



# City of Portsmouth, New Hampshire

## Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

**Applicant Responsibilities (Section 2.5.2):** Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: CPI Management, LLC Date Submitted: March 22, 2021

Application # (in City's online permitting): LU 21-XX

Site Address: 53 Green Street Map: 119 Lot: 2

Application Requirements			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Complete <a href="#">application</a> form submitted via the City's web-based permitting program (2.5.2.1(2.5.2.3A))	Enclosed	N/A
<input checked="" type="checkbox"/>	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. (2.5.2.8)	Enclosed	N/A

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)	Enclosed	
<input checked="" type="checkbox"/>	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. (2.5.3.1C)	Site Plan Sheet C-102.1	N/A
<input checked="" type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)	Site Plan Sheet C-102.1	N/A

<b>Site Plan Review Application Required Information</b>			
<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input checked="" type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. <b>(2.5.3.1E)</b>	Enclosed Existing Conditions Plan	N/A
<input checked="" type="checkbox"/>	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. <b>(2.5.3.1F)</b>	Existing Conditions Plan	N/A
<input checked="" type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. <b>(2.5.3.1G)</b>	Cover Sheet	N/A
<input checked="" type="checkbox"/>	List of reference plans. <b>(2.5.3.1H)</b>	Existing Conditions Plan	N/A
<input checked="" type="checkbox"/>	List of names and contact information of all public or private utilities servicing the site. <b>(2.5.3.1I)</b>	Utilities Plan Sheet C-104	N/A

<b>Site Plan Specifications</b>			
<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input checked="" type="checkbox"/>	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. <b>(2.5.4.1A)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. <b>(2.5.4.1B)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. <b>(2.5.4.1C)</b>	Existing Conditions Plan	N/A
<input checked="" type="checkbox"/>	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. <b>(2.5.4.1D)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. <b>(2.5.4.1E)</b>	Existing Conditions Plan	N/A
<input checked="" type="checkbox"/>	Title (name of development project), north point, scale, legend. <b>(2.5.4.2A)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Date plans first submitted, date and explanation of revisions. <b>(2.5.4.2B)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. <b>(2.5.4.2C)</b>	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Source and date of data displayed on the plan. <b>(2.5.4.2D)</b>	Required on all plan sheets	N/A

**Site Plan Specifications – Required Exhibits and Data**

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	<p><b>1. Existing Conditions: (2.5.4.3A)</b></p> <ul style="list-style-type: none"> <li>• Surveyed plan of site showing existing natural and built features;</li> <li>• Existing building footprints and gross floor area;</li> <li>• Existing parking areas and number of parking spaces provided;</li> <li>• Zoning district boundaries;</li> <li>• Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre;</li> <li>• Existing impervious and disturbed areas;</li> <li>• Limits and type of existing vegetation;</li> <li>• Wetland delineation, wetland function and value assessment (including vernal pools);</li> <li>• SFHA, 100-year flood elevation line and BFE data, as required.</li> </ul>	Existing Conditions Plan	
<input checked="" type="checkbox"/>	<p><b>2. Buildings and Structures: (2.5.4.3B)</b></p> <ul style="list-style-type: none"> <li>• Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation;</li> <li>• Elevations: Height, massing, placement, materials, lighting, façade treatments;</li> <li>• Total Floor Area;</li> <li>• Number of Usable Floors;</li> <li>• Gross floor area by floor and use.</li> </ul>	Site Plan Sheets C.102.1 & C.102.2	
<input checked="" type="checkbox"/>	<p><b>3. Access and Circulation: (2.5.4.3C)</b></p> <ul style="list-style-type: none"> <li>• Location/width of access ways within site;</li> <li>• Location of curbing, right of ways, edge of pavement and sidewalks;</li> <li>• Location, type, size and design of traffic signing (pavement markings);</li> <li>• Names/layout of existing abutting streets;</li> <li>• Driveway curb cuts for abutting prop. and public roads;</li> <li>• If subdivision; Names of all roads, right of way lines and easements noted;</li> <li>• AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).</li> </ul>	Site Plan Sheet C-102.1	
<input checked="" type="checkbox"/>	<p><b>4. Parking and Loading: (2.5.4.3D)</b></p> <ul style="list-style-type: none"> <li>• Location of off street parking/loading areas, landscaped areas/buffers;</li> <li>• Parking Calculations (# required and the # provided).</li> </ul>	Site Plan Sheet C-102.1	
<input checked="" type="checkbox"/>	<p><b>5. Water Infrastructure: (2.5.4.3E)</b></p> <ul style="list-style-type: none"> <li>• Size, type and location of water mains, shut-offs, hydrants &amp; Engineering data;</li> <li>• Location of wells and monitoring wells (include protective radii).</li> </ul>	Utilities Plan Sheet C-104	
<input checked="" type="checkbox"/>	<p><b>6. Sewer Infrastructure: (2.5.4.3F)</b></p> <ul style="list-style-type: none"> <li>• Size, type and location of sanitary sewage facilities &amp; Engineering data, including any onsite temporary facilities during construction period.</li> </ul>	Utilities Plan Sheet C-104	

<input checked="" type="checkbox"/>	<b>7. Utilities: (2.5.4.3G)</b> <ul style="list-style-type: none"> <li>The size, type and location of all above &amp; below ground utilities;</li> <li>Size type and location of generator pads, transformers and other fixtures.</li> </ul>	Utilities Plan Sheet C-104	
<input checked="" type="checkbox"/>	<b>8. Solid Waste Facilities: (2.5.4.3H)</b>	Site Plan Sheet C-102.1	
	<ul style="list-style-type: none"> <li>The size, type and location of solid waste facilities.</li> </ul>	Site Plan Sheet C-102.1	
<input checked="" type="checkbox"/>	<b>9. Storm water Management: (2.5.4.3I)</b> <ul style="list-style-type: none"> <li>The location, elevation and layout of all storm-water drainage.</li> <li>The location of onsite snow storage areas and/or proposed off-site snow removal provisions.</li> <li>Location and containment measures for any salt storage facilities</li> <li>Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.</li> </ul>	Grading and Drainage Plan Sheet C-103	
<input checked="" type="checkbox"/>	<b>10. Outdoor Lighting: (2.5.4.3J)</b> <ul style="list-style-type: none"> <li>Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.</li> </ul>	Photometrics Plan Sheet	
<input checked="" type="checkbox"/>	<b>11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)</b>	Photometrics Plan Sheets	
<input checked="" type="checkbox"/>	<b>12. Landscaping: (2.5.4.3K)</b> <ul style="list-style-type: none"> <li>Identify all undisturbed area, existing vegetation and that which is to be retained;</li> <li>Location of any irrigation system and water source.</li> </ul>	Landscaping Plan Sheets L-1 & L-2	
<input checked="" type="checkbox"/>	<b>13. Contours and Elevation: (2.5.4.3L)</b> <ul style="list-style-type: none"> <li>Existing/Proposed contours (2 foot minimum) and finished grade elevations.</li> </ul>	Grading and Drainage Plan Sheet C-103	
<input checked="" type="checkbox"/>	<b>14. Open Space: (2.5.4.3M)</b> <ul style="list-style-type: none"> <li>Type, extent and location of all existing/proposed open space.</li> </ul>	Site Plan Sheet C-102 & Open Space Exhibit	
<input checked="" type="checkbox"/>	<b>15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)</b>	Existing Conditions Plan	
<input checked="" type="checkbox"/>	<b>16. Character/Civic District (All following information shall be included): (2.5.4.3P)</b> <ul style="list-style-type: none"> <li>Applicable Building Height (10.5A21.20 &amp; 10.5A43.30);</li> <li>Applicable Special Requirements (10.5A21.30);</li> <li>Proposed building form/type (10.5A43);</li> <li>Proposed community space (10.5A46).</li> </ul>	Site Plan Sheet C-102.1	
<input checked="" type="checkbox"/>	<b>17. Special Flood Hazard Areas (2.5.4.3Q)</b> <ul style="list-style-type: none"> <li>The proposed development is consistent with the need to minimize flood damage;</li> <li>All public utilities and facilities are located and construction to minimize or eliminate flood damage;</li> <li>Adequate drainage is provided so as to reduce exposure to flood hazards.</li> </ul>	Grading and Drainage Plan Sheet and Utility Plan Sheet C.103 & C.104	

<b>Other Required Information</b>			
<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input checked="" type="checkbox"/>	Traffic Impact Study or Trip Generation Report, as required. <b>(3.2.1-2)</b>	Enclosed	
<input checked="" type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. <b>(7.1)</b>	Grading and Drainage Plan Sheet C-103	
<input checked="" type="checkbox"/>	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. <b>(7.3.1)</b>	N/A	
<input checked="" type="checkbox"/>	Stormwater Management and Erosion Control Plan. <b>(7.4)</b>	Enclosed	
<input checked="" type="checkbox"/>	Inspection and Maintenance Plan <b>(7.6.5)</b>	Enclosed	

<b>Final Site Plan Approval Required Information</b>			
<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input checked="" type="checkbox"/>	All local approvals, permits, easements and licenses required, including but not limited to: <ul style="list-style-type: none"> <li>• Waivers;</li> <li>• Driveway permits;</li> <li>• Special exceptions;</li> <li>• Variances granted;</li> <li>• Easements;</li> <li>• Licenses.</li> </ul> <b>(2.5.3.2A)</b>	Cover Sheet	
<input checked="" type="checkbox"/>	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: <ul style="list-style-type: none"> <li>• Calculations relating to stormwater runoff;</li> <li>• Information on composition and quantity of water demand and wastewater generated;</li> <li>• Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls;</li> <li>• Estimates of traffic generation and counts pre- and post-construction;</li> <li>• Estimates of noise generation;</li> <li>• A Stormwater Management and Erosion Control Plan;</li> <li>• Endangered species and archaeological / historical studies;</li> <li>• Wetland and water body (coastal and inland) delineations;</li> <li>• Environmental impact studies.</li> </ul> <b>(2.5.3.2B)</b>	Enclosed	
<input checked="" type="checkbox"/>	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. <b>(2.5.3.2D)</b>	Enclosed	

**Final Site Plan Approval Required Information**

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	A list of any required state and federal permit applications required for the project and the status of same. <b>(2.5.3.2E)</b>	Cover Sheet	
<input checked="" type="checkbox"/>	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." <b>(2.5.4.2E)</b>	Site Plan Sheets C-102	N/A
<input checked="" type="checkbox"/>	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. <b>(2.5.4.2F)</b>	N/A	
<input checked="" type="checkbox"/>	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "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." <b>(2.13.3)</b>	Site Plan Sheets C-102.1	N/A

Applicant's Signature:  Date: 3/22/21

C0906-011  
March 22, 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 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, dated March 22, 2021;
- One (1) copy of the Owner Authorization, dated January 11, 2021;
- One (1) copy of the Applicant Authorization, dated January 11, 2021;
- One (1) copy of the Site Review Checklist, dated March 22, 2021;
- One (1) copy of the Subdivision Checklist, dated March 22, 2021;
- One (1) copy of the Drainage Analysis, dated March 22, 2021;
- One (1) copy of the Aerial Site Plan, dated March 22, 2021;
- One (1) copy of the Grade Plane Exhibit, dated March 22, 2021;
- One (1) copy of the Wetland and Buffer Report, dated January 6, 2020;
- One (1) copy of the Wetland Buffer Impact Exhibit, dated March 22, 2021;
- One (1) copy of the Community Space Exhibit, dated March 22, 2021;
- One (1) copy of the Truck Turning Exhibit, dated March 22, 2021;
- One (1) copy of the Existing Buffer Photograph Log, dated January 27, 2021;
- One (1) copy of the Trip Generation Analysis, dated March 22, 2021;
- One (1) copy of the Unutil Will Service Letter, dated February 22, 2021;
- One (1) copy of the Green Building Statement, dated March 22, 2021;
- One (1) copy of the Site Lighting Fixture Cut Sheets;
- One (1) copy of the Application fee calculation form for the Site Review Permit;
- One (1) copy of the Property Acquisition Worksheet, dated October 22, 2019;
- One (1) Site Review Application fee check in the amount of \$4,250.00;
- One (1) Lot Line Revision Application fee check in the amount of \$250.00

The proposed project is located at 53 Green Street on property identified as Map 119 Lot 2 on the City of Portsmouth Tax Maps. The existing 1.66-acre parcel is bound by Green Street to south, the AC Hotel to the west, North Mill Pond to the north and the railroad to the east.

The project will include a lot line revision between Map 119 Lot 2 and Map 119 Lot 3 as shown in the enclosed Property Acquisition Worksheet. The proposed lot line revision will relocate the lot line between the project parcel and the adjacent railroad. This will increase the development lot area by 0.11 acres for a total lot area of 1.77 acres. The project is also currently under review by the Historic District Commission (HDC).

The proposed project will include the construction of a 5-story mixed-use residential building that includes basement level parking, first floor residential lobby, commercial space and parking, and 48 upper floor residential units. The project will include associated site



improvements such as paving, utilities, lighting, landscaping and community space. The proposed project is providing 16,337 SF of community space (21.1% of the total lot area) which meets the 20% of total lot area required to receive the incentive bonus for one additional story (10 ft) above the maximum height requirement. The community space calculation is depicted in the enclosed Community Space Exhibit.

We respectfully request to be placed on the TAC meeting agenda for April 6, 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](mailto:pmcrimmins@tighebond.com).

Sincerely,

**TIGHE & BOND, INC.**



Patrick M. Crimmins, PE  
Senior Project Manager

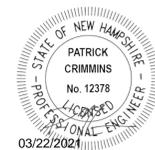


Neil A. Hansen, PE  
Project Engineer

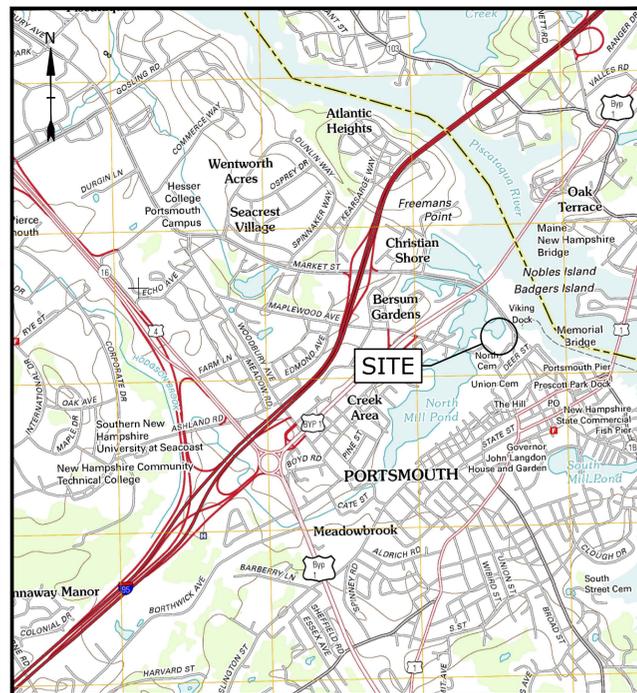
Cc: Stone Creek Realty, LLC (via e-mail)  
CPI Management, LLC (via e-mail)

# PROPOSED MIXED USE DEVELOPMENT

53 GREEN STREET  
 PORTSMOUTH, NEW HAMPSHIRE  
 JANUARY 27, 2021  
 LAST REVISED: MARCH 22, 2021



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

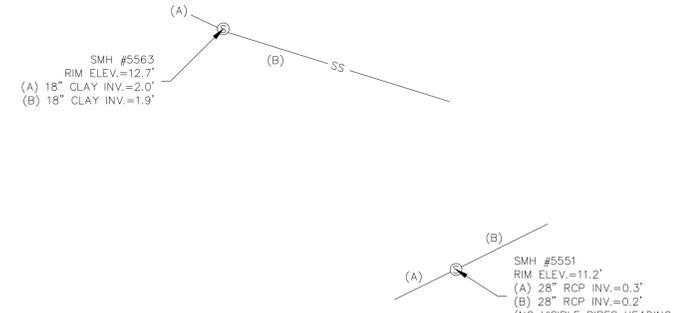
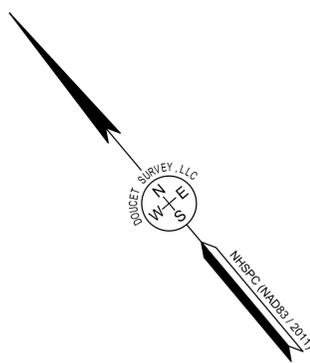
APPLICANT:  
 CPI MANAGEMENT, LLC  
 100 SUMMER STREET, SUITE 1600  
 BOSTON, MASSACHUSETTS 02110

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 - SHORELAND PERMIT	PENDING	
NHDES - SEWER CONNECTION PERMIT	PENDING	
NHDES - ALTERATION OF TERRAIN PERMIT	PENDING	
NHDES - WETLAND PERMIT	PENDING	

**TAC & CC SUBMISSION SET  
 COMPLETE SET 22 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.

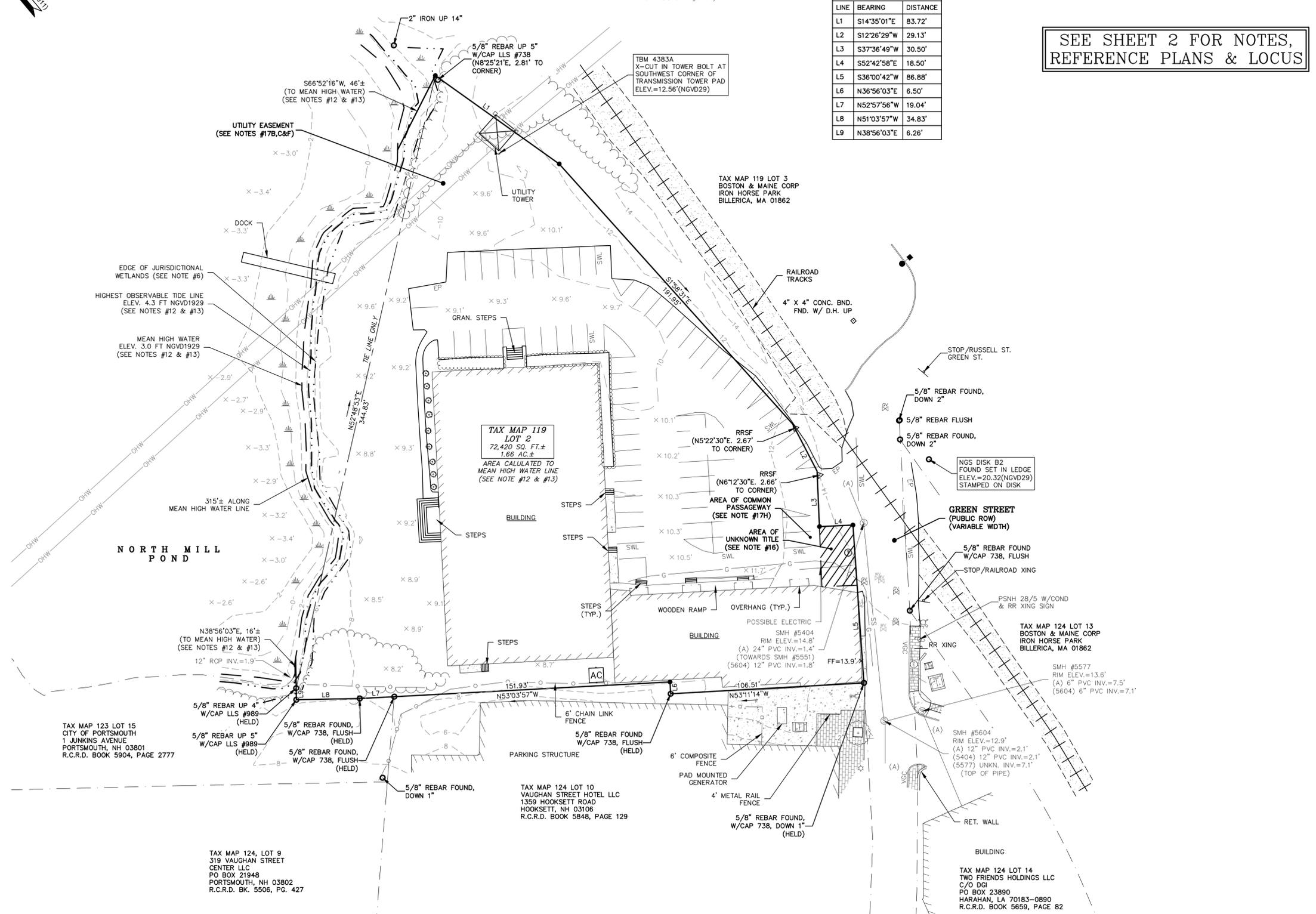
\_\_\_\_\_. L.L.S. #989  
 \_\_\_\_\_ DATE

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
  - VCC
  - 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**

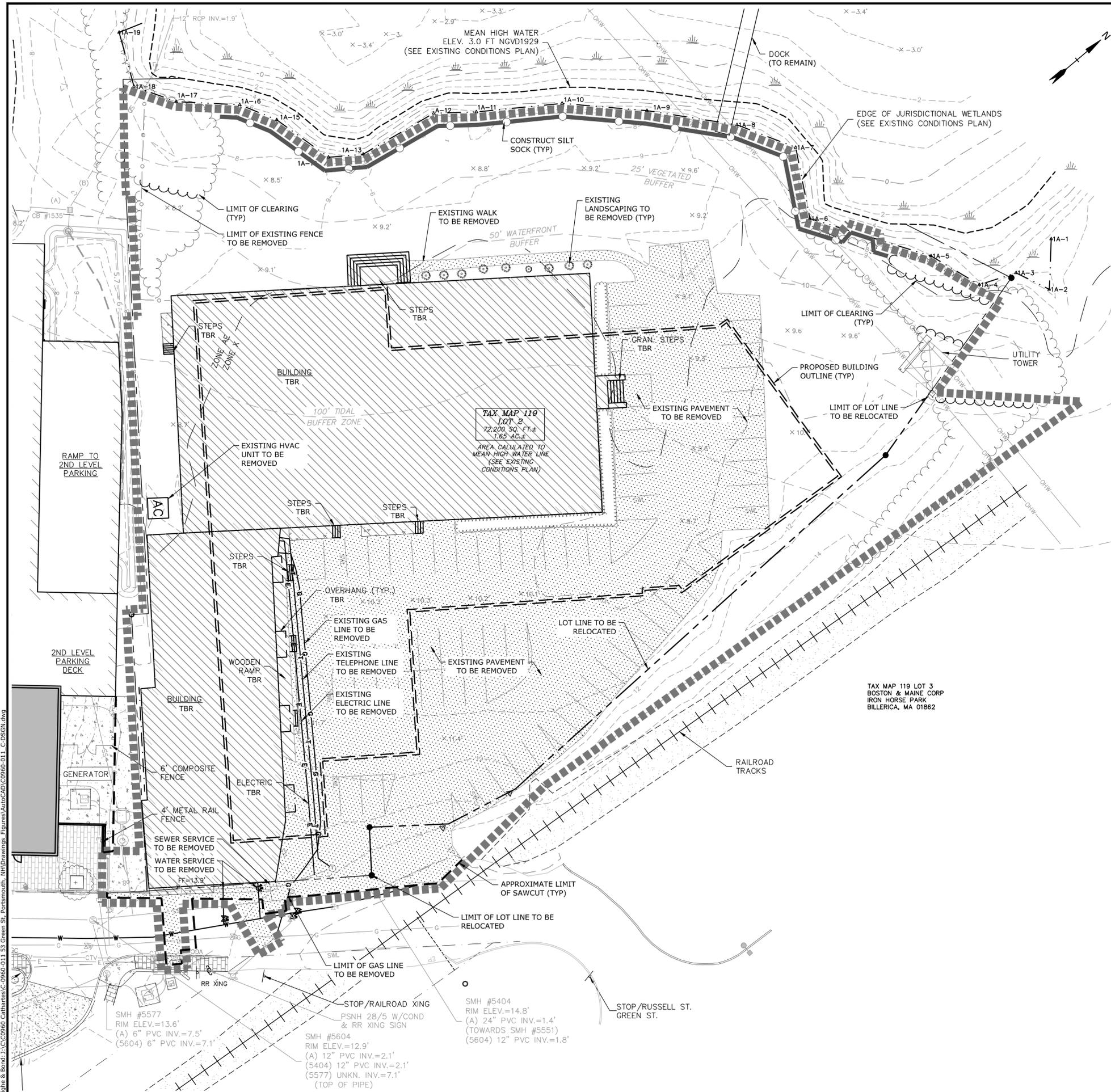
NO.	DATE	DESCRIPTION	BY

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  
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 10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005  
<http://www.doucetsurvey.com>

THE NAME "PROFESSIONAL" IS A REGISTERED TRADEMARK OF THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS. THE NAME "DOUCET SURVEY" IS A REGISTERED TRADEMARK OF DOUCET SURVEY LLC. THE NAME "N.H.S.P.C." IS A REGISTERED TRADEMARK OF THE NEW HAMPSHIRE SOCIETY OF PROFESSIONAL SURVEYORS.

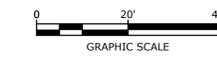




- DEMOLITION NOTES:**
1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO 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.

STATE OF NEW HAMPSHIRE  
 BRADLEE MEZQUITA  
 No. 09839  
 LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE  
 PATRICK CRIMMINS  
 No. 12378  
 LICENSED PROFESSIONAL ENGINEER  
 03/22/2021



**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
TBR	TO BE REMOVED
TYP	TYPICAL

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	

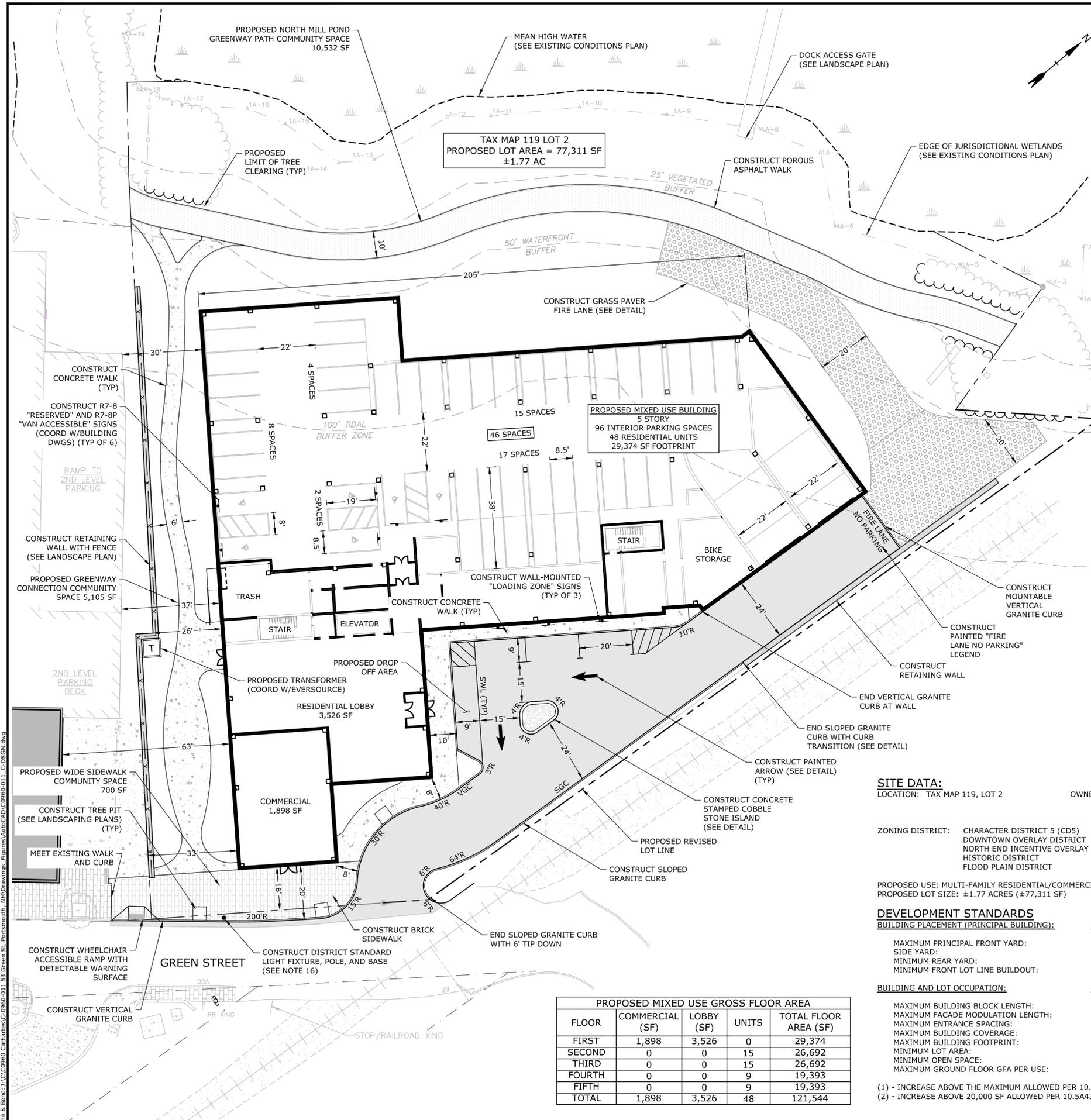
**DEMOLITION PLAN**

SCALE: AS SHOWN

Last Saved: 3/19/2021  
 Plotted On: Mar 22, 2021 10:18am By: ASelvar  
 Tighe & Bond File: C:\Projects\C0960-011\_53 Green St., Portsmouth, NH\Drawings\_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.



**LEGEND**

--- (dashed line)	PROPERTY LINE	▨ (diagonal lines)	PROPOSED POROUS PAVEMENT
- - - (long dashed line)	PROPOSED PROPERTY LINE	▨ (horizontal lines)	PROPOSED PAVEMENT
- - - (short dashed line)	ABUTTER PROPERTY LINE	▨ (stippled)	PROPOSED GRASS PAVER FIRE LANE TYPICAL
- - - (dash-dot line)	PROPOSED EASEMENT	▨ (cross-hatch)	PROPOSED CURB RADIUS
- - - (dash-dot-dot line)	PROPOSED EDGE OF PAVEMENT	▨ (brick pattern)	PROPOSED VERTICAL GRANITE CURB
▬ (solid line)	PROPOSED CURB	▨ (cobble pattern)	PROPOSED SLOPED GRANITE CURB
▬ (thick solid line)	PROPOSED BUILDING	▨ (brick pattern)	
▬ (thin solid line)	PROPOSED BRICK SIDEWALK	▨ (cobble pattern)	
▬ (dotted line)	PROPOSED CONCRETE SIDEWALK		

**SITE DATA:**

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

**BUILDING FORM (PRINCIPAL BUILDING):**

	REQUIRED	PROPOSED
BUILDING HEIGHT:	5 STORIES <sup>(3)</sup> 60 FT	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
FAÇADE GLAZING:		
SHOP FRONT	20% - 50%	20% - 50%
ALLOWED ROOF TYPES		
FLAT, GABLE, HIP, GAMBREL, MANSARD		FLAT

**DEVELOPMENT STANDARDS**

BUILDING PLACEMENT (PRINCIPAL BUILDING):	REQUIRED	PROPOSED
MAXIMUM PRINCIPAL FRONT YARD:	5 FT	16 FT <sup>(1)</sup>
SIDE YARD:	NR	
MINIMUM REAR YARD:	5 FT	>5 FT
MINIMUM FRONT LOT LINE BUILDOUT:	80%	80%

**COMMUNITY SPACE:**

	REQUIRED	PROPOSED
	20%	20%
	15,462 SF	15,494 SF

**PARKING REQUIREMENTS**

	REQUIRED	PROPOSED
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 =		73 SPACES

**PARKING SPACES**

	REQUIRED	PROPOSED
	73 SPACES	96 SPACES
		*15 PROPOSED SPACES ARE TANDEM SPACES

**ADA PARKING SPACES**

	REQUIRED	PROPOSED
	4 SPACES	6 SPACES

**BICYCLE SPACES**

	REQUIRED	PROPOSED
1 BICYCLE SPACE / 10 PARKING SPACES:	10 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

- (1) - INCREASE ABOVE THE MAXIMUM ALLOWED PER 10.5A42.12  
 (2) - INCREASE ABOVE 20,000 SF ALLOWED PER 10.5A43.43

**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
 Portsmouth, NH

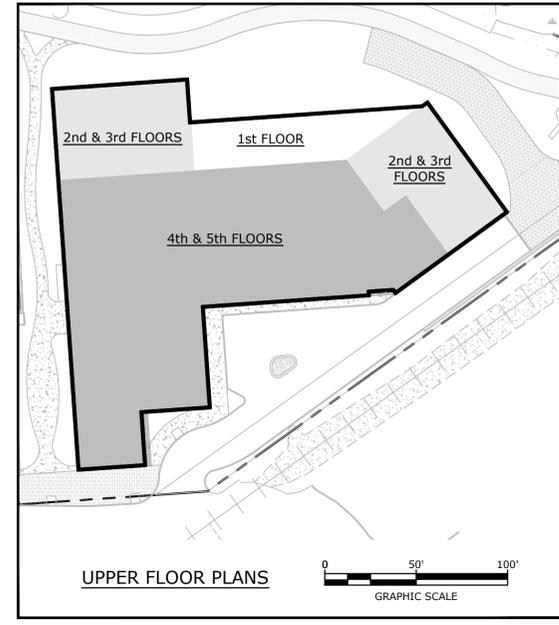
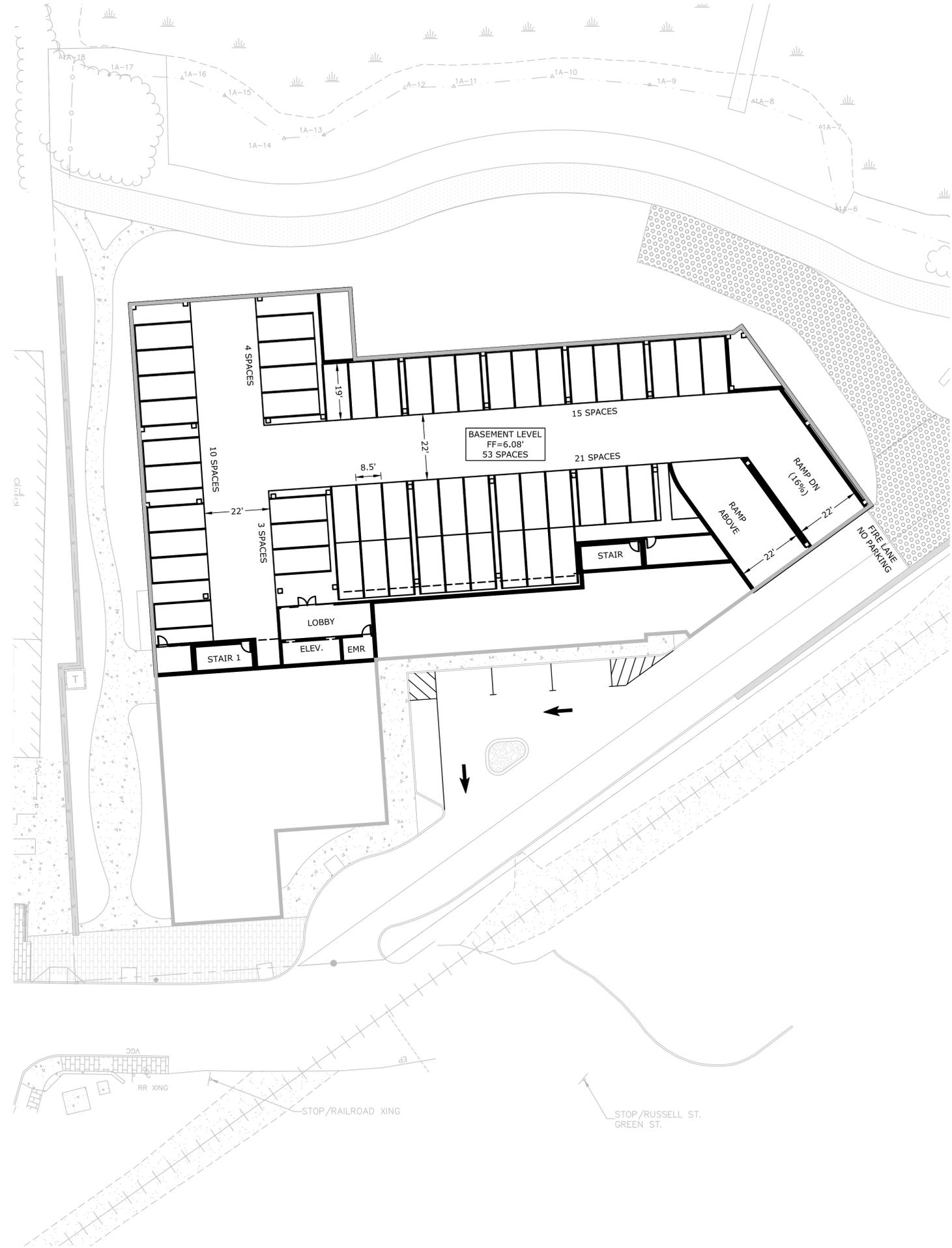
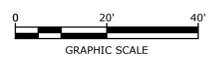
MARK	DATE	DESCRIPTION
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

**SITE PLAN**

SCALE: AS SHOWN

C-102.1

Last Saved: 3/22/2021 12:04pm By: Asellier  
 Plotted On: Mar 22, 2021 11:12:04am By: Asellier  
 Tighe & Bond 221 Commercial Center, Portsmouth, NH 03801  
 Figures: AutoCAD (C:\960-011\_C-DSGN.dwg)



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CPI Management, LLC

53 Green Street  
Portsmouth, NH

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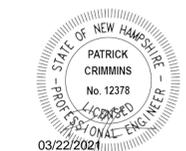
PROJECT NO:	C0960-011
DATE:	January 27, 2021
FILE:	C0960-011_C-DSGN.DWG
DRAWN BY:	AFS
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

**BASEMENT & UPPER FLOOR PLAN**

SCALE: AS SHOWN

**C-102.2**

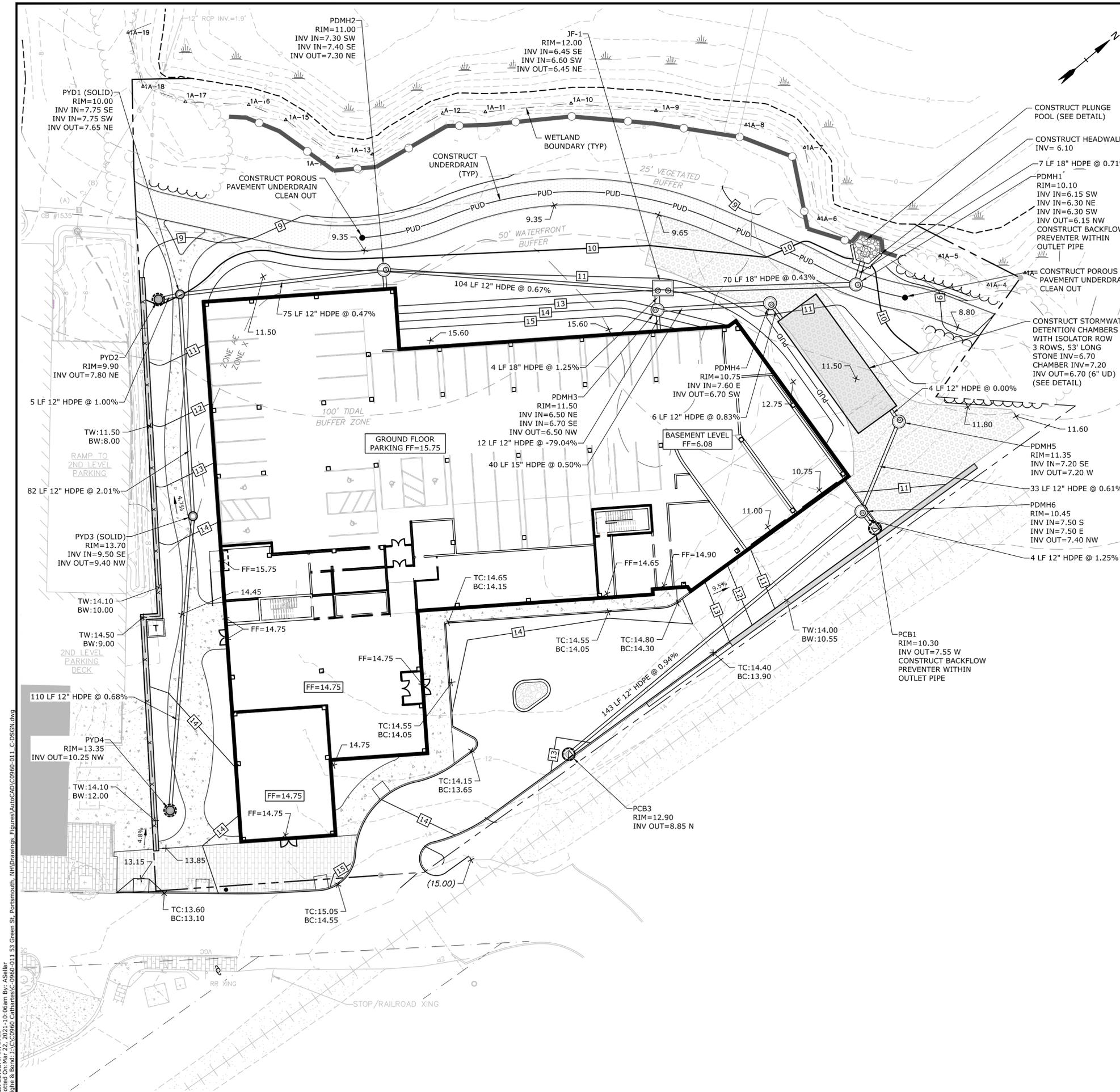
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 Tighe & Bond 212 Concord Cambridge Ct 0960-011 53 Green St. Portsmouth, NH Drawings Figures AutoCAD C0960-011 C-DSGN.dwg



- 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.

- LEGEND**
- 5 — PROPOSED MAJOR CONTOUR LINE
  - 6 — PROPOSED MINOR CONTOUR LINE
  - PUD — PROPOSED DRAIN LINE
  - ○ — PROPOSED UNDERDRAIN
  - ○ — PROPOSED SILT SOCK
  - [ ] — PROPOSED RIP RAP
  - [ ] — INLET PROTECTION SILT SACK
  - [ ] — PROPOSED CATCHBASIN
  - [ ] — PROPOSED DRAIN MANHOLE
  - [ ] — PROPOSED YARD DRAIN
  - [ ] — PROPOSED JELLYFISH FILTER
  - [ ] — JELLYFISH FILTER
  - [ ] — PROPOSED CATCH BASIN
  - [ ] — PROPOSED DRAIN MANHOLE
  - [ ] — PROPOSED YARD DRAIN
  - [ ] — TYPICAL



Last Saved: 3/19/2021  
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 Tighe & Bond 212 Concord Cabot Rd Portsmouth, NH Drawings Figures AutoCAD (C:\960-011\_C-DSGN.dwg)

**Proposed Mixed Use Development**

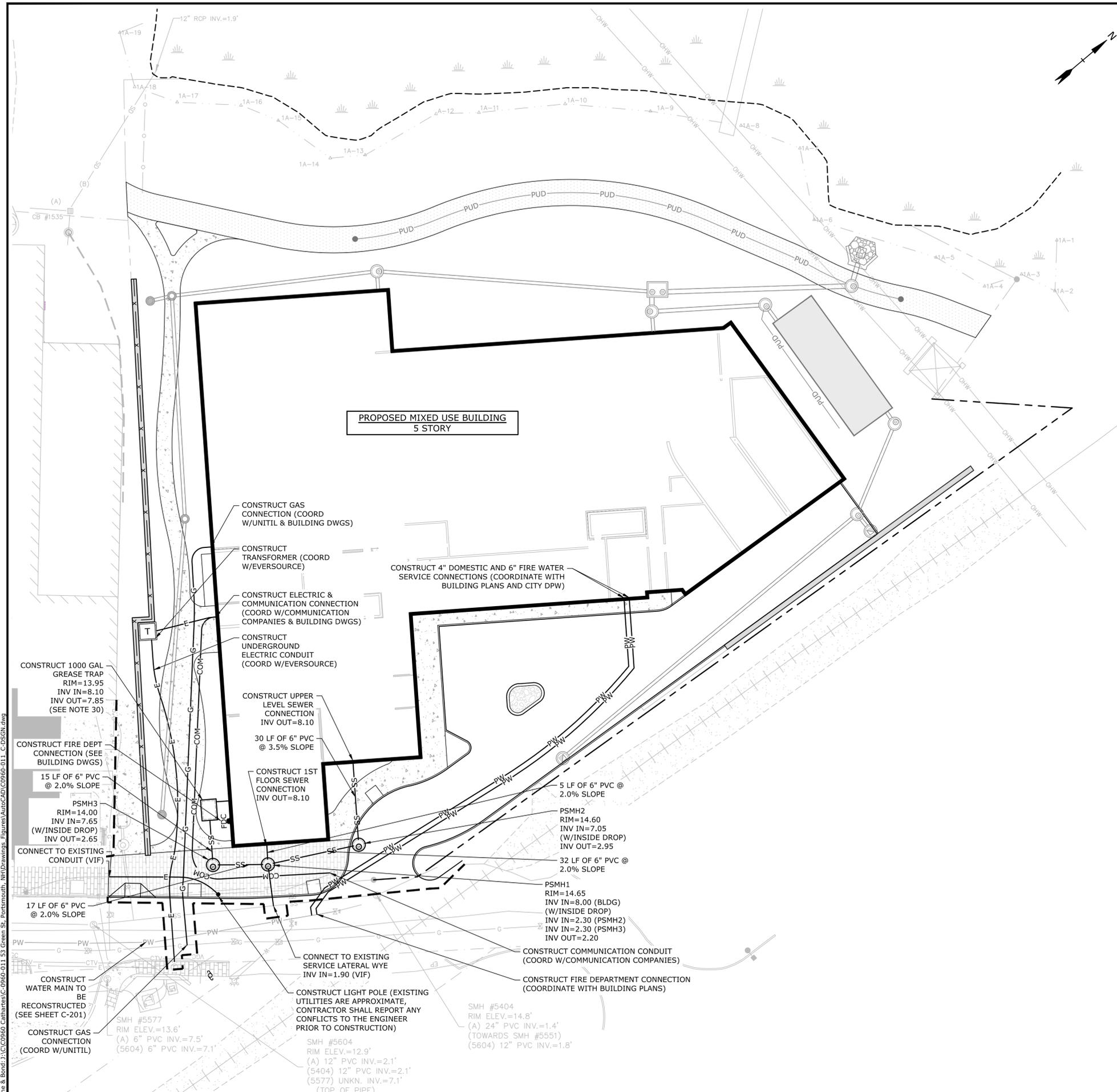
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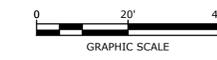
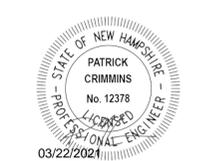
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**GRADING, DRAINAGE, AND EROSION CONTROL PLAN**

SCALE: AS SHOWN



- UTILITY NOTES:**
1. 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.
  2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
    - NATURAL GAS - UNITIL
    - WATER/SEWER - CITY OF PORTSMOUTH
    - ELECTRIC - EVERSOURCE
    - COMMUNICATIONS - FAIRPOINT AND COMCAST
  3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
  4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
  5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
  6. 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.
  7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
  8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
  9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ADJUTING PROPERTIES THROUGHOUT CONSTRUCTION.
  10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
  11. 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.
  12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
  13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
  14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
  15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
  16. 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.
  17. 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.
  18. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
  19. 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.
  20. 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.
  21. 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.
  22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
  23. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
  24. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
  25. ALL SEWER PIPE WITH LESS THAN 5' OF COVER SHALL BE INSULATED.
  26. 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.
  27. 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 PROPERTIES.
  28. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
  29. CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IF LOCATIONS DIFFER FROM PLAN.
  30. PROPOSED GREASE TRAP AND GREASE WATER SERVICE CONNECTION TO BE CONSTRUCTED IF PROPOSED COMMERCIAL SPACE BECOMES RESTAURANT USE.



**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
Portsmouth, NH

**LEGEND**

SD	EXISTING STORM DRAIN	SS	EXISTING SANITARY SEWER
SS	EXISTING SANITARY SEWER TO BE ABANDONED	W	EXISTING WATER SERVICE
G	EXISTING GAS SERVICE	E	EXISTING UNDERGROUND ELECTRIC SERVICE
OHW	EXISTING OVERHEAD UTILITY SERVICE	SS	PREVIOUSLY APPROVED SEWER
SS	PROPOSED STORM DRAIN	SS	PROPOSED SANITARY SEWER
PW	PROPOSED WATER SERVICE	G	PROPOSED GAS SERVICE
E	PROPOSED STREET LIGHTING CONDUIT	PE&C	PROPOSED UNDERGROUND ELECTRIC AND COMMUNICATION SERVICE

⊙	EXISTING DRAIN MANHOLE	⊙	PROPOSED CATCHBASIN
⊙	EXISTING SEWER MANHOLE	⊙	PROPOSED DRAIN MANHOLE
⊙	PREVIOUSLY APPROVED SEWER MANHOLE	⊙	PROPOSED SEWER MANHOLE
⊙	EXISTING HYDRANT	⊙	PROPOSED WATER VALVE
⊙	EXISTING WATER VALVE	⊙	PROPOSED FIRE DEPARTMENT BUILDING CONNECTION
⊙	EXISTING WATER SHUTOFF	⊙	PROPOSED GAS VALVE
⊙	EXISTING ELECTRIC MANHOLE	⊙	PROPOSED LIGHT POLE BASE
⊙	EXISTING PAD MOUNTED TRANSFORMER	BLDG	BUILDING
⊙	EXISTING GAS VALVE	TYP	TYPICAL
⊙	EXISTING HANDHOLE	COORD	COORDINATE
⊙	EXISTING COMMUNICATION MANHOLE	VIF	VERIFY IN FIELD

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 BY:	NAH/PMC
APPROVED:	BLM

**UTILITIES PLAN**

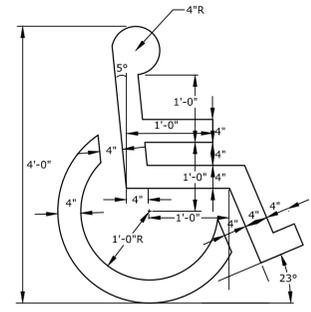
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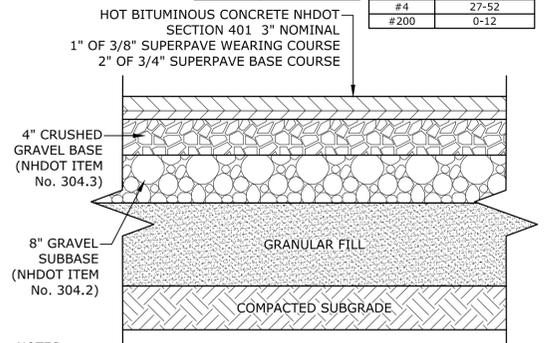




**NOTES:**  
 1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.  
 2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

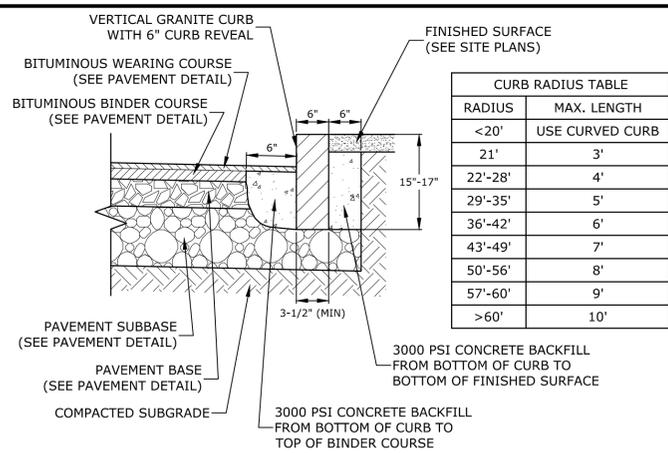
**ACCESSIBLE SYMBOL**  
NO SCALE

NHDOT ITEM No. 304.2 (GRAVEL)		NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING	SIEVE SIZE	% PASSING
6"	100	3"	100
#4	25-70	2"	95-100
#200	0-12	1"	55-85
		#4	27-52
		#200	0-12



**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.

**ON-SITE PAVEMENT SECTION**  
NO SCALE



**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

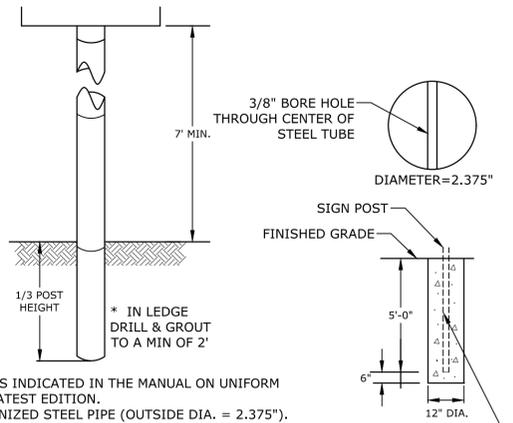


R7-8  
12" X 18"  
BLUE AND GREEN ON WHITE

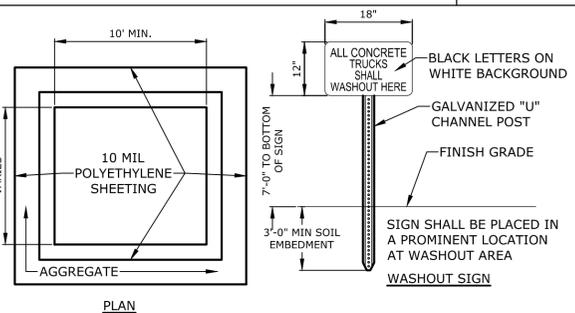


R7-8P  
18" X 9"  
GREEN ON WHITE

**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)

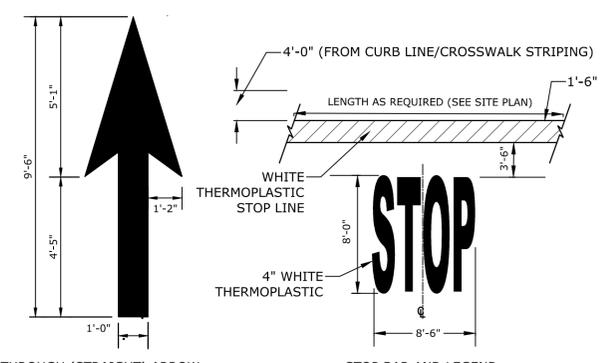


**SIGN LEGEND & SIGN POST**  
NO SCALE



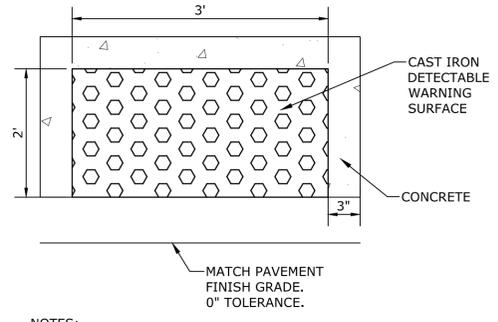
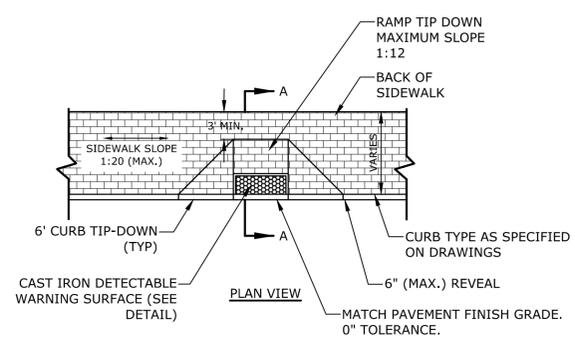
**NOTES:**  
 1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.  
 2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.  
 3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE 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



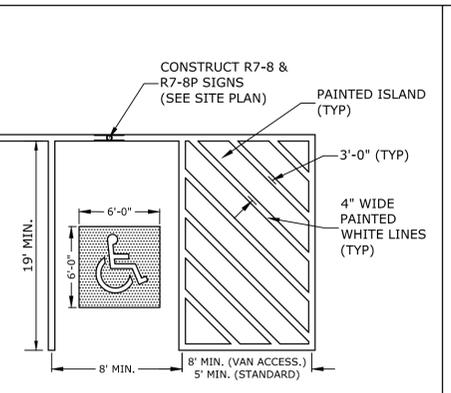
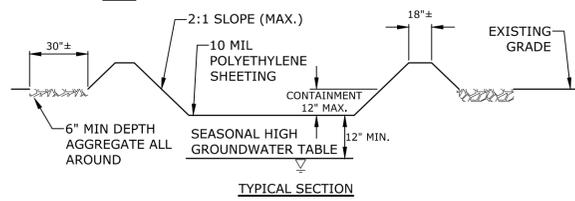
**NOTE:**  
 1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.  
 2. ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTORIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

**PAVEMENT MARKINGS**  
NO SCALE



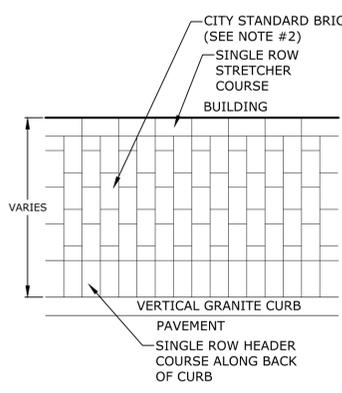
**NOTES:**  
 1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

**DETECTABLE WARNING SURFACE**



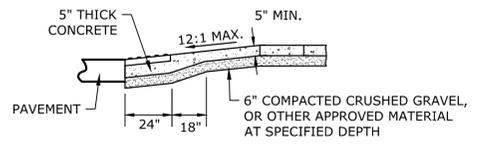
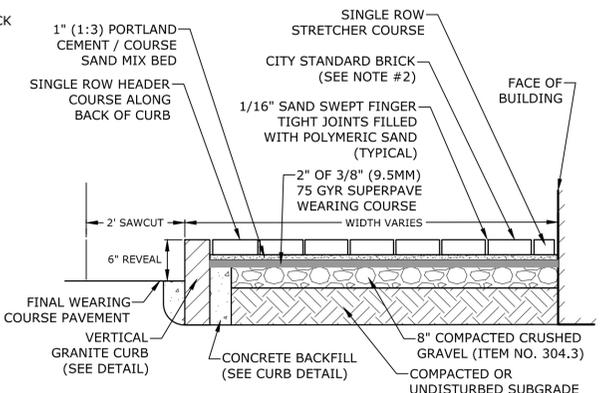
**NOTES:**  
 1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.  
 2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN W/ DISABILITIES ACT.

**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



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

**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).

**CONCRETE WHEELCHAIR ACCESSIBLE RAMP**  
NO SCALE

**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street Portsmouth, NH

MARK	DATE	DESCRIPTION
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 BY: NAH/PMC  
 APPROVED BY: BLM

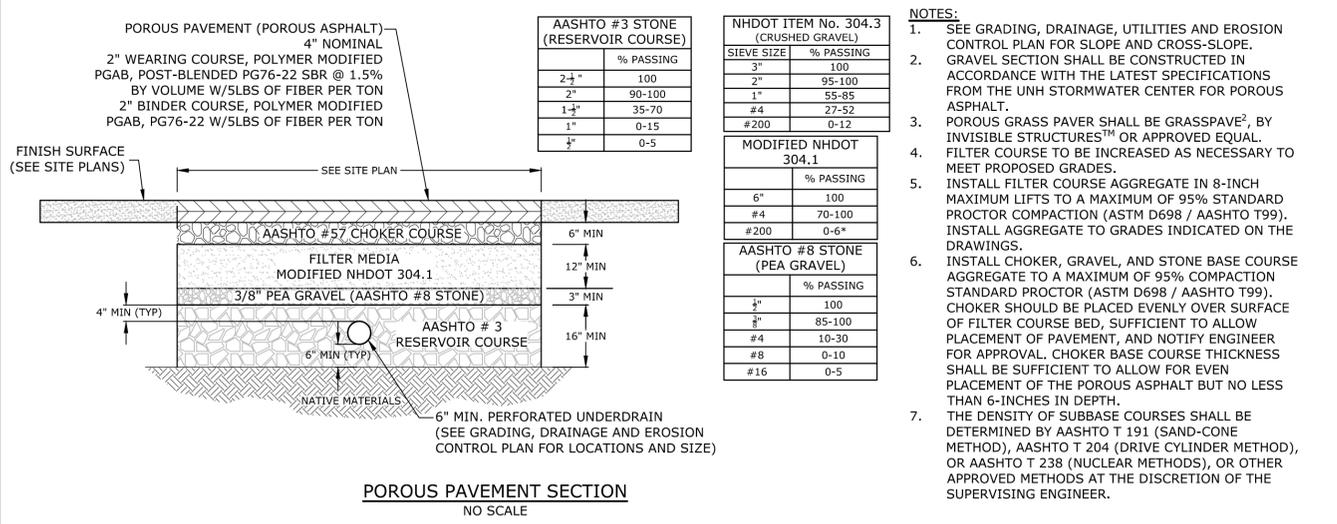
**DETAILS SHEET**

SCALE: AS SHOWN

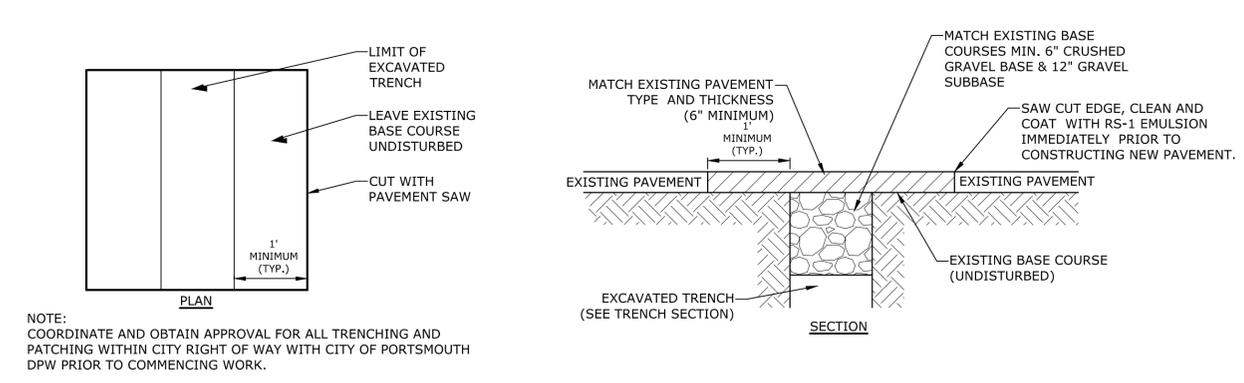
C-502

STATE OF NEW HAMPSHIRE  
 BRADLEE MEZQUITA  
 No. 09830  
 LICENSED PROFESSIONAL ENGINEER  
 03/22/2021

STATE OF NEW HAMPSHIRE  
 PATRICK CRIMMINS  
 No. 12378  
 LICENSED PROFESSIONAL ENGINEER  
 03/22/2021

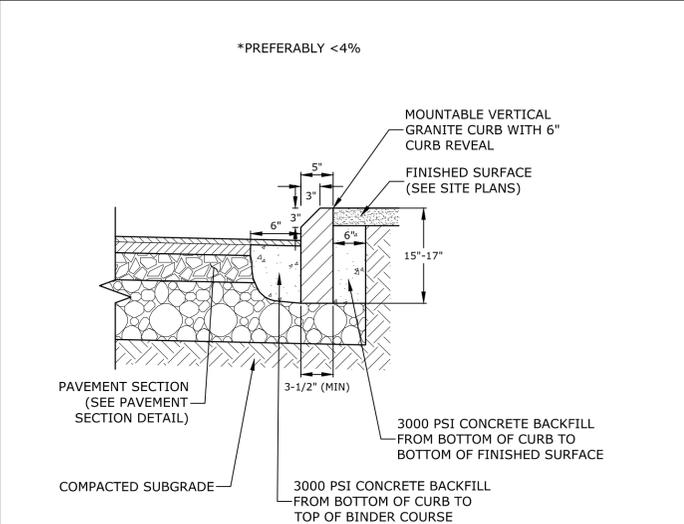


**POROUS PAVEMENT SECTION**  
NO SCALE



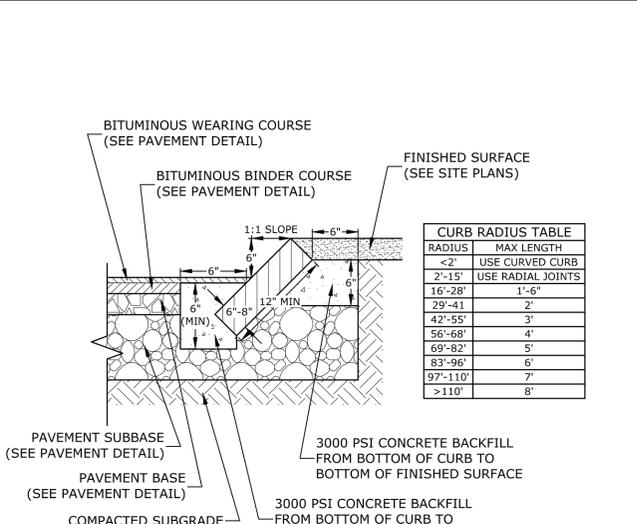
**ROADWAY TRENCH PATCH**  
NO SCALE

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



**MOUNTABLE VERTICAL GRANITE CURB**  
NO SCALE

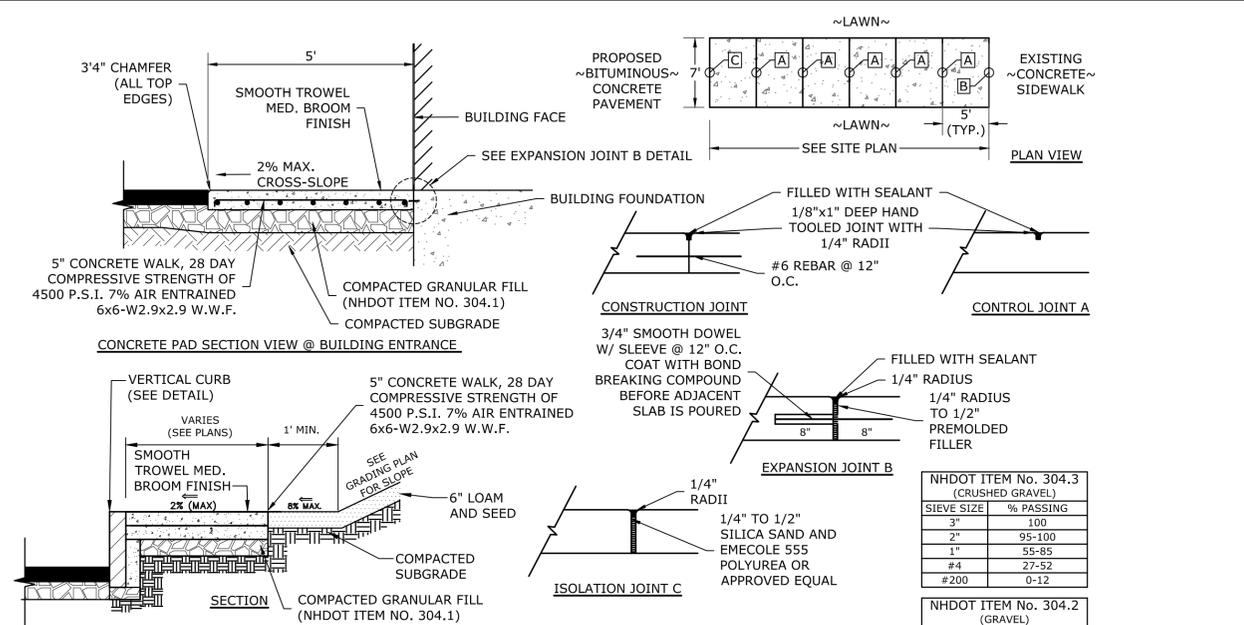
NOTES:  
 1. SEE SITE PLAN(S) FOR LIMITS OF MOUNTABLE VERTICAL GRANITE CURB (MVGC).  
 2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.  
 3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'  
 4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'  
 5. MAXIMUM LENGTH OF STRAIGHT CURB STONES 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\"/>



**SLOPED GRANITE CURB**  
NO SCALE

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

RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41'	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'



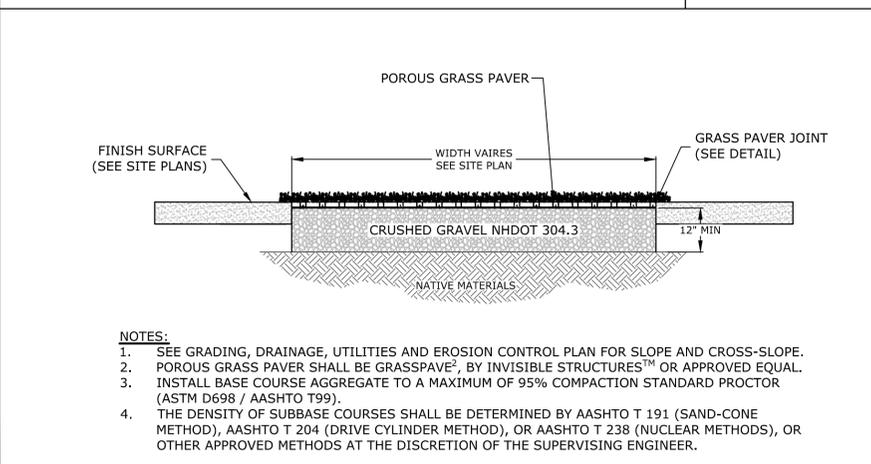
**CONCRETE SIDEWALK**  
NO SCALE

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

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

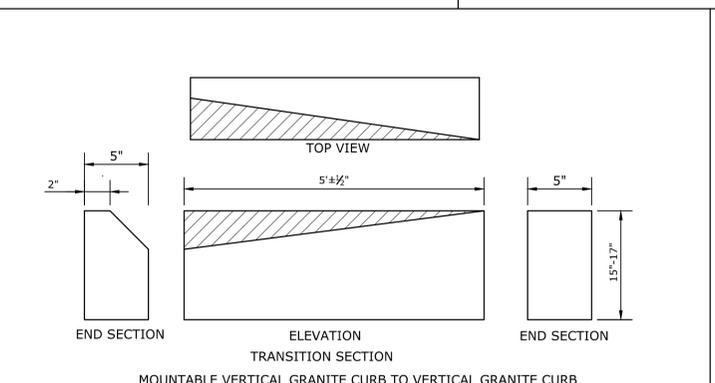
  

NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12



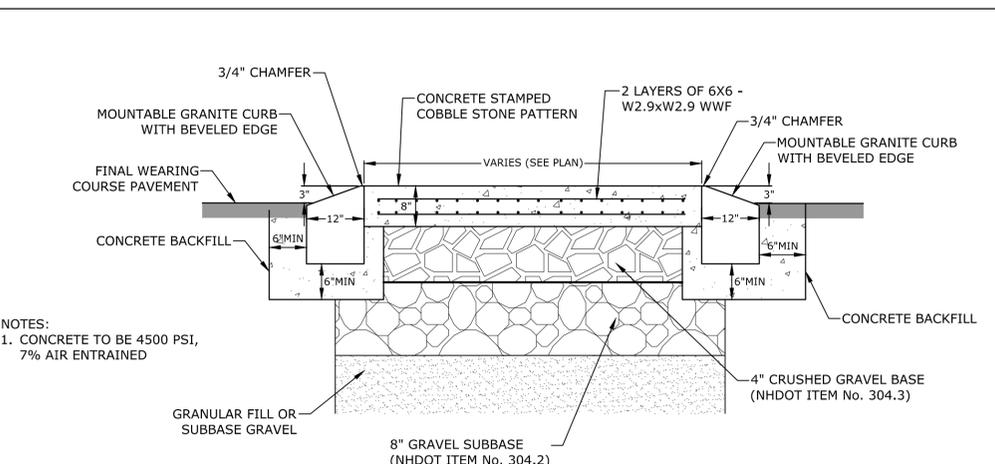
**GRASS PAVER FIRE LANE SECTION**  
NO SCALE

NOTES:  
 1. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.  
 2. POROUS GRASS PAVER SHALL BE GRASSPAVE<sup>2</sup>, BY INVISIBLE STRUCTURES<sup>TM</sup> OR APPROVED EQUAL.  
 3. INSTALL BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99).  
 4. 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.



**CURB TRANSITION**  
NO SCALE

NOTES:  
 1. 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.



**CONCRETE STAMPED COBBLE STONE ISLAND**  
NO SCALE

NOTES:  
 1. CONCRETE TO BE 4500 PSI, 7% AIR ENTRAINMENT

**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
 Portsmouth, NH

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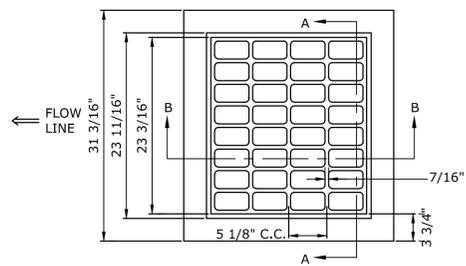
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**DETAILS SHEET**

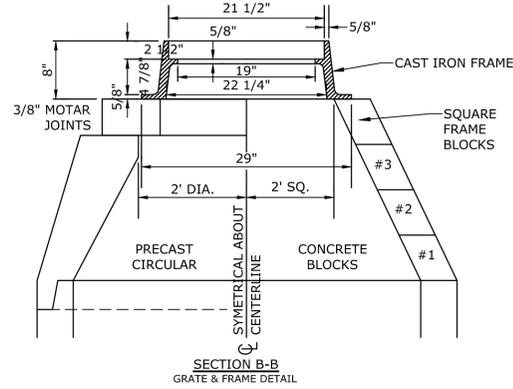
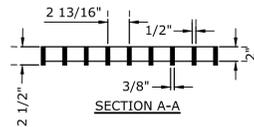
SCALE: AS SHOWN

**C-503**

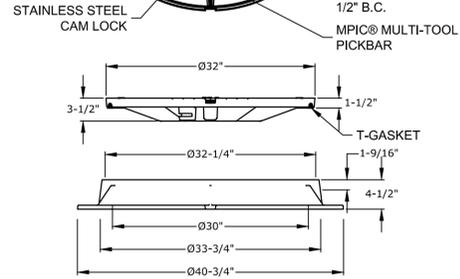
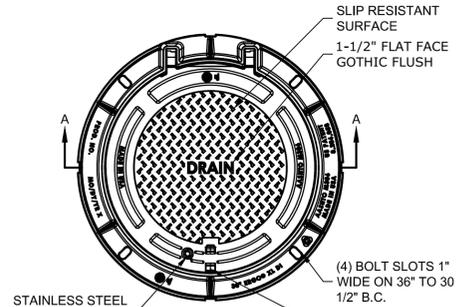
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- NOTE:
1. GRATE TO BE CAST IRON (NHDOT TYPE B)
  2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

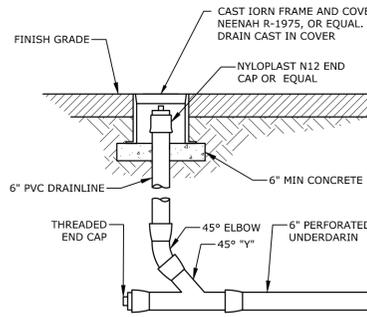


**CATCH BASIN FRAME & GRATE**  
NO SCALE

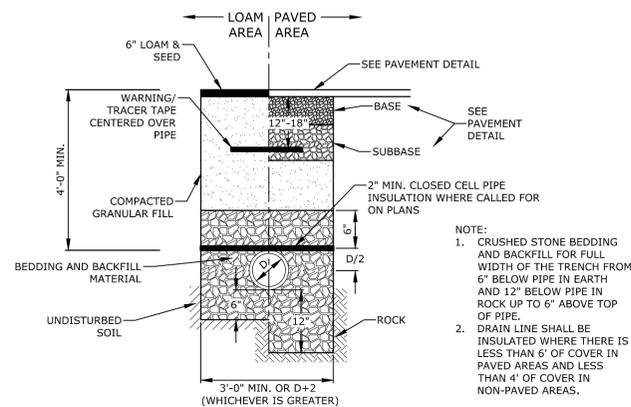


- NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32\"/>
  - 2. ALL DIMENSIONS ARE NOMINAL.
  - 3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
    - A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
    - B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN 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\"/>

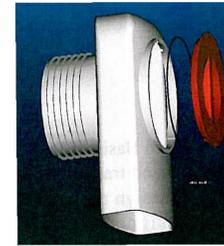
**DRAIN MANHOLE FRAME & COVER**  
NO SCALE



**DRAIN CLEAN-OUT**  
NO SCALE



**STORM DRAIN TRENCH**  
NO SCALE

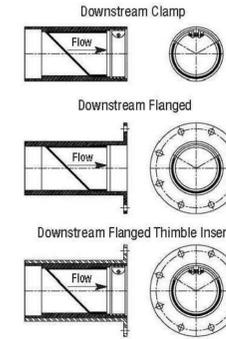


- NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
  2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
  3. 1/4\"/>

**"ELIMINATOR" OIL FLOATING DEBRIS TRAP**  
NO SCALE

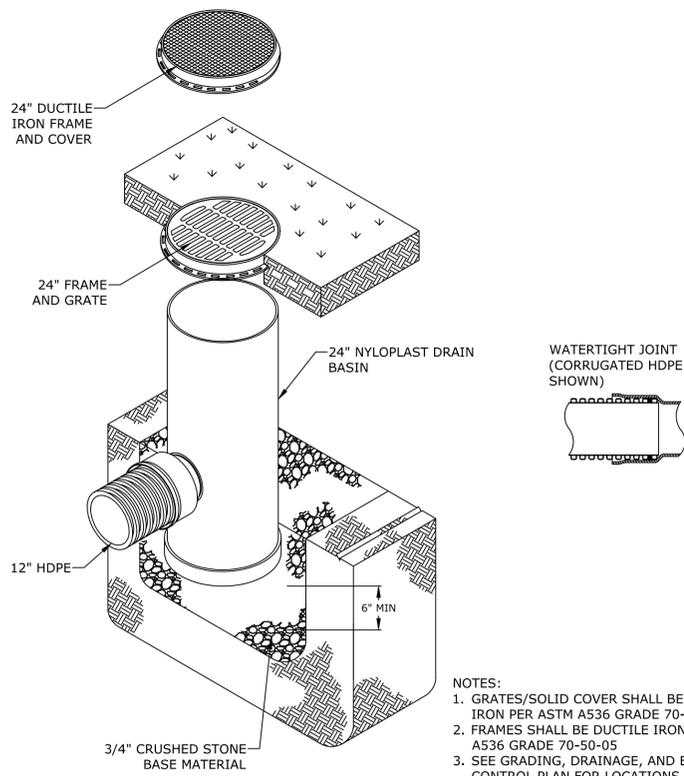
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
18	450	31	787	1	4	102	20	6

**Mounting Styles and Configurations**



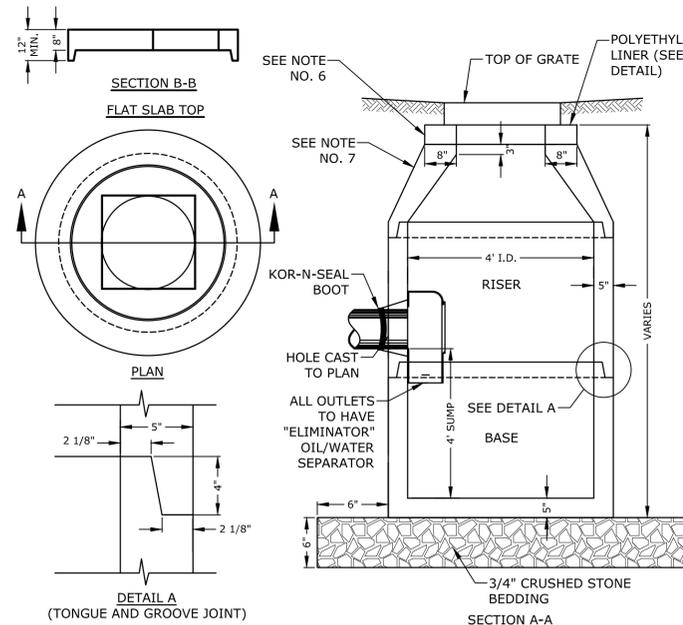
Flange shape and bolt pattern can be customized. Flangeless thimble inserts are available.

**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.

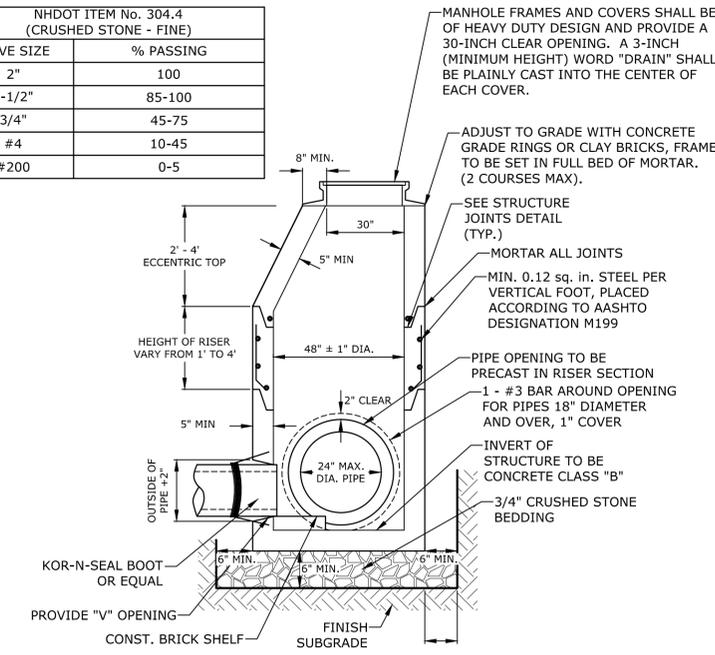
**YARD DRAIN**  
NO SCALE



- 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\"/>
  - 10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4\"/>
  - 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.

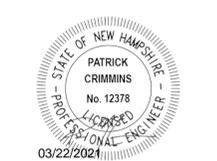
**4\"/>**

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\"/>
  - 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\"/>
  - 9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4\"/>
  - 10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12\"/>

**4\"/>**



**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
Portsmouth, NH

MARK	DATE	DESCRIPTION
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  
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CHECKED BY: NAH/PMC  
APPROVED BY: BLM

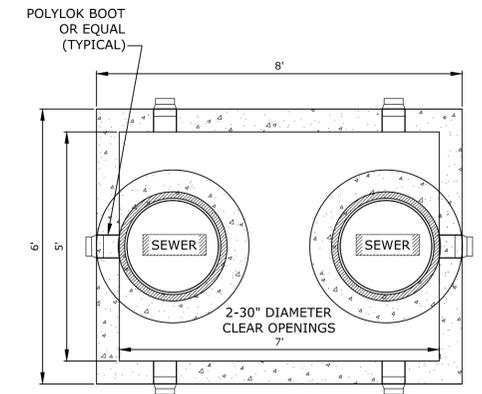
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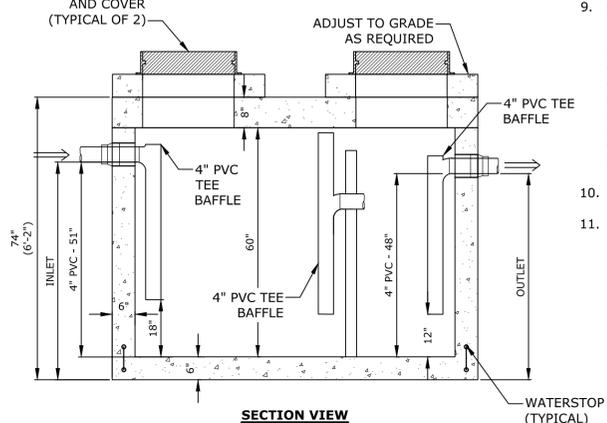
**C-504**

STATE OF NEW HAMPSHIRE  
 BRADLEE MEZQUITA  
 No. 0983-D  
 LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE  
 PATRICK CRIMMINS  
 No. 12378  
 LICENSED PROFESSIONAL ENGINEER  
 03/22/2021



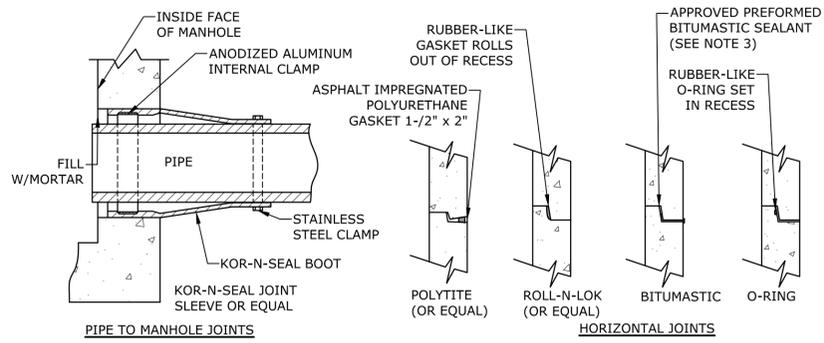
**PLAN VIEW**



**SECTION VIEW**

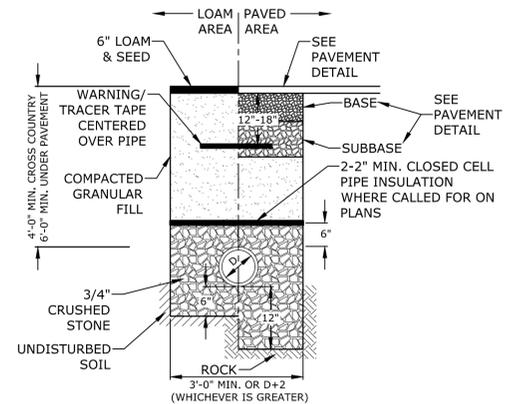
**1,000 GALLON GREASE TRAP**  
NO SCALE

- 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.



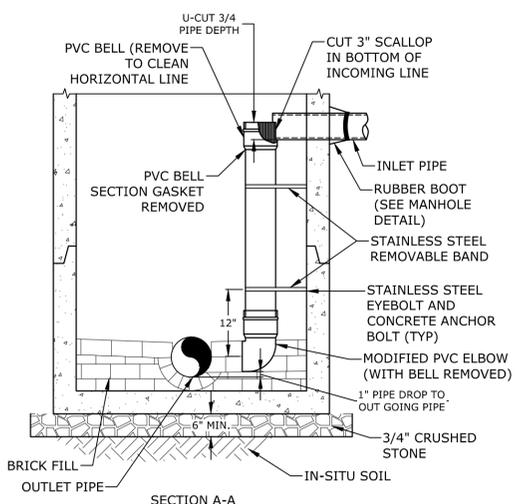
**MANHOLE JOINTS**  
NO SCALE

- 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.

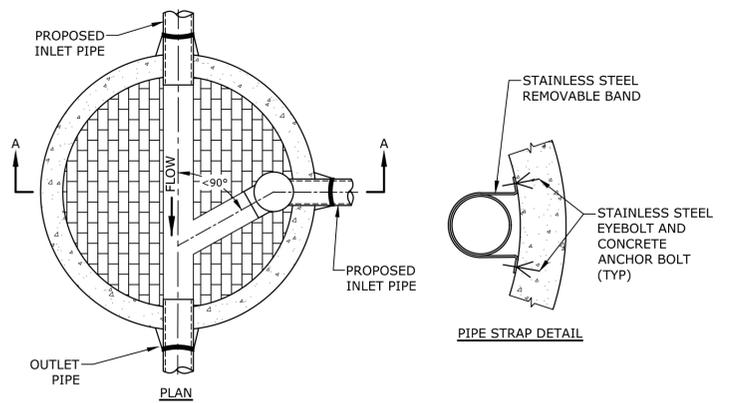


**SEWER SERVICE TRENCH**  
NO SCALE

- 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.

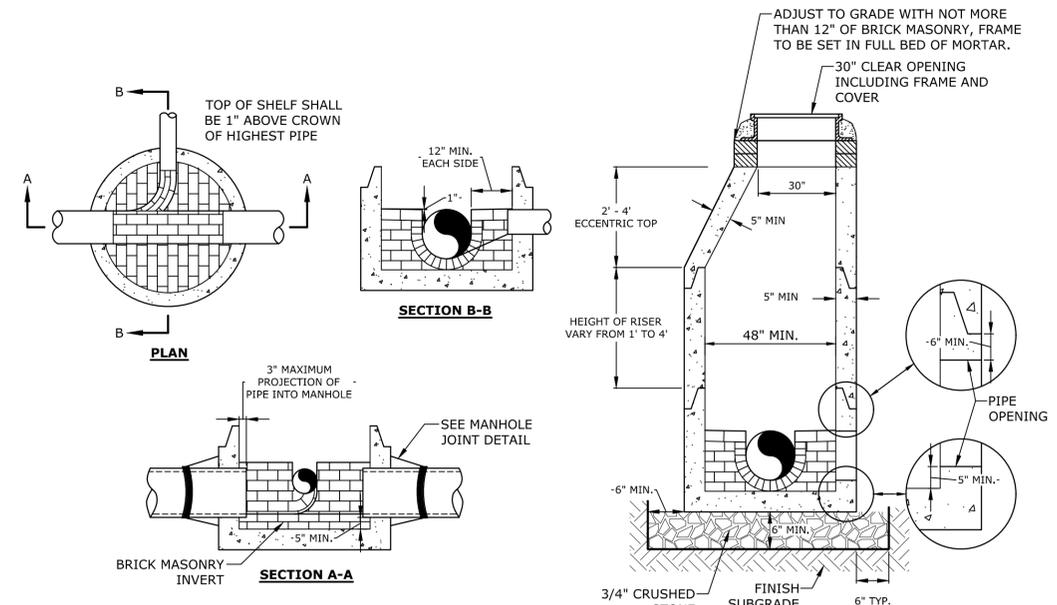


**SECTION A-A**



**INSIDE DROP MANHOLE**  
NO SCALE

- 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.



**SEWER 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.

**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
Portsmouth, NH

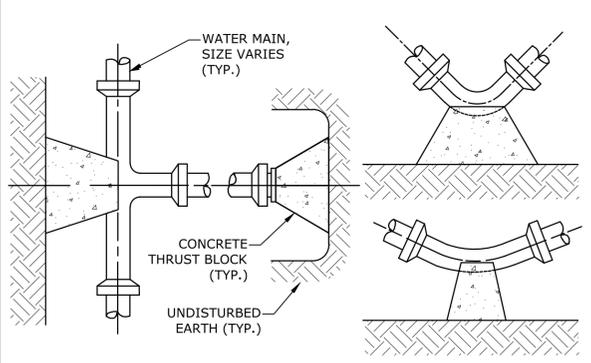
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DATE:	January 27, 2021
FILE:	C0960-011_C-DTLS.DWG
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CHECKED:	NAH/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-505

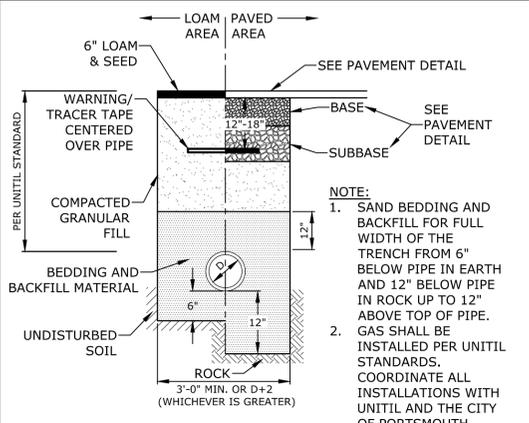
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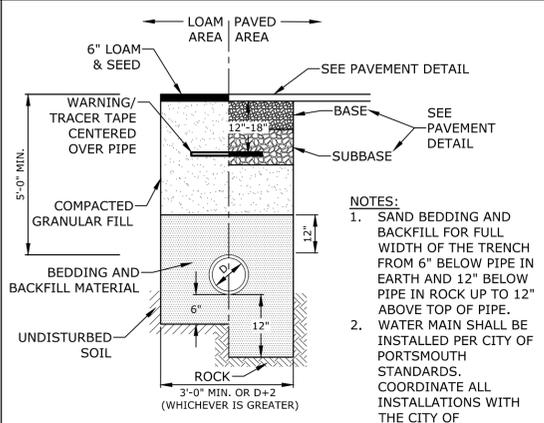
**THRUST BLOCKING DETAIL**  
NO SCALE

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

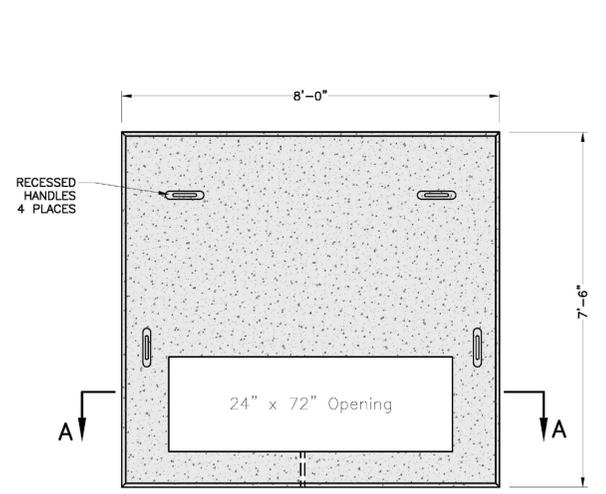
- TEST PRESSURE = 200PSI
- NOTES:
- POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
  - ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
  - 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.



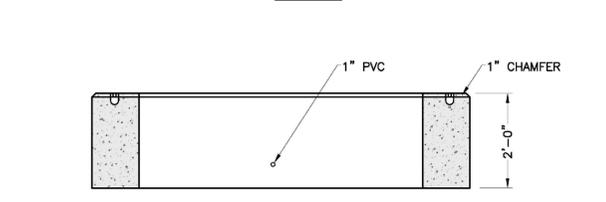
**GAS TRENCH**  
NO SCALE



**WATER TRENCH**  
NO SCALE



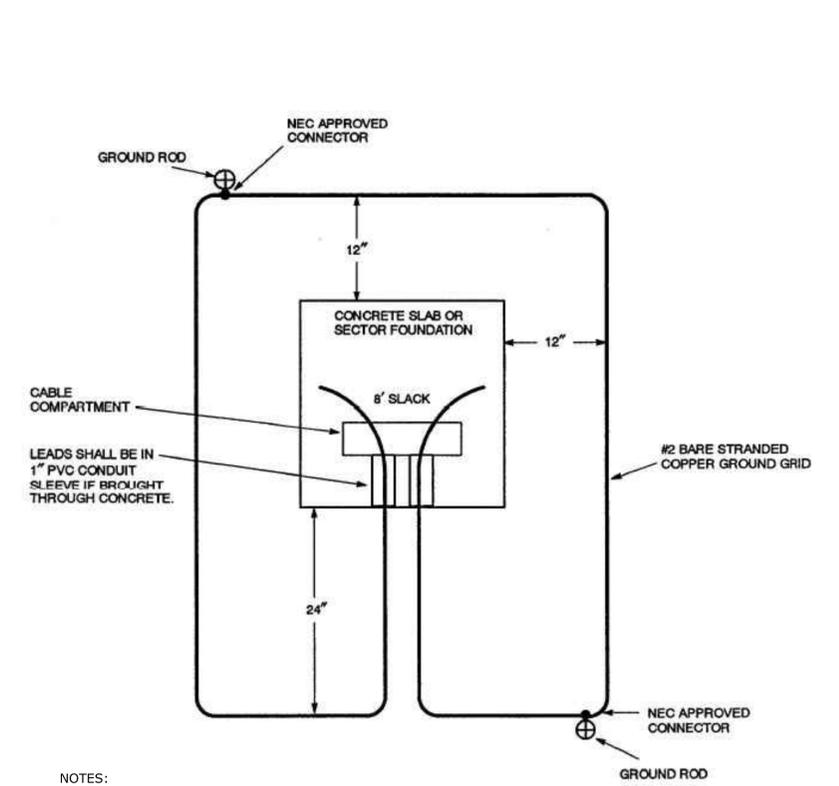
**PLAN**



**SECTION A-A**

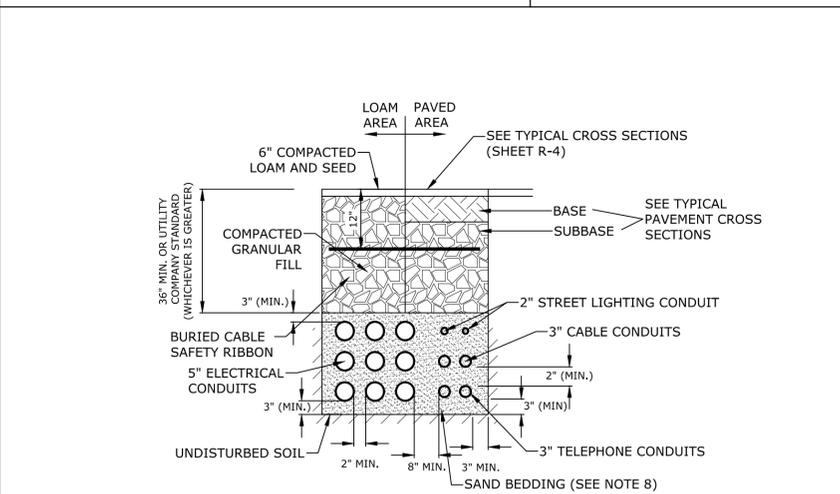
- NOTES:
- DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
  - CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
  - STEEL REINFORCEMENT - ASTM A615, GRADE 60
  - PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

**3-PHASE TRANSFORMER PAD**  
NO SCALE



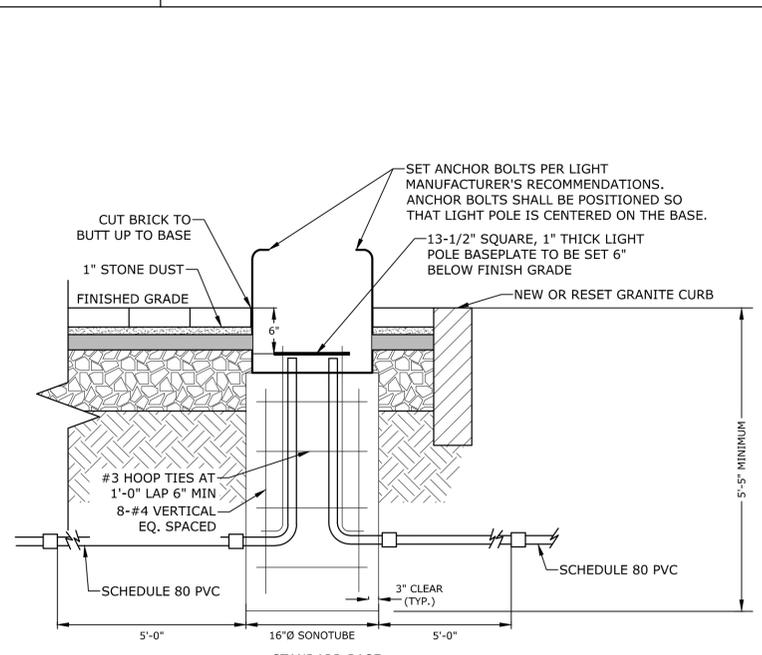
**PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL**  
NO SCALE

- NOTES:
- THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.



**ELECTRICAL AND COMMUNICATION CONDUIT**  
NO SCALE

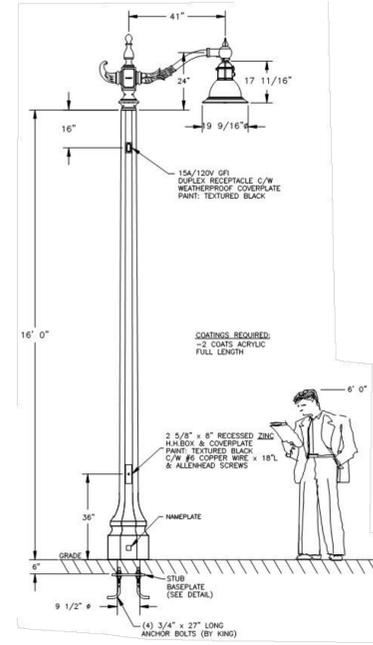
- NOTES:
- NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
  - DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
  - A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
  - UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
  - ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
  - ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
  - SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.



**STANDARD BASE**

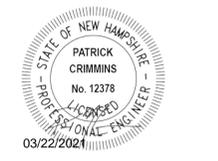
- NOTES:
- REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
  - CONCRETE: 4000 PSI, AIR ENTRAINED STEEL: 60 KSI
  - LIGHT POLE FOUNDATIONS SHALL BE PLACED PRIOR TO INSTALLATION OF BRICK PAVERS.
  - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.
  - STANDARD BASE SHALL BE CONSTRUCTED UNLESS THERE IS CONFLICT WITH THE EXISTING DUCT BANK. SPREAD FOOTING BASE SHALL BE USED IN LIEU OF STANDARD BASE IN LOCATIONS WHERE TOP OF DUCT BANK ELEVATION WILL CONFLICT WITH STANDARD POLE BASE DEPTH. CONTRACTOR SHALL VERIFY LOCATIONS WHERE SPREAD FOOTINGS ARE REQUIRED PRIOR TO CONSTRUCTION. SEE NOTE#4 FOR SUBMITTAL REQUIREMENTS.

**DISTRICT STANDARD 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
- COLOUR: POLISHED
- 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



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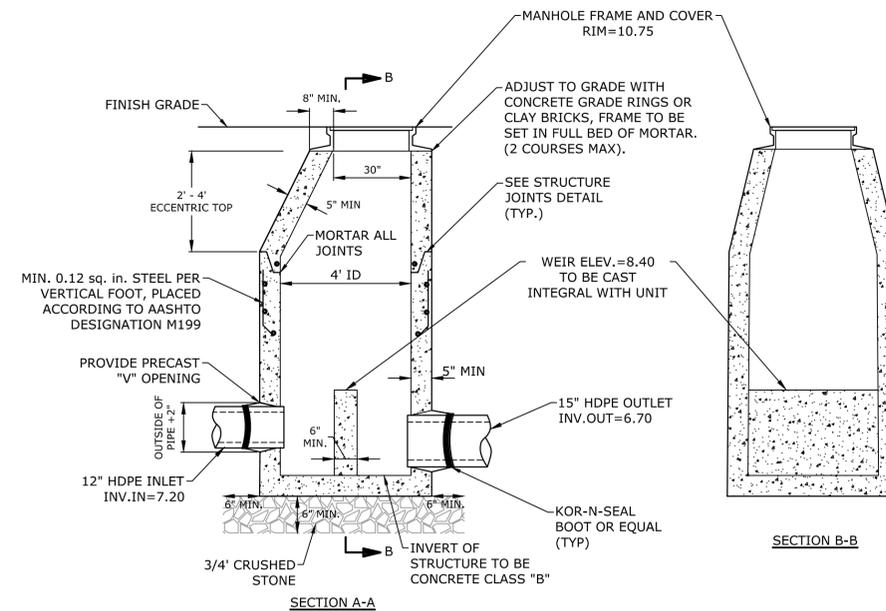
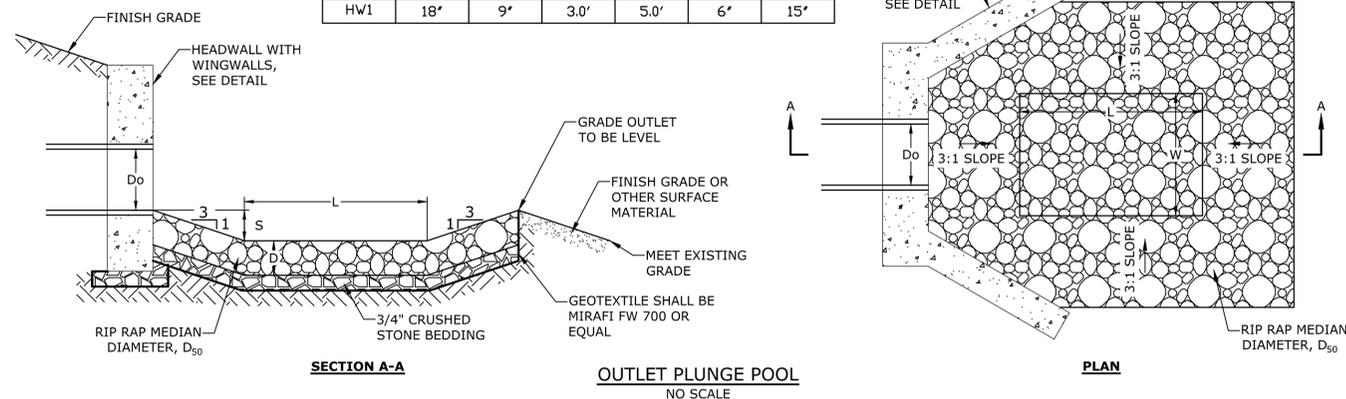
**DETAILS SHEET**

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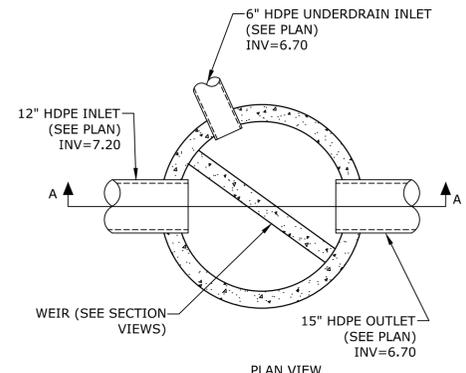
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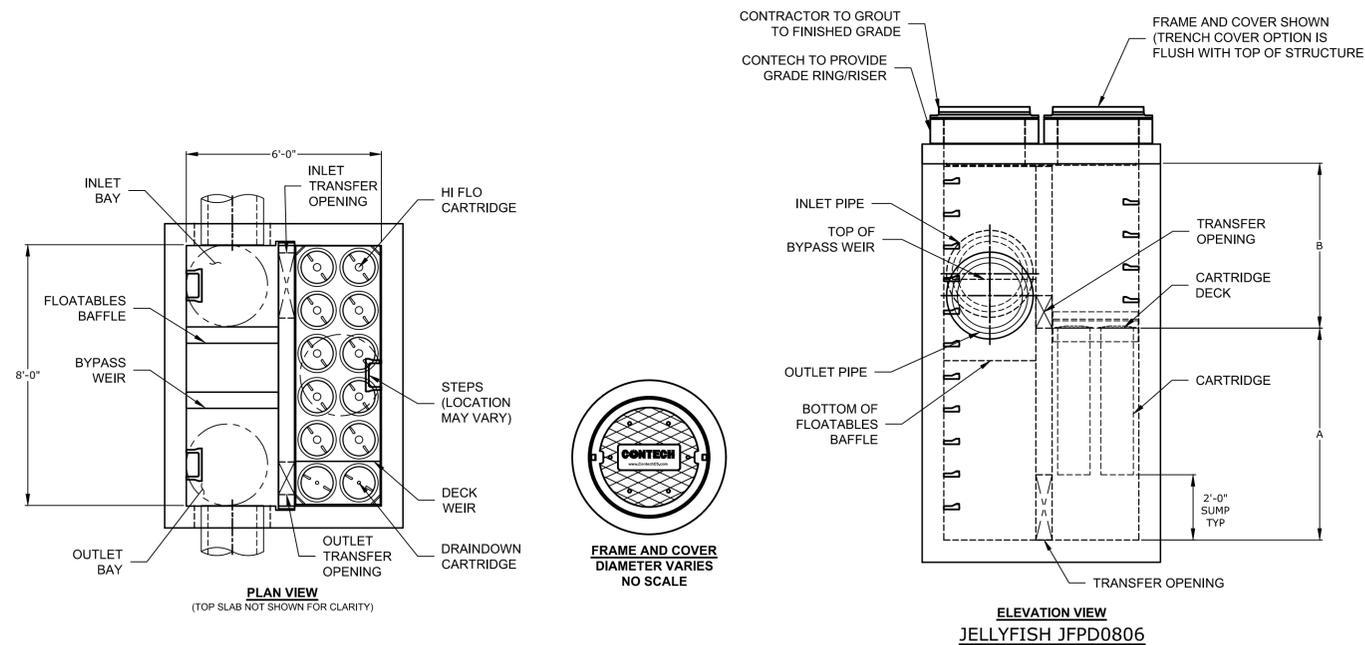
OUTLET PLUNGE POOL SIZING						
HW1	Do	S	W	L	D <sub>50</sub>	D
18'	18'	9'	3.0'	5.0'	6'	15'



- 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 (PDMH4)**  
NO SCALE



- GENERAL NOTES:**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
  - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
  - JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
  - STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 7'-3\"/>

**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.

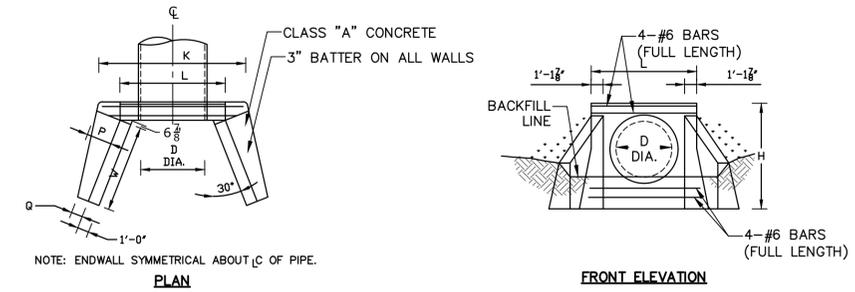
CARTRIDGE SELECTION	54"	40"	27"	15"
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	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)	8.50
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	5/1
CARTRIDGE SIZE	54"

**JELLYFISH FILTER DETAIL (JF-1)**  
NO SCALE

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



**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 3/4"	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 3/4"	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 3/4"	1'-6 1/2"	0'-9 3/4"	3'-10 1/2"	6'-7 3/4"	6.67

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

**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
Portsmouth, NH

MARK	DATE	DESCRIPTION
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 BY: NAH/PMC  
APPROVED BY: BLM

DETAILS SHEET

SCALE: AS SHOWN

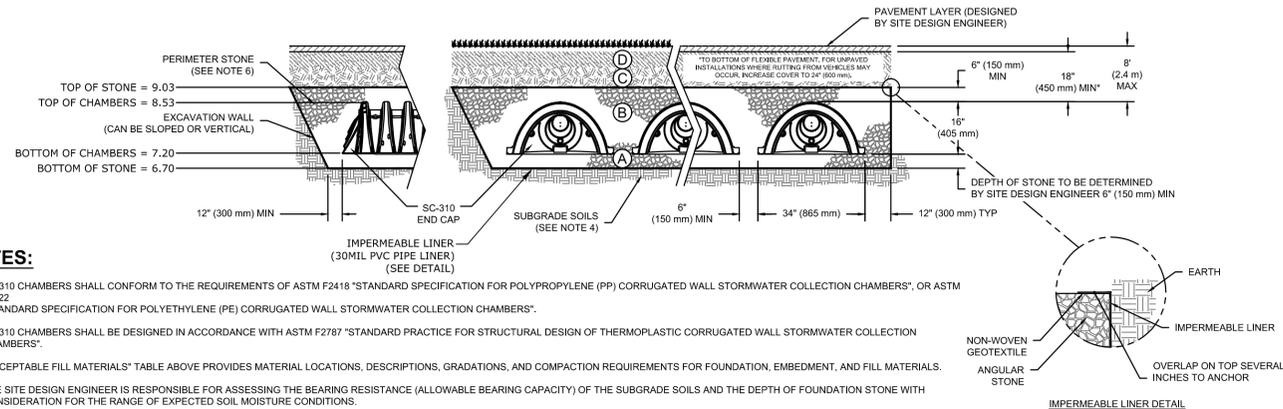
C-507

Last Saved: 3/22/2021 11:11:11 AM By: ASeller  
Plotted On: Mar 22, 2021 11:11:11 AM  
Tighe & Bond 2121 Congress Ave. Portsmouth, NH 03801  
Figures/Attachments: Figures/Attachments/C0960-011\_C-DTLS.dwg

**ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS**

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBERS. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2.4, A-3 OR AASHTO M43 <sup>2</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN), DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 <sup>2</sup> 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 <sup>2</sup> 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2</sup>

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR, FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
  - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
  - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN AND CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



**NOTES:**

- SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

**STORMTECH CHAMBER SPECIFICATIONS**

- CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
- CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.<sup>1</sup>
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".<sup>1</sup>
- CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
  - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
  - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
  - STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

**NOTES FOR CONSTRUCTION EQUIPMENT<sup>1</sup>**

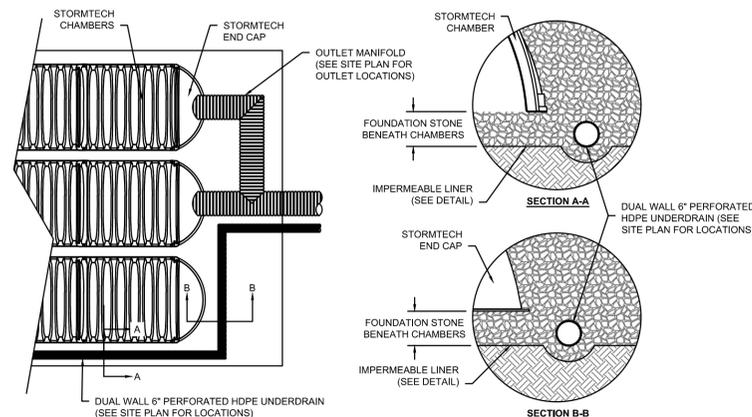
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".<sup>1</sup>
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER TIRE LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".<sup>1</sup>
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

**USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.**

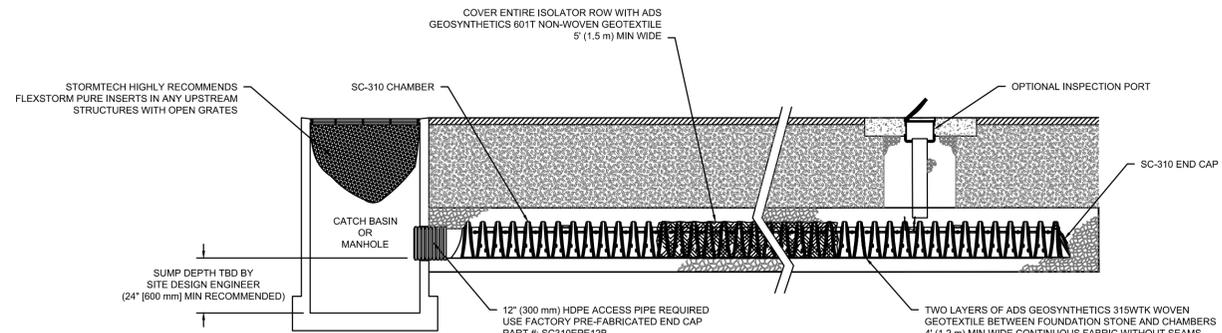
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

**IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM**

- STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.<sup>1</sup>
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".<sup>1</sup>
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.<sup>1</sup> STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.<sup>1</sup>
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.<sup>1</sup>
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.<sup>1</sup>
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.<sup>1</sup>
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4"-2" (20-50 mm).<sup>1</sup>
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.<sup>1</sup>
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.



UNDERDRAIN DETAIL NTS



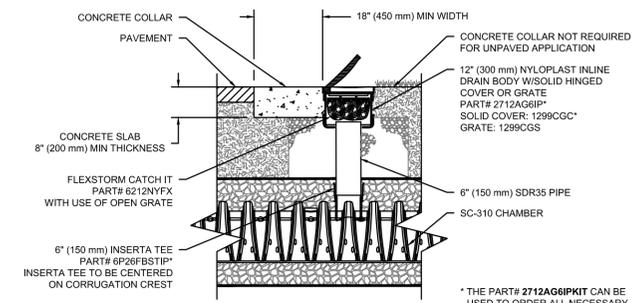
SC-310 ISOLATOR ROW DETAIL NTS

**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- INSPECTION PORTS (IF PRESENT)
    - REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
    - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - ALL ISOLATOR ROWS
    - REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
    - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
      - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
  - APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

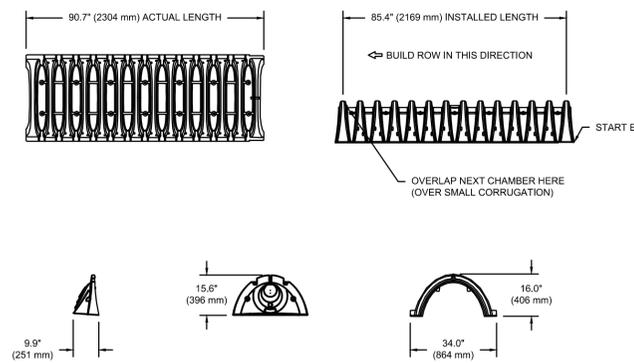
**NOTES**

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-310 6" INSPECTION PORT DETAIL NTS

**SC-310 TECHNICAL SPECIFICATION**



**NOMINAL CHAMBER SPECIFICATIONS**

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET (0.42 m <sup>3</sup> )	—
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET (0.88 m <sup>3</sup> )	—
WEIGHT	35.0 lbs. (16.8 kg)	—

\*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS

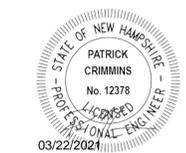
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"  
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"  
PRE-GORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	—
SC310EPE08B / SC310EPE08BPC	8" (200 mm)	11.9" (302 mm)	—	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	—
SC310EPE08B / SC310EPE08BPC	10" (250 mm)	12.7" (323 mm)	—	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	—
SC310EPE10B / SC310EPE10BPC	12" (300 mm)	13.5" (343 mm)	—	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	—	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

\* FOR THE SC310EPE12B THE STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL



**Proposed Mixed Use Development**

CPI Management, LLC

53 Green Street  
Portsmouth, NH

MARK	DATE	DESCRIPTION
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-508**





Pavers



Sculptures - Images



Murals



Wayfinding Signage



Plant List

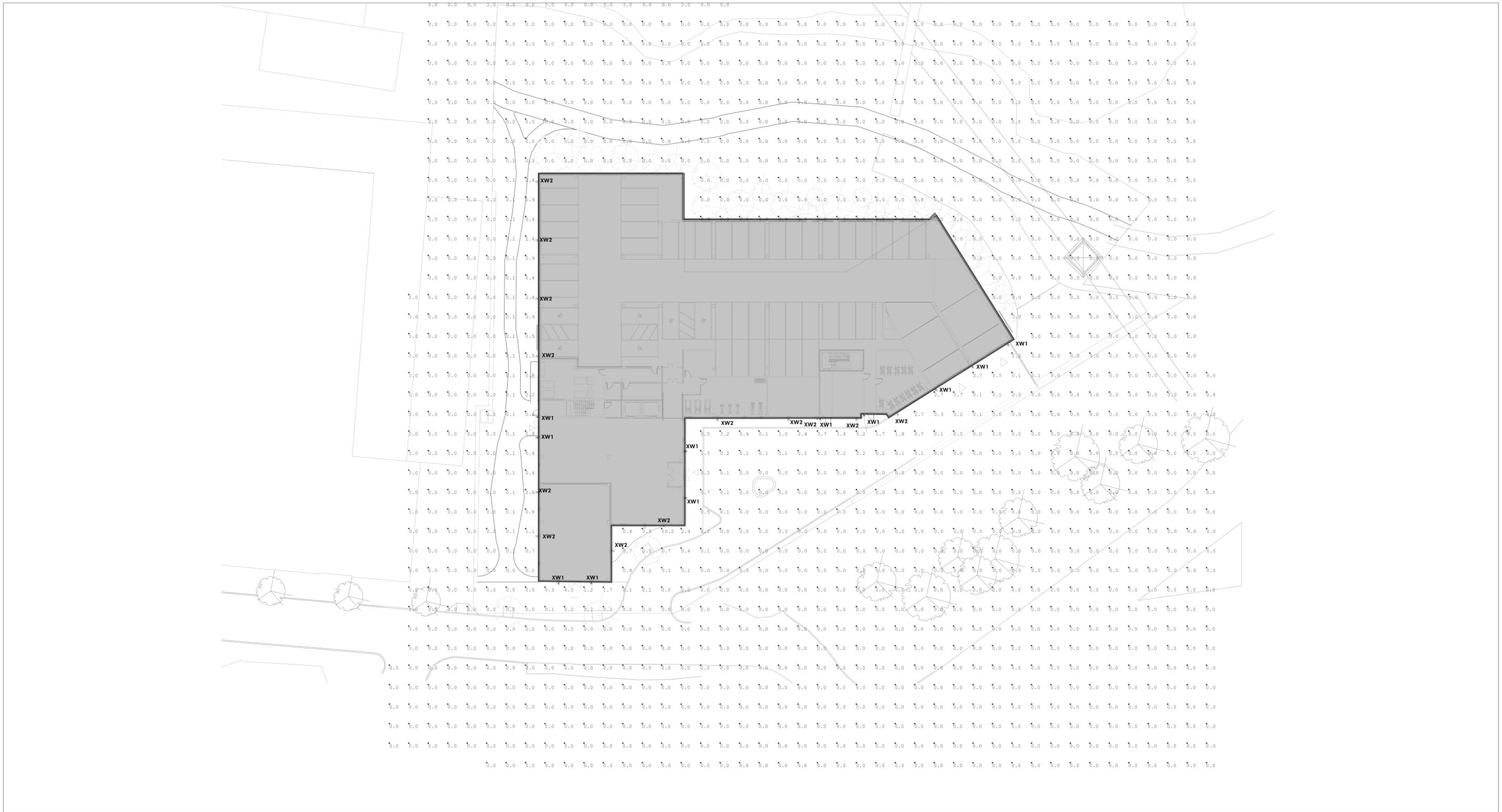
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ap	<i>Acer palmatum</i>	Japanese Maple	1	4-5' Ht	B&B, specimen, dwarf
Ar	<i>Acer rubrum</i> 'Bowhall'	Bowhall Red Maple	3	2.5-3' Cal	B&B
Cc	<i>Crataegus crus-galli</i> 'Inermis'	Thornless Cockspur Hawthorn	5	2.5-3' Cal	B&B
Ns	<i>Nyssa sylvatica</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
Rh	<i>Rhododendron maximum</i>	Rosebay Rhododendron	32	3-4' Ht	B&B
Mic	<i>Microbiota decussata</i>	Russian Cypress	25	3 gal	B&B
Tax2	<i>Taxus media</i> 'Greenwave'	Greenwave Yew	14	5 gal	
Ig1	<i>Ilex glabra</i> 'Compacta'	Dwarf Inkberry	64	5 gal	
Ig2	<i>Ilex glabra</i> 'Shamrock'	Shamrock Inkberry	44	5 gal	full to ground
Jv	<i>Juniperus virginiana</i> 'Emerald Sentinel'	Emerald Sentinel Red Cedar	16	7-8' Ht	B&B
Rh	<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	
Arb	<i>Thuja occidentalis</i> 'Smaragd'	Emerald Green Arborvitae	29	7-8' Ht	B&B

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	196	1 gal	
Cal	<i>Calamagrostis acutifolia</i> 'Karl Foerster'	Feather Reed Grass	62	1 gal	
Hak	<i>Hakonechloa macra</i>	Japanese Frost Grass	65	1 gal	
Lir	<i>Liriope spicata</i>	Lily Turf	20	1 gal	
Lawn	Pennilton Smartseed Tall Fescue Blend				



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

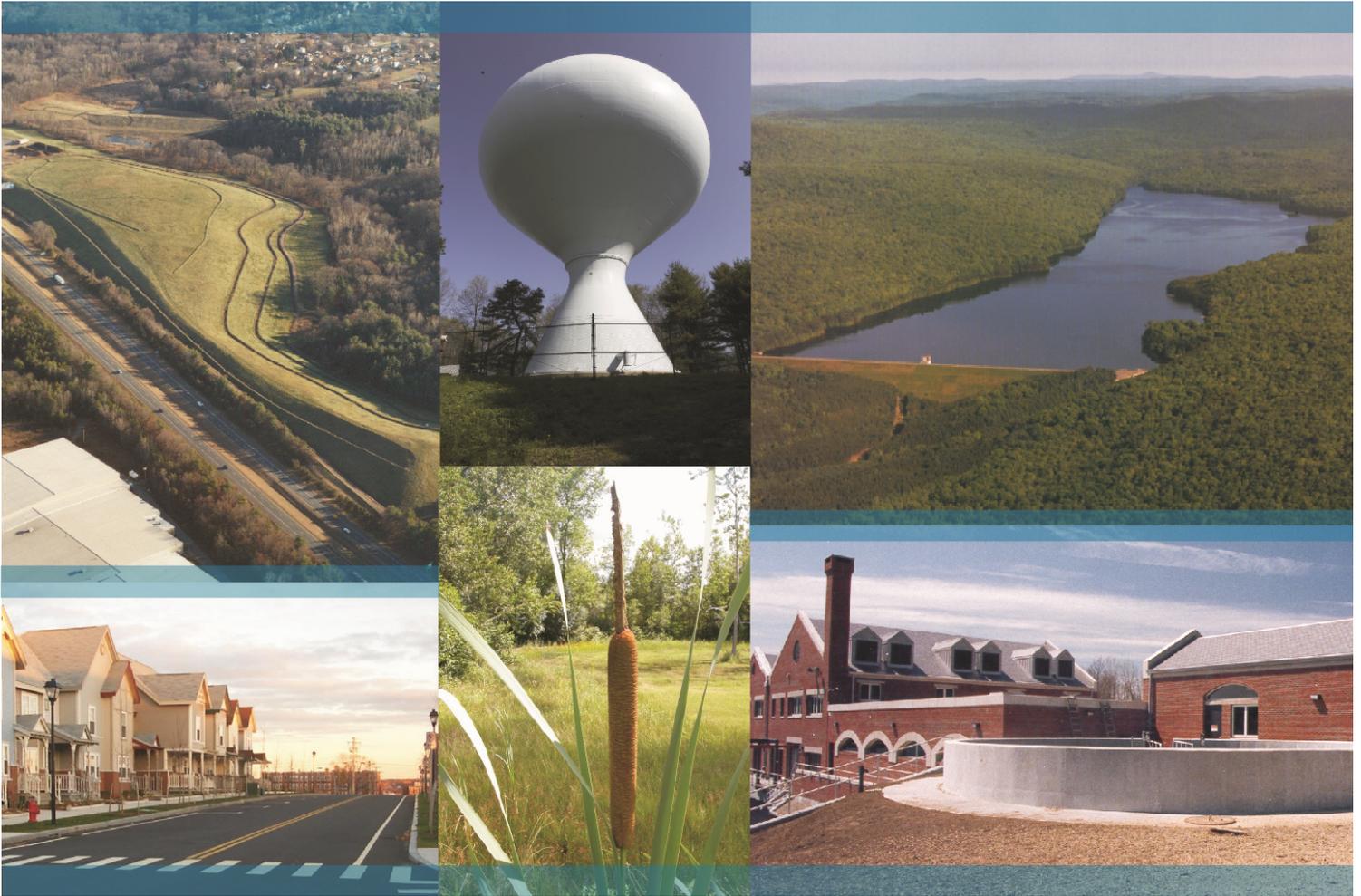
Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts 1	Fc	0.07	10.2	0.0	N.A.	N.A.

Date	Comments
X	XXXXXXXXXX

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

**53 Green Street**  
Portsmouth, NH





**Tighe & Bond**

Proposed Mixed-Use Development  
53 Green Street  
Portsmouth, NH

## Drainage Analysis

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

March 22, 2021



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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)

<b>YEAR</b>	<b>24-hr Estimate (inches)</b>	<b>+ 15% (inches)</b>
<b>2</b>	3.20	3.68
<b>10</b>	4.86	5.59
<b>25</b>	6.16	7.08
<b>50</b>	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)**

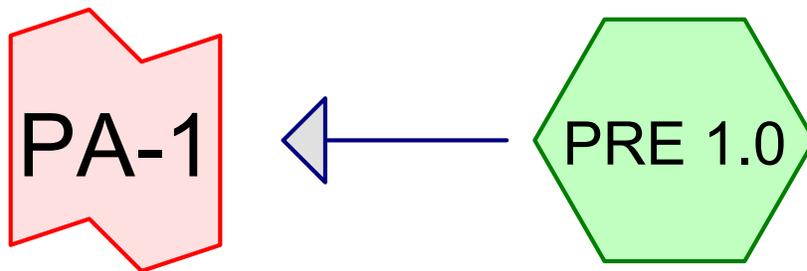
Point of Analysis 1 (PA-1) is the North Mill Pond which borders the northwest boundary of the site. The North Mill Pond is a tidal wetland which directly feeds into the Piscataqua River.

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.

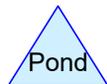
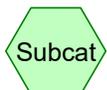
## **2.1 Pre-Development Calculations**

## **2.2 Pre-Development Watershed Plans**





## POINT OF ANALYSIS 1



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**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)
<b>78,311</b>	<b>82</b>	<b>TOTAL AREA</b>

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**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	
<b>78,311</b>		<b>TOTAL AREA</b>

**C0960-011 PRE**

*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  
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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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		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.68"
1.9	223	0.0090	1.93		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.7	57	0.0400	1.40		<b>Shallow Concentrated Flow,</b> 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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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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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

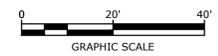
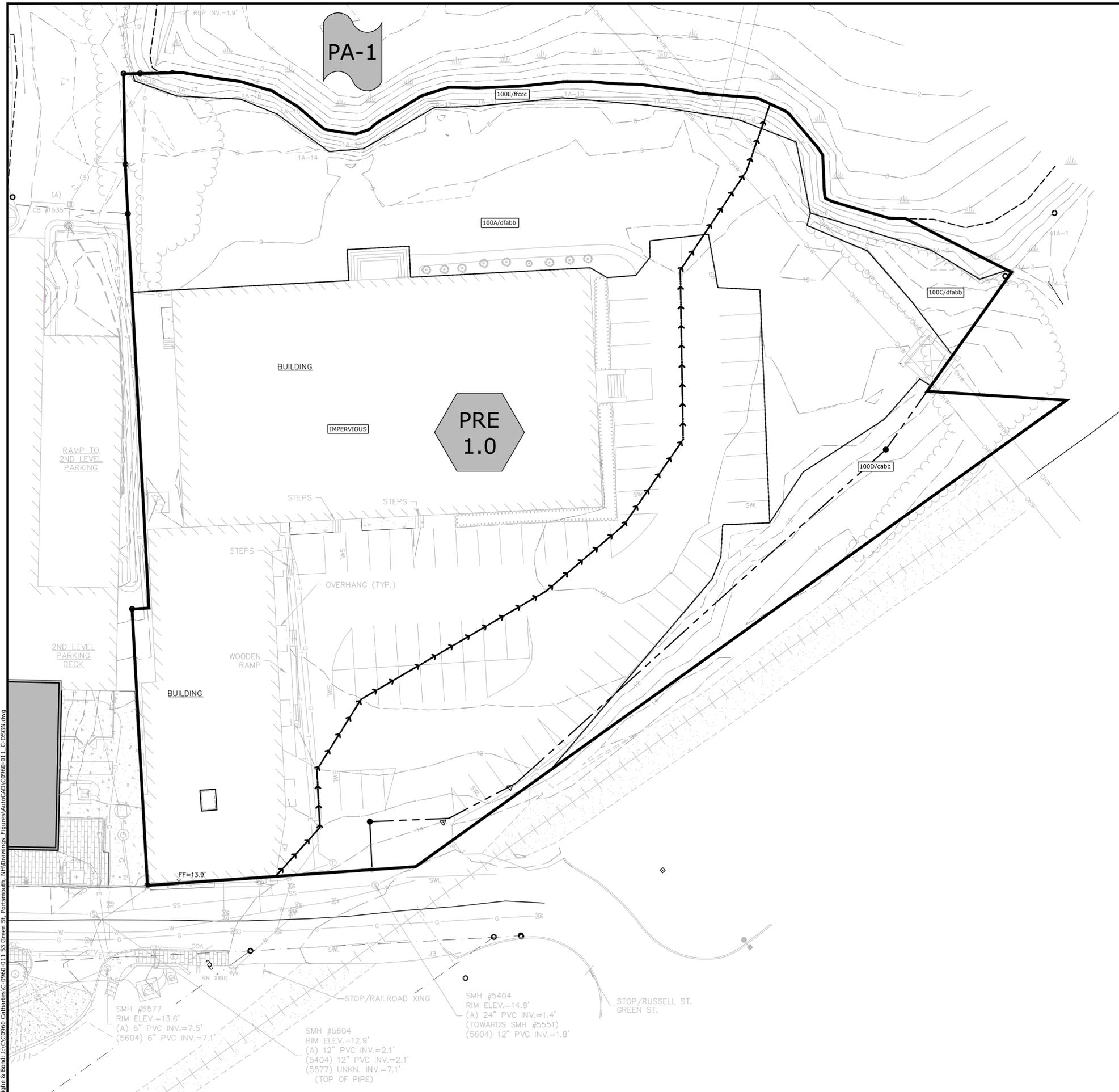
**SubcatchmentPRE 1.0:**

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**

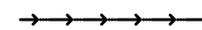


**Proposed Mixed Use Development**

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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B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session
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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



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## 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.

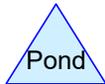
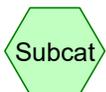
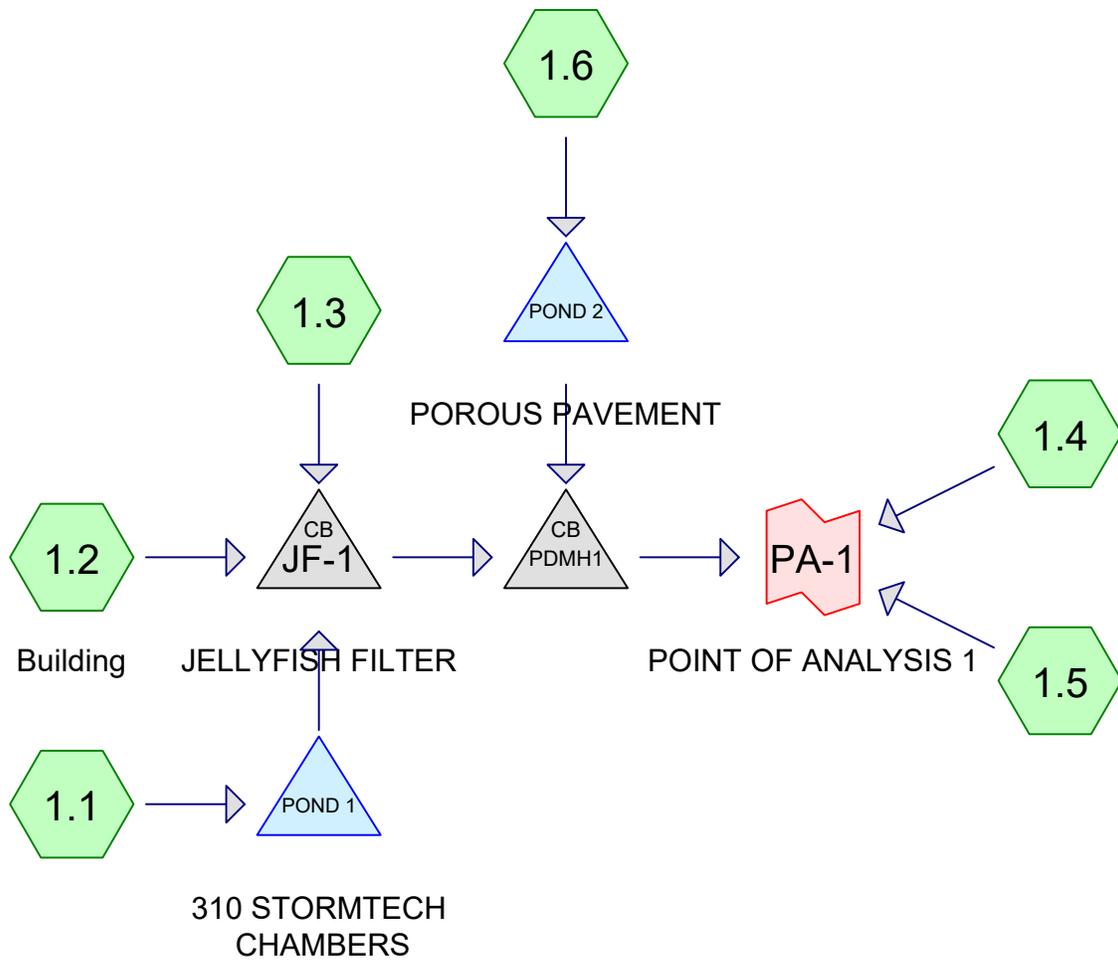
### **3.1 Peak Rate Comparison**

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/ <b>Post</b> 2-Year Storm (cfs)	Pre/ <b>Post</b> 10-Year Storm (cfs)	Pre/ <b>Post</b> 25-Year Storm (cfs)	Pre/ <b>Post</b> 50-Year Storm (cfs)
PA1	4.17/ <b>3.29</b>	7.74/ <b>5.52</b>	10.58/ <b>7.73</b>	13.25/ <b>10.39</b>

### **3.2 Post-Development Calculations**

### **3.3 Post-Development Watershed Plans**



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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)
<b>77,311</b>	<b>84</b>	<b>TOTAL AREA</b>

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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	
<b>77,311</b>		<b>TOTAL AREA</b>

**C0960-011 POST**

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  
 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=12,355 sf 0.00% Impervious Runoff Depth=0.75"  
 Tc=5.0 min CN=63 Runoff=0.21 cfs 771 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=14,889 sf 25.33% Impervious Runoff Depth=1.12"  
 Tc=5.0 min CN=70 Runoff=0.43 cfs 1,391 cf

**Pond JF-1: JELLYFISH FILTER** Peak Elev=7.39' Inflow=2.99 cfs 11,970 cf  
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 ' Outflow=2.99 cfs 11,970 cf

**Pond PDMH1:** Peak Elev=7.04' Inflow=2.99 cfs 12,670 cf  
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 ' Outflow=2.99 cfs 12,670 cf

**Pond POND 1: 310 STORMTECH CHAMBERS** Peak Elev=7.59' Storage=474 cf Inflow=0.91 cfs 2,762 cf  
 Outflow=0.57 cfs 2,761 cf

**Pond POND 2: POROUS PAVEMENT** Peak Elev=6.54' Storage=821 cf Inflow=0.43 cfs 1,391 cf  
 Outflow=0.03 cfs 700 cf

**Link PA-1: POINT OF ANALYSIS 1** Inflow=3.29 cfs 13,770 cf  
 Primary=3.29 cfs 13,770 cf

**Total Runoff Area = 77,311 sf Runoff Volume = 14,461 cf Average Runoff Depth = 2.24"**  
**39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf**

**C0960-011 POST**

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  
 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=12,355 sf 0.00% Impervious Runoff Depth=1.89"  
 Tc=5.0 min CN=63 Runoff=0.62 cfs 1,951 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=14,889 sf 25.33% Impervious Runoff Depth=2.48"  
 Tc=5.0 min CN=70 Runoff=1.01 cfs 3,082 cf

**Pond JF-1: JELLYFISH FILTER** Peak Elev=7.68' Inflow=4.76 cfs 19,447 cf  
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 ' Outflow=4.76 cfs 19,447 cf

**Pond PDMH1:** Peak Elev=7.30' Inflow=4.76 cfs 21,839 cf  
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 ' Outflow=4.76 cfs 21,839 cf

**Pond POND 1: 310 STORMTECH CHAMBERS** Peak Elev=8.21' Storage=874 cf Inflow=1.54 cfs 4,803 cf  
 Outflow=0.84 cfs 4,803 cf

**Pond POND 2: POROUS PAVEMENT** Peak Elev=6.97' Storage=1,410 cf Inflow=1.01 cfs 3,082 cf  
 Outflow=0.36 cfs 2,391 cf

**Link PA-1: POINT OF ANALYSIS 1** Inflow=5.52 cfs 24,300 cf  
 Primary=5.52 cfs 24,300 cf

**Total Runoff Area = 77,311 sf Runoff Volume = 24,991 cf Average Runoff Depth = 3.88"**  
**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					<b>Direct Entry,</b>

**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					<b>Direct Entry,</b>

**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					<b>Direct Entry,</b>

**Summary for Subcatchment 1.4:**

Runoff = 0.62 cfs @ 12.08 hrs, Volume= 1,951 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
8,269	61	>75% Grass cover, Good, HSG B
1,427	55	Woods, Good, HSG B
2,659	74	>75% Grass cover, Good, HSG C
12,355	63	Weighted Average
12,355		100.00% Pervious Area

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

**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					<b>Direct Entry,</b>

**Summary for Subcatchment 1.6:**

Runoff = 1.01 cfs @ 12.08 hrs, Volume= 3,082 cf, Depth= 2.48"

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"

**C0960-011 POST**

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

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Area (sf)	CN	Description
350	98	Paved parking, HSG B
11,118	61	>75% Grass cover, Good, HSG B
* 3,421	98	Porous Paved Path, HSG B
14,889	70	Weighted Average
11,118		74.67% Pervious Area
3,771		25.33% Impervious Area

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

**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 = 4.76 cfs @ 12.08 hrs, Volume= 19,447 cf  
 Outflow = 4.76 cfs @ 12.08 hrs, Volume= 19,447 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 4.76 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  
 Peak Elev= 7.68' @ 12.09 hrs  
 Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.45'	<b>24.0" Round Culvert</b> 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=4.37 cfs @ 12.08 hrs HW=7.66' TW=7.29' (Dynamic Tailwater)  
 ↑**1=Culvert** (Outlet Controls 4.37 cfs @ 3.14 fps)

**Summary for Pond PDMH1:**

[80] Warning: Exceeded Pond POND 2 by 0.85' @ 12.04 hrs (0.71 cfs 1,056 cf)

Inflow Area = 63,811 sf, 71.91% Impervious, Inflow Depth = 4.11" for 10 Year Storm event  
 Inflow = 4.76 cfs @ 12.08 hrs, Volume= 21,839 cf  
 Outflow = 4.76 cfs @ 12.08 hrs, Volume= 21,839 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 4.76 cfs @ 12.08 hrs, Volume= 21,839 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs  
 Peak Elev= 7.30' @ 12.08 hrs  
 Flood Elev= 10.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.15'	<b>24.0" Round Culvert</b> 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=4.71 cfs @ 12.08 hrs HW=7.29' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 4.71 cfs @ 3.67 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 = 0.84 cfs @ 12.28 hrs, Volume= 4,803 cf, Atten= 46%, Lag= 12.1 min  
 Primary = 0.84 cfs @ 12.28 hrs, Volume= 4,803 cf

Routing by Dyn-Store-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs  
 Peak Elev= 8.21' @ 12.21 hrs Surf.Area= 964 sf Storage= 874 cf  
 Flood Elev= 9.36' Surf.Area= 964 sf Storage= 1,209 cf

Plug-Flow detention time= 16.0 min calculated for 4,799 cf (100% of inflow)  
 Center-of-Mass det. time= 16.3 min ( 809.3 - 793.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	6.70'	693 cf	<b>18.17"W x 53.04"L x 2.33'H Field A</b> 2,248 cf Overall - 516 cf Embedded = 1,732 cf x 40.0% Voids
#2A	7.20'	516 cf	<b>ADS_StormTech SC-310 +Cap</b> x 35 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 5 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.40'	<b>15.0" Round Culvert</b> 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'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	8.40'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 3	7.20'	<b>12.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.86 cfs @ 12.28 hrs HW=8.15' TW=7.33' (Dynamic Tailwater)

- ↑1=Culvert (Passes 0.86 cfs of 5.36 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 0.86 cfs @ 4.37 fps)
- ↑3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)
- ↑4=Orifice/Grate ( Controls 0.00 cfs)

**Summary for Pond POND 2: POROUS PAVEMENT**

Inflow Area = 14,889 sf, 25.33% Impervious, Inflow Depth = 2.48" for 10 Year Storm event  
 Inflow = 1.01 cfs @ 12.08 hrs, Volume= 3,082 cf  
 Outflow = 0.36 cfs @ 12.60 hrs, Volume= 2,391 cf, Atten= 65%, Lag= 31.3 min  
 Primary = 0.36 cfs @ 12.60 hrs, Volume= 2,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs  
 Peak Elev= 6.97' @ 12.46 hrs Surf.Area= 3,421 sf Storage= 1,410 cf  
 Flood Elev= 9.35' Surf.Area= 3,421 sf Storage= 3,017 cf

Plug-Flow detention time= 185.2 min calculated for 2,391 cf (78% of inflow)  
 Center-of-Mass det. time= 100.1 min ( 941.0 - 840.9 )

Volume	Invert	Avail.Storage	Storage Description	
#1	5.94'	3,017 cf	<b>Custom Stage Data (Prismatic)</b> 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'	<b>6.0" Vert. Underdrain</b> C= 0.600
#2	Device 1	5.94'	<b>10.000 in/hr Filter Media Infiltration over Surface area</b>

**Primary OutFlow** Max=0.38 cfs @ 12.60 hrs HW=6.93' TW=6.76' (Dynamic Tailwater)  
 ↑1=Underdrain (Orifice Controls 0.38 cfs @ 1.95 fps)  
 ↑2=Filter Media Infiltration (Passes 0.38 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 = 3.77" for 10 Year Storm event  
 Inflow = 5.52 cfs @ 12.08 hrs, Volume= 24,300 cf  
 Primary = 5.52 cfs @ 12.08 hrs, Volume= 24,300 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  
 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=12,355 sf 0.00% Impervious Runoff Depth=2.96"  
 Tc=5.0 min CN=63 Runoff=1.00 cfs 3,048 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=14,889 sf 25.33% Impervious Runoff Depth=3.68"  
 Tc=5.0 min CN=70 Runoff=1.51 cfs 4,572 cf

**Pond JF-1: JELLYFISH FILTER** Peak Elev=7.91' Inflow=6.20 cfs 25,374 cf  
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=6.20 cfs 25,374 cf

**Pond PDMH1:** Peak Elev=7.48' Inflow=6.20 cfs 29,255 cf  
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=6.20 cfs 29,255 cf

**Pond POND 1: 310 STORMTECH CHAMBERS** Peak Elev=8.55' Storage=1,024 cf Inflow=2.03 cfs 6,437 cf  
 Outflow=1.54 cfs 6,436 cf

**Pond POND 2: POROUS PAVEMENT** Peak Elev=7.38' Storage=1,976 cf Inflow=1.51 cfs 4,572 cf  
 Outflow=0.58 cfs 3,882 cf

**Link PA-1: POINT OF ANALYSIS 1** Inflow=7.37 cfs 32,956 cf  
 Primary=7.37 cfs 32,956 cf

**Total Runoff Area = 77,311 sf Runoff Volume = 33,647 cf Average Runoff Depth = 5.22"**  
**39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf**

**C0960-011 POST**

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

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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

**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=12,355 sf 0.00% Impervious Runoff Depth=4.05"  
 Tc=5.0 min CN=63 Runoff=1.37 cfs 4,170 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=14,889 sf 25.33% Impervious Runoff Depth=4.88"  
 Tc=5.0 min CN=70 Runoff=2.00 cfs 6,054 cf

**Pond JF-1: JELLYFISH FILTER** Peak Elev=8.23' Inflow=8.80 cfs 30,981 cf  
 24.0" Round Culvert n=0.013 L=70.0' S=0.0043 '/' Outflow=8.80 cfs 30,981 cf

**Pond PDMH1:** Peak Elev=7.79' Inflow=8.80 cfs 36,345 cf  
 24.0" Round Culvert n=0.013 L=7.0' S=0.0071 '/' Outflow=8.80 cfs 36,345 cf

**Pond POND 1: 310 STORMTECH CHAMBERS** Peak Elev=8.65' Storage=1,062 cf Inflow=2.49 cfs 7,988 cf  
 Outflow=2.32 cfs 7,988 cf

**Pond POND 2: POROUS PAVEMENT** Peak Elev=8.39' Storage=2,460 cf Inflow=2.00 cfs 6,054 cf  
 Outflow=0.79 cfs 5,364 cf

**Link PA-1: POINT OF ANALYSIS 1** Inflow=10.39 cfs 41,301 cf  
 Primary=10.39 cfs 41,301 cf

**Total Runoff Area = 77,311 sf Runoff Volume = 41,992 cf Average Runoff Depth = 6.52"**  
**39.16% Pervious = 30,277 sf 60.84% Impervious = 47,034 sf**

**C0960-011 POST**

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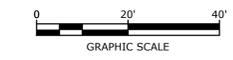
Type III 24-hr 50 Year Storm Rainfall=8.48"

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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	581	8.78	1,111
6.72	8	7.76	594	8.80	1,119
6.74	15	7.78	608	8.82	1,127
6.76	23	7.80	621	8.84	1,134
6.78	31	7.82	634	8.86	1,142
6.80	39	7.84	647	8.88	1,150
6.82	46	7.86	661	8.90	1,158
6.84	54	7.88	674	8.92	1,165
6.86	62	7.90	686	8.94	1,173
6.88	69	7.92	699	8.96	1,181
6.90	77	7.94	712	8.98	1,188
6.92	85	7.96	725	9.00	1,196
6.94	93	7.98	737	9.02	1,204
6.96	100	8.00	749	9.04	<b>1,209</b>
6.98	108	8.02	762	9.06	1,209
7.00	116	8.04	774	9.08	1,209
7.02	123	8.06	786	9.10	1,209
7.04	131	8.08	798	9.12	1,209
7.06	139	8.10	809	9.14	1,209
7.08	146	8.12	821	9.16	1,209
7.10	154	8.14	833	9.18	1,209
7.12	162	8.16	844	9.20	1,209
7.14	170	8.18	855	9.22	1,209
7.16	177	8.20	866	9.24	1,209
7.18	185	8.22	877	9.26	1,209
7.20	193	8.24	887	9.28	1,209
7.22	208	8.26	897	9.30	1,209
7.24	223	8.28	907	9.32	1,209
7.26	237	8.30	917	9.34	1,209
7.28	252	8.32	926	9.36	1,209
7.30	267	8.34	936		
7.32	282	8.36	944		
7.34	297	8.38	953		
7.36	311	<b>8.40</b>	<b>962</b>		
7.38	326	8.42	970		
7.40	341	8.44	979		
7.42	355	8.46	987		
7.44	370	8.48	995		
7.46	384	8.50	1,003		
7.48	399	8.52	1,011		
7.50	413	8.54	1,019		
7.52	427	8.56	1,026		
7.54	442	8.58	1,034		
7.56	456	8.60	1,042		
7.58	470	8.62	1,050		
7.60	484	8.64	1,057		
7.62	498	8.66	1,065		
7.64	512	8.68	1,073		
7.66	526	8.70	1,080		
7.68	540	8.72	1,088		
7.70	553	8.74	1,096		
7.72	567	8.76	1,104		





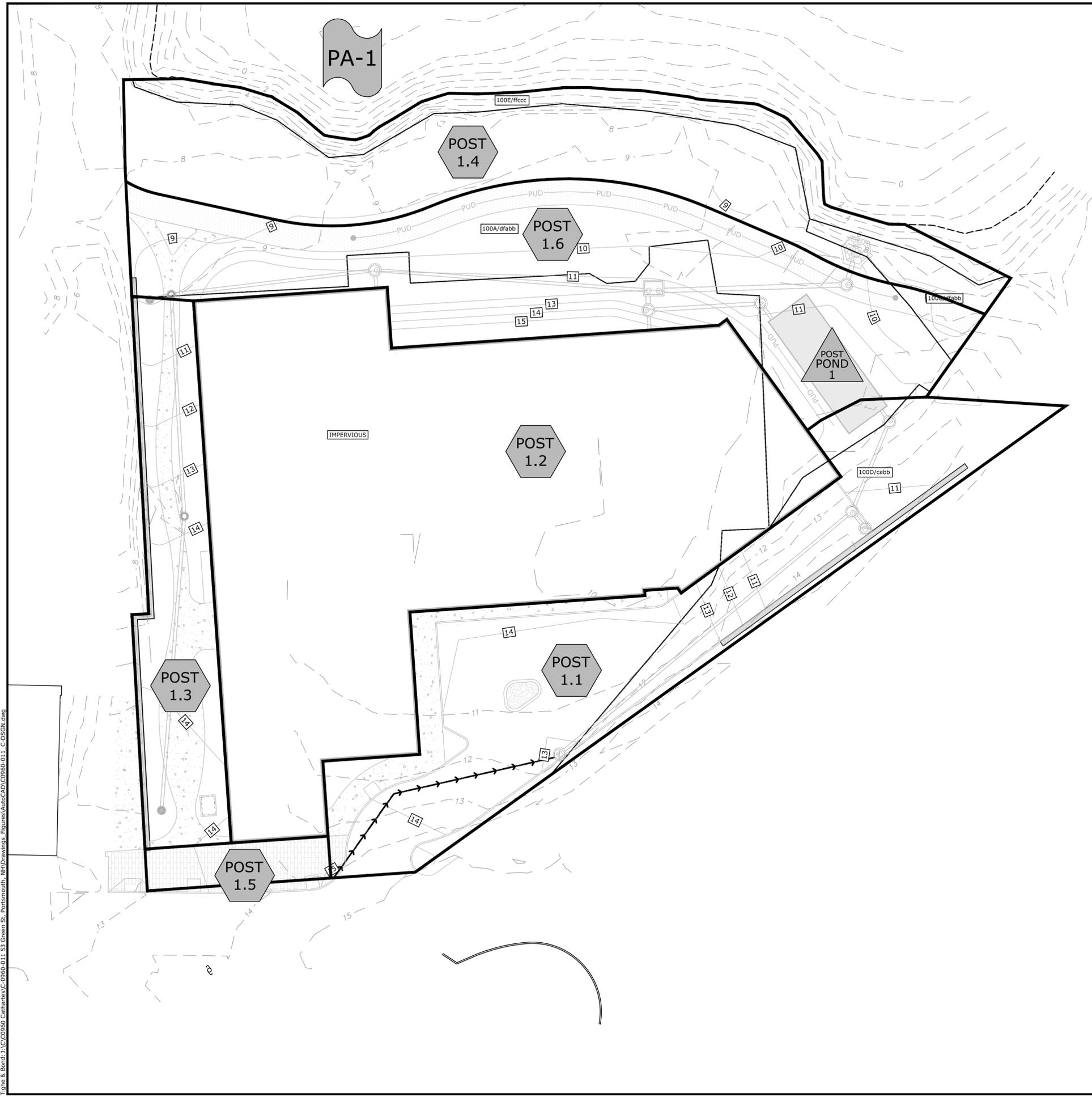
**Proposed  
Mixed Use  
Development**

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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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	

**POST-DEVELOPMENT  
WATERSHED PLAN**

SCALE: AS SHOWN



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## 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 <sup>1</sup>	91%	53%	61%
Porous Pavement w/Underdrain <sup>2</sup>	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.

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

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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# **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 <sub>i</sub> = Impervious area draining to the practice
0.87	decimal	I = Percent impervious area draining to the practice, in decimal form
0.83	unitless	R <sub>v</sub> = Runoff coefficient = 0.05 + (0.9 x I)
0.93	ac-in	WQV = 1" x R <sub>v</sub> x 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 <sup>2</sup> + 1.25 * Q * P] <sup>0.5</sup> )
0.2	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.032	inches	I <sub>a</sub> = Initial abstraction. I <sub>a</sub> = 0.2S
5.0	minutes	T <sub>c</sub> = Time of Concentration
655.0	cfs/mi <sup>2</sup> /in	q <sub>u</sub> is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.951	cfs	WQF = q <sub>u</sub> x WQV. Conversion: to convert "cfs/mi <sup>2</sup> /in * ac-in" to "cfs" multiply by 1mi <sup>2</sup> /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** ft<sup>3</sup>  
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

<b>Flow</b>	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 <sub>i</sub> = Impervious area draining to the practice
0.74	decimal	I = Percent impervious area draining to the practice, in decimal form
0.72	unitless	R <sub>v</sub> = Runoff coefficient = 0.05 + (0.9 x I)
0.22	ac-in	WQV = 1" x R <sub>v</sub> 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 <sup>2</sup> + 1.25 * Q * P] <sup>0.5</sup> )
0.3	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.059	inches	I <sub>a</sub> = Initial abstraction. I <sub>a</sub> = 0.2S
5.0	minutes	T <sub>c</sub> = Time of Concentration
655.0	cfs/mi <sup>2</sup> /in	q <sub>u</sub> is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.230	cfs	WQF = q <sub>u</sub> x WQV. Conversion: to convert "cfs/mi <sup>2</sup> /in * ac-in" to "cfs" multiply by 1mi <sup>2</sup> /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.



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## 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.	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

<b>Contech Jellyfish Filter System Inspection/Maintenance Requirements</b>		
<b>Inspection/ Maintenance</b>	<b>Frequency</b>	<b>Action</b>
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"> <li>- &gt;4" of sediment on the vault floor</li> <li>- &gt;1/4" of sediment on top of the cartridge</li> <li>- .4" of static water above the cartridge bottom more than 24 hours after a rain event</li> <li>- If pore space between media is absent.</li> <li>- If vault is in bypass condition during an average rainfall event.</li> </ul>
Replace Cartridges	As required by inspection, 1-5 years.	<ul style="list-style-type: none"> <li>- Remove filter cartridges per manufacturer methods.</li> <li>- Vacuum sediment from vault.</li> <li>- Install new cartridges per manufacturer methods</li> </ul>

<b>Stormtech Isolator Row Inspection/Maintenance Requirements</b>		
<b>Inspection/ Maintenance</b>	<b>Frequency</b>	<b>Action</b>
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"> <li>- Inspect inside the isolator row through inspection ports (if provided) or through the upstream structure.</li> </ul>
Jetting and Vactoring	Annually or as required by inspection.	<ul style="list-style-type: none"> <li>- If sediment is 3" or above, then clean out isolator row using the jetvac process.</li> <li>- Vacuum structure sump as required.</li> </ul>

<b>Porous Asphalt Inspection/Maintenance Requirements</b>		
<b>Inspection/ Maintenance</b>	<b>Frequency</b>	<b>Action</b>
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***
- Watering plants as necessary during the first growing season.
- 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 MgCl<sub>2</sub> or CaCl<sub>2</sub> added to NaCl can melt ice as low as -10°.

<b>Anti-icing Route Data Form</b>				
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.

<b>Stormwater Management Report</b>						
<b>Mixed Use Development</b>		<b>53 Green Street – Map 119, Lot 2</b>				
<b>BMP Description</b>	<b>Date of Inspection</b>	<b>Inspector</b>	<b>BMP Installed and Operating Properly?</b>	<b>Cleaning / Corrective Action Needed</b>	<b>Date of Cleaning / Repair</b>	<b>Performed By</b>
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**

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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**

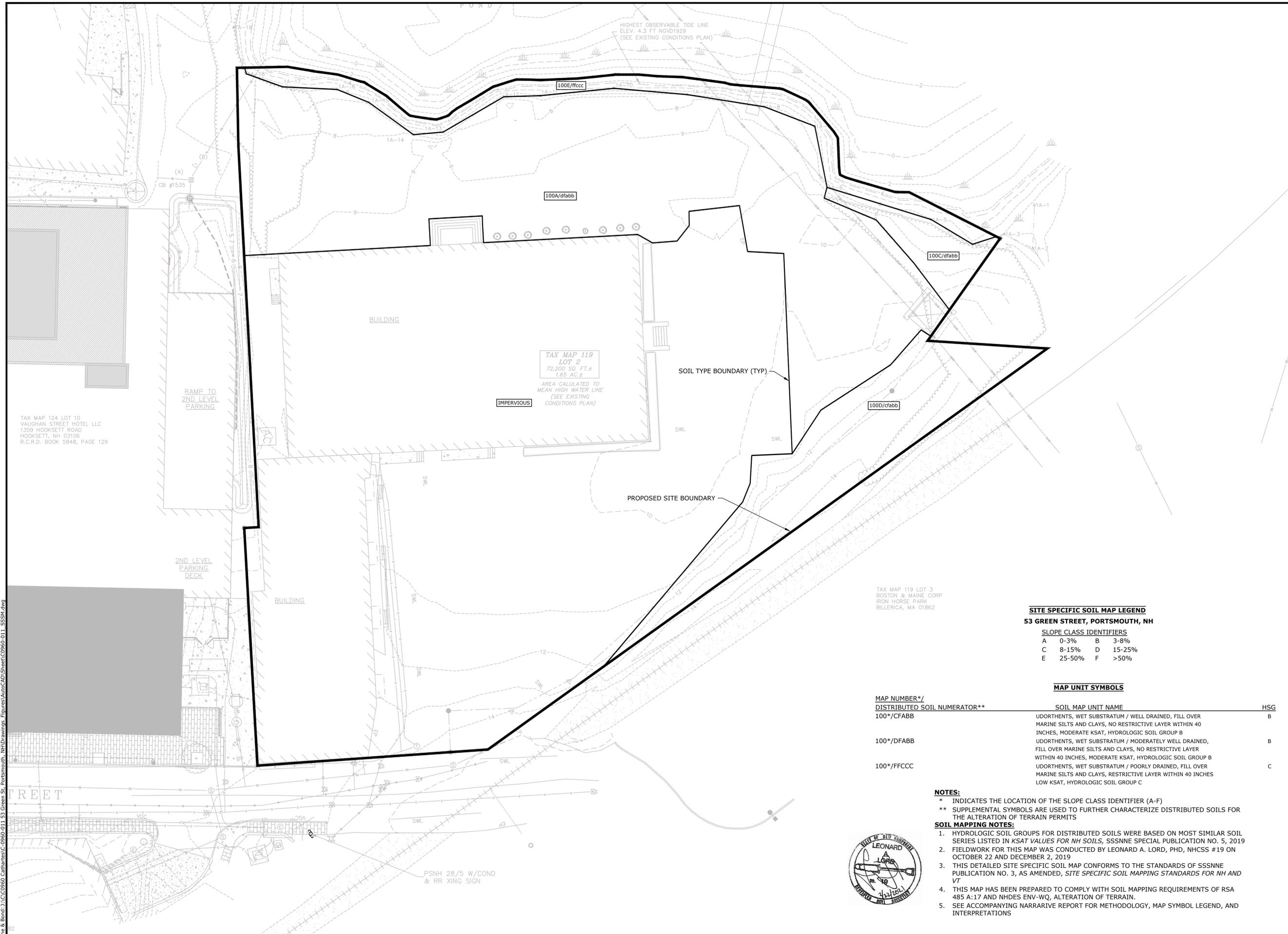
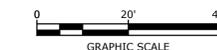
<b><u>Map Number* /Disturbed Soil Numerator**</u></b>	<b><u>Soil Map Unit Name</u></b>	<b><u>Hydrologic Soil Group</u></b>
100*/cfabb	Udorthents, wet substratum / well drained, fill over marine silts and clays, no restrictive layer within 40 inches, moderate Ksat, Hydrologic Soil Group B	B
100*/dfabb	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	UDORTMENTS, 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	UDORTMENTS, 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	UDORTMENTS, 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



Last Saved: 3/19/2021  
 Plotted On: Mar 19, 2021 1:31:13pm  
 By: A.Selbir  
 Tighe & Bond\21\C0960-C0960-011\_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**

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# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

<b>Smoothing</b>	Yes
<b>State</b>	New Hampshire
<b>Location</b>	
<b>Longitude</b>	70.764 degrees West
<b>Latitude</b>	43.080 degrees North
<b>Elevation</b>	0 feet
<b>Date/Time</b>	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	
<b>1yr</b>	0.26	0.40	0.50	0.65	0.81	1.04	<b>1yr</b>	0.70	0.98	1.21	1.56	2.03	2.65	2.92	<b>1yr</b>	2.35	2.81	3.22	3.94	4.54	<b>1yr</b>
<b>2yr</b>	0.32	0.50	0.62	0.81	1.02	1.30	<b>2yr</b>	0.88	1.18	1.52	1.94	2.48	3.20	3.57	<b>2yr</b>	2.84	3.43	3.93	4.67	5.32	<b>2yr</b>
<b>5yr</b>	0.37	0.58	0.73	0.97	1.25	1.61	<b>5yr</b>	1.08	1.47	1.89	2.43	3.14	4.06	4.57	<b>5yr</b>	3.59	4.40	5.03	5.93	6.69	<b>5yr</b>
<b>10yr</b>	0.41	0.65	0.82	1.11	1.45	1.89	<b>10yr</b>	1.25	1.72	2.23	2.89	3.74	4.86	5.52	<b>10yr</b>	4.30	5.31	6.07	7.09	7.96	<b>10yr</b>
<b>25yr</b>	0.48	0.76	0.97	1.33	1.77	2.33	<b>25yr</b>	1.53	2.14	2.77	3.62	4.73	6.16	7.09	<b>25yr</b>	5.45	6.81	7.78	9.00	10.03	<b>25yr</b>
<b>50yr</b>	0.53	0.86	1.10	1.53	2.07	2.75	<b>50yr</b>	1.78	2.52	3.28	4.31	5.65	7.37	8.57	<b>50yr</b>	6.53	8.24	9.40	10.79	11.95	<b>50yr</b>
<b>100yr</b>	0.59	0.96	1.24	1.76	2.41	3.25	<b>100yr</b>	2.08	2.97	3.90	5.15	6.75	8.83	10.36	<b>100yr</b>	7.82	9.96	11.35	12.93	14.24	<b>100yr</b>
<b>200yr</b>	0.67	1.10	1.42	2.04	2.82	3.82	<b>200yr</b>	2.43	3.51	4.60	6.11	8.06	10.58	12.52	<b>200yr</b>	9.37	12.04	13.71	15.50	16.98	<b>200yr</b>
<b>500yr</b>	0.80	1.31	1.71	2.48	3.47	4.75	<b>500yr</b>	2.99	4.37	5.75	7.68	10.19	13.45	16.11	<b>500yr</b>	11.90	15.49	17.61	19.72	21.44	<b>500yr</b>

### Lower Confidence Limits

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

### Upper Confidence Limits

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





**APPENDIX C**

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# 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:

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



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.

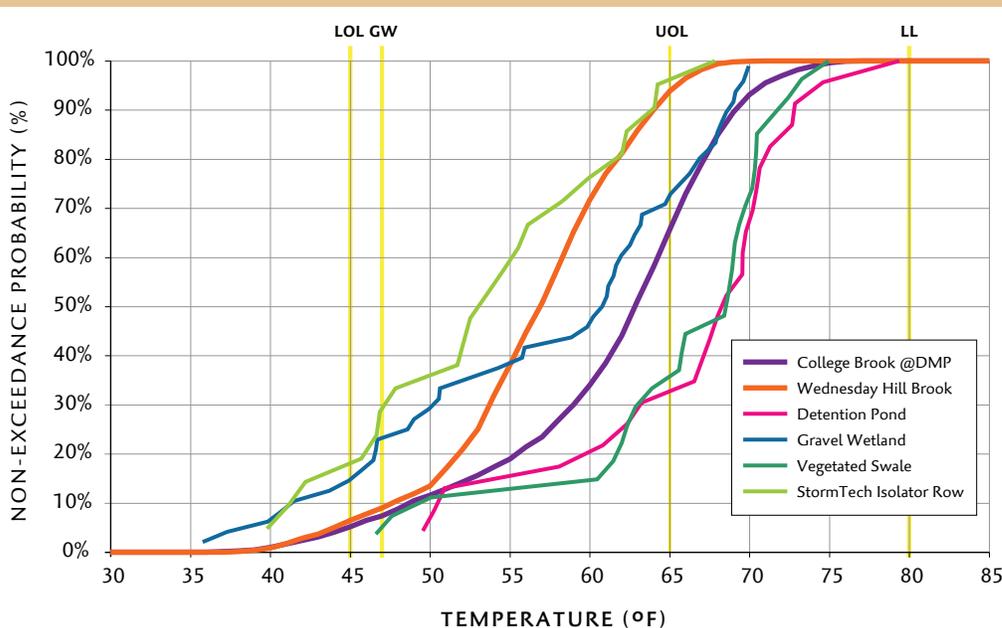
The Bioretention system showed minor buffering capacity and was consistently cooler in the summer and warmer in the winter than the runoff. These filtration and infiltration systems are, on average, reducing the summer temperatures and increasing the winter temperatures of the runoff to near the average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

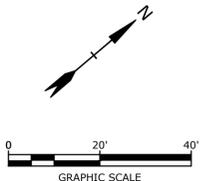
**Lethal Limit (LL) = 80°F**

PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET  
PORTSMOUTH, NEW HAMPSHIRE

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SITE OVERLAY EXHIBIT



**Tighe & Bond**

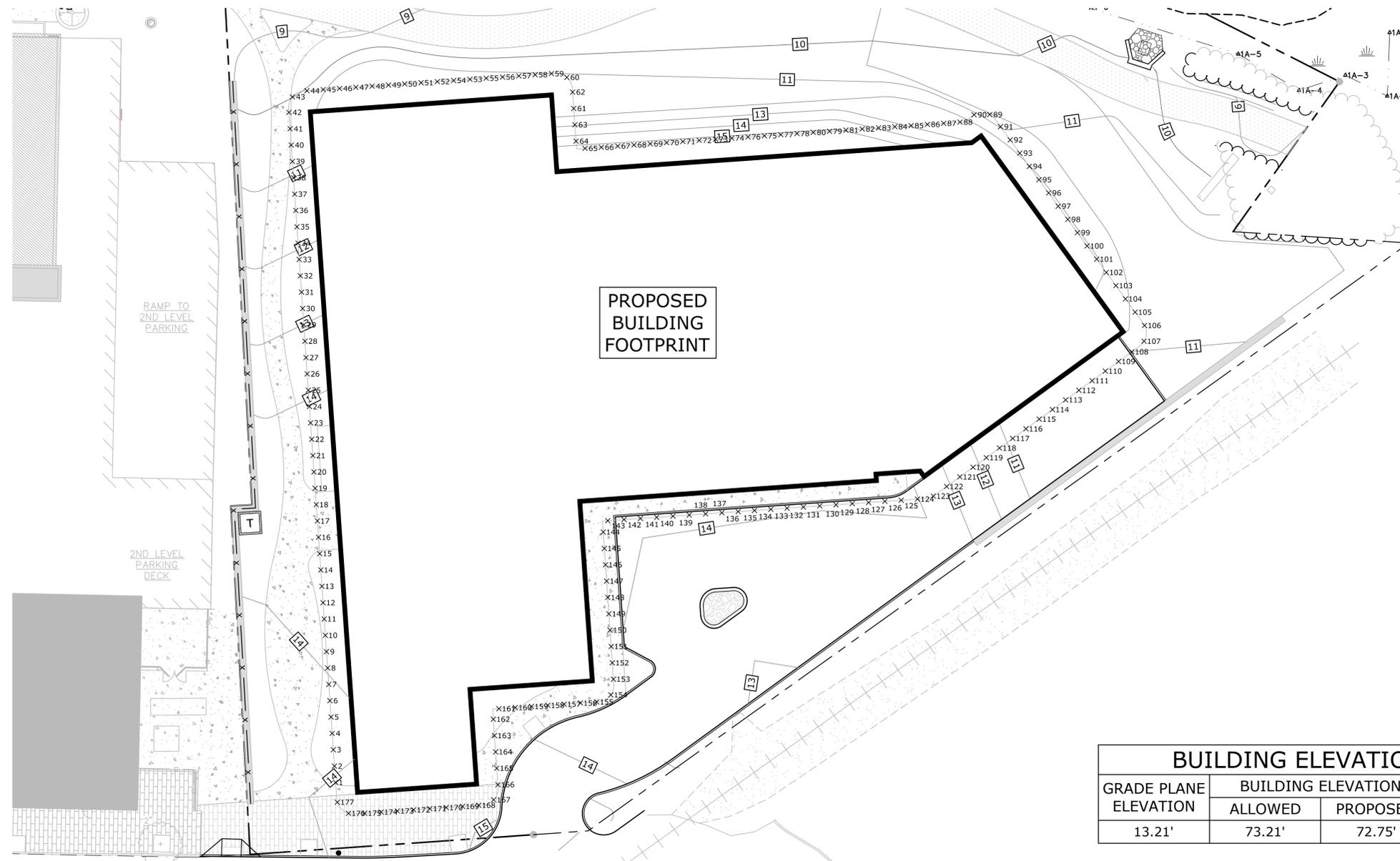
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**PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET  
PORTSMOUTH, NEW HAMPSHIRE**

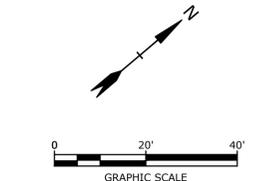
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**GRADE PLANE EXHIBIT**

Point Table		Point Table													
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	13.950	26	13.750	46	11.250	66	15.000	86	12.750	106	11.200	126	14.100	146	14.700
7	14.000	27	13.500	47	11.500	67	15.000	87	12.500	107	11.100	127	14.100	147	14.700
8	14.050	28	13.250	48	11.500	68	15.000	88	12.000	108	11.000	128	14.050	148	14.700
9	14.100	29	13.050	49	11.500	69	15.000	89	11.000	109	10.150	129	14.050	149	14.700
10	14.150	30	12.750	50	11.500	70	15.000	90	11.500	110	10.600	130	14.050	150	14.600
11	14.250	31	12.500	51	11.500	71	15.000	91	11.000	111	10.600	131	14.050	151	14.500
12	14.350	32	12.250	52	11.500	72	15.000	92	11.500	112	10.600	132	14.050	152	14.400
13	14.450	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	13.21



BUILDING ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
13.21'	73.21'	72.75'	60.00'	59.55



**Tighe & Bond**

Last Save Date: March 18, 2021 3:17 PM By: ASELLAR  
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## 53 Green Street, Portsmouth, NH: Wetland & Buffer Report

**To:** Patrick Crimmins, PE  
**FROM:** Leonard A. Lord, PhD, CSS, CWS  
**DATE:** January 6, 2020  
**PROJECT:** P-0595-007

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On October 29 and December 2, 2019, Tighe & Bond delineated and assessed tidal wetlands and their 100-foot buffers at 53 Green Street, Portsmouth, NH. This 1.81-acre parcel lies along the northwestern end of North Mill Pond.

### Methods

The wetland delineation was based on criteria specified in the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (January 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (January 2012). The Highest Observable Tide Line (HOTL) was delineated based on the definition found in the NH Department of Environmental Services (NHDES) Wetland Rules, Env-Wt 101.49/Env-Wt 602.23. Wetlands were classified based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). The only wetlands located on the parcel are tidal wetlands (HOTL), which were delineated with sequentially-numbered flagging labelled 1A-1 to 1A-19.

Important wetland functions and values were also assessed and summarized in the vicinity of the parcel. The assessment was based on the *Maine Citizens Guide to Evaluating, Restoring, and Managing Tidal Marshes* (Bryan et al., 1997) and *The Highway Methodology Workbook Supplement—Wetland Functions and Values: A Descriptive Approach*, NAEPP-360-1-30a, US Army Corps of Engineers, New England Division, (September 1999).

### Wetlands

Wetlands on this site were classified as estuarine intertidal rocky shore, rubble, and regularly flooded (E2RS2N). The wetland edge slopes sharply and is predominantly covered with angular stones and cobbles. Sparse halophytic vegetation along the upper portion of the tidal wetland edge includes seaside plantain (*Plantago maritima*), sea lavender (*Limonium carolinianum*), salt meadow grass (*Spartina patens*), and seaside goldenrod (*Solidago sempervirens*). Lower portions of the slopes were covered with rockweed (*Ascophyllum nodosum*) within the intertidal zone. Important wetland functions and values in this portion of North Mill Pond include recreation potential and aesthetic quality, though both are impacted by the density and character of the surrounding urban development.

### Tidal Buffer

The 100-foot tidal buffer on this parcel consists primarily of maintained lawn, a commercial building, and a parking lot. There are small patches of shrubby vegetation and small trees at the tops of the slopes between the lawn and tidal wetlands, particularly near both ends of the wetland delineation. Species in these areas include black locust (*Robinia pseudoacacia*),

eastern red cedar (*Juniperus virginiana*), staghorn sumac (*Rhus typhina*), and black cherry (*Prunus serotina*). The highly-developed tidal buffer provides some vegetated permeable surfaces to help reduce and filter runoff but otherwise does little to enhance and protect the downgradient tidal wetland.

\\tighebond.com\data\Data\Projects\P\0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Raynes+Green Wetlands+Soils\Green St Wetland-Buffer Rept- 2020-1-9.pdf

# Photographic Log

**Client:** ProCon

**Job Number:** P-0595-007

**Site:** 53 Green Street, Portsmouth, NH

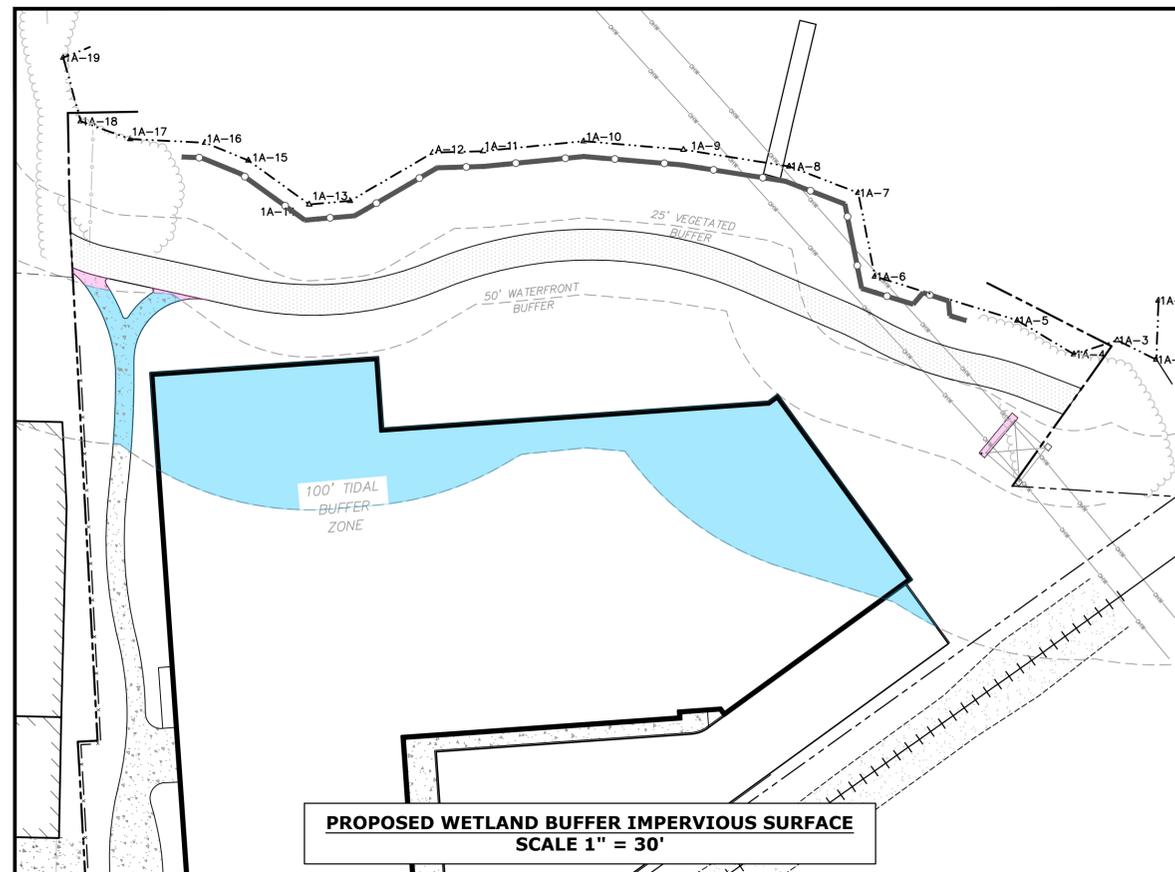
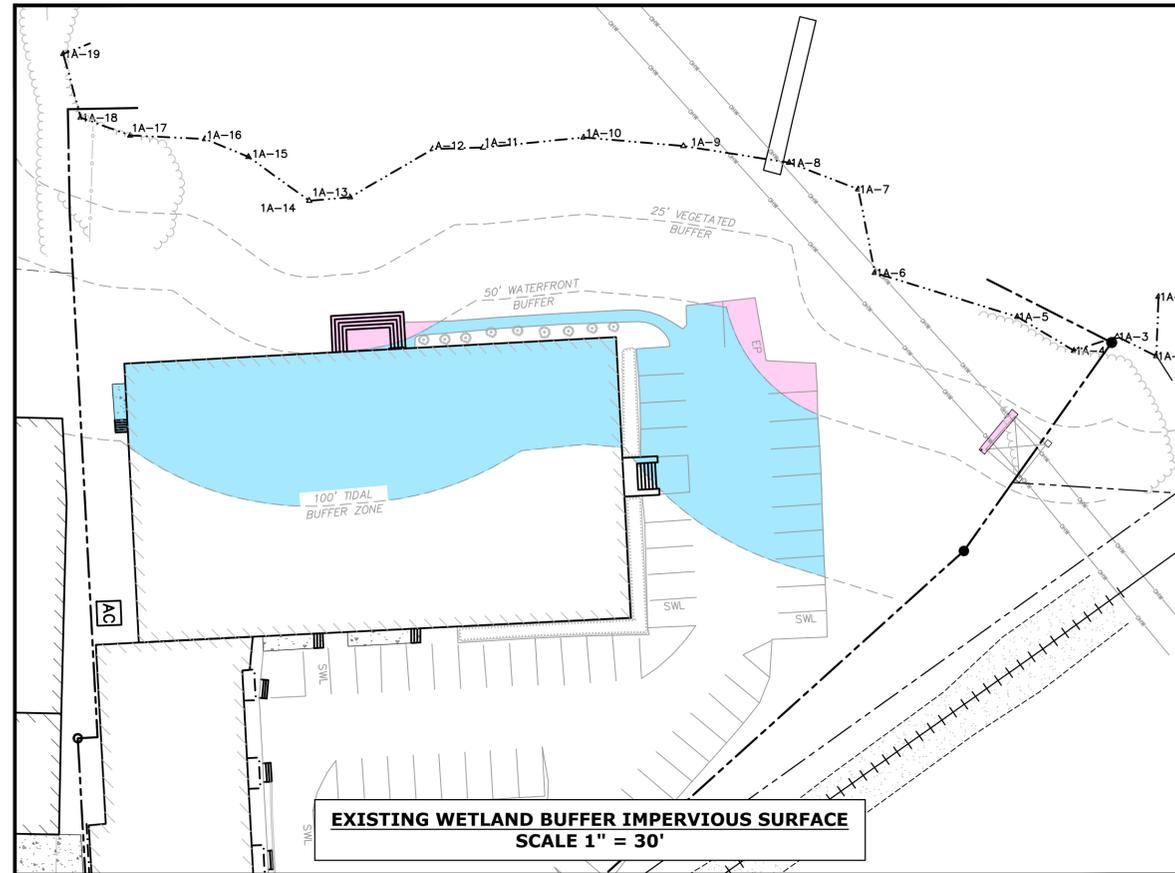
<b>Photograph No.: 1</b>	<b>Date:</b> 10/29/2019	<b>Direction Taken:</b> Northeast
<b>Description:</b> Intertidal rocky shore and tidal buffer viewed from the southwest end of the site.		
		

<b>Photograph No.: 2</b>	<b>Date:</b> 10/29/2019	<b>Direction Taken:</b> Northeast
<b>Description:</b> Intertidal rocky shore and narrow shrubby portion of the tidal buffer at the northeastern end of the site.		
		

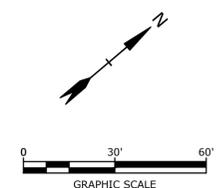
**PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET**

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**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	98 SF
50 - 100 FT	10,836 SF	8,425 SF
<b>Total Impervious Surface</b>	<b>11,581 SF</b>	<b>8,523 SF</b>
<b>Net Impervious Surface</b>	<b>-3,058 SF</b>	



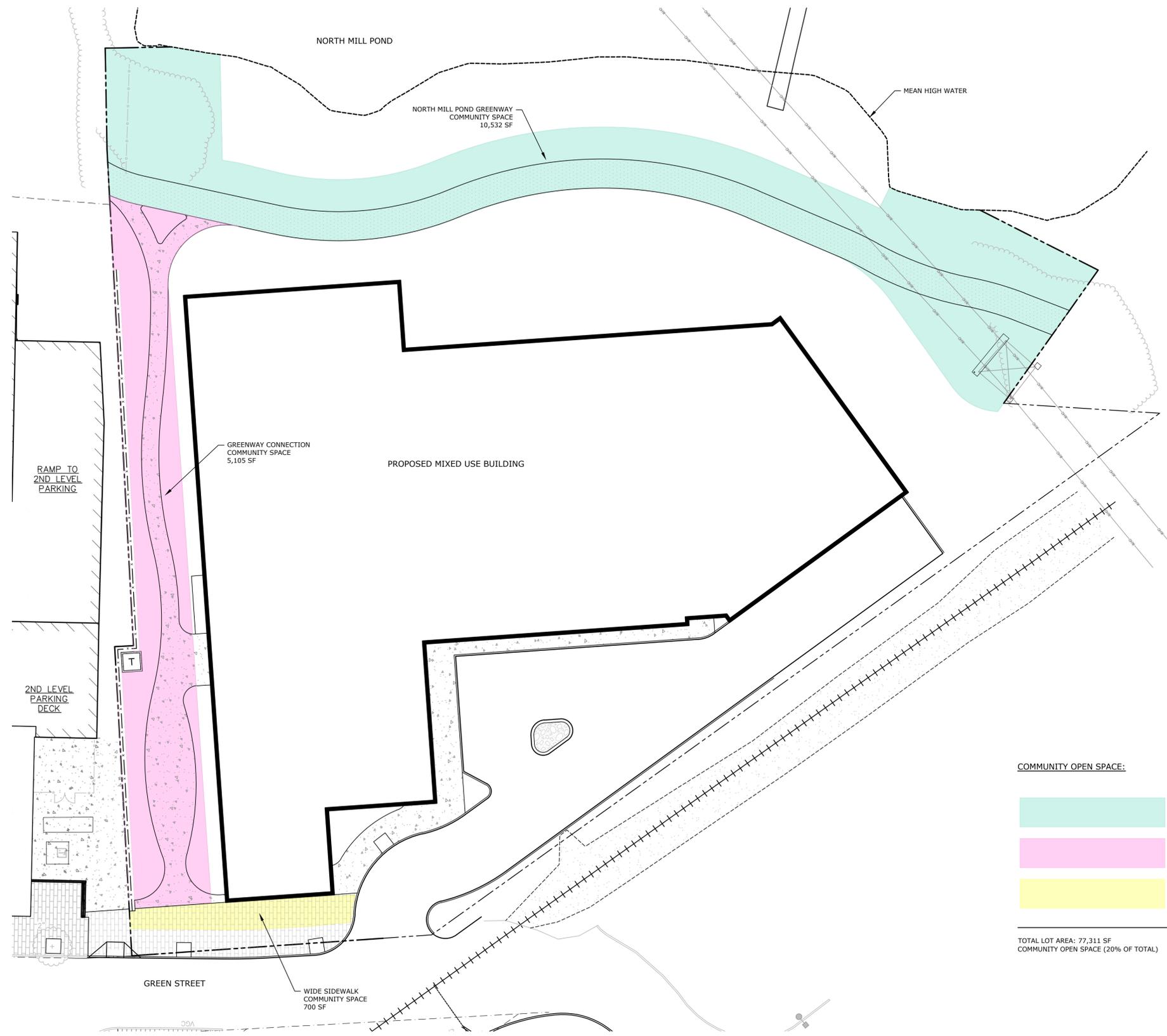
**Tighe & Bond**

Last Save Date: March 22, 2021, 11:25 AM By: ASELLAR  
 Plot Date: Monday, March 22, 2021 Plotted By: Alexander Sellar  
 TSS File Location: J:\C0960 Cabarrus\C-0960-011 53 Green St, Portsmouth, NH\Drawings\_Figures\AutoCAD\C0960-011\_C-FIGS.dwg Layout: Tab: BUFFER

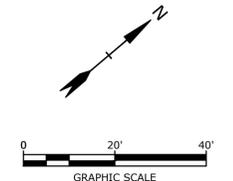
**PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET  
PORTSMOUTH, NEW HAMPSHIRE**

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**COMMUNITY SPACE EXHIBIT**



COMMUNITY OPEN SPACE:		REQUIRED	PROVIDED
	NORTH MILL POND GREENWAY COMMUNITY SPACE		10,532 SF
	GREENWAY CONNECTION COMMUNITY SPACE		5,105 SF
	WIDE SIDEWALK COMMUNITY SPACE		700 SF
TOTAL LOT AREA: 77,311 SF COMMUNITY OPEN SPACE (20% OF TOTAL)		15,462 SF	16,337 SF



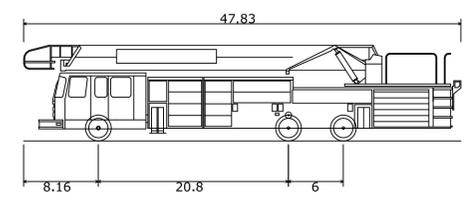
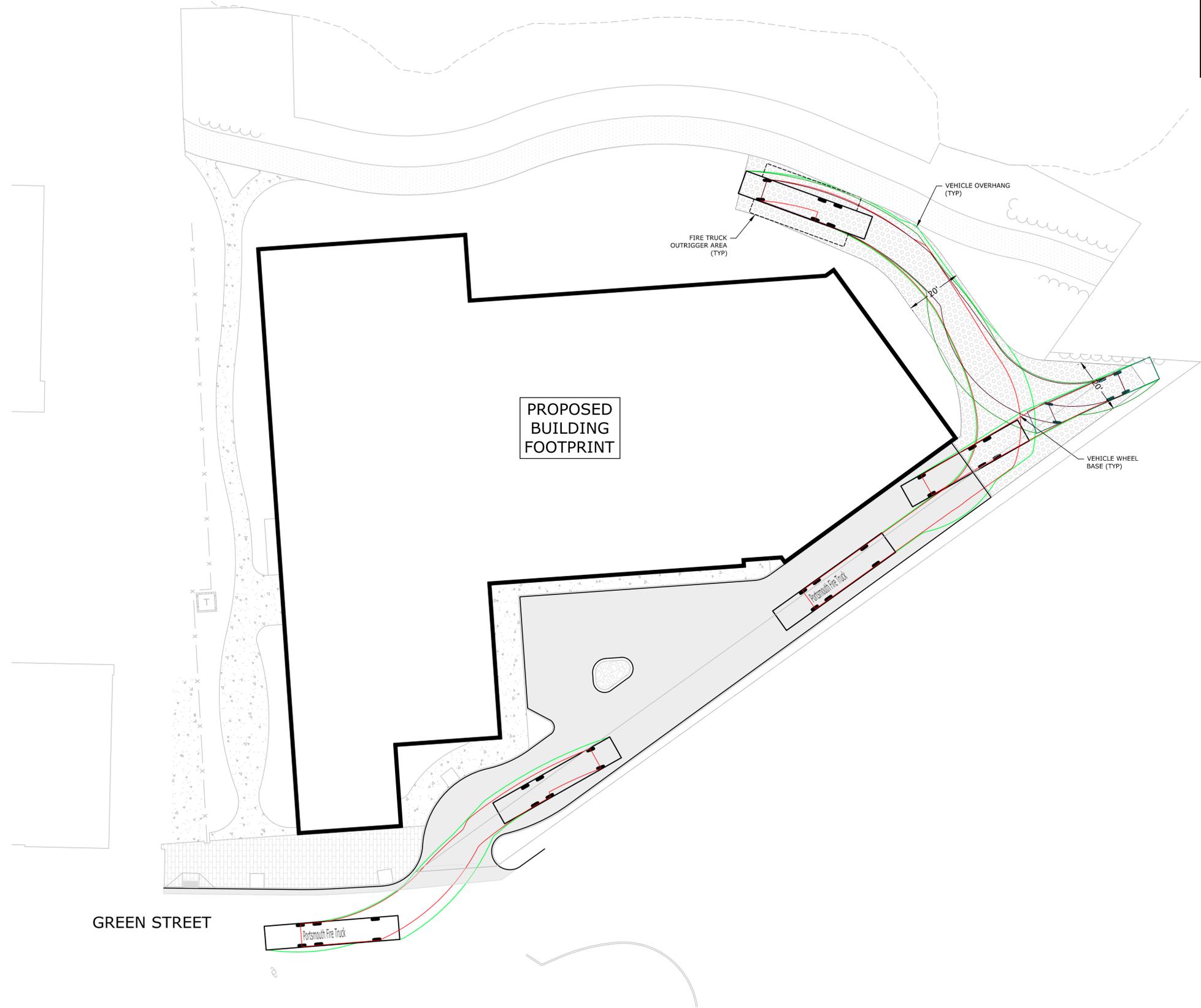
**Tighe & Bond**

Last Save Date: March 22, 2021, 11:25 AM By: ASELLAR  
 Plot Date: Monday, March 22, 2021 Plotted By: Alexander Sellar  
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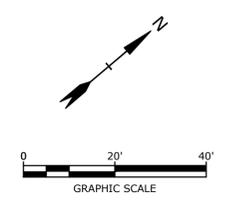
**PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET  
PORTSMOUTH, NEW HAMPSHIRE**

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**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°



**Tighe & Bond**

Last Save Date: March 22, 2021, 11:22 AM By: ASELLAR  
 Plot Date: Monday, March 22, 2021 Plotted By: Alexander Sellar  
 TSS File Location: J:\C0960\011\_53 Green St, Portsmouth, NH\Drawings\_Figures\AutoCAD\C0960-011\_C-DSGN.dwg Layout Tab: FIRE TRUCK

PROPOSED MIXED USE DEVELOPMENT  
53 GREEN STREET  
PORTSMOUTH, NEW HAMPSHIRE

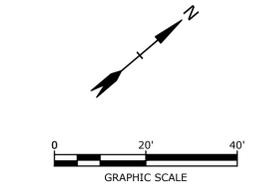
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PHOTO LOCATION PLAN



Last Save Date: January 27, 2021, 11:50 AM By: CML  
Plot Date: Wednesday, January 27, 2021, Plotted By: Craig M. Langton  
TSS File Location: J:\C0960\011\_53 Green St, Portsmouth, NH\Drawings\_Figures\AutoCAD\C0960-011\_C\_Photo Location.dwg Layout Tab - PHOTO LOCATION



**Tighe & Bond**

January 27, 2021  
C0960-011\_C\_Photo Location.dwg



Photo #1: Looking northeast at existing utility towers and parking located in 100-foot tidal wetland buffer.



Photo #2: Looking northeast towards Market Street across existing maintained lawn area located in 100-foot tidal wetland buffer.



Photo #3: Looking southwest along existing building within 100-foot tidal wetland buffer.



Photo #4: Looking northeast toward existing building and parking located in 100-foot tidal wetland buffer.



Photo #5: Looking southwest towards existing building and maintained lawn area located in 100-foot tidal wetland buffer.



Photo #6: Looking west across existing maintained lawn area and North Mill Pond toward location of future City park.



Photo #7: Looking north toward existing parking lot.

C-0960-011  
 March 22, 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 ±1,500 SF of first floor commercial space along Green Street but there are no on-site parking spaces required for this use, so it was not included as part of this Trip Generation Analysis. The supporting trip generation calculations are enclosed with this letter.

	<u>Existing</u>			<u>Proposed</u>	<u>Net Trips</u>
	<u>Office</u>	<u>Spa</u>	<u>Medical Office</u>	<u>Residential</u>	
<b>Weekday AM Peak Hour</b>					
Trips Entering	15	5	6	4	-22
Trips Exiting	2	0	2	13	+9
<b>Total Vehicle Trips</b>	<b>17</b>	<b>5</b>	<b>8</b>	<b>17</b>	<b>-13</b>
<b>Weekday PM Peak Hour</b>					
Trips Entering	3	1	3	13	+6
Trips Exiting	15	5	7	8	-19
<b>Total Vehicle Trips</b>	<b>18</b>	<b>6</b>	<b>10</b>	<b>21</b>	<b>-13</b>
<b>Saturday Peak Hour</b>					
Trips Entering	4	8	5	10	-7
Trips Exiting	4	13	4	11	-10
<b>Total Vehicle Trips</b>	<b>8</b>	<b>21</b>	<b>9</b>	<b>21</b>	<b>-17</b>

**Source:** Institute of Transportation Engineering, Trip Generation, 10<sup>th</sup> Edition  
 Land Uses – 221 Multifamily Housing (Mid-Rise), 710 General Office,  
 720 Medical Office, 918 Hair Salon



As depicted above, the proposed 48 residential units 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 13 vehicle trips during the Weekday AM Peak Hour, 13 vehicle trips during the Weekday PM Peak Hour and 17 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



February 22, 2021

Rob Simmons  
CPI Management, LLC  
100 Summer Street, Ste 1600  
Boston, MA 02109

RE: Natural Gas Availability to 53 Green St Portsmouth NH Project

Dear Rob,

Unitil's natural gas division has reviewed the requested site for natural gas service.

Unitil hereby confirms natural gas service will be available to 53 Green St Portsmouth NH Project.

Installation is pending an authorized installation agreement with CPI Management, LLC and street opening approval from the City of Portsmouth DPW.

Let me know if you have any questions. You can email me at [oliver@unitil.com](mailto:oliver@unitil.com). My phone number is 603-294-5174.

Sincerely,

Janet Oliver  
Senior Business Development Representative

# EMBARC

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March 22, 2021

Portsmouth Planning Board  
53 Green Street  
Portsmouth, NH 03801

## Green Building Statement

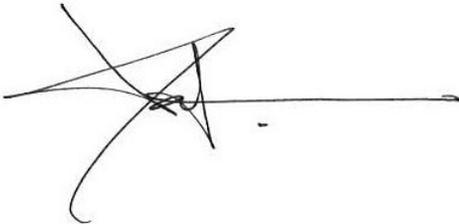
### 53 Green Street Proposed Mixed-Use Building

- **Site/Landscape:** In its current condition, the site consists of the existing building, parking to the south and east, and a mown lawn to the top of the bank by the North Mill Pond. The building has a foundation planting of mature Rhododendron. A small area of trees is found at the northwest and southeast corners of the property. The proposed landscape plan provides a pedestrian connector from Green Street to the North Mill Pond Greenway along the west side of the building. This pathway is buffered from the AC Hotel with a green wall of Arborvitae and ornamental grasses creating a garden connector to the greenway beyond. The north side of the building will be faced with a mixed evergreen screen of native shrubs (Inkberry, Rhododendron, Eastern Red Cedar) and the 25' buffer will be enhanced with the addition of Red Oaks and a fescue grass mix for disturbed areas that will be left long, mowed once a year to discourage the incursion of invasive plant material. Between the building and the greenway path will be a mown fescue lawn. The south side of the building will be reserved for vehicular access to the entry and parking garage.
- **Exterior Wall Systems:** The exterior wall systems will meet or exceed the 2015 IECC standards for energy efficiency and will include a continuous air barrier and continuous insulation on all exterior wall enclosing heated spaces as well as insulation within the stud cavities. The exterior cladding materials will include a combination of masonry and metal panel rain screen systems that utilize an air space outboard of the insulation layer for efficient moisture management.
- **Window Systems:** All window systems in the project will meet or exceed 2015 IECC standards for u-value, shading coefficient and solar heat gain coefficient, including a thermally-broken frame and insulated, high-performance, low-E glazing to reduce

thermal transfer. Large window expanses provide plenty of natural daylight to all building occupants.

- **Roofing Systems:** The roofing system will include a light-colored, reflective “cool roof” over continuous, sloped rigid insulation that meets or exceeds code requirements.
- **HVAC Systems:** The dwelling units will be provided with individualized systems providing either heating and cooling or both. System may include electric heat pumps or a hydronic gas fired heating system with gas fired domestic hot water heaters.
- **Plumbing Systems:** All plumbing fixtures in the proposed project will be low-flow fixtures. Individual EnergyStar rated instantaneous hot water heaters will be used for domestic hot water and heating.
- **Lighting Systems:** Interior lighting systems will use LED fixtures throughout the building, including the use of occupancy sensors. Exterior lighting design will include energy-efficient LED cutoff fixtures to minimize light pollution.
- **Appliances:** All appliances for the project will be EnergyStar rated.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dartagnan Brown', written over a horizontal line.

Dartagnan Brown | Founder + CEO

### Site Plan Review Application Fee

**Project:** 53 Green Street

**Map/Lot:** 119/2

**Applicant:** CPI Management, LLC

All development

*Base fee \$500*

**\$500.00**

*Plus \$5.00 per \$1,000 of site costs*

Site costs

**\$600,000**

+ **\$3,000.00**

*Plus \$10.00 per 1,000 S.F. of site development area*

Site development area

**75,000** S.F.

+ **\$750.00**

**Fee**

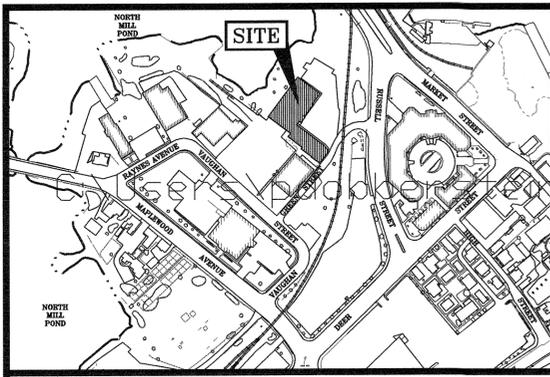
**\$4,250.00**

Maximum fee: \$15,000.00

Fee received by: \_\_\_\_\_

Date: \_\_\_\_\_

*Note: Initial application fee may be based on the applicant's estimates of site costs and site development area. Following site plan approval, the application fee will be recalculated based on the approved site plan and site engineer's corresponding site cost estimate as approved by the Department of Public Works, and any additional fee shall be paid prior to the issuance of a building permit.*



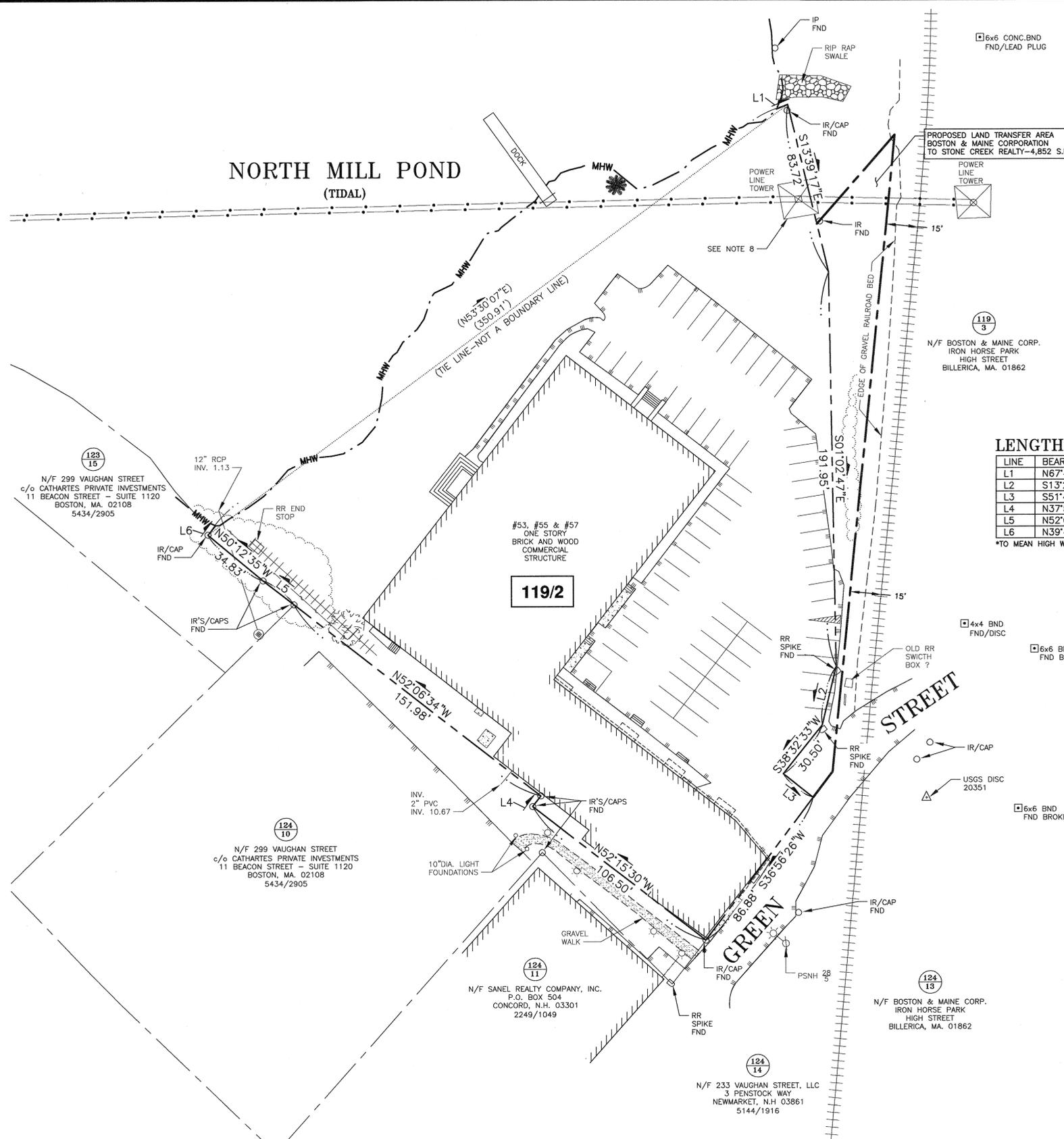
LOCATION MAP SCALE: 1" = 300'

**LEGEND:**

- N/F NOW OR FORMERLY
- RP RECORD OF PROBATE
- RCRD ROCKINGHAM COUNTY
- RR SPK RAILROAD SPIKE
- MAP 11/LOT 21
- IR FND IRON ROD FOUND
- IP FND IRON PIPE FOUND
- IR SET IRON ROD SET
- RR SPIKE RAILROAD SPIKE FOUND
- MHW MEAN HIGH WATER LINE, ELEV. 4.6 (NAVD88)

**PLAN REFERENCES:**

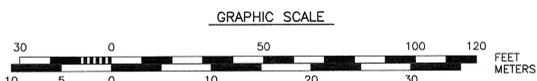
- 1) "PLAN SHOWING LAND AND WHARFAGE OWNED BY SILAS PEIRCE AND CO, L'TD. PORTSMOUTH, N.H.", SCALE: 20 FT = 1 INCH. AUG. 8, 1902 BY A.C. HOYT, SURVEYOR, RCRD 00266.
- 2) "PLAN OF PROPERTY CORNER VAUGHN AND GREEN STREET, PORTSMOUTH, N.H." SCALE: ONE INCH = 20 FEET, FEBRUARY 1907, RCRD 00306.
- 3) "PLAN OF PROPERTY IN PORTSMOUTH, N.H. OWNED BY R.I. SUGDEN" APRIL 15, 1919, SCALE 1" = 20' BY WM. A. GROVER, CIVIL ENGINEER, COPIED BY ROBERT DURGIN PORTS, N.H. 1937, NOT RECORDED.
- 4) "PLAN OF LAND, PORTSMOUTH, N.H. FOR GEORGE D. EMERSON CO." SCALE: 1 IN. = 10 FT. APR. 1952, BY JOHN W. DURGIN, CIVIL ENGINEER, FILE NO 1828, PLAN 7181, NOT RECORDED.
- 5) "LAND IN PORTSMOUTH, N.H. BOSTON AND MAINE RAILROAD TO GEORGE D. EMERSON COMPANY" SCALE: 1" = 40 FT. JUNE 1954 RCRD BOOK 1339 PAGE 305.
- 6) "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH, N.H. FOR SAMUEL W. POORVU" SCALE: 1 IN. = 10 FT. JULY 1955 BY JOHN W. DURGIN, CIVIL ENGINEERS, FILE NO. 1828 PLAN NO. 8305, RCRD 02541.
- 7) "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH, N.H. FOR SAMUEL W. POORVU & SUMNER L. POORVU" SCALE: 1 IN. = 10 FT. JAN. 1956 BY JOHN W. DURGIN, CIVIL ENGINEERS, FILE NO. 1828 PLAN NO. 8305-1, NOT RECORDED.
- 8) "VAUGHAN STREET URBAN RENEWAL PROJECT, N.H. R-10, PORTSMOUTH, N.H." CONDEMNATION MAP BY ANDERSON-NICHOLS & CO., INC. SCALE: 1" = 40', FEB. 1971, SHEET 3 OF 3, RCRD 2425.
- 9) "LAND IN PORTSMOUTH BOSTON AND MAINE CORPORATION TO HARBORCORP, LLC" SCALE: 1 IN. = 30', MARCH 14, 2005, FINAL REVISION 5/3/2005, BY AMES MSC, RCRD D-32675.



**LENGTH TABLE**

LINE	BEARING	DISTANCE
L1	N67°48'00"E	6'±*
L2	S13°22'13"W	29.13'
L3	S51°47'14"E	18.50'
L4	N37°53'26"E	6.50'
L5	N52°06'34"W	19.02'
L6	N39°47'25"E	6'±*

\*TO MEAN HIGH WATER



**AMBIT ENGINEERING, INC.**  
Civil Engineers & Land Surveyors  
200 Griffin Road - Unit 3  
Portsmouth, N.H. 03801-7114  
Tel (603) 430-9282  
Fax (603) 436-2315

**NOTES:**

- 1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 119 AS LOT 2.
- 2) OWNER OF RECORD:  
STONE CREEK REALTY  
c/o DOUGLAS PINCIARO, Mgr.  
P.O. BOX 121  
NEW CASTLE, N.H. 03854-0121  
3378/2467
- 3) PORTIONS OF THE SUBJECT PARCEL ARE IN A SPECIAL FLOOD HAZARD AREA, ZONE AE (EL 9-NGVD29), AS SHOWN ON FIRM PANEL 33015C0259E, EFFECTIVE MAY 18, 2005. STRUCTURE ON PARCEL WAS REMOVED FROM THE SFHA, SEE LOMA CASE #19-01-0417A.
- 4) EXISTING LOT AREA:  
70,613± S.F. (TO MEAN HIGH WATER)  
1.6211± ACRES (TO MEAN HIGH WATER)
- 5) PARCEL IS LOCATED IN THE CHARACTER DISTRICT 5 (CD5) ZONING DISTRICT, AND IS SUBJECT TO THE DOWNTOWN OVERLAY (DOD) AND HISTORIC OVERLAY DISTRICTS.
- 6) DIMENSIONAL REQUIREMENTS:  
SEE ZONING ORDINANCE
- 7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULT OF A STANDARD BOUNDARY SURVEY OF LOT 2 ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 119.
- 8) SEE POLE AND WIRE AGREEMENT DATED NOVEMBER 25, 1927 BETWEEN BOSTON AND MAINE RAILROAD & PORTSMOUTH POWER COMPANY. SEE ALSO 1339/298, BOSTON AND MAINE RAILROAD TO GEORGE D. EMERSON COMPANY. NO WIDTH OF RIGHT TO ERECT POLES AND WIRES ON THE SUBJECT PARCEL IS GIVEN.
- 9) VERTICAL DATUM NAVD88. BASIS OF VERTICAL DATUM NGS PID OC0289 - V 31 USGS 1943.

0	ISSUED FOR COMMENT	10/22/19
NO.	DESCRIPTION	DATE

**PROPERTY ACQUISITION  
WORKSHEET  
TAX MAP 119 - LOT 2**

LAND OF  
**STONE CREEK REALTY**  
53, 55 & 57 GREEN STREET  
CITY OF PORTSMOUTH  
COUNTY OF ROCKINGHAM  
STATE OF NEW HAMPSHIRE