	4/21/2021
C-102.2	BASEMENT & UPPER FLOOR PLAN	4/21/2021
C-103	GRADING, DRAINAGE AND EROSION CONTROL PLAN	4/21/2021
C-104	UTILITIES PLAN	4/21/2021
C-201	WATER MAIN REPLACEMENT PLAN	4/21/2021
C-301	EASEMENT PLAN	4/21/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	4/21/2021
C-502	DETAILS SHEET	4/21/2021
C-503	DETAILS SHEET	4/21/2021
C-504	DETAILS SHEET	4/21/2021
C-505	DETAILS SHEET	4/21/2021
C-506	DETAILS SHEET	4/21/2021
C-507	DETAILS SHEET	4/21/2021
C-508	DETAILS SHEET	4/21/2021
L-1	LANDSCAPE PLAN	4/21/2021
1 OF 1	PHOTOMETRIC PLAN	3/22/2021
1	BUILDING ELEVATION	3/22/2021



LOCATION MAP
 SCALE: 1" = 2,000'

PREPARED BY:
Tighe & Bond
 177 CORPORATE DRIVE
 PORTSMOUTH, NEW HAMPSHIRE 03801
 603-433-8818

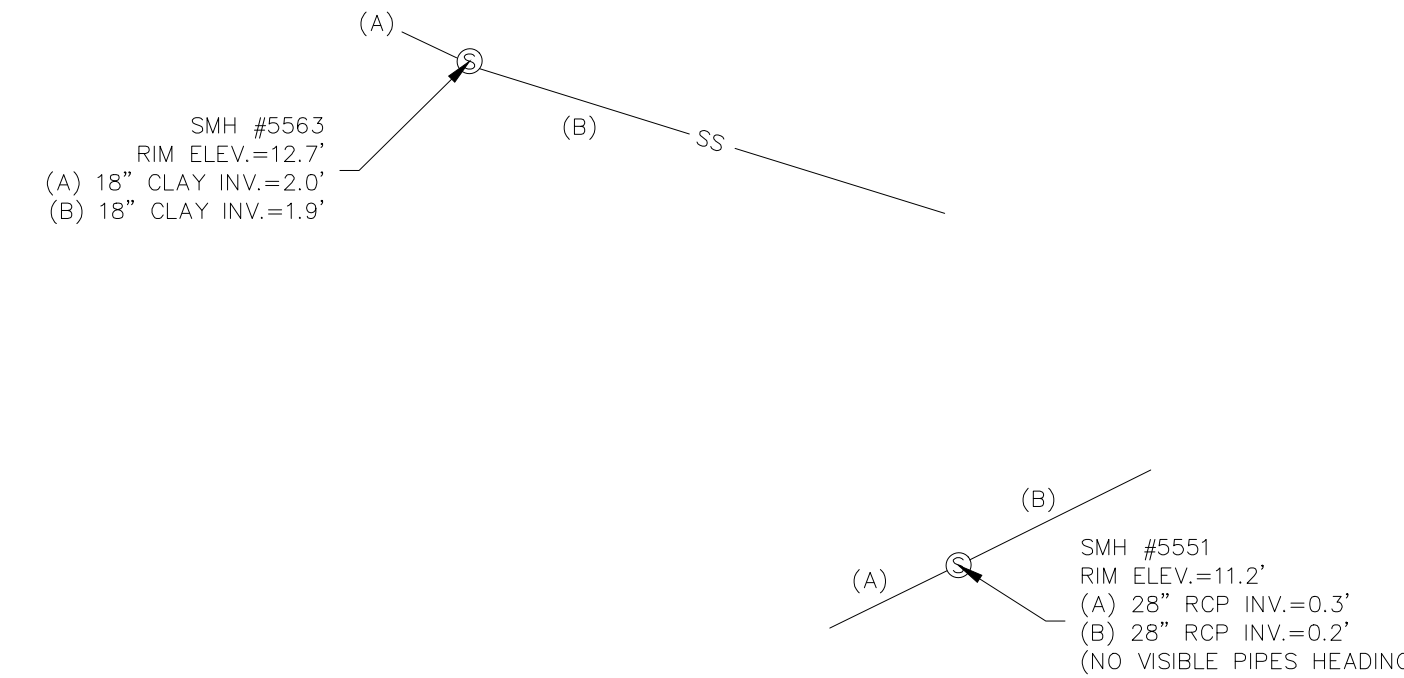
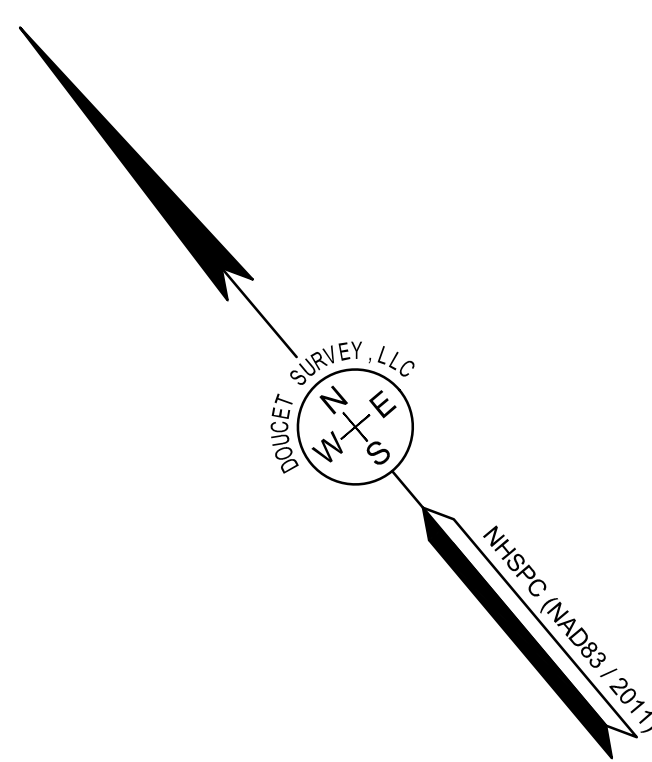
APPLICANT:
 CPI MANAGEMENT, LLC
 100 SUMMER STREET, SUITE 1600
 BOSTON, MASSACHUSETTS 02110

OWNER:
 TAX MAP 119, LOT 12
 STONE CREEK REALTY, LLC
 C/O DOUGLAS PINCIARO
 PO BOX 121
 NEW CASTLE, NEW HAMPSHIRE 03854

SURVEYOR:
 DOUCET SURVEY, LLC
 192 KENT PLACE
 NEWMARKET, NEW HAMPSHIRE 30857

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT	PENDING	
LOT LINE REVISION PERMIT	PENDING	
CONDITIONAL USE PERMIT - WETLAND BUFFER	PENDING	
STATE		
NHDES - SEWER CONNECTION PERMIT	PENDING	
NHDES - ALTERATION OF TERRAIN PERMIT	PENDING	
NHDES - WETLAND PERMIT	PENDING	

**TAC RESUBMISSION SET
 COMPLETE SET 21 SHEETS**



I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE (N.H.R.S.A. TITLE LXIV) AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN. I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

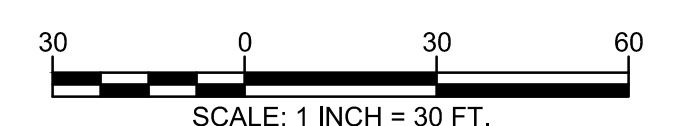
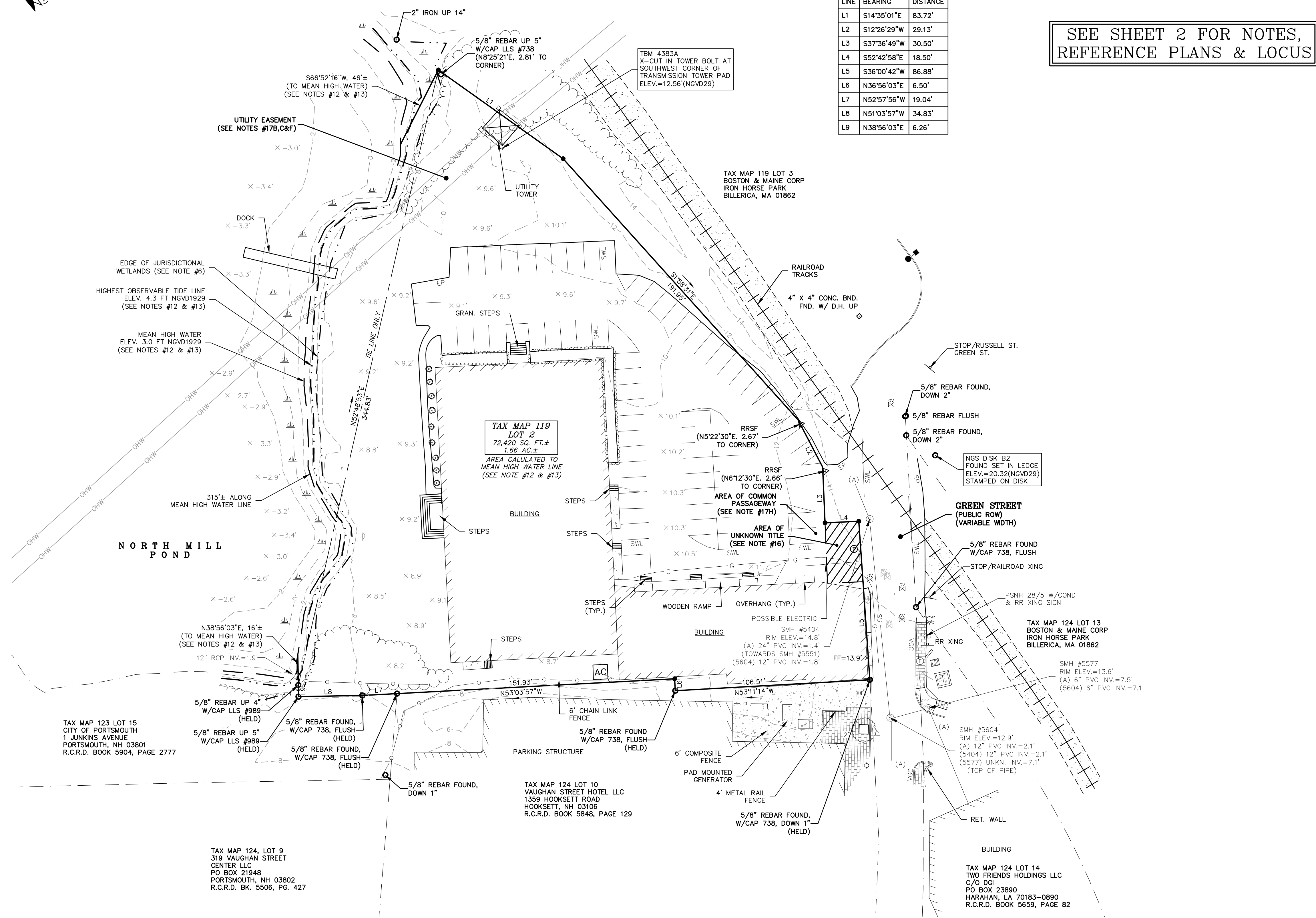
LL.S. #989
DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

SEE SHEET 2 FOR NOTES, REFERENCE PLANS & LOCUS

LINE	BEARING	DISTANCE
L1	S14°35'01"E	83.72'
L2	S12°28'29"W	29.13'
L3	S37°36'49"W	30.50'
L4	S52°42'58"E	18.50'
L5	S36°00'42"W	86.88'
L6	N36°56'03"E	6.50'
L7	N52°57'56"W	19.04'
L8	N51°03'57"W	34.83'
L9	N38°56'03"E	6.26'

- LEGEND**
- LOT LINE
 - - - APPROXIMATE ABUTTERS LOT LINE
 - STOCKADE FENCE
 - CHAIN LINK FENCE
 - OVERHEAD WIRE
 - SS SEWER LINE
 - SD DRAIN LINE
 - G GAS LINE
 - 100 MAJOR CONTOUR LINE
 - 98 MINOR CONTOUR LINE
 - MEAN HIGH WATER LINE
 - HIGH TIDE LINE
 - TREE LINE
 - SHRUB LINE
 - EDGE OF WETLAND
 - WETLAND AREA
 - CONCRETE
 - CRUSHED STONE
 - BRICK
 - UTILITY POLE
 - LIGHT POLE
 - LIGHT POLE W/ARM
 - SIGN
 - BOUND FOUND
 - IRON PIPE/ROD FOUND
 - FIRE HYDRANT
 - WATER GATE VALVE
 - WATER SHUTOFF VALVE
 - GAS GATE VALVE
 - URBAN MANHOLE
 - ELECTRIC MANHOLE
 - SEWER MANHOLE
 - HAND HOLE
 - DECIDUOUS TREE
 - CONIFEROUS SHRUB
 - TYP. BND. FND.
 - CONC.
 - FF
 - EP
 - VGC
 - SWL
 - 5/8" REBAR W/D CAP TO BE SET



EXISTING CONDITIONS PLAN FOR TIGHE & BOND OF STONE CREEK REALTY LLC (TAX MAP 119, LOT 2) 53 GREEN STREET PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	E.D.P.	DATE:	NOVEMBER 2019
CHECKED BY:	M.W.F.	DRAWING NO.:	4383F
JOB NO.:	4383	SHEET:	1 OF 2

DOUCET SURVEY
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: Y:\PROJECTS\MAINE\CONV\MAINE\119-15-16 (T) 119-15-16.dwg (119-15-16) LAYOUT NAME: T190 PLAN (1) PLOTTED: Monday, December 16, 2018 - 3:11pm

NOTES:

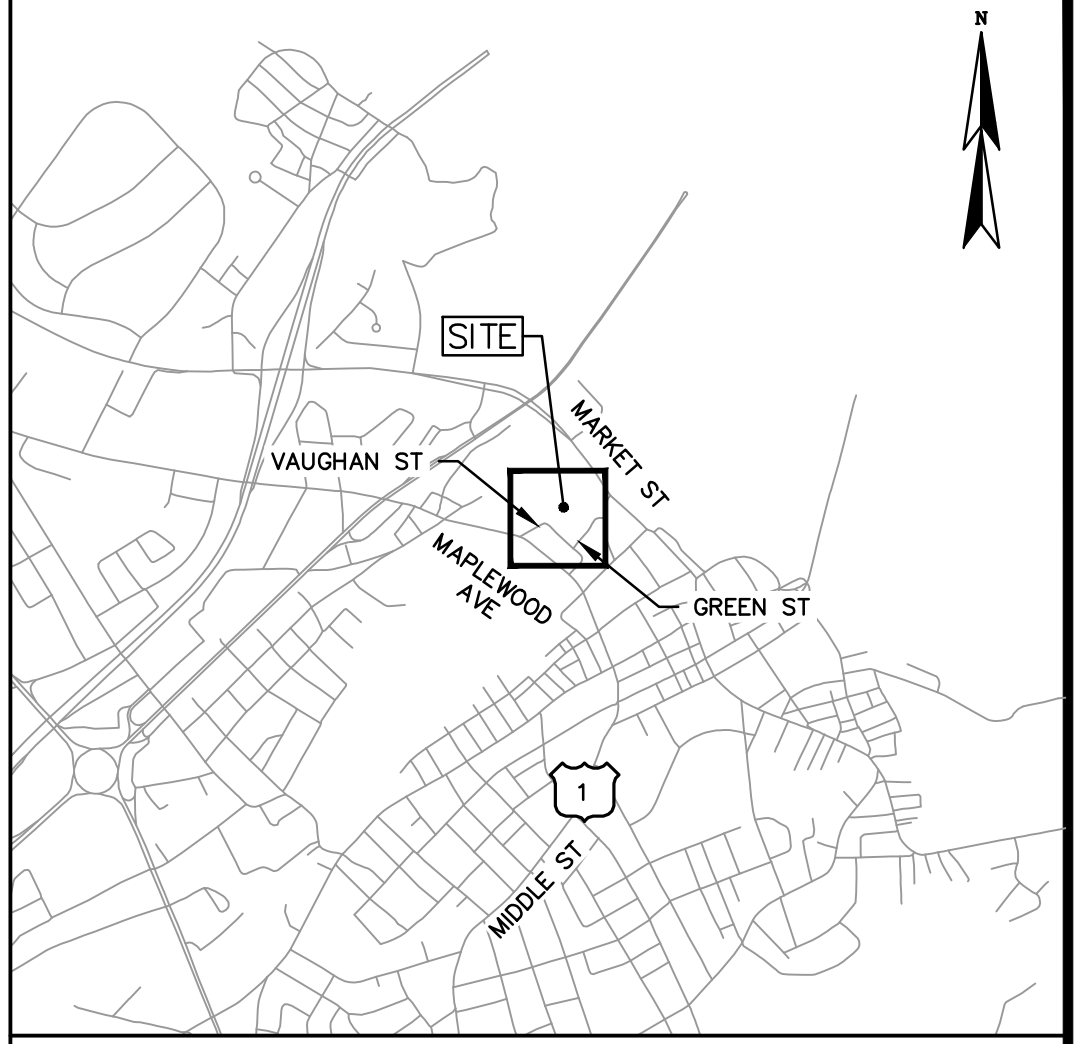
1. REFERENCE: TAX MAP 119, LOT 2
53 GREEN STREET
D.S.I. PROJECT NO. 4383
2. TOTAL PARCEL AREA: 72,420 SQ. FT.± OR 1.66 AC.±
(AREA CALCULATED TO MEAN HIGH WATER)
(SEE NOTE #12)
3. OWNER OF RECORD: STONE CREEK REALTY LLC
C/O DOUGLAS PINCIARO
PO BOX 121
NEW CASTLE, NH 03854
R.C.R.D. BOOK 3300, PAGE 329
4. ZONE: CDS OVERLAY DISTRICTS
—DOWNTOWN OVERLAY DISTRICT
—HISTORIC DISTRICT

ZONING DISTRICTS BASED ON THE CITY OF PORTSMOUTH ZONING MAP DATED 11/12/15 AS AVAILABLE ON THE CITY WEBSITE ON 11/18/19. SEE CITY OF PORTSMOUTH ZONING ORDINANCE ARTICLE 5A, SECTION 10.5440 FOR DIMENSIONAL REGULATIONS. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.

THE SITE IS SUBJECT TO THE STATE OF NH SHORELAND WATER QUALITY PROTECTION ACT. SEE NHDES WEBSITE FOR SPECIFIC DIMENSIONAL REQUIREMENT.
5. FIELD SURVEY PERFORMED BY D.C.B. & K.J.L. DURING NOVEMBER 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R8 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
6. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND, DURING OCTOBER 2019 IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (OCTOBER, 2009).
7. VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923.
8. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
9. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.
10. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.
11. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.
12. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.
13. MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPLACEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009", PROVIDED BY TIGHE & BOND ON 11-30-15.
14. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
15. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF GREEN STREET AS DEPICTED HEREON IS/ARE BASED ON RESEARCH CONDUCTED AT THE CITY OF PORTSMOUTH CITY HALL, THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS & THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
16. THE GEOMETRY SHOWN ON REFERENCE PLANS 1, 12 & 13 INDICATE A POSSIBLE DISCREPANCY IN TITLE TO THE HATCHED AREA SHOWN. A TITLE EXAMINATION IS REQUIRED TO CLEAR UP ANY ISSUES IN THIS AREA.
17. TAX MAP 119 LOT 2 SHOWN HEREON IS SUBJECT TO AND/OR IN BENEFIT OF THE FOLLOWING EASEMENTS & COVENANTS.
A) SIGNAL FACILITIES EXCEPTIONS AND RESERVATIONS, SEE R.C.R.D. BOOK 1339, PAGE 298, (LOCATION UNKNOWN).
B) EASEMENT IN FAVOR OF WESTERN UNION TELEGRAPH COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
C) ELECTRIC EASEMENT IN FAVOR OF NEW HAMPSHIRE ELECTRIC COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
D) SEWER LINE EASEMENT IN FAVOR OF THE CITY OF PORTSMOUTH, SEE R.C.R.D. BOOK 1339, PAGE 298 (LOCATION UNKNOWN).
E) ADDITIONAL FIRE RESTRICTION, SEE R.C.R.D. BOOK 1339, PAGE 298.
F) POLE AND WIRE AGREEMENT, PER NOTE #9 ON REFERENCE PLAN #1. (RECORDED AGREEMENT NOT FOUND).
G) ACCESS RIGHTS, SEE R.C.R.D. BOOK 589, PAGE 206 (LOCATION UNKNOWN).
H) COMMON PASSAGEWAY, SEE R.C.R.D. PLAN 266 (PUBLIC RIGHTS UNKNOWN).
18. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "STANDARD BOUNDARY SURVEY, TAX MAP 119 – LOT 2, LAND OF STONE CREEK REALTY", DATED MARCH 2016, BY AMBIT ENGINEERING, INC., NOT RECORDED.
2. "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH, NH" DATED JULY 1955 BY JOHN W. DURGIN R.C.R.D. PLAN #02541.
3. "STANDARD BOUNDARY SURVEY, TAX MAP 123 – LOT 15 & TAX MAP 124 LOT 10" DATED JULY 2008, REVISED 4/25/13 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN #D-37722.
4. "EASEMENT PLAN, EGRESS EASEMENT TO 319 VAUGHAN STREET CENTER, LLC, TAX MAP 124, LOT 9 & TAX MAP 123, LOT 15, PROPERTY OF 299 VAUGHAN STREET, LLC C/O CATHARTES PRIVATE INVESTMENTS", BY AMBIT ENGINEERING, INC., DATED MARCH 2014, R.C.R.D. PLAN #D-38358.
5. "CONDOMINIUM SITE PLAN TAX MAP 124 LOT 14, 233 VAUGHAN STREET, A CONDOMINIUM FOR 233 VAUGHAN STREET, LLC", BY AMBIT ENGINEERING, INC., DATED NOVEMBER 2013, R.C.R.D. PLAN #D-39078.
6. "LOT LINE RELOCATION PLAN PROPERTY OF HARBORCORP. LLC & BOSTON & MAINE CORPORATION", BY AMES MSC, DATED MARCH 15, 2005, R.C.R.D. PLAN #D-32675.
7. "LAND AT 233 VAUGHAN STREET PORTSMOUTH, NH BOSTON & MAINE CORPORATION TO BLUE STAR PROPERTIES, LLC", BY JAMES VERRA & ASSOCIATES, INC., DATED 6/3/01, R.C.R.D. PLAN #D-29702.
8. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED NOVEMBER 1969, R.C.R.D. PLAN D-2408
9. "PLAN OF LAND FOR SOLIMON NEGM", BY TOWN PLANNING & ENGINEERING ASSOCIATES, INC., DATED 3/28/79, R.C.R.D. PLAN #C-8575.
10. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION PLAN PARCEL 2", BY ANDERSON-NICHOLS & CO., INC., DATED OCTOBER 1973, R.C.R.D. PLAN D-4115.
11. "PLAN OF PROPERTY CORNER VAUGHAN AND GREEN STREETS", DATED FEBRUARY 1907, R.C.R.D. PLAN #306.
12. "LAND SHOWING LAND AND WHARFAGE OWNED BY SILAS PEIRCE AND CO. LTD.", BY A.C. HOYT SURVEYOR, DATED AUGUST 8, 1902, R.C.R.D. PLAN #266.
13. "PLAN OF LAND PORTSMOUTH, NH FOR GEORGE D. EMERSON CO., BY JOHN W. DURGIN, DATED APRIL 1952, ON FILE AT JAMES VERRA AND ASSOCIATES.
14. "PLAN OF LAND VAUGHAN AND GREEN STREETS PORTSMOUTH, NH FOR SAMUEL W. & SUMNER L. POORVU", BY JOHN W. DURGIN, DATED JANUARY 1956, ON FILE AT JAMES VERRA AND ASSOCIATES.
15. "PLAN OF PROPERTY IN PORTSMOUTH, NH OWNED BY R.I. SUGDEN", BY WM A. GROVER, DATED APRIL 15, 1919, ON FILE AT JAMES VERRA AND ASSOCIATES.
16. "LAND ON VAUGHAN STREET PORTSMOUTH, NH, ESTATE OF CARRIE HAM TO LAWRENCE V. REGAN" BY JOHN W. DURGIN, DATED AUGUST 6, 1937, ON FILE AT JAMES VERRA AND ASSOCIATES.
17. "LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO GEORGE D. EMERSON COMPANY", DATED JUNE 1954, R.C.R.D. BOOK 1339, PAGE 305.
18. TRACK PLAN, R.C.R.D. BOOK 1345, PAGE 51.
19. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, APPROVED AS SHOWING VAUGHAN STREET URBAN RENEWAL PROJECT BOUNDARIES AND AREA ONLY, CONDEMNATION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED FEBRUARY 1971, R.C.R.D. PLAN 2425.
20. "SURVEY OF HARBORSIDE & HARBORPARK LAND IN PORTSMOUTH, NH", BY BRIGGS ASSOCIATES, INC., DATED AUGUST 13, 1985, REV. AUGUST 27, 1985, R.C.R.D. PLAN 14043.
21. "SUBDIVISION PLAN OF TAX MAP 123, LOT 15 FOR 299 VAUGHAN STREET, LLC", BY DOUCET SURVEY, INC., DATED MAY 19, 2017, R.C.R.D. PLAN D-40759.
22. "LICENSE, EASEMENT & LAND TRANSFER PLAN FOR VAUGHAN STREET, LLC AND VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED AUGUST 2017, R.C.R.D. PLAN D-40760.
23. "LOT MERGER PLAN FOR VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED SEPTEMBER 2017.
24. "STATION MAP – LANDS, BOSTON AND MAINE RAILROAD OPERATED BY THE BOSTON AND MAINE RAILROAD, STATION 2966+20 TO STATION 3019+0", DATED JUNE 30, 1914, ON FILE AT THE BOSTON AND MAINE CORPORATION.
25. "VAUGHAN STREET PROJECT, PROJECT NO. N.H. R-10, RIGHT OF WAY ADJUSTMENT", BY METCALF & EDDY, DATED MAY 5, 1966, R.C.R.D. PLAN D-2413.
26. "SKETCH OF RAILROAD CONVEYANCE, SEE R.C.R.D. BOOK 446, PAGE 164A.



Location Map (n.t.s.)

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
STONE CREEK REALTY LLC
(TAX MAP 119, LOT 2)
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

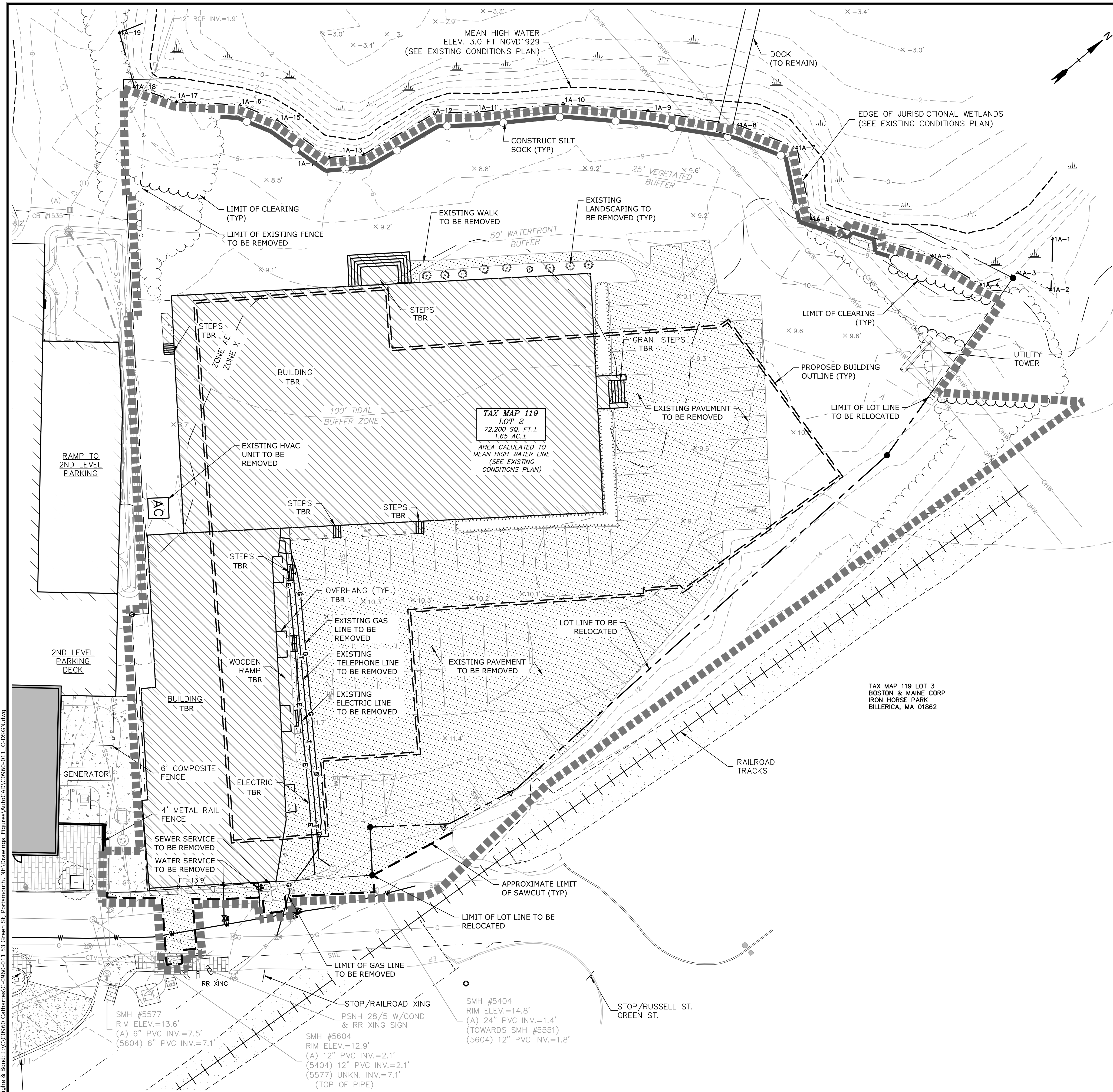
DRAWN BY:	E.D.P.	DATE:	NOVEMBER 2019
CHECKED BY:	M.W.F.	DRAWING NO.	4383F
JOB NO.	4383	SHEET	2 OF 2

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE (NHRSA TITLE LXIV) AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN. I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

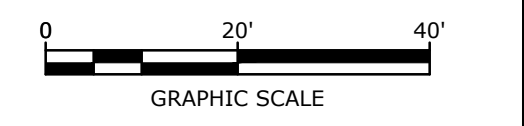
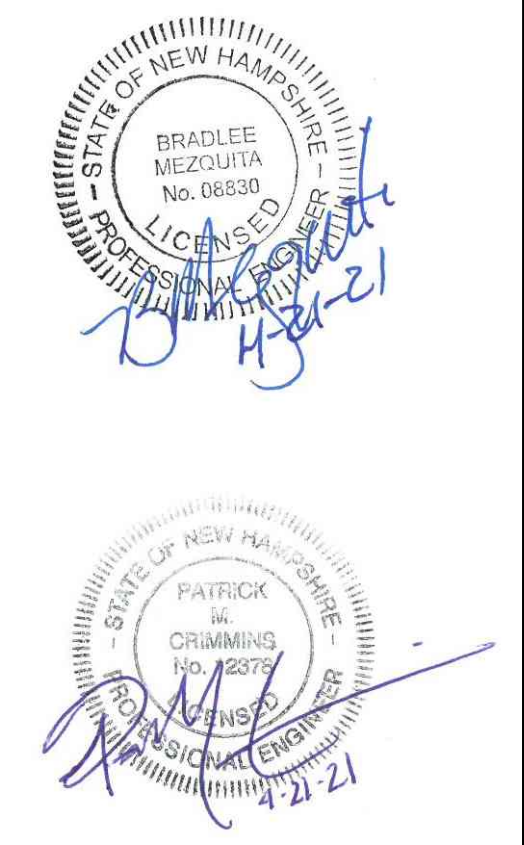
_____, L.L.S. #989
_____, DATE

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DOUCET SURVEY
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com



- DEMOLITION NOTES:**
1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
 2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
 3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
 4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
 5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
 8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
 10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
 11. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
 12. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
 13. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
 14. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
 15. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
 16. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT MAY RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
 17. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
 18. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
 19. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
 20. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.



Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- PROPERTY LINE
- PROPERTY LINE TO BE REMOVED
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- BUILDING TO BE REMOVED
- TO BE REMOVED
- TYPICAL

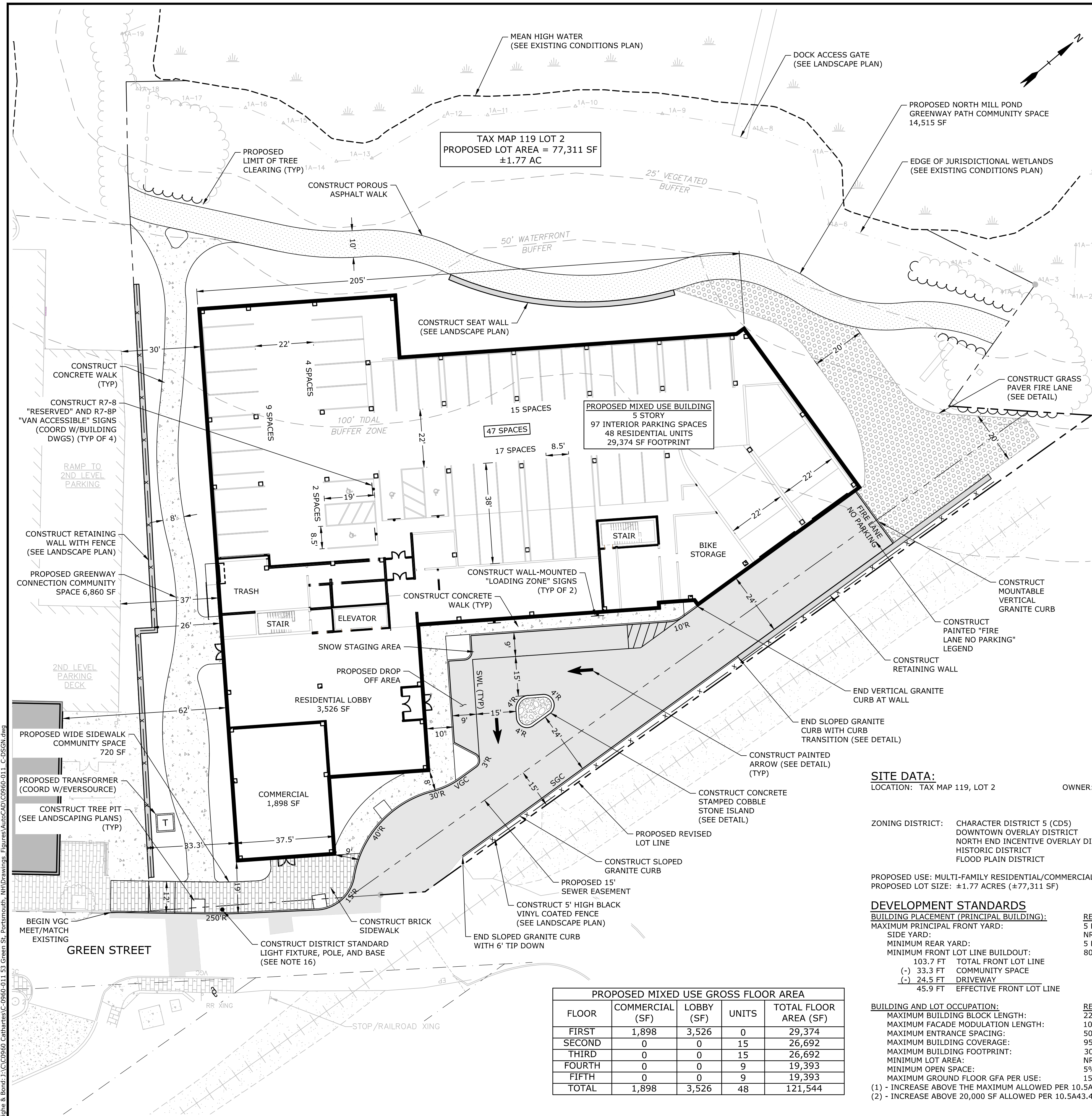
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 DATE: January 27, 2021
 FILE: C0960-011_C-DSGN.DWG
 DRAWN BY: AFS
 CHECKED: NAH/PMC
 APPROVED: BLM

DEMOLITION PLAN

SCALE: AS SHOWN

Last Saved: 4/21/2021 12:14pm By: asellier
 Plotted On: Apr 21, 2021 12:14pm
 Tighe & Bond 53 Green St. Portsmouth, NH
 Figures: AutoCAD (C0960-011_C-DSGN.dwg)



- SITE NOTES:**
1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
 2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
 3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
 4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
 5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
 6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
 7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
 8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY CODES & SPECIFICATIONS.
 9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
 10. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILE) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
 11. SEE BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
 12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS.
 13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
 14. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
 15. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 16. THE STREET LIGHTING TYPE TO BE DISTRICT STYLE FIXTURE AND POLE TO MATCH EXISTING LIGHTING ON GREEN STREET.
 17. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
 18. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
 19. ALL TREES PLANTED ARE TO BE INSTALLED UNDER THE SUPERVISION OF THE CITY OF PORTSMOUTH DPW USING STANDARD INSTALLATION METHODS.
 20. THE APPLICANT SHALL PREPARE A CONSTRUCTION MITIGATION AND MANAGEMENT PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY'S LEGAL AND PLANNING DEPARTMENTS.
 21. A TEMPORARY SUPPORT OF EXCAVATION (SOE) PLAN SHALL BE PREPARED BY THE APPLICANT'S CONTRACTOR TO CONFIRM ANY TEMPORARY ENCUMBRANCES OF THE CITY'S RIGHT-OF-WAY. IF LICENSES ARE REQUIRED FOR THE SOE, THE APPLICANT WILL BE REQUIRED TO OBTAIN THESE FROM THE CITY PRIOR TO CONSTRUCTION.
 22. ALL EXCESS SNOW SHALL BE HAULED OFF-SITE IN ACCORDANCE TO ALL LOCAL AND STATE LAWS. PROPOSED SNOW STAGING AREAS HAVE BEEN PROVIDED TO SHOW TEMPORARY SNOW STORAGE AREAS.

- SITE RECORDING NOTES:**
1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
 2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
 3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

LEGEND

---	PROPERTY LINE	---	PROPOSED POROUS PAVEMENT
---	PROPOSED PROPERTY LINE	---	PROPOSED PAVEMENT
---	ABUTTER PROPERTY LINE	---	PROPOSED GRASS PAVER FIRE LANE TYPICAL
---	PROPOSED EASEMENT	---	PROPOSED CURB RADIUS
---	PROPOSED EDGE OF PAVEMENT	---	PROPOSED VERTICAL GRANITE CURB
---	PROPOSED CURB	---	PROPOSED SLOPED GRANITE CURB
---	PROPOSED BUILDING	---	SOLID WHITE LINE
---	PROPOSED BRICK SIDEWALK	---	
---	PROPOSED CONCRETE SIDEWALK	---	

SITE DATA:

LOCATION: TAX MAP 119, LOT 2 OWNER: STONE CREEK REALTY LLC
C/O DOUGLAS PINCIARO
PO BOX 121
NEW CASTLE, NH 03854

ZONING DISTRICT: CHARACTER DISTRICT 5 (CD5)
DOWNTOWN OVERLAY DISTRICT
NORTH END INCENTIVE OVERLAY DISTRICT
HISTORIC DISTRICT
FLOOD PLAIN DISTRICT

PROPOSED USE: MULTI-FAMILY RESIDENTIAL/COMMERCIAL
PROPOSED LOT SIZE: ±1.77 ACRES (±77,311 SF)

BUILDING FORM (PRINCIPAL BUILDING):

BUILDING HEIGHT:	REQUIRED 5 STORIES ⁽³⁾ 60 FT	PROPOSED 5 STORIES <60 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	0 IN
MINIMUM GROUND STORY HEIGHT:	12 FT	>12 FT
MINIMUM SECOND STORY HEIGHT:	10 FT	>10 FT
FACADE GLAZING:		
SHOP FRONT	20% - 50%	20% - 50%
ALLOWED ROOF TYPES	FLAT, GABLE, HIP, GAMBREL, MANSARD	FLAT

(3) - ADDITIONAL 1 STORY UP TO 10FT ALLOWED FOR PROVIDING AT LEAST 20% OF THE SITE TO BE ASSIGNED AS COMMUNITY SPACE PER 10.5A46.10.

DEVELOPMENT STANDARDS

BUILDING PLACEMENT (PRINCIPAL BUILDING):

REQUIRED	PROPOSED
5 FT	16 FT ⁽¹⁾
NR	
5 FT	>5 FT
80% (36.7 FT)	81% (37.5 FT)

COMMUNITY SPACE:

REQUIRED	PROPOSED
20%	28%
15,462 SF	22,095 SF

PARKING REQUIREMENTS

RESIDENTIAL UNITS (>750 SF)	48 UNITS x 1.3 SPACES	63 SPACES
VISITOR SPACES	1 SPACE / 5 UNITS	10 SPACES
DOWNTOWN OVERLAY DISTRICT		4 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		69 SPACES

*15 PROPOSED SPACES ARE TANDEM SPACES

PARKING SPACES

REQUIRED	PROPOSED
69 SPACES	97 SPACES

ADA PARKING SPACES

REQUIRED	PROPOSED
4 SPACES	4 SPACES

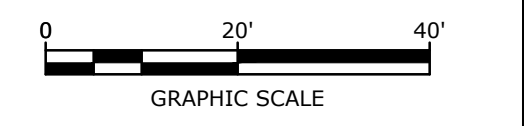
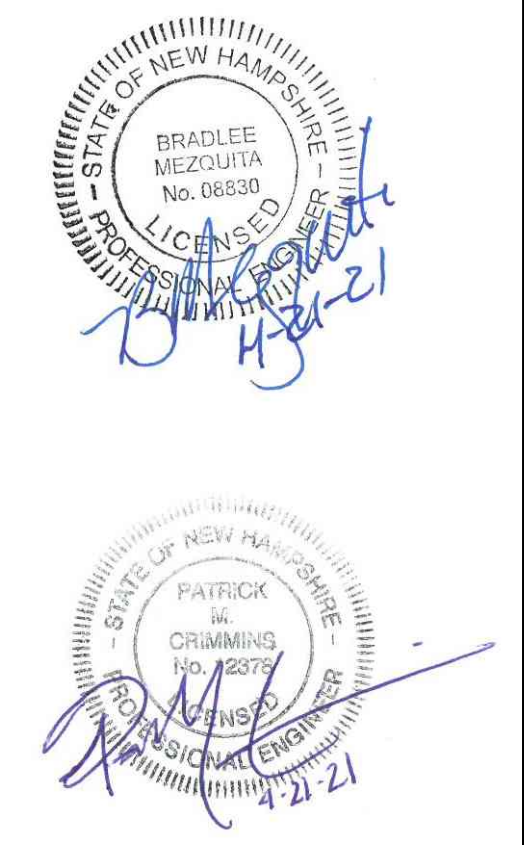
BICYCLE SPACES

REQUIRED	PROPOSED
1 BICYCLE SPACE / 10 PARKING SPACES	10 SPACES

*INDOOR BIKE STORAGE WILL BE PROVIDED THAT MEETS OR EXCEEDS REQUIRED.

PROPOSED MIXED USE GROSS FLOOR AREA

FLOOR	COMMERCIAL (SF)	LOBBY (SF)	UNITS	TOTAL FLOOR AREA (SF)
FIRST	1,898	3,526	0	29,374
SECOND	0	0	15	26,692
THIRD	0	0	15	26,692
FOURTH	0	0	9	19,393
FIFTH	0	0	9	19,393
TOTAL	1,898	3,526	48	121,544



Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

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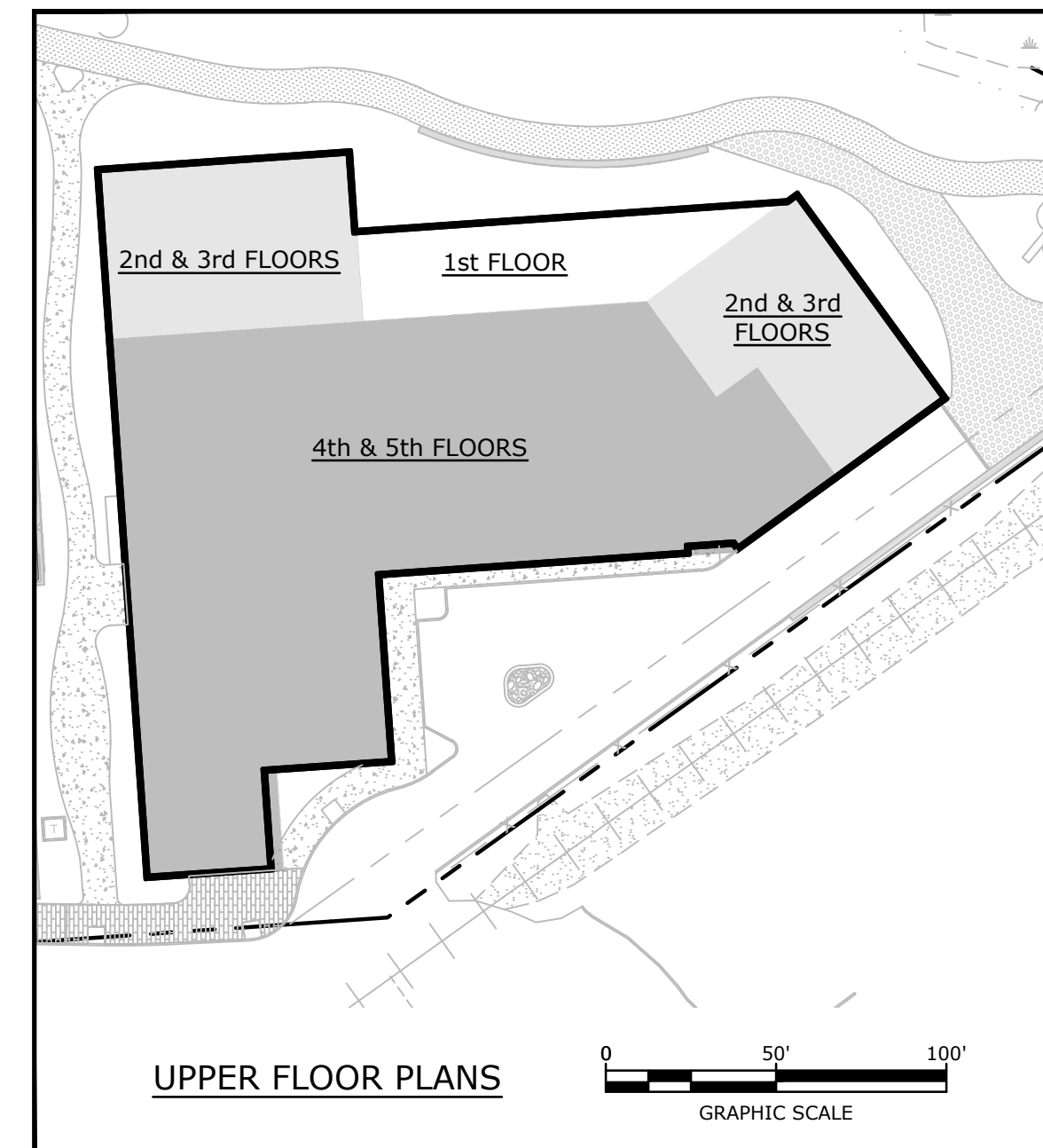
SITE PLAN

SCALE: AS SHOWN

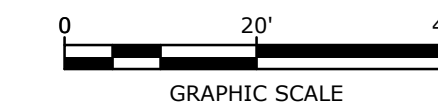
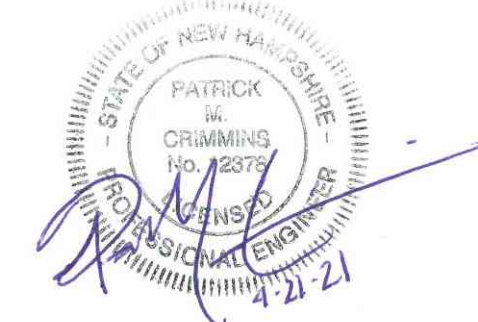
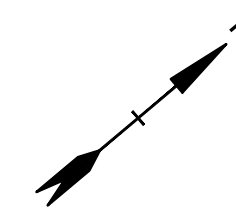
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Tighe & Bond



**Proposed
Mixed Use
Development**

CPI
Management,
LLC

53 Green Street
Portsmouth, NH

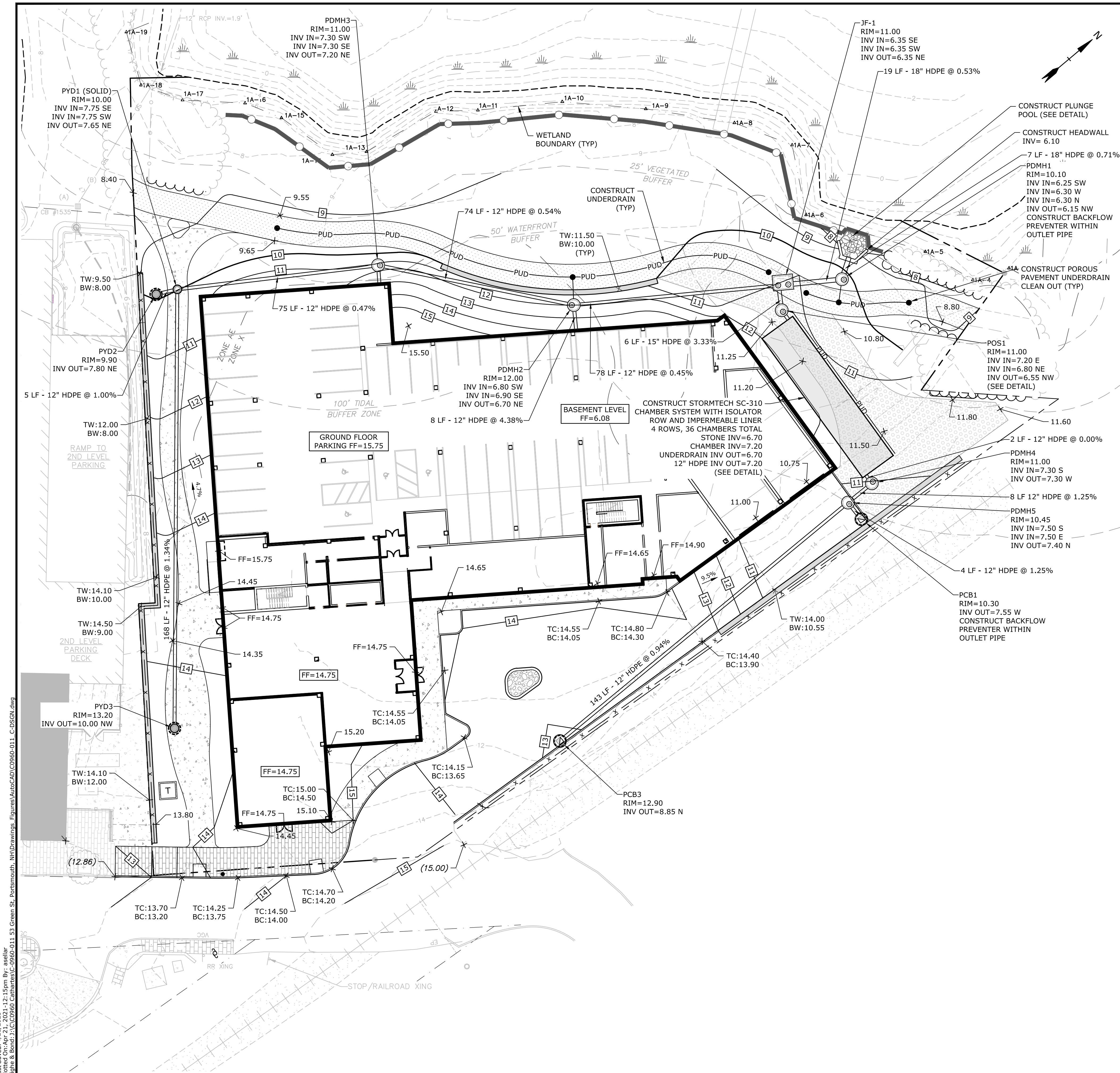
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**BASEMENT &
UPPER FLOOR PLAN**

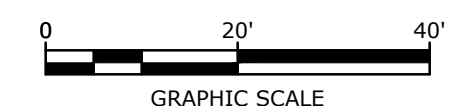
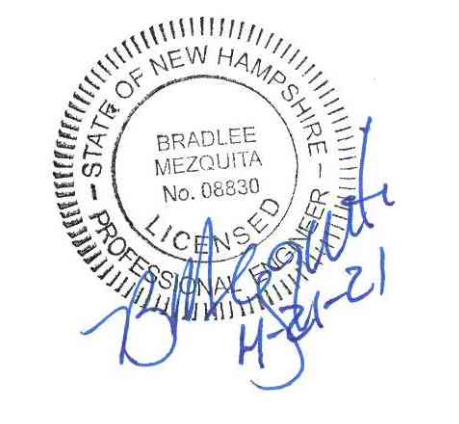
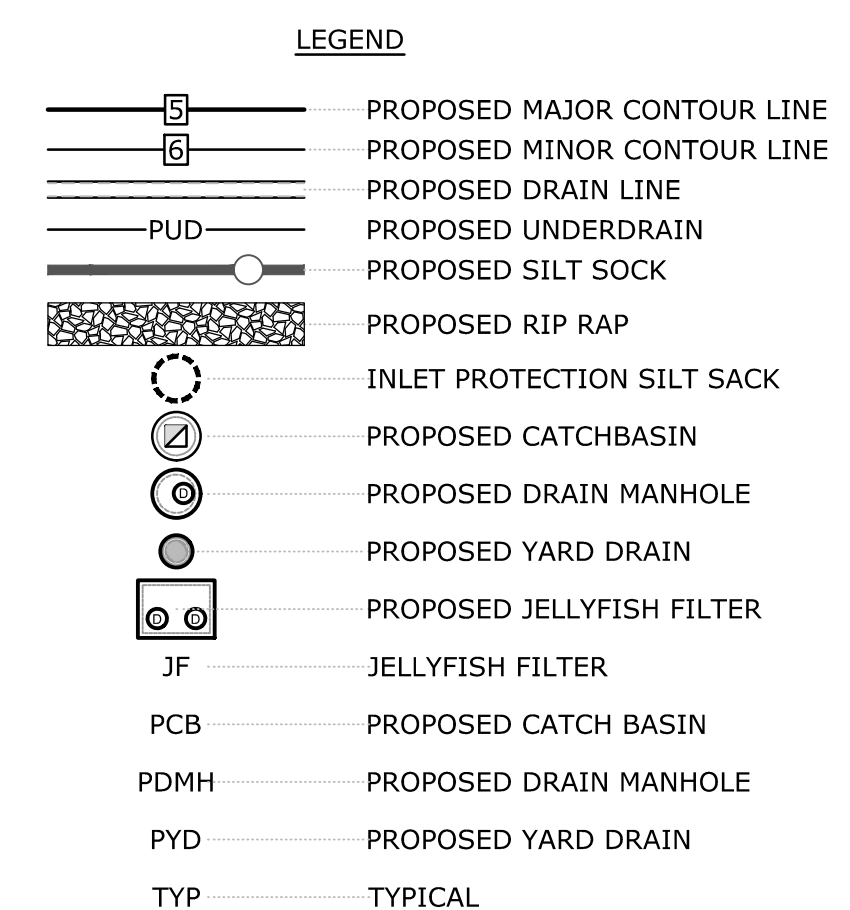
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- GRADING AND DRAINAGE NOTES:**
1. COMPACTION REQUIREMENTS:
BELOW PAVED OR CONCRETE AREAS 95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
BELOW LOAM AND SEED AREAS 90%
* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
 2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL), UNLESS OTHERWISE SPECIFIED.
 3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
 4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
 5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
 6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
 7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
 8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
 9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
 10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
 11. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS AND CONSTRUCTION SPECIFICATIONS, LATEST REVISIONS.
 12. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARs AND IN DIGITAL FORMAT (.DWG FILE) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER.
 13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.
 14. ALL DRAIN LINES WITH LESS THAN FOUR (4) FEET OF COVER SHALL BE INSULATED.

- EROSION CONTROL NOTES:**
1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
 2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
 3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
 4. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
 5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
 6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
 7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
 8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
 9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
 10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
 11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
 12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED BY SILT FENCE AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
 13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
 14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.



Proposed Mixed Use Development

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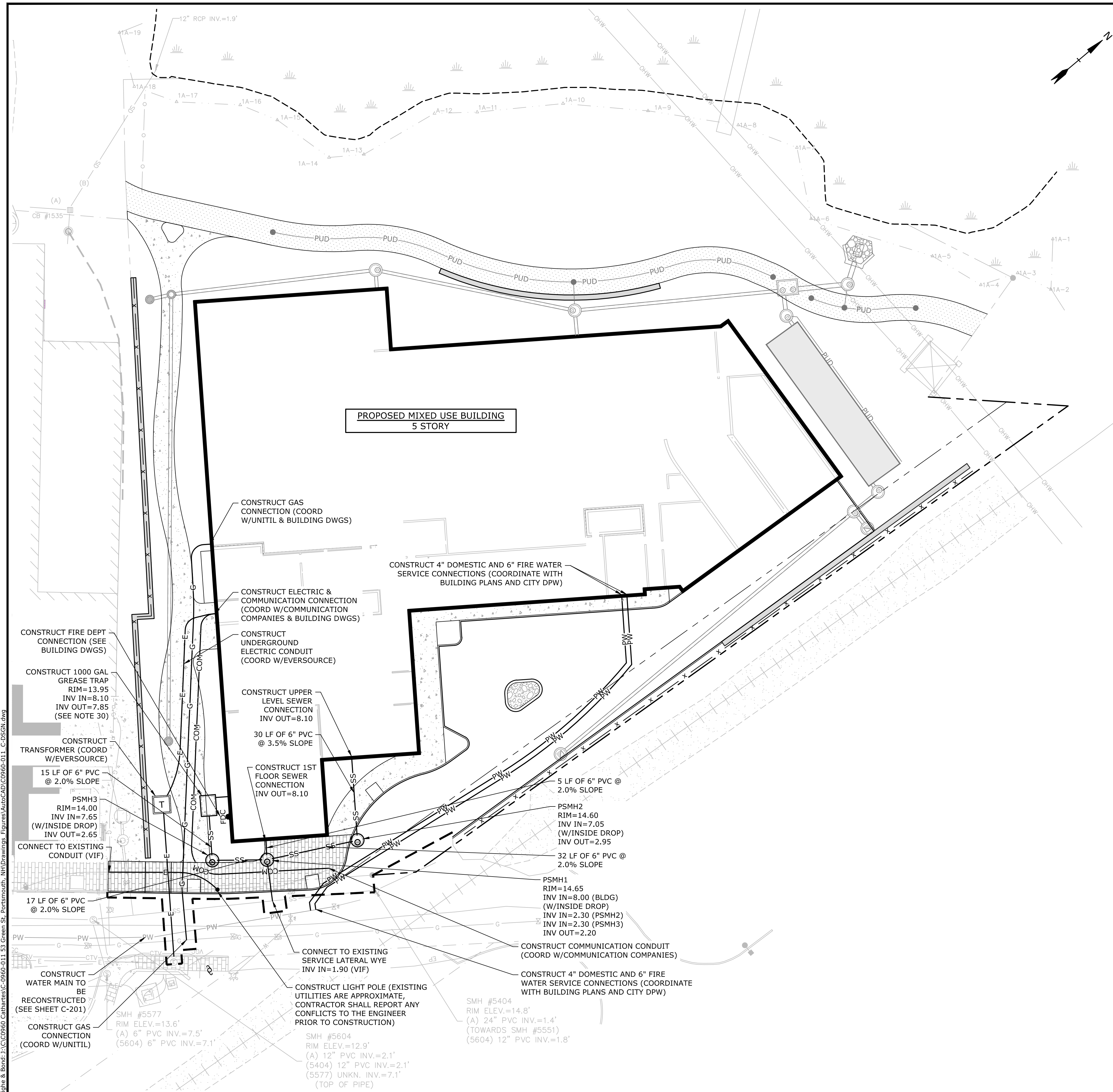
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GRADING, DRAINAGE, AND EROSION CONTROL PLAN

SCALE: AS SHOWN

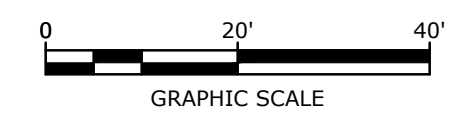
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- UTILITY NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
 - COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
 - NATURAL GAS - UNITIL
 - WATER/SEWER - CITY OF PORTSMOUTH
 - ELECTRIC - EVERSOURCE
 - COMMUNICATIONS - FAIRPOINT AND COMCAST
 - SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
 - SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
 - ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
 - ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE PORTSMOUTH WATER DEPARTMENT.
 - ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
 - COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
 - CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ADJUTING PROPERTIES THROUGHOUT CONSTRUCTION.
 - CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
 - EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
 - ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
 - THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
 - ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
 - ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
 - THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
 - THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
 - CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
 - A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
 - THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
 - CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILES) TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER.
 - SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
 - HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
 - COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
 - ALL SEWER PIPE WITH LESS THAN 5' OF COVER SHALL BE INSULATED.
 - CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
 - CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ADJUTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ADJUTING PROPERTIES WITH THE UTILITY COMPANY AND AFFECTED ADJUTING.
 - SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
 - CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IF LOCATIONS DIFFER FROM PLAN.
 - PROPOSED GREASE TRAP AND GREASE WASTE SERVICE CONNECTION TO BE CONSTRUCTED IF PROPOSED COMMERCIAL SPACE BECOMES RESTAURANT USE.

LEGEND

SD	EXISTING STORM DRAIN	⊙	EXISTING DRAIN MANHOLE	⊙	PROPOSED CATCHBASIN
SS	EXISTING SANITARY SEWER	⊙	EXISTING SEWER MANHOLE	⊙	PROPOSED DRAIN MANHOLE
SS	EXISTING SANITARY SEWER TO BE ABANDONED	⊙	⊙	⊙	PROPOSED SEWER MANHOLE
W	EXISTING WATER SERVICE	⊙	⊙	⊙	PROPOSED WATER VALVE
G	EXISTING GAS SERVICE	⊙	⊙	⊙	PROPOSED WATER DEPARTMENT BUILDING CONNECTION
E	EXISTING UNDERGROUND ELECTRIC SERVICE	⊙	⊙	⊙	PROPOSED GAS VALVE
OHW	EXISTING OVERHEAD UTILITY SERVICE	⊙	⊙	⊙	PROPOSED LIGHT POLE BASE
SS	PREVIOUSLY APPROVED SEWER	⊙	⊙	⊙	BLDG BUILDING
SS	PROPOSED STORM DRAIN	⊙	⊙	⊙	TYP TYPICAL
SS	PROPOSED SANITARY SEWER	⊙	⊙	⊙	COORD COORDINATE
PW	PROPOSED WATER SERVICE	⊙	⊙	⊙	VIF VERIFY IN FIELD
G	PROPOSED GAS SERVICE	⊙	⊙	⊙	
E	PROPOSED STREET LIGHTING CONDUIT	⊙	⊙	⊙	
PE&C	PROPOSED UNDERGROUND ELECTRIC AND COMMUNICATION SERVICE	⊙	⊙	⊙	



Proposed Mixed Use Development

CPI Management, LLC

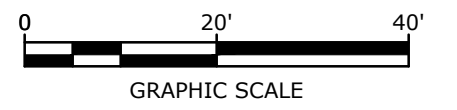
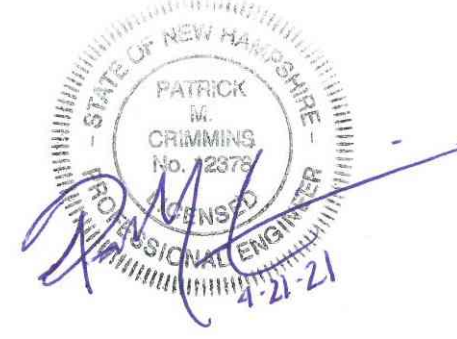
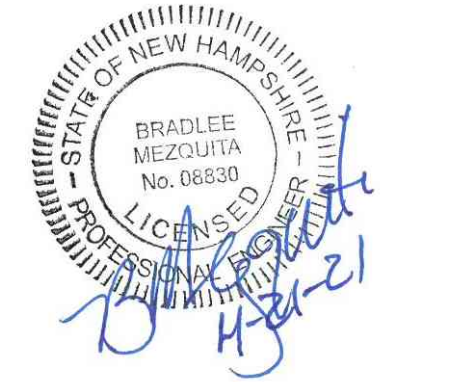
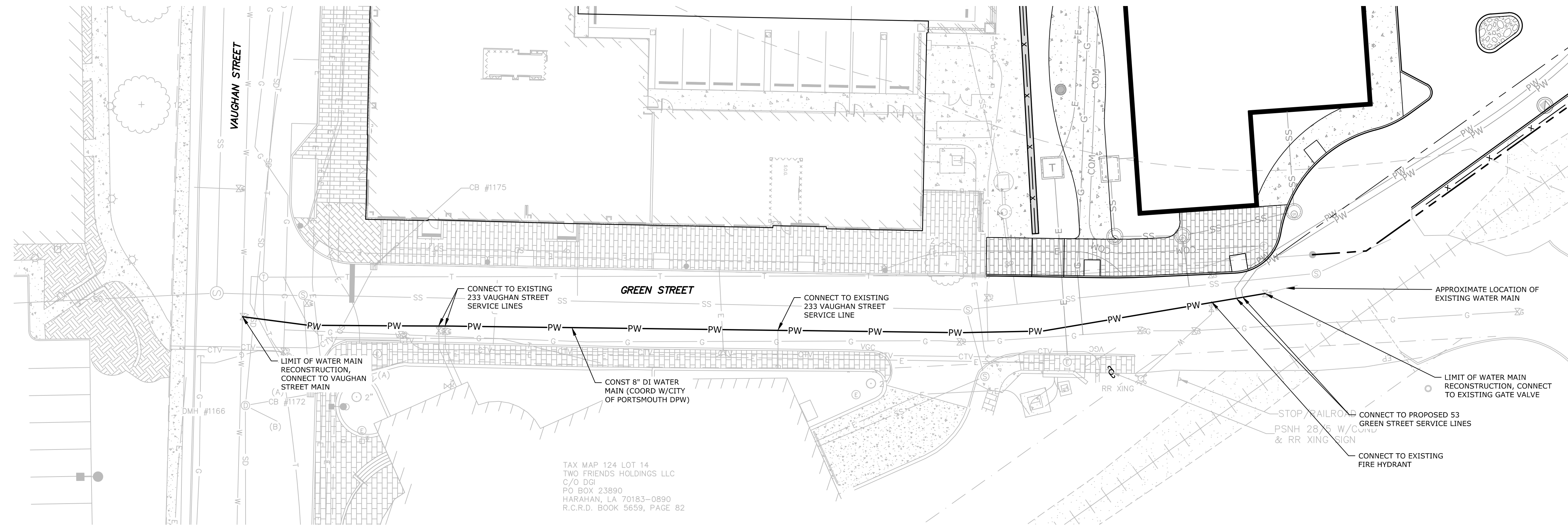
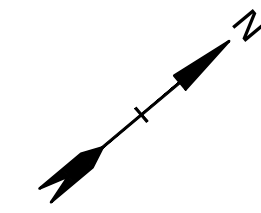
53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

UTILITIES PLAN

SCALE: AS SHOWN

Last Saved: 4/21/2021 12:12:15pm By: asellier
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UTILITY NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
- COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
 - NATURAL GAS - UNITIL
 - WATER/SEWER - CITY OF PORTSMOUTH
 - ELECTRIC - EVERSOURCE
 - COMMUNICATIONS - FAIRPOINT AND COMCAST
- SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
- SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
- ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
- ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE PORTSMOUTH WATER DEPARTMENT.
- COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
- CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
- CONNECTIONS TO EXISTING WATER LINES SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
- EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
- THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
- ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
- THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
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- CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
- CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IF LOCATIONS DIFFER FROM PLAN.

GREEN STREET PAVING:

- AFTER UTILITY CONSTRUCTION, CONTRACTOR SHALL MILL GREEN STREET PAVEMENT AT A DEPTH OF 1.5" AND PAVE WEARING COURSE TO EXISTING GRADE. LIMITS OF MILL AND PAVING SHALL BE COORDINATED WITH THE CITY PRIOR TO CONSTRUCTION.

LEGEND

—SD—	EXISTING STORM DRAIN	⊕	PROPOSED CATCHBASIN
—SS—	EXISTING SANITARY SEWER	⊙	PROPOSED DRAIN MANHOLE
—SS—	EXISTING SANITARY SEWER TO BE ABANDONED	⊙	PROPOSED SEWER MANHOLE
—W—	EXISTING WATER SERVICE	⊕	PROPOSED WATER VALVE
—G—	EXISTING GAS SERVICE	⊕	PROPOSED GAS VALVE
—E—	EXISTING UNDERGROUND ELECTRIC SERVICE	•	PROPOSED LIGHT POLE BASE
—OHW—	EXISTING OVERHEAD UTILITY SERVICE	BLDG	BUILDING
—SS—	PREVIOUSLY APPROVED SEWER	TYP	TYPICAL
====	PROPOSED STORM DRAIN	COORD	COORDINATE
—SS—	PROPOSED SANITARY SEWER	VIF	VERIFY IN FIELD
—PW—	PROPOSED WATER SERVICE	DWGS	DRAWINGS
—G—	PROPOSED GAS SERVICE		
—E—	PROPOSED STREET LIGHTING CONDUIT		
—PE&C—	PROPOSED UNDERGROUND ELECTRIC AND COMMUNICATION SERVICE		
⊕	EXISTING DRAIN MANHOLE		
⊙	EXISTING SEWER MANHOLE		
⊙	PREVIOUSLY APPROVED SEWER MANHOLE		
⊕	EXISTING HYDRANT		
⊕	EXISTING WATER VALVE		
⊕	EXISTING WATER SHUTOFF		
⊕	EXISTING ELECTRIC MANHOLE		
⊕	EXISTING PAD MOUNTED TRANSFORMER		
⊕	EXISTING GAS VALVE		
⊕	EXISTING HANDHOLE		
⊕	EXISTING COMMUNICATION MANHOLE		

Proposed Mixed Use Development

CPI Management, LLC

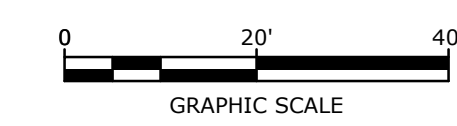
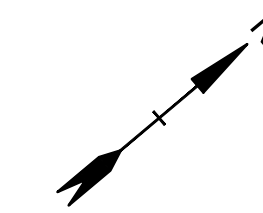
53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

PROJECT NO:	C0960-011
DATE:	January 27, 2021
FILE:	C0960-011_C-DSGN.DWG
DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

WATER MAIN REPLACEMENT PLAN

SCALE: AS SHOWN



Proposed Mixed Use Development

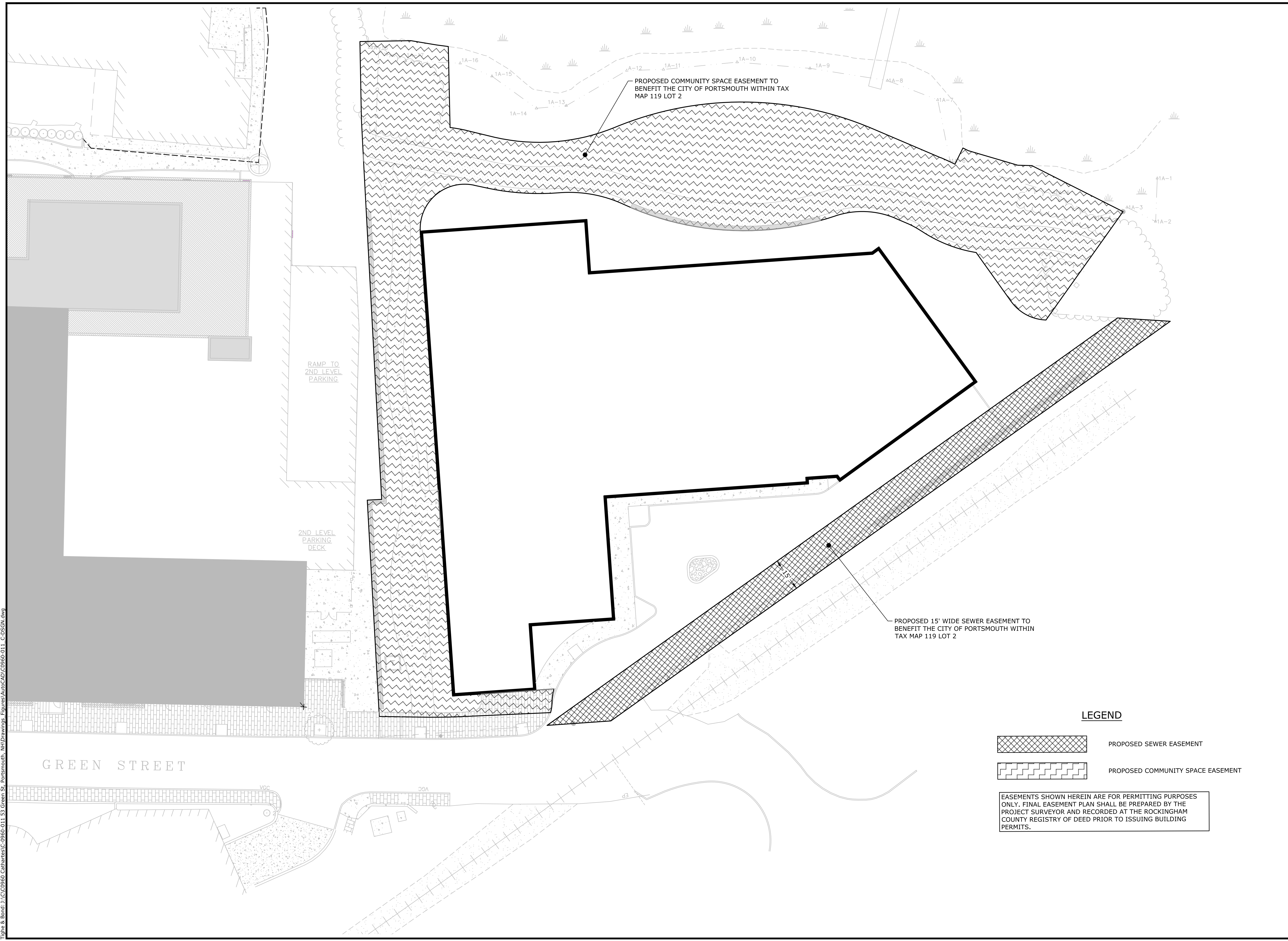
CPI Management, LLC

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DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

EASEMENT PLAN
SCALE: AS SHOWN
C-301

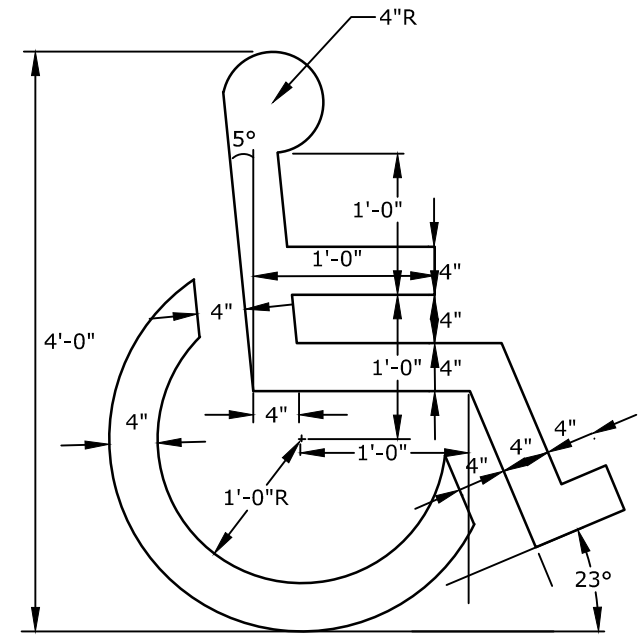


LEGEND

- PROPOSED SEWER EASEMENT
- PROPOSED COMMUNITY SPACE EASEMENT

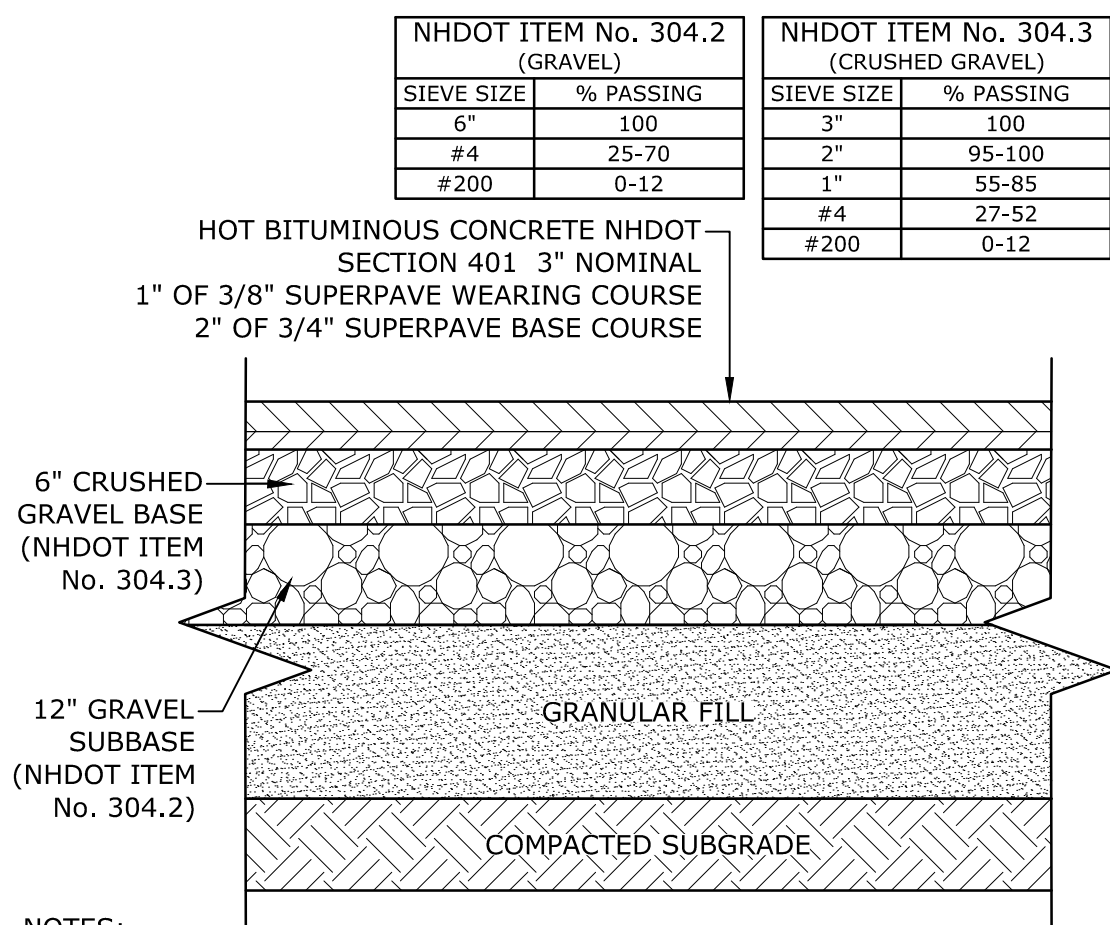
EASEMENTS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL EASEMENT PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEED PRIOR TO ISSUING BUILDING PERMITS.

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Plotted On: Apr 21, 2021 12:12:16pm
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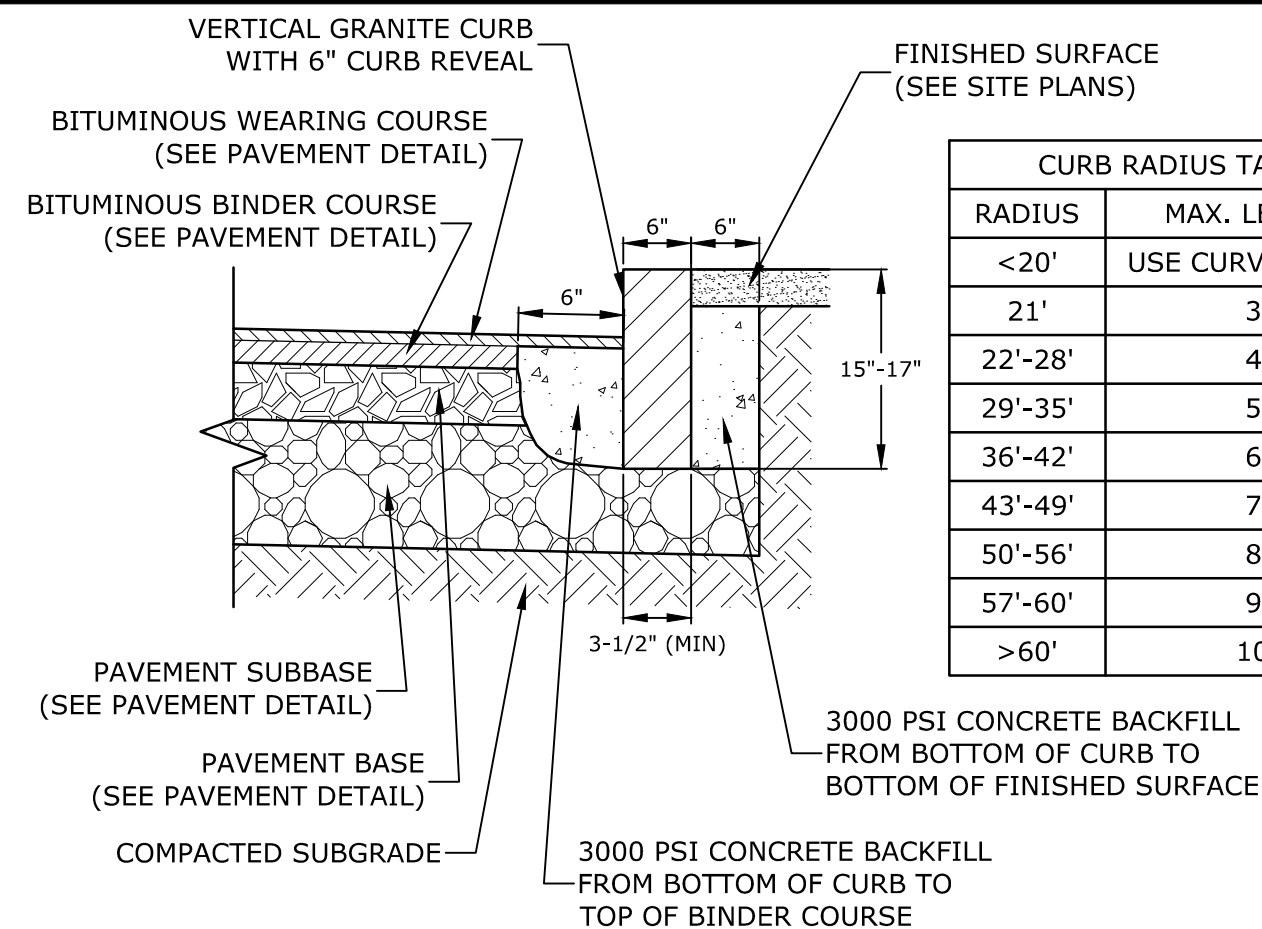
- NOTES:**
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
 2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE



- NOTES:**
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
 2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
 3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
 4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.
 5. CONTRACTOR SHALL CONFIRM THIS PAVEMENT SECTION WITH THE PROJECT'S GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

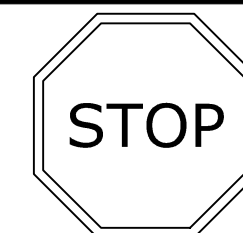
ON-SITE PAVEMENT SECTION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX. LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

- NOTES:**
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
 2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
 4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
 5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
 7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



R1-1
30" X 30"
WHITE ON RED

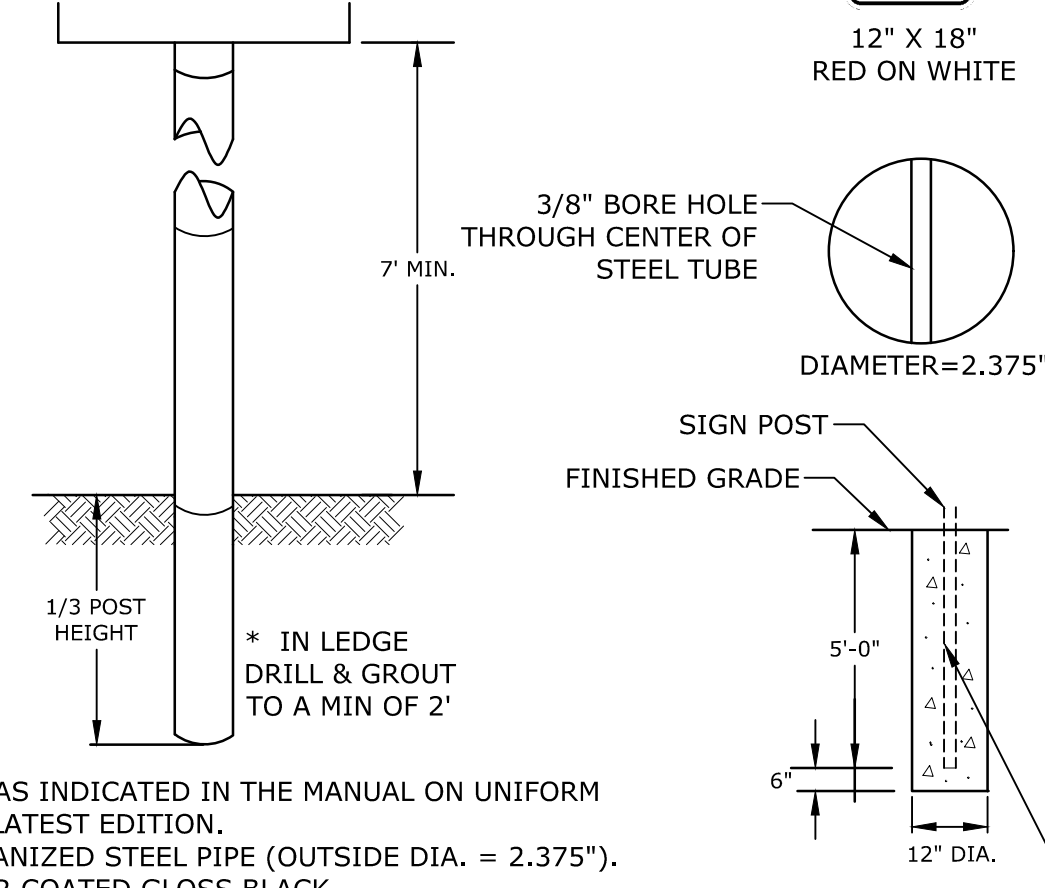


R7-8
12" X 18"
BLUE AND GREEN ON WHITE

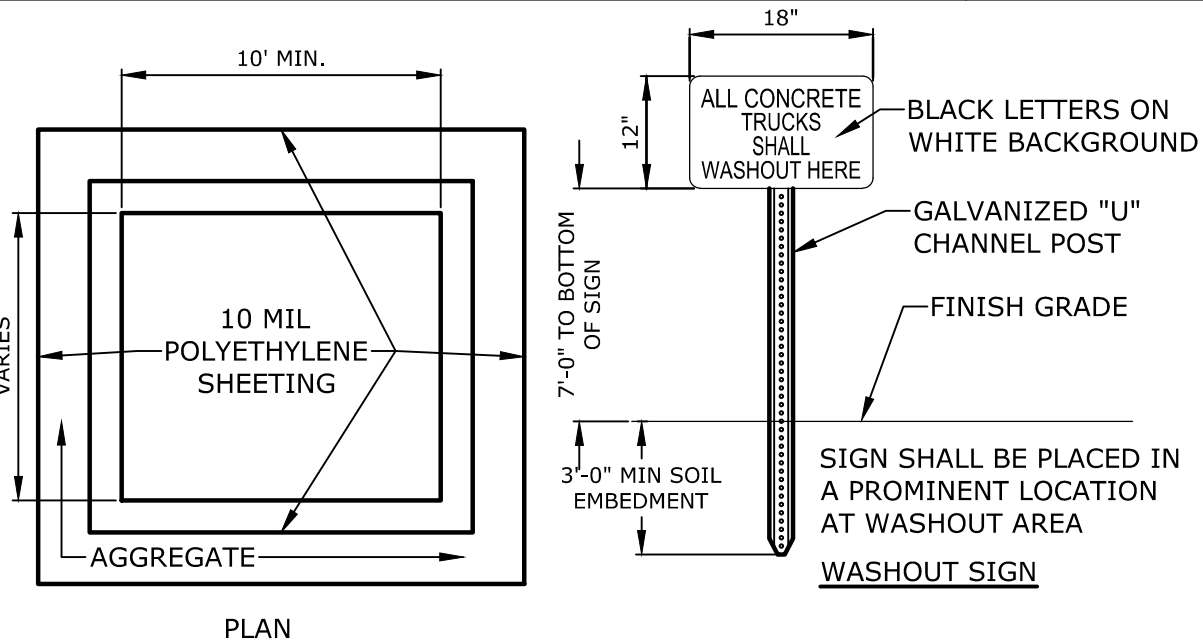


R7-8P
18" X 9"
GREEN ON WHITE

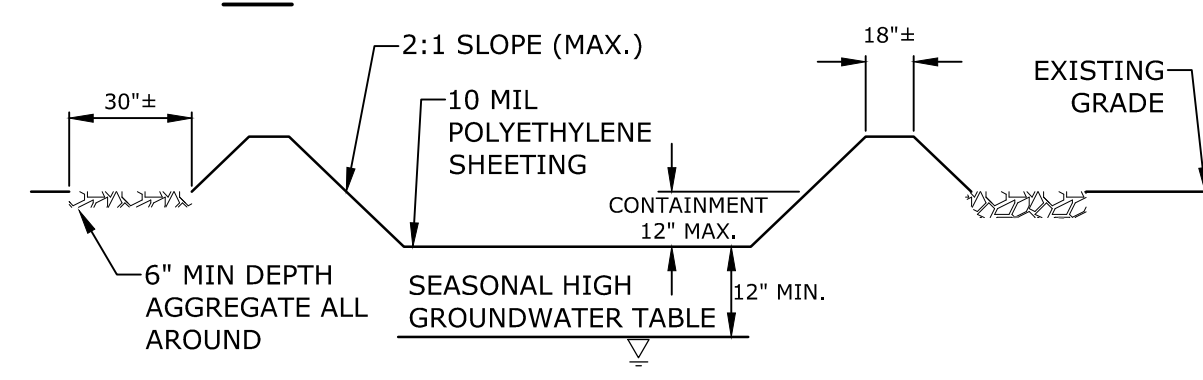
- NOTES:**
- ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- POST:** SCHEDULE 40 GALVANIZED STEEL PIPE (OUTSIDE DIA. = 2.375").
- FINISH:** POST TO BE POWDER COATED GLOSS BLACK
- LENGTH:** AS REQUIRED
- WEIGHT PER LINEAR FOOT:** 2.50 LBS (MIN.)
- HOLES:** 3/8" DIAMETER (AS REQUIRED)
- STEEL:** SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070-1080)



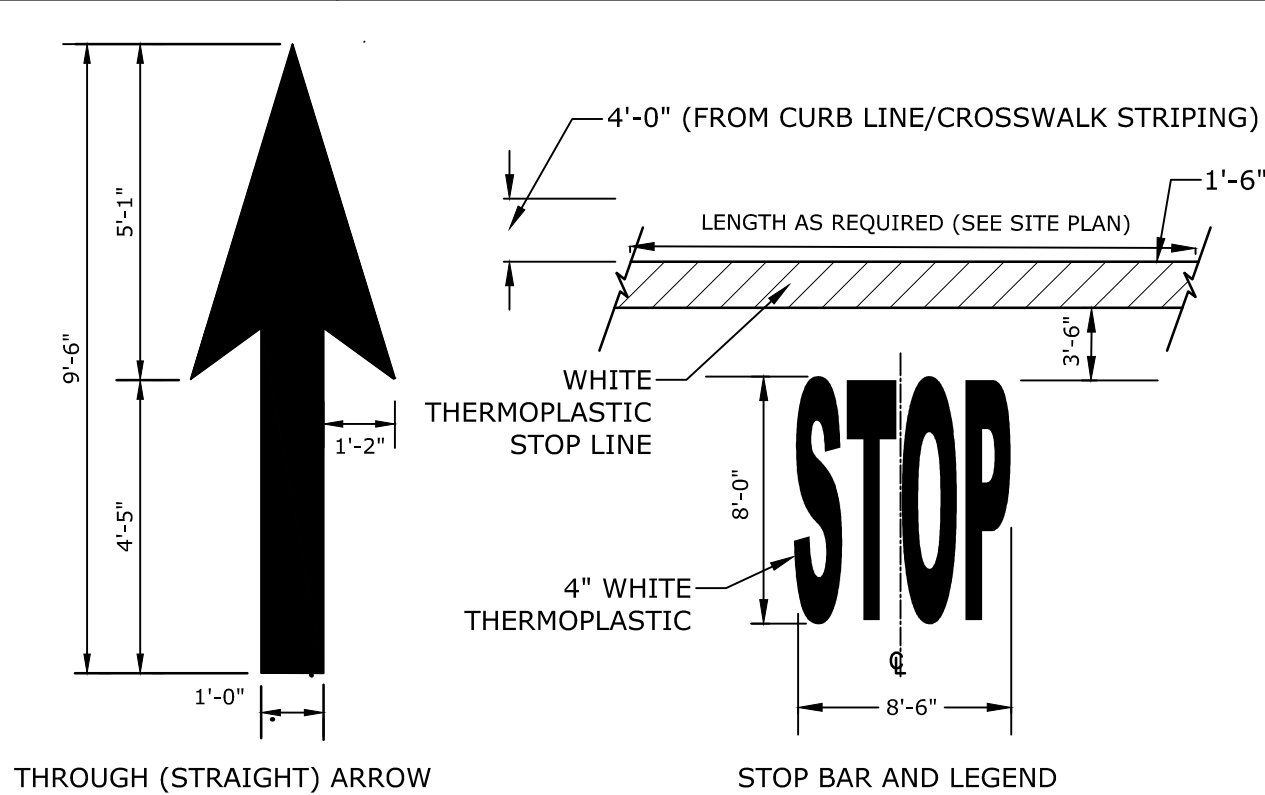
SIGN LEGEND & SIGN POST
NO SCALE



- NOTES:**
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
 2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
 3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
 4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

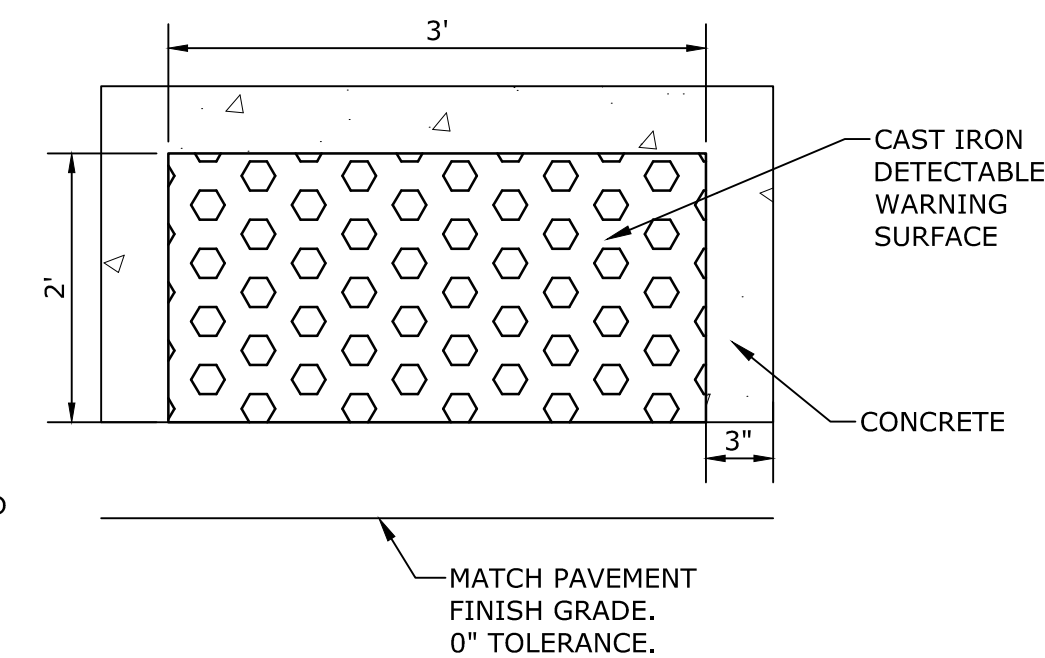
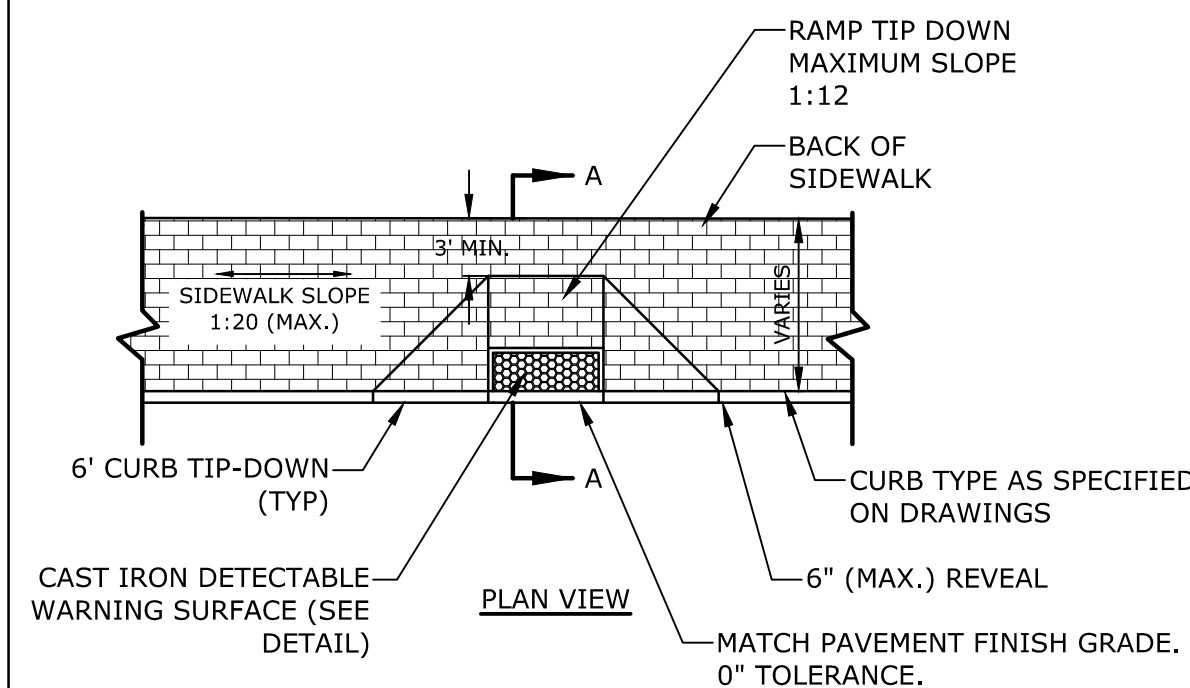


CONCRETE WASHOUT AREA
NO SCALE



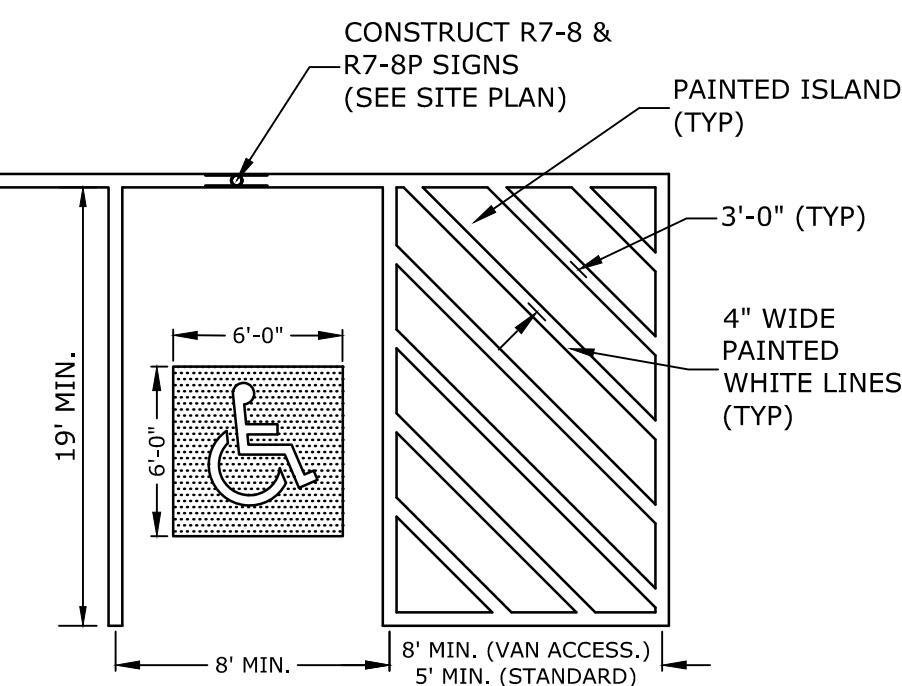
- NOTE:**
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
 2. ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTORIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

PAVEMENT MARKINGS
NO SCALE



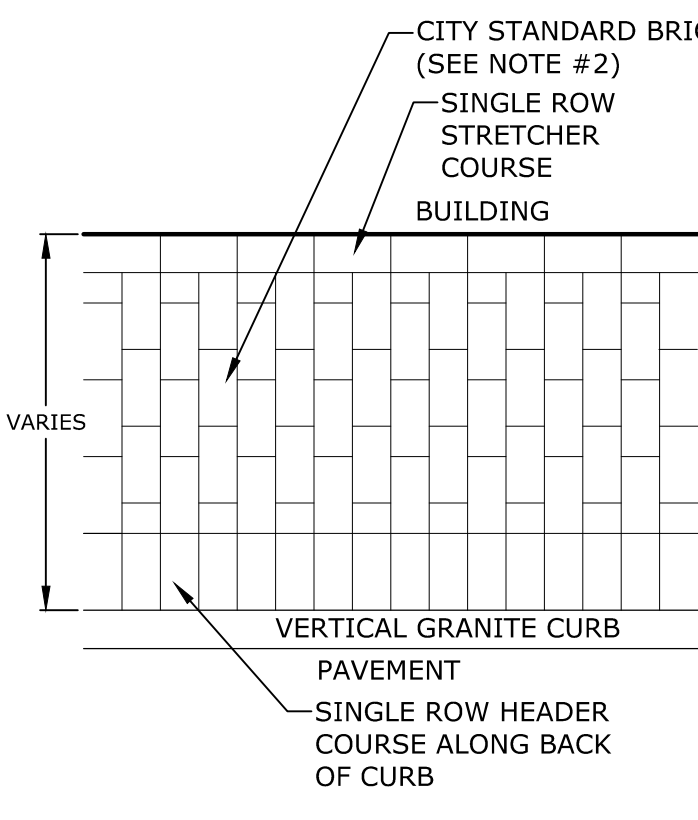
- NOTES:**
1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

DETECTABLE WARNING SURFACE



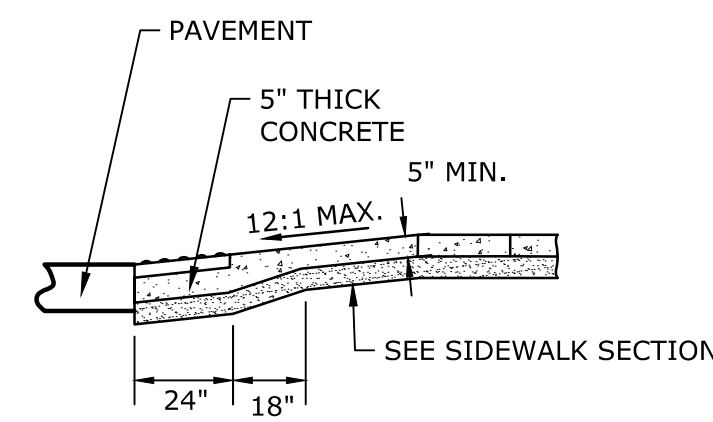
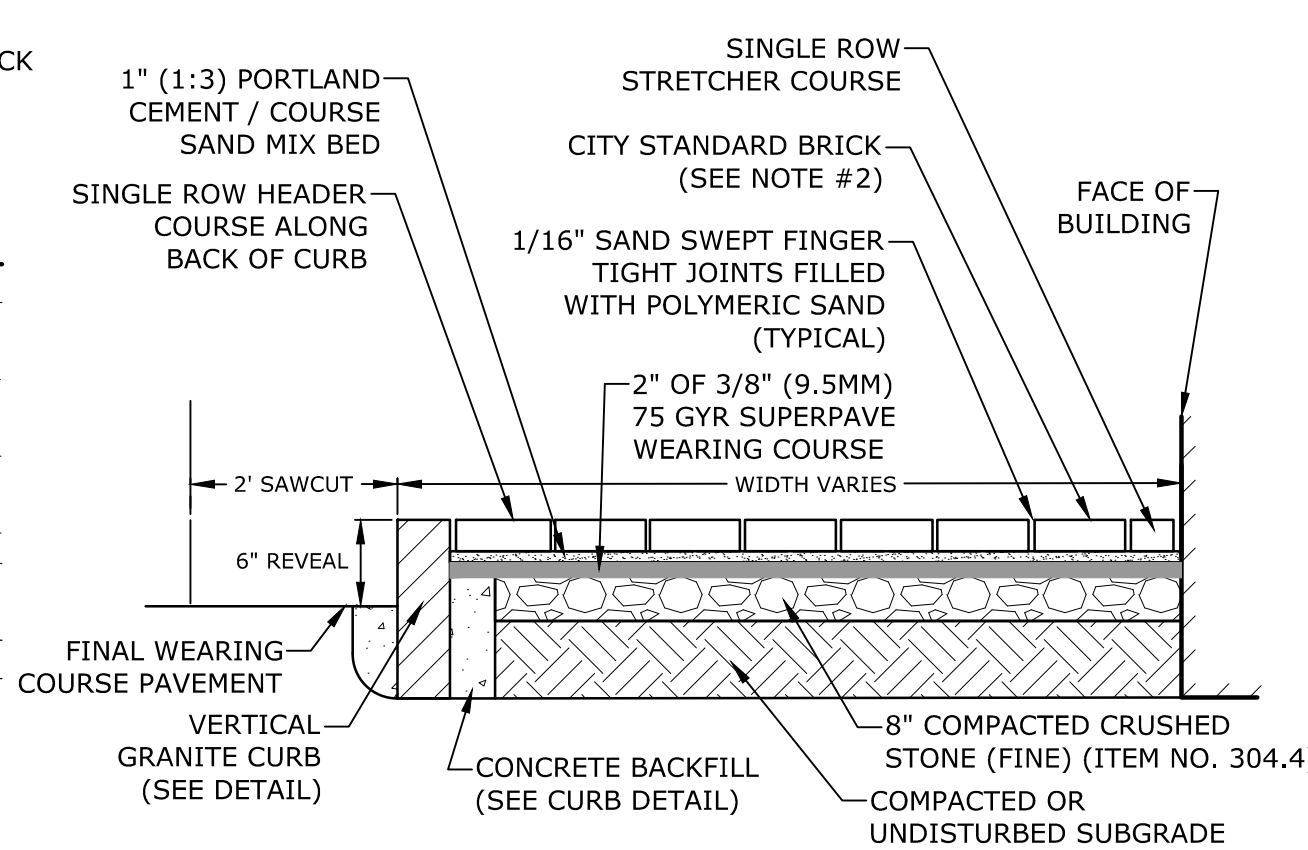
- NOTES:**
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
 2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN W/DISABILITIES ACT.

ACCESSIBLE PARKING STALL
NO SCALE



- NOTES:**
1. BRICK SIDEWALK SHALL BE INSTALLED AS DETAILED AND PER CITY OF PORTSMOUTH REQUIREMENTS/SPECIFICATIONS AND SHALL INCLUDE A CONTINUOUS APPROVED PAVER EDGE RESTRAINT SYSTEM AT ALL LOCATIONS NOT ADJACENT TO CURB OR BUILDINGS.
 2. CITY STANDARD BRICK SHALL BE TRADITIONAL EDGE, PATHWAY, FULL RANGE 2.25" X 4" X 8" PAVER, BY PINE HALL BRICK, INC. BRICK MATERIAL SAMPLES SHALL BE PROVIDED TO DPW PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL.
 3. BEDDING MATERIAL SHALL BE A PORTLAND CEMENT / COURSE SAND MIX THAT IS 1 PART PORTLAND CEMENT AND 3 PARTS COURSE SAND. SAND SHALL CONFORM WITH ASTM C-33 AND CEMENT SHALL BE PORTLAND CEMENT TYPE I/TYPE II.

BRICK SIDEWALK
NO SCALE

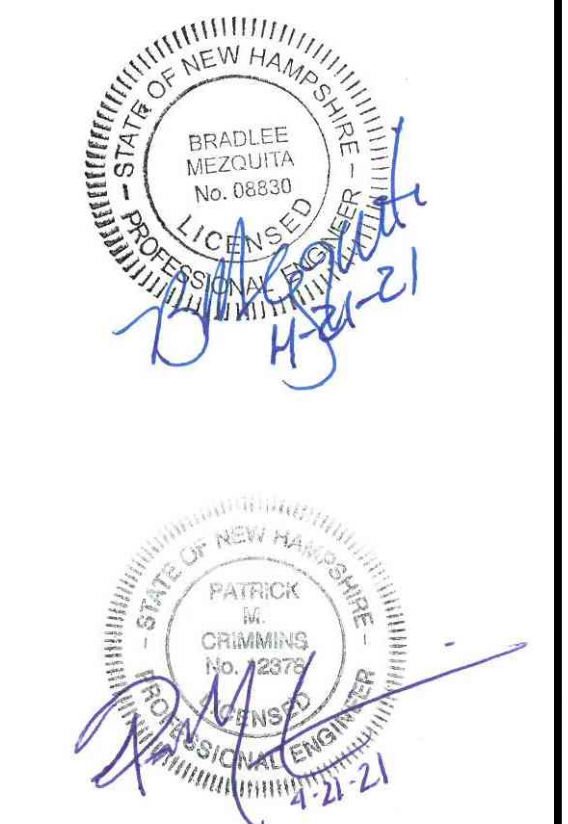


SECTION A-A

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

CONCRETE WHEELCHAIR ACCESSIBLE RAMP
NO SCALE

- NOTES:**
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
 2. A 6" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
 3. DETECTABLE WARNING PANEL SHALL BE CAST IRON SET IN CONCRETE (SEE DETAIL.)
 4. PROVIDE DETECTABLE WARNING SURFACES ANYTIME THAT A CURB RAMP, BLENDED TRANSITION, OR LANDING CONNECTS TO A STREET.
 5. LOCATE THE DETECTABLE WARNING SURFACES AT THE BACK OF THE CURB ALONG THE EDGE OF THE LANDING.
 6. THE MAXIMUM RUNNING SLOPE OF ANY SIDEWALK CURB RAMP IS 12:1. THE MAXIMUM CROSS SLOPE IS 2%. THE SLOPE OF THE LANDING SHALL NOT EXCEED 2% IN ANY DIRECTION.
 7. TRANSITIONS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. ROADWAY SHOULDER SLOPES ADJOINING SIDEWALK CURB RAMPS SHALL BE A MAXIMUM OF 5% (FULL WIDTH) FOR A DISTANCE OF 2 FT. FROM THE ROADWAY CURBLINE.
 8. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
 9. DETECTABLE WARNING PANELS SHALL BE A MINIMUM OF 2 FEET IN DEPTH. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP, BLENDED TRANSITION, OR LANDING AND THE STREET.
 10. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT).



Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

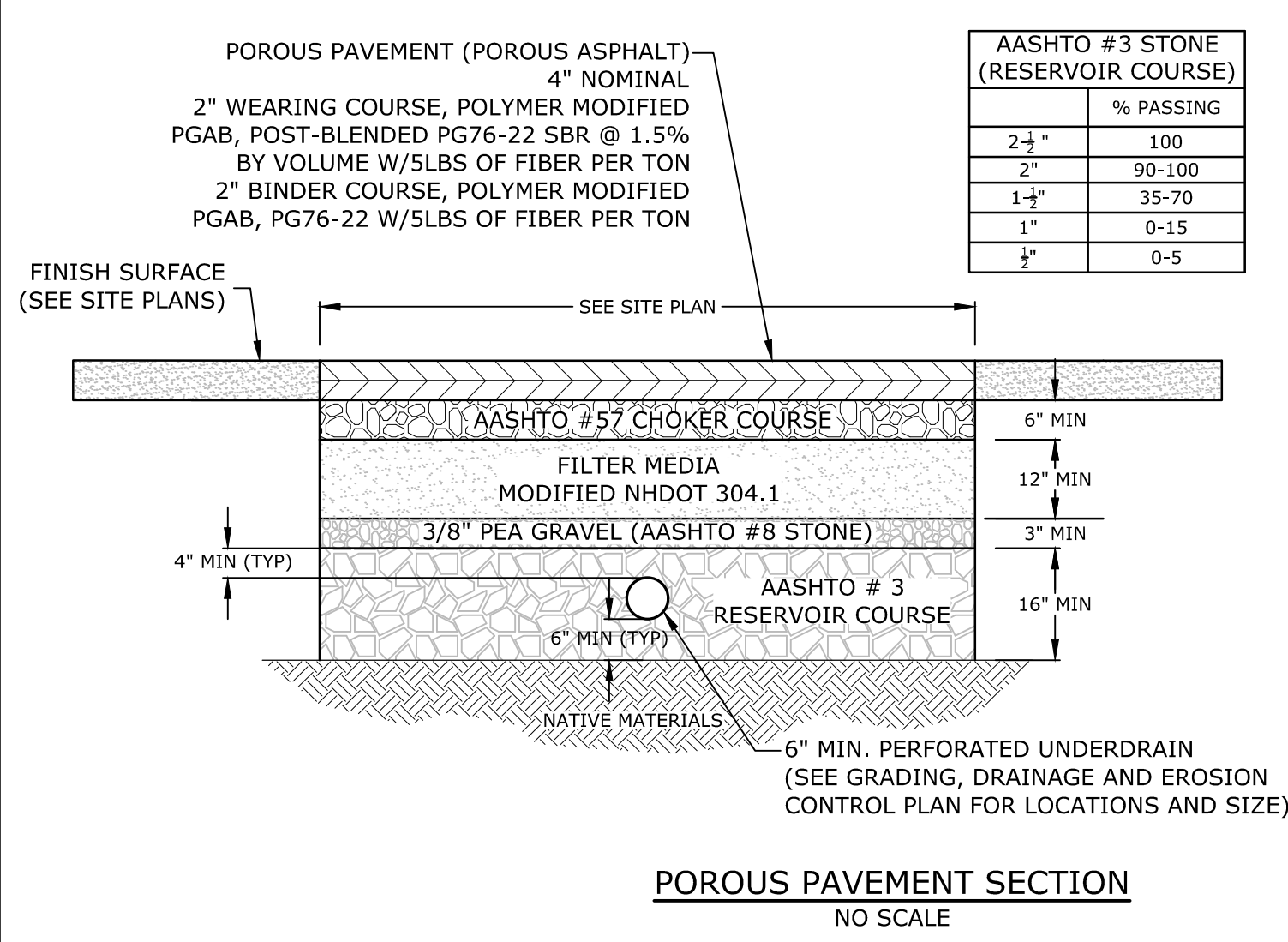
MARK	DATE	DESCRIPTION
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

PROJECT NO: C0960-011
DATE: January 27, 2021
FILE: C0960-011_C-DTLS.DWG
DRAWN BY: AFS
CHECKED: NAH/PMC
APPROVED: BLM

DETAILS SHEET

SCALE: AS SHOWN

C-502



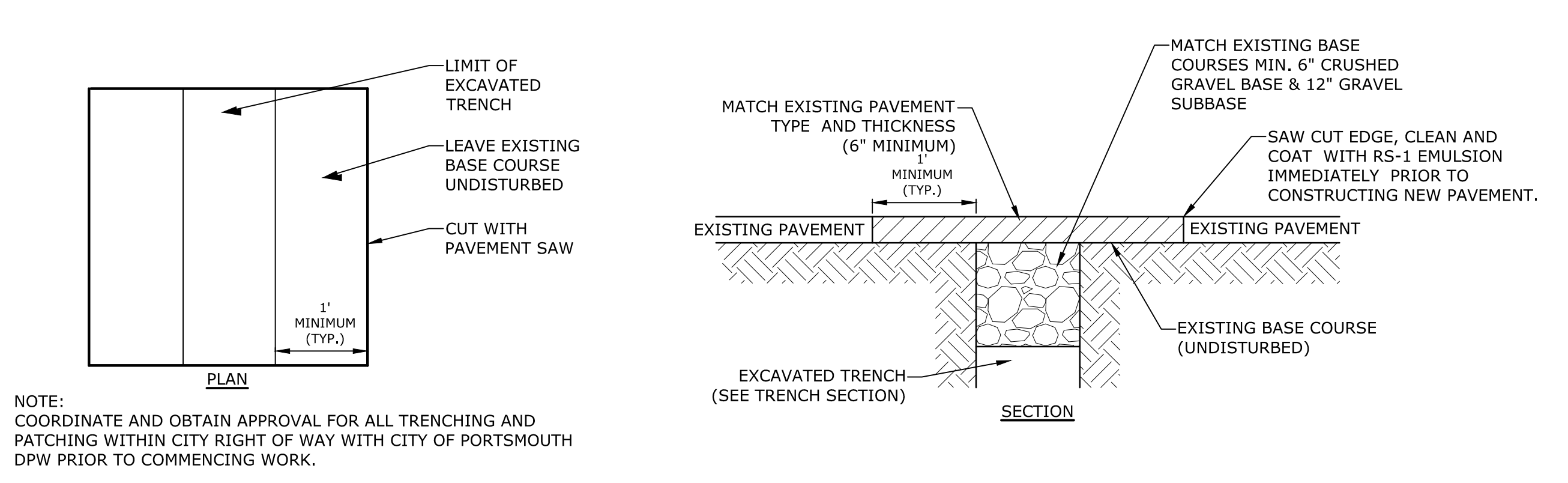
AASHTO #3 STONE (RESERVOIR COURSE)	
SIEVE SIZE	% PASSING
2 1/4"	100
2"	90-100
1 1/2"	35-70
1"	0-15
3/4"	0-5

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

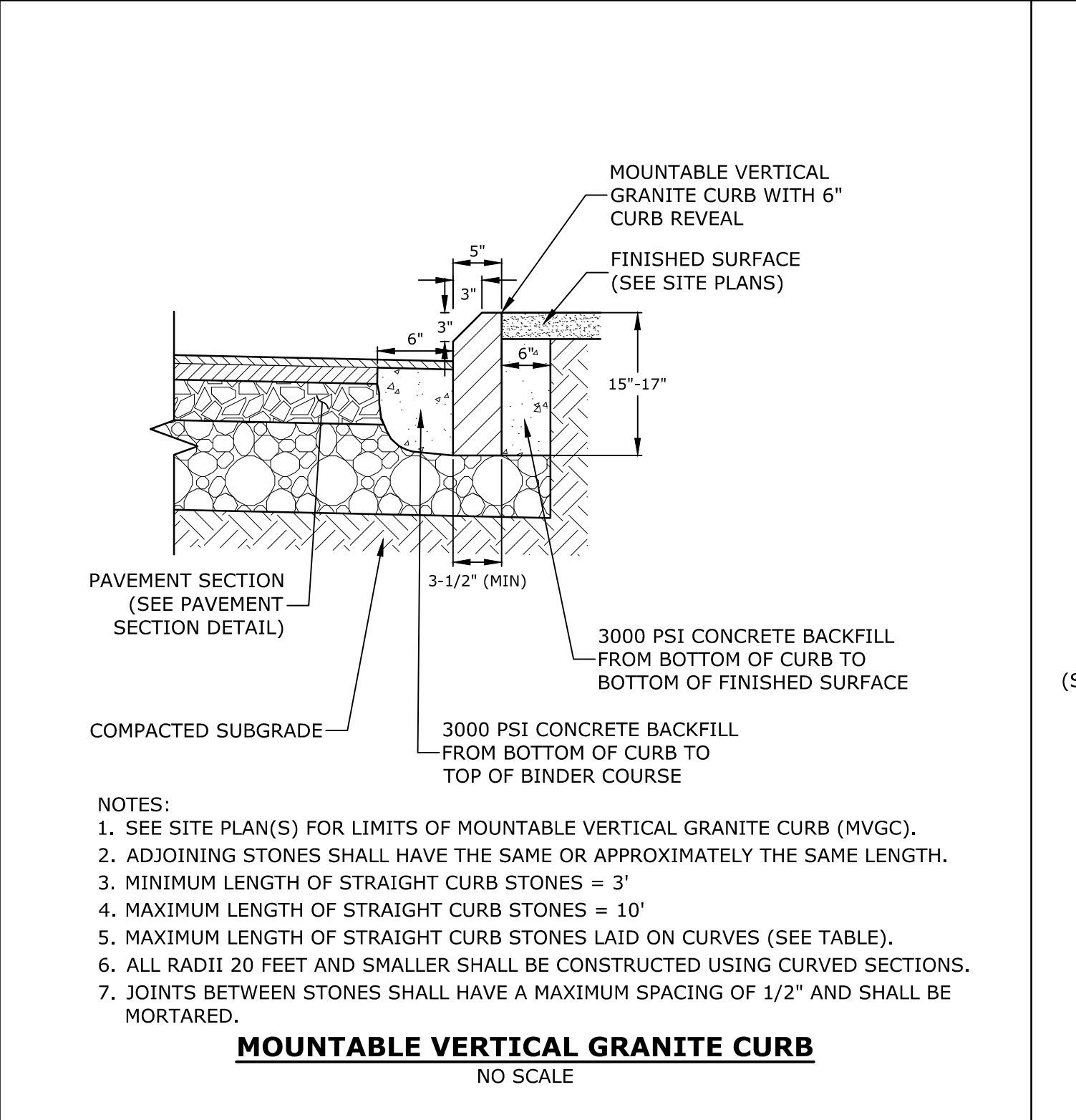
MODIFIED NHDOT 304.1	
SIEVE SIZE	% PASSING
6"	100
#4	70-100
#200	0-6*

AASHTO #8 STONE (PEA GRAVEL)	
SIEVE SIZE	% PASSING
3/4"	100
#8	85-100
#4	10-30
#8	0-10
#16	0-5

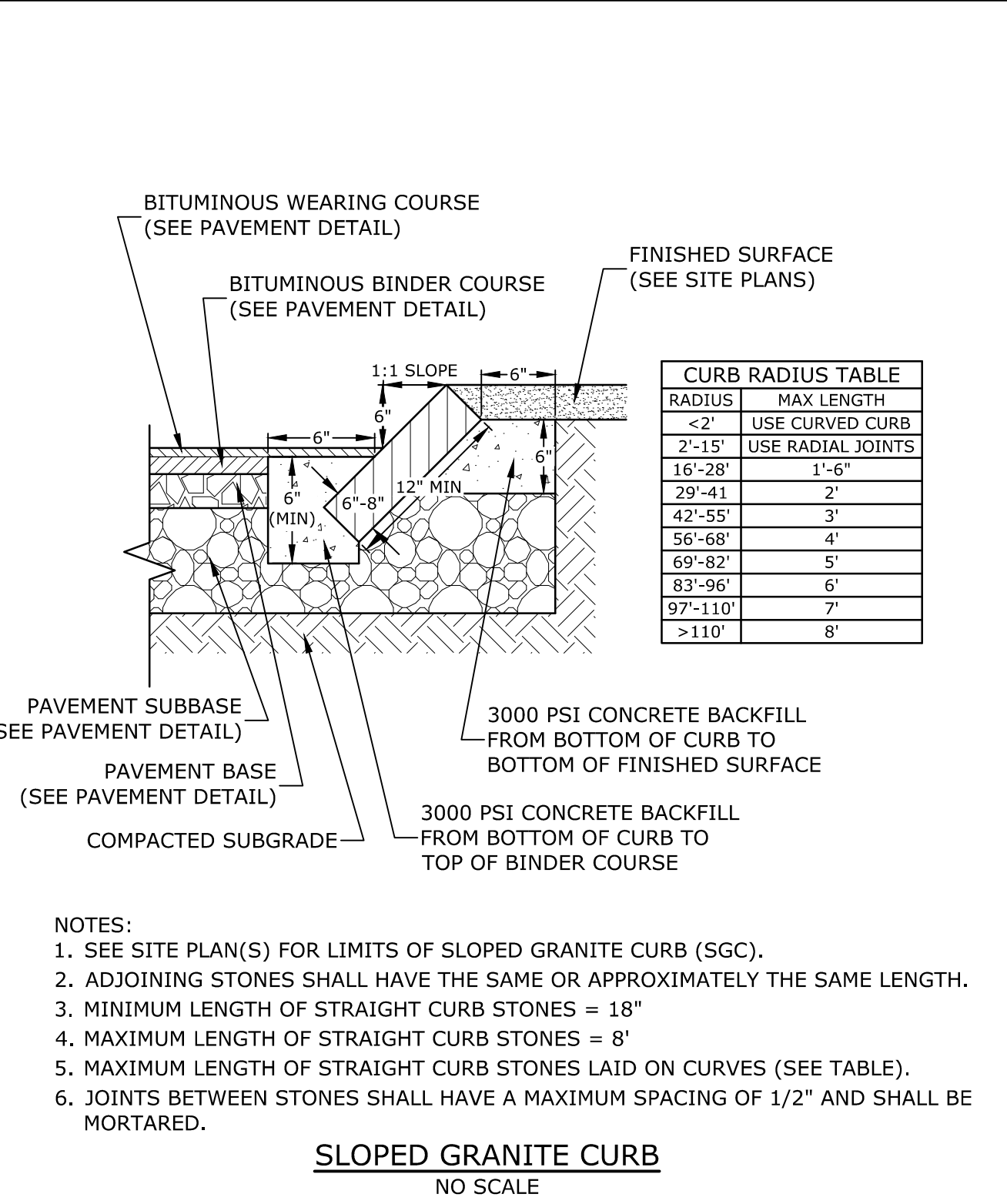
- NOTES:**
- SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.
 - GRAVEL SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FROM THE UNH STORMWATER CENTER FOR POROUS ASPHALT.
 - FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.
 - INSTALL FILTER COURSE AGGREGATE IN 8-INCH MAXIMUM LIFTS TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
 - INSTALL CHOKER, GRAVEL, AND STONE BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99). CHOKER SHOULD BE PLACED EVENLY OVER SURFACE OF FILTER COURSE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE THICKNESS SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF THE POROUS ASPHALT BUT NO LESS THAN 6-INCHES IN DEPTH.
 - THE DENSITY OF SUBBASE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.



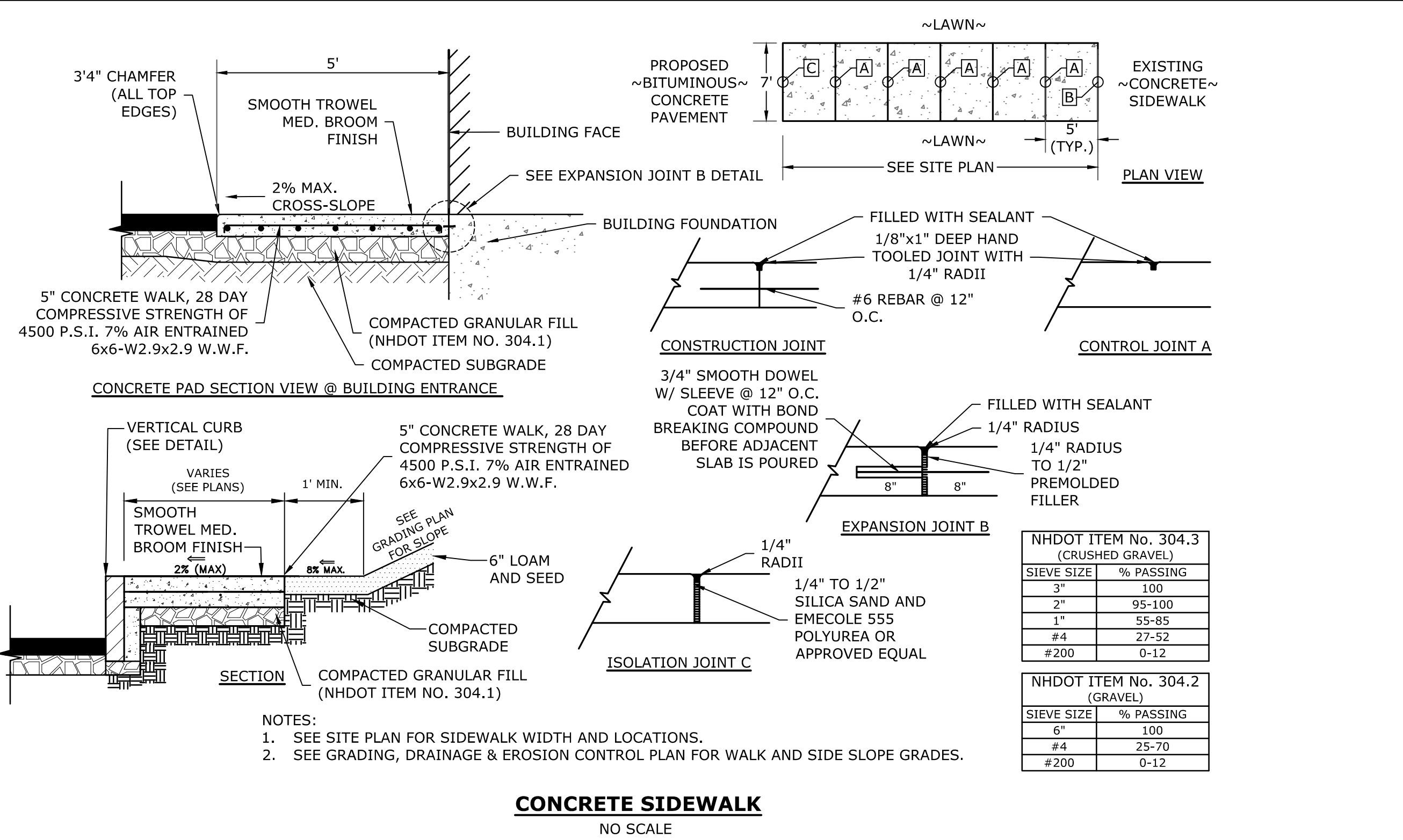
NOTE: COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.



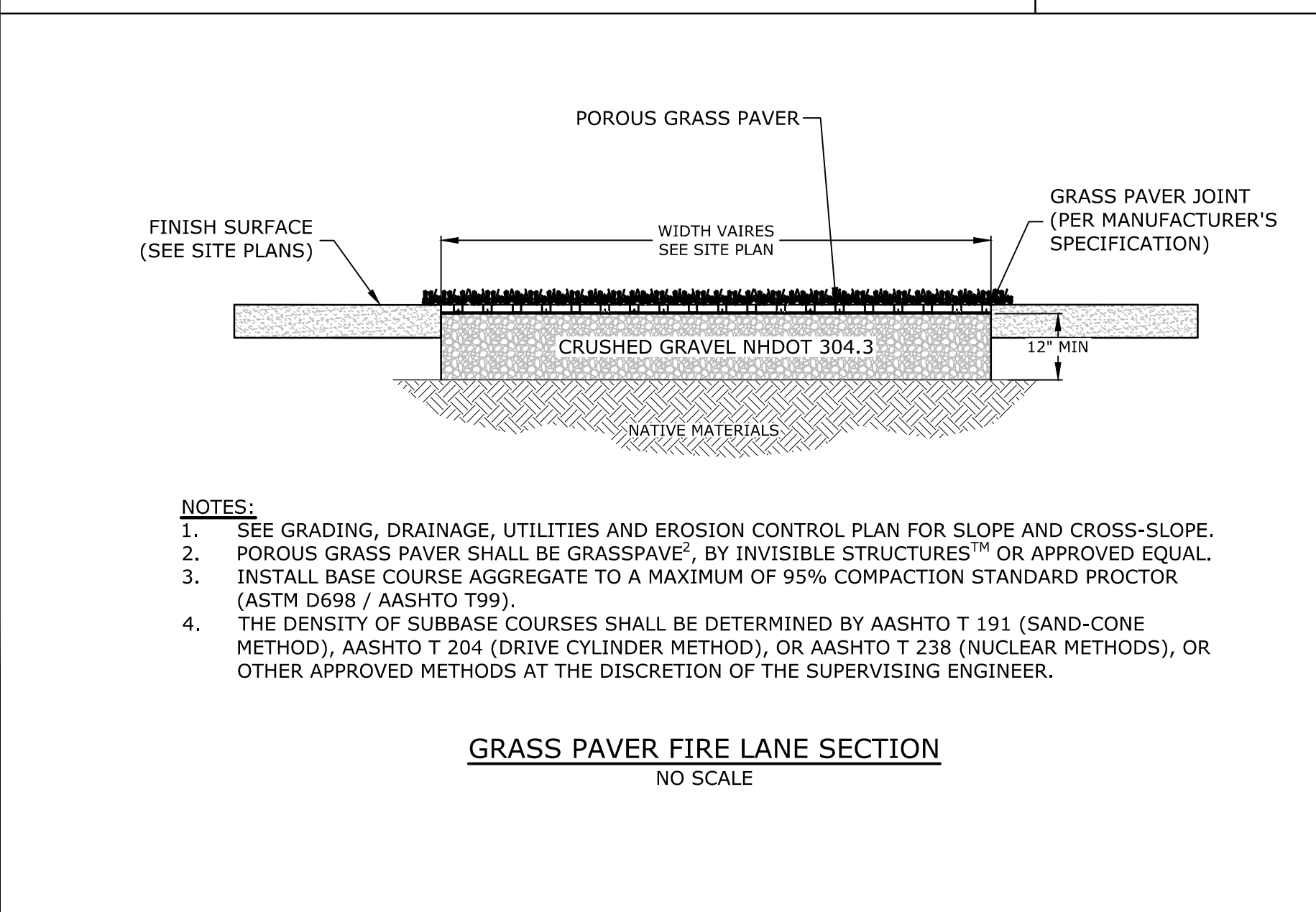
- NOTES:**
- SEE SITE PLAN(S) FOR LIMITS OF MOUNTABLE VERTICAL GRANITE CURB (MVGC).
 - ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 - MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 - ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
 - JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.



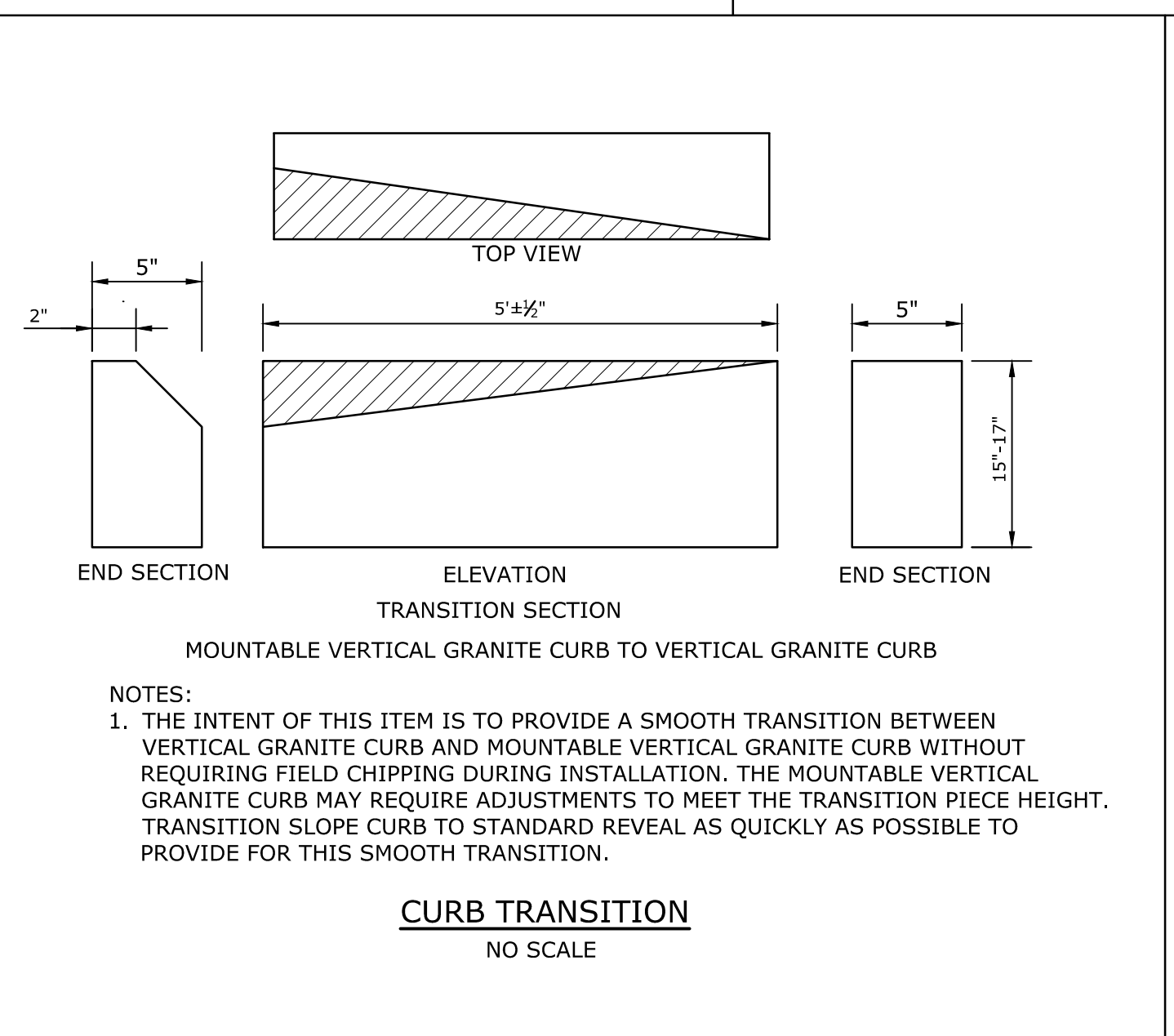
- NOTES:**
- SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
 - ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 - MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 - JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.



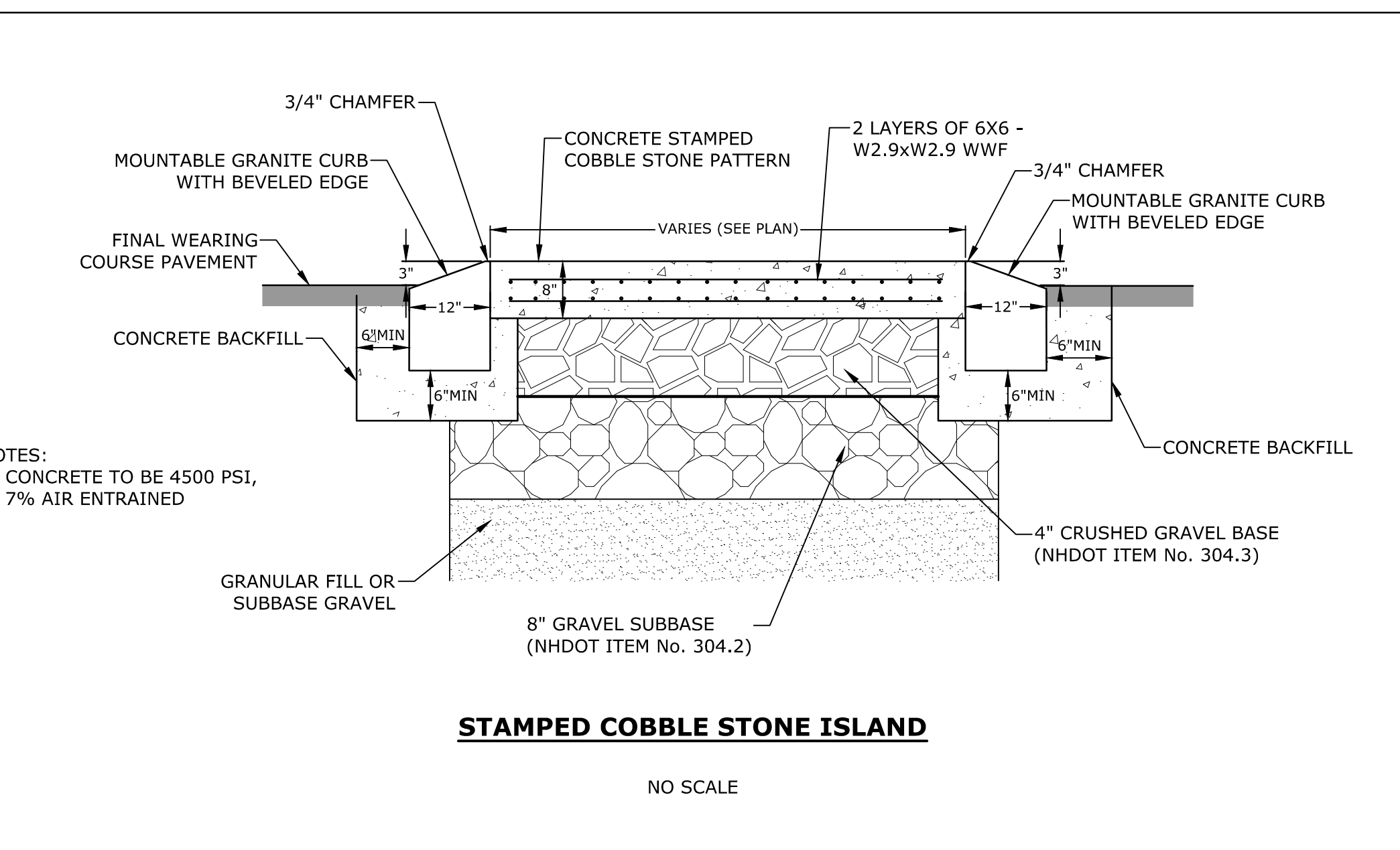
- NOTES:**
- SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
 - SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.



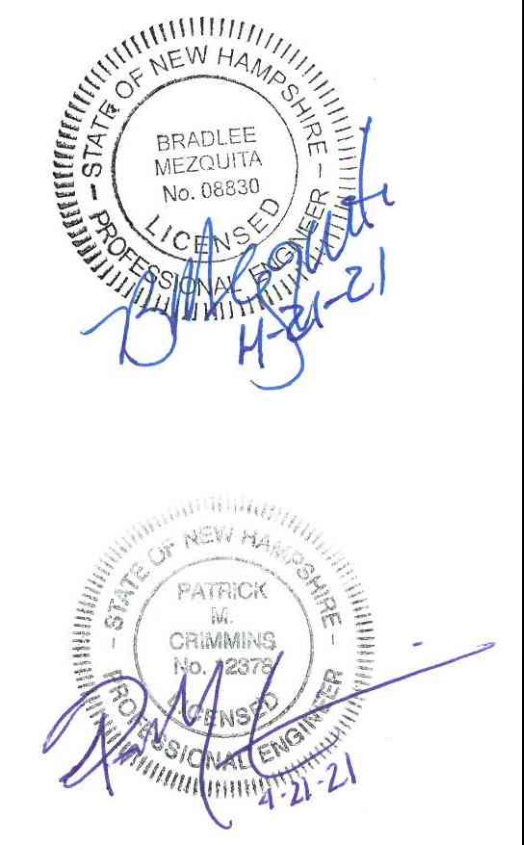
- NOTES:**
- SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.
 - POROUS GRASS PAVER SHALL BE GRASSPAVESM BY INVISIBLE STRUCTURESSM OR APPROVED EQUAL.
 - INSTALL BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99).
 - THE DENSITY OF SUBBASE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.



- NOTES:**
- THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN VERTICAL GRANITE CURB AND MOUNTABLE VERTICAL GRANITE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE MOUNTABLE VERTICAL GRANITE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.



- NOTES:**
- CONCRETE TO BE 4500 PSI, 7% AIR ENTRAINED



Proposed Mixed Use Development

CPI Management, LLC

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Portsmouth, NH

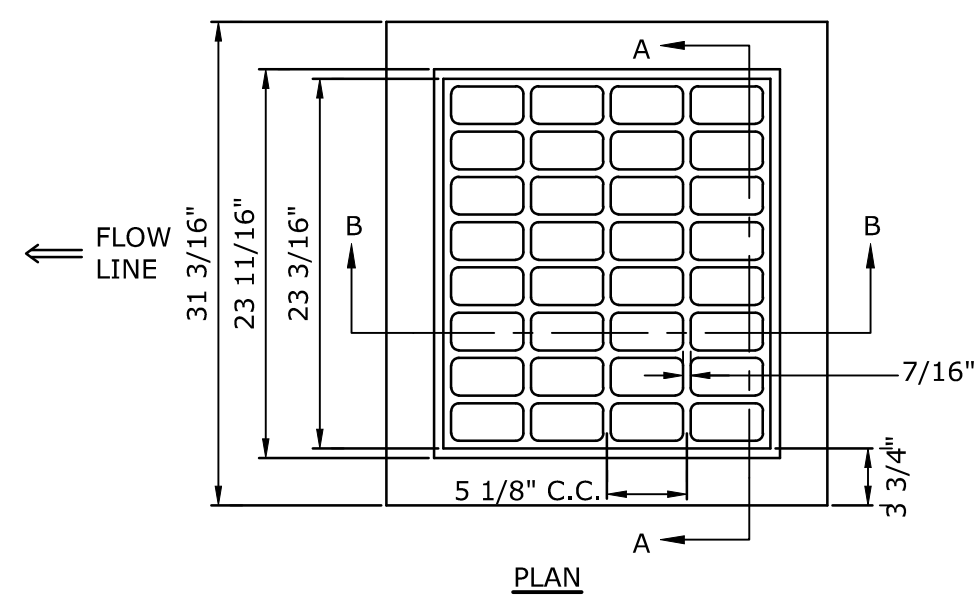
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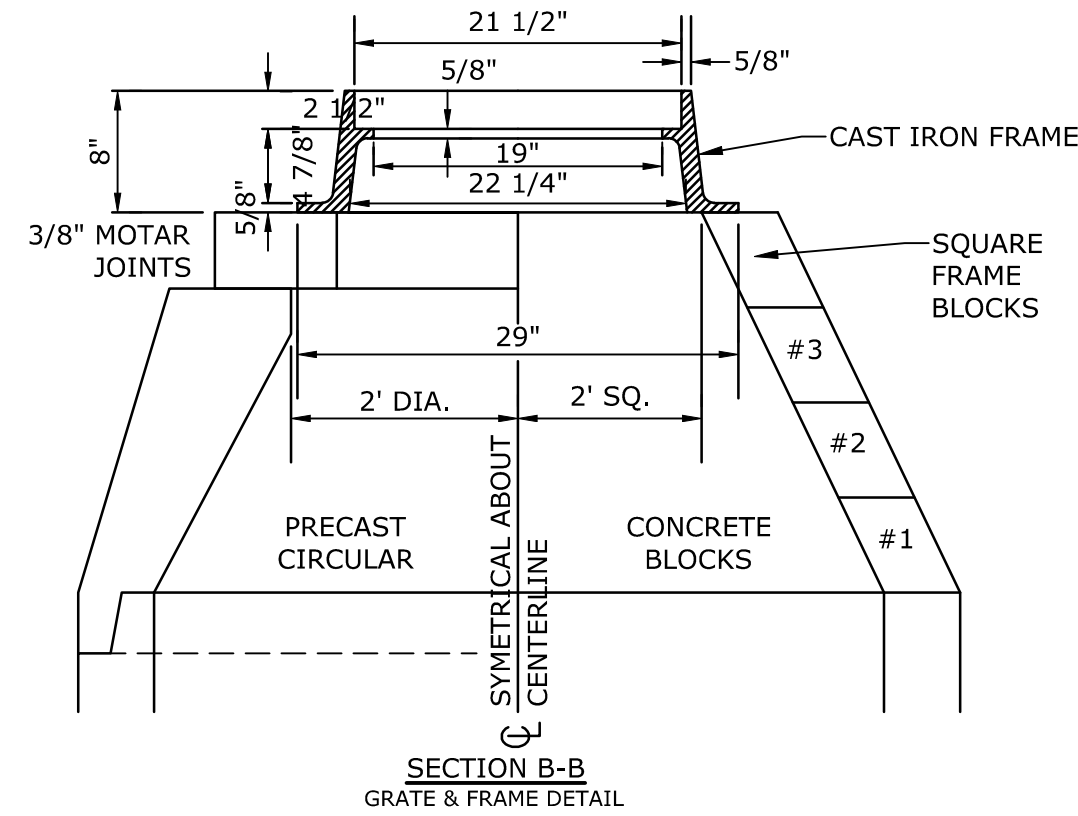
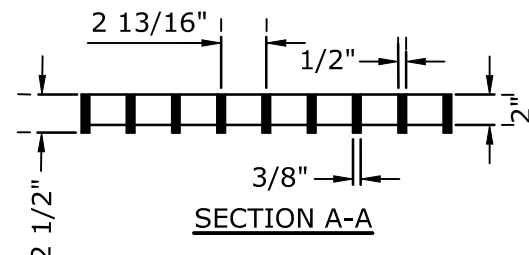
DETAILS SHEET

SCALE: AS SHOWN

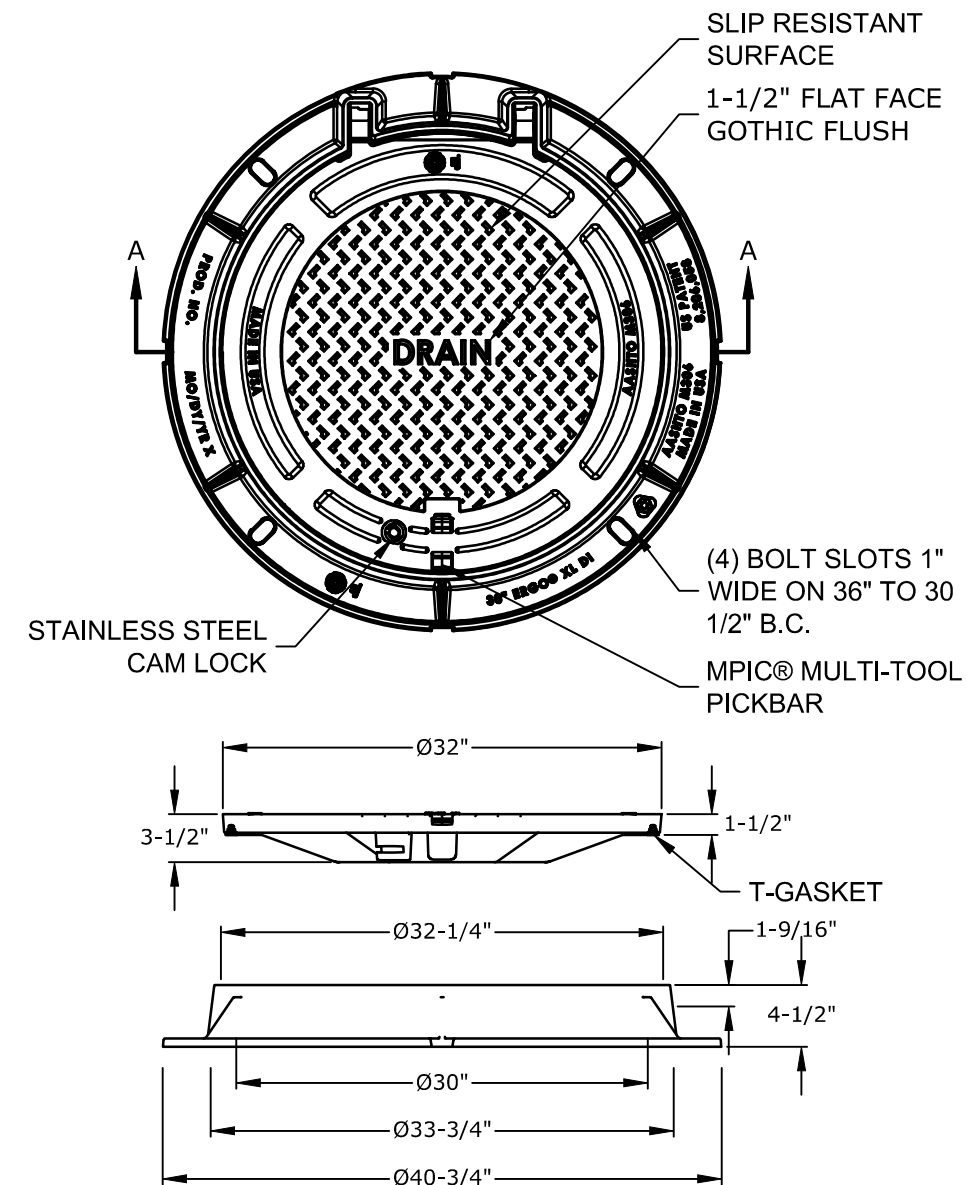
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 Plotted On: Apr 20, 2021 1:28pm By: asellier
 Tighe & Bond 210 Corporate Center
 Portsmouth, NH 03801
 Figures: AutoCAD, Figures: AutoCAD, C0960-011_C-DTLS.dwg



NOTE:
 1. GRATE TO BE CAST IRON (NHDOT TYPE B)
 2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

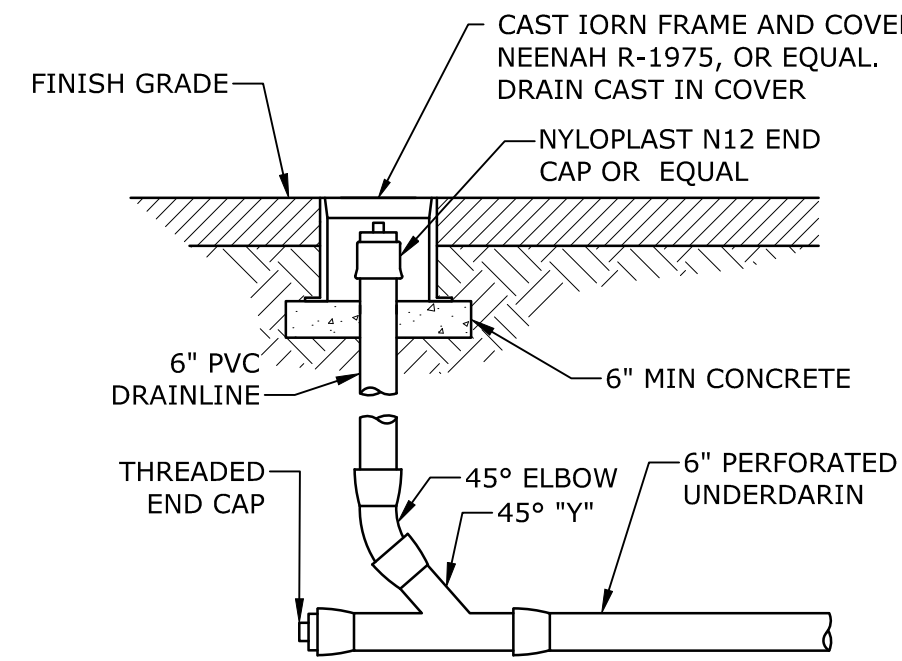


CATCH BASIN FRAME & GRATE
NO SCALE

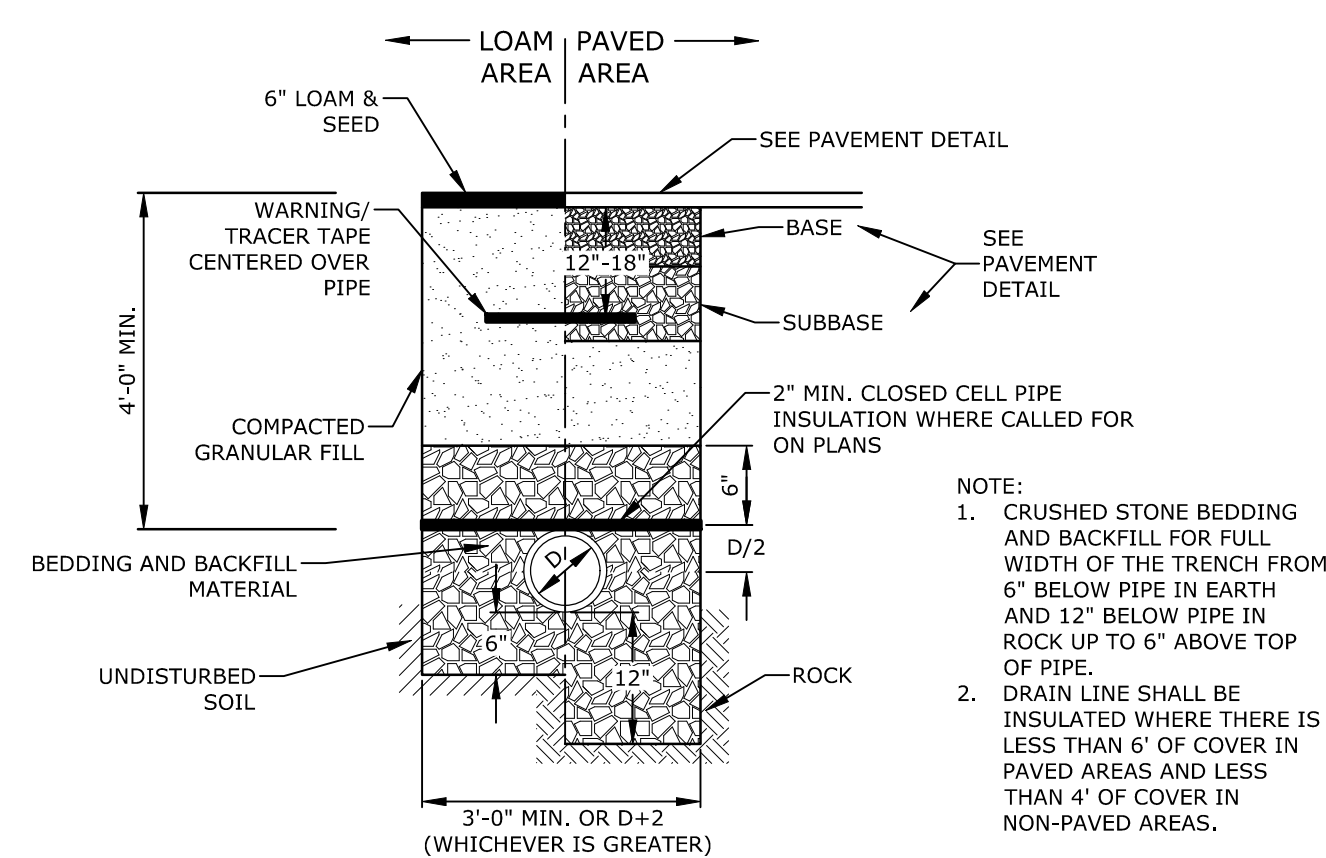


NOTES:
 1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
 2. ALL DIMENSIONS ARE NOMINAL.
 3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
 A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
 B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
 C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
 4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN THE CENTER OF THE COVER.

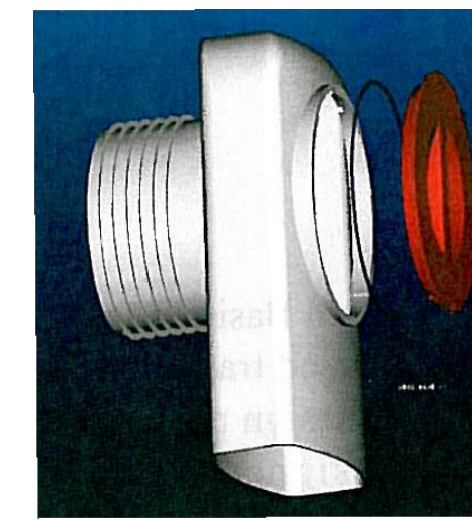
DRAIN MANHOLE FRAME & COVER
NO SCALE



DRAIN CLEAN-OUT
NO SCALE



STORM DRAIN TRENCH
NO SCALE

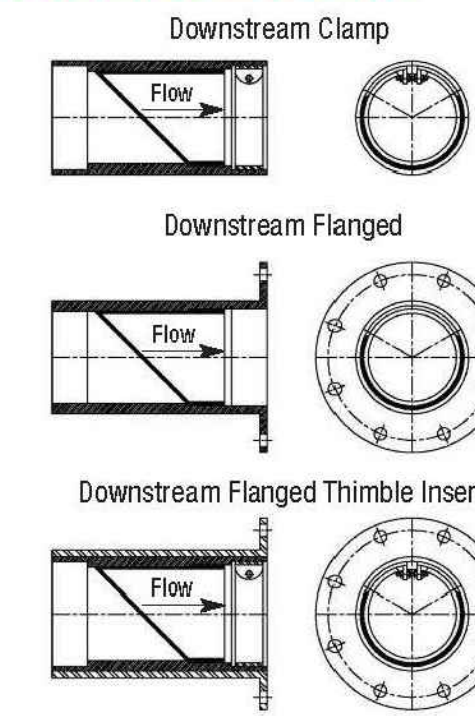


NOTES:
 1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
 2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
 3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE

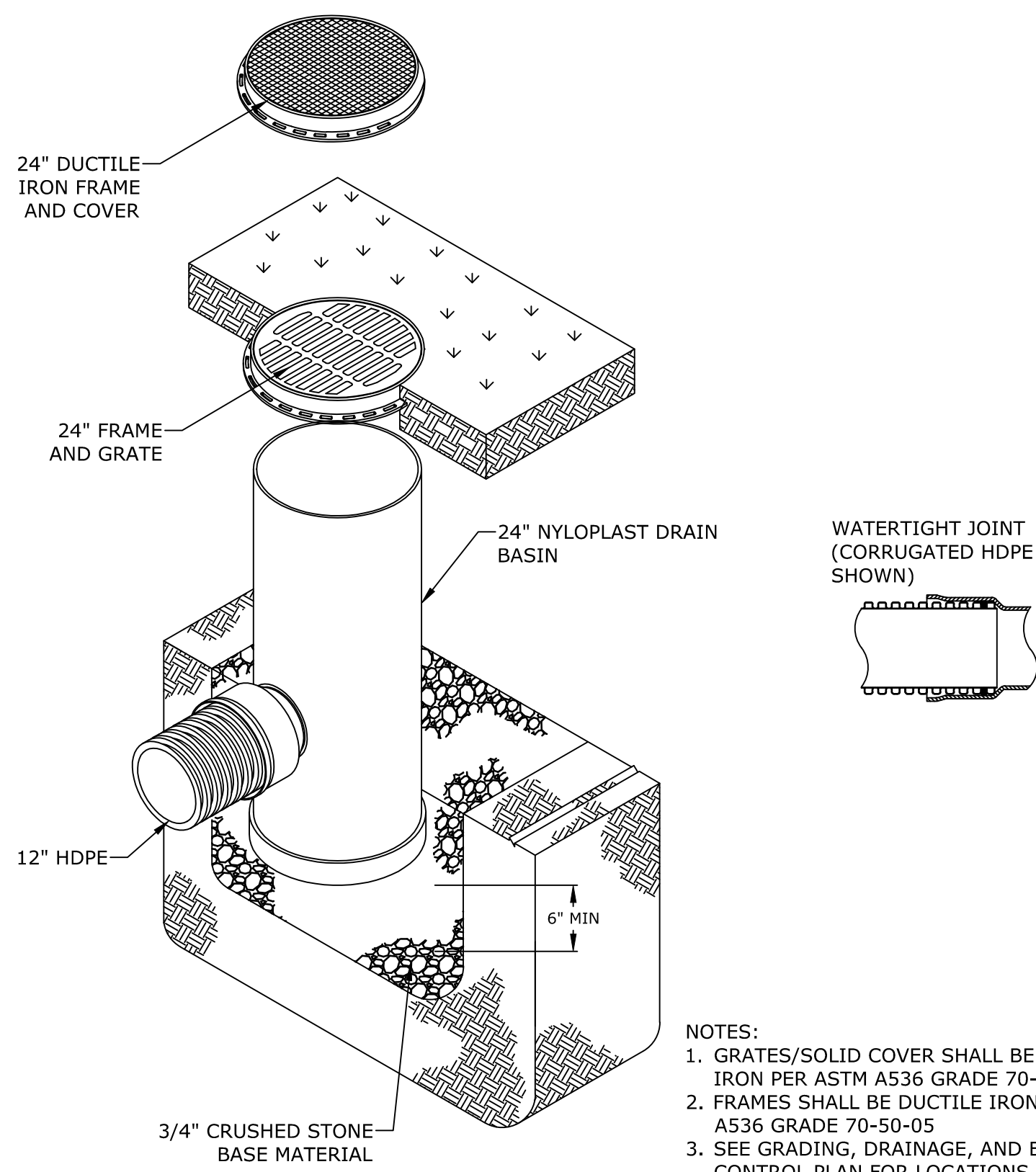
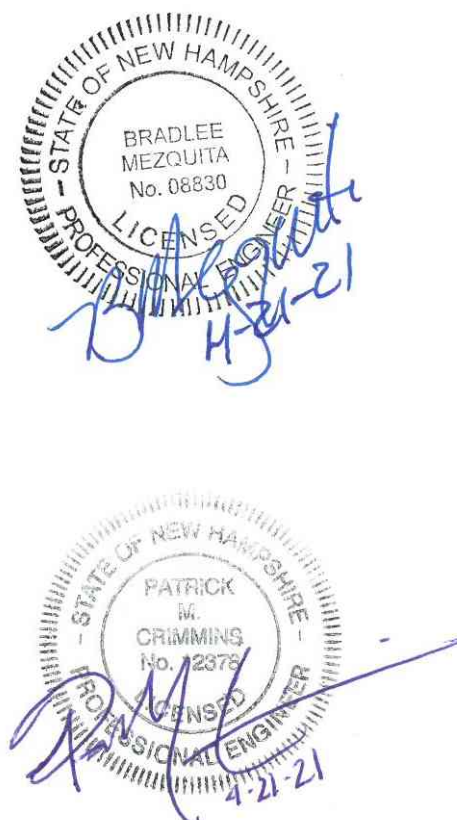
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
18	450	31	787	1	4	102	20	6

Mounting Styles and Configurations



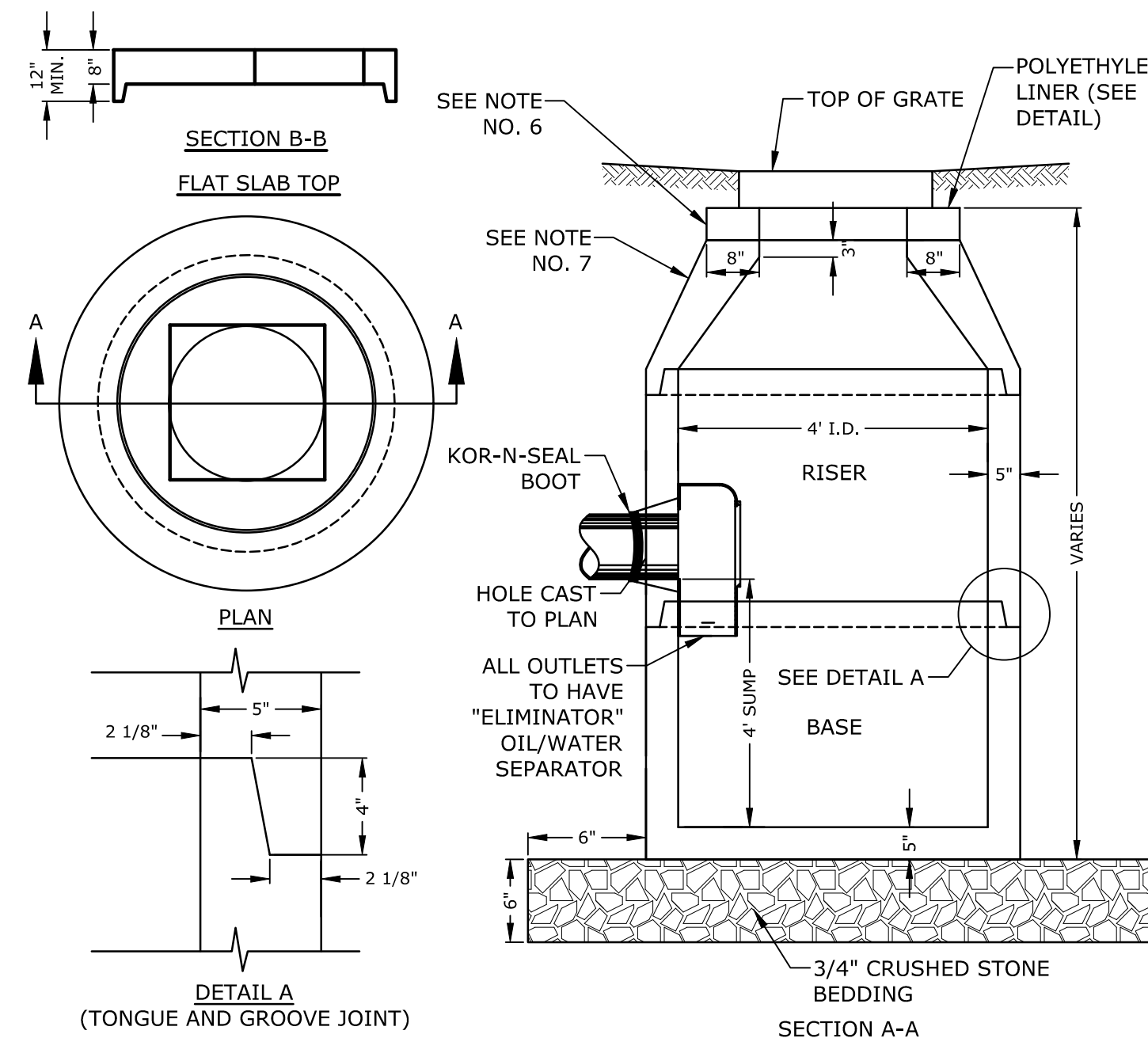
Flange shape and bolt pattern can be customized.
 Flangeless thimble inserts are available.

TYPICAL BACK FLOW PREVENTER
NO SCALE



NOTES:
 1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
 2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
 3. SEE GRADING, DRAINAGE, AND EROSION CONTROL PLAN FOR LOCATIONS.

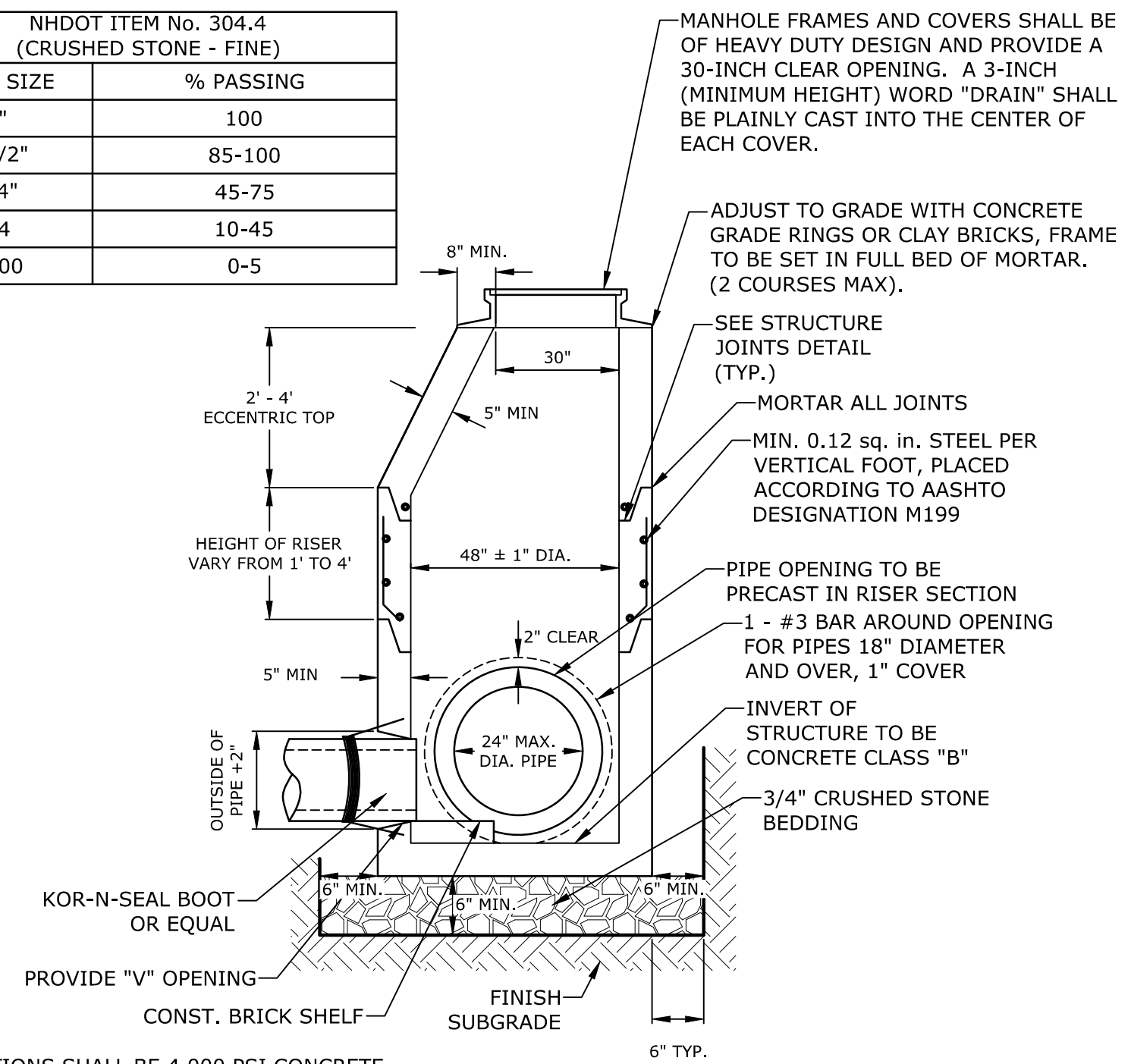
YARD DRAIN
NO SCALE



NOTES:
 1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 PSI).
 2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
 4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
 5. THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
 6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
 7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
 8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
 11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCHBASIN
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



NOTES:
 1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
 2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
 4. THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
 5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
 6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
 10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
 Portsmouth, NH

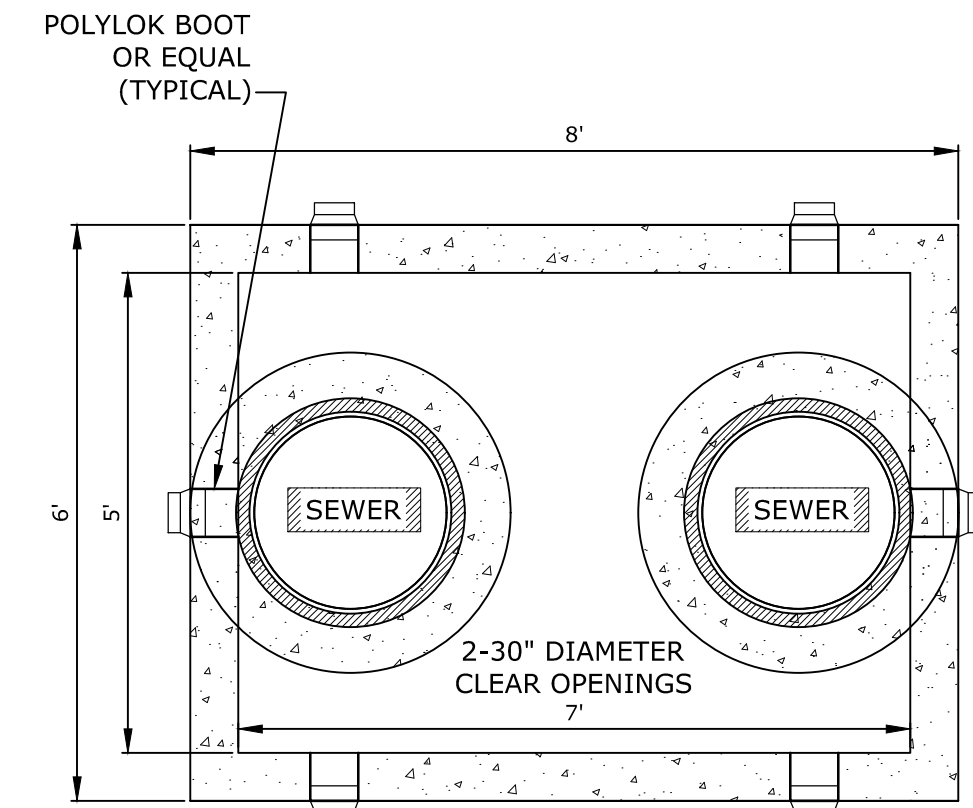
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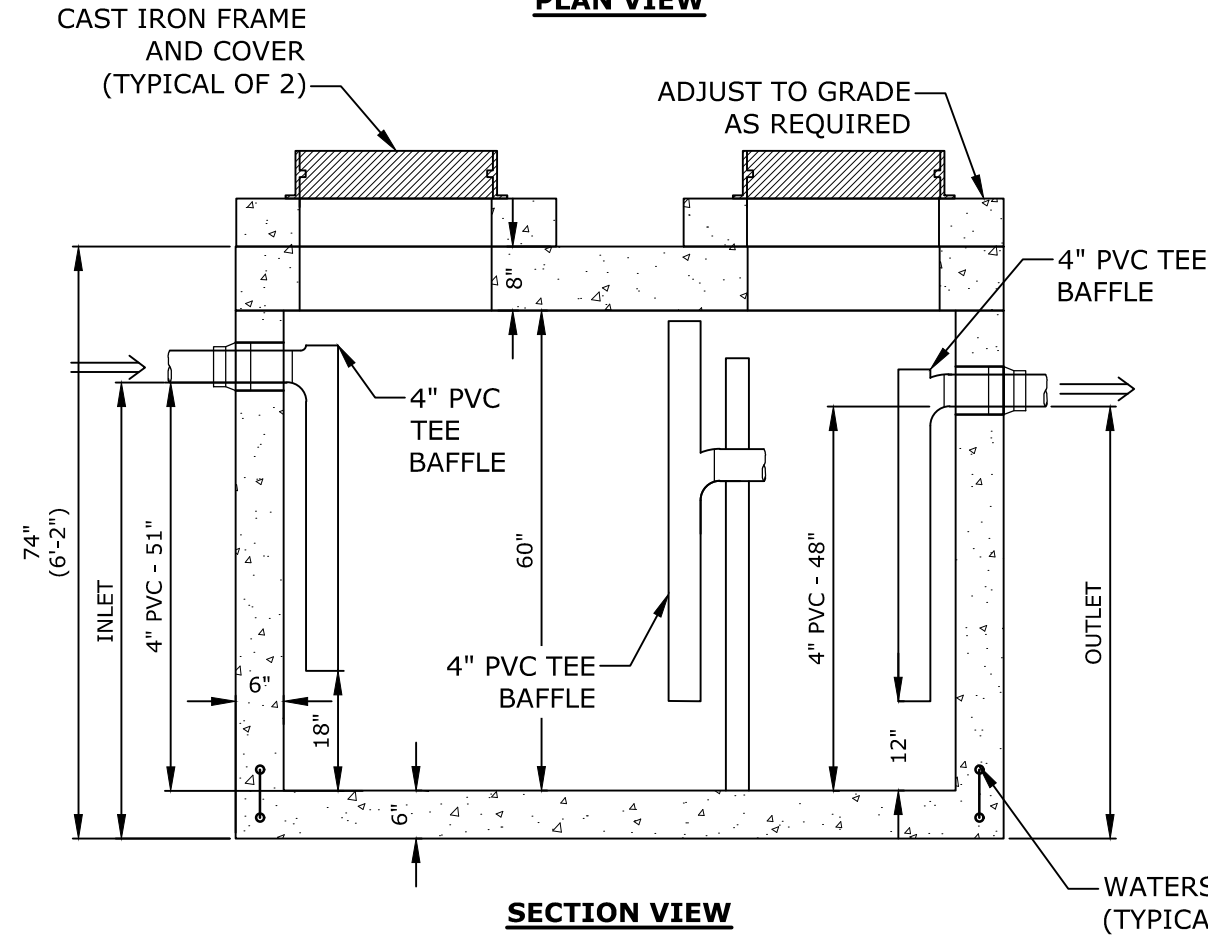
DETAILS SHEET

SCALE: AS SHOWN

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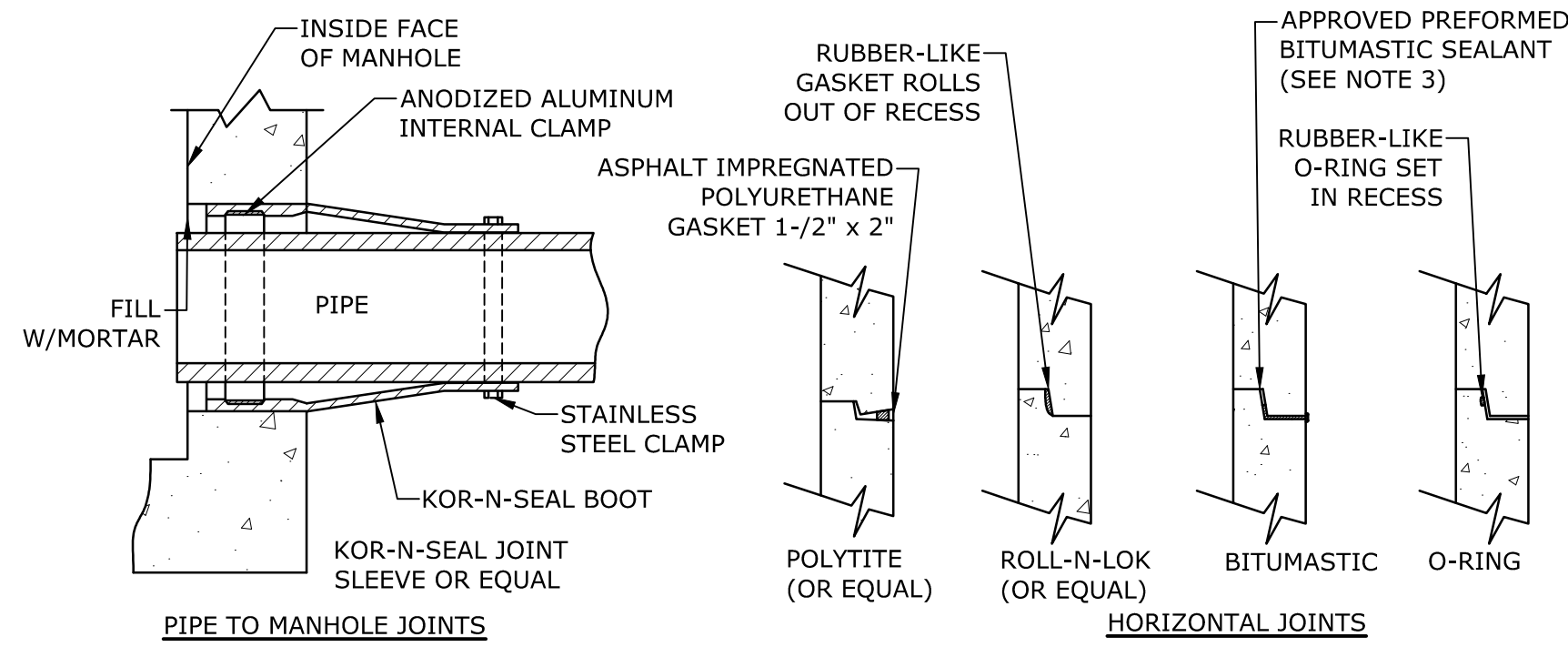
PLAN VIEW



SECTION VIEW

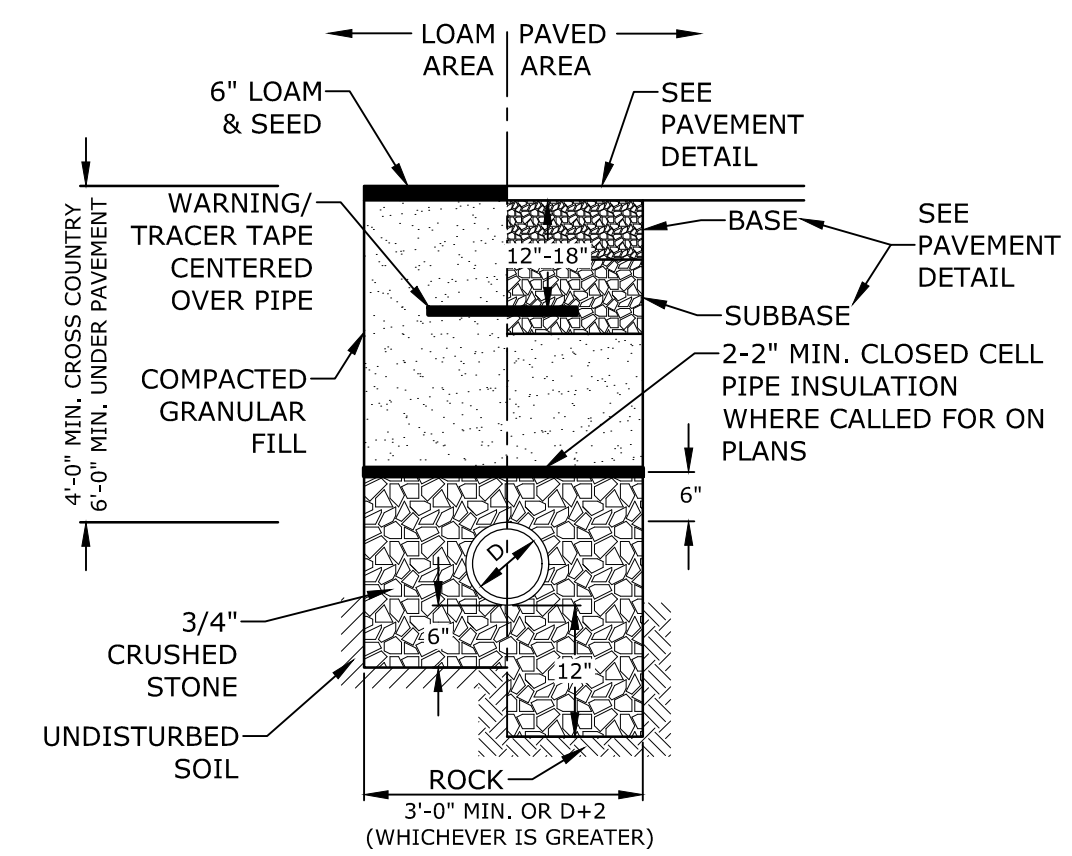
1,000 GALLON GREASE TRAP
NO SCALE

- NOTES:**
1. STEEL REINFORCEMENT SHALL CONFORM TO LATEST ASTM SPECIFICATIONS: ASTM-A615 GRADE 60 REBAR.
 2. CONCRETE SHALL BE $F_c=5,000$ PSI @ 28 DAYS MINIMUM.
 3. FLEXIBLE SLEEVES SHALL BE PROVIDED ON ALL PIPE CONNECTIONS.
 4. JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 5. INLET SHALL PENETRATE AT LEAST 9" BELOW THE LIQUID LEVEL, BUT NOT DEEPER THAN THE OUTLET BAFFLE.
 6. OUTLET SHALL EXTEND BELOW THE SURFACE OF THE LIQUID EQUAL TO 40% OF THE LIQUID DEPTH (19").
 7. DESIGN LOADING SHALL BE: AASHTO-HS20-44, ASTM C-890-06.
 8. DESIGN SPECIFIED AS: ASTM C-1227-08, ASTM C-913-08.
 9. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
 10. GREASE TRAP SHALL BE PHOENIX PRECAST CONCRETE P/N: C-6420 OR EQUAL.
 11. TANK SHALL BE PUMPED AS NEEDED.



MANHOLE JOINTS
NO SCALE

- NOTES:**
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
 2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
 3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
 4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.



- NOTE:**
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
 2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

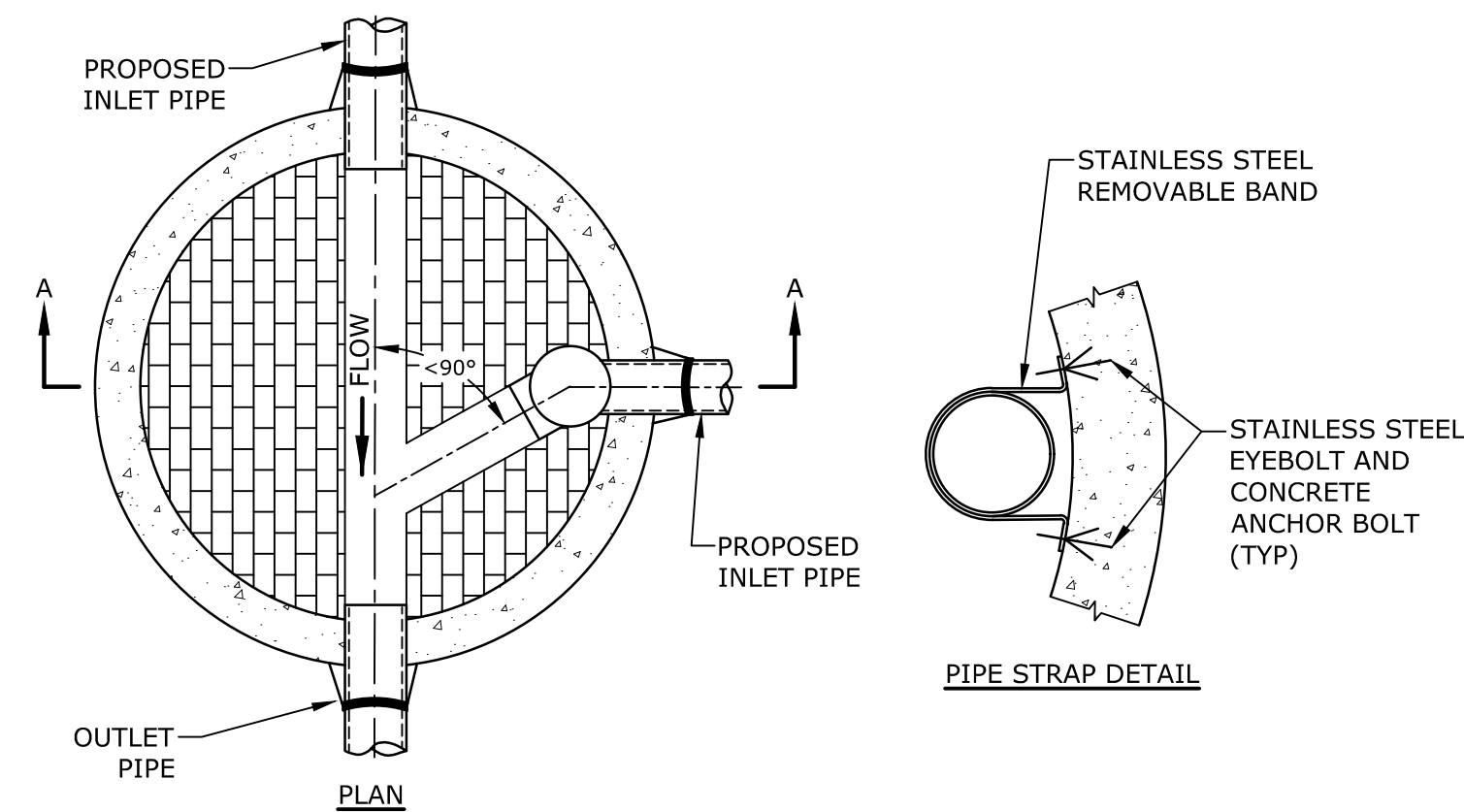
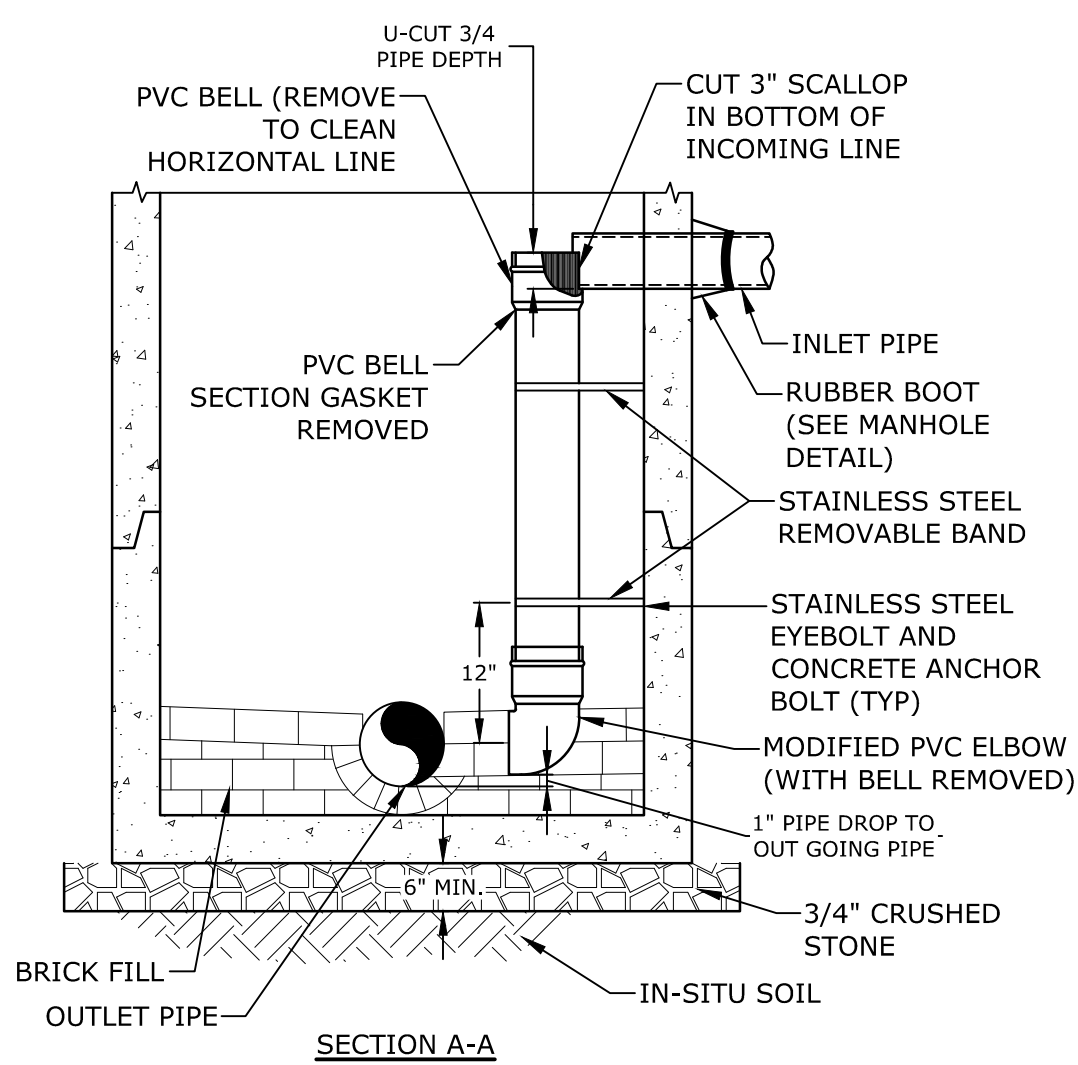
SEWER SERVICE TRENCH
NO SCALE



Proposed Mixed Use Development

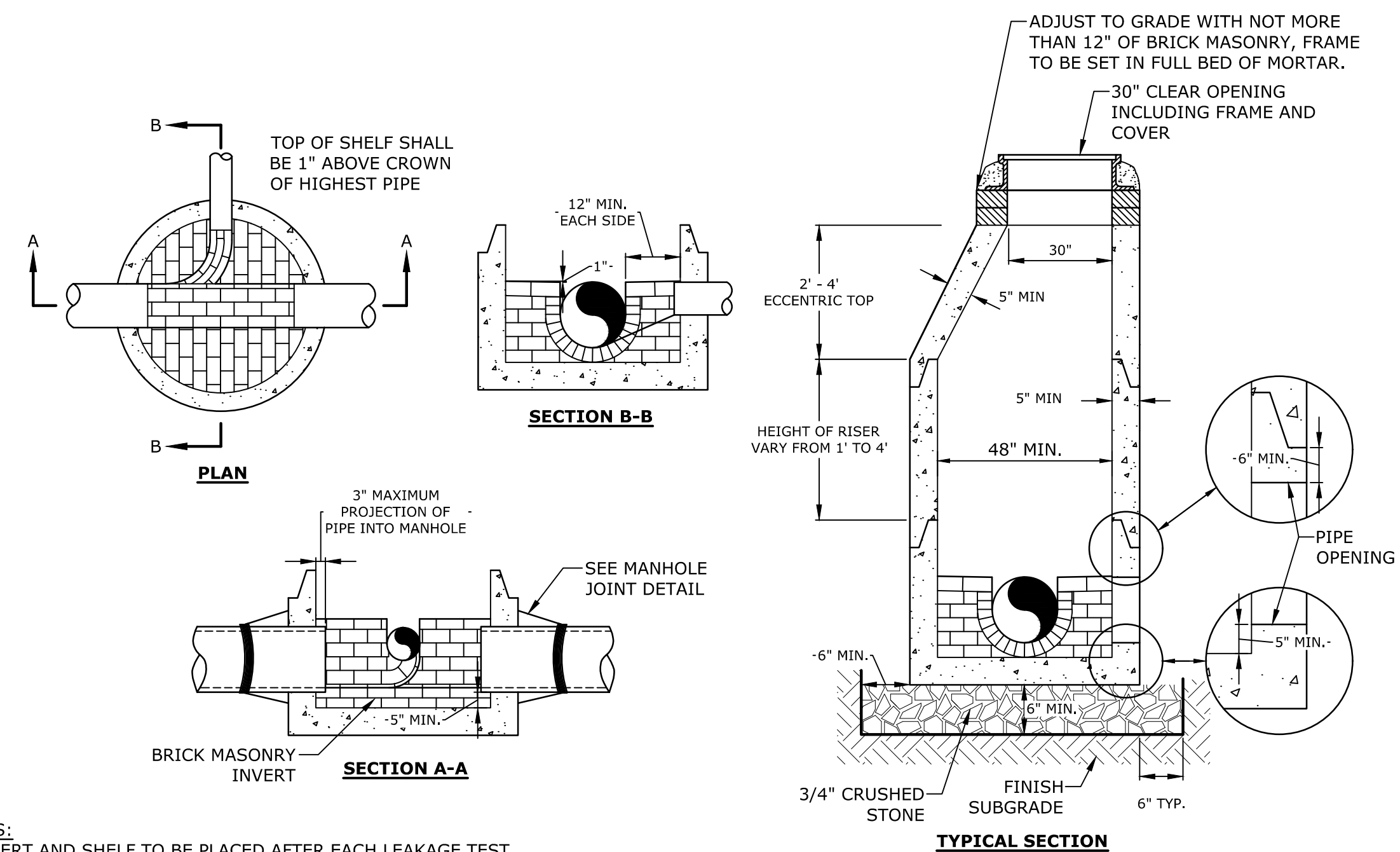
CPI Management, LLC

53 Green Street
Portsmouth, NH



- NOTES:**
1. RISER PIPE AND FITTINGS SHALL BE THE SAME DIAMETER AS THE INLET PIPE AND SHALL BE CONSTRUCTED OF SDR35 PVC PIPE.
 2. SANITARY SEWER SHALL BE INSTALLED PER THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARDS.
 3. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

INSIDE DROP MANHOLE
NO SCALE



- NOTES:**
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
 2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
 3. INVERT BRICKS SHALL BE LAID ON EDGE.
 4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
 5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
 6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
 7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE

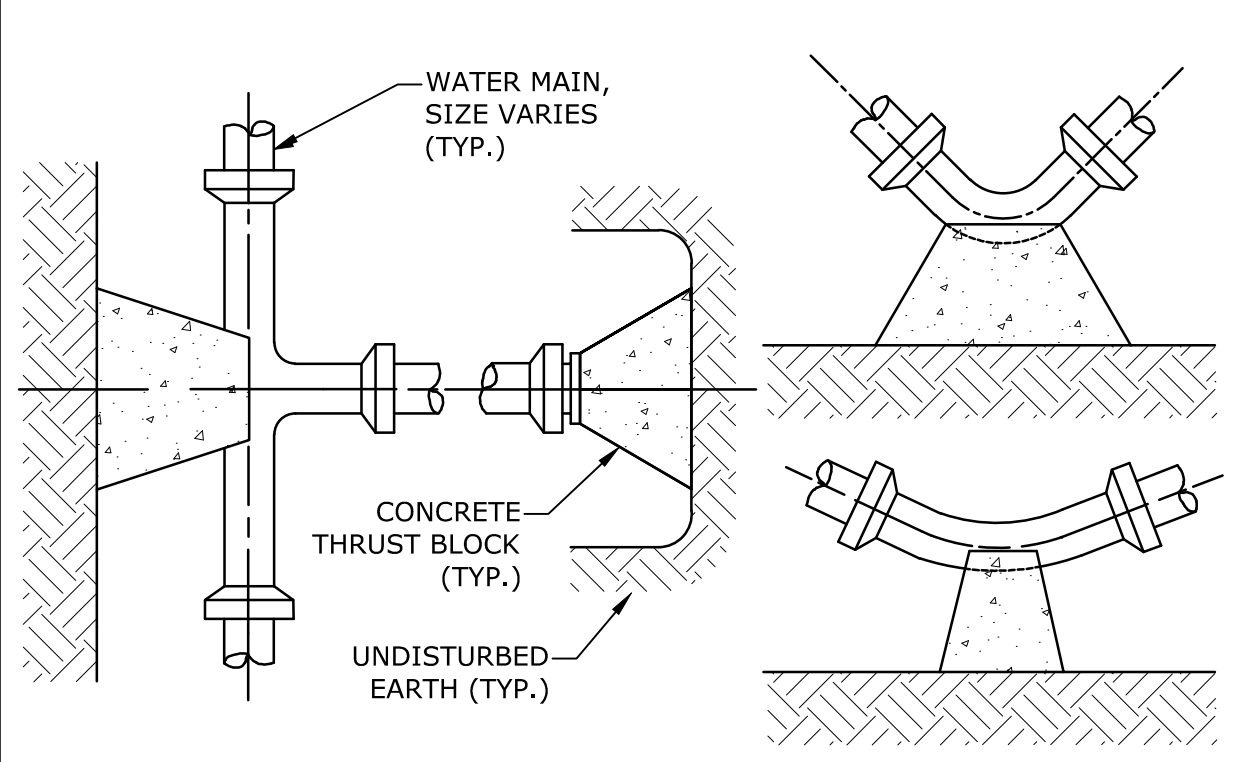
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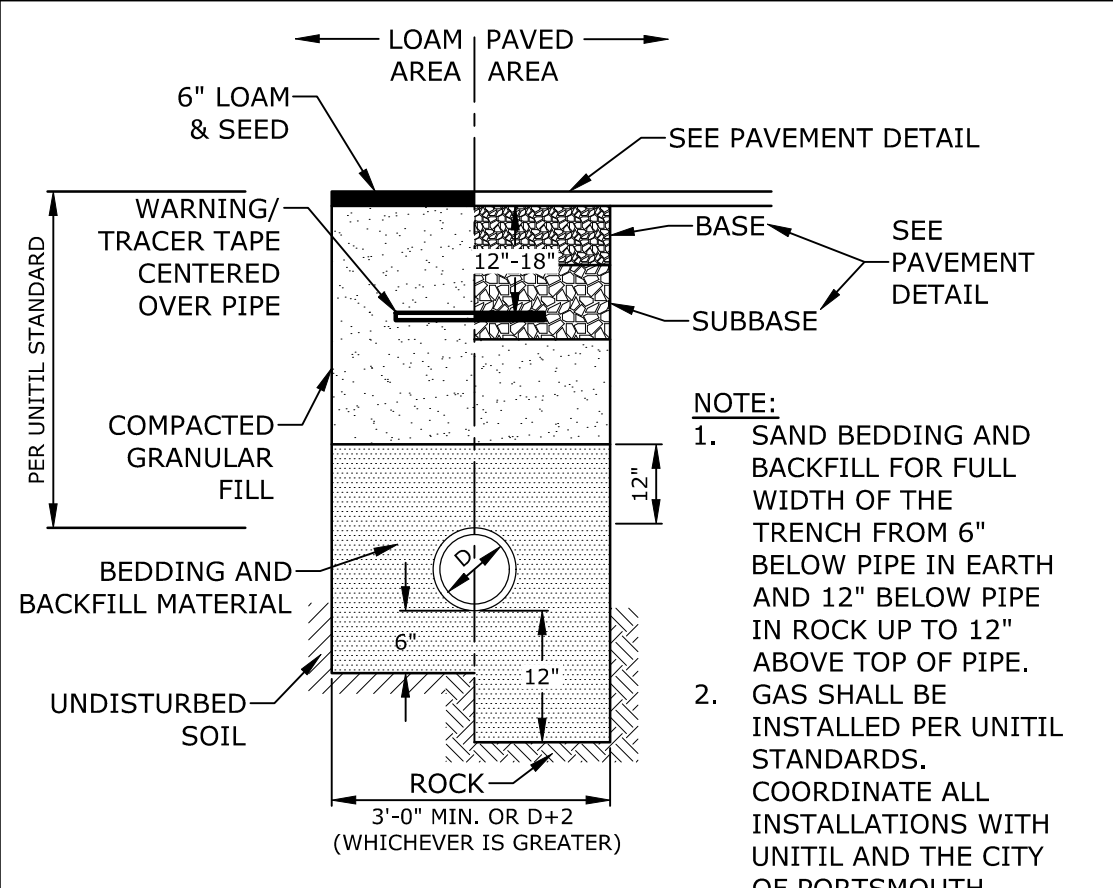
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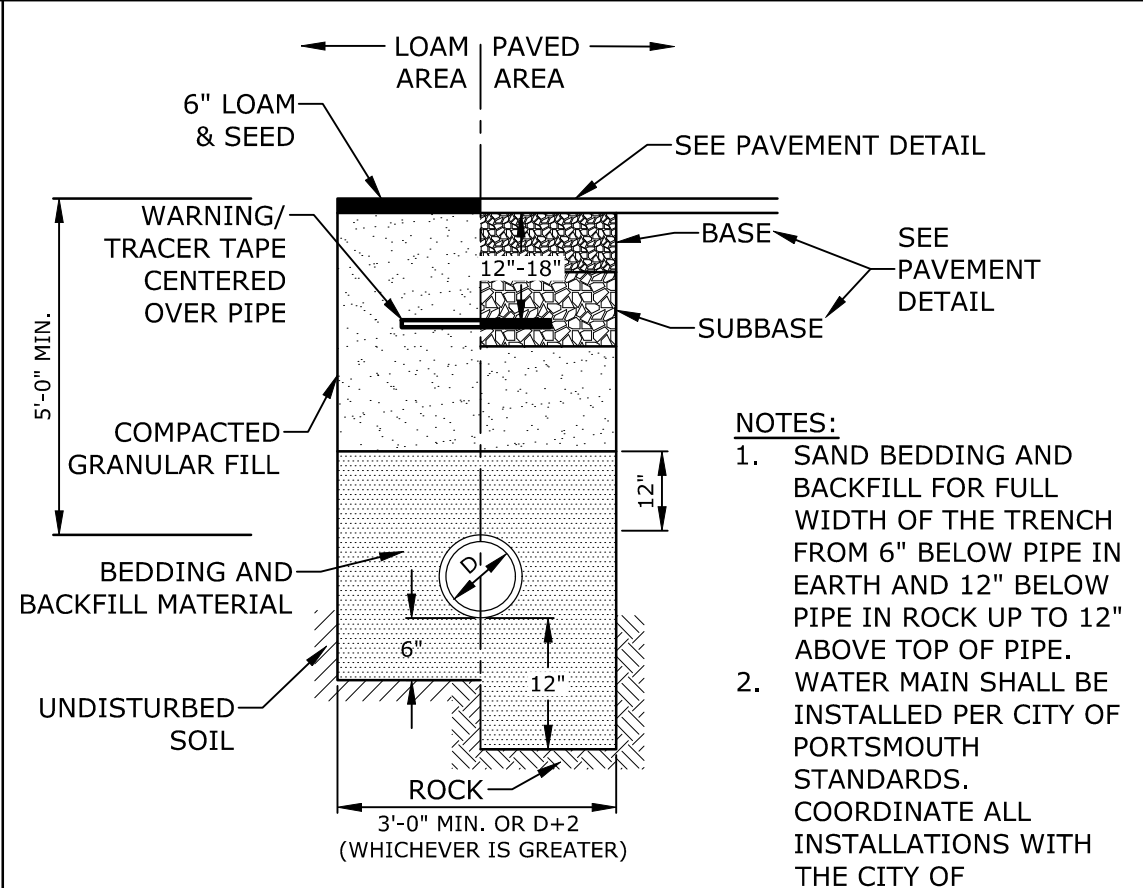
THRUST BLOCKING DETAIL
NO SCALE

REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38

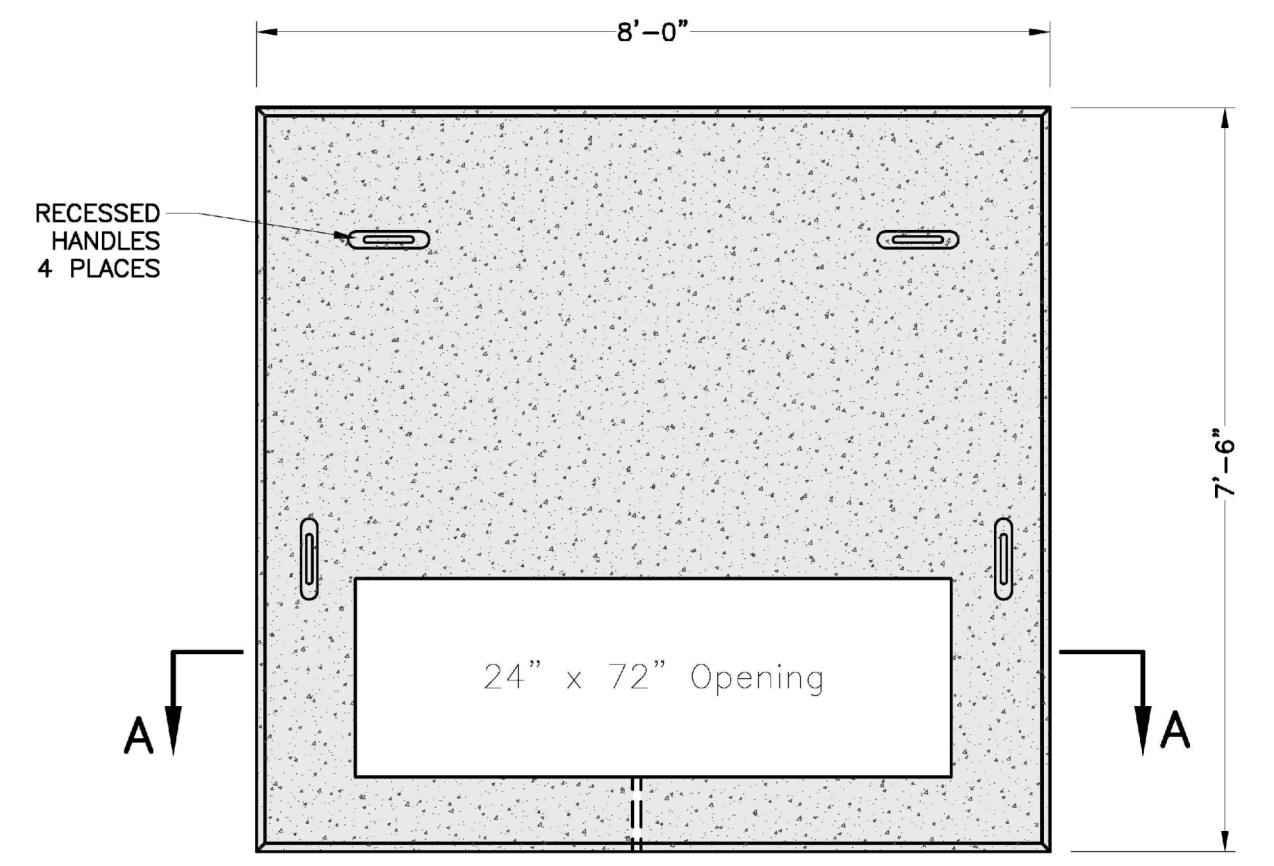
- TEST PRESSURE = 200PSI
- NOTES:
- POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
 - ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
 - PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
 - WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
 - INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.



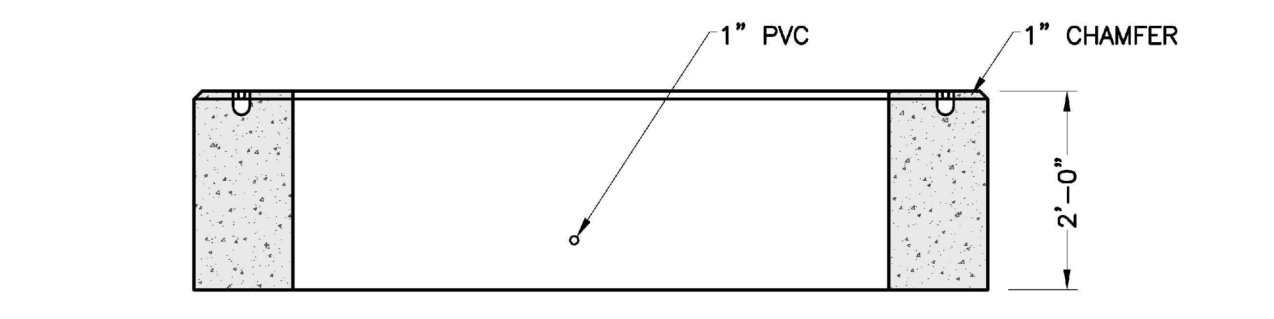
GAS TRENCH
NO SCALE



WATER TRENCH
NO SCALE



3-PHASE TRANSFORMER PAD
NO SCALE



SECTION A-A

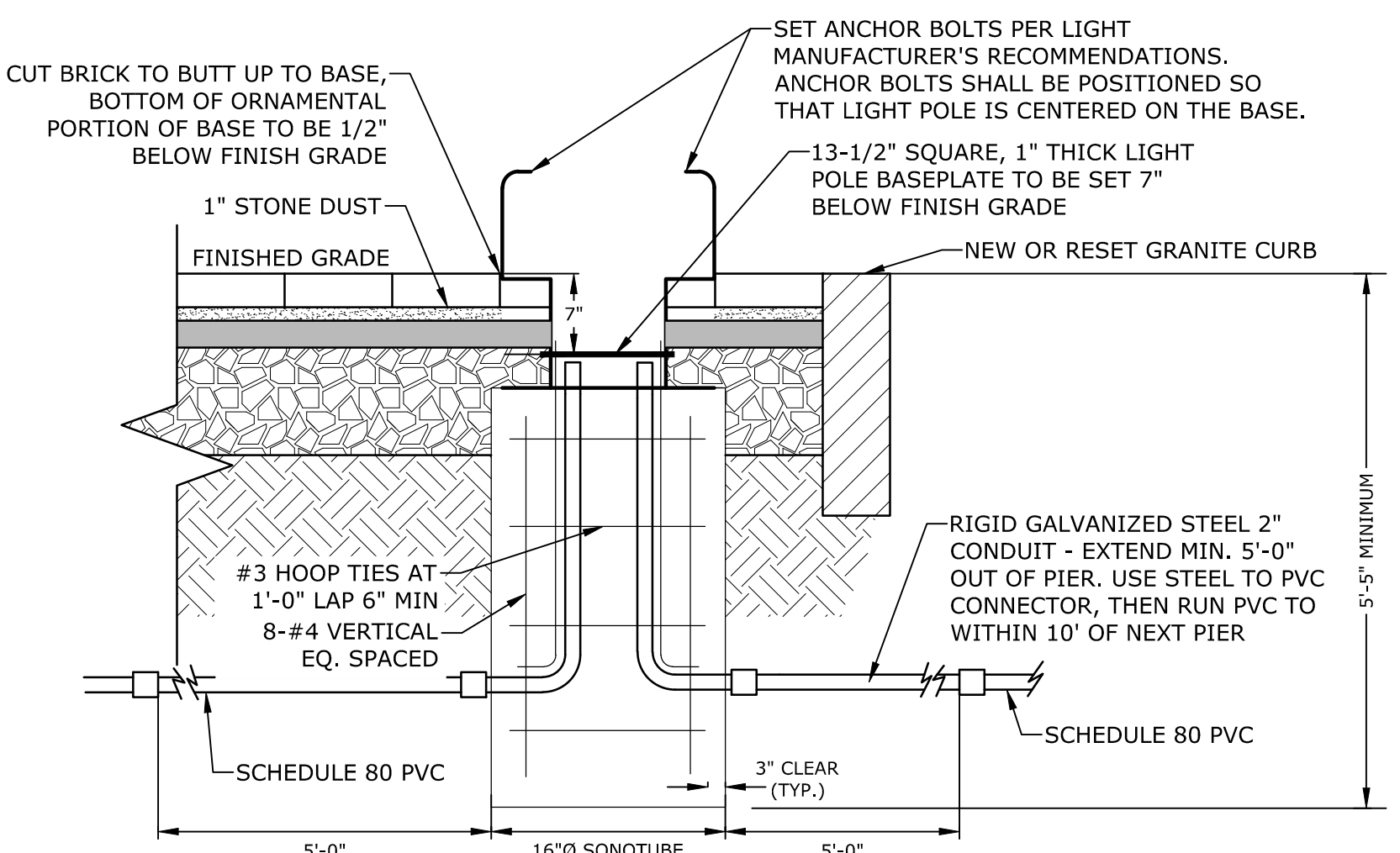
- NOTES:
- DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
 - CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
 - STEEL REINFORCEMENT - ASTM A615, GRADE 60
 - PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS



ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



NORTH END LIGHT FIXTURE BASE
NO SCALE



DISTRICT STANDARD LIGHT POLE & FIXTURE
NO SCALE

- LUMINAIRE SPECIFICATIONS:
- CATALOGUE NO.: K729-P4FL-II-60(SSL)
-7030-120:277-3K S/F KPL20
- GLOBE MAT'L: FLAT ARRAY, CLEAR FLAT LENS
TYPE II
- WATTAGE: 60W (7030 SERIES)
- LIGHT SOURCE: SOLID STATE LIGHTING
- LINE VOLTAGE: 120:277V
- CCT: 3000K
- PAINT: TEXTURED BLACK
- OPTIONS: S/F KPL-20 LEVELING DEVICE

- ARM SPECIFICATIONS:
- CATALOGUE NO.: (MOD.) KA72-T-1-3
- MATERIAL: ALUMINUM
- PAINT: TEXTURED BLACK
- OPTIONS: KPL20 LEVELING DEVICE

- POLE SPECIFICATIONS:
- CATALOGUE NO.: KBH16-G-S11-SBP
- C/W 140-30/100 & DR
- SECTION: OCTAGONAL
- FINISH: POLISHED
- POLE TOP: 6 3/8" FL/FL
- POLE BUTT: 9 1/2" Ø
- POLE LENGTH: 16' 6"
- APPROX. WEIGHT: 1,190 LBS.
- MIN. RACEWAY: 1 1/8" Ø

Last Saved: 4/19/2021
 Plotted On: Apr 20, 2021 1:28pm By: aseller
 Tigue & Bond P:\CADD\Projects\C0960-011_53 Green St., Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DTLS.dwg



Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

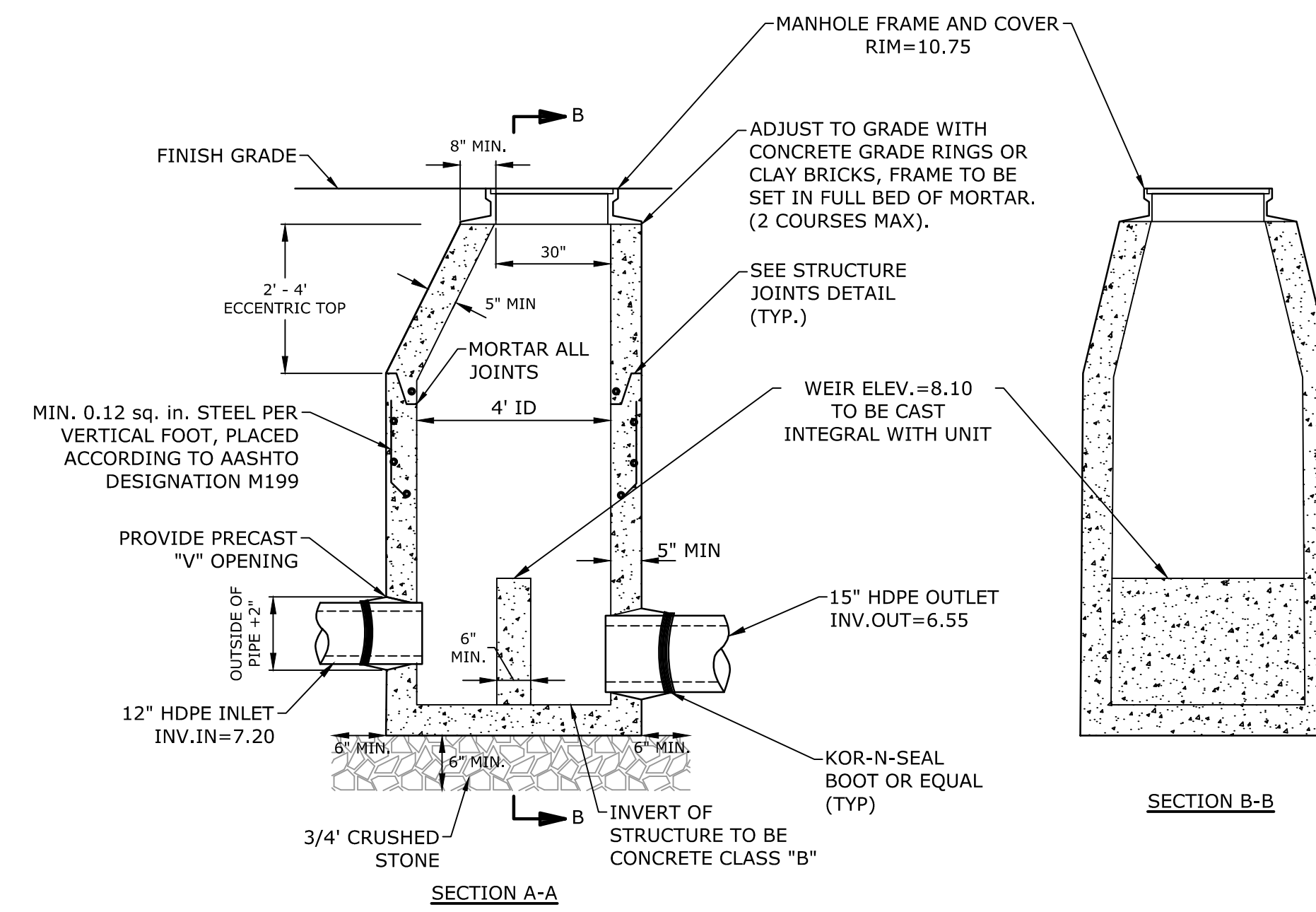
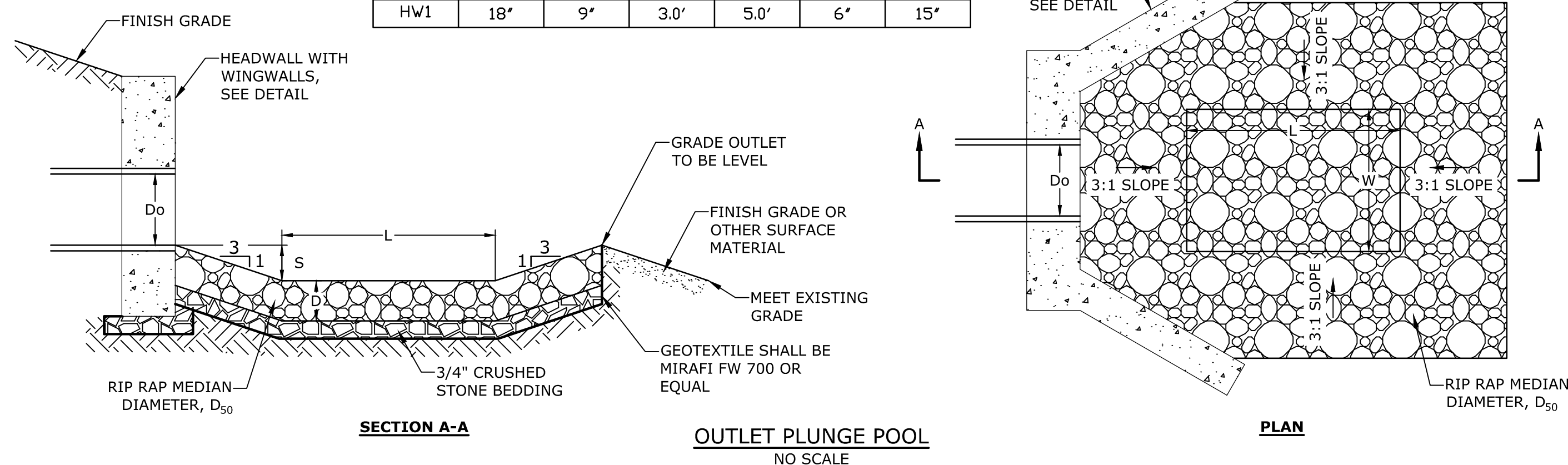
PROJECT NO: C0960-011
DATE: January 27, 2021
FILE: C0960-011_C-DTLS.DWG
DRAWN BY: AFS
CHECKED: NAH/PMC
APPROVED: BLM

DETAILS SHEET

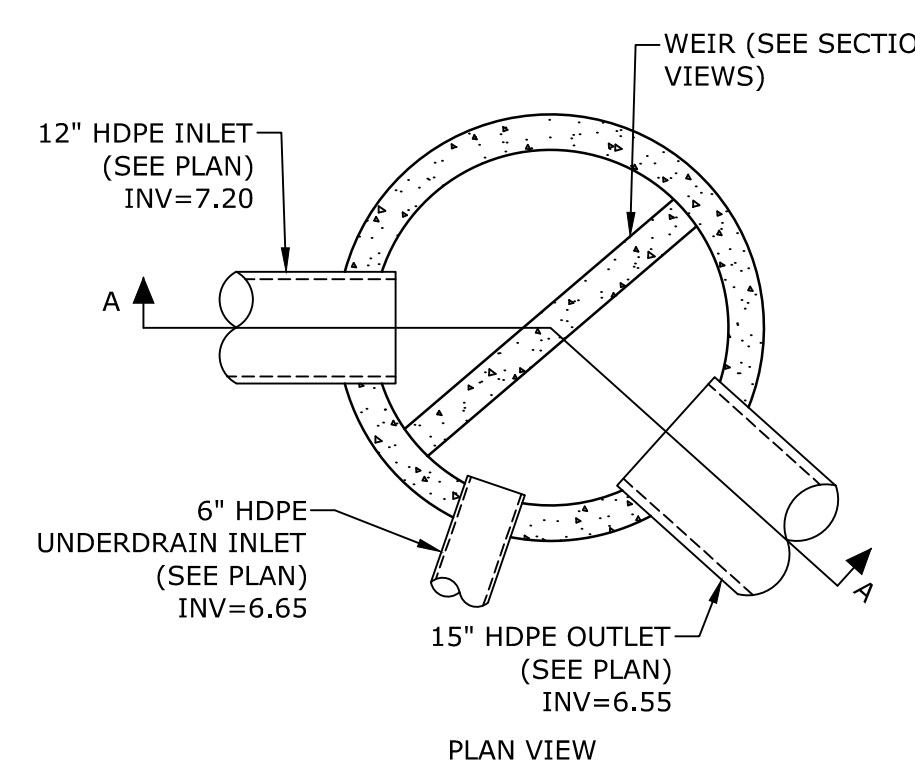
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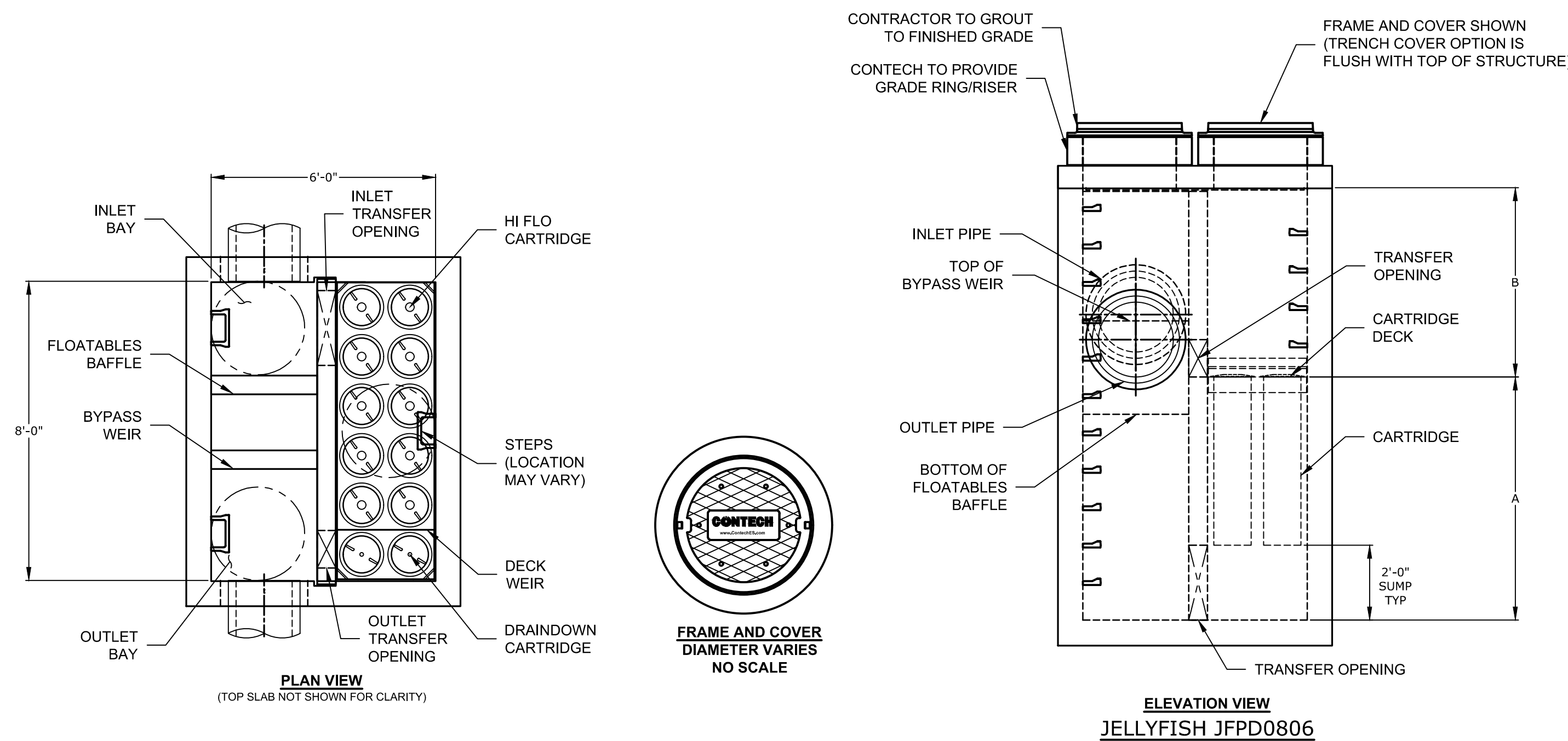
OUTLET PLUNGE POOL SIZING						
HW1	Do	S	W	L	D ₅₀	D
18'	18'	9'	3.0'	5.0'	6'	15'



- NOTES:**
- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
 - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 - THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
 - THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
 - CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6\"/>



OUTLET STRUCTURE DETAIL (POS1)
NO SCALE



JELLYFISH JFPD0806
NO SCALE

JELLYFISH JFPD0806 - DESIGN NOTES

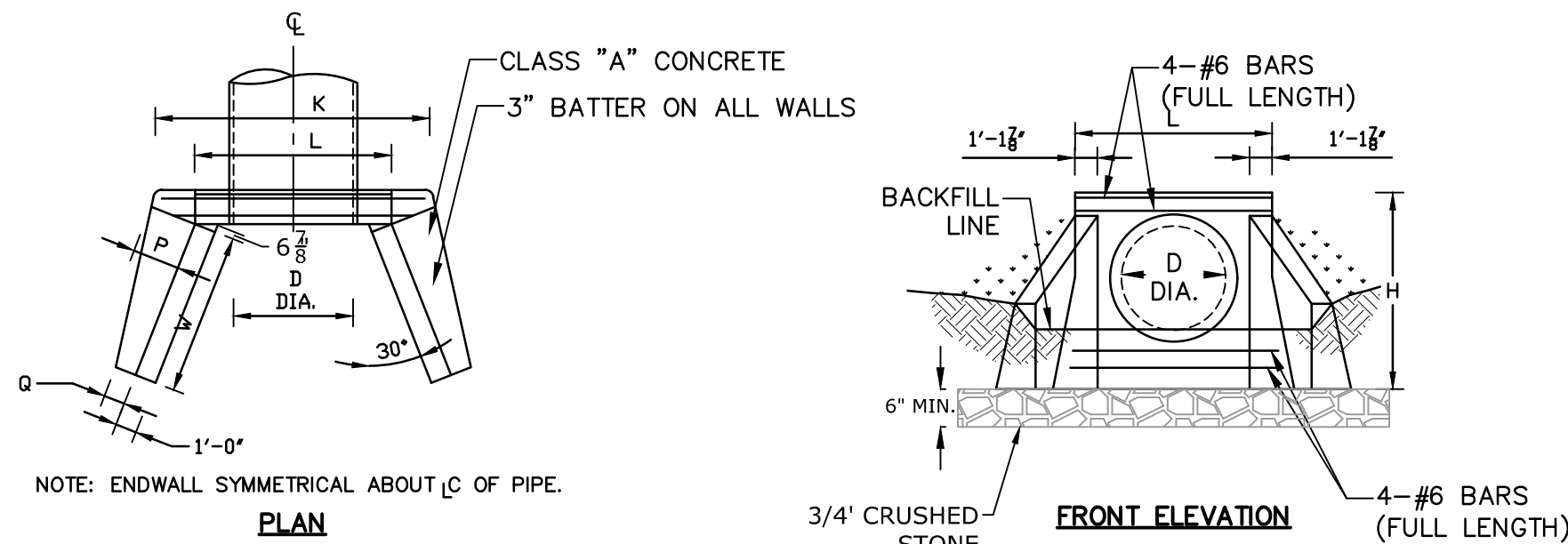
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION	54"	40"	27"	15"
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HF-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	JF-1
MODEL SIZE	JFPD0806
WATER QUALITY FLOW RATE (cfs)	0.95
PEAK FLOW RATE (cfs)	5.50
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	5/1
CARTRIDGE SIZE	54"

JELLYFISH FILTER DETAIL (JF-1)
NO SCALE



HEADWALL WITH WINGWALLS
NO SCALE

DIMENSIONS AND QUANTITIES FOR ONE WING TYPE ENDWALL

D	B	C	G	H	K	L	P	Q	R	W	VOL.
IN. * FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	CY
18	1'-6"	2'-0"	3'-3"	6'-9"	9'-1 1/2"	7'-3 3/4"	1'-4 1/2"	0'-9 1/2"	3'-4 1/2"	5'-5 1/2"	5.87
36	1'-6"	2'-0"	3'-3"	6'-8"	9'-1 1/2"	7'-3 3/4"	1'-4 1/2"	0'-9 1/2"	3'-4 1/2"	5'-5 1/2"	5.87
42	1'-6"	2'-0"	3'-3"	7'-2"	9'-10 1/2"	7'-9 1/2"	1'-6"	0'-9 1/2"	3'-10 1/2"	6'-7 1/2"	6.67

* FOR D < 36" USE DIMENSIONS LISTED FOR D=36"

Jellyfish Filter
CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
8025 Centre Pointe Dr., Suite 400, West Chester, OH 45399
800-338-1122 513-445-7000 513-645-7993 FAX

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
C	4/21/2021	TAC Resubmission
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PROJECT NO: C0960-011
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CHECKED: NAH/PMC
APPROVED: BLM

DETAILS SHEET

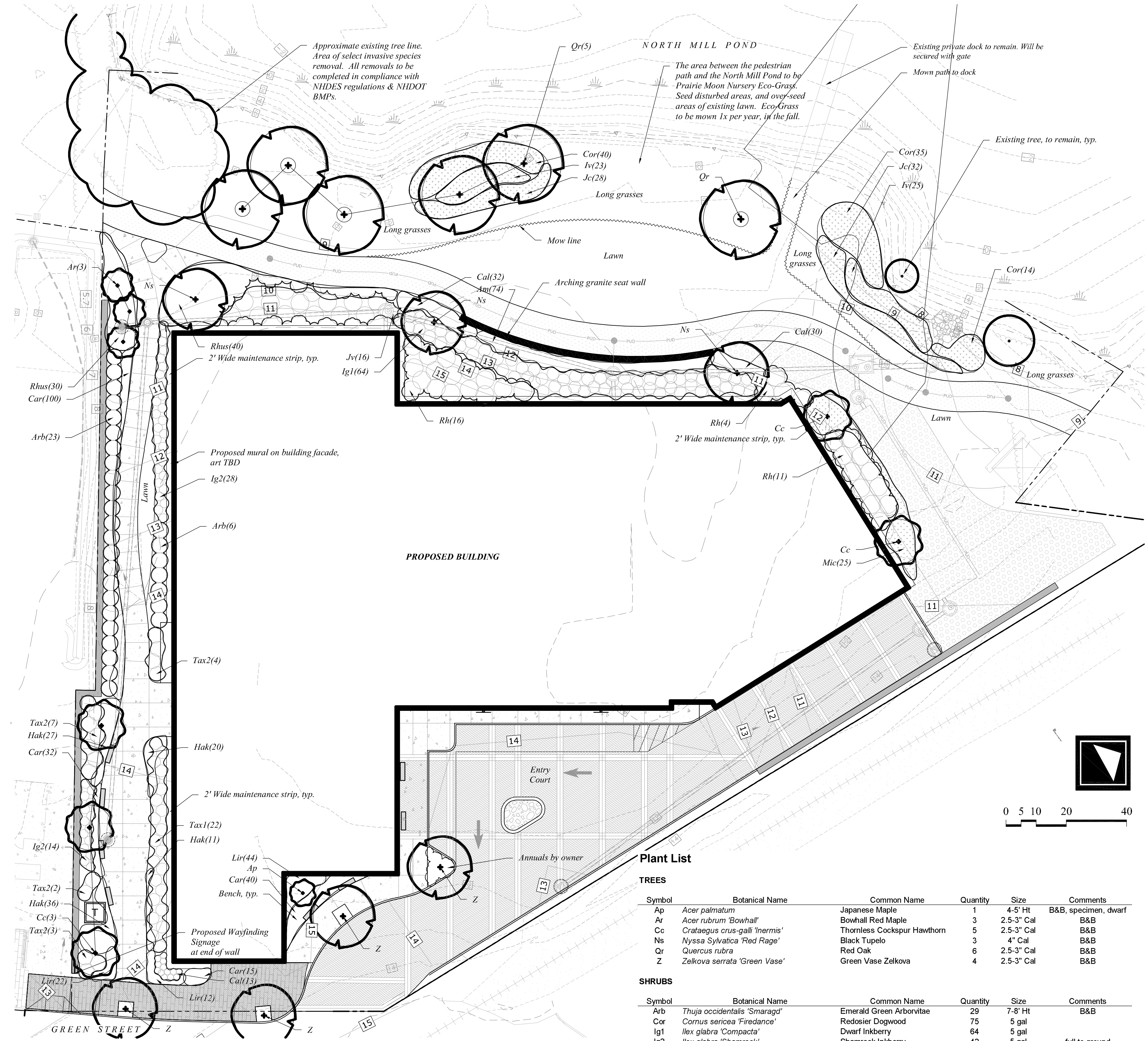
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C-507

Last Saved: 4/19/2021 11:52:28am By: aseller
Plotted On: Apr 20, 2021 11:52:28am
Tighe & Bond 2121 Corporate Center Dr., Portsmouth, NH 03801
Figures/Attachments: Figures/Attachments/011_C-DTLS.dwg

Landscape Notes

- Design is based on drawings by Tighe & Bond dated 4/19/2021 and may require adjustment due to actual field conditions.
- The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
- Erosion Control shall be in place prior to construction.
- Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
- The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
- It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
- Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
- Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
- The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
- The Contractor shall procure any required permits prior to construction.
- Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
- Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
- The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
- A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
- All plants shall be legibly tagged with proper botanical name.
- The Contractor shall guarantee all plants for not less than one year from time of acceptance.
- Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
- No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
- All landscaping shall be provided with the following:
 - Outside hose attachments spaced a maximum of 150 feet apart, and
 - An underground irrigation system, or
 - A temporary irrigation system designed for a two-year period of plant establishment.
- If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
- The contractor is responsible for all plant material from the time their work commences until final acceptance. This includes but is not limited to maintaining all plants in good condition, the security of the plant material once delivered to the site, and watering of plants. Plants shall be appropriately watered prior to, during and after planting. It is the contractor's responsibility to provide clean water suitable for plant health from off site, should it not be available on site.
- All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
- Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and 1/2" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
- Drip strip shall extend to 6" beyond roof overhang and shall be edged with 3/16" thick metal edger.
- In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
- Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy. Within the sight distance triangles at vehicle intersections the canopies shall be raised to 8' min.
- Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
- Landscape Architect is not responsible for the means and methods of the contractor.

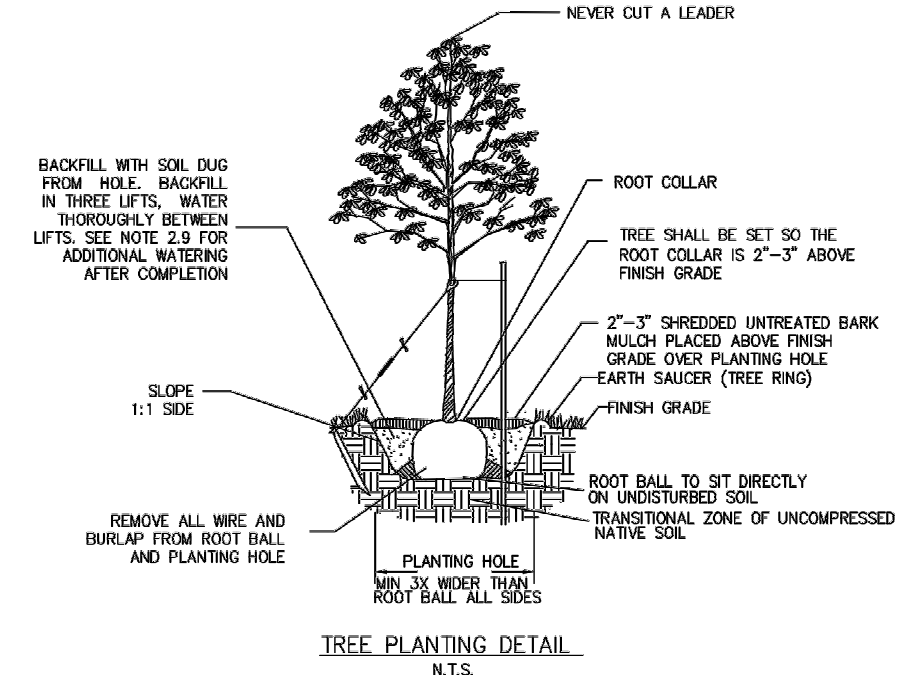


PART 1 - GENERAL

1.1 THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING, ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IT IS NOT THE "END ALL" FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT ARE IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

PART 2 - EXECUTION

- ALL PLANTING HOLES SHALL BE DUG BY HAND - NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.
- ALL WIRE AND BURGLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.
- THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GRIDLING ROOTS ARE PRESENT.
- THE ROOT COLLAR OF THE TREE SHALL BE 2"-3" ABOVE GRADE OF PLANTING HOLE FOR FINISHING DEPTH.
- ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.
- ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS - NO EXCEPTIONS.
- AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.
- 2"-3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.
- AT THE TIME OF PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.
- STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUYS MATERIAL SHALL BE NON-DAMAGING TO THE TREE.
- ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.



Plant List

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ap	<i>Acer palmatum</i>	Japanese Maple	1	4-5' Ht	B&B, specimen, dwarf
Ar	<i>Acer rubrum</i> 'Bowhall'	Bowhall Red Maple	3	2.5-3" Cal	B&B
Cc	<i>Crataegus crus-galli</i> 'Inermis'	Thornless Cockspur Hawthorn	5	2.5-3" Cal	B&B
Ns	<i>Nyssa sylvatica</i> 'Red Rage'	Black Tupelo	3	4" Cal	B&B
Qr	<i>Quercus rubra</i>	Red Oak	6	2.5-3" Cal	B&B
Z	<i>Zelkova serrata</i> 'Green Vase'	Green Vase Zelkova	4	2.5-3" Cal	B&B

SHRUBS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Arb	<i>Thuja occidentalis</i> 'Smaragd'	Emerald Green Arborvitae	29	7-8' Ht	B&B
Cor	<i>Cornus sericea</i> 'Firedance'	Redosier Dogwood	75	5 gal	
Ig1	<i>Ilex glabra</i> 'Compacta'	Dwarf Inkberry	64	5 gal	
Ig2	<i>Ilex glabra</i> 'Shamrock'	Shamrock Inkberry	42	5 gal	full to ground
Iv	<i>Ilex verticillata</i> 'Red Sprite'	Red Sprite Winterberry	48	5 gal	
Jc	<i>Juniperus communis</i> 'Blueberry Delight'	Blueberry Delight Juniper	60	3 gal	
Jv	<i>Juniperus virginiana</i> 'Emerald Sentinel'	Emerald Sentinel Red Cedar	16	7-8' Ht	B&B
Mic	<i>Microbiota decussata</i>	Russian Cypress	25	3 gal	
Rh	<i>Rhododendron maximum</i>	Rosebay Rhododendron	31	3-4' Ht	B&B
Rhus	<i>Rhus aromatica</i> 'Grow-Low'	Grow Low Sumac	70	3 gal	
Tax1	<i>Taxus media</i> 'Ever-Low'	Ever-Low Yew	22	3 gal	
Tax2	<i>Taxus media</i> 'Greenwave'	Greenwave Yew	16	5 gal	

PERENNIALS, GROUNDCOVERS, VINES and ANNUALS

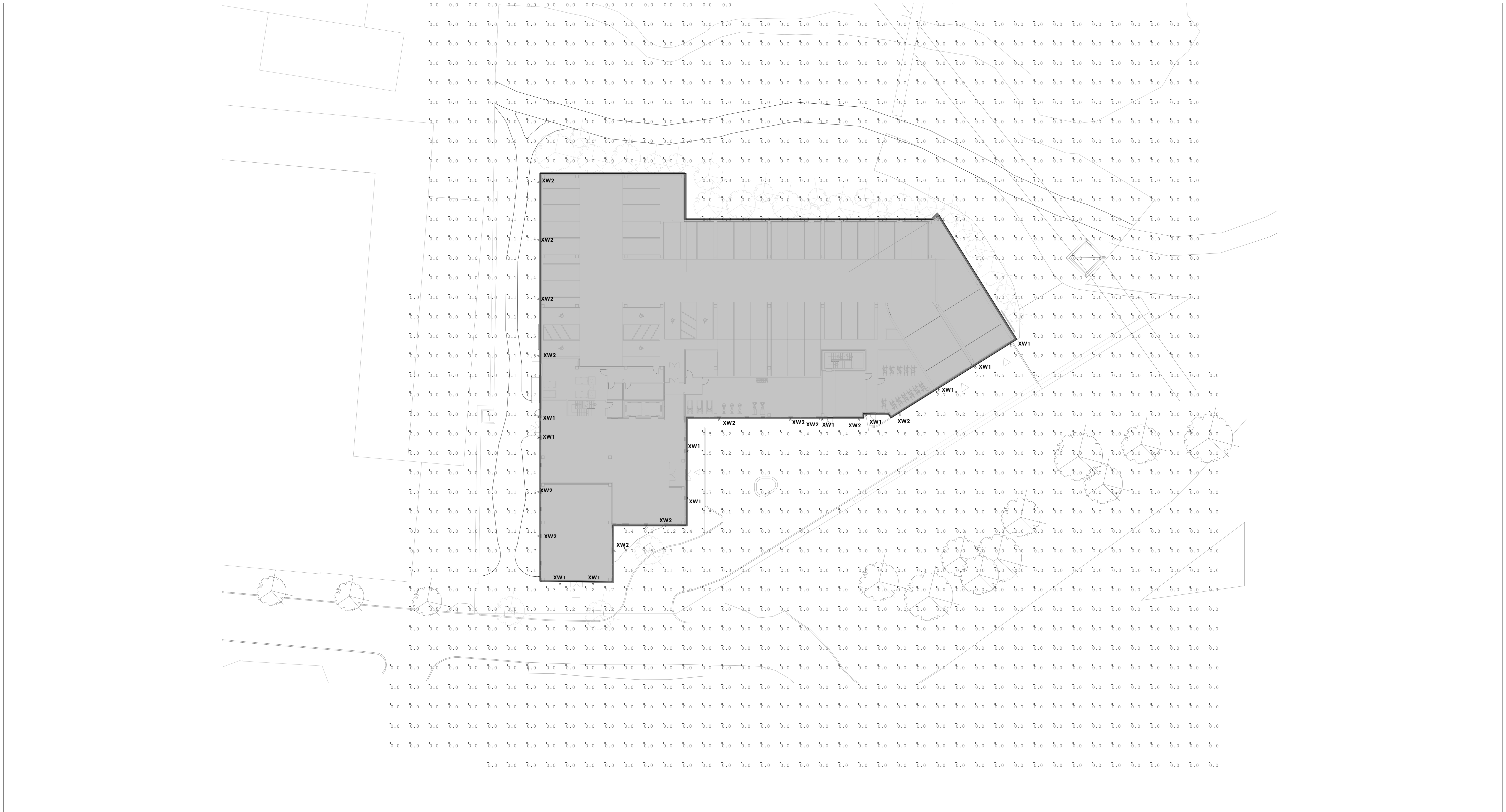
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Am	<i>Amsonia hubrichtii</i>	Blue Star Flower	74	1 gal	
Ca	<i>Carex appalachica</i>	Appalachian Sedge	198	1 gal	
Cal	<i>Calamagrostis acutifolia</i> 'Karl Foerster'	Feather Reed Grass	75	1 gal	
Hak	<i>Hakonechloa macra</i>	Japanese Frost Grass	94	1 gal	
Lir	<i>Liriope spicata</i>	Lily Turf	68	1 gal	
Lawn	<i>Penninton Smartseed Tall Fescue Blend</i>				

woodburn & company
 LANDSCAPE ARCHITECTURE
 100 Kent Place, New Hampshire
 Phone: 603.659.5949

Proposed Mixed Use Development
LANDSCAPE PLAN
 53 Green Street Portsmouth, New Hampshire

Drawn By: VM
 Checked By: RW
 Scale: 1" = 20' - 0"
 Date: March 22, 2021
 Revisions: April 21, 2021

L-1
 Sheet 1 of 2



Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
☐	11	XW1	SINGLE	WS-W54614-XX
☐	13	XW2	SINGLE	WP-LED119-30

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Fc	0.07	10.2	0.0	N.A.	N.A.

Date	Comments
XX/XX/XX	XXXXXXXXXX

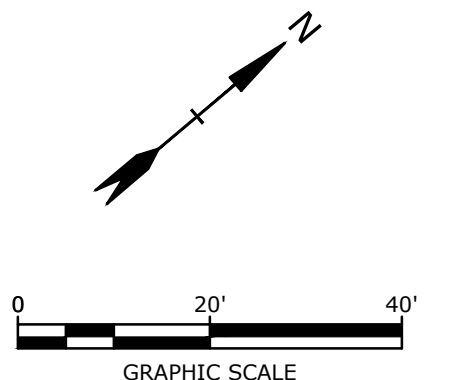
Drawn By:	Checked By:	Date:	Specifier:	Scale:
				N.T.S.

53 Green Street
Portsmouth, NH



PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

SITE OVERLAY EXHIBIT



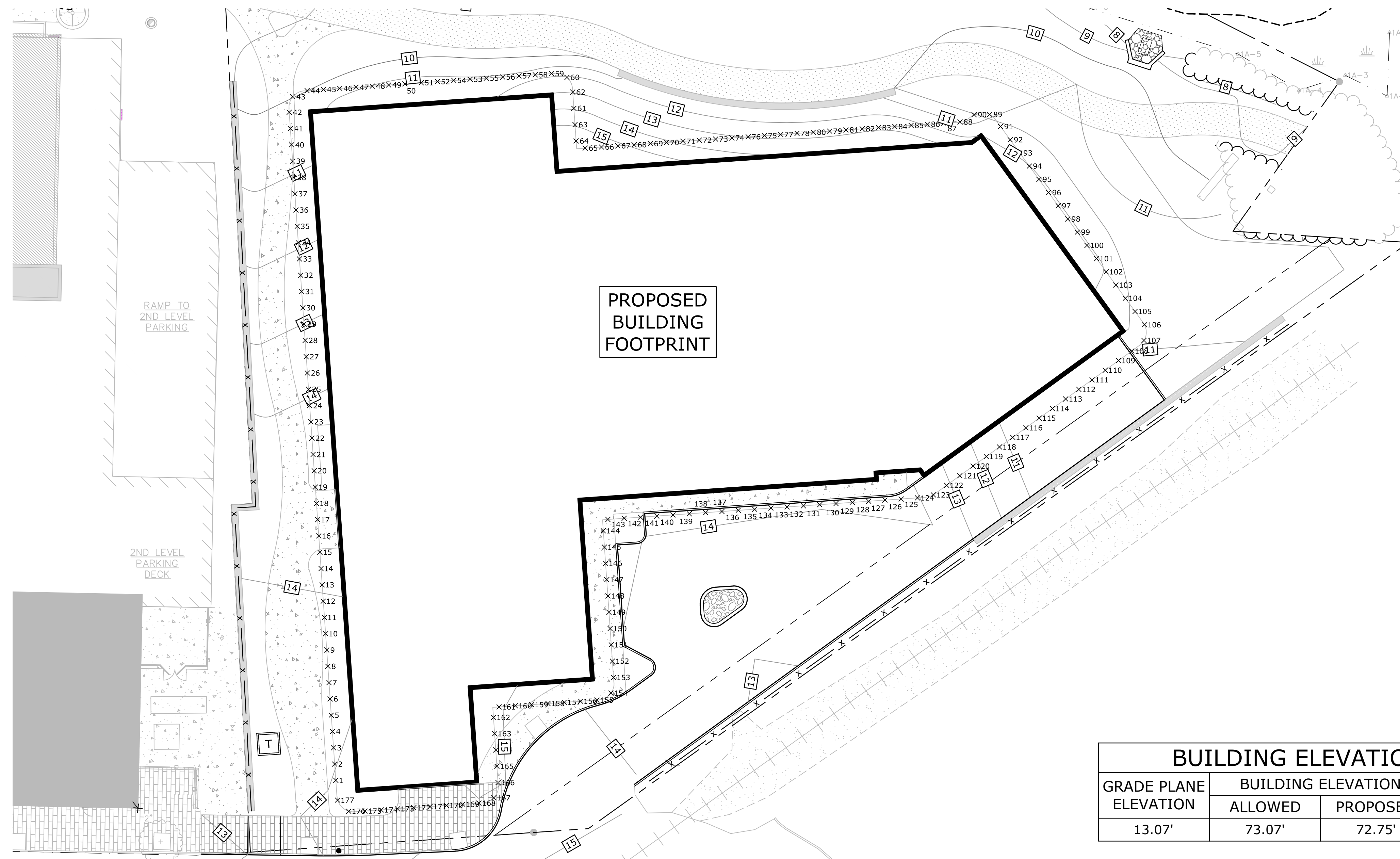
Tighe & Bond

Last Save Date: April 20, 2021, 10:45 AM By: ASELLAR
Plot Date: Wednesday, April 21, 2021 Plotted By: Alexander Seiler
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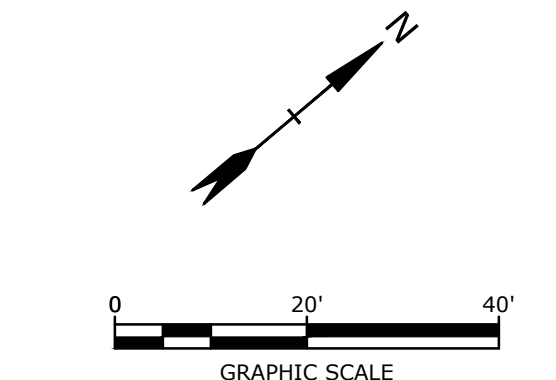
**PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE**

GRADE PLANE EXHIBIT

Point Table		Point Table		Point Table		Point Table		Point Table		Point Table		Point Table		Point Table	
Point #	Elevation	Point #	Elevation	Point #	Elevation	Point #	Elevation	Point #	Elevation	Point #	Elevation	Point #	Elevation	Point #	Elevation
1	14.100	21	14.550	41	10.450	61	11.750	81	14.500	101	12.000	121	12.000	141	14.150
2	13.950	22	14.450	42	10.250	62	11.250	82	14.250	102	11.900	122	13.000	142	14.150
3	13.900	23	14.350	43	10.000	63	13.000	83	14.000	103	11.750	123	13.700	143	14.650
4	13.850	24	14.150	44	10.000	64	14.750	84	13.000	104	11.400	124	14.000	144	14.650
5	13.900	25	13.950	45	11.000	65	15.500	85	13.000	105	11.300	125	14.100	145	14.650
6	13.850	26	13.750	46	11.250	66	15.000	86	12.750	106	11.200	126	14.100	146	14.700
7	13.850	27	13.500	47	11.500	67	15.000	87	12.500	107	11.100	127	14.100	147	14.700
8	13.800	28	13.250	48	11.500	68	15.000	88	12.000	108	11.000	128	14.050	148	14.700
9	13.850	29	13.050	49	11.500	69	15.000	89	11.000	109	10.150	129	14.050	149	14.700
10	13.900	30	12.750	50	11.500	70	15.000	90	11.500	110	10.600	130	14.050	150	14.600
11	13.950	31	12.500	51	11.500	71	15.000	91	11.000	111	10.600	131	14.050	151	14.500
12	13.950	32	12.250	52	11.500	72	15.000	92	11.500	112	10.600	132	14.050	152	14.400
13	14.250	33	12.150	53	11.250	73	15.000	93	12.000	113	10.750	133	14.050	153	14.400
14	14.550	34	11.950	54	11.500	74	15.000	94	12.000	114	10.750	134	14.050	154	14.300
15	14.650	35	11.700	55	11.250	75	15.000	95	12.000	115	10.750	135	14.100	155	14.300
16	14.750	36	11.500	56	11.150	76	15.000	96	12.000	116	10.850	136	14.100	156	14.350
17	14.750	37	11.250	57	11.000	77	15.000	97	12.000	117	10.950	137	14.100	157	14.450
18	14.750	38	11.050	58	11.000	78	15.000	98	12.000	118	11.050	138	14.100	158	14.500
19	14.750	39	10.900	59	11.000	79	15.000	99	12.000	119	11.700	139	14.100	159	14.550
20	14.650	40	10.700	60	11.100	80	15.000	100	12.000	120	12.250	140	14.150	160	14.550
														AVERAGE GRADE PLANE	13.07



BUILDING ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
13.07'	73.07'	72.75'	60.00'	59.55

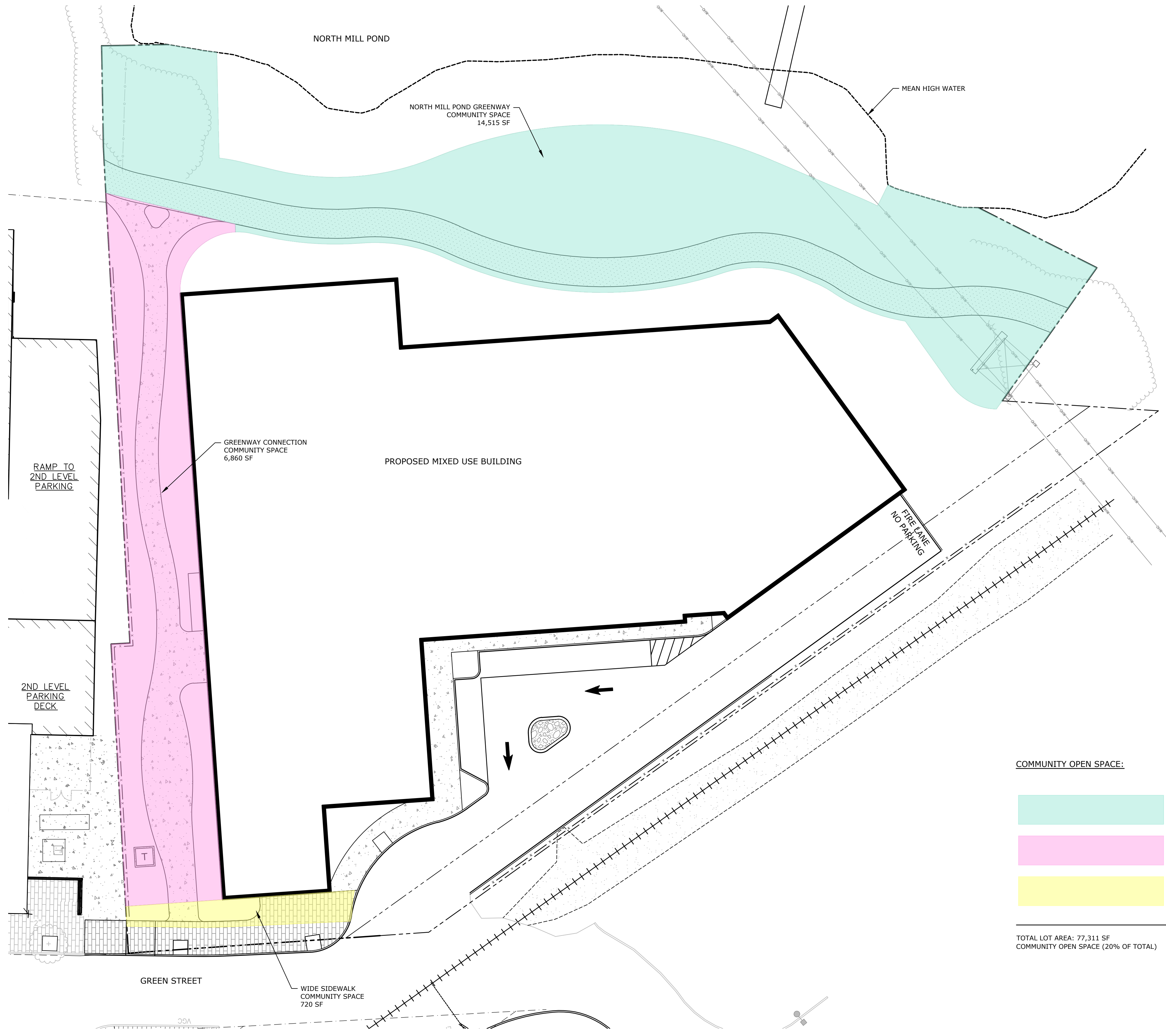


Tighe & Bond

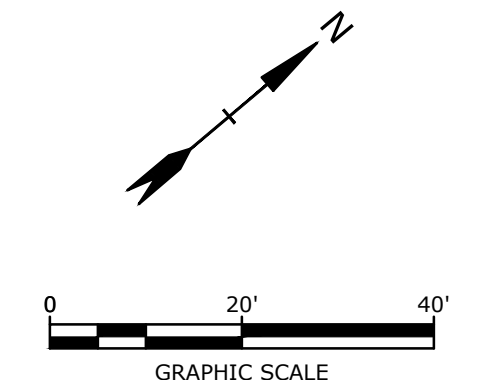
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**PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE**

COMMUNITY SPACE EXHIBIT



COMMUNITY OPEN SPACE:		REQUIRED	PROVIDED
	NORTH MILL POND GREENWAY COMMUNITY SPACE		14,515 SF
	GREENWAY CONNECTION COMMUNITY SPACE		6,860 SF
	WIDE SIDEWALK COMMUNITY SPACE		720 SF
TOTAL LOT AREA: 77,311 SF COMMUNITY OPEN SPACE (20% OF TOTAL)		15,462 SF	22,095 SF

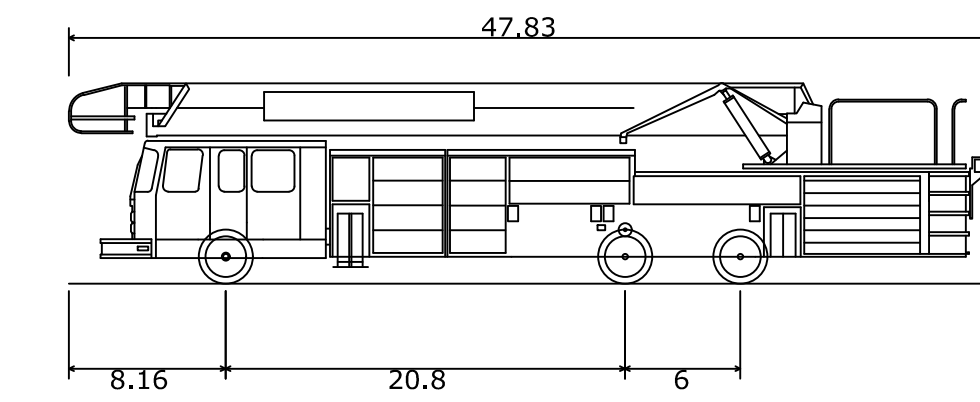
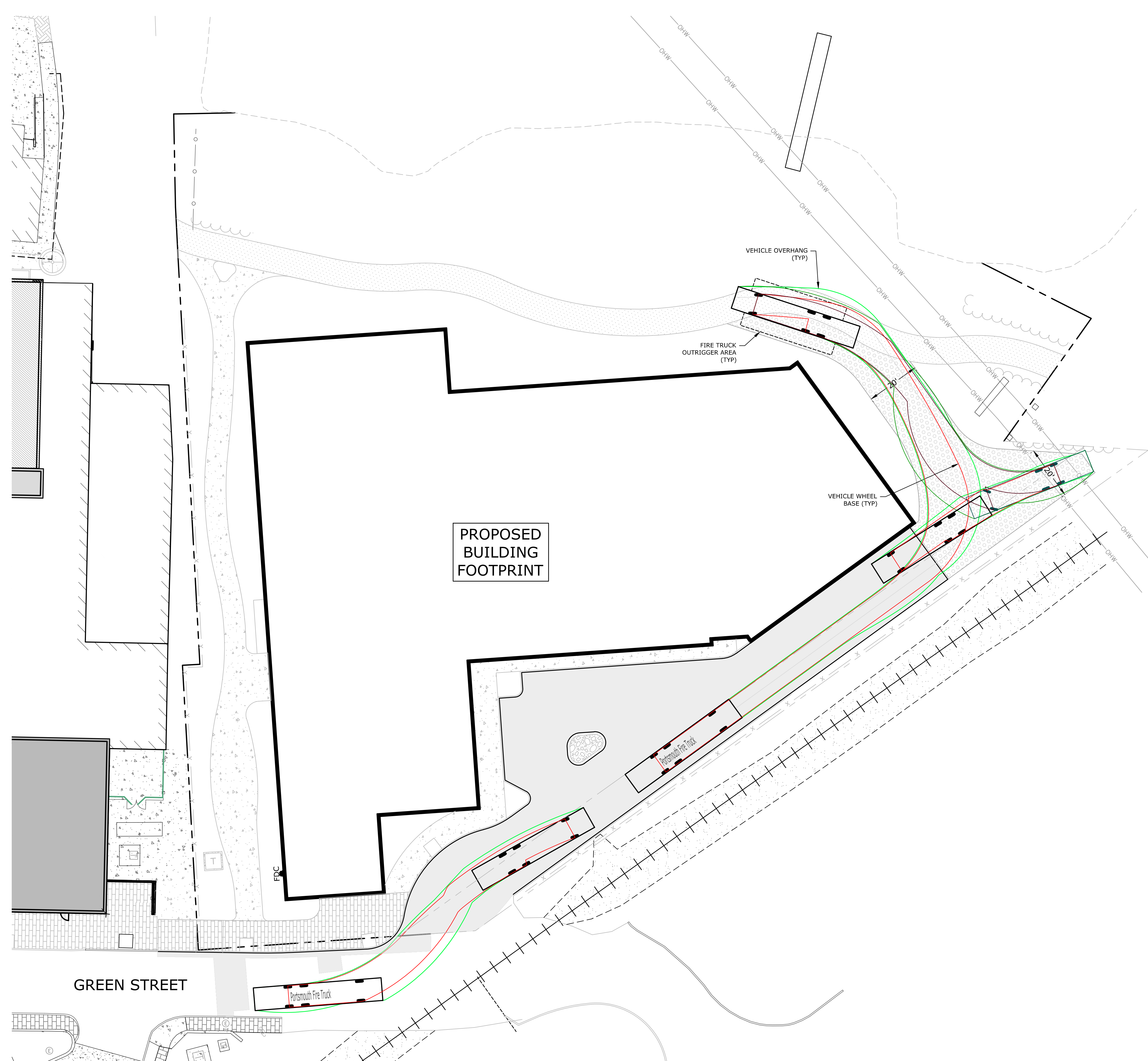


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**PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE**

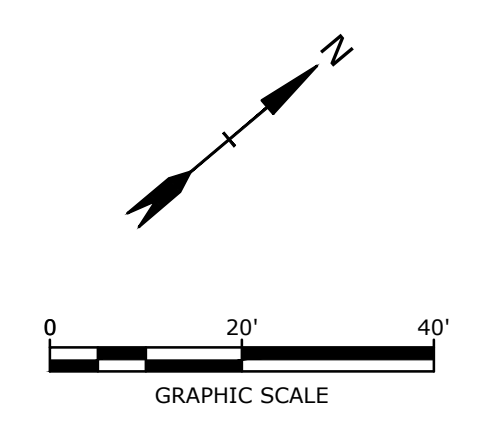
FIRE TRUCK TURNING EXHIBIT



Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

- VEHICLE WHEEL BASE
- VEHICLE OVERHANG
- VEHICLE WHEEL BASE (REVERSE)
- VEHICLE OVERHANG (REVERSE)

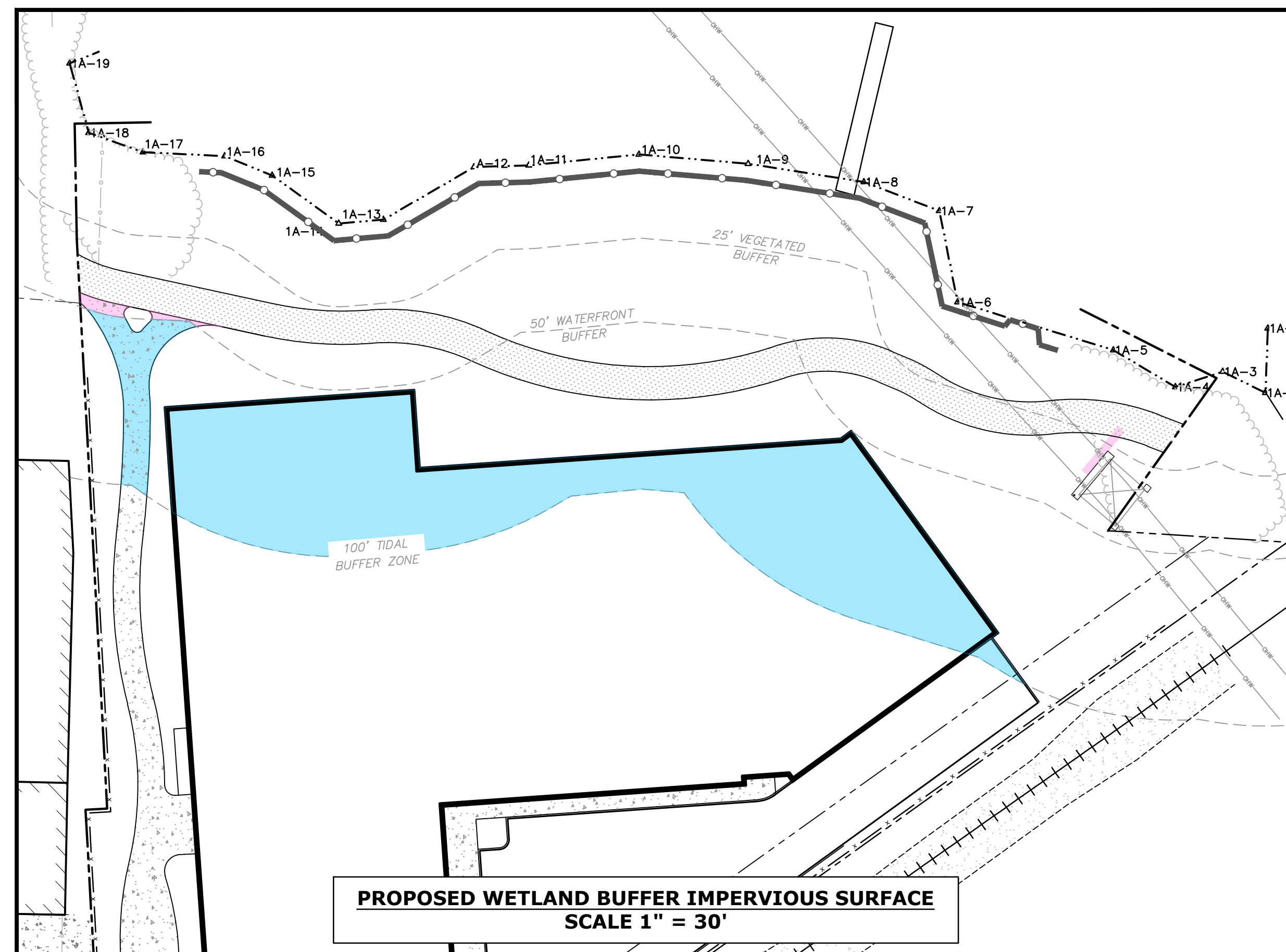
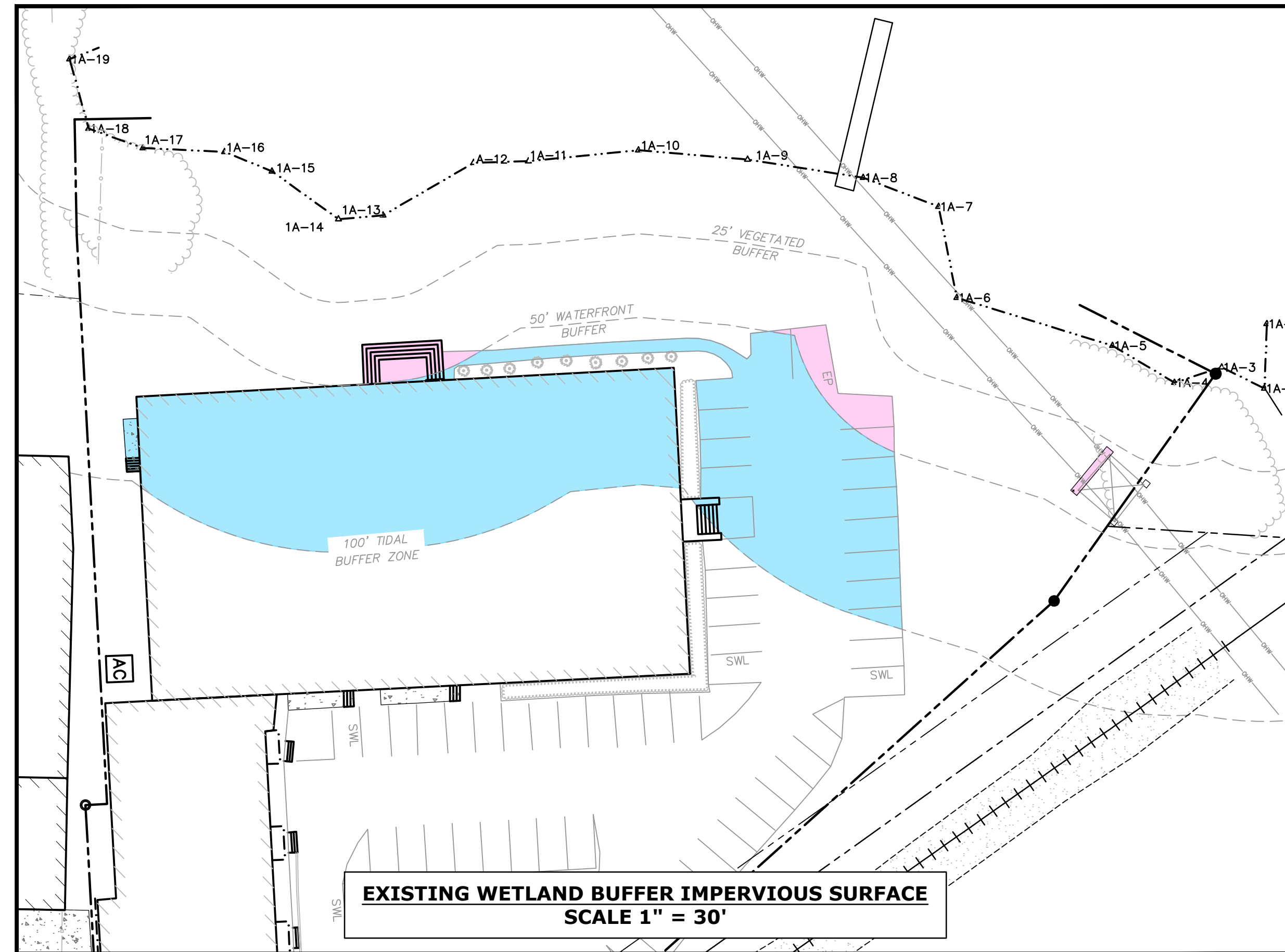


Tighe & Bond

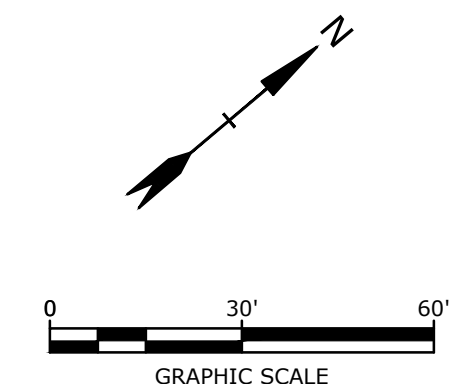
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**PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET**

**WETLAND BUFFER IMPERVIOUS
SURFACE EXHIBIT**



Impervious Surface Within Buffer Area		
Local Wetland Buffer Setback	Impervious Surface	
	Existing Condition	Proposed Development
0 - 25 FT	0 SF	0 SF
25 - 50 FT	745 SF	118 SF
50 - 100 FT	10,836 SF	8,539 SF
Total Impervious Surface	11,581 SF	8,657 SF
Net Impervious Surface	-2,924 SF	

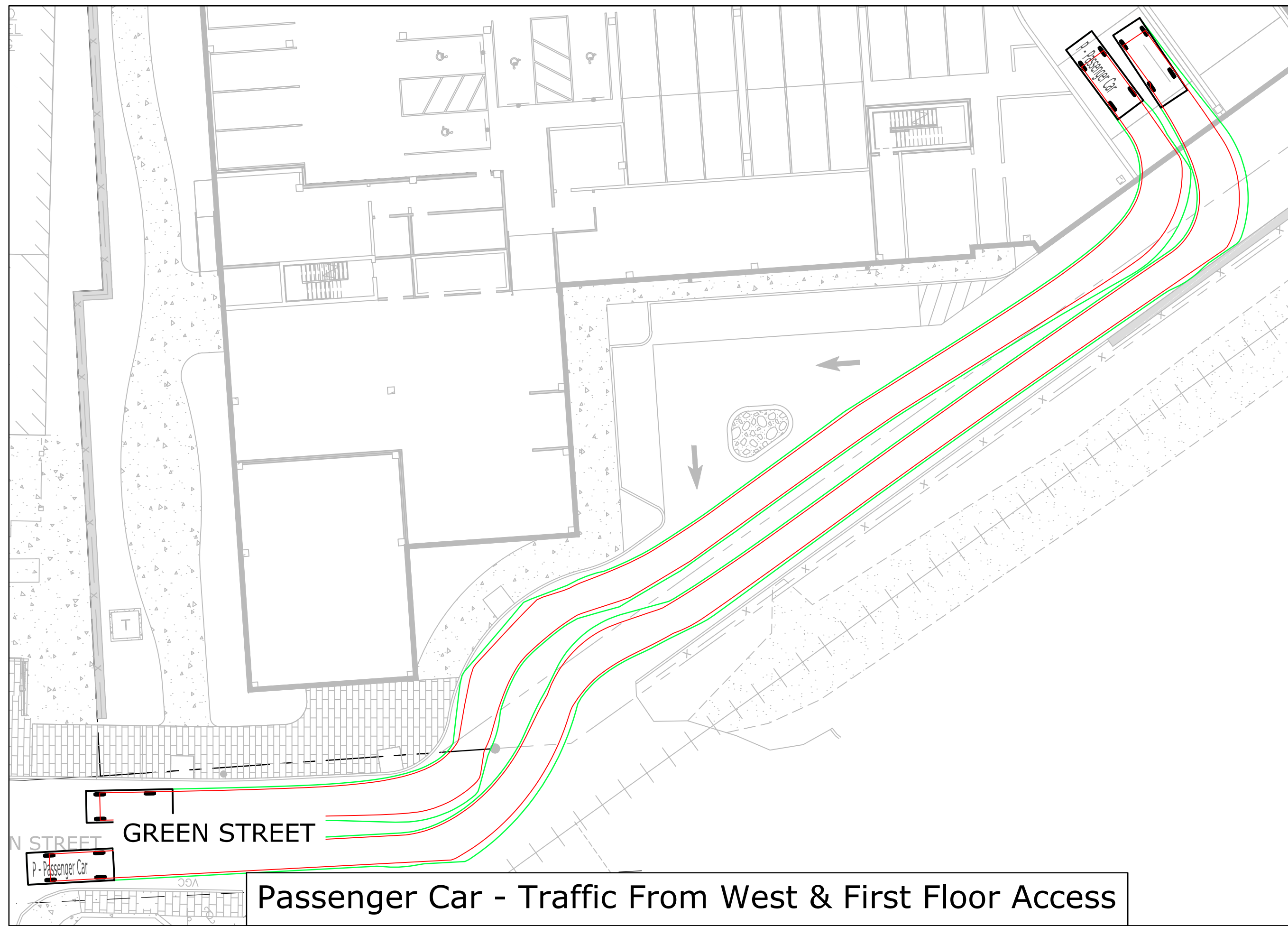


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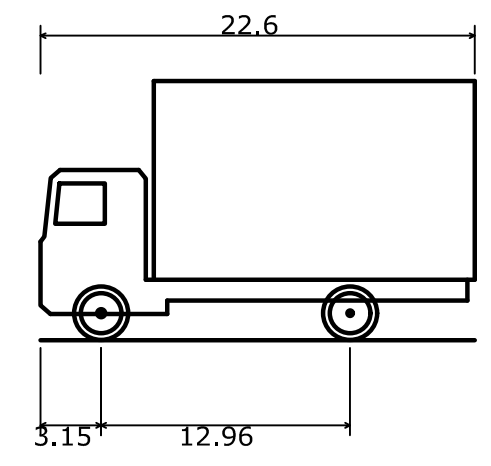
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**PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE**

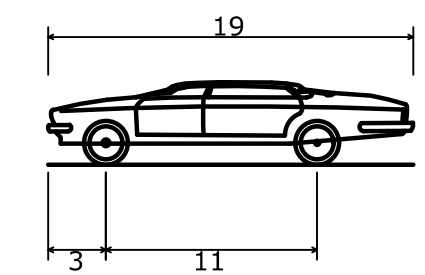
SITE TRAFFIC EXHIBIT



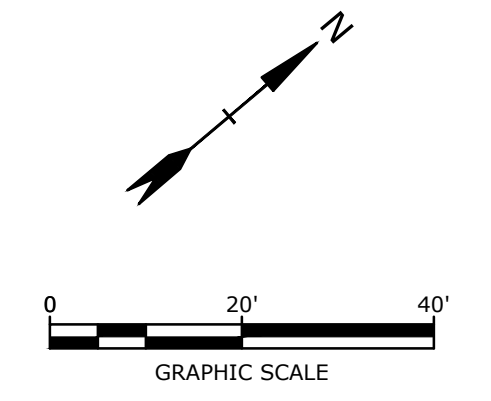
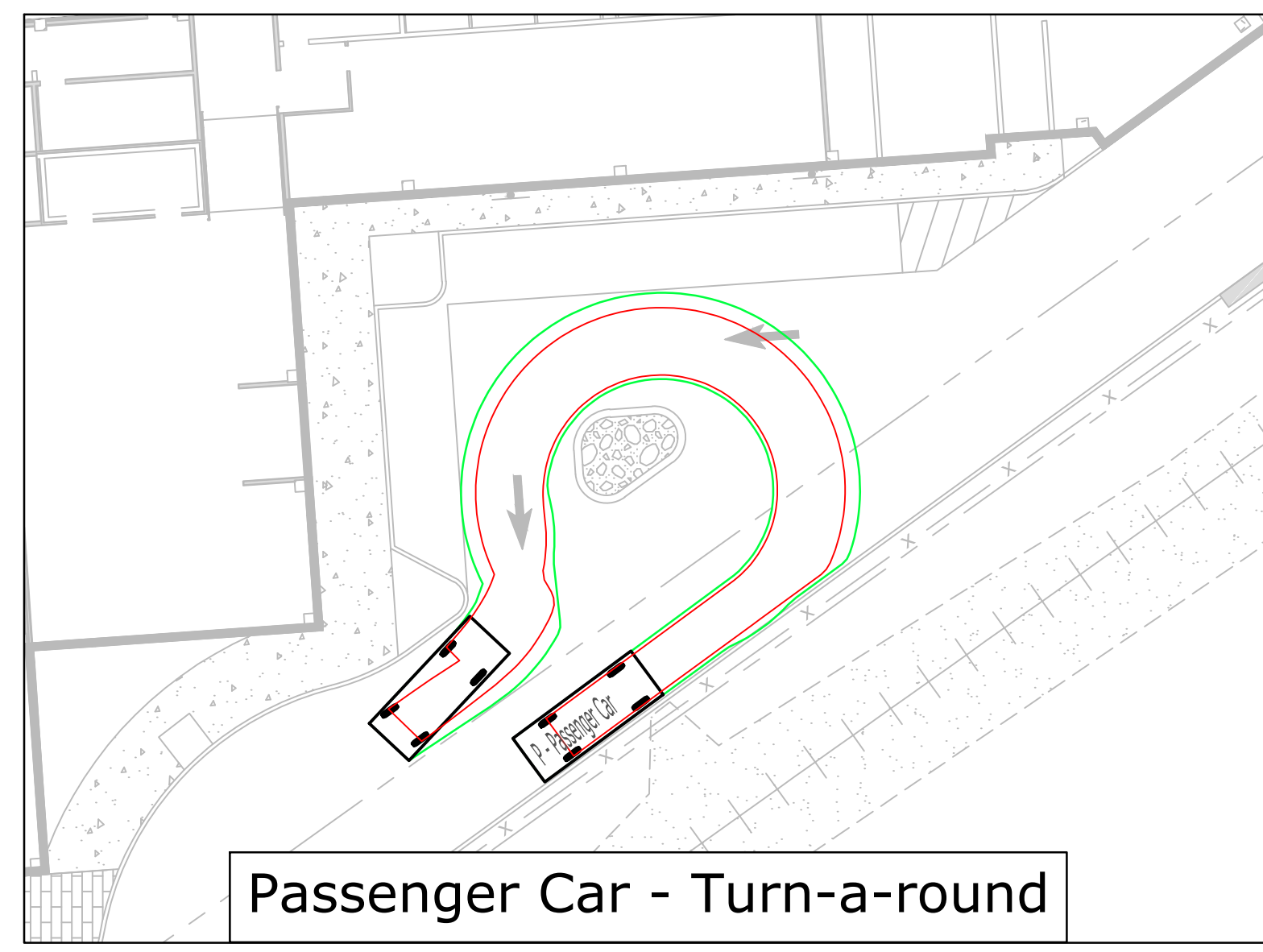
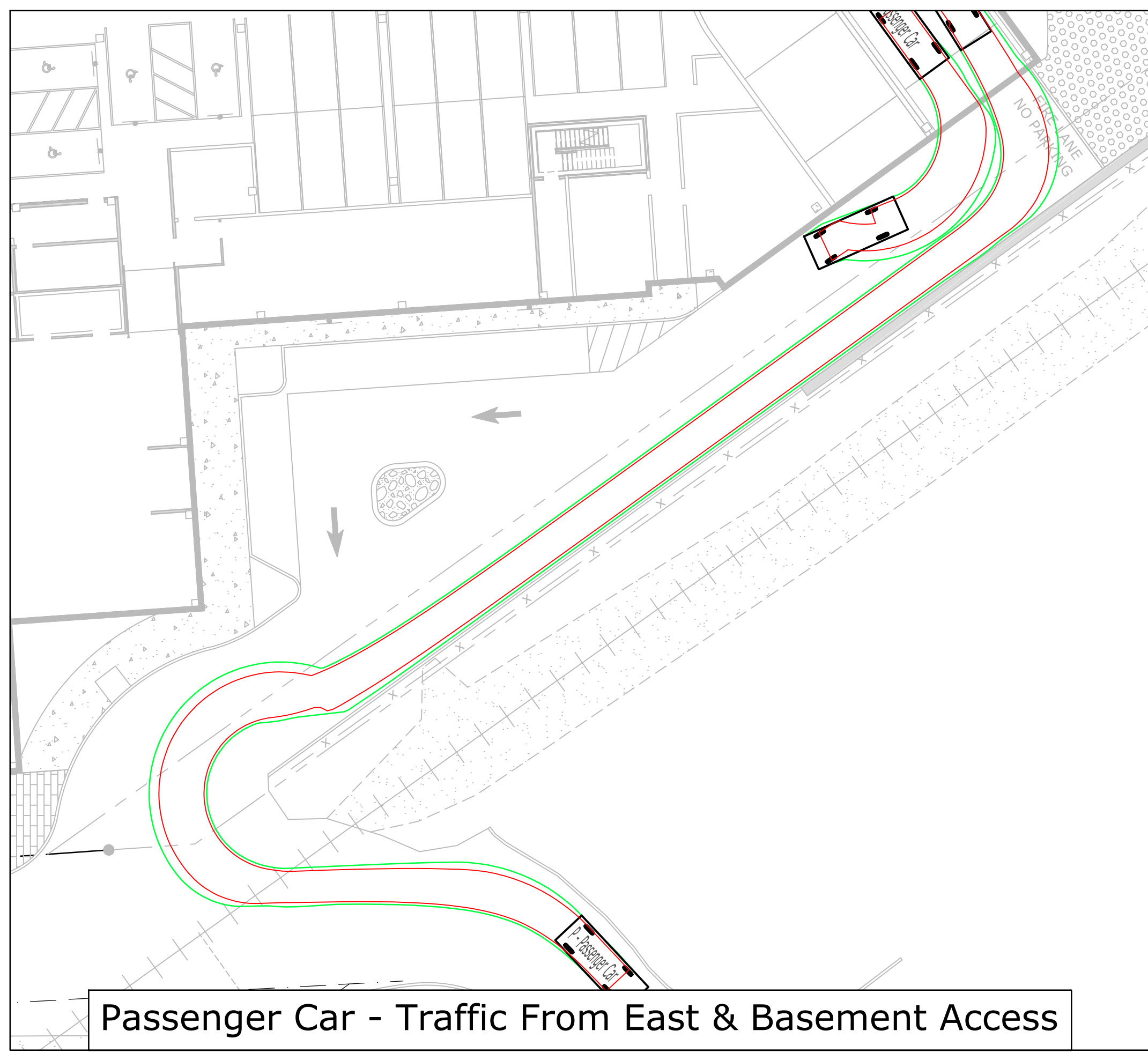
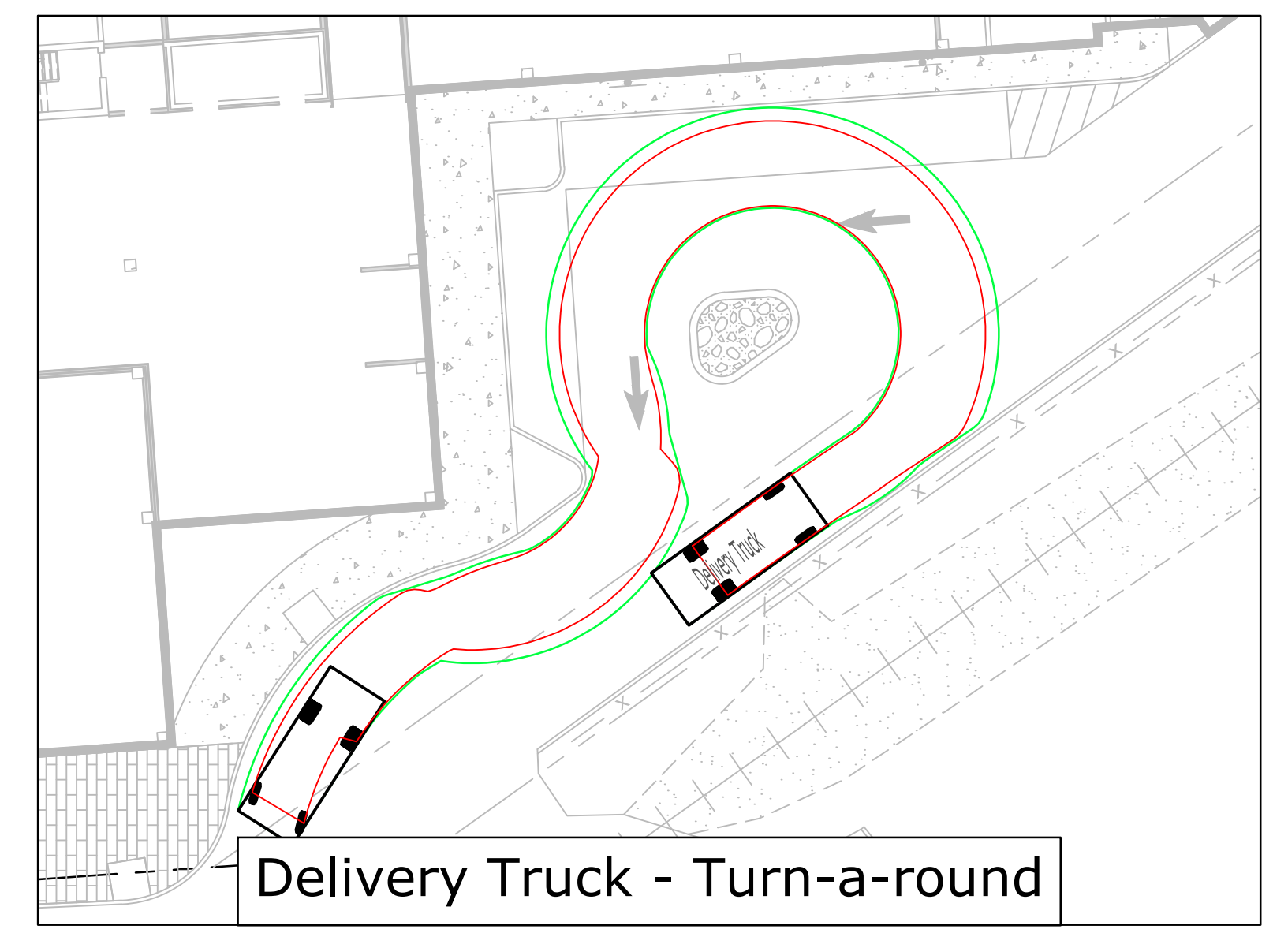
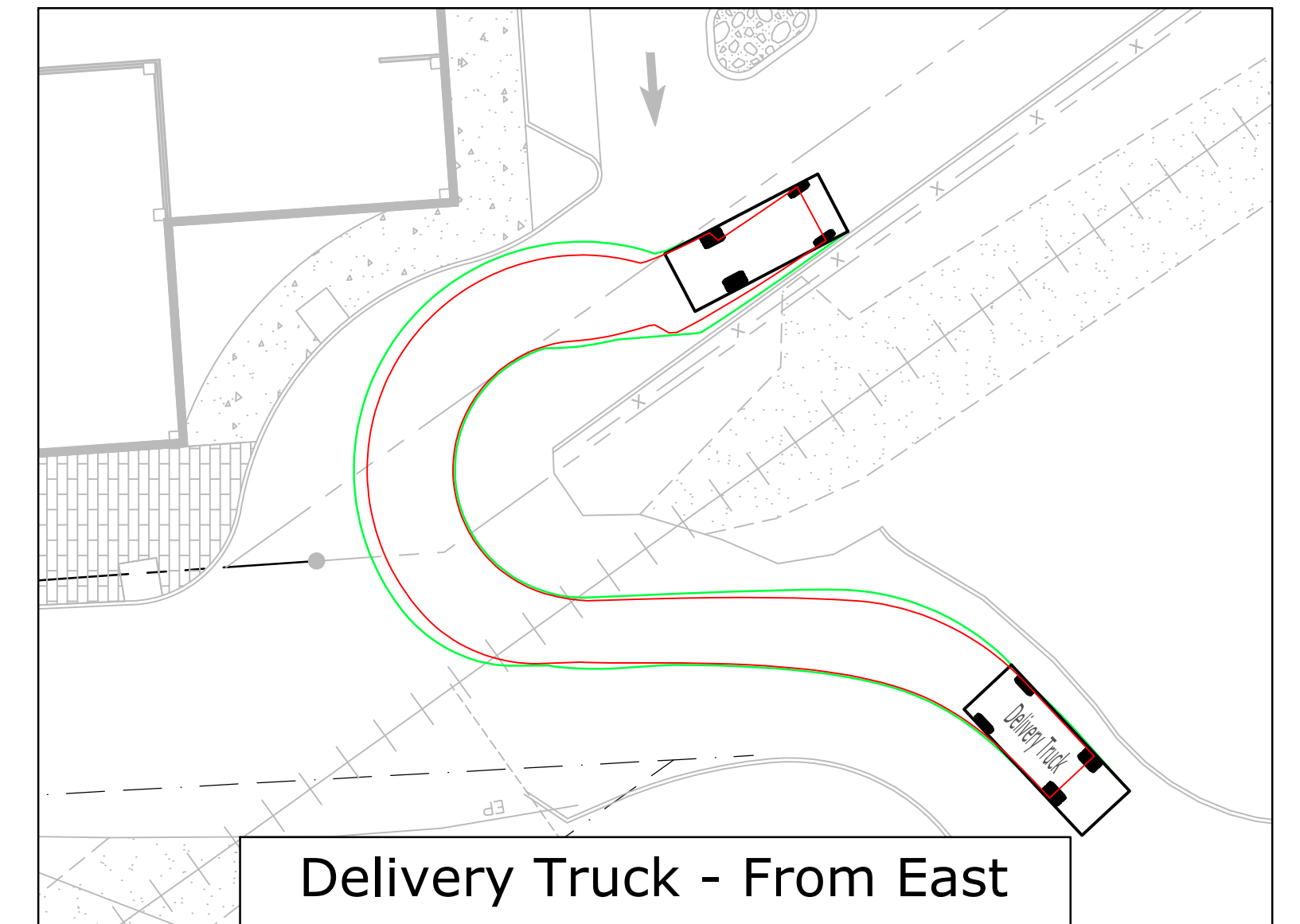
- LEGEND**
- VEHICLE WHEEL BASE
 - VEHICLE OVERHANG
 - VEHICLE WHEEL BASE (REVERSE)
 - VEHICLE OVERHANG (REVERSE)



Delivery Truck
 Overall Length 22.600ft
 Overall Width 8.500ft
 Overall Body Height 13.500ft
 Min Body Ground Clearance 1.367ft
 Track Width 8.000ft
 Lock-to-lock time 5.00s
 Max Steering Angle (Virtual) 31.80°

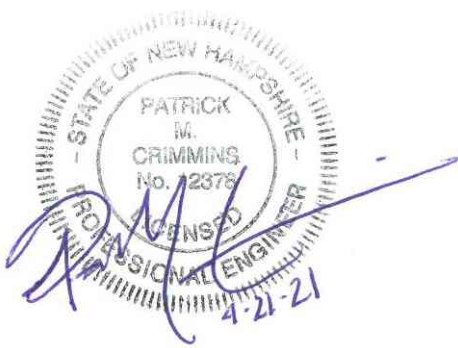


P - Passenger Car
 Overall Length 19.000ft
 Overall Width 7.000ft
 Overall Body Height 4.300ft
 Min Body Ground Clearance 1.115ft
 Track Width 6.000ft
 Lock-to-lock time 4.00s
 Max Steering Angle (Virtual) 31.60°



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Tighe & Bond

Proposed Mixed-Use Development
53 Green Street
Portsmouth, NH

Drainage Analysis

Prepared For:
CPI Management, LLC
100 Summer Street
Boston, Massachusetts 02110

April 21, 2021

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Appendices

A Site Specific Soils Report
B Extreme Precipitation Tables
C “Examination of Thermal Impacts from Stormwater BMPs”, By The University of
New Hampshire Stormwater Center

Section 1

Project Description

The proposed project is located at 53 Green Street in Portsmouth and is identified as Map 119, Lot 2 on the City of Portsmouth's Tax Maps. This parcel is approximately 1.65 acres. As part of this project, this parcel will acquire a portion of the adjacent lot that contains the rail line, identified as Tax Map 119 Lot 3. This will result in a total acreage of approximately 1.77 acres for the proposed parcel. The parcel is bounded to the north and west by North Mill Pond, to the south by an adjacent parcel, and to the east by Green Street and the Boston and Maine (B&M) railroad.

The lot is currently occupied by two (2) single-story commercial tenant buildings, which total approximately 21,000 square feet, and associated parking. The lot is predominantly impervious and has a maintained lawn area along the North Mill Pond shoreline. There is an existing utility easement on the north corner of the parcel which contains a utility tower with overhead wire connections, not directly associated with the site.

The proposed project includes the demolition of the two existing single-story structures and construction of a single five story mixed-use building. The project will include associated site improvements that consist of below grade parking, utilities, stormwater management and treatment, landscaping, lighting, and a public recreation trail in coordination with the City. Additionally, the land associated with the public recreation trail will be deeded to the City of Portsmouth and designated as community space for the City's North Mill Pond Trail project.

1.1 On-Site Soil Description

The site is a highly disturbed site along the North Mill Pond. The property shows evidence of what appears to be very old filling and grading associated with the existing development. The site consists of terrain that is generally flat and slopes from the south to the north to North Mill Pond. The existing property has an approximate high point of elevation of 14 near Green Street

A site specific soils survey was conducted by Leonard Lord, PhD, CSS, CWS of Tighe & Bond, Inc and can be found in Appendix A of this Report. Based on the soil survey, the runoff analyzed within these studies has been modeled using mostly Hydrologic Soil Group B soils and some portions of Hydrologic Soil Group C soils, as much of the site is comprised of Udorthents with two drainage classifications, moderately poorly drained soils and portions of well drained soils.

1.2 Pre- and Post-Development Comparison

The pre-development and post-development watershed areas have been analyzed at a single point of analysis. While the point of analysis remained unchanged, its contributing sub-catchment areas varied between pre-development and post-development conditions. These adjustments were made to reflect the differences in drainage patterns between the existing and proposed conditions. The overall area analyzed as part of this drainage analysis was held constant. For reference, PA-1 assesses flows that discharge directly to North Mill Pond via overland flow or various outlets.

Since North Mill Pond is a tidal water, NHDES does not require peak runoff control requirements to be met (Env-Wq 1507.06(d)). However, a Stormtech Isolator Row and detention system is proposed on the development site for the purpose of mitigating temperature differences between the stormwater runoff and the North Mill Pond.

1.3 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. The peak discharge rates were determined by analyzing Type III 24-hour storm events. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% added factor of safety as required by Env-Wq 1503.08(l).

Table 1.2: Extreme Precipitation Estimates (NRCC)

YEAR	24-hr Estimate (inches)	+ 15% (inches)
2	3.20	3.68
10	4.86	5.59
25	6.16	7.08
50	7.37	8.48

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

Section 2

Pre-Development Conditions

In order to analyze the pre-development condition, the site has been divided into one (1) watershed area modeled at one (1) point of analysis. This point of analysis and watershed are depicted on the plan entitled "Pre-Development Watershed Plan", Sheets C-801.

The point of analysis and its contributing watershed area is described below:

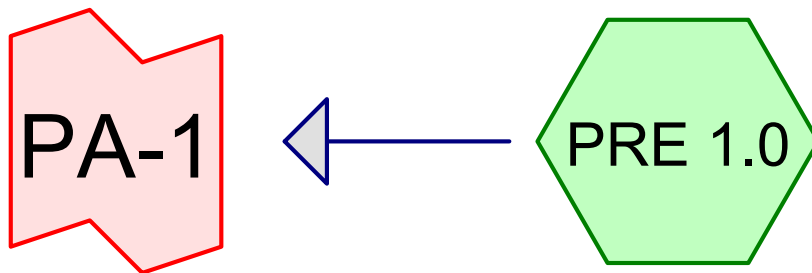
Point of Analysis (PA-1)

Point of Analysis 1 (PA-1) is the North Mill Pond which borders the northwest boundary of the site. The North Mill Pond is a tidal wetland which directly feeds into the Piscataqua River.

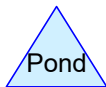
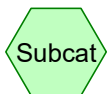
Pre-development Watershed 1.0 (PRE 1.0) is the single watershed analyzed in the pre-development condition. It is comprised of mostly impervious surfaces including paved parking and structures, disturbed forested areas to the north and west adjacent to the North Mill Pond shoreline and a maintained lawn between the building and shoreline. Runoff from this watershed area travels via overland flow to discharge into North Mill Pond. The runoff is currently untreated before discharge.

2.1 Pre-Development Calculations

2.2 Pre-Development Watershed Plans



POINT OF ANALYSIS 1



C0960-011 PRE

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
26,605	61	>75% Grass cover, Good, HSG B (PRE 1.0)
2,659	74	>75% Grass cover, Good, HSG C (PRE 1.0)
23,291	98	Paved parking, HSG B (PRE 1.0)
21,715	98	Roofs, HSG B (PRE 1.0)
4,041	55	Woods, Good, HSG B (PRE 1.0)
78,311	82	TOTAL AREA

C0960-011 PRE

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Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
75,652	HSG B	PRE 1.0
2,659	HSG C	PRE 1.0
0	HSG D	
0	Other	
78,311		TOTAL AREA

C0960-011 PRE

Type III 24-hr 2 Year Storm Rainfall=3.68"

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Page 4

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0:

Runoff Area=78,311 sf 57.47% Impervious Runoff Depth=1.93"
Flow Length=380' Tc=5.0 min CN=82 Runoff=4.17 cfs 12,610 cf

Link PA-1: POINT OF ANALYSIS1

Inflow=4.17 cfs 12,610 cf
Primary=4.17 cfs 12,610 cf

Total Runoff Area = 78,311 sf Runoff Volume = 12,610 cf Average Runoff Depth = 1.93"
42.53% Pervious = 33,305 sf 57.47% Impervious = 45,006 sf

C0960-011 PRE

Type III 24-hr 10 Year Storm Rainfall=5.59"

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Page 5

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0:

Runoff Area=78,311 sf 57.47% Impervious Runoff Depth=3.61"
Flow Length=380' Tc=5.0 min CN=82 Runoff=7.74 cfs 23,570 cf

Link PA-1: POINT OF ANALYSIS1

Inflow=7.74 cfs 23,570 cf
Primary=7.74 cfs 23,570 cf

Total Runoff Area = 78,311 sf Runoff Volume = 23,570 cf Average Runoff Depth = 3.61"
42.53% Pervious = 33,305 sf 57.47% Impervious = 45,006 sf

Summary for Subcatchment PRE 1.0:

Runoff = 7.74 cfs @ 12.08 hrs, Volume= 23,570 cf, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
21,715	98	Roofs, HSG B
23,291	98	Paved parking, HSG B
26,605	61	>75% Grass cover, Good, HSG B
4,041	55	Woods, Good, HSG B
2,659	74	>75% Grass cover, Good, HSG C
78,311	82	Weighted Average
33,305		42.53% Pervious Area
45,006		57.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0330	1.80		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.9	223	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	57	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.5	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Link PA-1: POINT OF ANALYSIS 1

Inflow Area = 78,311 sf, 57.47% Impervious, Inflow Depth = 3.61" for 10 Year Storm event
 Inflow = 7.74 cfs @ 12.08 hrs, Volume= 23,570 cf
 Primary = 7.74 cfs @ 12.08 hrs, Volume= 23,570 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

C0960-011 PRE

Type III 24-hr 25 Year Storm Rainfall=7.08"

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Page 1

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0:

Runoff Area=78,311 sf 57.47% Impervious Runoff Depth=4.99"
Flow Length=380' Tc=5.0 min CN=82 Runoff=10.58 cfs 32,572 cf

Link PA-1: POINT OF ANALYSIS1

Inflow=10.58 cfs 32,572 cf
Primary=10.58 cfs 32,572 cf

Total Runoff Area = 78,311 sf Runoff Volume = 32,572 cf Average Runoff Depth = 4.99"
42.53% Pervious = 33,305 sf 57.47% Impervious = 45,006 sf

C0960-011 PRE

Type III 24-hr 50 Year Storm Rainfall=8.48"

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Page 2

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

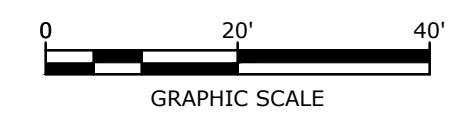
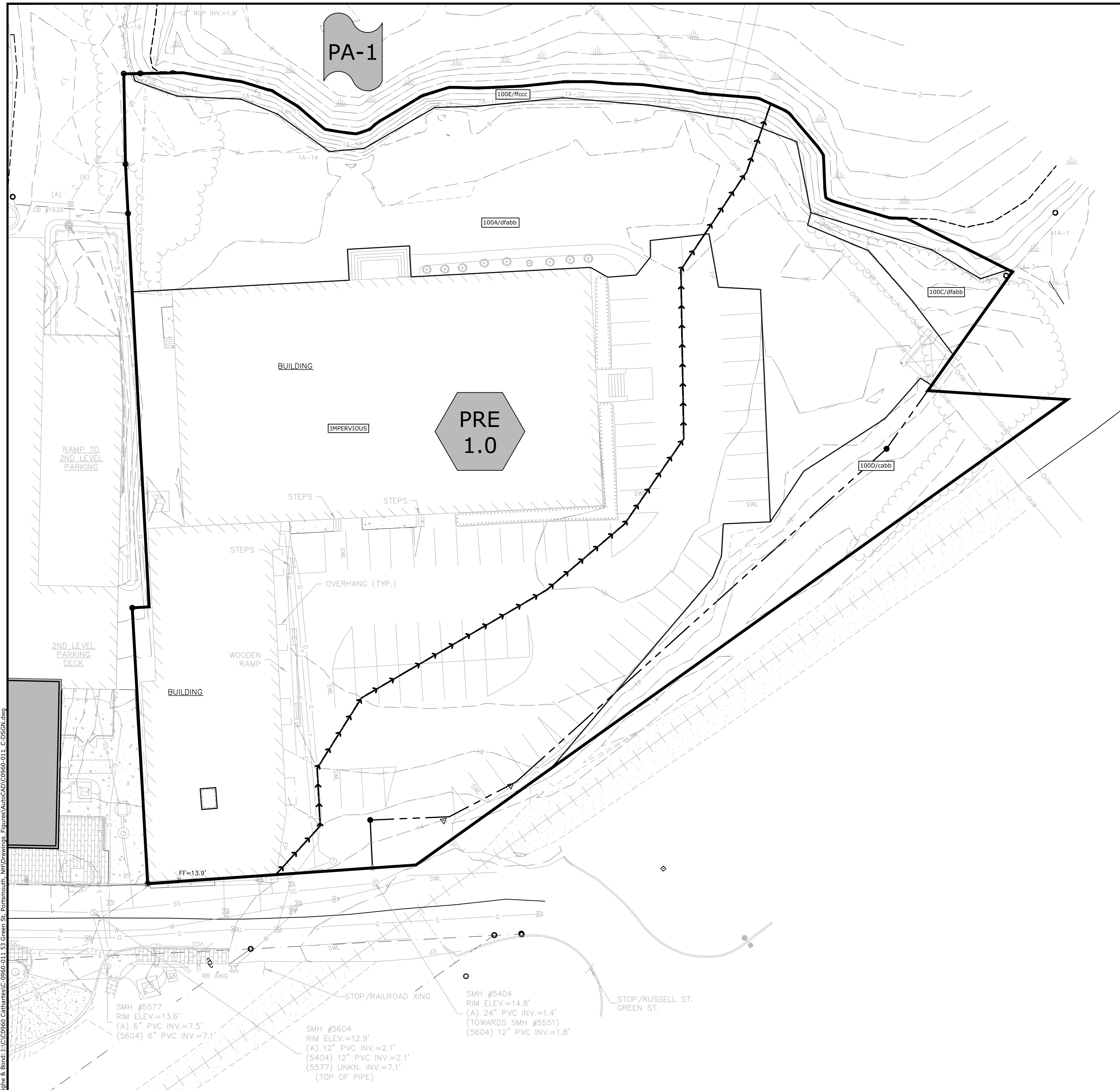
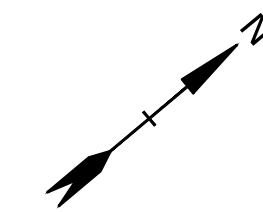
SubcatchmentPRE 1.0:

Runoff Area=78,311 sf 57.47% Impervious Runoff Depth=6.32"
Flow Length=380' Tc=5.0 min CN=82 Runoff=13.25 cfs 41,222 cf

Link PA-1: POINT OF ANALYSIS1

Inflow=13.25 cfs 41,222 cf
Primary=13.25 cfs 41,222 cf

Total Runoff Area = 78,311 sf Runoff Volume = 41,222 cf Average Runoff Depth = 6.32"
42.53% Pervious = 33,305 sf 57.47% Impervious = 45,006 sf


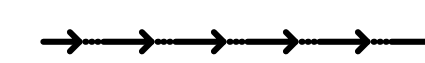

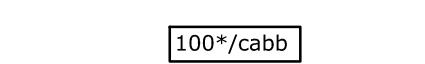
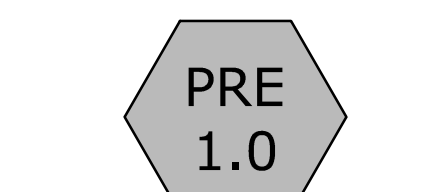
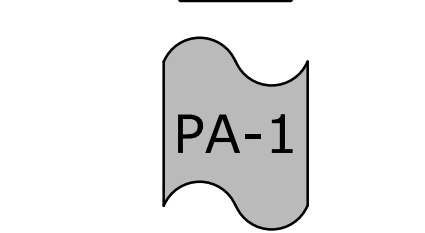


Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

LEGEND

-  PRE-DEVELOPMENT WATERSHED BOUNDARY
-  LONGEST FLOW PATH
-  SOIL TYPE BOUNDARY
-  SOIL TYPE (SEE SITE SPECIFIC SOIL MAP)
-  PRE DEVELOPMENT WATERSHED AREA DESIGNATION
-  POINT OF ANALYSIS

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 Tighe & Bond 2310 Copied Calendars\C0960-011_53 Green St. Portsmouth, NH Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg

B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session
MARK	DATE	DESCRIPTION
PROJECT NO:	C0960-011	
DATE:	January 27, 2021	
FILE:	C0960-011_C-DSGN.DWG	
DRAWN BY:	AFS	
CHECKED:	NAH/PMC	
APPROVED:	BLM	

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

Section 3

Post-Development Conditions

The post-development condition was analyzed by dividing the watersheds into five (5) watershed areas. Stormwater runoff from these sub-catchments predominantly flows via subsurface drainage systems prior to discharging into North Mill Pond (PA-1). A negligible amount of runoff from the sidewalk along Green Street will sheet flow into the City's closed drainage system due to the existing grades of the street sloping away from the site. The City's drainage system eventually discharges into North Mill Pond (PA-1), and, therefore, has been included in the single point of analysis.

A Stormtech Isolator Row and detention system is included on the development site for the purpose of mitigating temperature differences between the stormwater runoff and the North Mill Pond. This system and outlet structure have been designed to mitigate temperature of the water quality volume (WQV). Runoff that exceeds this volume will utilize an overflow and discharge into North Mill Pond (PA-1). This detention basin is used to mitigate increased temperature of the initial surface runoff, based on data provided in a publication by the University of New Hampshire Stormwater Center (UNHSC), titled "Examination of Thermal Impacts from Stormwater BMPs" and can be found in Appendix C. Due to this system being included in the design, post-development flows from the site have been reduced from the pre-development condition. As previously described, North Mill Pond is a tidal water, therefore, NHDES does not require peak runoff control requirements to be met (per Env-Wq 1507.06(d)).

The point of analysis and sub-catchment areas are depicted on the plan entitled "Post-Development Watershed Plan," Sheet C-802. The points of analysis and its contributing watershed areas are described below:

Point of Analysis (PA-1)

Point of Analysis 1 (PA-1), North Mill Pond, has the same overall contributing area as in the pre-development condition. PA-1 includes an underground detention basin, which is designed to detain the water quality volume of the paved surface runoff. Additional impervious surface runoff will be collected and filtered prior to discharging into the North Mill Pond.

Post-development Watershed 1.1 (POST-1.1) is approximately 74% impervious surface of either pavement or concrete surface. The area includes in the site access driveway and entrance turnaround. The pervious portion of this watershed includes a porous grass paver section intended for emergency use for fire truck access. Additional pervious areas that contribute to this watershed include a small amount of landscaped areas along the building façade. The stormwater runoff created from this area is collected via offline deep-sump and hooded catch basins and conveyed via a closed drainage system to the underground stormtech chamber system (POND-1). The detention basin is equipped with an isolator row as recommended by the UNHSC publication and is lined due to high seasonal high water table in the area. The system is underdrained and treatment is attained post detention by use of a proprietary membrane filtration treatment device identified as Jellyfish Filter 1 (JF-1). All collected runoff from this catchment is discharged into the North Mill Pond (PA-1).

Post-development Watershed 1.2 (POST-1.2) is 100% impervious roof surface that is collected via internal building plumbing system and conveyed via piping to a proprietary membrane filtration treatment device identified as Jellyfish Filter 1 (JF-1). The treated runoff eventually discharges into North Mill Pond (PA-1).

Post-development Watershed 1.3 (POST-1.3) is the connection path for public access to the public recreation trail along the shoreline. The area is approximately 45% impervious surface and consists of landscaping and grassed lawn areas in the post-development condition. The runoff associated with this area is captured via yard drains and is conveyed via piping to a proprietary membrane filtration treatment device identified as Jellyfish Filter 1 (JF-1). The treated runoff eventually discharges into North Mill Pond (PA-1).

Post-development Watershed 1.4 (POST-1.4) is 100% pervious surface. The area consists mostly of lawn, wooded, and landscaped areas. Runoff from this area remains similar to existing conditions and flows overland and discharges into the North Mill Pond.

Post-development Watershed 1.5 (POST-1.5) is 100% impervious sidewalk surface and flows overland onto Green Street. This subcatchment represents a proposed city sidewalk which flows onto the city street for collection. The closed drainage system associated with Green Street eventually discharges into North Mill Pond (PA-1).

Post-development Watershed 1.6 (POST-1.6) includes a city recreation trail which the city requested that be porous pavement, as not to increase impervious area so close to the waterfront. The runoff associated with this area flows overland and is captured and treated by the porous pavement section and is conveyed via piping to discharge into North Mill Pond.

3.1 Peak Rate Comparison

The following table summarizes and compares the pre- and post-development peak runoff rates for the 2-year, 10-year, 25-year and 50-year storm events at each point of analysis. Though peak flow mitigation is not required, the following table is provided for reference.

Point of Analysis	Pre/ Post 2-Year Storm (cfs)	Pre/ Post 10-Year Storm (cfs)	Pre/ Post 25-Year Storm (cfs)	Pre/ Post 50-Year Storm (cfs)
PA1	4.17/ 3.35	7.74/ 5.68	10.58/ 8.38	13.25/ 10.87

3.2 Post-Development Calculations

3.3 Post-Development Watershed Plans

Section 4

Stormwater Treatment

The stormwater management system has been designed to provide stormwater treatment as required by the City of Portsmouth Site Review Regulations and NHDES AoT Regulations (Env-Wq 1500).

4.1 Pre-Treatment Methods for Protecting Water Quality

Pre-treatment for the stormwater that is collected on-site is pretreated through use of offline deep-sump and hooded catch basins .

4.2 Treatment Methods for Protecting Water Quality

The runoff from proposed impervious areas will be treated by a Contech Jellyfish stormwater filtration system. The Jellyfish system is sized to treat the Water Quality Flow from the contributing subcatchment areas. The system is outfitted with an internal bypass that diverts peak flows away from treatment. The BMP worksheet for this practice has been included in Section 5 of this report.

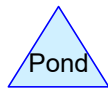
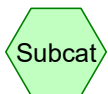
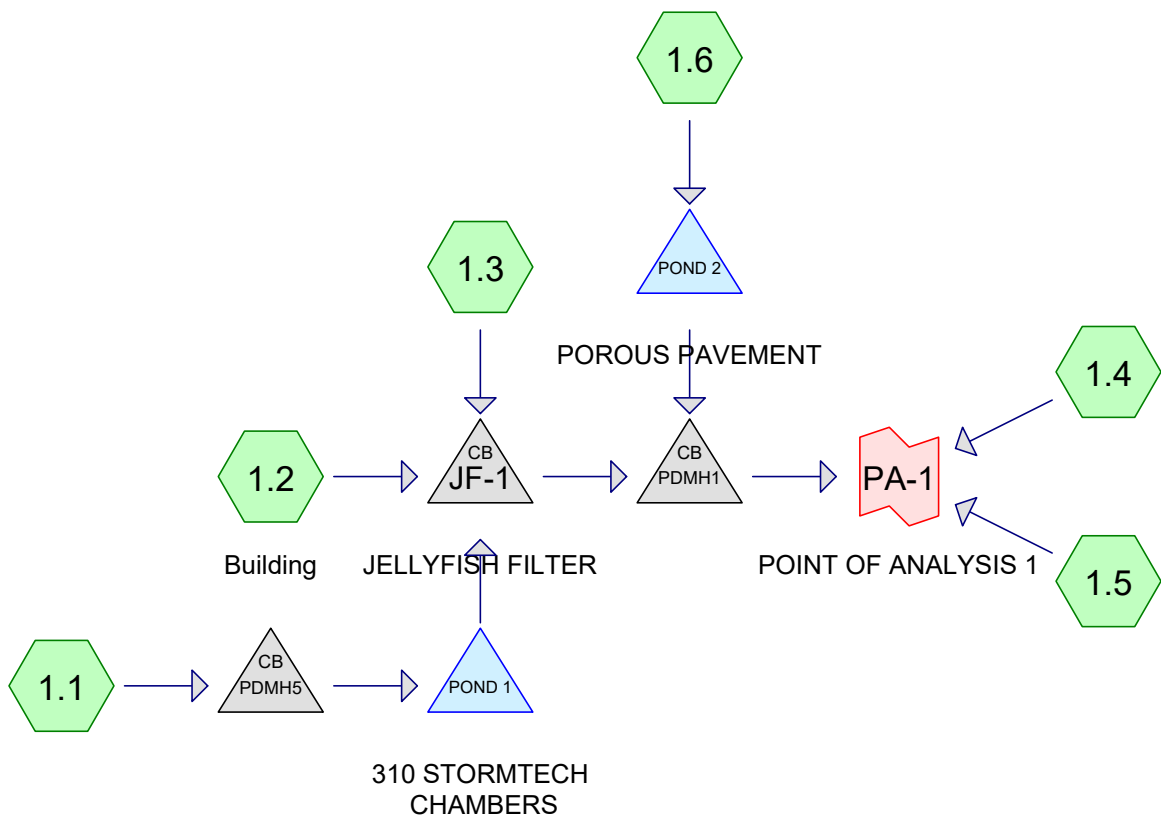
The multiuse path along the North Mill Pond will be constructed as porous pavement with and underdrain. The underdrain will discharge to the onsite closed drainage system prior to discharging to the Pond.

BMP	Total Suspended Solids	Total Nitrogen	Total Phosphorus
Jellyfish Filter w/Pretreatment ¹	91%	53%	61%
Porous Pavement w/Underdrain ²	90%	10%	45%

1. Pollutant removal calculations for Jellyfish Filter with deep sump catch basin pretreatment shown in Table 4.2.
2. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.

Table 4.2 – Pollutant Removal Calculations				
Contech Jellyfish Filter				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
Deep Sump Catchbasin w/Hood ¹	0.15	1.00	0.15	0.85
Jellyfish Filter ²	0.89	0.85	0.76	0.09
Total Suspended Solids Removed:				91%
	TN Removal Rate	Starting TN Load	TN Removed	Remaining TN Load
Deep Sump Catchbasin w/Hood ¹	0.05	1.00	0.05	0.95
Jellyfish Filter ²	0.51	0.95	0.48	0.47
Total Nitrogen Removed:				53%
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
Deep Sump Catchbasin w/Hood ¹	0.05	1.00	0.05	0.95
Jellyfish Filter ²	0.59	0.95	0.56	0.39
Total Phosphorus Removed:				61%

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix E.
2. Pollutant removal efficiencies from Contech Engineered Solutions, Jellyfish Filter Stormwater Treatment performance testing results.



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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
26,191	61	>75% Grass cover, Good, HSG B (1.1, 1.3, 1.4, 1.6)
2,659	74	>75% Grass cover, Good, HSG C (1.4)
14,240	98	Paved parking, HSG B (1.1, 1.3, 1.5, 1.6)
3,421	98	Porous Paved Path, HSG B (1.6)
29,373	98	Roofs, HSG B (1.2)
1,427	55	Woods, Good, HSG B (1.4)
77,311	84	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
74,652	HSG B	1.1, 1.2, 1.3, 1.4, 1.5, 1.6
2,659	HSG C	1.4
0	HSG D	
0	Other	
77,311		TOTAL AREA

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Type III 24-hr 2 Year Storm Rainfall=3.68"

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Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1:	Runoff Area=13,620 sf 74.19% Impervious Runoff Depth=2.43" Tc=5.0 min CN=88 Runoff=0.91 cfs 2,762 cf
Subcatchment 1.2: Building	Runoff Area=29,373 sf 100.00% Impervious Runoff Depth=3.45" Tc=5.0 min CN=98 Runoff=2.47 cfs 8,435 cf
Subcatchment 1.3:	Runoff Area=5,929 sf 44.53% Impervious Runoff Depth=1.57" Tc=5.0 min CN=77 Runoff=0.25 cfs 774 cf
Subcatchment 1.4:	Runoff Area=16,182 sf 0.00% Impervious Runoff Depth=0.75" Tc=5.0 min CN=63 Runoff=0.27 cfs 1,010 cf
Subcatchment 1.5:	Runoff Area=1,145 sf 100.00% Impervious Runoff Depth=3.45" Tc=5.0 min CN=98 Runoff=0.10 cfs 329 cf
Subcatchment 1.6:	Runoff Area=11,062 sf 34.09% Impervious Runoff Depth=1.37" Tc=5.0 min CN=74 Runoff=0.41 cfs 1,259 cf
Pond JF-1: JELLYFISH FILTER	Peak Elev=7.41' Inflow=2.98 cfs 11,970 cf 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=2.98 cfs 11,970 cf
Pond PDMH1:	Peak Elev=7.03' Inflow=2.98 cfs 12,538 cf 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=2.98 cfs 12,538 cf
Pond PDMH5:	Peak Elev=7.92' Inflow=0.91 cfs 2,762 cf 12.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=0.91 cfs 2,762 cf
Pond POND 1: 310 STORMTECH CHAMBERS	Peak Elev=7.61' Storage=506 cf Inflow=0.91 cfs 2,762 cf Outflow=0.60 cfs 2,761 cf
Pond POND 2: POROUS PAVEMENT	Peak Elev=6.53' Storage=806 cf Inflow=0.41 cfs 1,259 cf Outflow=0.02 cfs 569 cf
Link PA-1: POINT OF ANALYSIS 1	Inflow=3.35 cfs 13,877 cf Primary=3.35 cfs 13,877 cf

Total Runoff Area = 77,311 sf Runoff Volume = 14,568 cf Average Runoff Depth = 2.26"
39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf

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Type III 24-hr 10 Year Storm Rainfall=5.59"

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Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=13,620 sf 74.19% Impervious Runoff Depth=4.23"
 Tc=5.0 min CN=88 Runoff=1.54 cfs 4,803 cf

Subcatchment 1.2: Building Runoff Area=29,373 sf 100.00% Impervious Runoff Depth=5.35"
 Tc=5.0 min CN=98 Runoff=3.77 cfs 13,101 cf

Subcatchment 1.3: Runoff Area=5,929 sf 44.53% Impervious Runoff Depth=3.12"
 Tc=5.0 min CN=77 Runoff=0.51 cfs 1,543 cf

Subcatchment 1.4: Runoff Area=16,182 sf 0.00% Impervious Runoff Depth=1.89"
 Tc=5.0 min CN=63 Runoff=0.81 cfs 2,555 cf

Subcatchment 1.5: Runoff Area=1,145 sf 100.00% Impervious Runoff Depth=5.35"
 Tc=5.0 min CN=98 Runoff=0.15 cfs 511 cf

Subcatchment 1.6: Runoff Area=11,062 sf 34.09% Impervious Runoff Depth=2.84"
 Tc=5.0 min CN=74 Runoff=0.87 cfs 2,621 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=7.70' Inflow=4.73 cfs 19,447 cf
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=4.73 cfs 19,447 cf

Pond PDMH1: Peak Elev=7.29' Inflow=4.73 cfs 21,378 cf
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=4.73 cfs 21,378 cf

Pond PDMH5: Peak Elev=8.26' Inflow=1.54 cfs 4,803 cf
 12.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=1.54 cfs 4,803 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=8.18' Storage=886 cf Inflow=1.54 cfs 4,803 cf
 Outflow=1.07 cfs 4,803 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=6.89' Storage=1,297 cf Inflow=0.87 cfs 2,621 cf
 Outflow=0.29 cfs 1,931 cf

Link PA-1: POINT OF ANALYSIS 1 Inflow=5.68 cfs 24,444 cf
 Primary=5.68 cfs 24,444 cf

Total Runoff Area = 77,311 sf Runoff Volume = 25,135 cf Average Runoff Depth = 3.90"
39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf

Summary for Subcatchment 1.1:

Runoff = 1.54 cfs @ 12.07 hrs, Volume= 4,803 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
10,105	98	Paved parking, HSG B
3,515	61	>75% Grass cover, Good, HSG B
13,620	88	Weighted Average
3,515		25.81% Pervious Area
10,105		74.19% Impervious Area

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

Summary for Subcatchment 1.2: Building

Runoff = 3.77 cfs @ 12.07 hrs, Volume= 13,101 cf, Depth= 5.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
29,373	98	Roofs, HSG B
29,373		100.00% Impervious Area

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

Summary for Subcatchment 1.3:

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 1,543 cf, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
2,640	98	Paved parking, HSG B
3,289	61	>75% Grass cover, Good, HSG B
5,929	77	Weighted Average
3,289		55.47% Pervious Area
2,640		44.53% Impervious Area

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Type III 24-hr 10 Year Storm Rainfall=5.59"

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

Summary for Subcatchment 1.4:

Runoff = 0.81 cfs @ 12.08 hrs, Volume= 2,555 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
12,096	61	>75% Grass cover, Good, HSG B
1,427	55	Woods, Good, HSG B
2,659	74	>75% Grass cover, Good, HSG C
16,182	63	Weighted Average
16,182		100.00% Pervious Area

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

Summary for Subcatchment 1.5:

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 511 cf, Depth= 5.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
1,145	98	Paved parking, HSG B
1,145		100.00% Impervious Area

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

Summary for Subcatchment 1.6:

Runoff = 0.87 cfs @ 12.08 hrs, Volume= 2,621 cf, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

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Type III 24-hr 10 Year Storm Rainfall=5.59"

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Area (sf)	CN	Description
350	98	Paved parking, HSG B
7,291	61	>75% Grass cover, Good, HSG B
* 3,421	98	Porous Paved Path, HSG B
11,062	74	Weighted Average
7,291		65.91% Pervious Area
3,771		34.09% Impervious Area

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

Summary for Pond JF-1: JELLYFISH FILTER

Inflow Area = 48,922 sf, 86.09% Impervious, Inflow Depth = 4.77" for 10 Year Storm event
 Inflow = 4.73 cfs @ 12.08 hrs, Volume= 19,447 cf
 Outflow = 4.73 cfs @ 12.08 hrs, Volume= 19,447 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.73 cfs @ 12.08 hrs, Volume= 19,447 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
 Peak Elev= 7.70' @ 12.08 hrs
 Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.45'	24.0" Round Culvert L= 70.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.45' / 6.15' S= 0.0043 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=4.75 cfs @ 12.08 hrs HW=7.70' TW=7.29' (Dynamic Tailwater)
 ↳ **1=Culvert** (Outlet Controls 4.75 cfs @ 3.29 fps)

Summary for Pond PDMH1:

[80] Warning: Exceeded Pond POND 2 by 0.84' @ 12.04 hrs (0.69 cfs 1,147 cf)

Inflow Area = 59,984 sf, 76.50% Impervious, Inflow Depth = 4.28" for 10 Year Storm event
 Inflow = 4.73 cfs @ 12.08 hrs, Volume= 21,378 cf
 Outflow = 4.73 cfs @ 12.08 hrs, Volume= 21,378 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.73 cfs @ 12.08 hrs, Volume= 21,378 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
 Peak Elev= 7.29' @ 12.08 hrs
 Flood Elev= 10.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.15'	24.0" Round Culvert L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.15' / 6.10' S= 0.0071 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=4.72 cfs @ 12.08 hrs HW=7.29' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 4.72 cfs @ 3.67 fps)

Summary for Pond PDMH5:

Inflow Area = 13,620 sf, 74.19% Impervious, Inflow Depth = 4.23" for 10 Year Storm event
 Inflow = 1.54 cfs @ 12.07 hrs, Volume= 4,803 cf
 Outflow = 1.54 cfs @ 12.07 hrs, Volume= 4,803 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.54 cfs @ 12.07 hrs, Volume= 4,803 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2

Peak Elev= 8.26' @ 12.15 hrs

Flood Elev= 11.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.30'	12.0" Round Culvert L= 2.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 7.30' / 7.30' S= 0.0000 '/ Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.52 cfs @ 12.07 hrs HW=8.13' TW=7.88' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 1.52 cfs @ 2.94 fps)

Summary for Pond POND 1: 310 STORMTECH CHAMBERS

Exfiltration Rate derived from Site Specific Soil Survey report which compares existing soil classification to Sutton Soil HSG-B, which has a low Hydraulic conductivity rate of 0.6 in/hr, per NHDES regulations shall be modeling as 0.3 in/hr.

Inflow Area = 13,620 sf, 74.19% Impervious, Inflow Depth = 4.23" for 10 Year Storm event
 Inflow = 1.54 cfs @ 12.07 hrs, Volume= 4,803 cf
 Outflow = 1.07 cfs @ 12.17 hrs, Volume= 4,803 cf, Atten= 31%, Lag= 5.9 min
 Primary = 1.07 cfs @ 12.17 hrs, Volume= 4,803 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2

Peak Elev= 8.18' @ 12.17 hrs Surf.Area= 998 sf Storage= 886 cf

Flood Elev= 9.36' Surf.Area= 998 sf Storage= 1,250 cf

Plug-Flow detention time= 16.5 min calculated for 4,799 cf (100% of inflow)

Center-of-Mass det. time= 16.7 min (809.7 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	6.70'	719 cf	14.83'W x 67.28'L x 2.33'H Field A 2,329 cf Overall - 531 cf Embedded = 1,798 cf x 40.0% Voids
#2A	7.20'	531 cf	ADS_StormTech SC-310 +Cap x 36 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 4 Rows of 9 Chambers
		1,250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.40'	15.0" Round Culvert L= 12.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.40' / 6.30' S= 0.0083 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	6.70'	6.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	8.10'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 3	7.20'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.04 cfs @ 12.17 hrs HW=8.17' TW=7.50' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 1.04 cfs of 4.84 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.77 cfs @ 3.95 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.89 fps)
- ↑ **4=Orifice/Grate** (Passes 0.26 cfs of 1.02 cfs potential flow)

Summary for Pond POND 2: POROUS PAVEMENT

Inflow Area = 11,062 sf, 34.09% Impervious, Inflow Depth = 2.84" for 10 Year Storm event
 Inflow = 0.87 cfs @ 12.08 hrs, Volume= 2,621 cf
 Outflow = 0.29 cfs @ 12.57 hrs, Volume= 1,931 cf, Atten= 67%, Lag= 29.7 min
 Primary = 0.29 cfs @ 12.57 hrs, Volume= 1,931 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
 Peak Elev= 6.89' @ 12.47 hrs Surf.Area= 3,421 sf Storage= 1,297 cf
 Flood Elev= 9.35' Surf.Area= 3,421 sf Storage= 3,017 cf

Plug-Flow detention time= 204.2 min calculated for 1,929 cf (74% of inflow)
 Center-of-Mass det. time= 114.0 min (945.2 - 831.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	5.94'	3,017 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.94	3,421	0.0	0	0
7.52	3,421	40.0	2,162	2,162
8.52	3,421	10.0	342	2,504
9.02	3,421	30.0	513	3,017
9.35	3,421	0.0	0	3,017

Device	Routing	Invert	Outlet Devices
#1	Primary	6.44'	6.0" Vert. Underdrain C= 0.600
#2	Device 1	5.94'	10.000 in/hr Filter Media Infiltration over Surface area

Primary OutFlow Max=0.27 cfs @ 12.57 hrs HW=6.86' TW=6.77' (Dynamic Tailwater)

- ↑ **1=Underdrain** (Orifice Controls 0.27 cfs @ 1.50 fps)
- ↑ **2=Filter Media Infiltration** (Passes 0.27 cfs of 0.79 cfs potential flow)

Summary for Link PA-1: POINT OF ANALYSIS 1

Inflow Area = 77,311 sf, 60.84% Impervious, Inflow Depth = 3.79" for 10 Year Storm event
Inflow = 5.68 cfs @ 12.08 hrs, Volume= 24,444 cf
Primary = 5.68 cfs @ 12.08 hrs, Volume= 24,444 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

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Type III 24-hr 25 Year Storm Rainfall=7.08"

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Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=13,620 sf 74.19% Impervious Runoff Depth=5.67"
 Tc=5.0 min CN=88 Runoff=2.03 cfs 6,437 cf

Subcatchment 1.2: Building Runoff Area=29,373 sf 100.00% Impervious Runoff Depth=6.84"
 Tc=5.0 min CN=98 Runoff=4.78 cfs 16,745 cf

Subcatchment 1.3: Runoff Area=5,929 sf 44.53% Impervious Runoff Depth=4.44"
 Tc=5.0 min CN=77 Runoff=0.72 cfs 2,193 cf

Subcatchment 1.4: Runoff Area=16,182 sf 0.00% Impervious Runoff Depth=2.96"
 Tc=5.0 min CN=63 Runoff=1.30 cfs 3,993 cf

Subcatchment 1.5: Runoff Area=1,145 sf 100.00% Impervious Runoff Depth=6.84"
 Tc=5.0 min CN=98 Runoff=0.19 cfs 653 cf

Subcatchment 1.6: Runoff Area=11,062 sf 34.09% Impervious Runoff Depth=4.11"
 Tc=5.0 min CN=74 Runoff=1.25 cfs 3,790 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=8.02' Inflow=6.91 cfs 25,374 cf
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=6.91 cfs 25,374 cf

Pond PDMH1: Peak Elev=7.57' Inflow=6.91 cfs 28,474 cf
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=6.91 cfs 28,474 cf

Pond PDMH5: Peak Elev=8.57' Inflow=2.03 cfs 6,437 cf
 12.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=2.03 cfs 6,437 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=8.32' Storage=960 cf Inflow=2.03 cfs 6,437 cf
 Outflow=1.93 cfs 6,436 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=7.22' Storage=1,750 cf Inflow=1.25 cfs 3,790 cf
 Outflow=0.50 cfs 3,100 cf

Link PA-1: POINT OF ANALYSIS 1 Inflow=8.38 cfs 33,119 cf
 Primary=8.38 cfs 33,119 cf

Total Runoff Area = 77,311 sf Runoff Volume = 33,810 cf Average Runoff Depth = 5.25"
39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf

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Type III 24-hr 50 Year Storm Rainfall=8.48"

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Page 2

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=13,620 sf 74.19% Impervious Runoff Depth=7.04"
 Tc=5.0 min CN=88 Runoff=2.49 cfs 7,988 cf

Subcatchment 1.2: Building Runoff Area=29,373 sf 100.00% Impervious Runoff Depth=8.24"
 Tc=5.0 min CN=98 Runoff=5.73 cfs 20,169 cf

Subcatchment 1.3: Runoff Area=5,929 sf 44.53% Impervious Runoff Depth=5.72"
 Tc=5.0 min CN=77 Runoff=0.92 cfs 2,824 cf

Subcatchment 1.4: Runoff Area=16,182 sf 0.00% Impervious Runoff Depth=4.05"
 Tc=5.0 min CN=63 Runoff=1.80 cfs 5,461 cf

Subcatchment 1.5: Runoff Area=1,145 sf 100.00% Impervious Runoff Depth=8.24"
 Tc=5.0 min CN=98 Runoff=0.22 cfs 786 cf

Subcatchment 1.6: Runoff Area=11,062 sf 34.09% Impervious Runoff Depth=5.36"
 Tc=5.0 min CN=74 Runoff=1.63 cfs 4,938 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=8.31' Inflow=8.85 cfs 30,981 cf
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=8.85 cfs 30,981 cf

Pond PDMH1: Peak Elev=7.80' Inflow=8.85 cfs 35,229 cf
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=8.85 cfs 35,229 cf

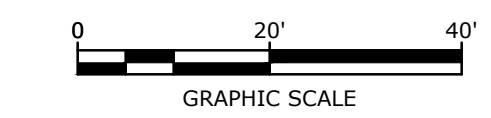
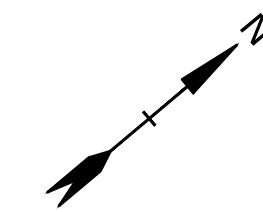
Pond PDMH5: Peak Elev=8.85' Inflow=2.49 cfs 7,988 cf
 12.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=2.49 cfs 7,988 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=8.46' Storage=1,021 cf Inflow=2.49 cfs 7,988 cf
 Outflow=2.33 cfs 7,987 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=7.70' Storage=2,224 cf Inflow=1.63 cfs 4,938 cf
 Outflow=0.68 cfs 4,248 cf

Link PA-1: POINT OF ANALYSIS 1 Inflow=10.87 cfs 41,476 cf
 Primary=10.87 cfs 41,476 cf

Total Runoff Area = 77,311 sf Runoff Volume = 42,167 cf Average Runoff Depth = 6.55"
39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf



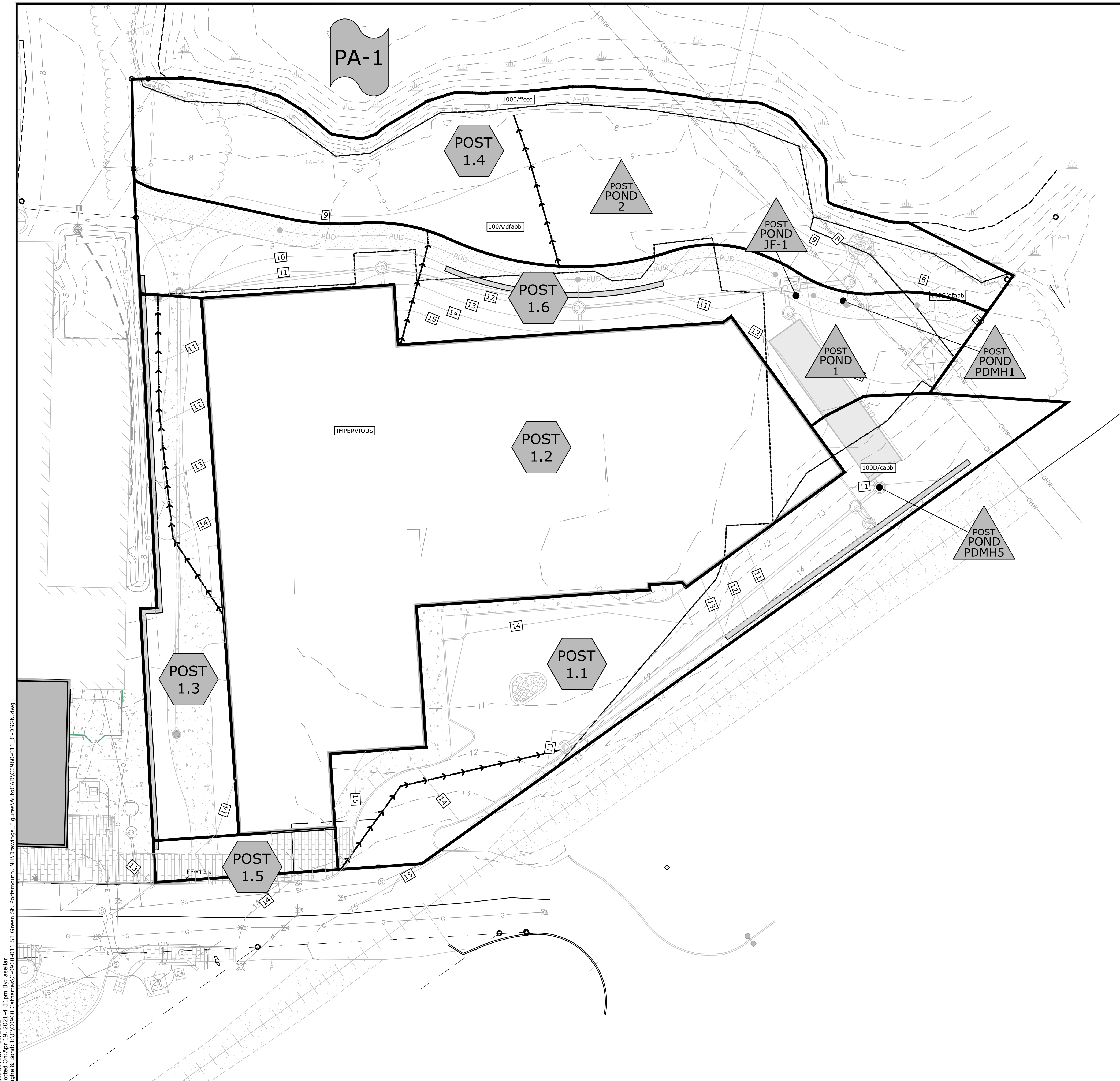
**Proposed
Mixed Use
Development**

CPI
Management,
LLC

53 Green Street
Portsmouth, NH

LEGEND

	POST-DEVELOPMENT WATERSHED BOUNDARY
	LONGEST FLOW PATH
	SOIL TYPE BOUNDARY
	SOIL TYPE (SEE SITE SPECIFIC SOIL MAP)
	PRE DEVELOPMENT WATERSHED AREA DESIGNATION
	POST-DEVELOPMENT POND DESIGNATION
	POINT OF ANALYSIS



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MARK	DATE	DESCRIPTION
C	4/20/2021	NHDES AOT Submission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

PROJECT NO:	C0960-011
DATE:	January 27, 2021
FILE:	C0960-011_C-DSGN.DWG
DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

**POST-DEVELOPMENT
WATERSHED PLAN**

SCALE: AS SHOWN

Section 5

BMP Worksheet and Sizing Memos



GENERAL CALCULATIONS - WQV and WQF (optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

1.12 ac	A = Area draining to the practice
0.97 ac	A_i = Impervious area draining to the practice
0.87 decimal	I = Percent impervious area draining to the practice, in decimal form
0.83 unitless	R_v = Runoff coefficient = $0.05 + (0.9 \times I)$
0.93 ac-in	$WQV = 1'' \times R_v \times A$
3,372 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1 inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.83 inches	Q = Water quality depth. $Q = WQV/A$
98 unitless	CN = Unit peak discharge curve number. $CN = 1000 / (10 + 5P + 10Q - 10 * [Q^2 + 1.25 * Q * P]^{0.5})$
0.2 inches	S = Potential maximum retention. $S = (1000/CN) - 10$
0.032 inches	I_a = Initial abstraction. $I_a = 0.2S$
5.0 minutes	T_c = Time of Concentration
655.0 cfs/mi ² /in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.951 cfs	$WQF = q_u \times WQV$. Conversion: to convert "cfs/mi ² /in * ac-in" to "cfs" multiply by 1mi ² /640ac.

Designer's Notes:

This calculation represents the treatment train directed to the Contech Jellyfish Filter (JF-1).

Full Treatment in compliance with Env-Wq 1508.10 shall be achieved by use of a proprietary flow-through device. A Contech Jellyfish Filter model JFPD0806-5-1 will be used to treat the WQF as calculated in the above spreadsheet. The specified device is designed to treat up to 0.80 cfs of flow.

See attached sizing calculation sheet from manufacturer.



CONTECH Stormwater Solutions Inc. Engineer:
Date Prepared:

DRA
3/17/2021

Site Information

Project Name **53 Green Street**
Project State **NH**
Project City **Portsmouth**

Total Drainage Area, Ad **1.12** ac
Post Development Impervious Area, Ai **0.97** ac
Pervious Area, Ap **0.15** ac
% Impervious **87%**
Runoff Coefficient, Rc **0.83**

Mass Loading Calculations

Mean Annual Rainfall, P **50** in
Agency Required % Removal **80%**
Percent Runoff Capture **90%**
Mean Annual Runoff, Vt **151752** ft³
Event Mean Concentration of Pollutant, EMC **75** mg/l
Annual Mass Load, M total **710.10** lbs

Filter System

Filtration Brand **Jelly Fish**
Cartridge Length **54** in

Jelly Fish Sizing

Mass to be Captured by System **568.08** lbs
Water Quality Flow **0.95** cfs

Method to Use

FLOW BASED

Summary

Flow	Treatment Flow Rate	0.98 cfs
	Required Size	JFPD0806-5-1



GENERAL CALCULATIONS - WQV and WQF (optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

0.31	ac	A = Area draining to the practice
0.23	ac	A _i = Impervious area draining to the practice
0.74	decimal	I = Percent impervious area draining to the practice, in decimal form
0.72	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)
0.22	ac-in	WQV = 1" x R _v x A
815	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.72	inches	Q = Water quality depth. Q = WQV/A
97	unitless	CN = Unit peak discharge curve number. CN = 1000 / (10 + 5P + 10Q - 10 * [Q ² + 1.25 * Q * P] ^{0.5})
0.3	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.059	inches	I _a = Initial abstraction. I _a = 0.2S
5.0	minutes	T _c = Time of Concentration
655.0	cfs/mi ² /in	q _u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.230	cfs	WQF = q _u x WQV. Conversion: to convert "cfs/mi ² /in * ac-in" to "cfs" multiply by 1mi ² /640ac.

Designer's Notes: _____

This calculation represents the treatment train directed to the underground detention pond.

Pretreatment is accomplished by use a offline deep sump/hooded catch basins prior to entering the underground detention structure.

Treatment is achieved by use of the Jellyfish filter structure (JF-1). This treatment is represented

Temperature mitigation is achieved by detaining WQV and dispersing through stone and underdrain.

C0960-011 POST

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Type III 24-hr 50 Year Storm Rainfall=8.48"

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Stage-Area-Storage for Pond POND 1: 310 STORMTECH CHAMBERS

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
6.70	0	7.74	600	8.78	1,149
6.72	8	7.76	614	8.80	1,157
6.74	16	7.78	628	8.82	1,165
6.76	24	7.80	642	8.84	1,173
6.78	32	7.82	655	8.86	1,181
6.80	40	7.84	669	8.88	1,189
6.82	48	7.86	683	8.90	1,197
6.84	56	7.88	696	8.92	1,205
6.86	64	7.90	709	8.94	1,213
6.88	72	7.92	723	8.96	1,221
6.90	80	7.94	736	8.98	1,229
6.92	88	7.96	749	9.00	1,237
6.94	96	7.98	762	9.02	1,245
6.96	104	8.00	774	9.04	1,250
6.98	112	8.02	787	9.06	1,250
7.00	120	8.04	800	9.08	1,250
7.02	128	8.06	812	9.10	1,250
7.04	136	8.08	824	9.12	1,250
7.06	144	8.10	836	9.14	1,250
7.08	152	8.12	848	9.16	1,250
7.10	160	8.14	860	9.18	1,250
7.12	168	8.16	872	9.20	1,250
7.14	176	8.18	883	9.22	1,250
7.16	184	8.20	895	9.24	1,250
7.18	192	8.22	906	9.26	1,250
7.20	200	8.24	917	9.28	1,250
7.22	215	8.26	927	9.30	1,250
7.24	230	8.28	937	9.32	1,250
7.26	246	8.30	948	9.34	1,250
7.28	261	8.32	957	9.36	1,250
7.30	276	8.34	967		
7.32	292	8.36	976		
7.34	307	8.38	985		
7.36	322	8.40	994		
7.38	337	8.42	1,003		
7.40	352	8.44	1,012		
7.42	367	8.46	1,020		
7.44	382	8.48	1,028		
7.46	397	8.50	1,037		
7.48	412	8.52	1,045		
7.50	427	8.54	1,053		
7.52	442	8.56	1,061		
7.54	457	8.58	1,069		
7.56	471	8.60	1,077		
7.58	486	8.62	1,085		
7.60	500	8.64	1,093		
7.62	515	8.66	1,101		
7.64	529	8.68	1,109		
7.66	544	8.70	1,117		
7.68	558	8.72	1,125		
7.70	572	8.74	1,133		
7.72	586	8.76	1,141		

Section 6 Long-Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as implementing a plan to assure routine maintenance. By identifying the areas of concern as well as implementing a frequent and routine maintenance schedule the site will maintain a high-quality stormwater runoff.

6.1 Contact/Responsible Party

Maintenance Area	Contact/Responsible Party
Map 119 Lot 2	CPI Management, LLC 100 Summer Street, Suite 1600 Boston, MA 02110
North Mill Pond Trail (City Easement)	City of Portsmouth DPW 680 Peverly Hill Road Portsmouth, NH 03801

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

6.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Catchbasin Cleaning
- Pavement Sweeping
- Contech Jellyfish Filtration System
- ADS Stormtech Isolator Row
- Porous Pavement

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect catch basins for sediment buildup
- Inspect site for trash and debris

6.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance	Responsible Party
Litter/Debris Removal	Weekly	CPI Management, LLC
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Bi-annually	CPI Management, LLC
Landscaping - Landscaped islands to be maintained and mulched.	Maintained as required and mulched each Spring	CPI Management, LLC
Catch Basin (CB) Cleaning - CB to be cleaned of solids and oils.	Annually	CPI Management, LLC
Jelly Fish Units	In accordance with Manufacturer's Recommendations	CPI Management, LLC
Underground Detention Basin & Isolator Row - Visual observation of sediment levels within system	In accordance with Manufacturer's Recommendations	CPI Management, LLC
Porous Pavement - Clean using a vacuum sweeper	Bi-Annually	City of Portsmouth DPW

Contech Jellyfish Filter System Inspection/Maintenance Requirements		
Inspection/ Maintenance	Frequency	Action
Inspect vault for sediment build up, static water, plugged media and bypass condition	One (1) time annually and after any rainfall event exceeding 2.5" in a 24-hr period	Maintenance required for any of the following: <ul style="list-style-type: none"> - >4" of sediment on the vault floor - >1/4" of sediment on top of the cartridge - .4" of static water above the cartridge bottom more than 24 hours after a rain event - If pore space between media is absent. - If vault is in bypass condition during an average rainfall event.
Replace Cartridges	As required by inspection, 1-5 years.	<ul style="list-style-type: none"> - Remove filter cartridges per manufacturer methods. - Vacuum sediment from vault. - Install new cartridges per manufacturer methods

Stormtech Isolator Row Inspection/Maintenance Requirements		
Inspection/ Maintenance	Frequency	Action
Inspect Isolator Row for sediment	6 months for the first year, then adjust based on previous observations of sediment accumulation and high water elevations.	<ul style="list-style-type: none"> - Inspect inside the isolator row through inspection ports (if provided) or through the upstream structure.
Jetting and Vactoring	Annually or as required by inspection.	<ul style="list-style-type: none"> - If sediment is 3" or above, then clean out isolator row using the jetvac process. - Vacuum structure sump as required.

Porous Asphalt Inspection/Maintenance Requirements		
Inspection/ Maintenance	Frequency	Action
Monitor for sediment build up, particularly in the winter.	Two (2) – Four (4) Times Annually.	- Clean with vacuum sweeper, bi-annually - Loose debris such as leaves or can be removed using a power/leaf blower or gutter broom. Fall and spring cleanup should be accompanied by pavement vacuuming.
Inspect Adjacent Vegetation	Two (2) – Four (4) Times Annually.	- Repair or replace any eroded areas.
Inspect for standing water -Within 30 minutes following a rain event.	One (1) – Two (2) Times Annually	- Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, vacuum or vacuum sweeper if necessary.
Damage to pavement	As needed	- Repairs should be made as identified.

Additional Porous Asphalt Operation and Maintenance Requirements:

- ***No winter sanding or salting of porous pavements is permitted***
- Never reseal or repave with impermeable materials.
- Inspect annually for pavement deterioration or spalling.
- Monitor periodically to ensure the pavement surface drains effectively after storms.

6.3.1 Disposal Requirements

Disposal of debris, trash, sediment and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

6.3.2 Snow & Ice Management for Standard Asphalt and Walkways

Snow storage areas shall be located such that no direct untreated discharges are possible to receiving waters from the storage site (snow storage areas have been shown on the Site Plan). The property manager will be responsible for timely snow removal from all private sidewalks, driveways, and parking areas. Snow removal will be hauled off-site and legally disposed of when snowbanks exceed 6 feet in height. Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt and sand shall be used to the minimum extent practical (refer to the attached for de-icing application rate guideline from the New Hampshire Stormwater Management Manual, Volume 2,).

6.4 Chloride Management Plan

Winter Operational Guidelines

The following Chloride Management Plan is for the Raynes Avenue, Mixed Use Development in Portsmouth, New Hampshire. The Plan includes operational guidelines including winter operator certification requirements, weather monitoring, equipment calibration requirements, mechanical removal, and salt usage evaluation and monitoring. Due to the evolving nature of chloride management efforts, the Chlorides Management Plan will be reviewed annually, in advance of the winter season, to reflect the current management standards.

6.4.1 Background Information

The Green Street, Mixed Use Development is located along the North Mill Pond in Portsmouth, New Hampshire.

6.4.2 Operational Guidelines – Chloride Management

All private contractors engaged at the development site for the purposes of winter operational snow removal and surface maintenance, are responsible for assisting in meeting compliance for the following protocols. Private contractors are expected to minimize the effects of the use of de-icing, anti-icing and pretreatment materials by adhering to the strict guidelines outlined below.

The winter operational de-icing, anti-icing and pretreatment materials will adhere to the following protocols

6.4.2.1 Winter Operator Certification Requirements

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance must be current UNHT2 Green SnowPro Certified operators or equivalent and will use only pre-approved methods for spreading abrasives on private roadways and parking lots. All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide to the property management two copies of the annual UNHT2 Green SnowPro certificate or equivalent for each operator utilized on the premises. The annual UNHT2 Green SnowPro certificate or equivalent for each operator will be available on file in the Facilities Management office and be present in the vehicle/carrier at all times.

6.4.2.2 Improved Weather Monitoring

The property manager will coordinate weather information for use by winter maintenance contractors. This information in conjunction with site specific air/ground surface temperature monitoring will ensure that private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance will make more informed decisions as to when and to what extent de-icing, anti-icing and pretreatment materials are applied to private roadways, sidewalks, and parking lots.

6.4.2.3 Equipment Calibration Requirements

All equipment utilized on the premises for the purpose of winter operational snow removal and surface maintenance will conform to the following calibration requirements.

6.4.2.3.1 Annual Calibration Requirements

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of the annual calibration report for each piece of equipment utilized on the premises. Each calibration report shall include the vehicle/carrier VIN number and the serial numbers for each component including, but not limited to, spreader control units, salt aggregate spreader equipment, brining/pre-wetting equipment, ground speed orientation unit, and air/ground surface temperature monitor. Annual calibration reports will be available on file in the Facilities Management office and be present in the vehicle/carrier at all times.

Prior to each use, each vehicle/carrier operator will perform a systems check to verify that unit settings remain within the guidelines established by the Management Team in order to accurately dispense material. All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance will be subject to spot inspections by members of the Property Management Team to ensure that each vehicle/carrier is operating in a manner consistent with the guidelines set herein or State and Municipal regulations. All units will be recalibrated, and the updated calibration

reports will be provided each time repairs or maintenance procedures affect the hydraulic system of the vehicle/carrier.

6.4.2.4 Increased Mechanical Removal Capabilities

All private contractors engaged at the premises will endeavor to use mechanical removal means on a more frequent basis for roadways, parking lots and sidewalks. Dedicating more manpower and equipment to increase snow removal frequencies prevents the buildup of snow and the corresponding need for de-icing, anti-icing and pretreatment materials. Shortened maintenance routes, with shorter service intervals, will be used to stay ahead of snowfall. Minimized snow and ice packing will reduce the need for abrasives, salt aggregates, and/or brining solution to restore surfaces back to bare surface states after winter precipitation events.

After storm events the management team will be responsible for having the streets swept to recapture un-melted de-icing materials, when practical.

6.4.3 Salt Usage Evaluation and Monitoring

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of a storm report, which includes detailed information regarding treatment areas and the use of de-icing, anti-icing and pretreatment materials applied for the removal of snow and surface maintenance on the premises. The property manager will maintain copies of Summary Documents, including copies of the Storm Reports, operator certifications, equipment used for roadway and sidewalk winter maintenance, calibration reports and amount of de-icing materials used.

6.4.4 Summary

The above-described methodologies are incorporated into the Operational Manual and are to be used to qualify and retain all private contractors engaged at the 105 Bartlett Street premises for the purpose of winter operational snow removal and surface maintenance. This section of the Manual is intended to be an adaptive management document that is modified as required based on experience gained from past practices and technological advancements that reflect chloride BMP standards. All employees directly involved with winter operational activities are required to review this document and the current standard Best Management Practices published by the UNH Technology Transfer (T2) program annually. All employees directly involved with winter operational activities, and all private contractors engaged at the premises for the purposes of winter operational snow removal and surface maintenance, must be current UNHT2 Green SnowPro Certified operators or equivalent and undergo the necessary requirements to maintain this certification annually.

Deicing Application Rate Guidelines

24' of pavement (typical two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Pounds per two-lane mile			
			Salt Prewetted / Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand (abrasives)
> 30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not recommended
	Freezing Rain	Apply Chemical	80 - 160	70 - 140	100 - 200*	Not recommended
30° ↓	Snow	Plow and apply chemical	80 - 160	70 - 140	100 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↑	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↓	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↓	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↑	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240 - 320	210 - 280	300 - 400*	500 for freezing rain
0° - 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 - 400	Not recommended	500 - 750 spot treatment as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 - 600**	Not recommended	500 - 750 spot treatment as needed

* Dry salt is not recommended. It is likely to blow off the road before it melts ice.

** A blend of 6 - 8 gal/ton MgCl₂ or CaCl₂ added to NaCl can melt ice as low as -10°.

Anti-icing Route Data Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

6.5 Invasive Species

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem is classified as an invasive species. Refer to the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species.

6.6 Annual Updates and Log Requirements

The Owner and/or Contact/Responsible Party shall review this Operation and Maintenance Plan once per year for its effectiveness and adjust the plan and deed as necessary.

A log of all preventative and corrective measures for the stormwater system shall be kept on-site and be made available upon request by any public entity with administrative, health environmental or safety authority over the site including NHDES.

Copies of the Stormwater Maintenance report shall be submitted to the City of Portsmouth on an annual basis.

Stormwater Management Report						
Mixed Use Development		53 Green Street – Map 119, Lot 2				
BMP Description	Date of Inspection	Inspector	BMP Installed and Operating Properly?	Cleaning / Corrective Action Needed	Date of Cleaning / Repair	Performed By
Deep Sump CB's			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Underground Detention			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Jellyfish Filter 1			<input type="checkbox"/> Yes <input type="checkbox"/> No			

Stormwater Management Report						
City of Portsmouth		North Mill Pond Trail				
BMP Description	Date of Inspection	Inspector	BMP Installed and Operating Properly?	Cleaning / Corrective Action Needed	Date of Cleaning / Repair	Performed By
Porous Pavement			<input type="checkbox"/> Yes <input type="checkbox"/> No			

J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Report_Evaluation\Applications\City of Portsmouth\20210322 TAC Submission\Drainage\C-0960-011_Drainage Report.docx

APPENDIX A

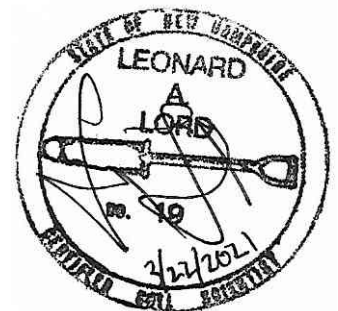


Proposed Mixed Use Development
53 Green Street, Portsmouth, NH

SITE SPECIFIC SOIL MAP REPORT

CPI Management, LLC

March 2021



Tighe&Bond

1.0 Introduction

This report is provided in conjunction with a 1.81 +/- acre Site Specific Soil Map (SSSM) prepared by Tighe & Bond for a parcel at 53 Green Street in Portsmouth, NH. The purpose of the mapping was to assist in the evaluation of drainage and other soil-related uses associated with site improvements, and may be used as part of an Alteration of Terrain (AoT) permit application.

2.0 Methods

Fieldwork for the soil mapping was completed October 22 and December 2, 2019 based on *Site-Specific Soil Mapping Standards for New Hampshire and Vermont, Version 5.0*, (Society of Soil Scientists of Northern New England [SSSNNE] Special Publication No. 3, December 2017). The poorly and very poorly drained soil types under this system are based on the most recent version of *Field Indicators for Identifying Hydric Soils in New England, Version 4* (New England Interstate Water Pollution Control Commission, 2018).

The soil legend for this map is based on the soil series currently mapped in the State of New Hampshire as published in the *New Hampshire State-Wide Numerical Soils Legend* (USDA Natural Resources Conservation Service, Issue #10, 2011). Since this soil map includes disturbed soils and may be used for an AoT application, the map symbols are composed of two major parts separated by a forward slash (/). The first part of the soil symbol includes a numerical identifier from the state-wide soil legend, followed by a letter indicating the slope class (e.g., 299A). Slope class identifiers are as follows:

A	0-3%	D	15-25%
B	3-8%	E	25-50%
C	8-15%	F	>50%

The second part of the symbol is based on the SSSNNE Disturbed Soil Supplemental Symbols, which are included within the Site Specific Soil Map (SSSM) standards. This portion of the symbol translates as follows:

Character 1: Drainage Class

- a-Excessively Drained
- b-Somewhat Excessively Drained
- c-Well Drained
- d-Moderately Well Drained
- e-Somewhat Poorly Drained
- f-Poorly Drained
- g-Very Poorly Drained
- h-Not Determined

Character 2: Parent Material (of naturally formed soil only, if present)

- a-No natural soil within 60 inches
- b-Glaciofluvial deposits (outwash/terraces of sand or sand and gravel)
- c-Glacial till material (active ice)
- d-Glaciolacustrine very fine sand and silt deposits (glacial lakes)
- e-Loamy/sandy over silt/clay deposits
- f-Marine silt and clay deposits (ocean waters)
- g-Alluvial deposits (floodplains)
- h-Organic materials-fresh water wetlands
- i-Organic materials-tidal wetlands

Character 3: Restrictive Properties

- a-None
- b-Bouldery surface with more than 15% of the surface covered with boulders
- c-Mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface such as hard pan, platy structure or clayey texture with consistence of at least firm (i.e. more than 20 newtons).
- d-Bedrock in the soil profile; 0-20 inches
- e-Bedrock in the soil profile; 20-60 inches
- f-Areas where depth to bedrock is so variable that a single soil type cannot be applied, will be mapped as a complex of soil types
- g-Subject to flooding
- h-Manufactured impervious surface including pavement, concrete, or built-up surfaces (e.g. buildings) with no morphological restrictive layer within control section

Character 4: Estimated Ksat (most limiting layer excluding symbol 3h above)

- a-High
- b-Moderate
- c-Low
- d-Not determined *See "Guidelines for Ksat Class Placement" in Chapter 3 of the Soil Survey Manual, USDA

Character 5: Hydrologic Soil Group

- a-Group A
- b-Group B
- c-Group C
- d-Group D
- e-Not determined

SSSM report standards require estimates of the maximum size of *limiting* inclusions for the entire soil map and an estimate of the percentage of *dissimilar* inclusions within each map unit. *Limiting* inclusions are soils "...that differ appreciably in one or more soil properties from the named soil in a map unit. The difference in soil properties is more restrictive and may affect use and management." *Dissimilar* inclusions are "...soils that either do not share limits of some important diagnostic properties of the named taxon, or, in the professional judgment of the soil scientist, have different use or management requirements." The maximum size of any limiting inclusions in this soil map is estimated to be less than 2,000 square feet. Any dissimilar inclusions noted during the mapping are listed below within the map unit descriptions.

3.0 Site Features

The parcel is a highly disturbed site along the North Mill Pond. The property shows evidence of what appears to be very old filling and grading associated with the existing development.

4.0 Soil Map Unit Descriptions

Below are descriptions for the map unit found on the accompanying SSSM. The "*" after the numerical map unit symbol represents a placeholder for the slope class indicators described above.

100*/cfabb—Udorthents, wet substratum

Landscape Setting: Soils that have been filled over what was originally hydric soils

Drainage Class: Well drained

Parent Material: Fill over marine silts and clays at <60 inches.

Typical Textures: Gravelly sandy loam fill

Hydrologic Soil Group: B

Dissimilar Inclusions: None noted

Limiting Inclusions: Upper slopes along the shore are steeper than the mapped unit and are affected by tidal inundation. These areas comprise less than 10% of the unit

Additional Notes: Soils in these areas have properties that are similar to the Charlton soil series for Hydrologic Soil Group determination

100*/dfabb—Udorthents, wet substratum

Landscape Setting: Soils that have been filled and leveled over what was originally hydric soils

Drainage Class: Moderately well drained

Parent Material: Fill over marine silts and clays at <60 inches.

Typical Textures: Very gravelly sandy loam fill

Hydrologic Soil Group: B

Dissimilar Inclusions: None noted

Limiting Inclusions: Slopes along the shore are steeper than the mapped unit and are affected by tidal inundation. These areas comprise less than 10% of the unit

Additional Notes: Soils in these areas have properties that are similar to the Sutton soil series for Hydrologic Soil Group determination

100*/ffccc—Udorthents, wet substratum

Landscape Setting: Soils that have been filled over what was originally hydric soils

Drainage Class: Poorly drained

Parent Material: Fill over marine silts and clays at <60 inches.

Typical Textures: Gravelly and cobbly sandy loam fill with some anthropogenic debris, such as bricks, over silt loam

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Additional Notes: Soils in these areas have properties that are similar to the Shaker soil series for Hydrologic Soil Group determination. These soils are regularly inundated by the tides.

Site Specific Soil Map Legend

53 Green Street, Portsmouth, NH

Slope Class Identifiers

A 0-3%	D 15-25%
B 3-8%	E 25-50%
C 8-15%	F >50%

Map Unit Symbols

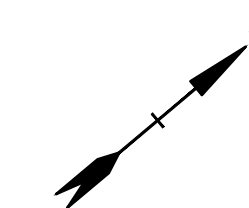
<u>Map Number* /Disturbed Soil Numerator**</u>	<u>Soil Map Unit Name</u>	<u>Hydrologic Soil Group</u>
100*/cfabb	Udorthents, wet substratum / well drained, fill over marine silts and clays, no restrictive layer within 40 inches, moderate Ksat, Hydrologic Soil Group B	B
100*/dfabb	Udorthents, wet substratum, 0-3% slopes / moderately well drained, fill over marine silts and clays, no restrictive layer within 40 inches, moderate Ksat, Hydrologic Soil Group B	B
100*/ffccc	Udorthents, wet substratum, 0-3% slopes / poorly drained, fill over marine silts and clays, restrictive layer is present within 40 inches, low Ksat, Hydrologic Soil Group C	C

*Indicates the location of the slope class identifier (A-F)

**Supplemental symbols are used to further characterize disturbed soils for Alteration of Terrain permits

Soil Mapping Notes:

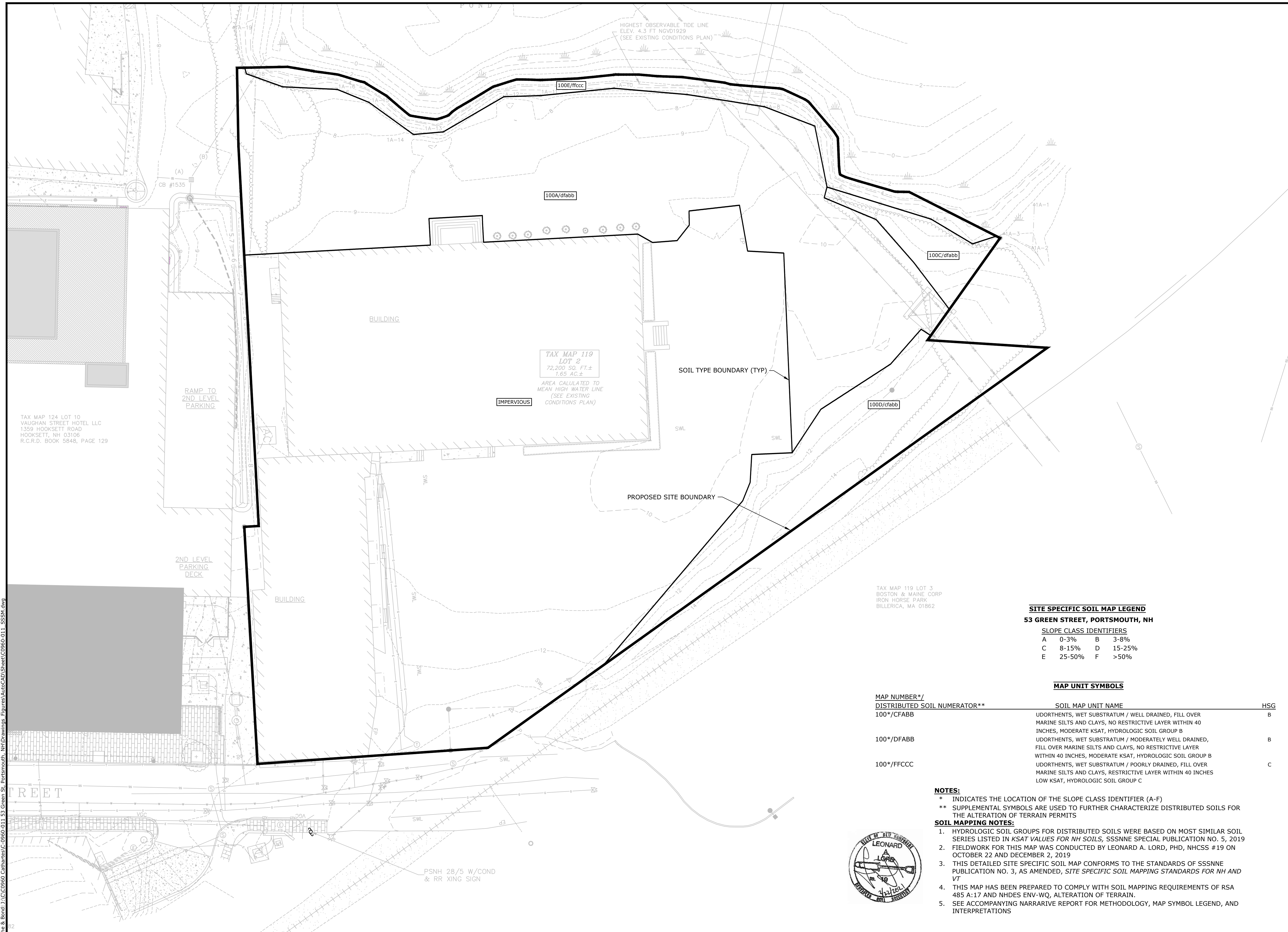
1. Hydrologic soil groups for disturbed soils were based on most similar soil series listed in *Ksat Values for NH Soils*, SSSNNE Special Publication No. 5, 2009.
2. Fieldwork for this map was conducted by Leonard A. Lord, PhD, NHCSS #19 on October 22 and December 2, 2019.
3. This detailed Site Specific Soil Map conforms to the standards of SSSNNE Publication No. 3, as amended, *Site Specific Soil Mapping Standards for NH and VT*.
4. This map has been prepared to comply with soil mapping requirements of RSA 485 A:17 and NHDES Env-Wq, Alteration of Terrain.
5. See accompanying narrative report for methodology, map symbol legend, and interpretations.



Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH



SITE SPECIFIC SOIL MAP LEGEND
53 GREEN STREET, PORTSMOUTH, NH

SLOPE CLASS IDENTIFIERS

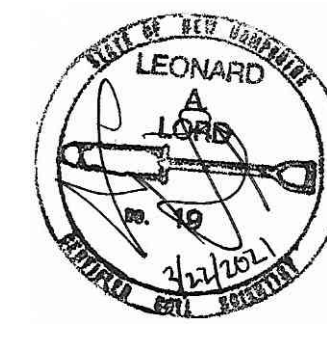
A	0-3%	B	3-8%
C	8-15%	D	15-25%
E	25-50%	F	>50%

MAP UNIT SYMBOLS

MAP NUMBER*/ DISTRIBUTED SOIL NUMERATOR**	SOIL MAP UNIT NAME	HSG
100*/CFABB	UDORTHENTS, WET SUBSTRATUM / WELL DRAINED, FILL OVER MARINE SILTS AND CLAYS, NO RESTRICTIVE LAYER WITHIN 40 INCHES, MODERATE KSAT, HYDROLOGIC SOIL GROUP B	B
100*/DFABB	UDORTHENTS, WET SUBSTRATUM / MODERATELY WELL DRAINED, FILL OVER MARINE SILTS AND CLAYS, NO RESTRICTIVE LAYER WITHIN 40 INCHES, MODERATE KSAT, HYDROLOGIC SOIL GROUP B	B
100*/FFCCC	UDORTHENTS, WET SUBSTRATUM / POORLY DRAINED, FILL OVER MARINE SILTS AND CLAYS, RESTRICTIVE LAYER WITHIN 40 INCHES LOW KSAT, HYDROLOGIC SOIL GROUP C	C

NOTES:
* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)
** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTRIBUTED SOILS FOR THE ALTERATION OF TERRAIN PERMITS

- SOIL MAPPING NOTES:**
1. HYDROLOGIC SOIL GROUPS FOR DISTRIBUTED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2019
 2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON OCTOBER 22 AND DECEMBER 2, 2019
 3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT*
 4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
 5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS



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 By: A.Selbir
 Tighe & Bond\T&B\CAD\CAD\53 Green St. Portsmouth, NH Drawings\Figures\AutoCAD\Sheet\C0960-011_SSSM.dwg

MARK	DATE	DESCRIPTION
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DATE:	MARCH 22, 2021	
FILE:	C0960-011_SSSM.DWG	
DRAWN BY:	AFS	
CHECKED:	LAL	
APPROVED:	LAL	

SITE SPECIFIC SOIL MAP

SCALE: AS SHOWN

APPENDIX B

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.764 degrees West
Latitude	43.080 degrees North
Elevation	0 feet
Date/Time	Fri, 24 Jul 2020 12:23:19 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.03	2.65	2.92	1yr	2.35	2.81	3.22	3.94	4.54	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.48	3.20	3.57	2yr	2.84	3.43	3.93	4.67	5.32	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.61	5yr	1.08	1.47	1.89	2.43	3.14	4.06	4.57	5yr	3.59	4.40	5.03	5.93	6.69	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.89	3.74	4.86	5.52	10yr	4.30	5.31	6.07	7.09	7.96	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.33	25yr	1.53	2.14	2.77	3.62	4.73	6.16	7.09	25yr	5.45	6.81	7.78	9.00	10.03	25yr
50yr	0.53	0.86	1.10	1.53	2.07	2.75	50yr	1.78	2.52	3.28	4.31	5.65	7.37	8.57	50yr	6.53	8.24	9.40	10.79	11.95	50yr
100yr	0.59	0.96	1.24	1.76	2.41	3.25	100yr	2.08	2.97	3.90	5.15	6.75	8.83	10.36	100yr	7.82	9.96	11.35	12.93	14.24	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.82	200yr	2.43	3.51	4.60	6.11	8.06	10.58	12.52	200yr	9.37	12.04	13.71	15.50	16.98	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.75	500yr	2.99	4.37	5.75	7.68	10.19	13.45	16.11	500yr	11.90	15.49	17.61	19.72	21.44	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.86	0.92	1.33	1.68	2.23	2.48	1yr	1.97	2.39	2.86	3.18	3.88	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.05	3.45	2yr	2.70	3.31	3.82	4.54	5.07	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.78	4.18	5yr	3.34	4.02	4.71	5.52	6.23	5yr
10yr	0.38	0.59	0.73	1.02	1.32	1.60	10yr	1.14	1.56	1.80	2.39	3.06	4.36	4.85	10yr	3.86	4.66	5.42	6.39	7.17	10yr
25yr	0.44	0.67	0.83	1.18	1.56	1.90	25yr	1.34	1.86	2.10	2.76	3.54	4.70	5.87	25yr	4.16	5.64	6.62	7.76	8.65	25yr
50yr	0.48	0.73	0.91	1.31	1.76	2.17	50yr	1.52	2.12	2.34	3.07	3.93	5.31	6.77	50yr	4.70	6.51	7.68	9.00	9.98	50yr
100yr	0.53	0.81	1.01	1.46	2.00	2.47	100yr	1.73	2.41	2.62	3.42	4.35	5.96	7.81	100yr	5.28	7.51	8.92	10.45	11.52	100yr
200yr	0.59	0.89	1.12	1.63	2.27	2.81	200yr	1.96	2.75	2.93	3.79	4.79	6.68	9.01	200yr	5.91	8.66	10.34	12.15	13.31	200yr
500yr	0.68	1.02	1.31	1.90	2.70	3.36	500yr	2.33	3.28	3.41	4.32	5.46	7.76	10.87	500yr	6.87	10.45	12.58	14.86	16.11	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.98	3.16	1yr	2.64	3.04	3.58	4.37	5.04	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.52	3.42	3.70	2yr	3.03	3.56	4.08	4.83	5.62	2yr
5yr	0.40	0.62	0.76	1.05	1.34	1.62	5yr	1.15	1.58	1.88	2.53	3.25	4.33	4.96	5yr	3.84	4.77	5.37	6.37	7.15	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.93	2.28	3.11	3.95	5.33	6.20	10yr	4.72	5.96	6.82	7.83	8.74	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.57	25yr	1.76	2.51	2.95	4.07	5.15	7.77	8.34	25yr	6.88	8.02	9.15	10.33	11.40	25yr
50yr	0.67	1.02	1.27	1.82	2.46	3.12	50yr	2.12	3.05	3.59	5.00	6.32	9.73	10.46	50yr	8.62	10.06	11.45	12.71	13.95	50yr
100yr	0.79	1.19	1.49	2.15	2.95	3.80	100yr	2.55	3.72	4.37	6.15	7.76	12.18	13.11	100yr	10.78	12.61	14.32	15.68	17.08	100yr
200yr	0.92	1.39	1.76	2.54	3.55	4.64	200yr	3.06	4.54	5.33	7.58	9.53	15.29	16.45	200yr	13.53	15.82	17.94	19.34	20.91	200yr
500yr	1.14	1.70	2.19	3.18	4.52	6.02	500yr	3.90	5.89	6.92	10.01	12.54	20.67	22.22	500yr	18.29	21.37	24.18	25.50	27.33	500yr



APPENDIX C

Examination of Thermal Impacts from Stormwater BMPs



In a study in Durham, New Hampshire, four years of runoff temperature data were examined for a range of stormwater best management practices (BMPs) in relation to established environmental indicators.

The stormwater BMPs examined included:

Conventional	Low Impact Development	Manufactured Treatment Devices
<ul style="list-style-type: none"> • Vegetated Swale • Detention Pond • Retention Pond 	<ul style="list-style-type: none"> • Bioretention • Gravel Wetland 	<ul style="list-style-type: none"> • Storm Tech Isolator Row • ADS Infiltration System • Hydrodynamic Separator



Surface systems that are exposed to direct sunlight have been shown to increase already elevated summer runoff temperatures, while systems that provide treatment by infiltration and filtration can moderate runoff temperatures by thermal exchange with cool subsurface materials.

The storm drain system in this study had an annual average event mean temperature (EMT) greater than the mean groundwater temperature of 47°F that commonly feeds coldwater streams.

The examination of BMPs indicates that outflow from the larger surface systems is warmer and more variable than from parking lots. The filtration and infiltration systems cooled stormwater runoff to temperatures close to groundwater temperature.



Top: A view of a healthy coldwater fishery. Center: Large parking areas store tremendous amounts of heat which is transferred into stormwater runoff. Bottom: Subsurface treatment systems such as gravel wetlands can buffer temperature impacts for stormwater runoff.

SURFACE SYSTEMS: Thermal Extremes

The summer temperatures of the two stormwater ponds, vegetated swale, and HDS (Hydrodynamic Separators) systems, indicate that they **provide little to no reduction of high runoff temperatures.**

The Retention and Detention ponds have the largest variation in temperature. The Retention Pond is the only system to exceed both the Upper Optimum Limit (UOL) and the Lethal Limit of 80°F, however, the Detention Pond with a maximum temperature of 79.4°F comes very close.

The permanent pool of water in the Retention Pond appears to act as a heat sink during periods of extreme heat.

FILTRATION & INFILTRATION SYSTEMS: Thermal Buffers

Filtration and infiltration systems **showed the strongest ability to reduce temperature variations.** The gravel wetland, the ADS (Advanced Drainage Systems™) Infiltration System, and the StormTech Isolator Row have a strong capacity to reduce temperatures of runoff.

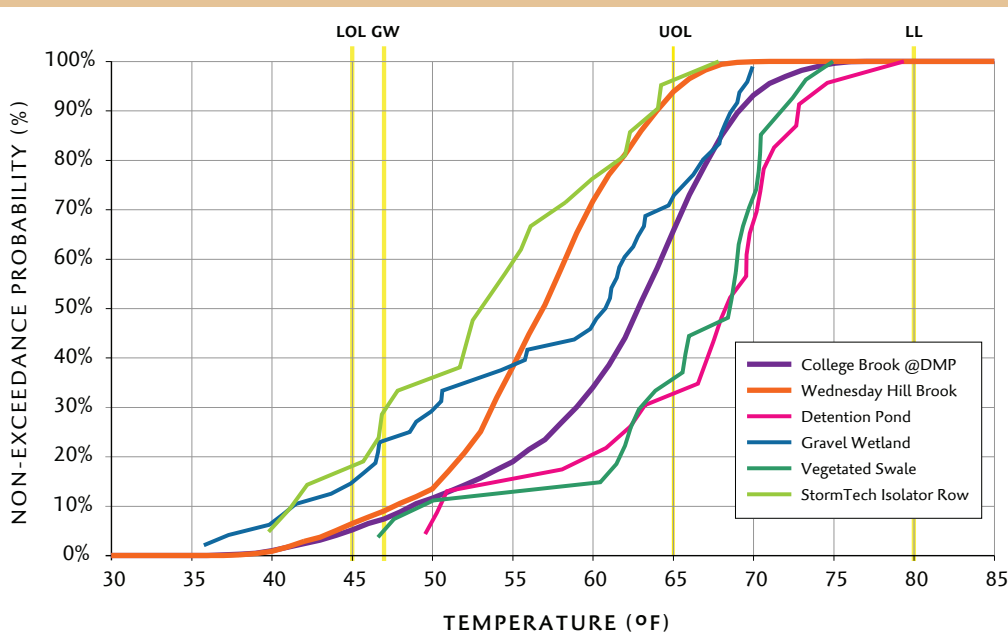
The Bioretention system showed minor buffering capacity and was consistently cooler in the summer and warmer in the winter than the runoff. These filtration and infiltration systems are, on average, reducing the summer temperatures and increasing the winter temperatures of the runoff to near the average groundwater temperature of 47°F.

The two subsurface infiltration systems, ADS and STIR, are the only systems with mean July temperatures within the optimum zone of 45°F to 65°F for coldwater aquatic species. All other systems result in runoff within the stress zone for aquatic species, between 65°F and 80°F.

The Gravel Wetland, the ADS infiltration system, and the Isolator Row systems have the lowest exceedance values of the UOL at 13.0%, 5.0%, 1.5% respectively.



StormTech Isolator Row.



Comparison of summer temperatures for two streams: Wednesday Hill Brook (unimpacted) and College Brook (impacted); a wet and dry pond, a gravel wetland, and subsurface infiltration (Stormtech Isolator Row) with environmental indicators for cold water fisheries:

Average Annual Groundwater Temperature (GW) = 47°F

Lower Optimum Limit (LOL) = 45°F

Upper Optimum Limit (UOL) = 65°F

Lethal Limit (LL) = 80°F

C-0960-011
 April 21, 2021

Mr. Eric Eby, City Traffic Engineer
 City of Portsmouth
 Department of Public Works
 680 Peverly Hill Road
 Portsmouth New Hampshire

Re: **Trip Generation Analysis**
Proposed Mixed Use Development – 53 Green Street, Portsmouth, NH

Dear Eric:

Tighe & Bond has performed a trip generation analysis for traffic related to a proposed mixed-use development on a parcel of land located at 53 Green Street that is identified as Map 119 Lot 2 on the City of Portsmouth Tax Maps.

This analysis was performed utilizing Institute of Transportation Engineers (ITE) Trip Generation Manual, latest edition. For purposes of analysis, we have compared the existing and proposed uses for the parcel. The parcel’s existing uses consists of 14,600 SF of office, 3,000 SF of medical office and 4,070 SF of spa with on-site parking. These buildings will be demolished. The proposed building consists 48 dwelling units with associated on-site parking. The proposed building also includes ±1,900 SF of first floor commercial space along Green Street but there are no on-site parking spaces required for this use, however it was included as part of this Trip Generation Analysis to provide a more conservative analysis.

	Existing			Proposed		Net Trips
	Office	Spa	Medical Office	Multifamily Housing	Commercial	
Weekday AM Peak Hour						
Trips Entering	15	5	6	4	3	-19
Trips Exiting	2	0	2	13	1	+10
Total Vehicle Trips	17	5	8	17	4	-9
Weekday PM Peak Hour						
Trips Entering	3	1	3	13	1	+7
Trips Exiting	15	5	7	8	4	-15
Total Vehicle Trips	18	6	10	21	5	-8
Saturday Peak Hour						
Trips Entering	4	8	5	10	0	-7
Trips Exiting	4	13	4	11	1	-9
Total Vehicle Trips	8	21	9	21	1	-16

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition
 Land Uses – 221 Multifamily Housing (Mid-Rise), 710 General Office, 712 Small Office Building, 720 Medical Office, 918 Hair Salon



As depicted above, the proposed 48 residential units and 1,900 SF of small office space in place of the existing 14,600 SF of office use, 3,000 SF of medical office use and 4,070 SF of spa use will result in a reduction of 9 vehicle trips during the Weekday AM Peak Hour, 8 vehicle trips during the Weekday PM Peak Hour and 16 vehicle trips during the Saturday Peak Hour. It is anticipated there will be a reduced number of vehicle trips associated with this project resulting in no additional impact to the surrounding roadway network during peak hour times.

Please feel free to contact us if you have any questions or need any additional information.

Sincerely,

TIGHE & BOND, INC.



Neil A. Hansen, PE
Project Engineer



Patrick M. Crimmins, PE
Senior Project Manager

City of Portsmouth TAC, April 06, 2021:			
	TAC Comment	Applicant Response	Sheet
TAC Comments from 4/5 Correspondence:			
1	Please show the proposed sewer easement to the City of Portsmouth on the lot line revision plan	Lot Line Revision plan will include the proposed sewer easement. The proposed sewer easement is shown on the Easement Plan and has been added to the Site Plan.	C-102.1, C-301
2	The Community Space easement should include the pedestrian passageway between the proposed new building and the AC Hotel. This is the only connection between Green Street and the Greenway along the North Mill Pond. Additionally, the easement should include the proposed access to the seat wall behind the building.	The Community Space easement has been adjusted on the Easement Plan.	C-301
3	The minimum width of the community space pedestrian pathway should be 8 feet.	The width of the path has been adjusted.	C-102.1
4	Min. Front Lot Line Buildout (FLLB) compliance needs to be verified.	Additional calculations have been added to the Site Data table to verify compliance.	C-102.1
5	Sheet C-102 Development standards footnote (2) needs to be reassigned to reflect the Overlay Incentive District requirements as Section 10.5A43.43 does not apply to this project.	The footnote has been revised.	C-102.1
6	Footnote #3 in the development standards chart should reference Section 10.5A46.10.	The footnote has been revised.	C-102.1
7	It appears that only 69 off-street parking spaces are required (versus 73) due to the DOD credit. Perhaps the three parallel spaces along the building frontage could be removed in order to support a larger raised and landscaped island to soften the impervious surface of the driveway, drop off area and sidewalks.	This area is required to remain as pavement for access purposes. The area will be reserved as short-term loading spaces.	C-102.1, Site Traffic Exhibit
8	The landscaping plan should show the grass paver fire lane as shown on the site plan.	The grass paver fire lane has been added to the landscaping plan.	L-1
9	Drop off area in front appears to be too small. Show turning paths for expected vehicles. Delivery trucks will not be able to turn in this area, passenger cars will have a difficult time. How will moving vans access the site?	Refer to Site Traffic Exhibit for anticipated traffic patterns.	Site Traffic Exhibit
10	Due to narrow driveway approach and 90 degree turn into ramps, entrance into parking garage ramps should be wider to allow for both entering and exiting vehicles at the same time. No Parking signs and pavement markings should be installed along the retaining wall. Vehicles exiting from the garage will require the entire 24-foot driveway width to make the turn in order to clear the side of the garage on their right turn. The building should be recessed in the area of the garage entrance to provide more turning radius area to allow for two way traffic.	Garage entrances are 22 feet. See Traffic Exhibit to show anticipated traffic patterns for 2-way traffic flow. The retaining wall is less than 4' high, therefore, traffic signs would not be at an appropriate height if mounted to the wall. The driveway width is 24 feet.	C-102.1, Site Traffic Exhibit
11	Driveway throat at Green Street is too short, too narrow and angled too sharply to allow for two way traffic. Vehicles exiting the site will not likely follow the curve of the driveway, and will block vehicles trying to turn right to enter the site. It will not be possible for any vehicle larger than a passenger car to turn right into the site driveway from Green Street, even if no vehicles are exiting the site at that time. The driveway geometry needs to be reconfigured.	The driveway geometry has been adjusted to allow for larger vehicle access.	C-102.1, Site Traffic Exhibit
12	The commercial space, while not requiring parking, will still likely generate vehicle trips. These trips should be accounted for in the vehicle trip generation analysis.	Vehicle Trip Generation Analysis has been updated.	N/A
13	Where the pedestrian/bike path parallels the grass paver fire access, can the path be moved further inland to overlap with the fire lane and reduce impacts in the 25' wetland buffer?	The path has been adjusted as described.	C-102.1
14	Eversource needs power conduits in Green/Russell St and transformer space on the lot or they will not be able to service this building. Decide on which project (Raynes/Green) is doing what portion of the offsite work that is needed.	Confirmed. The project will coordinate with Eversource on any required off site improvements.	N/A

15	Green St to be milled and repaved 1.5" after main/ building utility services installations.	A note was added to the plans to clarify this requirement.	C-201
16	Temporary water plan to be approved by Portsmouth Water and Portsmouth FD	Confirmed	N/A
17	The greenway path should be at elevation 9 or above or otherwise designed to withstand periodic inundation	Path was adjusted as described except in areas where boundary elevations dictate grade.	C-103
18	Eversource to approve transformer location and confirm if the path is sufficient to get to the transformer	Final location of the transformer will be coordinated with Eversource.	C-104
19	On right side of driveway, wrap curb another 90 degrees around the arc shown toward the tracks	Curb has been adjusted in this locations as required.	C-102.1
20	Upgrade 'district standard light fixture base' detail to match what the bottom of lights actually look like. Bottom of ornamental portion of pole to be buried ½" below brick elevation	Detail has been updated.	C-506
21	Provide low shrubs or other landscaping on right side of driveway inside semicircle of curbing	Due to the reconfiguration of the entrance drive the remaining area between the curb and property lines is very small. The viability of shrubs in this area presents a concern with snow plowing along that edge.	L-1
22	Confirm that all the plants shown between this building and AC hotel will thrive in darker conditions.	The plants illustrated in the connector pathway between AC and 53 Green are all partial shade tolerant and should grow well in this location. This pathway has a north south orientation and will have full sun for a portion of the day.	N/A
23	Any trees located in the City's right-of-way will require review and approval by the City's Trees & Greenery Committee.	Confirmed	N/A
24	Confirm sewer flows match the projected flows for the sewer construction in Vaughn and Green from 2018	The sewer flows are less than the projected sewer flows from the sewer capacity study for this lot.	N/A
25	Please adjust curb so that it is no higher than 6" reveal. Confirm no more than 2%, no less than 1% on City sidewalks	Curb is detailed to have 6" reveal. Sidewalk cross slopes will have no greater than 2% slope.	C-103