C0960-011
July 7, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Request for Site Review, Wetland Conditional Use & Lot Line Revision Permits
Proposed Mixed Use Development 53 Green Street, Portsmouth, NH

Dear Chairman Legg:

On behalf of Stone Creek Realty, LLC (owner), and CPI Management, LLC (applicant), we are pleased to submit one (1) set of hard copies and one electronic file (.pdf) of the following information to support a request for a Site Review Permit, Wetland Conditional Use Permit for wetland buffer impacts, and a Lot Line Revision Permit for the above referenced project:

- One (1) full size & one (1) half size copy of the Site Plan Set, last revised July 7, 2021;
- TAC & CC Stipulation Response Report, dated July 7, 2021;
- Site Review Checklist, last revised July 7, 2021;
- Subdivision Checklist, last revised July 7, 2021;
- Boundary Line Adjustment Plan, dated May 17, 2021;
- Drainage Analysis, last revised July 7, 2021;
- Operations and Maintenance Plan, dated May 19, 2021;
- Aerial Site Overlay Exhibit, last revised July 7, 2021;
- Grade Plane Exhibit, last revised July 7, 2021;
- Wetland and Buffer Report, dated January 6, 2020;
- Existing Buffer Photograph Log, dated January 27, 2021;
- Wetland Buffer Impervious Surface Exhibit, last revised July 7, 2021;
- Community Space Exhibit, last revised July 7, 2021;
- Fire Truck Turning Exhibit, last revised July 7, 2021;
- Site Traffic Exhibit, last revised July 7, 2021;
- Trip Generation Analysis, last revised July 7, 2021;
- Unitil Will Service Letter, dated February 22, 2021;
- Eversource Will Service Letter, dated June 29, 2021;
- Green Building Statement, dated March 22, 2021;
- Site Lighting Fixture Cut Sheets;
- Building Renderings

Project Summary

Existing Conditions

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 property includes 315+/- linear feet of tidal wetlands and buffers along the North Mill

Pond. The limited functions and values of these areas are described in the enclosed Wetland and Buffer Report and shown on the Existing Buffer Photograph Log.

The existing lot contains a L-shaped commercial building that is located within the southwestern portion of the project area and extends towards the center of the property. This building houses several businesses. Several small and discontinuous disturbed forested areas lie to the west of this existing building and along the railroad track to the east, and a small discontinuous disturbed shrub thicket exists within the northernmost portion of the property, near the on-site utility tower. The majority of the eastern portion of the property is paved parking.

The property in question includes a portion of the City of Portsmouth's long planned improvements to the shoreline of the North Mill Pond, the concept of which has been a focus of the City's planning for years. It was included in the Portsmouth Bicycle and Pedestrian Plan in 2014 and the North End Vision Plan in 2015. Many of the stated goals set forth in the City's Master Plan in 2016 called for its creation. The Final Report on the North Mill Pond Greenway and Community Park was issued in 2019.

The Final Plan calls for "*a linear greenway and community park along the North Mill Pond which will create a new north-south pedestrian and bicycle connection from Bartlett Street to Market Street. This multi-use public path with civic amenities in envisioned to be constructed along the southeast shoreline of the pond, will include wetland restoration and pond edge stabilization and is anticipated and constructed through a series of public-private partnerships with private landowners.*"

Through a public process, the City of Portsmouth amended the City Zoning Ordinance in 2016 to create an overlay district specifically allowing the construction of taller buildings in the area as incentive for real estate developers to join in these important public private partnerships.

Proposed Redevelopment

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 45 upper floor residential units. The project includes associated site improvements that consist of a paved access driveway, pedestrian access, utilities, lighting, landscaping and stormwater management systems that provide treatment for runoff.

The existing condition of the development property does not provide any stormwater treatment. The proposed development will provide stormwater management improvements which are described in further detail in the enclosed Drainage Analysis. The following is a summary:

- Proposed treatment to runoff from the new buildings and paved access driveway will be provided via a stormwater treatment unit. In addition, a lined and under drained underground chamber system with and isolator row has been incorporated into the design to mitigate temperature of the runoff from the paved access driveway area. An additional benefit of the underground chamber system is that it will also reduce peak rates of runoff to the North Mill Pond even though peak rate reduction is not required for direct discharges to tidal waters.
- Stormwater treatment measures have been implemented where the greenway connection area connects to the North Mill Pond greenway trail. Yard drains will capture runoff and put them route through the treatment unit.
- A porous asphalt design has been incorporated into the stormwater design for North Mill Pond greenway trail at the direction of City staff.

The proposed development lot has a unique configuration. Despite its large size at 1.78 acres, the lot only has 103.66 linear feet of frontage on Green Street. The CD-5 zoning district requires lots to provide 80% buildout along the front lot line which is equal to 82.93 feet for the development lot. Even with the 24-foot-wide driveway for vehicular and fire truck access as well as the 20-foot-wide greenway connection community space, the design team was able to meet the zoning requirements for Front Lot Line Buildout.

Open Space & Buffer Enhancement

The project is located in the North End incentive overlay district. The applicant will be providing 22,621 SF of community spaces, which will include 15,463 SF of Greenway Community Space located between the North Mill Pond mean high water line and the 50-foot wetland buffer setback. Providing this community space will contribute towards the City realizing a goal of the Master Plan to create public access along the North Mill Pond with a multi-use trail. This Community Space is 29% of the total lot area which exceeds 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. Overall, the project will be providing 35% open space on the development lot where only 5% is required by zoning.

Proposed work within the 100-foot Tidal Buffer and subject to conditional use approval includes demolition and construction activities. The 100-foot tidal buffer within the development area includes impervious parking surface, walkways and building and a large maintained lawn area.

The project will provide an overall improvement by reducing the impervious cover within the 100-foot tidal buffer. The impervious surface impacts from the design are shown in Table 1. In addition to the summary in Table 1 below, detailed calculations of the impervious surfaces within the buffer for the existing and proposed condition are depicted in the enclosed Wetland Buffer Impervious Surface Exhibit.

The projects landscape plan proposes to replace existing maintained lawn with low mow grass mix and plant native trees in an effort to enhance the previously disturbed wetlands buffer. The work done by the proposed project within the 25-foot buffer to North Mill Pond is limited to the construction of the stormwater outlet.

Table 1. 53 Green Street, Wetland Buffer Impervious Surfaces

Buffer Segment	Existing Impervious (SF)	Final Impervious (SF)
0-25 feet	0	0
25-50 feet	745	110
50-100 feet	10,836	8,253
Total	11,581	8,363
Net Impervious Surface	**-3,218**	

Section 10.1017.24 of the Zoning Ordinance which indicates "Where feasible, the application shall include removal of impervious surfaces at least equal in area to the area of impervious surface impact. The intent of this provision is that the project will not result in a net loss of

pervious surface within a jurisdictional wetland buffer." As shown in Table 1, the proposed project exceeds this requirement by providing a 3,218 SF reduction in impervious surface.

Land Use Permit Applications

Permitting Timeline

The applicant is pleased to provide the enclosed information to support requests to the Planning Board to grant the following land-use permits:

- Site Plan Review
- Lot Line Revision
- Wetland Conditional Use Permit

The enclosed information has been prepared and/or revised in response to comments and feedback received throughout the permitting process from the Planning Board, Technical Advisory Committee (TAC), Conservation Commission (CC), and public comment. The following is a summary of meetings with the various land use-boards:

- January 21, 2021 – Planning Board Conceptual Consultation
- February 9, 2021 – Technical Advisory Committee Work Session
- February 10, 2021 – Conservation Commission Work Session
- April 6, 2021 - Technical Advisory Committee Meeting
- April 14, 2021 – Conservation Commission Regular Meeting
- May 4, 2021 - Technical Advisory Committee Meeting
- June 1, 2021 - Technical Advisory Committee Meeting

The enclosed revised plans and supplemental materials have been provided to address stipulations received from the Conservation Commission (CC) and Technical Advisory Committee (TAC) in correspondence dated April 23, 2021 and June 3, 2021 respectively.

In addition to the local land-use permits, the project will also require the following approvals from the New Hampshire Department of Environmental Services (NHDES):

- Alteration of Terrain Permit
- Wetland Impact Permit

The applicant is in the process of working with NHDES to obtain these approvals. The Alteration of Terrain Permit application was submitted to NHDES on April 21, 2021. On February 23, 2021, the applicant had an initial Wetland Permit pre-application design meeting with NHDES to review the project. The applicant had a second pre-application meeting with NHDES to discuss the projects preliminary mitigation proposal on March 18, 2021. The applicant is finalizing the Wetland Impact Permit application and will formally file to NHDES.

Site Plan Review Permit

The project will require a Site Plan Review Permit for the site improvements described above in the project summary. The project has previously been before the Planning Board for Conceptual Consultation. In addition, the project has been before the Technical Advisory Committee (TAC) four (4) times. On June 1, 2021, TAC recommended to the Planning Board that a Site Plan Review Permit be granted with stipulations. Enclosed with this package is a Stipulation Report addressing each of the TAC stipulations of approval.

Lot Line Revision Permit

The project will require a Lot Line Revision Permit to adjust the lot line between Map 119 Lot 2 and Map 119 Lot 3 as shown in the enclosed Boundary Line Adjustment Plan prepared by Doucet Survey Inc. 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 0.12 acres for a total lot area of 1.78 acres.

Wetland Conditional Use Permit

Jurisdictional wetland areas, including 315+/- linear feet of tidal wetlands and buffers along the North Mill Pond, were identified by Leonard A. Lord, PhD, CSS, CWS, Senior Environmental Scientist at Tighe & Bond, Inc. on October 29 and December 2, 2019. The results of the tidal wetland and buffer review and the assessment of the wetlands functions and values on the proposed project site in the enclosed "Wetland and Buffer" Report dated January 6, 2020.

A Conditional Use Permit for Wetland Buffer Impact will be required for the project for work within the 100 ft wetland buffer. The project received a unanimous recommendation for approval from the Conservation Commission at their April 14, 2021 meeting.

Conditional Use Permit Criteria

Based on the above described and enclosed materials, the following addresses how the proposed project warrants the granting of a Wetland Conditional Use Permit by satisfying the following six (6) criteria for approval in Section 10.1017.50 of the Zoning Ordinance:

(1) The land is reasonably suited to the use, activity or alteration.

The land is currently a previously disturbed site which consists of an office building and parking lot and is suited for enhancement. Section 10.5A41.10D of the Zoning Ordinance defines the CD5 district as consisting "of high-density center with a mix of building types and residential, retail and other commercial uses". The proposed project design is consistent with the descriptions of uses in these zoning districts. Additionally, the proposed project site consists of previously disturbed tidal buffer area which has historically been used as a commercial area. The proposed project will result in impervious surface reduction in the buffer, buffer enhancement, and will provide public access along North Mill Pond which is a goal of the City's Master Plan.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.

The placement of the proposed buildings and access driveway areas was done in a way to reduce the areas of impervious surface within the 100-foot tidal buffer, as well as to adhere to the required setbacks to the abutting railroad. The proposed project design reduces the impervious surface within the 100' buffer and proposes to replace existing maintained lawn with low mow grass mix and plant native trees.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

There will be no adverse impact on the wetland functional values of the site as the existing condition is previously disturbed and consists of building, lawn, parking area and minor scrub at the water's edge. There is no real functional wetland buffer area on the project site. The proposed project designs site and landscape plans enhance the previously disturbed tidal buffer area given the existing condition and provide added value by creating public open space for recreation along the North Mill Pond.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The proposed project design proposes no alteration to any natural woodland or wetlands area. The area impacted consists of impervious surfaces and maintained lawn. Any temporary disturbances of the wetland buffer for construction of the stormwater outlet will be restored following construction.

(5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.

The proposed project design is not an adverse impact to the site as it would enhance the buffer by reducing overall impervious surface on the site, improve water quality through stormwater treatment and provide public access to the North Mill Pond which is a goal of the City's master plan. Impervious surfaces have been reduced with the use of underground parking. The proposed project will reduce the impervious area within the 100-foot tidal buffer.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

The proposed project design within the vegetated buffer strip is limited to construction of the stormwater outlet from the stormwater collection and treatment system. The existing property has no stormwater treatment measures. The proposed project will collect and treat the onsite impervious surfaces prior to discharging to North Mill Pond. Implementing these treatment measures will help improve the water quality in North Mill Pond. In order for this system to work, disturbances with the buffer strip are necessary. Areas temporarily disturbed for the construction of the outlet will be restored following construction. The landscape plan proposes replacing the existing lawn within the 25' foot wetland buffer with a low mow grass mix, mown as required to keep the space open and avoid incursions of invasive species, and the addition of several native trees on the water side of the path.

Conclusion

We trust the above described and enclosed materials address the criteria to grant a Site Plan Review Permit, Lot Line Revision Permit, and Wetland Conditional Use Permit for the proposed project. The proposed project meets requirements of the Zoning Ordinance. The proposed project achieves the goals of City's Master Plan to provide public access along the North Mill Pond with a Greenway Community Space and to provide buffer enhancement.

As shown in the enclosed information, the proposed plan will reduce impervious surface within the buffer area, improve stormwater management, enhance the North Mill Pond tidal wetland buffer and provide public benefit in the form of open space along the North Mill Pond. Based on this, the applicant respectfully requests approval for the various land-use permits noted above.

We respectfully request to be placed on the Planning Board meeting agenda for July 15, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

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

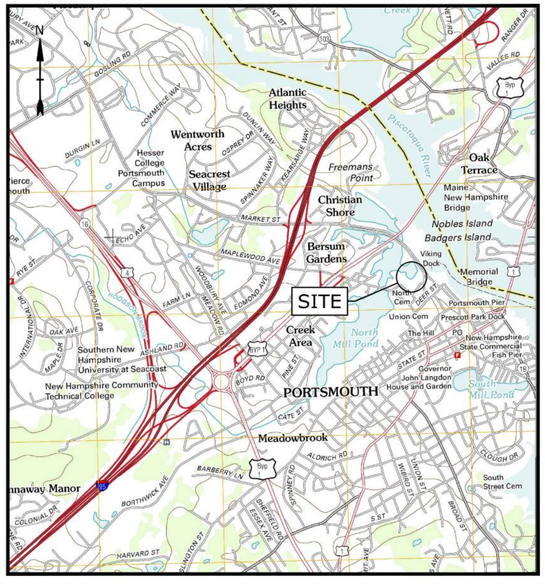
PROPOSED MIXED USE DEVELOPMENT

53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE
JANUARY 27, 2021
LAST REVISED: JULY 7, 2021

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	7/7/2021
1 OF 2	EXISTING CONDITIONS PLAN	7/6/2021
2 OF 2	EXISTING CONDITIONS PLAN	7/6/2021
C-101	DEMOLITION PLAN	7/7/2021
C-102.1	SITE PLAN	7/7/2021
C-102.2	BASEMENT & UPPER FLOOR PLAN	7/7/2021
C-103	GRADING, DRAINAGE AND EROSION CONTROL PLAN	7/7/2021
C-104	UTILITIES PLAN	7/7/2021
C-201	WATER MAIN REPLACEMENT PLAN	7/7/2021
C-301	EASEMENT PLAN	7/7/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	7/7/2021
C-502	DETAILS SHEET	7/7/2021
C-503	DETAILS SHEET	7/7/2021
C-504	DETAILS SHEET	7/7/2021
C-505	DETAILS SHEET	7/7/2021
C-506	DETAILS SHEET	7/7/2021
C-507	DETAILS SHEET	7/7/2021
C-508	DETAILS SHEET	7/7/2021
L-1	LANDSCAPE PLAN	6/29/2021
1 OF 1	PHOTOMETRIC PLAN	7/7/2021
A201	BUILDING ELEVATIONS	6/18/2021
A202	BUILDING ELEVATIONS	6/18/2021
A203	BUILDING ELEVATIONS	6/18/2021

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

T & B PROJECT NO: C-0960-011



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

NEW HAMPSHIRE FISH AND GAME AOT PERMIT CONDITIONS RELATED TO THREATENED AND ENDANGERED SPECIES

a. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB21-0875, PROPOSED MIXED USE DEVELOPMENT, WILDLIFE SPECIES OBSERVATION. PHOTOGRAPHS SHALL BE PROVIDED FOR VERIFICATION AS FEASIBLE; AND

b. THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

c. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, EXCEPT FOR SILT FENCE INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.04, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN WELDED PLASTIC, PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH.

PB SUBMISSION SET
COMPLETE SET 23 SHEETS

Last Saved: 7/7/2021
Date/Time Plotted: 7/7/2021 - 12:58pm By: ASellar
Tighe & Bond: J:\CD\0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C-COVER.dwg

DOUCET SURVEY, LLC

NHSPCS (NAD83 / 2011)

SMH #5563
RIM ELEV.=12.7'
(A) 18" CLAY INV.=2.0'
(B) 18" CLAY INV.=1.9'

6"X6" CONC. BND. FND. W/LEAD PLUG FLUSH

SMH #5551
RIM ELEV.=11.2'
(A) 28" RCP INV.=0.3'
(B) 28" RCP INV.=0.2'
(NO VISIBLE PIPES HEADING TOWARDS SMH #5404)

2" IRON UP 14"

5/8" REBAR UP 5" W/CAP LLS #738 (N8°25'21"E, 2.81' TO CORNER)

S66°52'16"W, 46'± (TO MEAN HIGH WATER) (SEE NOTES #12 & #13)

TBM 4383A
X-CUT IN TOWER BOLT AT SOUTHWEST CORNER OF TRANSMISSION TOWER PAD
ELEV.=12.56'(NGVD29)

UTILITY EASEMENT (SEE NOTES #17B,C&F)

UTILITY TOWER

DOCK

EDGE OF JURISDICTIONAL WETLANDS (SEE NOTE #6)

HIGHEST OBSERVABLE TIDE LINE ELEV. 4.3 FT NGVD1929 (SEE NOTES #12 & #13)

MEAN HIGH WATER ELEV. 3.0 FT NGVD1929 (SEE NOTES #12 & #13)

TIE LINE ONLY

N52°48'53"E 344.83'

315'± ALONG MEAN HIGH WATER LINE

NORTH MILL POND

N38°56'03"E, 16'± (TO MEAN HIGH WATER) (SEE NOTES #12 & #13)

12" RCP INV.=1.9'

5/8" REBAR UP 4" W/CAP LLS #989 (HELD)

5/8" REBAR UP 5" W/CAP LLS #989 (HELD)

5/8" REBAR FOUND, W/CAP 738, FLUSH (HELD)

5/8" REBAR FOUND, W/CAP 738, FLUSH (HELD)

5/8" REBAR FOUND, DOWN 1"

TAX MAP 123 LOT 15
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 5904, PAGE 2777

TAX MAP 124, LOT 9
319 VAUGHAN STREET
CENTER LLC
PO BOX 21948
PORTSMOUTH, NH 03802
R.C.R.D. BK. 5506, PG. 427

TAX MAP 119
LOT 2
72,420 SQ. FT.±
1.66 AC.±
AREA CALULATED TO MEAN HIGH WATER LINE (SEE NOTE #12 & #13)

STEPS

BUILDING

STEPS (TYP.)

GRAN. STEPS

EP

SWL

TAX MAP 119 LOT 3
BOSTON & MAINE CORP
IRON HORSE PARK
BILLERICA, MA 01862

1" 1/4 DOWN 12

RUSSELL STREET
(PUBLIC ROW)
(VARIABLE WIDTH)

5/8" REBAR W/CAP LLS #844

4" X 4" CONC. BND. FND. W/ D.H. UP

RAILROAD TRACKS

S10°33'37"E 191.25'

STOP/RUSSELL ST. GREEN ST.

5/8" REBAR FOUND, DOWN 2"

5/8" REBAR FLUSH

5/8" REBAR FOUND, DOWN 2"

NGS DISK B2
FOUND SET IN LEDGE
ELEV.=20.32(NGVD29)
STAMPED ON DISK

RRSF (N5°22'30"E. 2.67' TO CORNER)

RRSF (N6°12'30"E. 2.66' TO CORNER)

SEE NOTE #16 WITH RESPECT TO THE HATCHED AREA

GREEN STREET
(PUBLIC ROW)
(VARIABLE WIDTH)

5/8" REBAR FOUND W/CAP 738, FLUSH

STOP/RAILROAD XING

PSNH 28/5 W/COND & RR XING SIGN

RR XING

TAX MAP 124 LOT 13
BOSTON & MAINE CORP
IRON HORSE PARK
BILLERICA, MA 01862

5/8" REBAR FOUND, W/CAP 738, DOWN 1" (HELD)

SMH #5577
RIM ELEV.=13.6'
(A) 6" PVC INV.=7.5'
(5604) 6" PVC INV.=7.1'

SMH #5404
RIM ELEV.=14.8'
(A) 24" PVC INV.=1.4'
(TOWARDS SMH #5551)
(5604) 12" PVC INV.=1.8'

FF=13.9'

WOODEN RAMP

OVERHANG (TYP.)
POSSIBLE ELECTRIC

METAL ACCESS HATCH

N53°03'57"W 151.93'

N53°11'14"W 106.51'

6' CHAIN LINK FENCE

GATE (NO ACCESS)

5/8" REBAR FOUND W/CAP 738, FLUSH (HELD)

PARKING STRUCTURE

GENERATOR PAD

TRANSFORMER PAD

CONTROL PANEL (ON BUILDING)

METAL BENCH

METAL GRATE

BIKE RACK

5/8" REBAR W/CAP LLS #989

SMH #5604
RIM ELEV.=12.9'
(A) 12" PVC INV.=2.1'
(5404) 12" PVC INV.=2.1'
(5577) UNKN. INV.=7.1'
(TOP OF PIPE)

RET. WALL

BUILDING

TAX MAP 124 LOT 14
TWO FRIENDS HOLDINGS LLC
C/O DGI
PO BOX 23890
HARAHAN, LA 70183-0890
R.C.R.D. BOOK 5659, PAGE 82

TAX MAP 124 LOT 10
VAUGHAN STREET HOTEL LLC
1359 HOOKSETT ROAD
HOOKSETT, NH 03106
R.C.R.D. BOOK 5848, PAGE 129

PARCEL LINE TABLE		
LINE	BEARING	DISTANCE
L1	S14°35'01"E	83.72'
L2	S12°26'29"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'

STATE OF NEW HAMPSHIRE — No. 989 — MATTHEW W. FARGINGER-AUER — LICENSED LAND SURVEYOR — SIGNATURE

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

L.L.S. #989

11/6/21
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

LEGEND

- LOT LINE
- APPROXIMATE ABUTTERS LOT LINE
- STOCKADE FENCE
- CHAIN LINK FENCE
- OHW — 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
- PAD MOUNTED TRANSFORMER
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- HAND HOLE
- DECIDUOUS TREE
- CONIFEROUS SHRUB
- TYP. — TYPICAL
- BND. FND. — BOUND FOUND
- CONC. — CONCRETE
- FF — FINISHED FLOOR ELEVATION
- EP — EDGE OF PAVEMENT
- VGC — VERTICAL GRANITE CURB
- SWL — SINGLE WHITE LINE
- 5/8" REBAR W/ID CAP TO BE SET

30 0 30 60
SCALE: 1 INCH = 30 FT.

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
STONE CREEK REALITY 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

STATE OF NEW HAMPSHIRE — LEONARD A. LORD — No. 14 — CERTIFIED WETLAND SCIENTIST — 11/6/2021

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

FILE NAME: Y:\PROJECTS\4383 CSR\DWG\4383F (LOT 119-2) CSR EXPANDED 4-29-21.dwg LAYOUT NAME: TOPO PLAN (1) PLOTTED: Tuesday, July 06, 2021 - 8:20am

NOTES:

1. REFERENCE: TAX MAP 119, LOT 2
53 GREEN STREET
D.S.I. PROJECT NO. 4383

2. TOTAL PARCEL AREA: 72,420 SQ. FT.± OR 1.66 AC.±
(AREA CALCULATED TO MEAN HIGH WATER)
(SEE NOTE #12)

3. OWNER OF RECORD: STONE CREEK REALTY LLC
C/O DOUGLAS PINCIARO
PO BOX 121
NEW CASTLE, NH 03854
R.C.R.D. BOOK 3300, PAGE 329

4. ZONE: CD5 OVERLAY DISTRICTS
–DOWNTOWN OVERLAY DISTRICT
–HISTORIC DISTRCIT

ZONING DISTRICTS BASED ON THE CITY OF PORTSMOUTH ZONING MAP DATED 11/12/15 AS AVAILABLE ON THE CITY WEBSITE ON 11/18/19. SEE CITY OF PORTSMOUTH ZONING ORDINANCE ARTICLE 5A, SECTION 10.5A40 FOR DIMENSIONAL REGULATIONS. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.

THE SITE IS SUBJECT TO THE STATE OF NH SHORELAND WATER QUALITY PROTECTION ACT. SEE NHDES WEBSITE FOR SPECIFIC DIMENSIONAL REQUIREMENT.

5. FIELD SURVEY PERFORMED BY D.C.B. & K.J.L. DURING NOVEMBER 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R8 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

6. JURISDICTIONAL WETLANDS DELINEATED BY LEONARD LORD OF TIGHE & BOND, DURING OCTOBER 2019 IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (OCTOBER, 2009).

7. VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923.

8. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

9. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

10. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.

11. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.

12. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.

13. MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPLACEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009", PROVIDED BY TIGHE & BOND ON 11-30-15.

14. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

15. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF GREEN STREET AS DEPICTED HEREON IS/ARE BASED ON RESEARCH CONDUCTED AT THE CITY OF PORTSMOUTH CITY HALL, THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS & THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

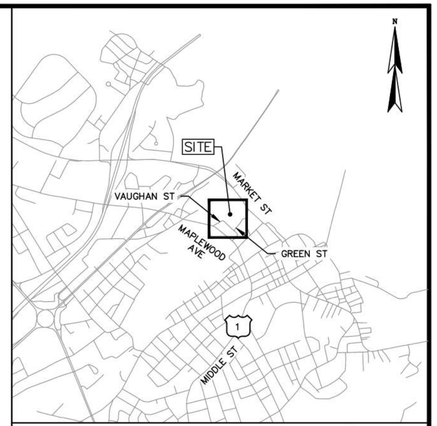
16. THE GEOMETRY SHOWN ON REFERENCE PLANS 12 & 13 INDICATE THE HATCHED AREA MAY BE SUBJECT TO THE GREEN STREET RIGHT-OF-WAY. R.C.R.D. BOOK 589, PAGE 206 INDICATES FEE OWNERSHIP EXTENDS TO THE CENTERLINE OF GREEN STREET IN THIS AREA.

17. TAX MAP 119 LOT 2 SHOWN HEREON IS SUBJECT TO AND/OR IN BENEFIT OF THE FOLLOWING EASEMENTS & COVENANTS.
   A) SIGNAL FACILITIES EXCEPTIONS AND RESERVATIONS, SEE R.C.R.D. BOOK 1339, PAGE 298, (LOCATION UNKNOWN).
   B) EASEMENT IN FAVOR OF WESTERN UNION TELEGRAPH COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
   C) ELECTRIC EASEMENT IN FAVOR OF NEW HAMPSHIRE ELECTRIC COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
   D) SEWER LINE EASEMENT IN FAVOR OF THE CITY OF PORTSMOUTH, SEE R.C.R.D. BOOK 1339, PAGE 298 (LOCATION UNKNOWN).
   E) ADDITIONAL FIRE RESTRICTION, SEE R.C.R.D. BOOK 1339, PAGE 298.
   F) POLE AND WIRE AGREEMENT, PER NOTE #8 ON REFERENCE PLAN #1, (RECORDED AGREEMENT NOT FOUND).
   G) ACCESS RIGHTS, SEE R.C.R.D. BOOK 589, PAGE 206 (LOCATION UNKNOWN).

18. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "STANDARD BOUNDARY SURVEY, TAX MAP 119 – LOT 2, LAND OF STONE CREEK REALTY", DATED MARCH 2016, BY AMBIT ENGINEERING, INC., NOT RECORDED.
2. "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH, NH" DATED JULY 1955 BY JOHN W. DURGIN R.C.R.D. PLAN #02541.
3. "STANDARD BOUNDARY SURVEY, TAX MAP 123 – LOT 15 & TAX MAP 124 LOT 10" DATED JULY 2008, REVISED 4/25/13 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN #D-37722.
4. "EASEMENT PLAN, EGRESS EASEMENT TO 319 VAUGHAN STREET CENTER, LLC, TAX MAP 124, LOT 9 & TAX MAP 123, LOT 15, PROPERTY OF 299 VAUGHAN STREET, LLC C/O CATHARTES PRIVATE INVESTMENTS", BY AMBIT ENGINEERING, INC., DATED MARCH 2014, R.C.R.D. PLAN #D-38358.
5. "CONDOMINIUM SITE PLAN TAX MAP 124 LOT 14, 233 VAUGHAN STREET, A CONDOMINIUM FOR 233 VAUGHAN STREET, LLC", BY AMBIT ENGINEERING, INC., DATED NOVEMBER 2013, R.C.R.D. PLAN #D-39078.
6. "LOT LINE RELOCATION PLAN PROPERTY OF HARBORCORP, LLC & BOSTON & MAINE CORPORATION", BY AMES MSC, DATED MARCH 15, 2005, R.C.R.D. PLAN #D-32675.
7. "LAND AT 233 VAUGHAN STREET PORTSMOUTH, NH BOSTON & MAINE CORPORATION TO BLUE STAR PROPERTIES, LLC", BY JAMES VERRA & ASSOCIATES, INC., DATED 6/3/01, R.C.R.D. PLAN #D-29702.
8. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED NOVEMBER 1969, R.C.R.D. PLAN D-2408
9. "PLAN OF LAND FOR SOLIMON NEGM", BY TOWN PLANNING & ENGINEERING ASSOCIATES, INC., DATED 3/28/79, R.C.R.D. PLAN #C-8575.
10. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION PLAN PARCEL 2", BY ANDERSON-NICHOLS & CO., INC., DATED OCTOBER 1973, R.C.R.D. PLAN D-4115.
11. "PLAN OF PROPERTY CORNER VAUGHAN AND GREEN STREETS", DATED FEBRUARY 1907, R.C.R.D. PLAN #306.
12. "LAND SHOWING LAND AND WHARFAGE OWNED BY SILAS PEIRCE AND CO. LTD.", BY A.C. HOYT SURVEYOR, DATED AUGUST 8, 1902, R.C.R.D. PLAN #266.
13. "PLAN OF LAND PORTSMOUTH, NH FOR GEORGE D. EMERSON CO., BY JOHN W. DURGIN, DATED APRIL 1952, ON FILE AT JAMES VERRA AND ASSOCIATES.
14. "PLAN OF LAND VAUGHAN AND GREEN STREETS PORTSMOUTH, NH FOR SAMUEL W. & SUMNER L. POORVU", BY JOHN W. DURGIN, DATED JANUARY 1956, ON FILE AT JAMES VERRA AND ASSOCIATES.
15. "PLAN OF PROPERTY IN PORTSMOUTH, NH OWNED BY R.I. SUGDEN", BY WM A. GROVER, DATED APRIL 15, 1919, ON FILE AT JAMES VERRA AND ASSOCIATES.
16. "LAND ON VAUGHAN STREET PORTSMOUTH, NH, ESTATE OF CARRIE HAM TO LAWRENCE V. REGAN" BY JOHN W. DURGIN, DATED AUGUST 6, 1937, ON FILE AT JAMES VERRA AND ASSOCIATES.
17. "LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO GEORGE D. EMERSON COMPANY", DATED JUNE 1954, R.C.R.D. BOOK 1339, PAGE 305.
18. TRACK PLAN, R.C.R.D. BOOK 1345, PAGE 51.
19. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, APPROVED AS SHOWING VAUGHAN STREET URBAN RENEWAL PROJECT BOUNDARIES AND AREA ONLY, CONDEMNATION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED FEBRUARY 1971, R.C.R.D. PLAN 2425.
20. "SURVEY OF HARBORSIDE & HARBORPARK LAND IN PORTSMOUTH, NH", BY BRIGGS ASSOCIATES, INC., DATED AUGUST 13, 1985, REV. AUGUST 27, 1985, R.C.R.D. PLAN 14043.
21. "SUBDIVISION PLAN OF TAX MAP 123, LOT 15 FOR 299 VAUGHAN STREET, LLC", BY DOUCET SURVEY, INC., DATED MAY 19, 2017, R.C.R.D. PLAN D-40759.
22. "LICENSE, EASEMENT & LAND TRANSFER PLAN FOR VAUGHAN STREET, LLC AND VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED AUGUST 2017, R.C.R.D. PLAN D-40760.
23. "LOT MERGER PLAN FOR VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED SEPTEMBER 2017.
24. "STATION MAP – LANDS, BOSTON AND MAINE RAILROAD OPERATED BY THE BOSTON AND MAINE RAILROAD, STATION 2966+20 TO STATION 3019+0", DATED JUNE 30, 1914, ON FILE AT THE BOSTON AND MAINE CORPORATION.
25. "VAUGHAN STREET PROJECT, PROJECT NO. N.H. R-10, RIGHT OF WAY ADJUSTMENT", BY METCALF & EDDY, DATED MAY 5, 1966, R.C.R.D. PLAN D-2413.
26. "SKETCH OF RAILROAD CONVEYANCE, SEE R.C.R.D. BOOK 446, PAGE 164A.
27. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10, PORTSMOUTH, NH, DISPOSITION PLAN, PARCEL 2B", BY ANDERSON-NICHOLS & CO., INC., DATED APRIL 1974, R.C.R.D. PLAN DC-4518.
28. "SEWER EASEMENT PLAN, TAX MAP 119, LOT 4, PROPERTY OF NORTH END MASTER DEVELOPMENT LP, GREEN, MARKET & RUSSELL STREETS, PORTSMOUTH, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM", BY TFM, DATED JULY 16, 2019.
29. "SUBDIVISION PLAN OF PARCELS 1 & 2 IN PORTSMOUTH, NH FOR THE CITY OF PORTSMOUTH", BY BRIGGS ASSOCIATES INC., DATED AUGUST 1, 1984, R.C.R.D. PLAN D-13798.
30. "VAUGHAN STREET PROJECT, PROJECT NO. N.H. R-10, PROPERTY MAP-A, PORTSMOUTH HOUSING AUTHORITY, PORTSMOUTH, NEW HAMPSHIRE, ROCKINGHAM COUNTY", BY METCALF & EDDY, DATED MAY 5, 1966, R.C.R.D. PLAN D-2410.
31. "LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO ROSE R. WOLFSON", DATED JUNE 1954, R.C.R.D. PLAN 2282.



Location Map (n.t.s.)

STATE OF NEW HAMPSHIRE
No. 989
MATTHEW W. FAGGINGER-AUER
LICENSED LAND SURVEYOR
SIGNATURE

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

NO.	DATE	DESCRIPTION	BY

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

L.L.S. #989

11/6/21
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.

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

DOUCET SURVEY LLC
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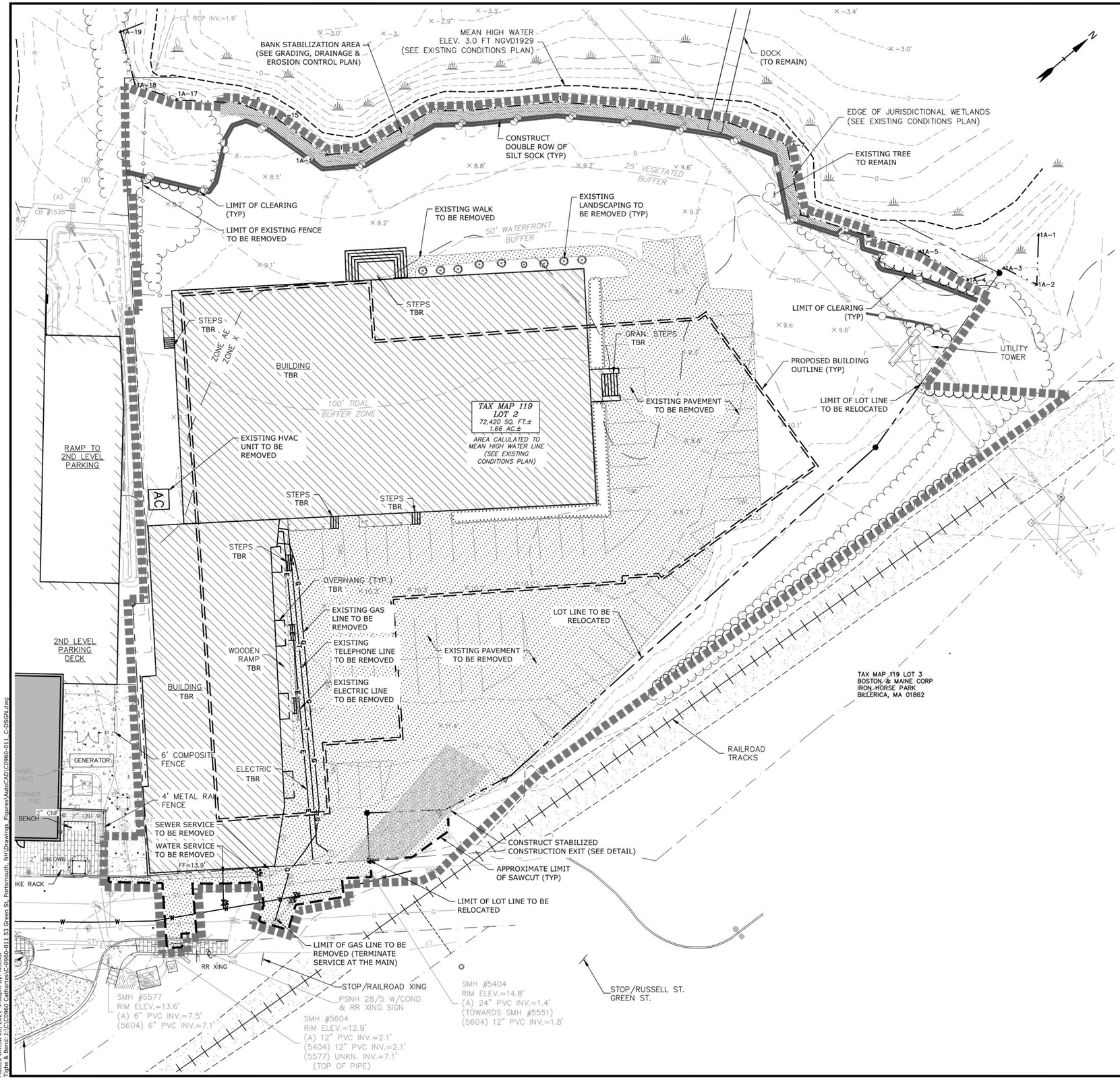
http://www.doucetsurvey.com

FILE NAME: N:\PROJECTS\4383 CD\DWG\4383F (LOT 119-2) CD5 (EXPANDED 4-28-21).dwg LAYOUT NAME: TOPO PLAN (2) PLOTTED: Tuesday, July 06, 2021 - 8:21am



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 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.

LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- PROPERTY LINE
- PROPERTY LINE TO BE REMOVED
- LIMIT OF WORK
- ZONE AE / ZONE X — FEMA FLOOD PLAIN ZONE BOUNDARY
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED STABILIZED CONSTRUCTION EXIT
- LOCATION OF PROPOSED BUILDING
- BUILDING TO BE REMOVED

TBR — TO BE REMOVED
TYP — TYPICAL

Tighe&Bond

PATRICK CRIMMINS — No. 12378 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA — No. 08830 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW HAMPSHIRE
7/7/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

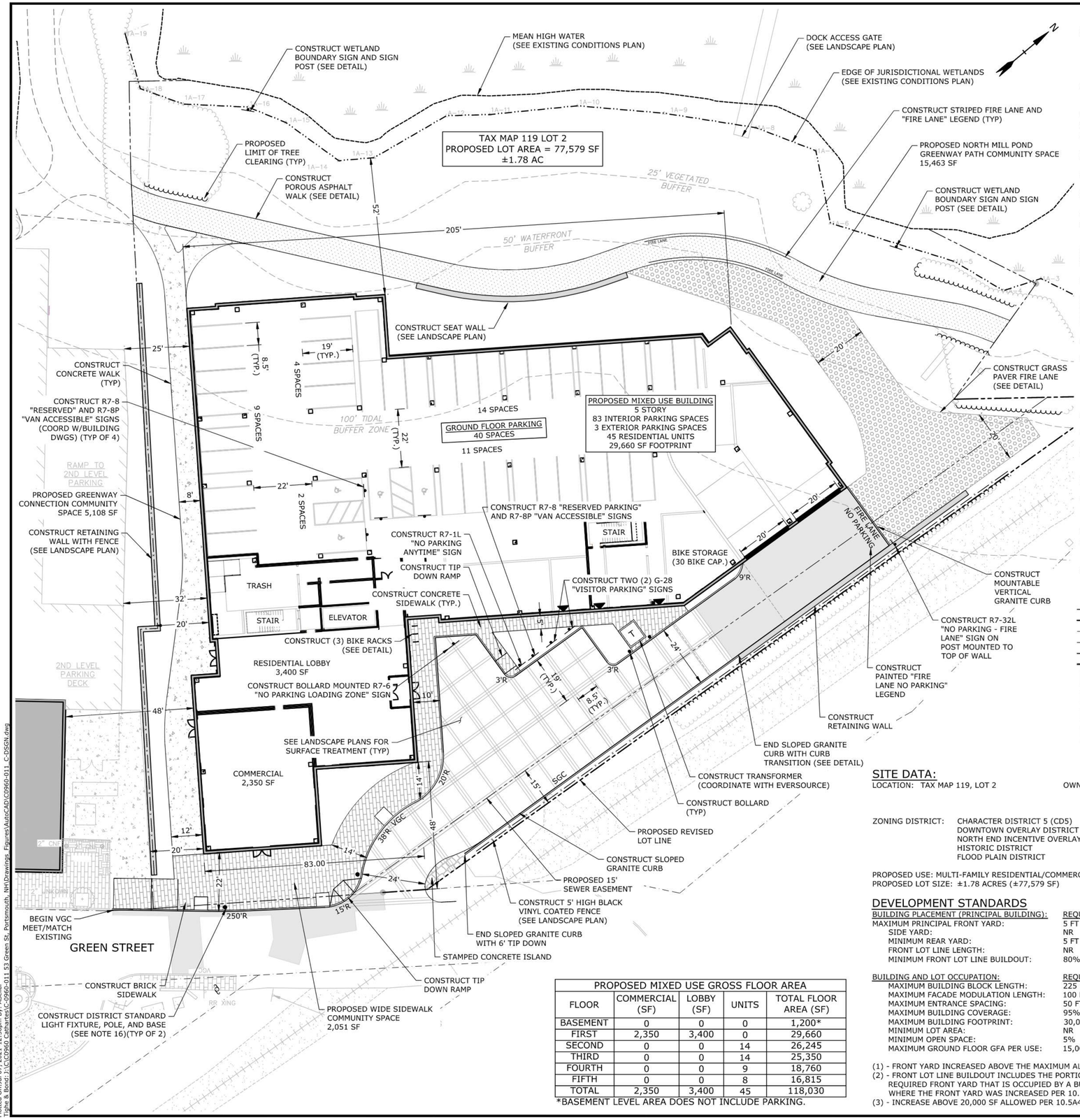
PROJECT NO:	C0960-011
DATE:	January 27, 2021
FILE:	C0960-011_C-DSGN.DWG
DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

DEMOLITION PLAN

SCALE: AS SHOWN

C-101

Last Saved: 7/6/2021
Printed On: 7/6/2021 4:08pm By: ASollar
Tighe & Bond: J:\C\C0960 Cathartes\C-0960-011 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 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.
23. AREAS DESIGNATED FOR FIRE EMERGENCY ACCESS SHALL BE KEPT CLEAR OF SNOW.

SITE RECORDING NOTES:

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

LEGEND

	PROPERTY LINE		PROPOSED POROUS PAVEMENT
	PROPOSED PROPERTY LINE		PROPOSED PAVEMENT
	ABUTTER PROPERTY LINE		PROPOSED GRASS PAVER FIRE LANE
	PROPOSED EASEMENT	TYP	TYPICAL
	PROPOSED EDGE OF PAVEMENT	30'R	PROPOSED CURB RADIUS
	PROPOSED CURB	VGC	PROPOSED VERTICAL GRANITE CURB
	PROPOSED BUILDING	SGC	PROPOSED SLOPED GRANITE CURB
	PROPOSED BRICK SIDEWALK	SWL	SOLID WHITE LINE
	PROPOSED CONCRETE SIDEWALK	CAP	CAPACITY
	PROPOSED STAMPED CONCRETE		

SITE DATA:

LOCATION: TAX MAP 119, LOT 2

OWNER: STONE CREEK REALTY LLC
C/O DOUGLAS PINCIARO
PO BOX 121
NEW CASTLE, NH 03854

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

PROPOSED USE: MULTI-FAMILY RESIDENTIAL/COMMERCIAL
PROPOSED LOT SIZE: ±1.78 ACRES (±77,579 SF)

DEVELOPMENT STANDARDS

BUILDING PLACEMENT (PRINCIPAL BUILDING):	REQUIRED	PROPOSED
MAXIMUM PRINCIPAL FRONT YARD:	5 FT	48 FT(1)
SIDE YARD:	NR	
MINIMUM REAR YARD:	5 FT	52 FT
FRONT LOT LINE LENGTH:	NR	103.66 FT
MINIMUM FRONT LOT LINE BUILDOUT:	80% (82.9 FT)	80.1% (83.0 FT)(2)

BUILDING AND LOT OCCUPATION:	REQUIRED	PROPOSED
MAXIMUM BUILDING BLOCK LENGTH:	225 FT	205 FT
MAXIMUM FACADE MODULATION LENGTH:	100 FT	<100 FT
MAXIMUM ENTRANCE SPACING:	50 FT	<50 FT
MAXIMUM BUILDING COVERAGE:	95%	38%
MAXIMUM BUILDING FOOTPRINT:	30,000 SF(3)	29,660 SF
MINIMUM LOT AREA:	NR	
MINIMUM OPEN SPACE:	5%	35%
MAXIMUM GROUND FLOOR GFA PER USE:	15,000 SF	3,400 SF

(1) - FRONT YARD INCREASED ABOVE THE MAXIMUM ALLOWED PER 10.5A42.12
(2) - FRONT LOT LINE BUILDOUT INCLUDES THE PORTION OF THE WIDTH OF THE REQUIRED FRONT YARD THAT IS OCCUPIED BY A BUILDING, INCLUDING AREAS WHERE THE FRONT YARD WAS INCREASED PER 10.5A42.12
(3) - INCREASE ABOVE 20,000 SF ALLOWED PER 10.5A43.42

BUILDING FORM (PRINCIPAL BUILDING):	REQUIRED	PROPOSED
BUILDING HEIGHT:	5 STORIES(4) 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
FACADE GLAZING: SHOP FRONT	20% - 50%	20% - 50%
ALLOWED ROOF TYPES FLAT, GABLE, HIP, GAMBREL, MANSARD		FLAT

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

COMMUNITY SPACE:	REQUIRED	PROPOSED
	20%	29%
	15,516 SF	22,622 SF

PARKING REQUIREMENTS

RESIDENTIAL UNITS (>750 SF)	45 UNITS x 1.3 SPACES	59 SPACES
VISITOR SPACES	1 SPACE / 5 UNITS	9 SPACES
DOWNTOWN OVERLAY DISTRICT		-4 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		64 SPACES

PARKING SPACES	REQUIRED	PROPOSED
	64 SPACES	86 SPACES

ADA PARKING SPACES	REQUIRED	PROPOSED
	4 SPACES	5 SPACES

BICYCLE SPACES	REQUIRED	PROPOSED
1 BICYCLE SPACE / 10 PARKING SPACES:	10 SPACES	30 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)
BASEMENT	0	0	0	1,200*
FIRST	2,350	3,400	0	29,660
SECOND	0	0	14	26,245
THIRD	0	0	14	25,350
FOURTH	0	0	9	18,760
FIFTH	0	0	8	16,815
TOTAL	2,350	3,400	45	118,030

*BASEMENT LEVEL AREA DOES NOT INCLUDE PARKING.

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PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA No. 08830 LICENSED LAND SURVEYOR - STATE OF NEW HAMPSHIRE
7/7/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

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

SITE PLAN

SCALE: AS SHOWN

C-102.1

Last Saved: 7/7/2021
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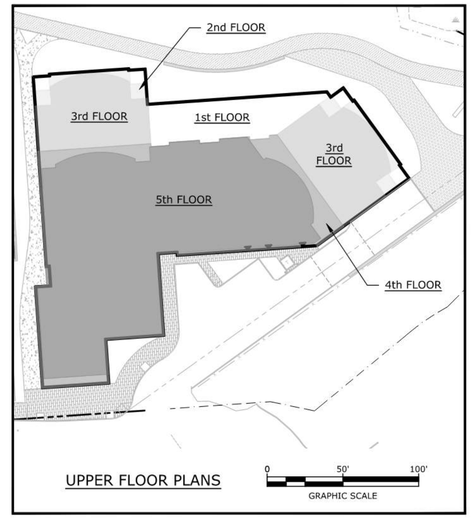

Tighe&Bond

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STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
7/7/2021

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
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0 20' 40'
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BASEMENT &
UPPER FLOOR PLAN

SCALE: AS SHOWN

C-102.2

Last Saved: 7/7/2021
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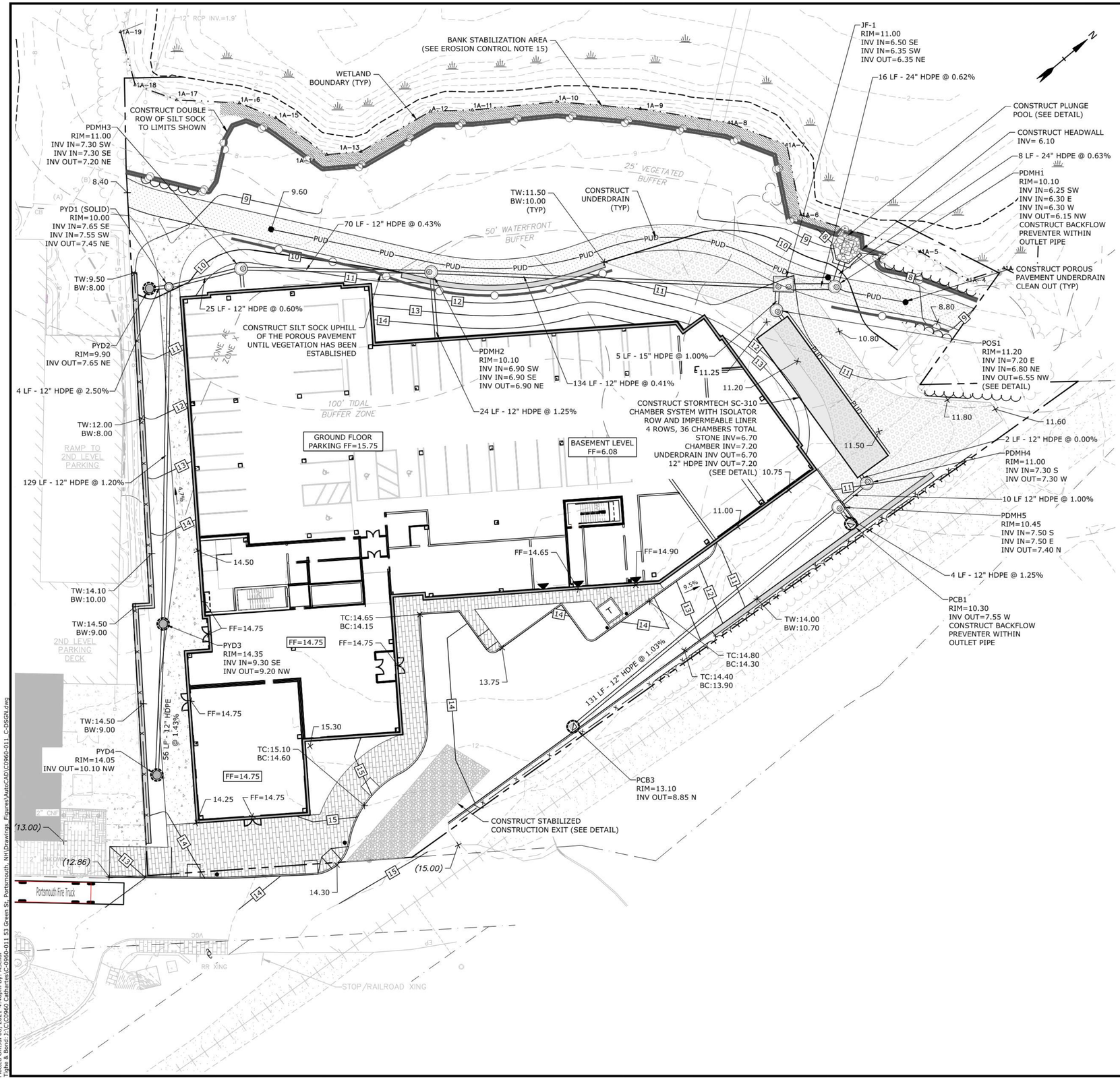

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL), UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS AND CONSTRUCTION SPECIFICATIONS, LATEST REVISIONS.
12. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILE) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER.
13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.
14. ALL DRAIN LINES WITH LESS THAN FOUR (4) FEET OF COVER SHALL BE INSULATED.
15. THE INSIDE OF THE DRAINAGE STRUCTURE SHALL BE TREATED WITH A SILOXANE COATING. SILOXANE COATING SHALL BE SIKAGARD-705L OR APPROVED EQUAL.

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.
15. THE BANK STABILIZATION AREA SHALL BE REVIEWED BY THE CONTRACTOR UPON THE START OF CONSTRUCTION ACTIVITIES AND INSTALL EROSION CONTROL BLANKET ON ANY AREA EXHIBITING ACTIVE EROSION.
16. THE FEMA 100-YEAR FLOOD PLAIN ZONE BOUNDARY IS IDENTIFIED ON THE PLAN. THE BASE FLOOD ELEVATION IS 8.76'.

LEGEND

5	PROPOSED MAJOR CONTOUR LINE
6	PROPOSED MINOR CONTOUR LINE
	PROPOSED DRAIN LINE
PUD	PROPOSED UNDERDRAIN
	PROPOSED SILT SOCK
ZONE AE / ZONE X	FEMA FLOOD PLAIN ZONE BOUNDARY
	PROPOSED BANK STABILIZATION AREA (SEE EROSION CONTROL NOTE 15)
	PROPOSED RIP RAP
	PROPOSED STABILIZED CONSTRUCTION EXIT
	INLET PROTECTION SILT SACK
	PROPOSED CATCHBASIN
	PROPOSED DRAIN MANHOLE
	PROPOSED YARD DRAIN
	PROPOSED JELLYFISH FILTER
JF	JELLYFISH FILTER
PCB	PROPOSED CATCH BASIN
PDMH	PROPOSED DRAIN MANHOLE
PYD	PROPOSED YARD DRAIN
TYP	TYPICAL

Tighe&Bond

STATE OF NEW HAMPSHIRE - PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
7/7/2021

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08830 LICENSED LAND SURVEYOR
7/7/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

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DRAWN BY:	AFS
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APPROVED:	BLM

GRADING, DRAINAGE, AND EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

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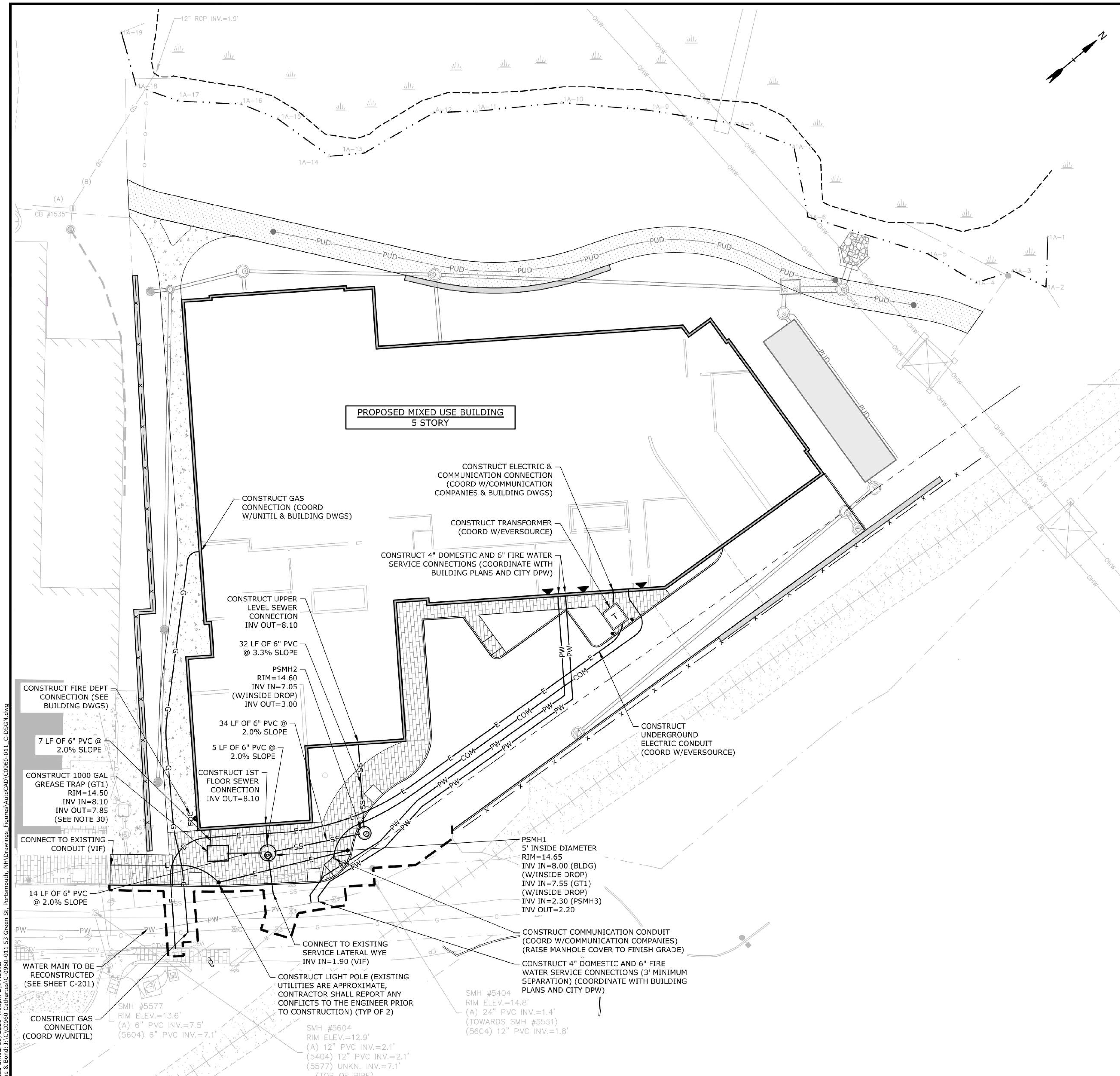

UTILITY NOTES:

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 ABUTTING 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 ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
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 WASTE SERVICE CONNECTION TO BE CONSTRUCTED IF PROPOSED COMMERCIAL SPACE BECOMES RESTAURANT USE.

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
	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	FDC 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

Tighe&Bond

STATE OF NEW HAMPSHIRE PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER 7/7/2021

STATE OF NEW HAMPSHIRE BRADLEE MEZQUITA No. 08630 LICENSED PROFESSIONAL ENGINEER 7-7-21

0 20' 40'
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A	1/27/2021	CC Work Session

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DATE:	January 27, 2021
FILE:	C0960-011_C-DSGN.DWG
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UTILITIES PLAN

SCALE: AS SHOWN

C-104

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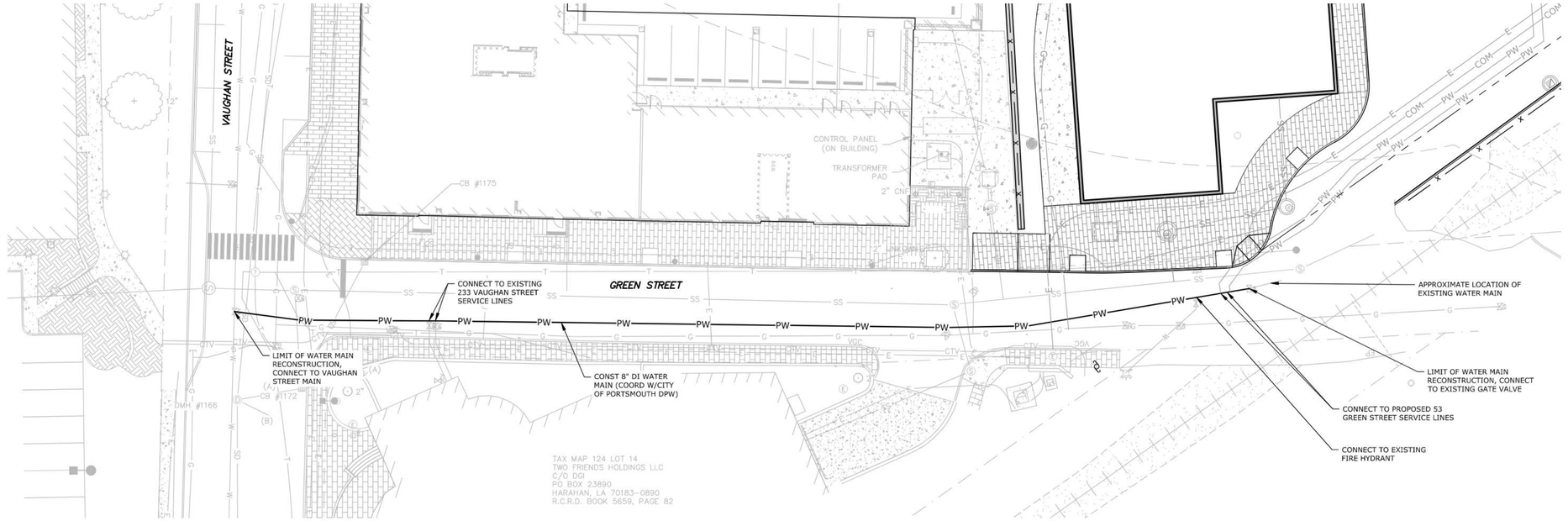
Plotted On:Jul 06, 2021-4:18pm By: ASellar
Tighe & Bond: J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg



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Tighe&Bond

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA No. 08830 LICENSED LAND SURVEYOR - STATE OF NEW HAMPSHIRE
7/7/21

0 20' 40'
GRAPHIC SCALE

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. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
8. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
9. CONNECTIONS TO EXISTING WATER LINES SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
10. 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.
11. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
12. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
19. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
20. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
21. CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IF LOCATIONS DIFFER FROM PLAN.

GREEN STREET PAVING:

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

LEGEND

SD	EXISTING STORM DRAIN
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
SD	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 GAS VALVE
	EXISTING WATER SHUTOFF		PROPOSED LIGHT POLE BASE
	EXISTING ELECTRIC MANHOLE	BLDG	BUILDING
	EXISTING PAD MOUNTED TRANSFORMER	TYP	TYPICAL
	EXISTING GAS VALVE	COORD	COORDINATE
	EXISTING HANDHOLE	VIF	VERIFY IN FIELD
	EXISTING COMMUNICATION MANHOLE	DWGS	DRAWINGS

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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WATER MAIN REPLACEMENT PLAN

SCALE: AS SHOWN

C-201

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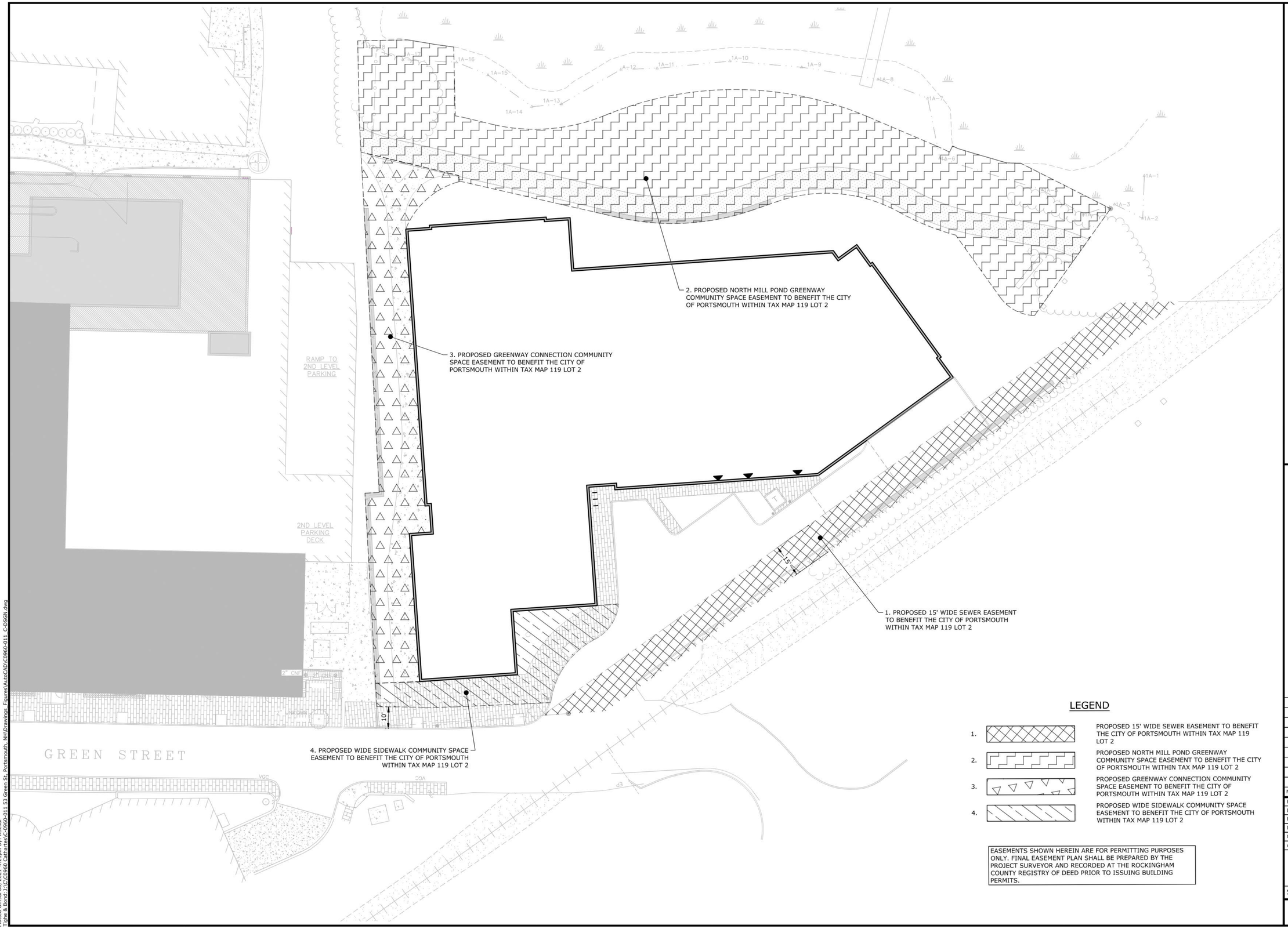

LEGEND

1. PROPOSED 15' WIDE SEWER EASEMENT TO BENEFIT THE CITY OF PORTSMOUTH WITHIN TAX MAP 119 LOT 2
2. PROPOSED NORTH MILL POND GREENWAY COMMUNITY SPACE EASEMENT TO BENEFIT THE CITY OF PORTSMOUTH WITHIN TAX MAP 119 LOT 2
3. PROPOSED GREENWAY CONNECTION COMMUNITY SPACE EASEMENT TO BENEFIT THE CITY OF PORTSMOUTH WITHIN TAX MAP 119 LOT 2
4. PROPOSED WIDE SIDEWALK COMMUNITY SPACE EASEMENT TO BENEFIT THE CITY OF PORTSMOUTH WITHIN TAX MAP 119 LOT 2

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

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 7/7/2021

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 7/7/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

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EASEMENT PLAN

SCALE: AS SHOWN

C-301

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PROJECT NAME AND LOCATION
PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET — 43°-04'-48"N
PORTSMOUTH, NH 03801 — 70°-45'-43"W

PROJECT DESCRIPTION
THE PROJECT CONSISTS OF THE CONSTRUCTION OF A FIVE-STORY MIXED USE RESIDENTIAL BUILDING WITH ASSOCIATED SITE IMPROVEMENTS.

DISTURBED AREA
THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 1.75 ACRES.

SOIL CHARACTERISTICS
BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY - NEW HAMPSHIRE, THE SOILS ON SITE CONSIST OF URBAN LAND.

NAME OF RECEIVING WATERS
THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A PROPOSED OUTLET PIPE TO NORTH MILL POND AND WILL ULTIMATELY FLOW TO THE PISCATAQUA RIVER.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:
1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
8. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
9. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
10. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
11. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:
1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:
1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALE, SILT FENCES, MULCH BERMS, INLET PROTECTION AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY 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.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:
1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
5. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

DUST CONTROL:
1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:
1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:
1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:
1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
      a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
      b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
      c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
      d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
      e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
      f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
      g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

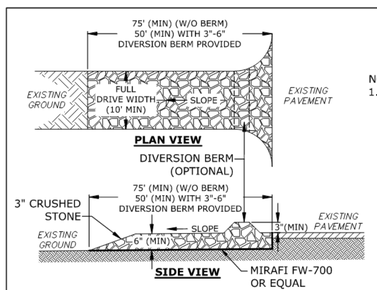
CONCRETE WASHOUT AREA:
1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:
1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

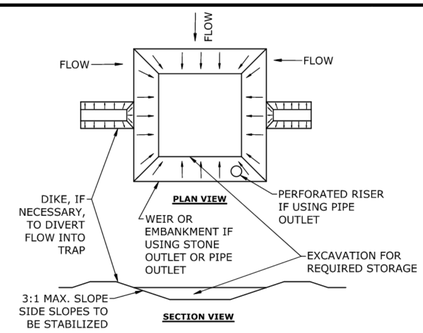
SPILL PREVENTION:
1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      i. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         a.1. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         a.2. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      b. FERTILIZERS:
         b.1. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         b.2. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         b.3. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
         c.1. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         c.2. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         c.3. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPTMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES
1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



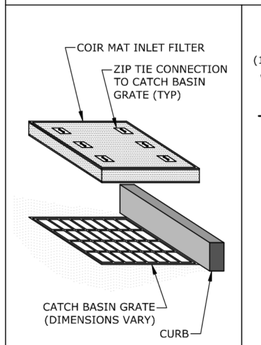
STABILIZED CONSTRUCTION EXIT
NO SCALE

NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS



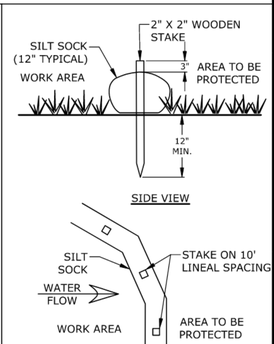
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE



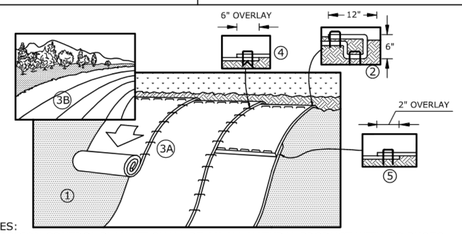
NOTES:
1. COIR MAT INLET FILTER SHALL BE STORM WATER INLET FILTER BY BLOCKSOM & CO. OR APPROVED EQUAL.
2. INSTALL AND MAINTAIN INLET PROTECTION IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

INLET PROTECTION
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX NATURAL ORIGINAL BY FILTREXX OR APPROVED EQUAL.
2. INSTALL SILT SOCK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

SILT SOCK
NO SCALE



NOTES:
1. EROSION CONTROL BLANKET SHALL BE AN ALL NATURAL PRODUCT WITH NO PHOTO DEGRADABLE COMPONENTS, NORTH AMERICAN GREEN SC150BN OR APPROVED EQUAL.
2. STAKES SHALL BE BIODEGRADABLE BIOSTAKES OR ALL NATURAL WOOD ECOSTAKES OR APPROVED EQUAL. THE LENGTH OF STAKES SHALL BE BASED OFF OF THE MANUFACTURERS RECOMMENDATION.
3. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, COMPOST AND SEED.
4. BEGIN AT THE TOP OF THE SLOPE, 36" OVER THE GRADE BREAK, BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAKES IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAKING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAKES ACROSS THE WIDTH OF THE BLANKET.
5. ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAKES IN APPROPRIATE LOCATIONS AS SHOWN ON THE MANUFACTURERS PATTERN GUIDE.

EROSION CONTROL BLANKET
NO SCALE

Tighe&Bond

PATRICK CRIMMINS — No. 12378 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA — No. 08830 — LICENSED LAND SURVEYOR — STATE OF NEW HAMPSHIRE
7/7/21

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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

EROSION CONTROL NOTES AND DETAILS SHEET

SCALE: AS SHOWN

C-501

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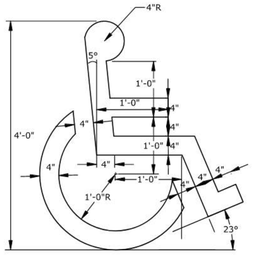
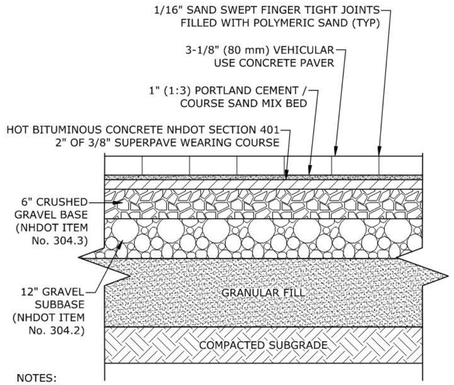


NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE

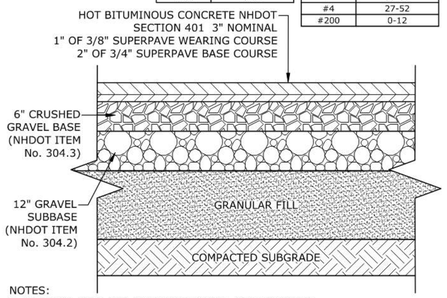


NOTES:
1. SEE SITE PLAN FOR WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.
3. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.
4. CONTRACTOR SHALL CONFIRM THIS PAVEMENT SECTION WITH THE PROJECT'S GEOTECHINCAL ENGINEEER PRIOR TO CONSTRUCTION.

VEHICULAR PAVER SECTION
NO SCALE

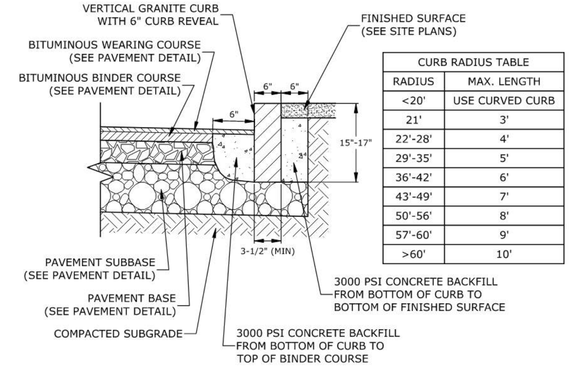
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

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

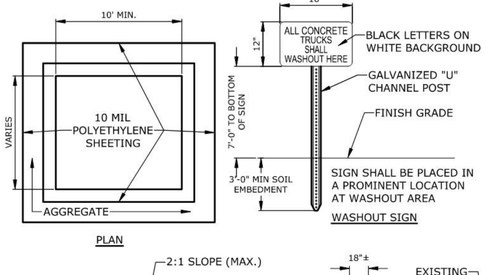
ON-SITE PAVEMENT SECTION
NO SCALE



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

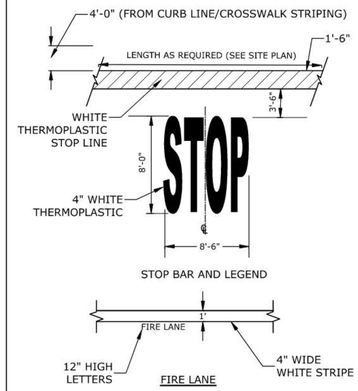
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE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

VERTICAL GRANITE CURB
NO SCALE



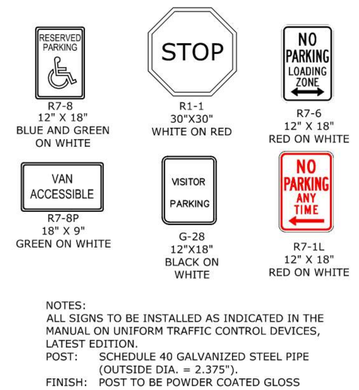
NOTES:
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75%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

CONCRETE WASHOUT AREA
NO SCALE

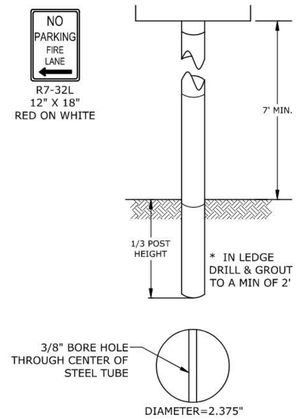


NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

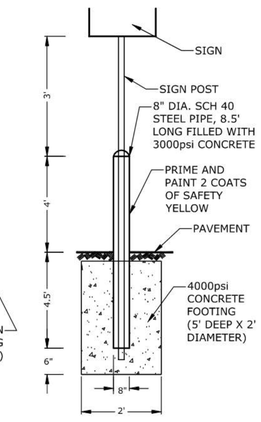
PAVEMENT MARKINGS
NO SCALE



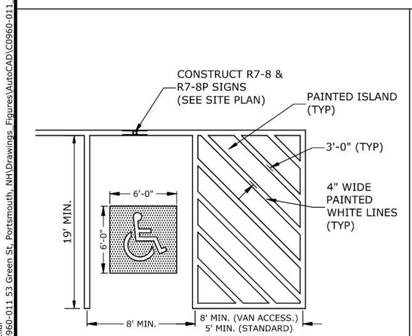
NOTES:
ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
POST: SCHEDULE 40 GALVANIZED STEEL PIPE (OUTSIDE DIA. = 2.375").
FINISH: POST TO BE POWDER COATED GLOSS BLACK
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER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



SIGN LEGEND & SIGN POST
NO SCALE

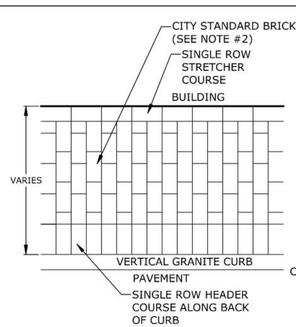


BOLLARD MOUNTED SIGN DETAIL
NO SCALE

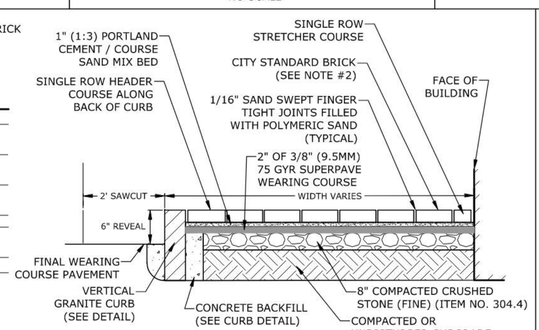


NOTES:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN W/DISABILITIES ACT.

ACCESSIBLE PARKING STALL
NO SCALE



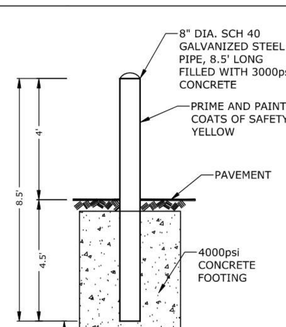
SIDEWALK PLAN VIEW



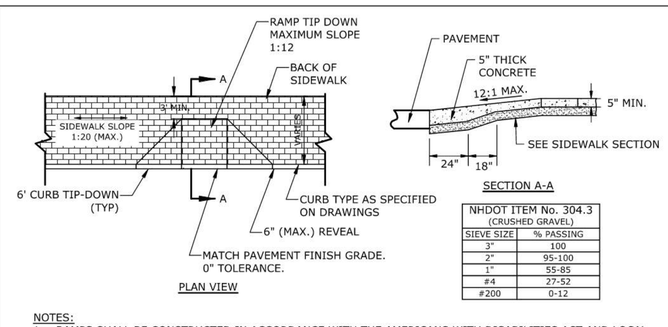
SIDEWALK SECTION

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"X4"X8" 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



BOLLARD DETAIL
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. 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.
4. 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.
5. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.

SIDEWALK TIP DOWN RAMP
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
7/7/2021

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
7-7-21

Proposed Mixed Use Development

CPI Management, LLC

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APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-502

Last Saved: 7/7/2021
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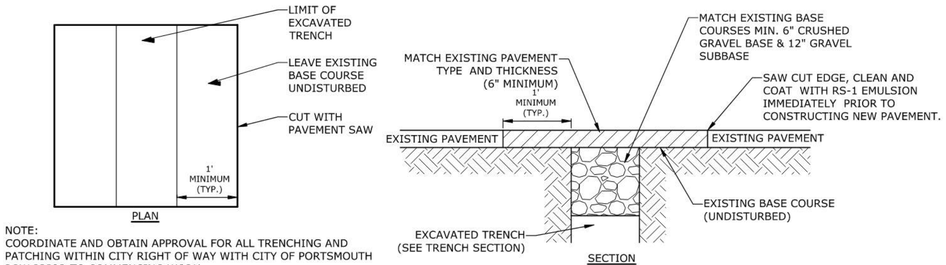
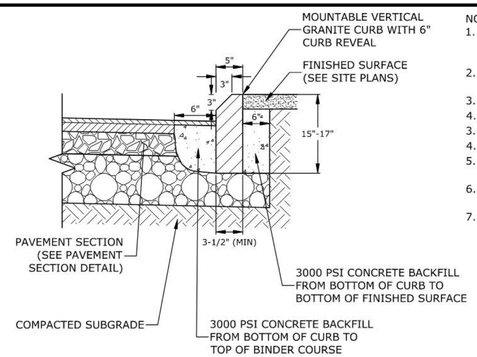
Tighe & Bond J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C-DTLS.dwg



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

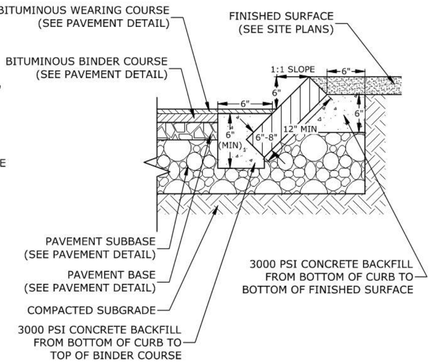
ROADWAY TRENCH PATCH
NO SCALE



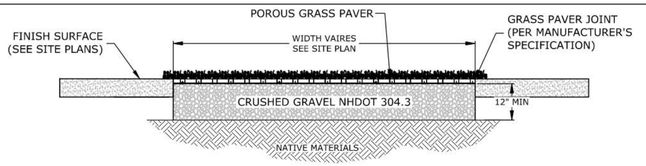
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF MOUNTABLE VERTICAL GRANITE CURB (MVGC) AND SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT MVGC STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT MVGC STONES = 10'
3. MINIMUM LENGTH OF STRAIGHT SGC STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT SGC STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. FOR MVGC 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.

CURB RADIUS TABLE	
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'

MOUNTABLE VERTICAL GRANITE CURB
NO SCALE

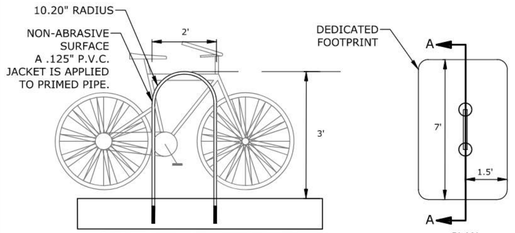


SLOPED GRANITE CURB
NO SCALE

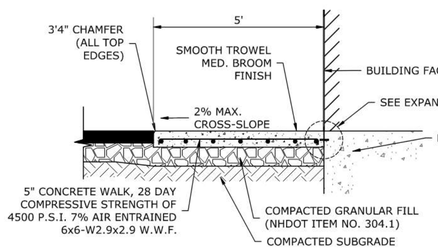


NOTES:
1. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.
2. POROUS GRASS PAVER SHALL BE GRASSPAVE^2, BY INVISIBLE STRUCTURES^{TM} OR APPROVED EQUAL.
3. INSTALL BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99).
4. THE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

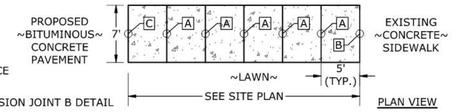
GRASS PAVER FIRE LANE SECTION
NO SCALE

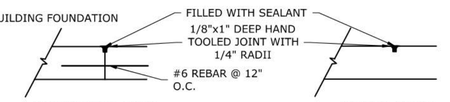


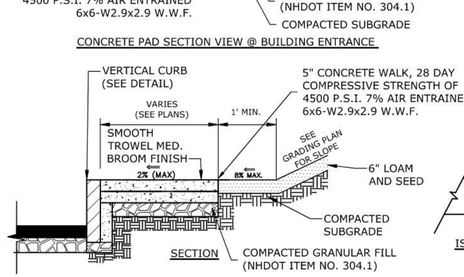
BIKE RACK
NO SCALE

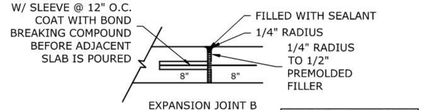


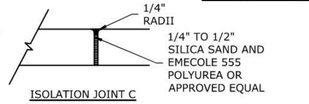
CONCRETE PAD SECTION VIEW @ BUILDING ENTRANCE











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

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

CONCRETE SIDEWALK
NO SCALE

NOTES:
1. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR SLOPE AND CROSS-SLOPE.
2. GRAVEL SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FROM THE UNH STORMWATER CENTER FOR POROUS ASPHALT.
3. FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.
4. INSTALL FILTER COURSE AGGREGATE IN 8-INCH MAXIMUM LIFTS TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
5. INSTALL CHOKER, GRAVEL, AND STONE BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99). CHOKER SHOULD BE PLACED EVENLY OVER SURFACE OF FILTER COURSE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE THICKNESS SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF THE POROUS ASPHALT BUT NO LESS THAN 6-INCHES IN DEPTH.
6. 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.
7. CONSTRUCTION AND QA/QC REQUIREMENTS FOR THE POROUS PAVEMENT SHALL BE IN ACCORDANCE WITH THE UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS, FEBRUARY 2014, REVISED SEPTEMBER 2016.
8. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF THE POROUS PAVED SURFACE THROUGHOUT CONSTRUCTION. THIS INCLUDES BUT NOT LIMITED TO EROSION CONTROL PROTECTION, AND PROHIBITING MATERIAL STORAGE AND HEAVY EQUIPMENT FROM THE POROUS PAVED SURFACE.

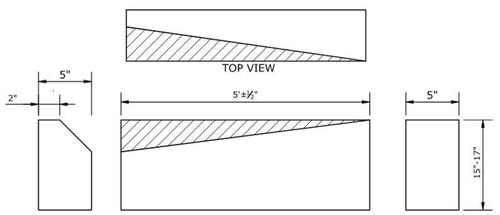
AASHTO #3 STONE (RESERVOIR COURSE)	
	% PASSING
2-1/2"	100
2"	90-100
1-1/2"	35-70
1"	0-15
1/2"	0-5

AASHTO #8 STONE (PEA GRAVEL)	
	% PASSING
1/2"	100
3/8"	85-100
#4	10-30
#8	0-10
#16	0-5

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

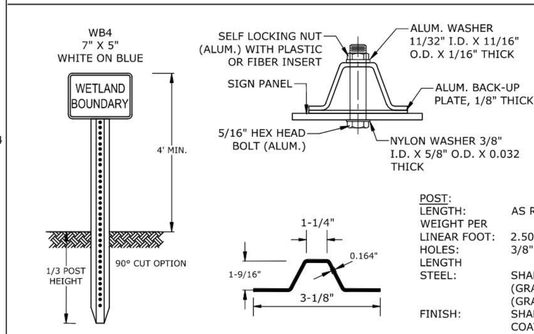
NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

POROUS PAVEMENT SECTION
NO SCALE



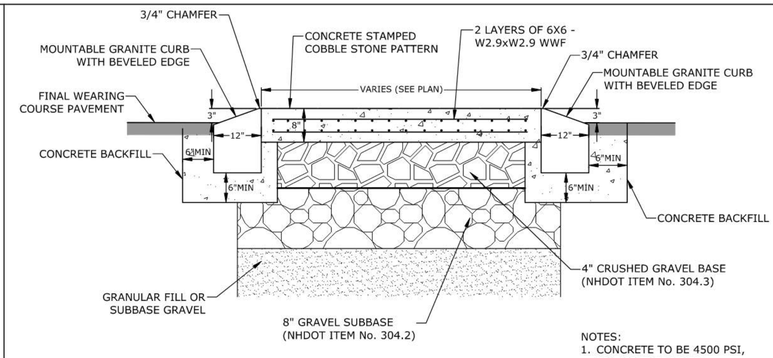
NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN VERTICAL GRANITE CURB AND MOUNTABLE VERTICAL GRANITE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE MOUNTABLE VERTICAL GRANITE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE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

CURB TRANSITION
NO SCALE



POST:
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

WETLAND BOUNDARY SIGN & SIGN POST
NO SCALE



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

STAMPED CONCRETE ISLAND
NO SCALE

Tighe&Bond

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA No. 08830 LICENSED LAND SURVEYOR STATE OF NEW HAMPSHIRE
7/7/21

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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

DETAILS SHEET

SCALE: AS SHOWN

C-503

Last Saved: 7/7/2021
Plotted On: 7/7/2021 1:11pm By: ASellar
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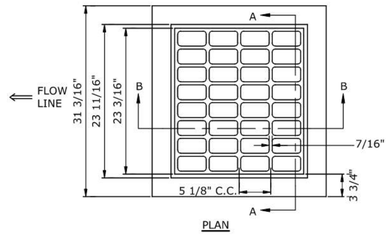
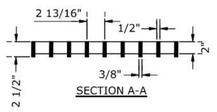
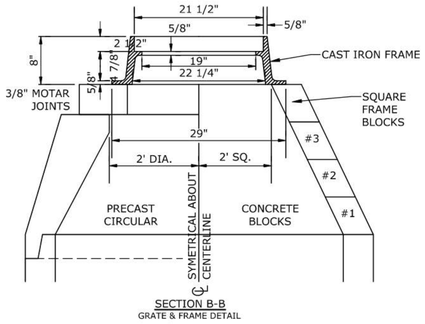
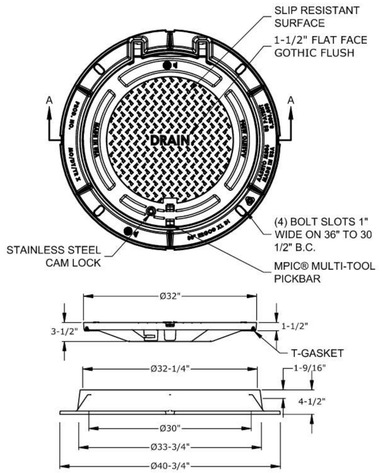


NOTE:
1. GRATE TO BE CAST IRON (NHDOT TYPE B)
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA





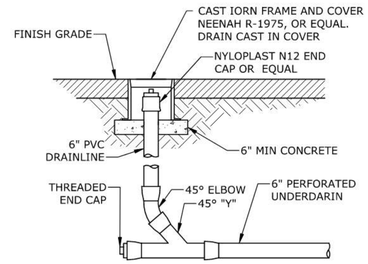
CATCH BASIN FRAME & GRATE
NO SCALE



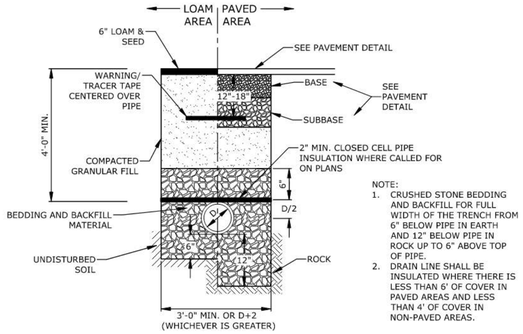
SECTION A-A

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

DRAIN MANHOLE FRAME & COVER
NO SCALE

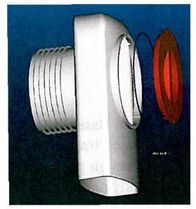


DRAIN CLEAN-OUT
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. DRAIN LINE SHALL BE INSULATED WHERE THERE IS LESS THAN 6' OF COVER IN PAVED AREAS AND LESS THAN 4' OF COVER IN NON-PAVED AREAS.

STORM DRAIN TRENCH
NO SCALE

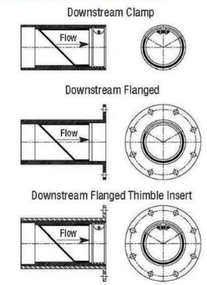


NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE

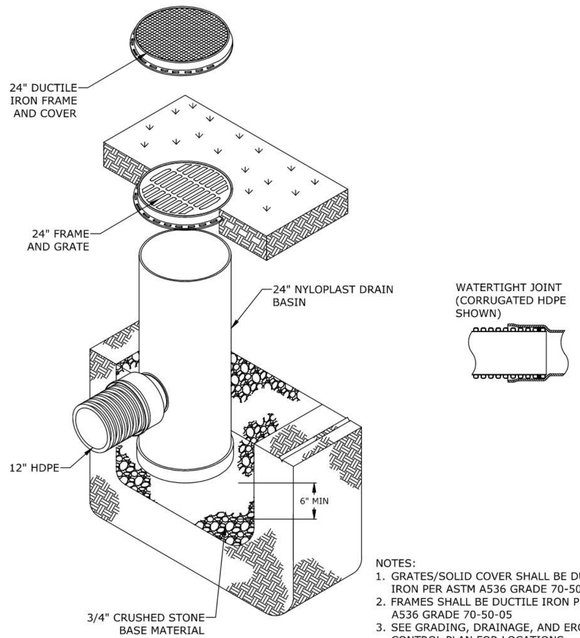
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
18	450	31	787	1	4	102	20	6

Mounting Styles and Configurations



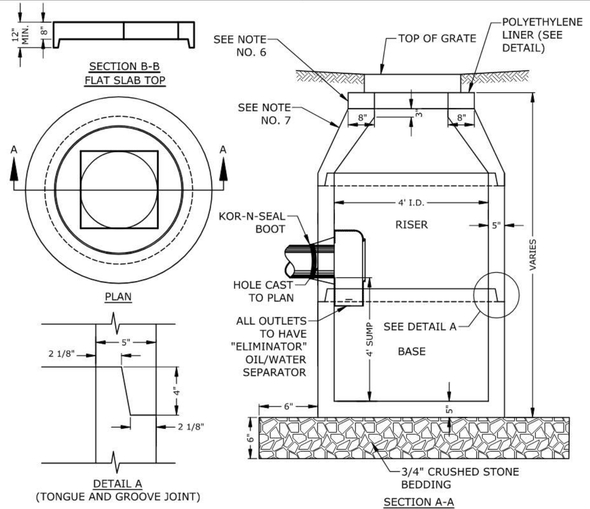
Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

TYPICAL BACK FLOW PREVENTER
NO SCALE



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

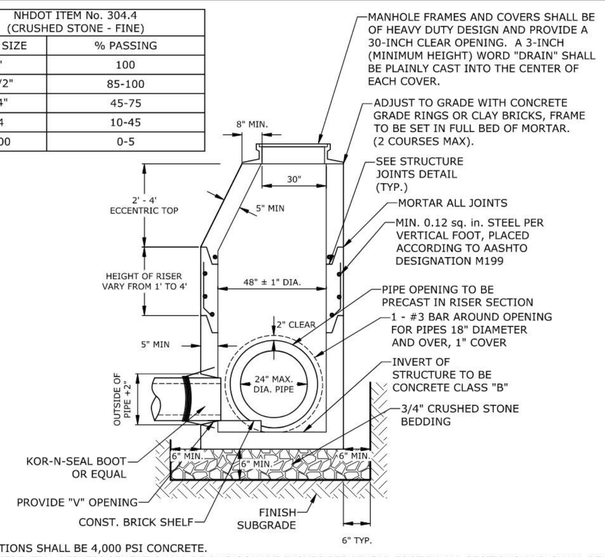
YARD DRAIN
NO SCALE



NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.
13. THE INSIDE OF THE CONCRETE STRUCTURE SHALL BE TREATED WITH A SILOXANE COATING AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SILOXANE COATING SHALL BE SIKAGARD-705L OR APPROVED EQUAL.

4' DIAMETER CATCHBASIN
NO SCALE

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



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.
13. THE INSIDE OF THE CONCRETE STRUCTURE SHALL BE TREATED WITH A SILOXANE COATING AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SILOXANE COATING SHALL BE SIKAGARD-705L OR APPROVED EQUAL.

4' DIAMETER DRAIN MANHOLE
NO SCALE

Tighe&Bond

PATRICK CRIMMINS — No. 12378 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA — No. 08830 — LICENSED LAND SURVEYOR — STATE OF NEW HAMPSHIRE
7/7/21

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
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PROJECT NO:	C0960-011
DATE:	January 27, 2021
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DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-504

Last Saved: 7/6/2021
Plotted: 07/06/2021 - 4:04pm By: ASellar
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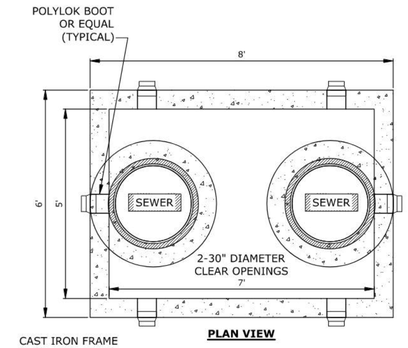
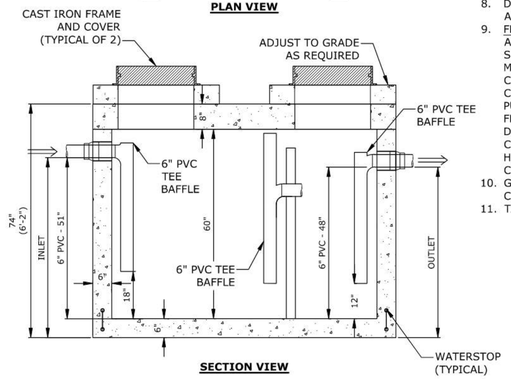


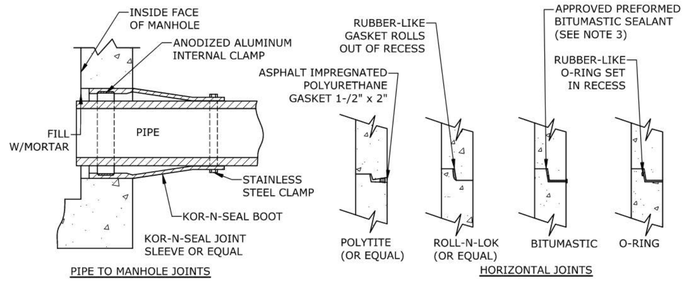
PLAN VIEW



SECTION VIEW

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.

1,000 GALLON GREASE TRAP
NO SCALE

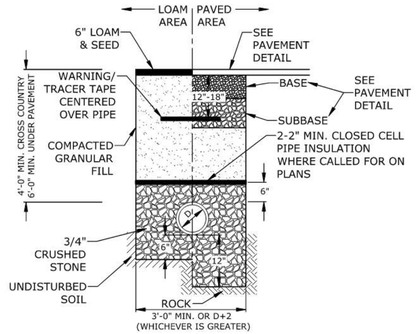


PIPE TO MANHOLE JOINTS

HORIZONTAL JOINTS

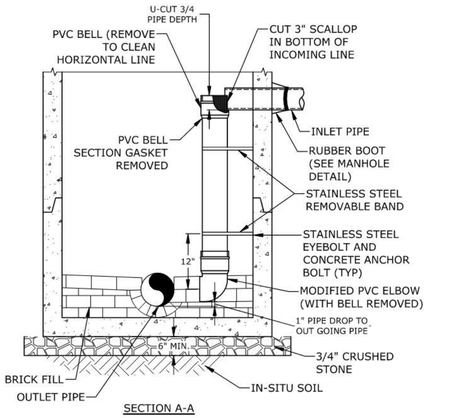
NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC 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.

MANHOLE JOINTS
NO SCALE

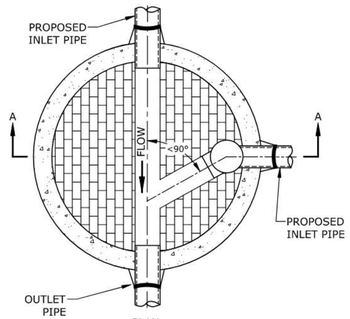


NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE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

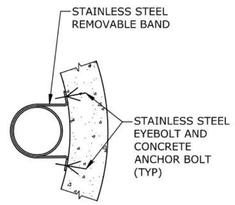
SEWER SERVICE TRENCH
NO SCALE



SECTION A-A



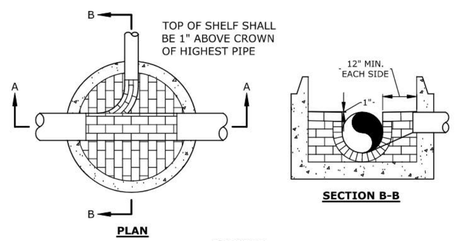
PLAN

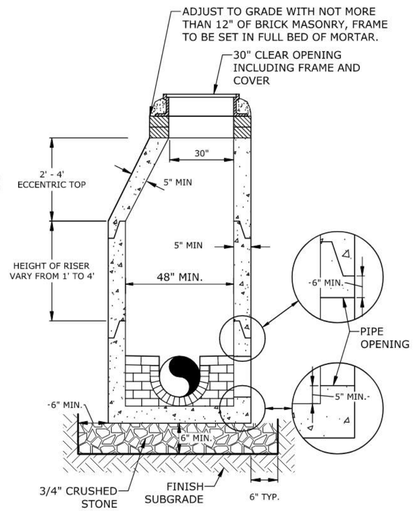


PIPE STRAP DETAIL

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

INSIDE DROP MANHOLE
NO SCALE





TYPICAL SECTION

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

SEWER MANHOLE
NO SCALE

Tighe&Bond

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
7/7/2021

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
7/7/21

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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

DETAILS SHEET

SCALE: AS SHOWN

C-505

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Printed: Jul 06, 2021 - 4:05pm By: ASellar
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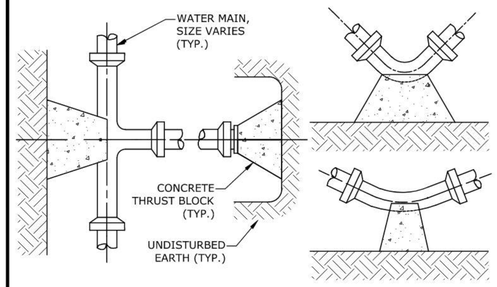
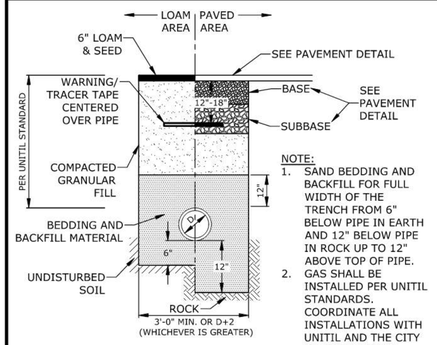


THRUST BLOCKING DETAIL
NO SCALE

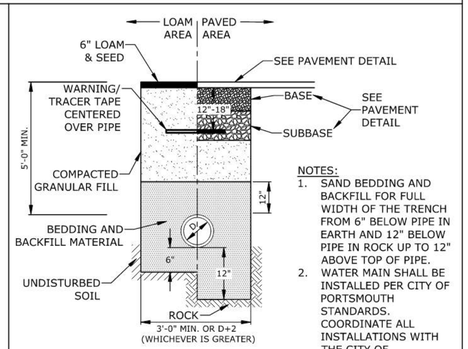
TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL				
REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38

NOTES:
1. 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.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.



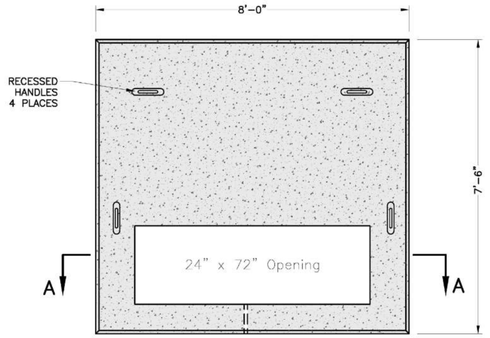
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS SHALL BE INSTALLED PER UNITIL STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE CITY OF PORTSMOUTH.

GAS TRENCH
NO SCALE

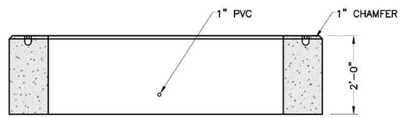


NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

WATER TRENCH
NO SCALE



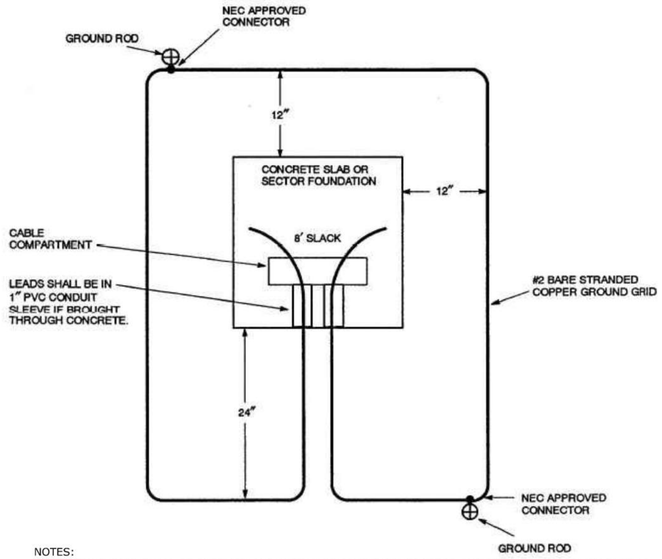
PLAN



SECTION A–A

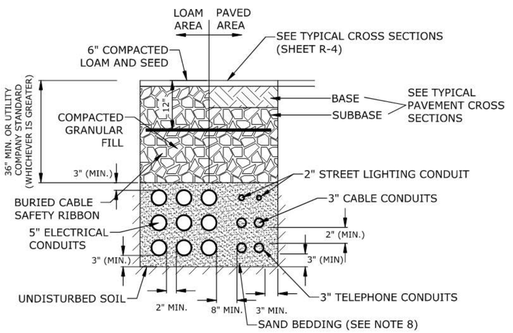
NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

3-PHASE TRANSFORMER PAD
NO SCALE



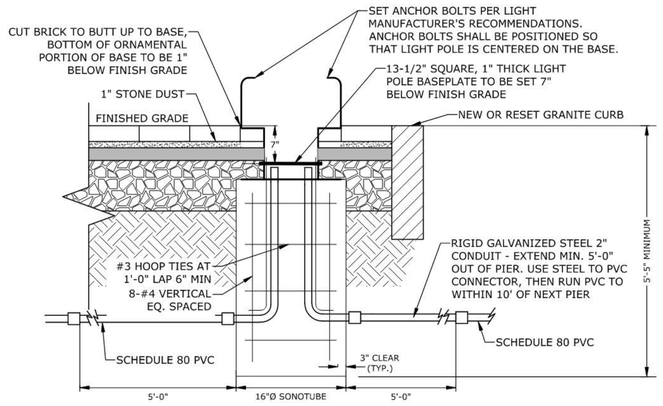
NOTES:
THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY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

PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL
NO SCALE



NOTES:
1. 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.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. 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.
5. 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.
6. 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.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. 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.

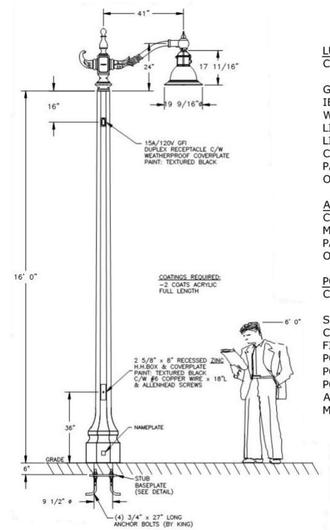
ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



STANDARD BASE

NOTES:
1. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
2. CONCRETE: 4000 PSI, AIR ENTRAINED STEEL: 60 KSI
3. LIGHT POLE FOUNDATIONS SHALL BE PLACED PRIOR TO INSTALLATION OF BRICK PAVERS.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.
5. 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.

NORTH END LIGHT FIXTURE BASE
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
IES CLASSIFIC.:	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:	ECLIPSE
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

DISTRICT STANDARD LIGHT POLE & FIXTURE
NO SCALE

Tighe&Bond

PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE - PATRICK CRIMMINS No. 12378 LICENSED
7/7/2021

PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08830 LICENSED
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Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

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PROJECT NO:	C0960-011
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DRAWN BY:	AFS
CHECKED:	NAH/PMC
APPROVED:	BLM

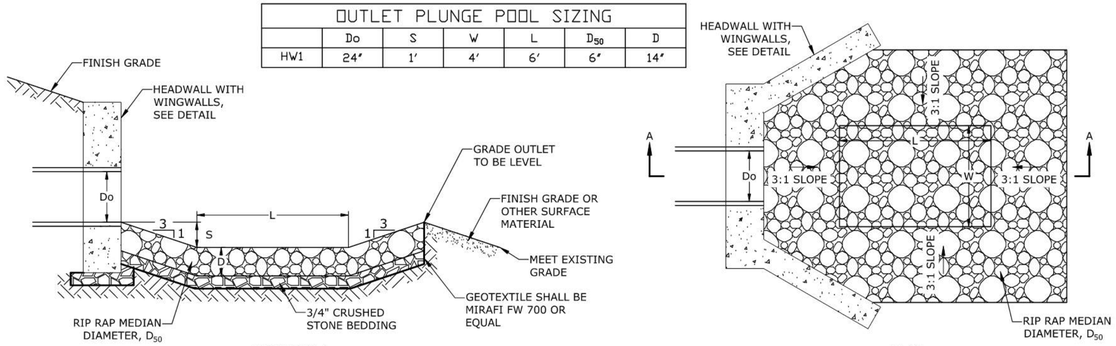
DETAILS SHEET

SCALE: AS SHOWN

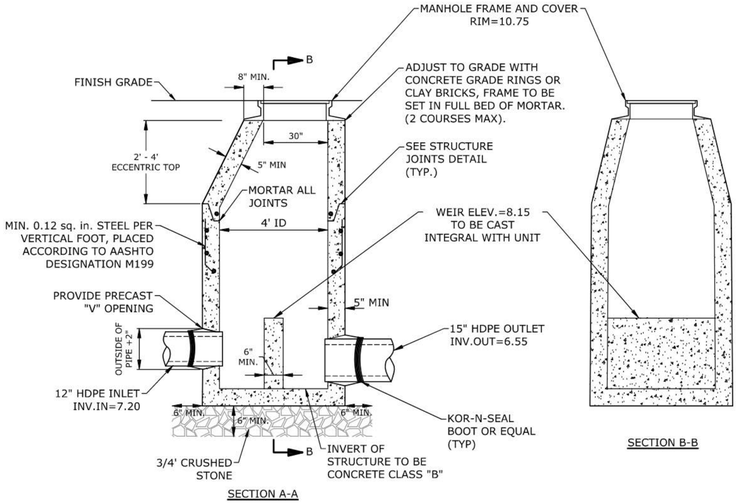
C-506

Last Saved: 7/6/2021
Printed: Jul 06, 2021 - 4:05pm By: ASollar
Tighe & Bond: J:\CC\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DTLS.dwg

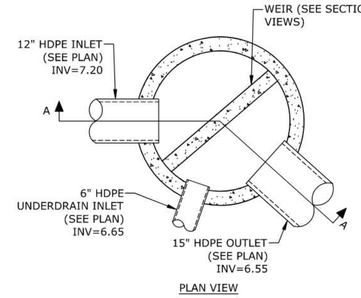
OUTLET PLUNGE POOL SIZING						
	Do	S	W	L	D_{50}	D
HW1	24"	1'	4'	6'	6"	14"



OUTLET PLUNGE POOL
NO SCALE



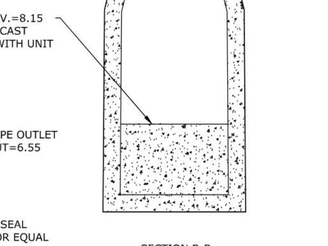
NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.
11. SEE DRAINAGE MANHOLE DETAIL FOR MORE INFORMATION (CORE HOLE SIZE, MINIMUM FLOOR AND WALL THICKNESS, ETC.)



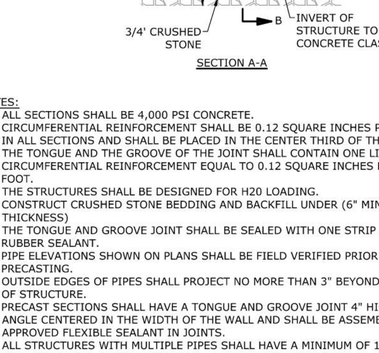
OUTLET STRUCTURE DETAIL (POS1)
NO SCALE

NOTE: ENDWALL SYMMETRICAL ABOUT ℄ OF PIPE.

PLAN



FRONT ELEVATION



SIDE ELEVATION

DETAIL OF BAR SPACING

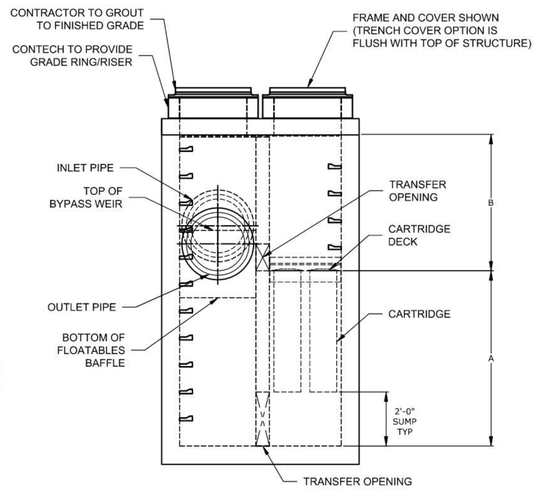
DIMENSIONS AND QUANTITIES FOR ONE WING TYPE ENDWALL											
D	B	C	G	H	K	L	P	Q	R	W	VOL.
IN.*	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	CY
24	1'-6"	2'-0"	3'-3"	6'-9"	9'-1 3/8"	7'-3 3/8"	1'-4 7/8"	0'-9 3/8"	3'-4 7/8"	5'-5 3/8"	5.87
36	1'-6"	2'-0"	3'-3"	6'-8"	9'-1 1/2"	7'-3 1/2"	1'-4 7/8"	0'-9 3/8"	3'-4 7/8"	5'-5 1/2"	5.87
42	1'-6"	2'-0"	3'-3"	7'-2"	9'-10 1/4"	7'-9 3/8"	1'-6 3/8"	0'-9 3/8"	3'-10 1/8"	6'-7 1/4"	6.67

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

HEADWALL WITH WINGWALLS
NO SCALE

PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)

FRAME AND COVER
DIAMETER VARIES
NO SCALE



ELEVATION VIEW

JELLYFISH JFPD0806

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				
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

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. 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.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	JF-1
MODEL SIZE	JFPD0806
WATER QUALITY FLOW RATE (cfs)	0.95
PEAK FLOW RATE (cfs)	6.50
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	5/1
CARTRIDGE SIZE	54"

Jellyfish Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726, 8,293,518 & US 8,123,935. OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH FILTER DETAIL (JF-1)
NO SCALE

Tighe&Bond

PATRICK CRIMMINS — STATE OF NEW HAMPSHIRE — No. 12378 — LICENSED PROFESSIONAL ENGINEER — 7/7/2021

BRADLEE MEZQUITA — STATE OF NEW HAMPSHIRE — No. 08830 — LICENSED PROFESSIONAL ENGINEER — 7/7/21

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
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D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
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A	1/27/2021	CC Work Session

PROJECT NO:	C0960-011
DATE:	January 27, 2021
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CHECKED:	NAH/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

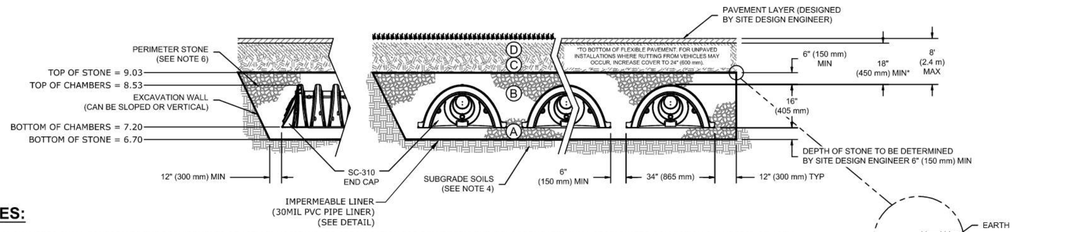
C-507

Last Saved: 7/6/2021
Plotted: Jul 06, 2021 - 4:05pm By: ASellar
Tighe & Bond: J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C-DTLS.dwg

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

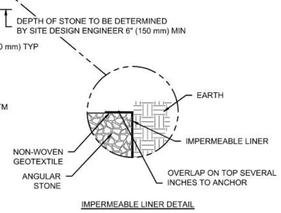
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 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	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. 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".
2. 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.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

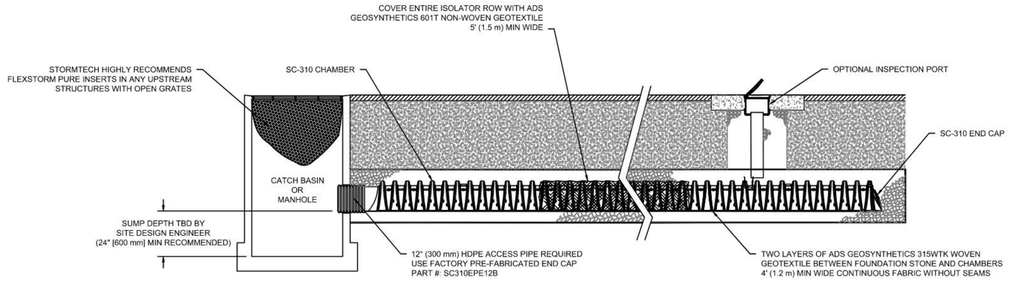


NOTES:

1. 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".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. 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.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. 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.



IMPERMEABLE LINER DETAIL



SC-310 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

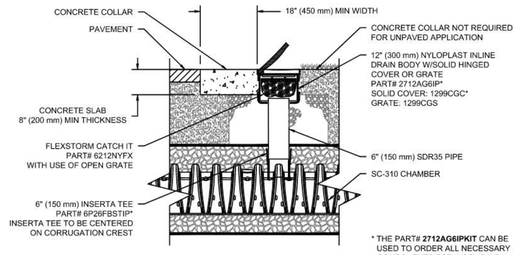
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

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

1. 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.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



* THE PART# **2712AG6IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

SC-310 6" INSPECTION PORT DETAIL
NTS

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.^J
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. 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.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".^J
6. 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".
7. 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:
   - 7.1. 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.
   - 7.2. 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.
   - 7.3. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

NOTES FOR CONSTRUCTION EQUIPMENT^J

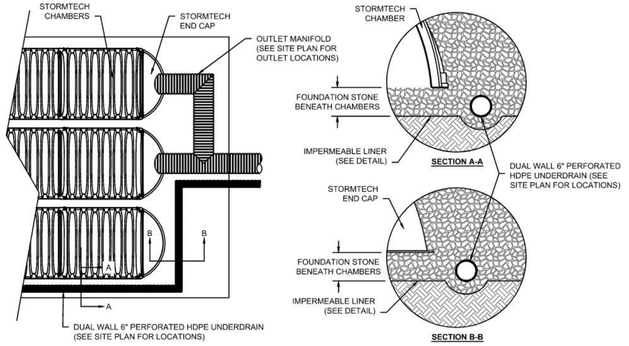
1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".^J
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, 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".^J
3. 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

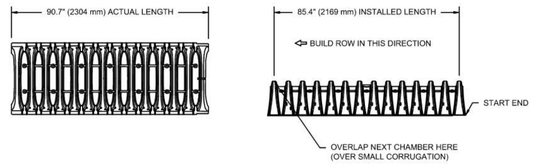
1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.^J
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-780 CONSTRUCTION GUIDE".^J
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.^J 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.^J
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.^J
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.^J
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.^J
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).^J
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.^J
9. 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 TECHNICAL SPECIFICATION

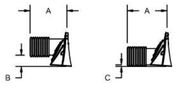
NTS



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 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
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 CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	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 12" (300 mm) 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

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS – No. 12378 – LICENSED PROFESSIONAL ENGINEER
7/7/2021

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA – No. 08830 – LICENSED PROFESSIONAL ENGINEER

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
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C-508

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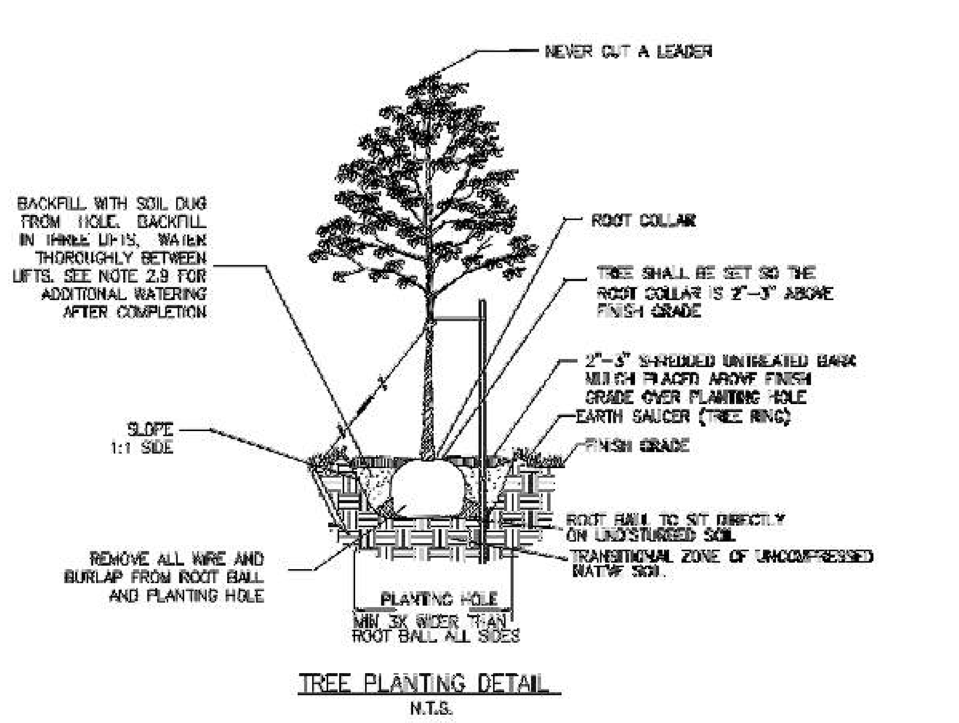
Printed On: Jul 06, 2021 - 4:05pm By: ASellar
Tighe & Bond J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C-DTLS.dwg

Landscape Notes

1. Design is based on drawings by Tighe & Bond dated 6/22/2021 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control shall be in place prior to construction.
4. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
5. The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
6. It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
7. Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
8. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
9. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
10. The Contractor shall procure any required permits prior to construction.
11. Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
12. Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
13. The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
14. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
15. All plants shall be legibly tagged with proper botanical name.
16. The Contractor shall guarantee all plants for not less than one year from time of acceptance.
17. Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
18. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
19. All landscaping shall be provided with the following:
    a. Outside hose attachments spaced a maximum of 150 feet apart, and
    b. An underground irrigation system, or
    c. A temporary irrigation system designed for a two-year period of plant establishment.
20. If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
21. The contractor is responsible for all plant material from the time their work commences until final acceptance. This includes but is not limited to maintaining all plants in good condition, the security of the plant material once delivered to the site, and watering of plants. Plants shall be appropriately watered prior to, during and after planting. It is the contractor's responsibility to provide clean water suitable for plant health from off site, should it not be available on site.
22. All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
23. Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and ½" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
24. Drip strip shall extend to 6" beyond roof overhang and shall be edged with 3/16" thick metal edger.
25. In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
26. Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy. Within the sight distance triangles at vehicle intersections the canopies shall be raised to 8' min.
27. Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
28. Landscape Architect is not responsible for the means and methods of the contractor.



PART 1 – GENERAL:

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

PART 2 – EXECUTION:

2.1 ALL PLANTING HOLES SHALL BE DUG BY HAND – NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.

2.2 ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.

2.3 THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.

2.4 THE ROOT COLLAR OF THE TREE SHALL BE 2"–3" ABOVE GRADE OF PLANTING HOLE FOR FINISHING DEPTH.

2.5 ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.

2.6 ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS – NO EXCEPTIONS.

2.7 AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.

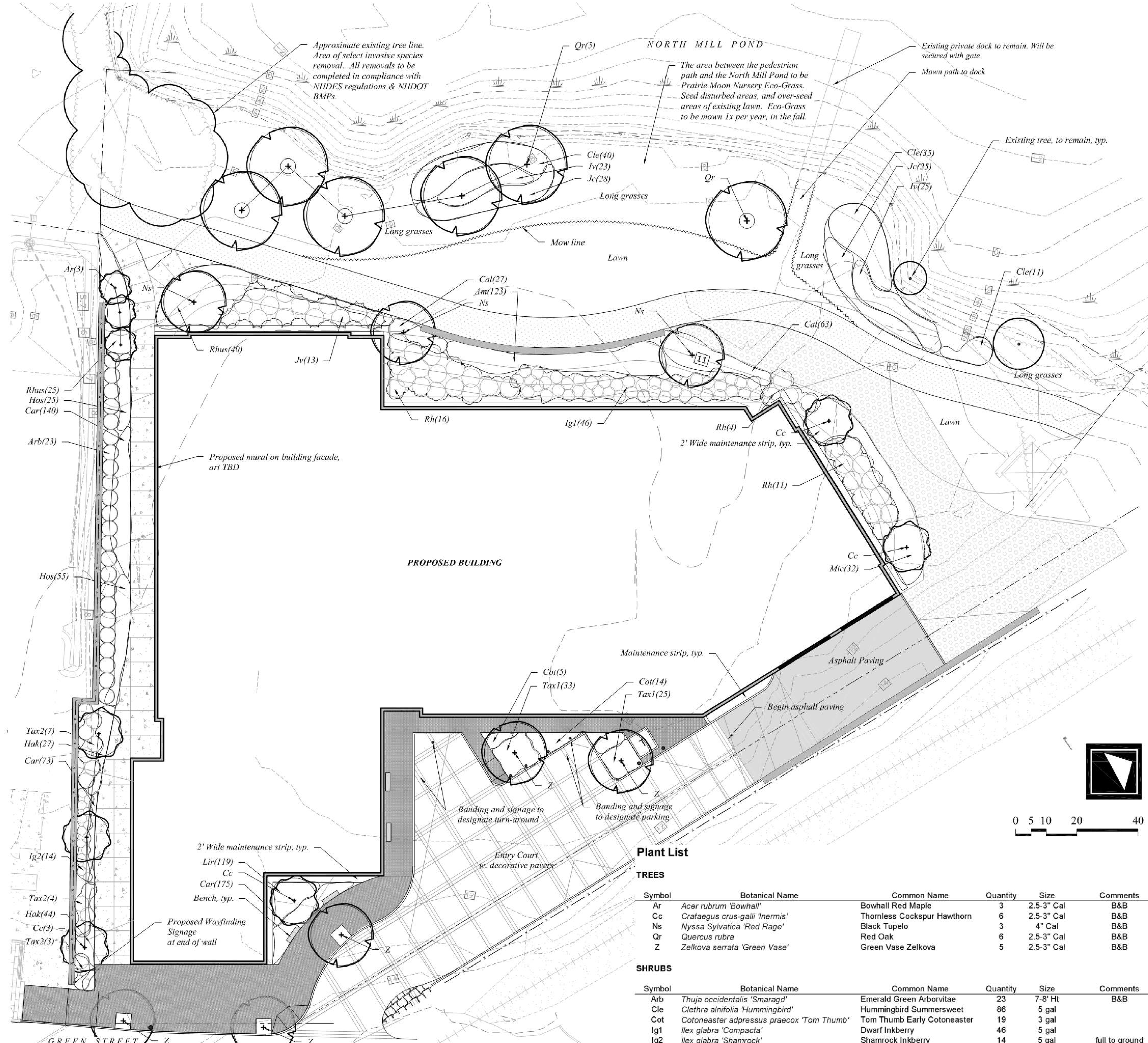
2.8 2"–3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.

2.9 AT THE TIME OF PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.

2.10 STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUY MATERIAL SHALL BE NON–DAMAGING TO THE TREE.

2.11 ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPORTATION AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.

City of Portsmouth Tree Planting Detail



Plant List

TREES

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ar	*Acer rubrum 'Bowhall'*	Bowhall Red Maple	3	2.5-3" Cal	B&B
Cc	*Crataegus crus-galli 'Inermis'*	Thornless Cockspur Hawthorn	6	2.5-3" Cal	B&B
Ns	*Nyssa Sylvatica 'Red Rage'*	Black Tupelo	3	4" Cal	B&B
Qr	*Quercus rubra*	Red Oak	6	2.5-3" Cal	B&B
Z	*Zelkova serrata 'Green Vase'*	Green Vase Zelkova	5	2.5-3" Cal	B&B

SHRUBS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Arb	*Thuja occidentalis 'Smaragd'*	Emerald Green Arborvitae	23	7-8' Ht	B&B
Cle	*Clethra alnifolia 'Hummingbird'*	Hummingbird Summersweet	86	5 gal	
Cot	*Cotoneaster adpressus praecox 'Tom Thumb'*	Tom Thumb Early Cotoneaster	19	3 gal	
Ig1	*Ilex glabra 'Compacta'*	Dwarf Inkberry	46	5 gal	
Ig2	*Ilex glabra 'Shamrock'*	Shamrock Inkberry	14	5 gal	full to ground
Iv	*Ilex verticillata 'Red Sprite'*	Red Sprite Winterberry	48	5 gal	
Jc	*Juniperus communis 'Blueberry Delight'*	Blueberry Delight Juniper	53	3 gal	
Jv	*Juniperus virginiana 'Emerald Sentinel'*	Emerald Sentinel Red Cedar	13	7-8' Ht	B&B
Mic	*Microbiota decussata*	Russian Cypress	32	3 gal	
Rh	*Rhododendron maximum*	Rosebay Rhododendron	31	3-4' Ht	B&B
Rhus	*Rhus aromatica 'Grow-Low'*	Grow Low Sumac	65	3 gal	
Tax1	*Taxus media 'Ever-Low'*	Ever-Low Yew	58	3 gal	
Tax2	*Taxus media 'Greenwave'*	Greenwave Yew	14	5 gal	

PERENNIALS, GROUNDCOVERS, VINES and ANNUALS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Am	*Amsonia hubrichtii*	Blue Star Flower	123	1 gal	
Car	*Carex appalachica*	Appalachian Sedge	388	1 gal	
Cal	*Calamagrostis acutifolia 'Karl Foerster'*	Feather Reed Grass	90	1 gal	
Hak	*Hakonechloa macra*	Japanese Frost Grass	71	1 gal	
Hos	*Hosta 'Guacamole'*	Guacamole Hosta	80	1 gal	
Lir	*Liriope spicata*	Lily Turf	119	1 gal	
Lawn	*Penninton Smartseed Tall Fescue Blend*				

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

Proposed Mixed Use Development

LANDSCAPE PLAN

53 Green Street Portsmouth, New Hampshire

Drawn By:	VM
Checked By:	RW
Scale:	1" = 20' - 0"
Date:	March 22, 2021
Revisions:	April 21, 2021 May 19, 2021 June 29, 2021

L-1

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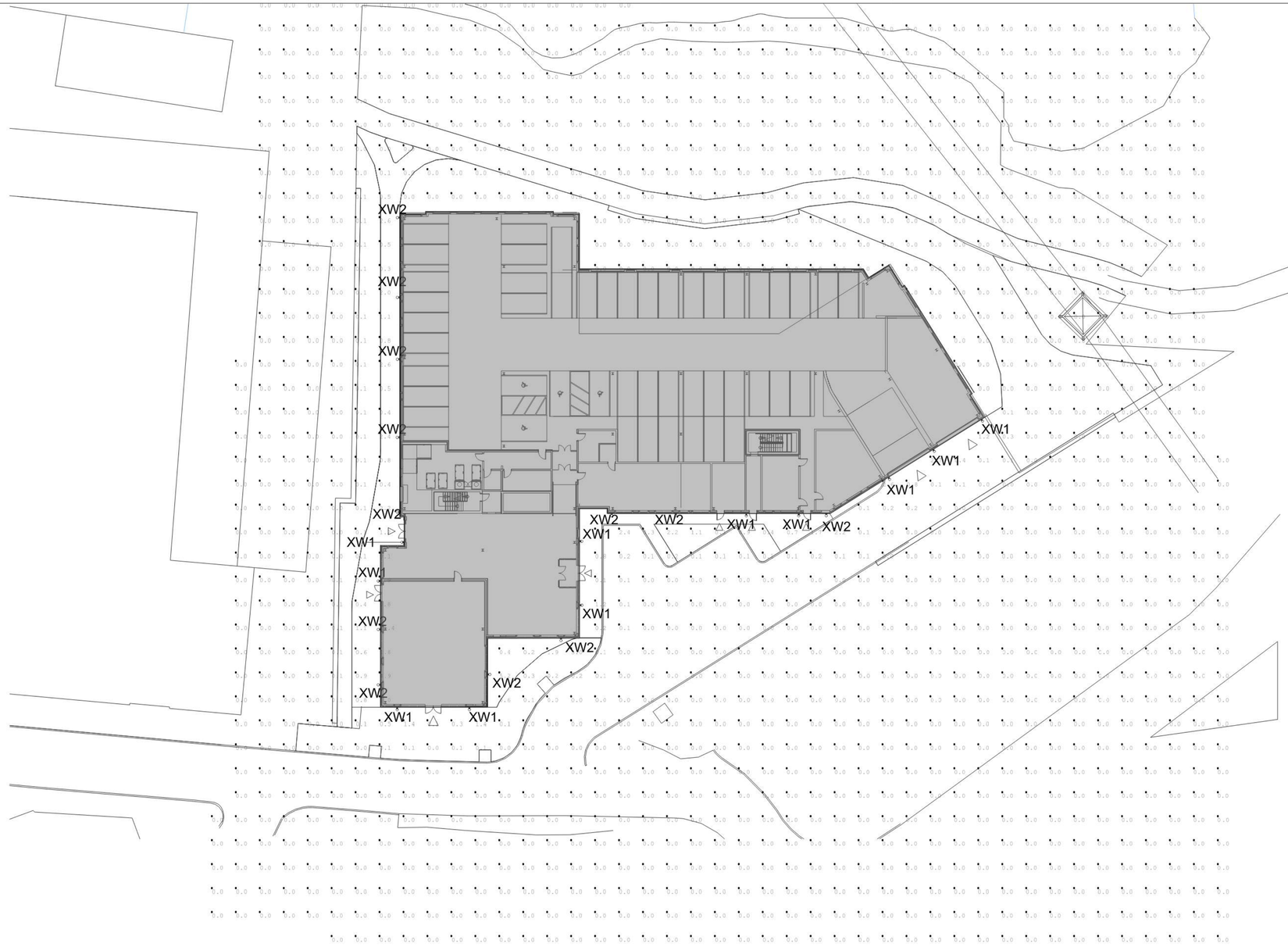

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	11	XW1	SINGLE	WS-W54614-XX
	12	XW2	SINGLE	WP-LED119-30

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Fc	0.07	11.4	0.0	N.A.	N.A.

REFLEXLIGHTING
7 Tyler St., Boston, MA 02210

#	Date	Comments
X	XX/XX	XXXXXXXXXX

Revisions

7/7/2021

Drawn By:
Checked By:
Date:
Specifiers:
Scale: NTS

53 Green Street
Portsmouth, NH

1 SOUTH ELEVATION
1/8" = 1'-0"

4 EAST ELEVATION - DROP OFF
1/8" = 1'-0"

2 SOUTH ELEVATION - PART 2
1/8" = 1'-0"

3 SOUTH ELEVATION - PART 3
1/8" = 1'-0"

ARCHITECT
EMBARC
60 K STREET, 3RD FLOOR
BOSTON, MA 02127
O: 617.766.8330
www.embarcstudio.com

OWNER

CATHARTES
100 SUMMER STREET, SUITE #1600
BOSTON, MA 02110
617.742.6000

CONSULTANTS

CIVIL ENGINEER
TIGHE & BONDE
177 CORPORATE DRIVE
PORTSMOUTH, NH 03801
603.433.8818

53 GREEN STREET
53 GREEN STREET PORTSMOUTH, NH
03801

PLANNING BOARD

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	PLANNING BOARD
DATE:	JUNE 18, 2021
PROJECT #:	20055
SCALE:	1/8" = 1'-0"

DRAWING TITLE

BUILDING ELEVATIONS

DRAWING NUMBER

A201

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1 WEST ELEVATION
1/8" = 1'-0"

2 NORTH ELEVATION
1/8" = 1'-0"

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EMBARC
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603.433.8818

53 GREEN STREET

53 GREEN STREET PORTSMOUTH, NH 03801

PLANNING BOARD

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE: PLANNING BOARD
DATE: JUNE 18, 2021
PROJECT #: 20055
SCALE: 1/8" = 1'-0"

DRAWING TITLE

BUILDING ELEVATIONS

DRAWING NUMBER

A202

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1 EAST ELEVATION - WATER
1/8" = 1'-0"

2 NORTH ELEVATION - WING
1/8" = 1'-0"

3 EAST ELEVATION
1/8" = 1'-0"

ARCHITECT
EMBARC
60 K STREET, 3RD FLOOR
BOSTON, MA 02127
O: 617.766.8330
www.embarcstudio.com

OWNER

CATHARTES
100 SUMMER STREET, SUITE #1600
BOSTON, MA 02110
617.742.6000

CONSULTANTS

CIVIL ENGINEER
TIGHE & BONDE
177 CORPORATE DRIVE
PORTSMOUTH, NH 03801
603.433.8818

53 GREEN STREET
53 GREEN STREET PORTSMOUTH, NH
03801
PLANNING BOARD

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	PLANNING BOARD
DATE:	JUNE 18, 2021
PROJECT #:	20055
SCALE:	1/8" = 1'-0"

DRAWING TITLE
BUILDING ELEVATIONS

DRAWING NUMBER
A203

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53 Green St - City of Portsmouth TAC STIPULATION RESPONSE Date: July 7, 2021

City of Portsmouth TAC, June 1, 2021:			
	TAC Stipulation	**Applicant Response**	**Sheet**
TAC Stipulations from 6/3 Correspondence:			
1	The applicant shall evaluate the intersection of Vaughan Street and Green Street to confirm the larger trucks (including the City fire truck) can navigate to and from Vaughan Street onto Green Street.	The intersection has been reviewed by the applicant in coordination with the City's Traffic Engineer and Fire Department. A turning exhibit has been provided to show the anticipated fire truck turning at the intersection.	Fire Truck Turning Exhibit
2	The applicant shall update the landscaping plan to confirm the surface treatment for the pavement around the proposed loading zone.	An updated landscaping has been provided to address the surface treatment around the proposed loading zone.	L-1
3	The applicant shall update the landscaping plan to indicate that the landscape plants along the water are salt tolerant in case of inundation.	The landscape plan has been updated to provide only salt tolerant plantings within the floodplain.	L-1
4	The community space easement shall reflect that the City shall not be responsible for maintenance of landscaping in the community space areas.	The easement reflects that the maintenance of the landscaping within the easement area shall be the sole responsibility of the Grantor.	N/A
5	The applicant shall add signage and/or markings to delineate the fire lane areas.	Additional signage and pavement markings have been provided in coordination with the Fire Deptartment.	C-102.1
6	The applicant shall reach out the abutting property owner to discuss possible coordination related to allow for ongoing maintenance and access to the rain garden area on the abutting property.	The applicant has coordinated this access with the abutting property owner.	N/A

53 Green St - City of Portsmouth CC STIPULATION RESPONSE

Date: July 7, 2021

City of Portsmouth CC, April 14, 2021:			
	CC Stipulation	**Applicant Response**	**Sheet**
CC Stipulations from 4/23 Correspondence:			
1	Move the greenway path closer to the building and align it over the fire access that is shown on the plan set.	The greenway path has been moved closer to the building and is aligned with the fire lane.	C-102.1
2	The applicant shall agree to maintain all greenway according to NOFA standards.	Comment Acknowledged	N/A
3	The applicant shall add an update the porous paving maintenance plan to include: no sand spreading and increase sweeping from once to twice per year.	The Long-Term Operation and Maintenance plan has been updated to address these changes.	Long-Term Operation and Maintenance Plan
4	The applicant shall add more native understory plants to the pond side of the greenway path.	Additional native understory plants have been added along the greenway path as advised.	L-1

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: July 7, 2021

Application # (in City's online permitting): LU 21-55

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

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☑	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Enclosed	N/A
☑	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			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Enclosed	
☑	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
☑	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

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Enclosed Existing Conditions Plan	N/A
☑	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. **(2.5.3.1F)**	Existing Conditions Plan	N/A
☑	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☑	List of reference plans. **(2.5.3.1H)**	Existing Conditions Plan	N/A
☑	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Utilities Plan Sheet C-104	N/A

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

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Existing Conditions Plan	
☑	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Site Plan Sheets C.102.1 & C.102.2	
☑	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Site Plan Sheet C-102.1	
☑	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Site Plan Sheet C-102.1	
☑	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Utilities Plan Sheet C-104	
☑	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Utilities Plan Sheet C-104	

☑	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Utilities Plan Sheet C-104	
☑	**8. Solid Waste Facilities: (2.5.4.3H)**	Site Plan Sheet C-102.1	
	• The size, type and location of solid waste facilities.	Site Plan Sheet C-102.1	
☑	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Grading and Drainage Plan Sheet C-103	
☑	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	Photometrics Plan Sheet	
☑	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	Photometrics Plan Sheets	
☑	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Landscaping Plan Sheet L-1	
☑	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Grading and Drainage Plan Sheet C-103	
☑	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Site Plan Sheet C-102	
☑	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Existing Conditions Plan	
☑	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	Site Plan Sheet C-102.1	
☑	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	Grading and Drainage Plan Sheet and Utility Plan Sheet C.103 & C.104	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Enclosed	
☑	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Grading and Drainage Plan Sheet C-103	
☑	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. **(7.3.1)**	N/A	
☑	Stormwater Management and Erosion Control Plan. **(7.4)**	Enclosed	
☑	Inspection and Maintenance Plan **(7.6.5)**	Enclosed	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover Sheet	
☑	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Enclosed	
☑	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. **(2.5.3.2D)**	Enclosed	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☑	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." **(2.5.4.2E)**	Site Plan Sheets C-102	N/A
☑	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. **(2.5.4.2F)**	N/A	
☑	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." **(2.13.3)**	Site Plan Sheets C-102.1	N/A

Applicant's Signature: _____ **Date:** 7/7/21

City of Portsmouth, New Hampshire

Subdivision Application Checklist

This subdivision application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. 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 subdivision review requirements. Please refer to the Subdivision review regulations for full details.

Applicant Responsibilities (Section III.C): Applicable fees are due upon application submittal along with the Preliminary or final plat and supporting documents and studies submitted in PDF format with the online application. Please consult with Planning staff for submittal requirements.

Owner: Stone Creek Realty, LLC Date Submitted: 7/7/2021

Applicant: CPI Management, LLC

Phone Number: 617 742 6000 E-mail: rob@cathartes.com

Site Address 1: 53 Green Street Map: 119 Lot: 2

Site Address 2: _____ Map: _____ Lot: _____

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☑	Completed Application form submitted via View Point (the City's web-based permitting program). **(III.C.2-3)**	Enclosed	N/A
☑	All application documents, plans, supporting documentation and other materials uploaded to the application form in View Point 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. **(III.C.4)**	Enclosed	N/A

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	Name and address of record owner, any option holders, descriptive name of subdivision, engineer and/or surveyor or name of person who prepared the plat. **(Section IV.1/V.1)**	Existing Conditions Plan	☑ Preliminary Plat ☑ Final Plat	N/A

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	**Preliminary Plat** Names and addresses of all adjoining property owners. **(Section IV.2)** **Final Plat** Names and addresses of all abutting property owners, locations of buildings within one hundred (100) feet of the parcel, and any new house numbers within the subdivision. **(Section V.2)**	Boundary Line Adjustment Plan	☑ Preliminary Plat ☑ Final Plat	N/A
☑	North point, date, and bar scale. **(Section IV.3/V3)**	Required on all Plan Sheets	☑ Preliminary Plat ☑ Final Plat	N/A
☑	Zoning classification and minimum yard dimensions required. **(Section IV.4/V.4)**	Site Plan, sheet C.102.1	☑ Preliminary Plat ☑ Final Plat	N/A
☑	**Preliminary Plat** Scale (not to be smaller than one hundred (100) feet = 1 inch) and location map (at a scale of 1" = 1000'). **(Section IV.5)** **Final Plat** Scale (not to be smaller than 1"=100'), Location map (at a scale of 1"=1,000') showing the property being subdivided and its relation to the surrounding area within a radius of 2,000 feet. Said location map shall delineate all streets and other major physical features that my either affect or be affected by the proposed development. **(Section V.5)**	Required on all plans sheets	☑ Preliminary Plat ☑ Final Plat	N/A
☑	Location and approximate dimensions of all existing and proposed property lines including the entire area proposed to be subdivided, the areas of proposed lots, and any adjacent parcels in the same ownership. **(Section IV.6)**	Boundary Line Adjustment Plan	☑ Preliminary Plat ☑ Final Plat	
☑	Dimensions and areas of all lots and any and all property to be dedicated or reserved for schools, parks, playgrounds, or other public purpose. Dimensions shall include radii and length of all arcs and calculated bearing for all straight lines. **(Section V.6/ IV.7)**	Boundary Line Adjustment Plan	☑ Preliminary Plat ☑ Final Plat	N/A
☑	Location, names, and present widths of all adjacent streets, with a designation as to whether public or private and approximate location of existing utilities to be used. Curbs and sidewalks shall be shown. **(Section IV.8/V.7)**	Boundary Line Adjustment Plan & Existing Conditions Plan	☑ Preliminary Plat ☑ Final Plat	

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	Location of significant physical features, including bodies of water, watercourses, wetlands, railroads, important vegetation, stone walls and soils types that my influence the design of the subdivision. **(Section IV.9/V.8)**	Existing Conditions Plan	☑ Preliminary Plat ☑ Final Plat	
☑	**Preliminary Plat** Proposed locations, widths and other dimensions of all new streets and utilities, including water mains, storm and sanitary sewer mains, catch basins and culverts, street lights, fire hydrants, sewerage pump stations, etc. **(Section IV.10)** **Final Plat** Proposed locations and profiles of all proposed streets and utilities, including water mains, storm and sanitary sewer mains, catchbasins and culverts, together with typical cross sections. Profiles shall be drawn to a horizontal scale of 1"=50' and a vertical scale of 1"=5', showing existing centerline grade, existing left and right sideline grades, and proposed centerline grade. **(Section V.9)**	Boundary Line Adjustment Plan	☑ Preliminary Plat ☑ Final Plat	
☑	When required by the Board, the plat shall be accompanied by profiles of proposed street grades, including extensions for a reasonable distance beyond the subject land; also grades and sizes of proposed utilities. **(Section IV.10)**	N/A	☑ Preliminary Plat ☑ Final Plat	
☑	Base flood elevation (BFE) for subdivisions involving greater than five (5) acres or fifty (50) lots. **(Section IV.11)**	N/A	☑ Preliminary Plat ☑ Final Plat	
☑	For subdivisions of five (5) lots or more, or at the discretion of the Board otherwise, the preliminary plat shall show contours at intervals no greater than two (2) feet. Contours shall be shown in dotted lines for existing natural surface and in solid lines for proposed final grade, together with the final grade elevations shown in figures at all lot corners. If existing grades are not to be changed, then the contours in these areas shall be solid lines. **(Section IV.12/ V.12)**	N/A	☑ Preliminary Plat ☑ Final Plat	

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	Dates and permit numbers of all necessary permits from governmental agencies from which approval is required by Federal or State law. **(Section V.10)**	Cover Sheet	☐ Preliminary Plat ☑ Final Plat	
☑	For subdivisions involving greater than five (5) acres or fifty (50) lots, the final plat shall show hazard zones and shall include elevation data for flood hazard zones. **(Section V.11)**	N/A	☐ Preliminary Plat ☑ Final Plat	
☑	Location of all permanent monuments. **(Section V.12)**	Boundary Line Adjustment Plan	☐ Preliminary Plat ☑ Final Plat	

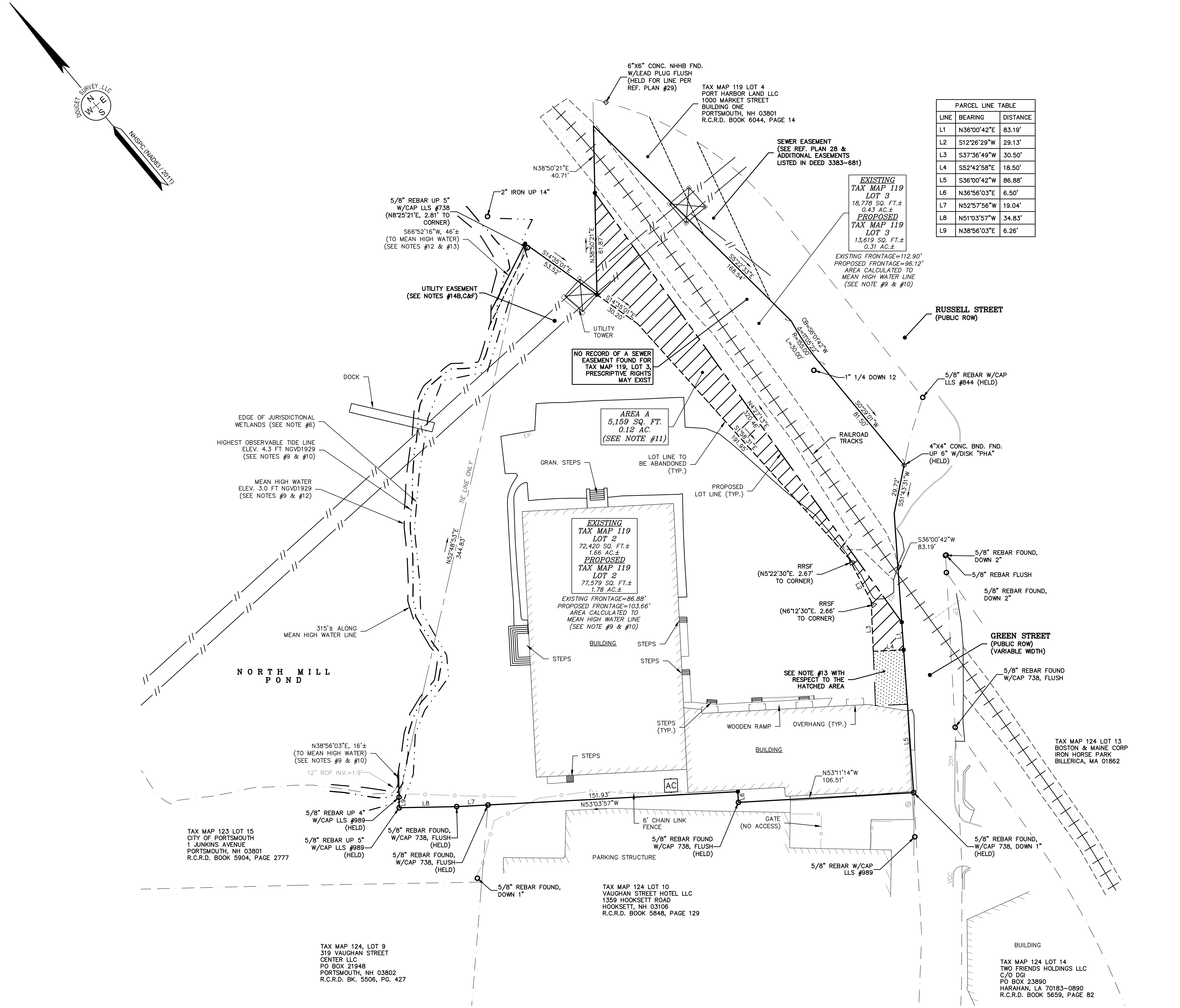
General Requirements[1]			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	**1. Basic Requirements: (VI.1)**	Boundary Line Adjustment Plan	
☐	a. Conformity to Official Plan or Map		
☐	b. Hazards		
☐	c. Relation to Topography		
☐	d. Planned Unit Development		
☐	**2. Lots: (VI.2)**	Boundary Line Adjustment Plan	
☐	a. Lot Arrangement		
☐	b. Lot sizes		
☐	c. Commercial and Industrial Lots		
☐	**3. Streets: (VI.3)**	N/A	
☐	a. Relation to adjoining Street System		
☐	b. Street Rights-of-Way		
☐	c. Access		
☐	d. Parallel Service Roads		
☐	e. Street Intersection Angles		
☐	f. Merging Streets		
☐	g. Street Deflections and Vertical Alignment		
☐	h. Marginal Access Streets		
☐	i. Cul-de-Sacs		
☐	j. Rounding Street Corners		
☐	k. Street Name Signs		
☐	l. Street Names		
☐	m. Block Lengths		
☐	n. Block Widths		
☐	o. Grade of Streets		
☐	p. Grass Strips		
☑	**4. Curbing: (VI.4)**	See Site Plan C.102.1	
☑	**5. Driveways: (VI.5)**	See Site Plan C.102.1	
☑	**6. Drainage Improvements: (VI.6)**	See Sheet C.103	
☑	**7. Municipal Water Service: (VI.7)**	See Utility Plan C.104	
☑	**8. Municipal Sewer Service: (VI.8)**	See Utility Plan C.104	
☑	**9. Installation of Utilities: (VI.9)**	See Utility Plan C.104	
☑	a. All Districts		
☑	b. Indicator Tape		
☑	**10. On-Site Water Supply: (VI.10)**	Enclosed	
☐	**11. On-Site Sewage Disposal Systems: (VI.11)**	N/A	
☑	**12. Open Space: (VI.12)**	See Landscape Plan L-1	
☐	a. Natural Features		
☐	b. Buffer Strips		
☐	c. Parks		
☐	d. Tree Planting		
☑	**13. Flood Hazard Areas: (VI.13)**	Cover sheet	
☑	a. Permits		
☐	b. Minimization of Flood Damage		
☐	c. Elevation and Flood-Proofing Records		
☐	d. Alteration of Watercourses		

☑	**14. Erosion and Sedimentation Control (VI.14)**		
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑ ☑ ☐	**15. Easements (VI.15)** a. Utilities b. Drainage	Existing Conditions Plan	
☑	**16. Monuments: (VI.16)**	Existing Conditions Plan	
☑	**17. Benchmarks: (VI.17)**	Existing Conditions Plan	
☐	**18. House Numbers (VI.18)**	N/A	

Design Standards			
	Required Items for Submittal	**Indicate compliance and/or provide explanation as to alternative design**	**Waiver Requested**
☑	**1. Streets have been designed according to the design standards required under Section (VII.1).** a. Clearing b. Excavation c. Rough Grade and Preparation of Sub-Grade d. Base Course e. Street Paving f. Side Slopes g. Approval Specifications h. Curbing i. Sidewalks j. Inspection and Methods	See Site Plan C.102.1	
☑	**2. Storm water Sewers and Other Drainage Appurtenances have been designed according to the design standards required under Section (VII.2).** a. Design b. Standards of Construction	See Grading and Drainage Sheet C.103	
☑	**3. Sanitary Sewers have been designed according to the design standards required under Section (VII.3).** a. Design b. Lift Stations c. Materials d. Construction Standards	See Utility Plan C.104	
☑	**4. Water Mains and Fire Hydrants have been designed according to the design standards required under Section (VII.4).** a. Connections to Lots b. Design and Construction c. Materials d. Notification Prior to Construction	See Utility Plan C.104	

[1] See City of Portsmouth, NH Subdivision Rules and Regulations for details.

Applicant's/Representative's Signature:_____ **Date:** 7/7/21


DOUCET SURVEY, LLC
NHSPC (NAD83 / 2011)
6"X6" CONC. NHHB FND. W/LEAD PLUG FLUSH (HELD FOR LINE PER REF. PLAN #29)
TAX MAP 119 LOT 4
PORT HARBOR LAND LLC
1000 MARKET STREET
BUILDING ONE
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 6044, PAGE 14
SEWER EASEMENT (SEE REF. PLAN 28 & ADDITIONAL EASEMENTS LISTED IN DEED 3383-681)
N38°50'21"E 40.71'
2" IRON UP 14"
5/8" REBAR UP 5" W/CAP LLS #738 (N8°25'21"E, 2.81' TO CORNER)
S66°52'16"W, 46'± (TO MEAN HIGH WATER) (SEE NOTES #12 & #13)
S14°35'01"E 53.52'
N38°50'21"E 61.87'
S14°35'01"E 30.20'
S52°22'33"E 168.54'
UTILITY EASEMENT (SEE NOTES #14B,C&F)
UTILITY TOWER
EXISTING TAX MAP 119 LOT 3 18,778 SQ. FT.± 0.43 AC.±
PROPOSED TAX MAP 119 LOT 3 13,619 SQ. FT.± 0.31 AC.±
EXISTING FRONTAGE=112.90' PROPOSED FRONTAGE=96.12' AREA CALCULATED TO MEAN HIGH WATER LINE (SEE NOTE #9 & #10)
RUSSELL STREET (PUBLIC ROW)
CB=S61°01'42"W Δ=11°05'22" R=155.00' L=30.00'
NO RECORD OF A SEWER EASEMENT FOUND FOR TAX MAP 119, LOT 3, PRESCRIPTIVE RIGHTS MAY EXIST
1" 1/4 DOWN 12
S0°29'01"W 81.50'
5/8" REBAR W/CAP LLS #844 (HELD)
DOCK
AREA A 5,159 SQ. FT. 0.12 AC. (SEE NOTE #11)
N47°27'13"E 120.46'
S15°58'31"E 191.95'
RAILROAD TRACKS
EDGE OF JURISDICTIONAL WETLANDS (SEE NOTE #6)
HIGHEST OBSERVABLE TIDE LINE ELEV. 4.3 FT NGVD1929 (SEE NOTES #9 & #10)
MEAN HIGH WATER ELEV. 3.0 FT NGVD1929 (SEE NOTES #9 & #12)
GRAN. STEPS
LOT LINE TO BE ABANDONED (TYP.)
PROPOSED LOT LINE (TYP.)
4"X4" CONC. BND. FND. UP 6" W/DISK "PHA" (HELD)
S51°43'31"W 29.72'
TIE LINE ONLY
N52°48'53"E 344.83'
EXISTING TAX MAP 119 LOT 2 72,420 SQ. FT.± 1.66 AC.±
PROPOSED TAX MAP 119 LOT 2 77,579 SQ. FT.± 1.78 AC.±
EXISTING FRONTAGE=86.88' PROPOSED FRONTAGE=103.66' AREA CALCULATED TO MEAN HIGH WATER LINE (SEE NOTE #9 & #10)
S36°00'42"W 83.19'
RRSF (N5°22'30"E. 2.67' TO CORNER)
RRSF (N6°12'30"E. 2.66' TO CORNER)
5/8" REBAR FOUND, DOWN 2"
5/8" REBAR FLUSH
5/8" REBAR FOUND, DOWN 2"
BUILDING
STEPS
315'± ALONG MEAN HIGH WATER LINE
GREEN STREET (PUBLIC ROW) (VARIABLE WIDTH)
NORTH MILL POND
SEE NOTE #13 WITH RESPECT TO THE HATCHED AREA
5/8" REBAR FOUND W/CAP 738, FLUSH
STEPS (TYP.)
WOODEN RAMP
OVERHANG (TYP.)
BUILDING
TAX MAP 124 LOT 13
BOSTON & MAINE CORP
IRON HORSE PARK
BILLERICA, MA 01862
N38°56'03"E, 16'± (TO MEAN HIGH WATER) (SEE NOTES #9 & #10)
12" RCP INV.=1.9'
N53°11'14"W 106.51'
AC
151.93'
N53°03'57"W
L9 L8 L7 L6 L5 L4 L3 L2 L1
5/8" REBAR UP 4" W/CAP LLS #989 (HELD)
5/8" REBAR UP 5" W/CAP LLS #989 (HELD)
5/8" REBAR FOUND, W/CAP 738, FLUSH (HELD)
5/8" REBAR FOUND, W/CAP 738, FLUSH (HELD)
6' CHAIN LINK FENCE
5/8" REBAR FOUND W/CAP 738, FLUSH (HELD)
GATE (NO ACCESS)
5/8" REBAR FOUND, W/CAP 738, DOWN 1" (HELD)
5/8" REBAR W/CAP LLS #989
TAX MAP 123 LOT 15
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 5904, PAGE 2777
PARKING STRUCTURE
5/8" REBAR FOUND, DOWN 1"
TAX MAP 124 LOT 10
VAUGHAN STREET HOTEL LLC
1359 HOOKSETT ROAD
HOOKSETT, NH 03106
R.C.R.D. BOOK 5848, PAGE 129
TAX MAP 124, LOT 9
319 VAUGHAN STREET
CENTER LLC
PO BOX 21948
PORTSMOUTH, NH 03802
R.C.R.D. BK. 5506, PG. 427
BUILDING
TAX MAP 124 LOT 14
TWO FRIENDS HOLDINGS LLC
C/O DGI
PO BOX 23890
HARAHAN, LA 70183-0890
R.C.R.D. BOOK 5659, PAGE 82

PARCEL LINE TABLE

LINE	BEARING	DISTANCE
L1	N36°00'42"E	83.19'
L2	S12°26'29"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
- PROPOSED LOT LINE
- LOT LINE TO BE ABANDONED
- APPROXIMATE ABUTTERS LOT LINE
- STOCKADE FENCE
- CHAIN LINK FENCE
- OVERHEAD WIRE
- MEAN HIGH WATER LINE
- HIGH TIDE LINE
- EDGE OF WETLAND
- CRUSHED STONE
- BOUND FOUND
- IRON PIPE/ROD FOUND
- TYP. — TYPICAL
- BND. FND. — BOUND FOUND
- EP — EDGE OF PAVEMENT
- VGC — VERTICAL GRANITE CURB
- 5/8" REBAR W/ID CAP TO BE SET

APPROVED FOR THE RECORD

CHAIRMAN PORTSMOUTH PLANNING BOARD DATE

STATE OF NEW HAMPSHIRE No. 989 MATTHEW W. FAGGINGER-AUER LICENSED LAND SURVEYOR

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

5/17/21 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 AND KEY PLAN

30 0 30 60

SCALE: 1 INCH = 30 FT.

BOUNDARY LINE ADJUSTMENT PLAN

BETWEEN LAND OF
STONE CREEK REALTY LLC
(TAX MAP 119, LOT 2)
AND
BOSTON & MAINE CORP.
(TAX MAP 119, LOT 3)
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY: M.W.F.	DATE: APRIL 29, 2021
CHECKED BY: W.J.D..	DRAWING NO. 4383G
JOB NO. 4383	SHEET 1 OF 2

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

NOTES:

1. REFERENCE: TAX MAP 119, LOTS 2 & 3
53 GREEN STREET
D.S.I. PROJECT NO. 4383

2. TOTAL PARCEL AREA:
<u>TAX MAP 119, LOT 2</u>
72,420 SQ. FT.± OR 1.66 AC.±
(AREA CALCULATED TO MEAN HIGH WATER)
(SEE NOTE #12)
<u>TAX MAP 119, LOT 3</u>
18, 778 SQ. FT. OR 0.43 AC.

3. OWNER OF RECORD:

TAX MAP 119, LOT 2	TAX MAP 119, LOT 3
STONE CREEK REALTY LLC	BOSTON & MAINE CORP
C/O DOUGLAS PINCIARO	IRON HORSE PARK
PO BOX 121	BILLERICA, MA 01862
NEW CASTLE, NH 03854	
R.C.R.D. BOOK 3300, PAGE 329	

4. ZONE: CD5
<u>OVERLAY DISTRICTS</u>
-DOWNTOWN OVERLAY DISTRICT
-HISTORIC DISTRCIT

ZONING DISTRICTS BASED ON THE CITY OF PORTSMOUTH ZONING MAP DATED 11/12/15 AS AVAILABLE ON THE CITY WEBSITE ON 11/18/19. SEE CITY OF PORTSMOUTH ZONING ORDINANCE ARTICLE 5A, SECTION 10.5A40 FOR DIMENSIONAL REGULATIONS. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.

THE SITE IS SUBJECT TO THE STATE OF NH SHORELAND WATER QUALITY PROTECTION ACT. SEE NHDES WEBSITE FOR SPECIFIC DIMENSIONAL REQUIREMENT.

5. FIELD SURVEY PERFORMED BY D.J.B. & J.H.H. DURING APRIL 2021 & D.C.B. & K.J.L. DURING NOVEMBER 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R8 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

6. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND, DURING OCTOBER 2019 IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (OCTOBER, 2009).

7. VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923.

8. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

9. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.

10. MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPLACEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009", PROVIDED BY TIGHE & BOND ON 11-30-15.

11. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

12. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF GREEN STREET AS DEPICTED HEREON IS/ARE BASED ON RESEARCH CONDUCTED AT THE CITY OF PORTSMOUTH CITY HALL, THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS & THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

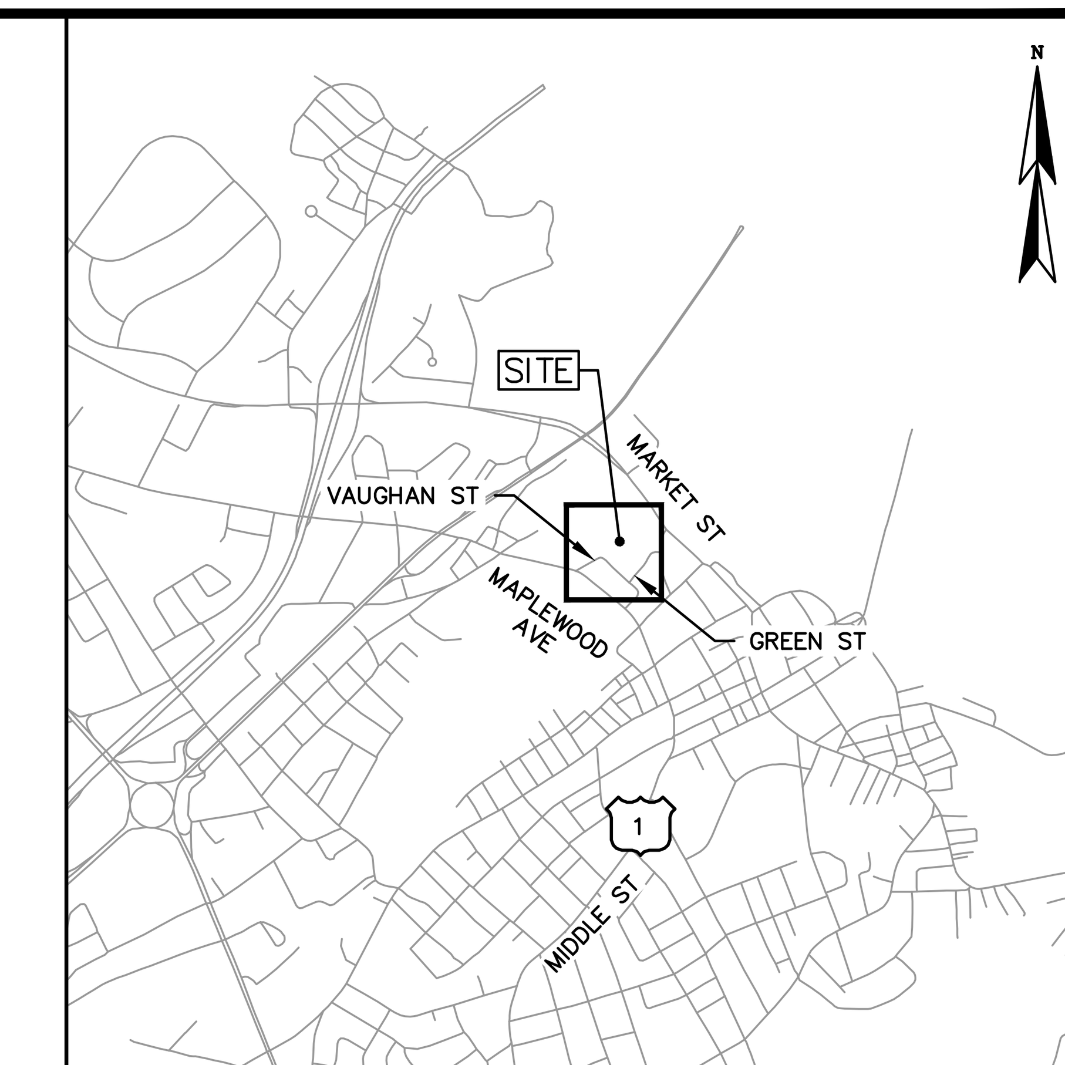
13. THE GEOMETRY SHOWN ON REFERENCE PLANS 12 & 13 INDICATE THE HATCHED AREA MAY BE SUBJECT TO THE GREEN STREET RIGHT-OF-WAY. R.C.R.D. BOOK 589, PAGE 206 INDICATES FEE OWNERSHIP EXTENDS TO THE CENTERLINE OF GREEN STREET IN THIS AREA.

14. TAX MAP 119 LOT 2 SHOWN HEREON IS SUBJECT TO AND/OR IN BENEFIT OF THE FOLLOWING EASEMENTS & COVENANTS.
    A) SIGNAL FACILITIES EXCEPTIONS AND RESERVATIONS, SEE R.C.R.D. BOOK 1339, PAGE 298, (LOCATION UNKNOWN).
    B) EASEMENT IN FAVOR OF WESTERN UNION TELEGRAPH COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
    C) ELECTRIC EASEMENT IN FAVOR OF NEW HAMPSHIRE ELECTRIC COMPANY, SEE R.C.R.D. BOOK 1339, PAGE 298 (NO DIMENSIONS GIVEN).
    D) SEWER LINE EASEMENT IN FAVOR OF THE CITY OF PORTSMOUTH, SEE R.C.R.D. BOOK 1339, PAGE 298 (LOCATION UNKNOWN).
    E) ADDITIONAL FIRE RESTRICTION, SEE R.C.R.D. BOOK 1339, PAGE 298.
    F) POLE AND WIRE AGREEMENT, PER NOTE #8 ON REFERENCE PLAN #1, (RECORDED AGREEMENT NOT FOUND).
    G) ACCESS RIGHTS, SEE R.C.R.D. BOOK 589, PAGE 206 (LOCATION UNKNOWN).

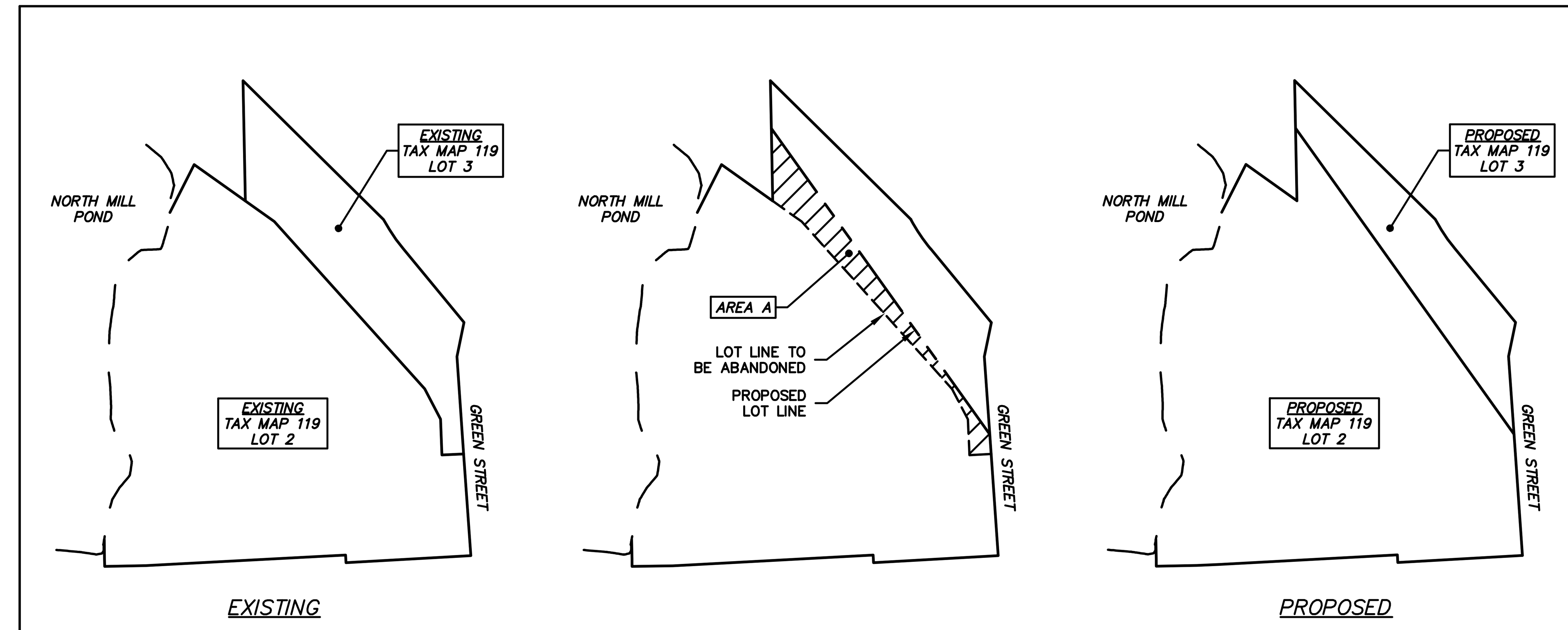
15. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "STANDARD BOUNDARY SURVEY, TAX MAP 119 - LOT 2, LAND OF STONE CREEK REALTY", DATED MARCH 2016, BY AMBIT ENGINEERING, INC., NOT RECORDED.
2. "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH, NH" DATED JULY 1955 BY JOHN W. DURGIN R.C.R.D. PLAN #02541.
3. "STANDARD BOUNDARY SURVEY, TAX MAP 123 - LOT 15 & TAX MAP 124 LOT 10" DATED JULY 2008, REVISED 4/25/13 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN #D-37722.
4. "EASEMENT PLAN, EGRESS EASEMENT TO 319 VAUGHAN STREET CENTER, LLC, TAX MAP 124, LOT 9 & TAX MAP 123, LOT 15, PROPERTY OF 299 VAUGHAN STREET, LLC C/O CATHARTES PRIVATE INVESTMENTS", BY AMBIT ENGINEERING, INC., DATED MARCH 2014, R.C.R.D. PLAN #D-38358.
5. "CONDOMINIUM SITE PLAN TAX MAP 124 LOT 14, 233 VAUGHAN STREET, A CONDOMINIUM FOR 233 VAUGHAN STREET, LLC", BY AMBIT ENGINEERING, INC., DATED NOVEMBER 2013, R.C.R.D. PLAN #D-39078.
6. "LOT LINE RELOCATION PLAN PROPERTY OF HARBORCORP, LLC & BOSTON & MAINE CORPORATION", BY AMES MSC, DATED MARCH 15, 2005, R.C.R.D. PLAN #D-32675.
7. "LAND AT 233 VAUGHAN STREET PORTSMOUTH, NH BOSTON & MAINE CORPORATION TO BLUE STAR PROPERTIES, LLC", BY JAMES VERRA & ASSOCIATES, INC., DATED 6/3/01, R.C.R.D. PLAN #D-29702.
8. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED NOVEMBER 1969, R.C.R.D. PLAN D-2408
9. "PLAN OF LAND FOR SOLIMON NEGM", BY TOWN PLANNING & ENGINEERING ASSOCIATES, INC., DATED 3/28/79, R.C.R.D. PLAN #C-8575.
10. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION PLAN PARCEL 2", BY ANDERSON-NICHOLS & CO., INC., DATED OCTOBER 1973, R.C.R.D. PLAN D-4115.
11. "PLAN OF PROPERTY CORNER VAUGHAN AND GREEN STREETS", DATED FEBRUARY 1907, R.C.R.D. PLAN #306.
12. "LAND SHOWING LAND AND WHARFAGE OWNED BY SILAS PEIRCE AND CO. LTD.", BY A.C. HOYT SURVEYOR, DATED AUGUST 8, 1902, R.C.R.D. PLAN #266.
13. "PLAN OF LAND PORTSMOUTH, NH FOR GEORGE D. EMERSON CO., BY JOHN W. DURGIN, DATED APRIL 1952, ON FILE AT JAMES VERRA AND ASSOCIATES.
14. "PLAN OF LAND VAUGHAN AND GREEN STREETS PORTSMOUTH, NH FOR SAMUEL W. & SUMNER L. POORVU", BY JOHN W. DURGIN, DATED JANUARY 1956, ON FILE AT JAMES VERRA AND ASSOCIATES.
15. "PLAN OF PROPERTY IN PORTSMOUTH, NH OWNED BY R.I. SUGDEN", BY WM A. GROVER, DATED APRIL 15, 1919, ON FILE AT JAMES VERRA AND ASSOCIATES.
16. "LAND ON VAUGHAN STREET PORTSMOUTH, NH, ESTATE OF CARRIE HAM TO LAWRENCE V. REGAN" BY JOHN W. DURGIN, DATED AUGUST 6, 1937, ON FILE AT JAMES VERRA AND ASSOCIATES.
17. "LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO GEORGE D. EMERSON COMPANY", DATED JUNE 1954, R.C.R.D. BOOK 1339, PAGE 305.
18. TRACK PLAN, R.C.R.D. BOOK 1345, PAGE 51.
19. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, APPROVED AS SHOWING VAUGHAN STREET URBAN RENEWAL PROJECT BOUNDARIES AND AREA ONLY, CONDEMNATION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED FEBRUARY 1971, R.C.R.D. PLAN 2425.
20. "SURVEY OF HARBORSIDE & HARBORPARK LAND IN PORTSMOUTH, NH", BY BRIGGS ASSOCIATES, INC., DATED AUGUST 13, 1985, REV. AUGUST 27, 1985, R.C.R.D. PLAN 14043.
21. "SUBDIVISION PLAN OF TAX MAP 123, LOT 15 FOR 299 VAUGHAN STREET, LLC", BY DOUCET SURVEY, INC., DATED MAY 19, 2017, R.C.R.D. PLAN D-40759.
22. "LICENSE, EASEMENT & LAND TRANSFER PLAN FOR VAUGHAN STREET, LLC AND VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED AUGUST 2017, R.C.R.D. PLAN D-40760.
23. "LOT MERGER PLAN FOR VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY, INC., DATED SEPTEMBER 2017.
24. "STATION MAP - LANDS, BOSTON AND MAINE RAILROAD OPERATED BY THE BOSTON AND MAINE RAILROAD, STATION 2966+20 TO STATION 3019+0", DATED JUNE 30, 1914, ON FILE AT THE BOSTON AND MAINE CORPORATION.
25. "VAUGHAN STREET PROJECT, PROJECT NO. N.H. R-10, RIGHT OF WAY ADJUSTMENT", BY METCALF & EDDY, DATED MAY 5, 1966, R.C.R.D. PLAN D-2413.
26. "SKETCH OF RAILROAD CONVEYANCE, SEE R.C.R.D. BOOK 446, PAGE 164A.
27. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10, PORTSMOUTH, NH, DISPOSITION PLAN, PARCEL 2B", BY ANDERSON-NICHOLS & CO., INC., DATED APRIL 1974, R.C.R.D. PLAN DC-4518.
28. "SEWER EASEMENT PLAN, TAX MAP 119, LOT 4, PROPERTY OF NORTH END MASTER DEVELOPMENT LP, GREEN, MARKET & RUSSELL STREETS, PORTSMOUTH, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM", BY TFM, DATED JULY 16, 2019.
29. "SUBDIVISION PLAN OF PARCELS 1 & 2 IN PORTSMOUTH, NH FOR THE CITY OF PORTSMOUTH", BY BRIGGS ASSOCIATES INC., DATED AUGUST 1, 1984, R.C.R.D. PLAN D-13798.
30. "VAUGHAN STREET PROJECT, PROJECT NO. N.H. R-10, PROPERTY MAP-A, PORTSMOUTH HOUSING AUTHORITY, PORTSMOUTH, NEW HAMPSHIRE, ROCKINGHAM COUNTY", BY METCALF & EDDY, DATED MAY 5, 1966, R.C.R.D. PLAN D-2410.
31. "LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO ROSE R. WOLFSON", DATED JUNE 1954, R.C.R.D. PLAN 2282.



Location Map (n.t.s.)



Key Plan (1"=100')

BOUNDARY LINE ADJUSTMENT PLAN

BETWEEN LAND OF
STONE CREEK REALITY LLC
(TAX MAP 119, LOT 2)
AND
BOSTON & MAINE CORP.
(TAX MAP 119, LOT 3)
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	M.W.F.	DATE:	APRIL 29, 2021
CHECKED BY:	W.J.D..	DRAWING NO.	4383G
JOB NO.	4383	SHEET 2 OF	2

STATE OF NEW HAMPSHIRE No. 989 MATTHEW W. FAGGINGER-AUER LICENSED LAND SURVEYOR
SIGNATURE

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

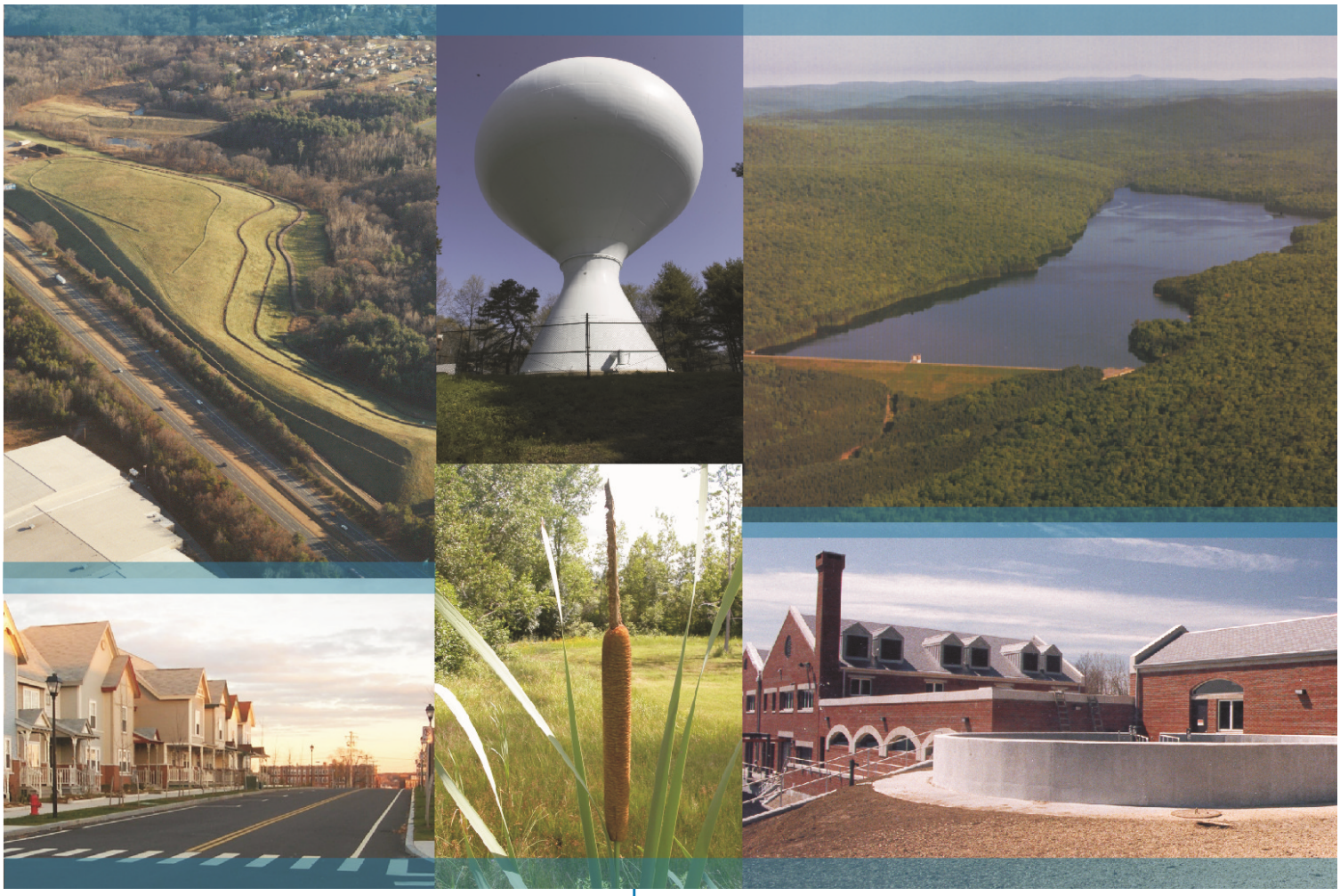
5/17/21 DATE

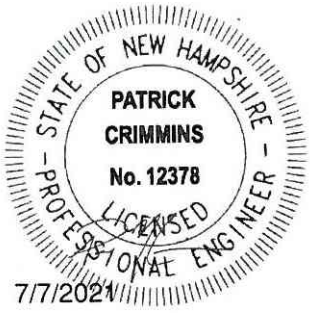
THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

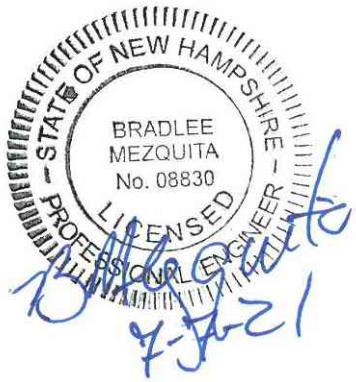
APPROVED FOR THE RECORD

CHAIRMAN PORTSMOUTH PLANNING BOARD DATE

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







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
Last Revised: July 7, 2021

Table of Contents

Section 1
Project Description

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

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

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

1.1 On-Site Soil Description

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

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

1.2 Pre- and Post-Development Comparison

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

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

1.3 Calculation Methods

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

Table 1.2: Extreme Precipitation Estimates (NRCC)

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

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

References:

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

Section 2
Pre-Development Conditions

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

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

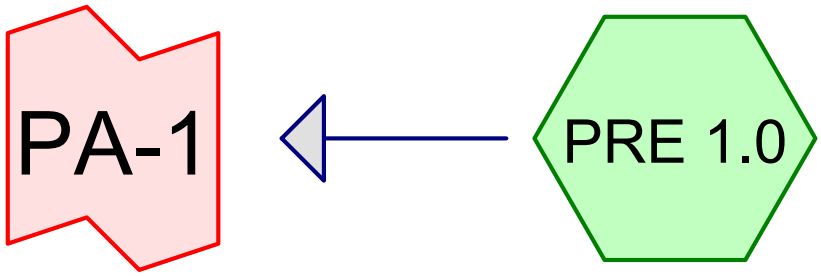
Point of Analysis (PA-1)

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

Pre-development Watershed 1.0 (PRE 1.0) is the single watershed analyzed in the pre-development condition. It is comprised of mostly impervious surfaces including paved parking and structures, disturbed forested areas to the north and west adjacent to the North Mill Pond shoreline and a maintained lawn between the building and shoreline. Additionally, this watershed is comprised of a small impervious section of Green Street and a small section of the railroad property which flows onto the site. 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

Subcat Reach Pond Link

Routing Diagram for C0960-011 PRE
Prepared by Tighe & Bond, Printed 7/6/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
27,086	61	>75% Grass cover, Good, HSG B (PRE 1.0)
2,659	74	>75% Grass cover, Good, HSG C (PRE 1.0)
2,188	85	Gravel, HSG B (PRE 1.0)
24,699	98	Paved parking, HSG B (PRE 1.0)
21,715	98	Roofs, HSG B (PRE 1.0)
4,790	55	Woods, Good, HSG B (PRE 1.0)
83,137	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
80,478	HSG B	PRE 1.0
2,659	HSG C	PRE 1.0
0	HSG D	
0	Other	
83,137		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	27,086	2,659	0	0	29,745	>75% Grass cover, Good	
0	2,188	0	0	0	2,188	Gravel	
0	24,699	0	0	0	24,699	Paved parking	
0	21,715	0	0	0	21,715	Roofs	
0	4,790	0	0	0	4,790	Woods, Good	
0	**80,478**	**2,659**	**0**	**0**	**83,137**	**TOTAL AREA**	

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=83,137 sf 55.83% Impervious Runoff Depth=1.93"
Flow Length=380' Tc=5.0 min CN=82 Runoff=4.43 cfs 13,387 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=4.43 cfs 13,387 cf
Primary=4.43 cfs 13,387 cf

Total Runoff Area = 83,137 sf Runoff Volume = 13,387 cf Average Runoff Depth = 1.93"
44.17% Pervious = 36,723 sf 55.83% Impervious = 46,414 sf

Summary for Subcatchment PRE 1.0:

Runoff = 8.22 cfs @ 12.08 hrs, Volume= 25,023 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
	24,699	98	Paved parking, HSG B
	27,086	61	>75% Grass cover, Good, HSG B
	4,790	55	Woods, Good, HSG B
	2,659	74	>75% Grass cover, Good, HSG C
*	2,188	85	Gravel, HSG B
	83,137	82	Weighted Average
	36,723		44.17% Pervious Area
	46,414		55.83% Impervious Area

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

Summary for Link PA-1: POINT OF ANALYSIS 1

Inflow Area = 83,137 sf, 55.83% Impervious, Inflow Depth = 3.61" for 10 Year Storm event
Inflow = 8.22 cfs @ 12.08 hrs, Volume= 25,023 cf
Primary = 8.22 cfs @ 12.08 hrs, Volume= 25,023 cf, Atten= 0%, Lag= 0.0 min

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

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=83,137 sf 55.83% Impervious Runoff Depth=4.99"
Flow Length=380' Tc=5.0 min CN=82 Runoff=11.23 cfs 34,579 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=11.23 cfs 34,579 cf
Primary=11.23 cfs 34,579 cf

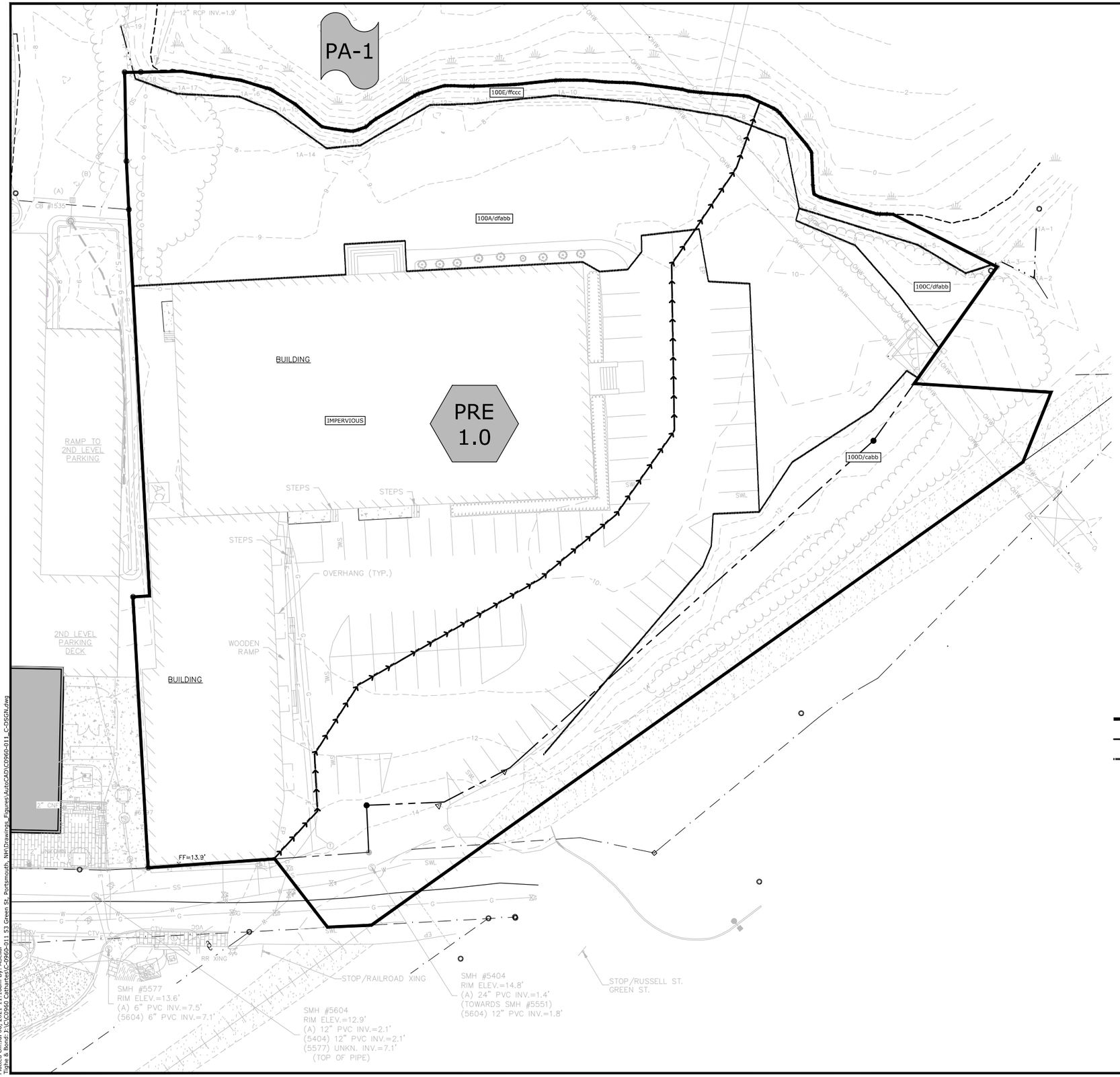
Total Runoff Area = 83,137 sf Runoff Volume = 34,579 cf Average Runoff Depth = 4.99"
44.17% Pervious = 36,723 sf 55.83% Impervious = 46,414 sf

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=83,137 sf 55.83% Impervious Runoff Depth=6.32"
Flow Length=380' Tc=5.0 min CN=82 Runoff=14.07 cfs 43,762 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=14.07 cfs 43,762 cf
Primary=14.07 cfs 43,762 cf

Total Runoff Area = 83,137 sf Runoff Volume = 43,762 cf Average Runoff Depth = 6.32"
44.17% Pervious = 36,723 sf 55.83% Impervious = 46,414 sf



LEGEND

- PRE-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- SOIL TYPE BOUNDARY
- 100*/cabb — SOIL TYPE (SEE SITE SPECIFIC SOIL MAP)
- PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- PA-1 — POINT OF ANALYSIS

Tighe&Bond

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Saved: 7/6/2021
Plotted: 7/7/2021 11:16am By: ASaillar
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Section 3
Post-Development Conditions

The post-development condition was analyzed by dividing the watersheds into six (6) 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 con 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 52% impervious surface of either pavement or concrete surface. The area includes the site access driveway and entrance turnaround. The pervious portion of this watershed includes the railroad gravel area and a porous grass paver section intended for emergency use for fire truck access. Additional pervious areas that contribute to this watershed include 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 53% impervious surface and consists of landscaping and grassed lawn areas in the post-development condition. The runoff associated with this area is captured via yard drains and is conveyed via piping to a proprietary membrane filtration treatment device identified as Jellyfish Filter 1 (JF-1). The treated runoff eventually discharges into North Mill Pond (PA-1).

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

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

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

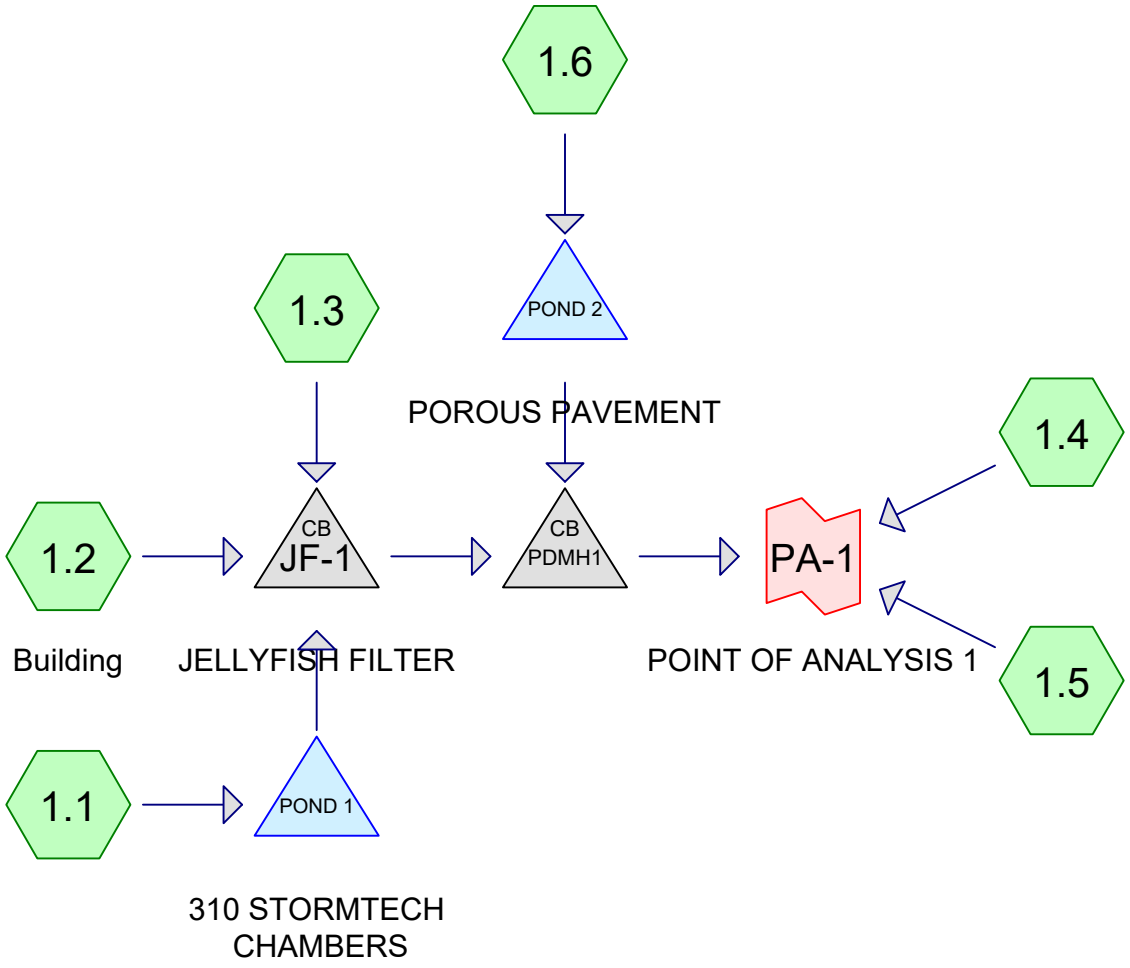
3.1 Peak Rate Comparison

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

Point of Analysis	Pre/**Post** 2-Year Storm (cfs)	Pre/**Post** 10-Year Storm (cfs)	Pre/**Post** 25-Year Storm (cfs)	Pre/**Post** 50-Year Storm (cfs)
PA1	4.43/**3.50**	8.22/**5.91**	11.23/**9.70**	14.07/**11.55**

3.2 Post-Development Calculations

3.3 Post-Development Watershed Plans



Subcat Reach Pond Link

Routing Diagram for C0960-011 POST
Prepared by Tighe & Bond, Printed 7/6/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
28,467	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)
2,188	85	Gravel, HSG B (1.1)
14,989	98	Paved parking, HSG B (1.1, 1.3, 1.5, 1.6)
3,392	98	Porous Paved Path, HSG B (1.6)
29,630	98	Roofs, HSG B (1.2)
1,812	55	Woods, Good, HSG B (1.1, 1.4)
83,137	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
80,478	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	
83,137		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	28,467	2,659	0	0	31,126	>75% Grass cover, Good	
0	2,188	0	0	0	2,188	Gravel	
0	14,989	0	0	0	14,989	Paved parking	
0	3,392	0	0	0	3,392	Porous Paved Path	
0	29,630	0	0	0	29,630	Roofs	
0	1,812	0	0	0	1,812	Woods, Good	
0	**80,478**	**2,659**	**0**	**0**	**83,137**	**TOTAL AREA**	

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

Subcatchment1.1: Runoff Area=19,827 sf 52.01% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=83 Runoff=1.10 cfs 3,323 cf

Subcatchment1.2: Building Runoff Area=29,630 sf 100.00% Impervious Runoff Depth=3.45"
Tc=5.0 min CN=98 Runoff=2.49 cfs 8,509 cf

Subcatchment1.3: Runoff Area=3,963 sf 52.99% Impervious Runoff Depth=1.86"
Tc=5.0 min CN=81 Runoff=0.20 cfs 613 cf

Subcatchment1.4: Runoff Area=15,732 sf 0.00% Impervious Runoff Depth=0.75"
Tc=5.0 min CN=63 Runoff=0.27 cfs 982 cf

Subcatchment1.5: Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=3.45"
Tc=5.0 min CN=98 Runoff=0.18 cfs 615 cf

Subcatchment1.6: Runoff Area=11,844 sf 32.31% Impervious Runoff Depth=1.30"
Tc=5.0 min CN=73 Runoff=0.41 cfs 1,285 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=7.31' Inflow=3.06 cfs 12,443 cf
24.0" Round Culvert n=0.013 L=16.0' S=0.0063 '/' Outflow=3.06 cfs 12,443 cf

Pond PDMH1: Peak Elev=7.05' Inflow=3.06 cfs 13,044 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0062 '/' Outflow=3.06 cfs 13,044 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=7.62' Storage=516 cf Inflow=1.10 cfs 3,323 cf
Outflow=0.68 cfs 3,322 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=6.53' Storage=803 cf Inflow=0.41 cfs 1,285 cf
Outflow=0.03 cfs 601 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=3.50 cfs 14,641 cf
Primary=3.50 cfs 14,641 cf

Total Runoff Area = 83,137 sf Runoff Volume = 15,326 cf Average Runoff Depth = 2.21"
42.25% Pervious = 35,126 sf 57.75% Impervious = 48,011 sf

Summary for Subcatchment 1.1:

Runoff = 2.01 cfs @ 12.08 hrs, Volume= 6,134 cf, Depth= 3.71"

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
	10,313	98	Paved parking, HSG B
	6,941	61	>75% Grass cover, Good, HSG B
	385	55	Woods, Good, HSG B
*	2,188	85	Gravel, HSG B
	19,827	83	Weighted Average
	9,514		47.99% Pervious Area
	10,313		52.01% Impervious Area

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

Summary for Subcatchment 1.2: Building

Runoff = 3.80 cfs @ 12.07 hrs, Volume= 13,216 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
29,630	98	Roofs, HSG B
29,630		100.00% Impervious Area

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

Summary for Subcatchment 1.3:

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,160 cf, Depth= 3.51"

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
2,100	98	Paved parking, HSG B
1,863	61	>75% Grass cover, Good, HSG B
3,963	81	Weighted Average
1,863		47.01% Pervious Area
2,100		52.99% Impervious Area

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

Summary for Subcatchment 1.4:

Runoff = 0.79 cfs @ 12.08 hrs, Volume= 2,484 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
11,646	61	>75% Grass cover, Good, HSG B
1,427	55	Woods, Good, HSG B
2,659	74	>75% Grass cover, Good, HSG C
15,732	63	Weighted Average
15,732		100.00% Pervious Area

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

Summary for Subcatchment 1.5:

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 955 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
2,141	98	Paved parking, HSG B
2,141		100.00% Impervious Area

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

Summary for Subcatchment 1.6:

Runoff = 0.90 cfs @ 12.08 hrs, Volume= 2,716 cf, Depth= 2.75"

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
	435	98	Paved parking, HSG B
	8,017	61	>75% Grass cover, Good, HSG B
*	3,392	98	Porous Paved Path, HSG B
	11,844	73	Weighted Average
	8,017		67.69% Pervious Area
	3,827		32.31% Impervious Area

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

Summary for Pond JF-1: JELLYFISH FILTER

Inflow Area = 53,420 sf, 78.70% Impervious, Inflow Depth = 4.61" for 10 Year Storm event
Inflow = 4.86 cfs @ 12.10 hrs, Volume= 20,509 cf
Outflow = 4.86 cfs @ 12.10 hrs, Volume= 20,509 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.86 cfs @ 12.10 hrs, Volume= 20,509 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 7.61' @ 12.10 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.35'	**24.0" Round Culvert** L= 16.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.35' / 6.25' S= 0.0063 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=4.81 cfs @ 12.10 hrs HW=7.60' TW=7.31' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 4.81 cfs @ 3.33 fps)

Summary for Pond PDMH1:

[80] Warning: Exceeded Pond POND 2 by 0.85' @ 12.04 hrs (0.71 cfs 1,193 cf)

Inflow Area = 65,264 sf, 70.28% Impervious, Inflow Depth = 4.14" for 10 Year Storm event
Inflow = 4.86 cfs @ 12.10 hrs, Volume= 22,541 cf
Outflow = 4.86 cfs @ 12.10 hrs, Volume= 22,541 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.86 cfs @ 12.10 hrs, Volume= 22,541 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 7.31' @ 12.10 hrs
Flood Elev= 10.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.15'	**24.0" Round Culvert** L= 8.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.15' / 6.10' S= 0.0062 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=4.80 cfs @ 12.10 hrs HW=7.31' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 4.80 cfs @ 3.68 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 = 19,827 sf, 52.01% Impervious, Inflow Depth = 3.71" for 10 Year Storm event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 6,134 cf
Outflow = 1.54 cfs @ 12.16 hrs, Volume= 6,133 cf, Atten= 23%, Lag= 4.9 min
Primary = 1.54 cfs @ 12.16 hrs, Volume= 6,133 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 8.30' @ 12.16 hrs Surf.Area= 998 sf Storage= 946 cf
Flood Elev= 9.36' Surf.Area= 998 sf Storage= 1,250 cf

Plug-Flow detention time= 14.7 min calculated for 6,133 cf (100% of inflow)
Center-of-Mass det. time= 14.3 min (822.3 - 808.1)

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

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.40'	**15.0" Round Culvert** L= 12.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.40' / 6.30' S= 0.0083 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	6.70'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	8.15'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 3	7.20'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.55 cfs @ 12.16 hrs HW=8.29' TW=7.50' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.55 cfs of 5.26 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.84 cfs @ 4.29 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.71 cfs @ 1.24 fps)
└**4=Orifice/Grate** (Passes 0.71 cfs of 1.44 cfs potential flow)

Summary for Pond POND 2: POROUS PAVEMENT

Inflow Area = 11,844 sf, 32.31% Impervious, Inflow Depth = 2.75" for 10 Year Storm event
Inflow = 0.90 cfs @ 12.08 hrs, Volume= 2,716 cf
Outflow = 0.30 cfs @ 12.57 hrs, Volume= 2,031 cf, Atten= 67%, Lag= 29.6 min
Primary = 0.30 cfs @ 12.57 hrs, Volume= 2,031 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 6.92' @ 12.47 hrs Surf.Area= 3,392 sf Storage= 1,324 cf
Flood Elev= 9.35' Surf.Area= 3,392 sf Storage= 2,992 cf

Plug-Flow detention time= 198.4 min calculated for 2,030 cf (75% of inflow)
Center-of-Mass det. time= 110.0 min (943.6 - 833.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5.94'	2,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.94	3,392	0.0	0	0
7.52	3,392	40.0	2,144	2,144
8.52	3,392	10.0	339	2,483
9.02	3,392	30.0	509	2,992
9.35	3,392	0.0	0	2,992

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

Primary OutFlow Max=0.28 cfs @ 12.57 hrs HW=6.89' TW=6.79' (Dynamic Tailwater)
↑**1=Underdrain** (Orifice Controls 0.28 cfs @ 1.50 fps)
↑**2=Filter Media Infiltration** (Passes 0.28 cfs of 0.79 cfs potential flow)

Summary for Link PA-1: POINT OF ANALYSIS 1

Inflow Area = 83,137 sf, 57.75% Impervious, Inflow Depth = 3.75" for 10 Year Storm event
Inflow = 5.91 cfs @ 12.09 hrs, Volume= 25,980 cf
Primary = 5.91 cfs @ 12.09 hrs, Volume= 25,980 cf, Atten= 0%, Lag= 0.0 min

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

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

Subcatchment1.1: Runoff Area=19,827 sf 52.01% Impervious Runoff Depth=5.10"
Tc=5.0 min CN=83 Runoff=2.73 cfs 8,432 cf

Subcatchment1.2: Building Runoff Area=29,630 sf 100.00% Impervious Runoff Depth=6.84"
Tc=5.0 min CN=98 Runoff=4.82 cfs 16,891 cf

Subcatchment1.3: Runoff Area=3,963 sf 52.99% Impervious Runoff Depth=4.88"
Tc=5.0 min CN=81 Runoff=0.53 cfs 1,611 cf

Subcatchment1.4: Runoff Area=15,732 sf 0.00% Impervious Runoff Depth=2.96"
Tc=5.0 min CN=63 Runoff=1.27 cfs 3,882 cf

Subcatchment1.5: Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=6.84"
Tc=5.0 min CN=98 Runoff=0.35 cfs 1,221 cf

Subcatchment1.6: Runoff Area=11,844 sf 32.31% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=73 Runoff=1.31 cfs 3,952 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=8.08' Inflow=8.10 cfs 26,934 cf
24.0" Round Culvert n=0.013 L=16.0' S=0.0063 '/' Outflow=8.10 cfs 26,934 cf

Pond PDMH1: Peak Elev=7.71' Inflow=8.10 cfs 30,202 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0062 '/' Outflow=8.10 cfs 30,202 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=8.47' Storage=1,022 cf Inflow=2.73 cfs 8,432 cf
Outflow=2.87 cfs 8,431 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=7.27' Storage=1,801 cf Inflow=1.31 cfs 3,952 cf
Outflow=0.52 cfs 3,268 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=9.70 cfs 35,304 cf
Primary=9.70 cfs 35,304 cf

Total Runoff Area = 83,137 sf Runoff Volume = 35,989 cf Average Runoff Depth = 5.19"
42.25% Pervious = 35,126 sf 57.75% Impervious = 48,011 sf

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

Subcatchment1.1: Runoff Area=19,827 sf 52.01% Impervious Runoff Depth=6.44"
Tc=5.0 min CN=83 Runoff=3.40 cfs 10,635 cf

Subcatchment1.2: Building Runoff Area=29,630 sf 100.00% Impervious Runoff Depth=8.24"
Tc=5.0 min CN=98 Runoff=5.78 cfs 20,346 cf

Subcatchment1.3: Runoff Area=3,963 sf 52.99% Impervious Runoff Depth=6.20"
Tc=5.0 min CN=81 Runoff=0.66 cfs 2,046 cf

Subcatchment1.4: Runoff Area=15,732 sf 0.00% Impervious Runoff Depth=4.05"
Tc=5.0 min CN=63 Runoff=1.75 cfs 5,309 cf

Subcatchment1.5: Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=8.24"
Tc=5.0 min CN=98 Runoff=0.42 cfs 1,470 cf

Subcatchment1.6: Runoff Area=11,844 sf 32.31% Impervious Runoff Depth=5.24"
Tc=5.0 min CN=73 Runoff=1.70 cfs 5,169 cf

Pond JF-1: JELLYFISH FILTER Peak Elev=8.27' Inflow=9.38 cfs 33,027 cf
24.0" Round Culvert n=0.013 L=16.0' S=0.0063 '/' Outflow=9.38 cfs 33,027 cf

Pond PDMH1: Peak Elev=7.86' Inflow=9.38 cfs 37,511 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0062 '/' Outflow=9.38 cfs 37,511 cf

Pond POND 1: 310 STORMTECH CHAMBERS Peak Elev=8.65' Storage=1,095 cf Inflow=3.40 cfs 10,635 cf
Outflow=3.14 cfs 10,635 cf

Pond POND 2: POROUS PAVEMENT Peak Elev=7.88' Storage=2,265 cf Inflow=1.70 cfs 5,169 cf
Outflow=0.75 cfs 4,485 cf

Link PA-1: POINT OF ANALYSIS1 Inflow=11.55 cfs 44,291 cf
Primary=11.55 cfs 44,291 cf

Total Runoff Area = 83,137 sf Runoff Volume = 44,976 cf Average Runoff Depth = 6.49"
42.25% Pervious = 35,126 sf 57.75% Impervious = 48,011 sf

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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
6.70	0	7.74	600	8.78	1,149
6.72	8	7.76	614	8.80	1,157
6.74	16	7.78	628	8.82	1,165
6.76	24	7.80	642	8.84	1,173
6.78	32	7.82	655	8.86	1,181
6.80	40	7.84	669	8.88	1,189
6.82	48	7.86	683	8.90	1,197
6.84	56	7.88	696	8.92	1,205
6.86	64	7.90	709	8.94	1,213
6.88	72	7.92	723	8.96	1,221
6.90	80	7.94	736	8.98	1,229
6.92	88	7.96	749	9.00	1,237
6.94	96	7.98	762	9.02	1,245
6.96	104	8.00	774	9.04	**1,250**
6.98	112	8.02	787	9.06	1,250
7.00	120	8.04	800	9.08	1,250
7.02	128	8.06	812	9.10	1,250
7.04	136	8.08	824	9.12	1,250
7.06	144	8.10	836	9.14	1,250
7.08	152	8.12 WQV=851	848	9.16	1,250
7.10	160	8.14 WEIR=8.15	860	9.18	1,250
7.12	168	8.16	872	9.20	1,250
7.14	176	8.18	883	9.22	1,250
7.16	184	8.20	895	9.24	1,250
7.18	192	8.22	906	9.26	1,250
7.20	200	8.24	917	9.28	1,250
7.22	215	8.26	927	9.30	1,250
7.24	230	8.28	937	9.32	1,250
7.26	246	8.30	948	9.34	1,250
7.28	261	8.32	957	9.36	1,250
7.30	276	8.34	967		
7.32	292	8.36	976		
7.34	307	8.38	985		
7.36	322	8.40	994		
7.38	337	8.42	1,003		
7.40	352	8.44	1,012		
7.42	367	8.46	1,020		
7.44	382	8.48	1,028		
7.46	397	8.50	1,037		
7.48	412	8.52	1,045		
7.50	427	8.54	1,053		
7.52	442	8.56	1,061		
7.54	457	8.58	1,069		
7.56	471	8.60	1,077		
7.58	486	8.62	1,085		
7.60	500	8.64	1,093		
7.62	515	8.66	1,101		
7.64	529	8.68	1,109		
7.66	544	8.70	1,117		
7.68	558	8.72	1,125		
7.70	572	8.74	1,133		
7.72	586	8.76	1,141		

PA-1

POST 1.4

POST POND 2

POST POND JF-1

POST 1.6

POST POND 1

POST POND PDMH1

IMPERVIOUS

POST 1.2

POST POND PDMH5

POST 1.1

POST 1.3

POST 1.5

FF=13.9'

100E/ffccc

100A/dfabb

100C/dfabb

100D/cabb

N

0 20' 40'

GRAPHIC SCALE

LEGEND

POST-DEVELOPMENT WATERSHED BOUNDARY

LONGEST FLOW PATH

SOIL TYPE BOUNDARY

100*/cabb — SOIL TYPE (SEE SITE SPECIFIC SOIL MAP

POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

POST POND 1 — POST-DEVELOPMENT POND DESIGNATION

PA-1 — POINT OF ANALYSIS

Tighe&Bond

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION
E	7/7/2021	PB Submission
D	5/19/2021	TAC Resubmission
C	4/21/2021	TAC Resubmission
B	3/22/2021	TAC & CC Submission
A	1/27/2021	CC Work Session

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

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Saved: 7/6/2021
Printed: Jul 06, 2021-11:16am By: ASellar
Tighe & Bond: J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg

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.

Table 4.1 – Pollutant Removal Efficiencies

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

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

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

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

Section 5
BMP Worksheet and Sizing Memo

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)

0.46	ac	A = Area draining to the practice
0.24	ac	A_I = Impervious area draining to the practice
0.51	decimal	I = Percent impervious area draining to the practice, in decimal form
0.51	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.23	ac-in	WQV= 1" x Rv x A
851	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".
0.51	inches	Q = Water quality depth. Q = WQV/A
94	unitless	CN = Unit peak discharge curve number. $CN = 1000/(10+5P+10Q-10*[Q^2 + 1.25*Q*P]^{0.5})$
0.6	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.125	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
655.0	$cfs/mi^2/in$	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.240	cfs	WQF = q_u x WQV. Conversion: to convert "$cfs/mi^2/in$ * ac-in" to "cfs" multiply by $1mi^2/640ac$.

Designer's Notes:

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

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 strucutre (JF-1).

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

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)

1.22	ac	A = Area draining to the practice
0.96	ac	A_I = Impervious area draining to the practice
0.79	decimal	I = Percent impervious area draining to the practice, in decimal form
0.76	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.93	ac-in	WQV= 1" x Rv x A
3,358	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".
0.76	inches	Q = Water quality depth. Q = WQV/A
98	unitless	CN = Unit peak discharge curve number. $CN = 1000/(10+5P+10Q-10*[Q^2 + 1.25*Q*P]^{0.5})$
0.2	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.049	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
655.0	$cfs/mi^2/in$	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.947	cfs	WQF = q_u x WQV. Conversion: to convert "$cfs/mi^2/in$ * ac-in" to "cfs" multiply by $1mi^2/640ac$.

Designer's Notes:

This calculation represents the treatment train directed to the 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 0.98 cfs of flow.

See attached sizing calculation sheet from manufacturer.

CONTECH Stormwater Solutions Inc. Engineer: DRA
Date Prepared: **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^3
Event Mean Concentration of Pollutant, EMC	**75**	mg/l
Annual Mass Load, M total	**710.10**	lbs

Filter System

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

Jelly Fish Sizing

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

Method to Use **FLOW BASED**

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

Tighe&Bond

APPENDIX A

Proposed Mixed Use Development
53 Green Street, Portsmouth, NH

SITE SPECIFIC SOIL MAP REPORT

CPI Management, LLC

March 2021

Tighe&Bond

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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

Map Number* /Disturbed Soil Numerator**	Soil Map Unit Name	Hydrologic Soil Group
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.

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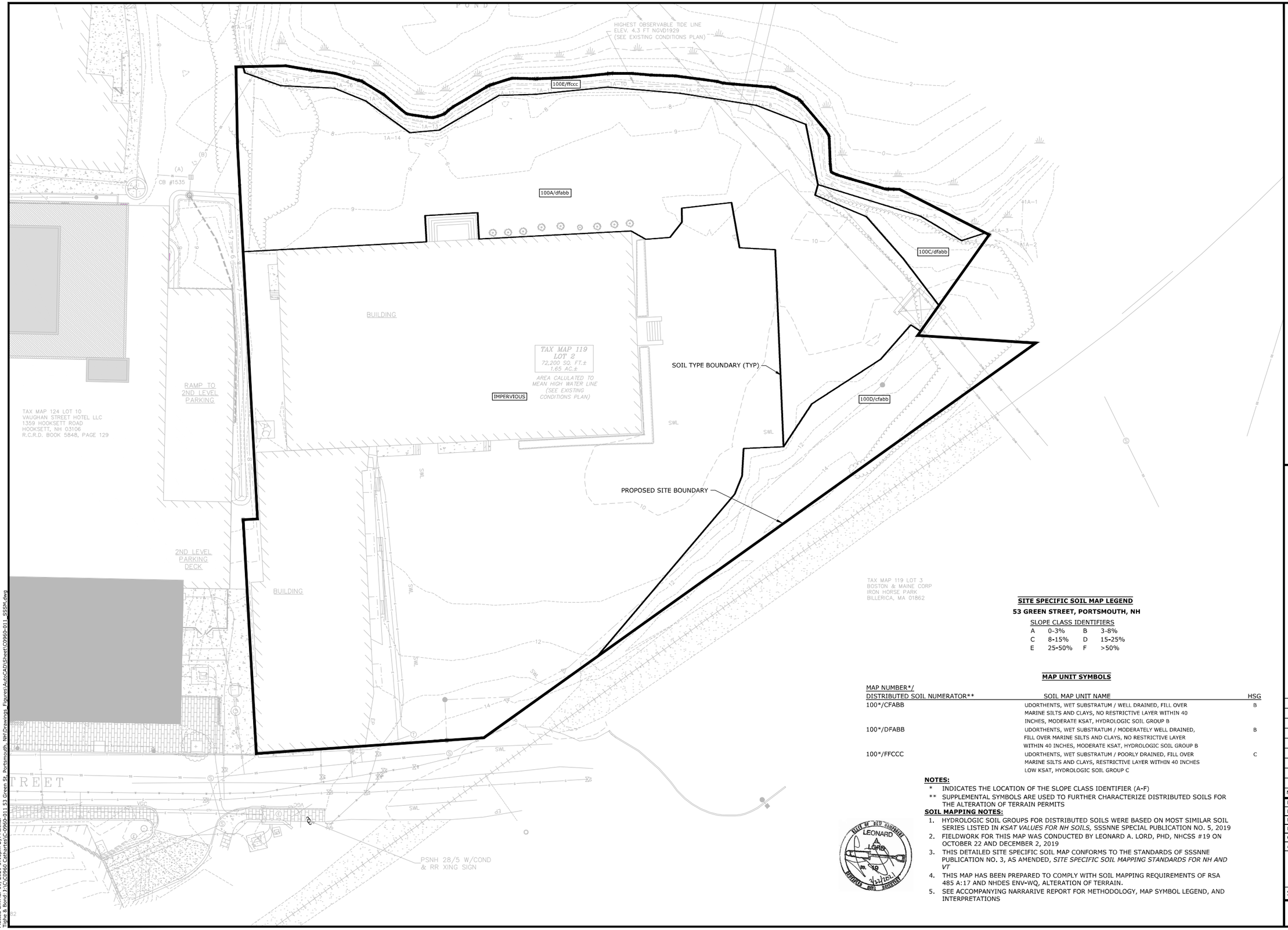

SITE SPECIFIC SOIL MAP LEGEND

53 GREEN STREET, PORTSMOUTH, NH

SLOPE CLASS IDENTIFIERS

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

MAP UNIT SYMBOLS

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

NOTES:

* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)

** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTRIBUTED SOILS FOR THE ALTERATION OF TERRAIN PERMITS

SOIL MAPPING NOTES:

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

STATE OF NEW HAMPSHIRE
LEONARD A. LORD
No. 19
SOIL SCIENTIST

Tighe&Bond

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

CPI Management, LLC

53 Green Street
Portsmouth, NH

MARK	DATE	DESCRIPTION

PROJECT NO:	C0960-011
DATE:	MARCH 22, 2021
FILE:	C0960-011_SSSM.DWG
DRAWN BY:	AFS
CHECKED:	LAL
APPROVED:	LAL

SITE SPECIFIC SOIL MAP

SCALE: AS SHOWN

1 OF 1

Last Saved: 3/19/2021
Plotted: Oct 04, 2021 - 3:15pm By: ASollar
Tighe & Bond: J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\Sheet\C0960-011_SSSM.dwg

Tighe&Bond

APPENDIX B

Extreme Precipitation Tables

Northeast Regional Climate Center

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

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

Refer to Table 1.2 for Coastal Precipitation Increase

Extreme Precipitation Estimates

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

Lower Confidence Limits

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

Upper Confidence Limits

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

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APPENDIX C

UNIVERSITY OF NEW HAMPSHIRE
STORMWATER CENTER

Examination of Thermal Impacts from Stormwater BMPs

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

The stormwater BMPs examined included:

Conventional	Low Impact Development	Manufactured Treatment Devices
• Vegetated Swale	• Bioretention	• Storm Tech Isolator Row
• Detention Pond	• Gravel Wetland	• ADS Infiltration System
• Retention Pond		• Hydrodynamic Separator

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

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

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

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

The full report can be found at www.unh.edu/unhsc/thermal-impacts.

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

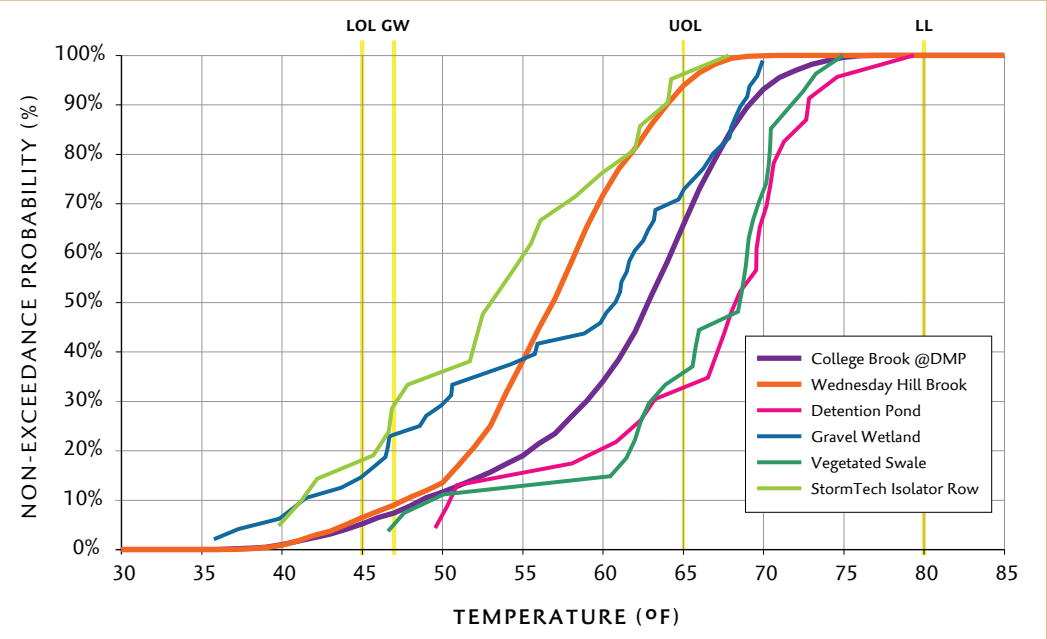
Filtration and infiltration systems **showed the strongest ability to reduce temperature variations.** The gravel wetland, the ADS (Advanced Drainage Systems™) Infiltration System, and the StormTech Isolator Row have a strong capacity to reduce temperatures of runoff.

StormTech Isolator Row.

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.



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

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April 2011

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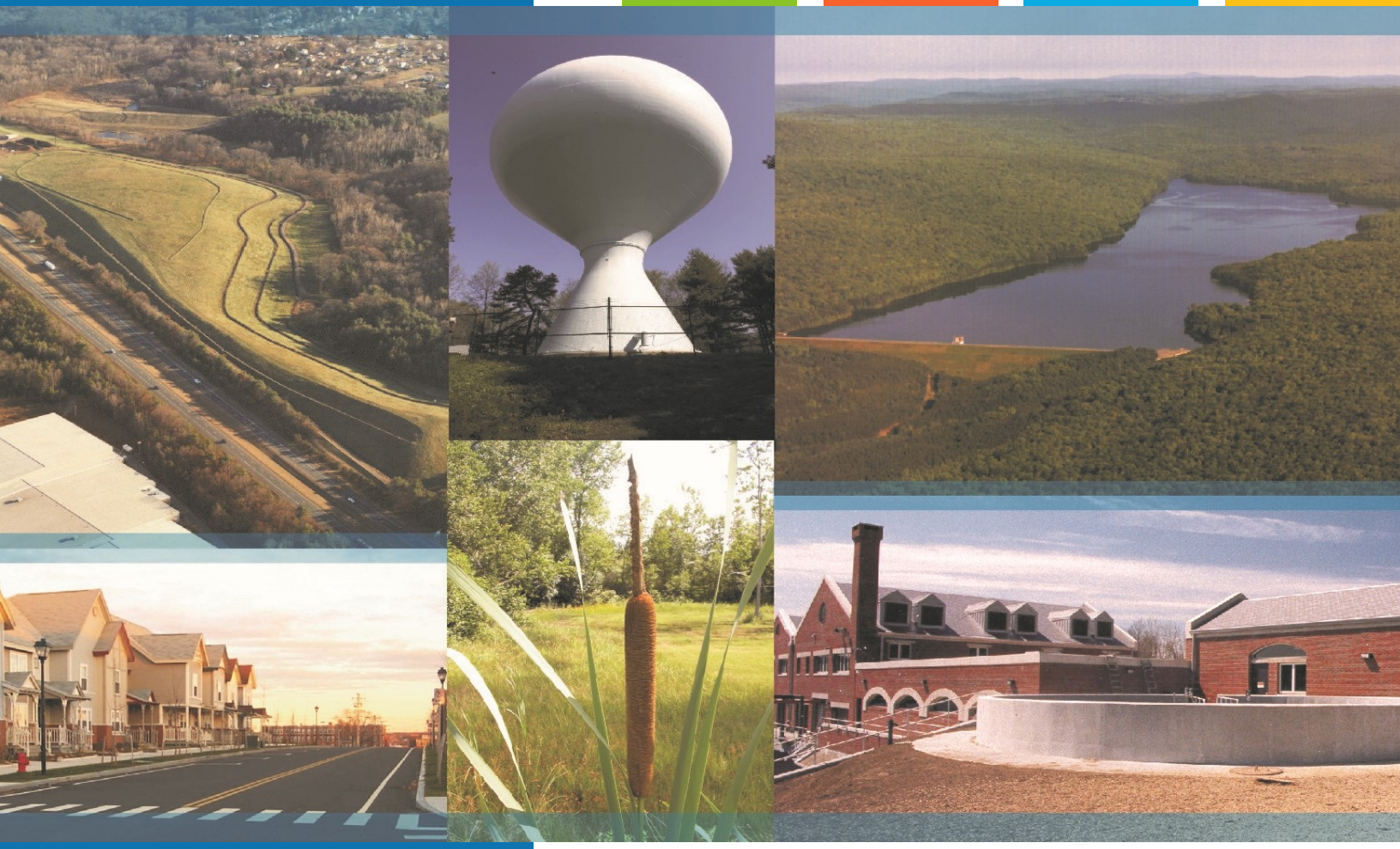

Proposed Mixed Use Development
53 Green Street
Portsmouth, NH

Long-Term Operation & Maintenance Plan

CPI Management, LLC

May 19, 2021

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Section 1
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.

1.1 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.)

1.2 Maintenance Items

Maintenance of the following items shall be recorded:

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

1.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance	Responsible Party
Litter/Debris Removal	Weekly	CPI Management, LLC
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Bi-annually	CPI Management, LLC
Landscaping - Landscaped islands to be maintained and mulched.	Maintained as required and mulched each Spring	CPI Management, LLC
Catch Basin (CB) Cleaning - CB to be cleaned of solids and oils.	Annually	CPI Management, LLC
Jelly Fish Units	In accordance with Manufacturer's Recommendations	CPI Management, LLC
ADS Stormtech System with 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

1.3.1 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.

1.4 ADS Stormtech System with Isolator Row

ADS Stormtech System w/Isolator Row Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor inlet and outlet structures for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed
Inspect Isolator Row for sediment	6 months for the first year, then adjust based on previous observations	- Inspect inside the isolator row through inspection ports (if provided) or through the upstream structure.
Jetting and Vacuuming	Annually or as required by inspection.	- If sediment is 3" or above, then clean out isolator row using the jetvac process. - Vacuum structure sump as required.

StormTech
Detention • Retention • Water Quality
An ADS company

Isolator® Row O&M Manual

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

ADS®

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160LP, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160LP, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

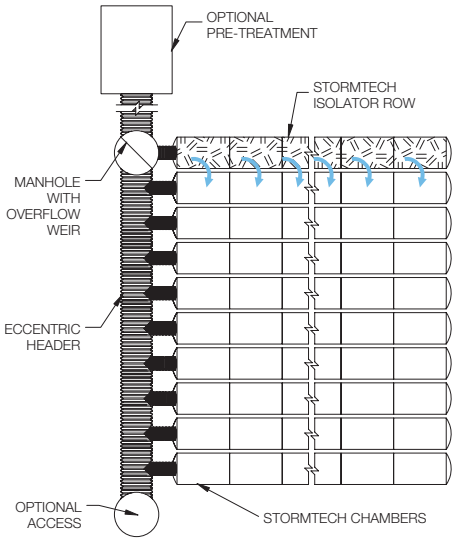
The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (not to scale)



ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

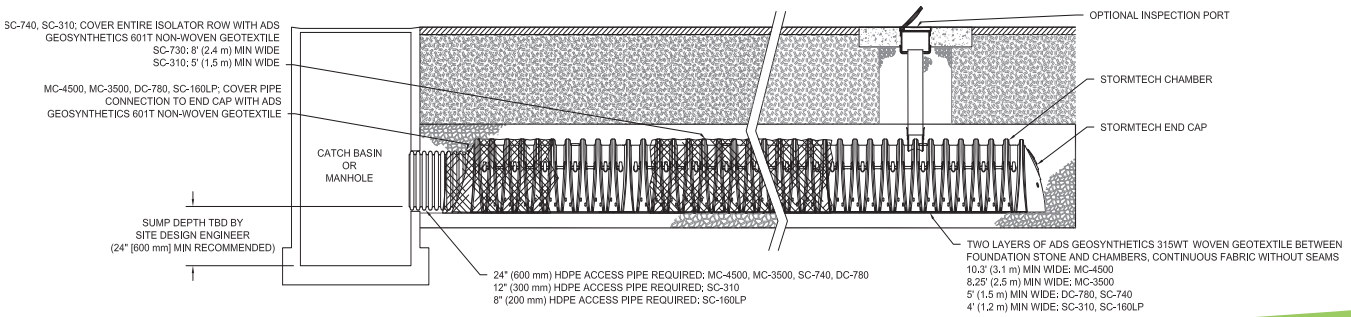
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



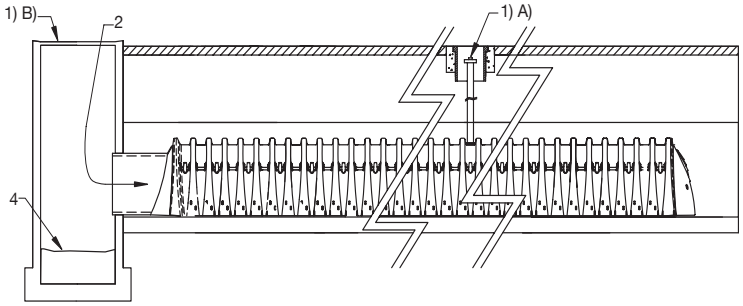
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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Stormtech® and the Isolator® Row are registered trademarks of StormTech, Inc.
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StormTech® Detention • Retention • Water Quality
A division of ADS

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

1.5 Contech Jellyfish Filter System Maintenance Requirements

Contech Jellyfish Filter System Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Inspect vault for sediment build up, static water, plugged media and bypass condition	One (1) time annually and after any rainfall event exceeding 2.5" in a 24-hr period	Maintenance required for any of the following: - >4" of sediment on the vault floor - >1/4" of sediment on top of the cartridge - .4" of static water above the cartridge bottom more than 24 hours after a rain event - If pore space between media is absent. - If vault is in bypass condition during an average rainfall event.
Replace Cartridges	As required by inspection, 1–5 years.	- Remove filter cartridges per manufacturer methods. - Vacuum sediment from vault. - Install new cartridges per manufacturer methods

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual

Jellyfish® Filter

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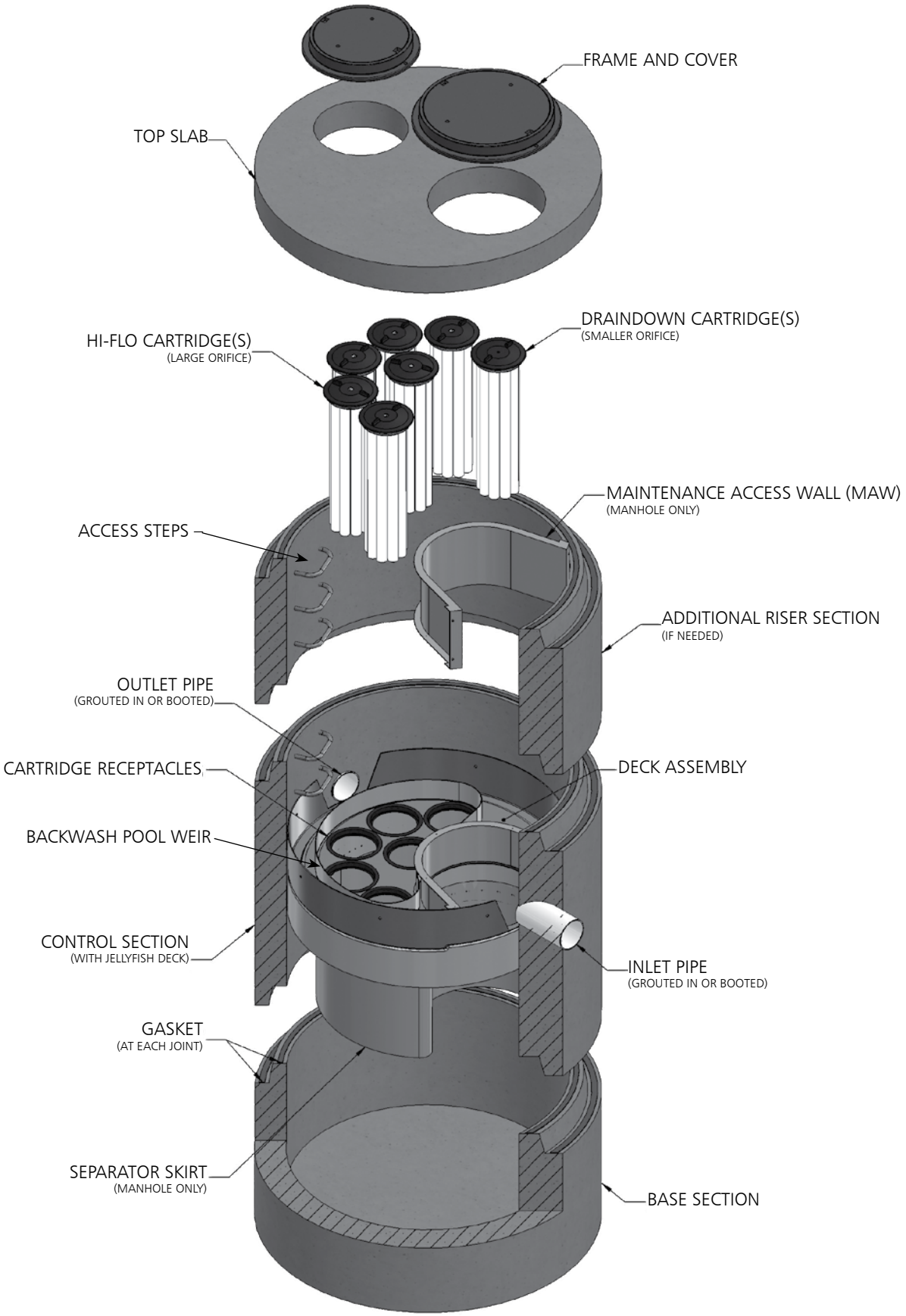
THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400 | West Chester, OH 45069
513-645-7000 | 800-338-1122
www.ContechES.com
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

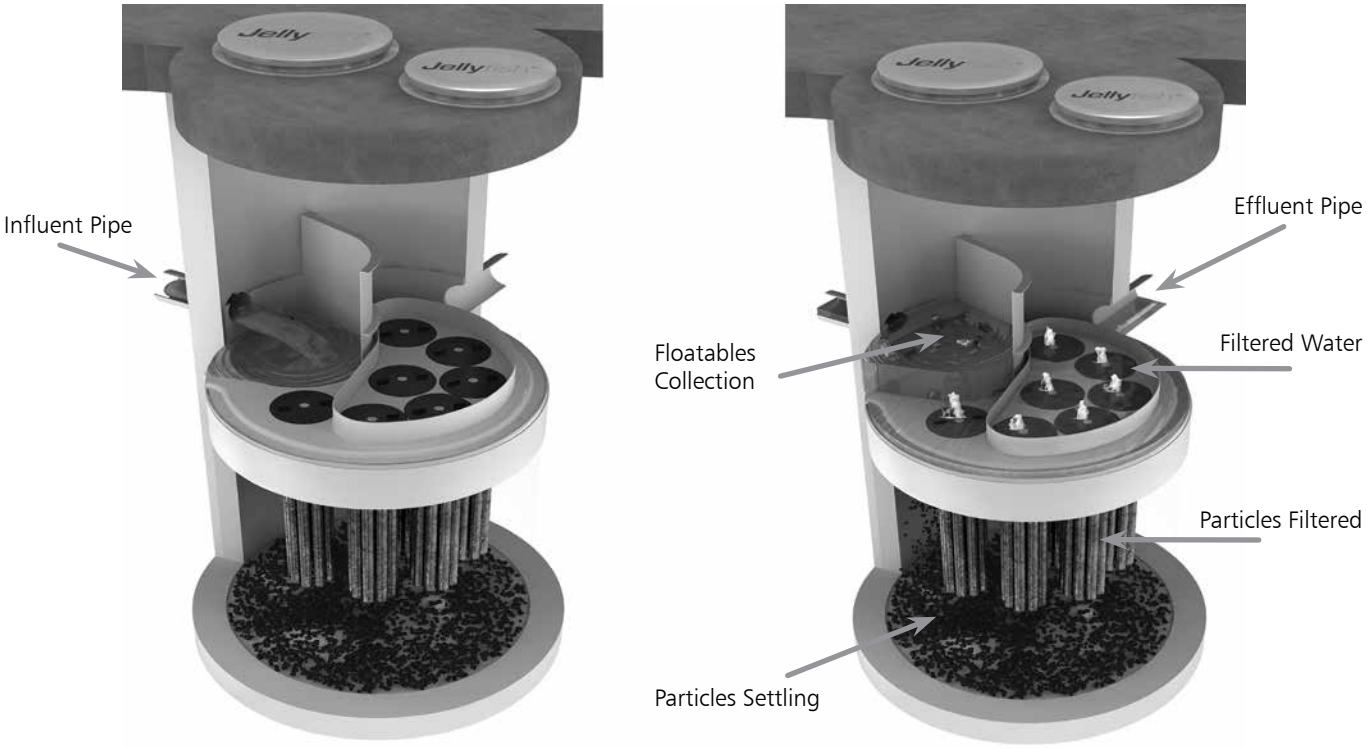
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



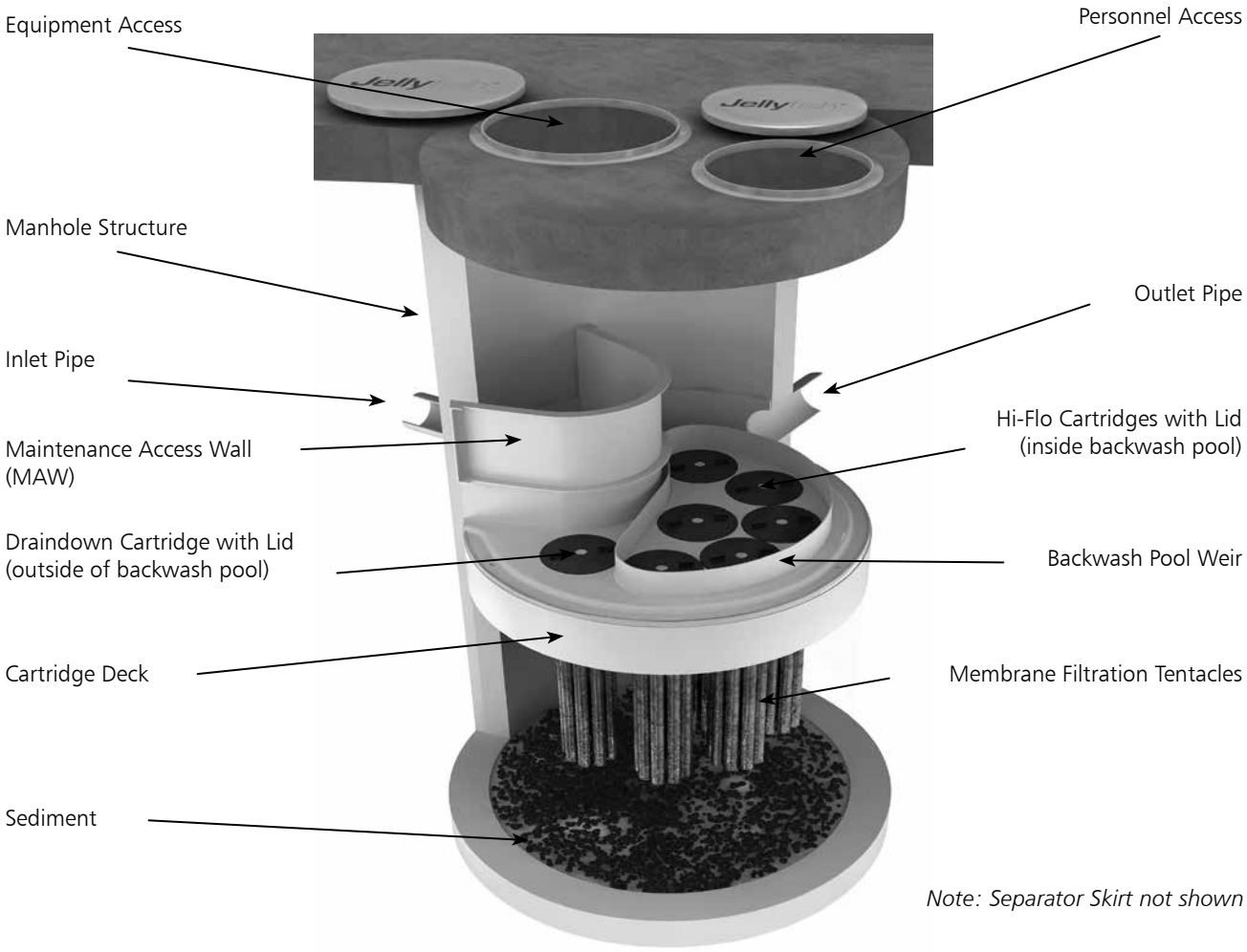
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

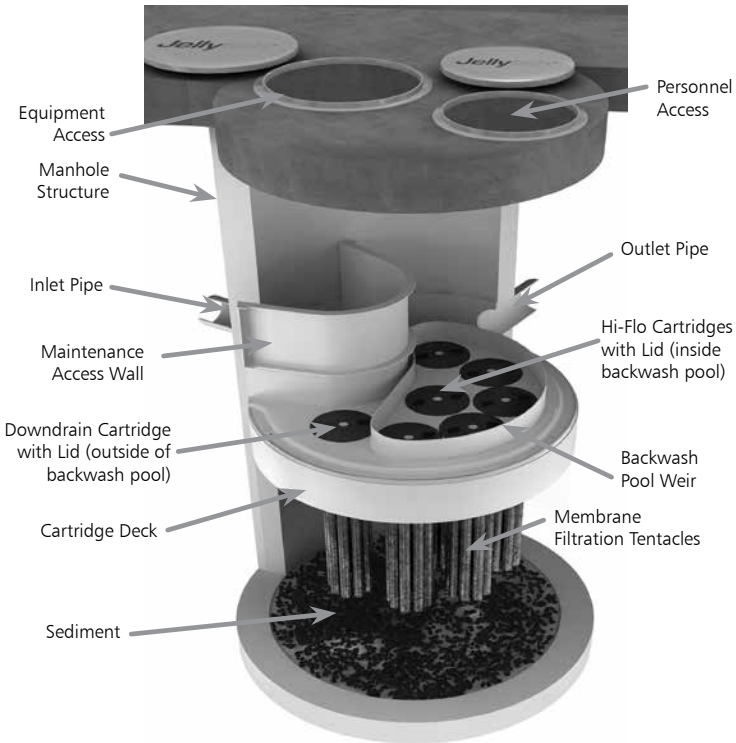
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

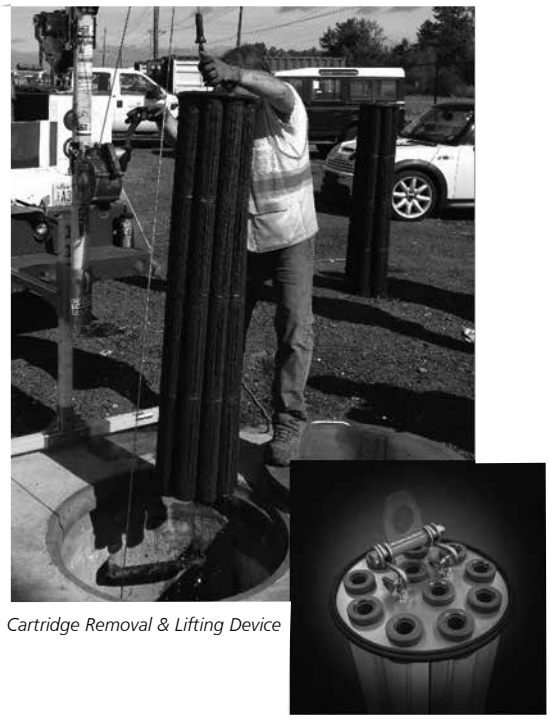
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all

Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some

Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

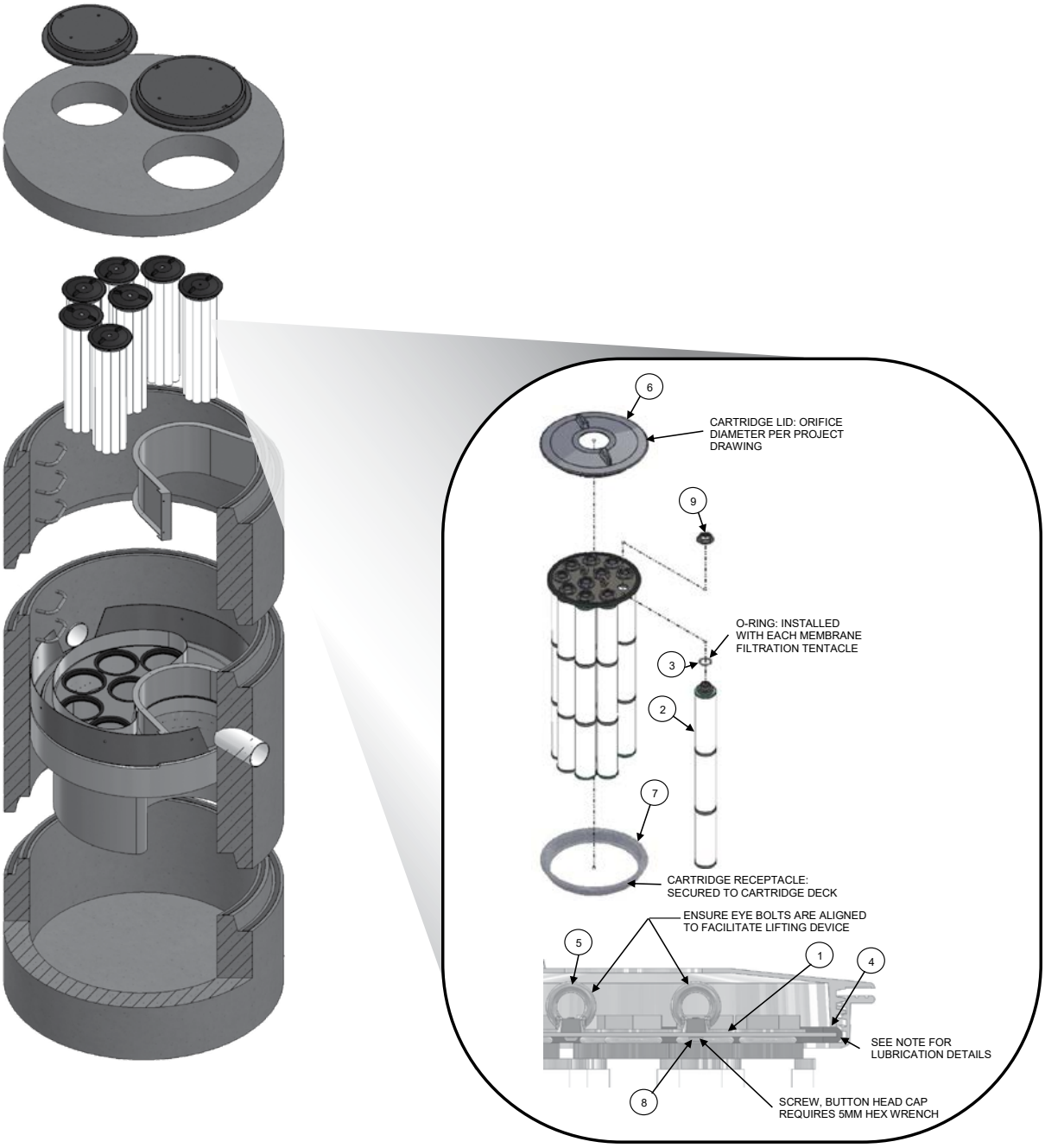


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

1.6 Porous Asphalt Maintenance Requirements

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

Porous Asphalt Winter Maintenance Guidelines:

- ***No winter sanding or salting of porous pavements is permitted***
- Porous surfaces are commonly not treated and plowed until 2 or more inches of snow accumulation.
- Plow after every storm. If possible, plow with a slightly raised blade, this will help prevent pavement scarring.

Additional Porous Asphalt Operation and Maintenance Requirements:

- 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.

1.7 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 3 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 storage is not permitted withing the 100' wetland buffer. 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,).

Section 2
Chloride Management Plan

Winter Operational Guidelines

The following Chloride Management Plan is for the 53 Green Street, 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.

2.1 Background Information

The 53 Green Street, Mixed Use Development is located along the North Mill Pond in Portsmouth, New Hampshire.

2.2 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:

2.2.1 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.

2.2.2 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.

2.2.3 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.

2.2.3.1 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.

2.2.4 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.

2.3 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.

2.4 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 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 (typcial 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.

			Pounds per two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	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 $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as -10°.

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

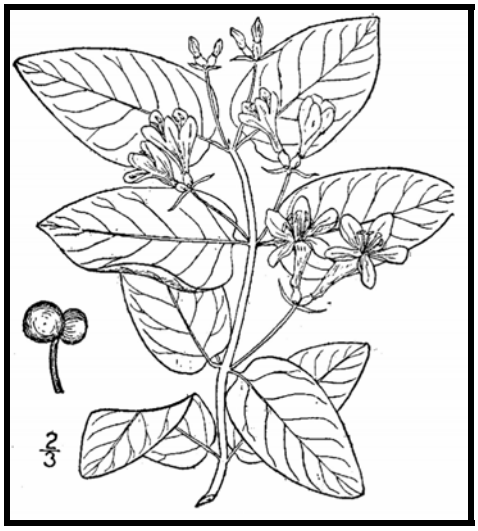
Section 3
Invasive Species

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.

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

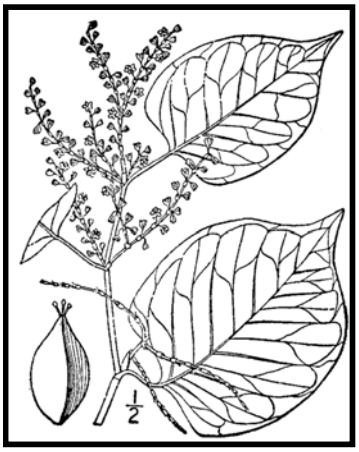
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

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Managing Invasive Plants
Methods of Control

by Christopher Mattrick

They're out there. The problem of invasive plants is as close as your own backyard.

Maybe a favorite dogwood tree is struggling in the clutches of an Oriental bittersweet vine. Clawlike canes of multiflora rose are scratching at the side of your house. That handsome burning bush you planted few years ago has become a whole clump in practically no time … but what happened to the azalea that used to grow right next to it?

If you think controlling or managing invasive plants on your property is a daunting task, you're not alone. Though this topic is getting lots of attention from federal, state, and local government agencies, as well as the media, the basic question for most homeowners is simply, "How do I get rid of the invasive plants in my own landscape?" Fortunately, the best place to begin to tackle this complex issue is in our own backyards and on local conservation lands. We hope the information provided here will help you take back your yard. We won't kid you—there's some work involved, but the payoff in beauty, wildlife habitat, and peace of mind makes it all worthwhile.

PLAN OF ATTACK

Three broad categories cover most invasive plant control: mechanical, chemical, and biological. Mechanical control means physically removing plants from the environment through cutting or pulling. Chemical control uses herbicides to kill plants and inhibit regrowth. Techniques and chemicals used will vary depending on the species. Biological controls use plant diseases or insect predators, typically from the targeted species' home range. Several techniques may be effective in controlling a single species, but there is usually one preferred method—the one that is most resource efficient with minimal impact on non-target species and the environment.

Spraying chemicals to control invasive plants.

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.

Using tools to remove woody stems.

Volunteers hand pulling invasive plants.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic—invasive and non-invasive plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse.

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-B-Gone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed.

For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle.

Cut stem treatment tools.

For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems.

It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye.

There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.

Hollow stem injection tools.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. **Burn it**—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.

2. **Pile it**—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.

3. **Compost it**—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.

Injecting herbicide into the hollow stem of phragmites.

4. **Dry it/cook it**—Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.

Care should be taken in the disposal of all invasive plants, but several species need extra attention. These are the ones that have the ability to sprout vigorously from plant fragments and should ideally be burned or dried prior to disposal: Oriental bittersweet, multiflora rose, Japanese honeysuckle, phragmites, and Japanese knotweed.

Christopher Mattrick is the former Senior Conservation Programs Manager for New England Wild Flower Society, where he managed conservation volunteer and invasive and rare plant management programs. Today, Chris and his family work and play in the White Mountains of New Hampshire, where he is the Forest Botanist and Invasive Species Coordinator for the White Mountain National Forest.

Controlling Invasive Plants in Wetlands

Special concerns; special precautions

Control of invasive plants in or around wetlands or bodies of water requires a unique set of considerations. Removal projects in wetland zones can be legal and effective if handled appropriately. In many cases, herbicides may be the least disruptive tools with which to remove invasive plants. You will need a state-issued pesticide license to apply herbicide on someone else's property, but all projects in wetland or aquatic systems fall under the jurisdiction of the Wetlands Protection Act and therefore require a permit. ***Yes, even hand-pulling that colony of glossy buckthorn plants from your own swampland requires a permit.*** Getting a permit for legal removal is fairly painless if you plan your project carefully.

1. Investigate and understand the required permits and learn how to obtain them. The entity charged with the enforcement of the Wetlands Protection Act varies from state to state. For more information in your state, contact:

   ME: Department of Environmental Protection
   www.state.me.us/dep/blwq/docstand/nrpapage.htm

   NH: Department of Environmental Services
   www.des.state.nh.us/wetlands/

   VT: Department of Environmental Conservation
   www.anr.state.vt.us/dec/waterq/permits/htm/pm_cud.htm

   MA: Consult your local town conservation commission

   RI: Department of Environmental Management
   www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm

   CT: Consult your local town Inland Wetland and Conservation Commission

2. Consult an individual or organization with experience in this area. Firsthand experience in conducting projects in wetland zones and navigating the permitting process is priceless. Most states have wetland scientist societies whose members are experienced in working in wetlands and navigating the regulations affecting them. A simple Web search will reveal the contact point for these societies. Additionally, most environmental consulting firms and some nonprofit organizations have skills in this area.

3. Develop a well-written and thorough project plan. You are more likely to be successful in obtaining a permit for your project if you submit a project plan along with your permit application. The plan should include the reasons for the project, your objectives in completing the project, how you plan to reach those objectives, and how you will monitor the outcome.

4. Ensure that the herbicides you plan to use are approved for aquatic use. Experts consider most herbicides harmful to water quality or aquatic organisms, but rate some formulations as safe for aquatic use. Do the research and select an approved herbicide, and then closely follow the instructions on the label.

5. If you are unsure—research, study, and most of all, ask for help. Follow the rules. The damage caused to aquatic systems by the use of an inappropriate herbicide or the misapplication of an appropriate herbicide not only damages the environment, but also may reduce public support for safe, well-planned projects.

Section 4
Annual Updates and Log Requirements

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

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

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

Stormwater Management Report						
Mixed Use Development		**53 Green Street – Map 119 Lot 2**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Deep Sump CB's			❑Yes ❑No			
ADS Stormtech System with Isolator Row			❑Yes ❑No			
Jellyfish Filter 1			❑Yes ❑No			

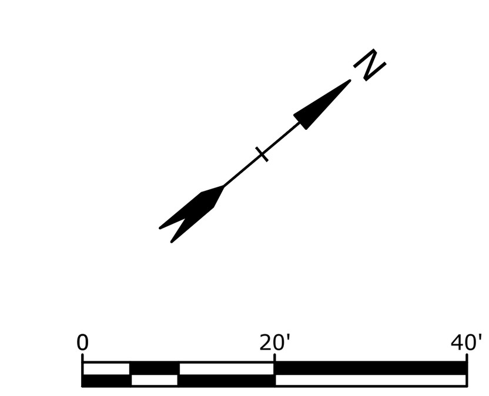
Stormwater Management Report						
City of Portsmouth		**North Mill Pond Trail**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Porous Pavement			❑Yes ❑No			

www.tighebond.com

100% Recyclable

PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

SITE OVERLAY EXHIBIT



Tighe&Bond

July 7, 2021
C0960-011_C-FIGS.dwg

Last Save Date: July 6, 2021 2:25 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
T&B File Location: J:\C\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-FIGS.dwg Layout Tab: SITE AERIAL

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18	14.25
19	14.35

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Point Table	
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42	13.85
43	13.60
44	13.45
45	13.20
46	13.00
47	12.70
48	12.50
49	12.20
50	12.00
51	11.80
52	11.60
53	11.40
54	11.25
55	11.00
56	10.75
57	10.50
58	10.25
59	10.00

Point Table	
Point #	Elevation
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77	10.00
78	11.00
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Point Table	
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97	14.00
98	14.00
99	13.50

Point Table	
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119	13.00

Point Table	
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139	13.15

Point Table	
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Point Table	
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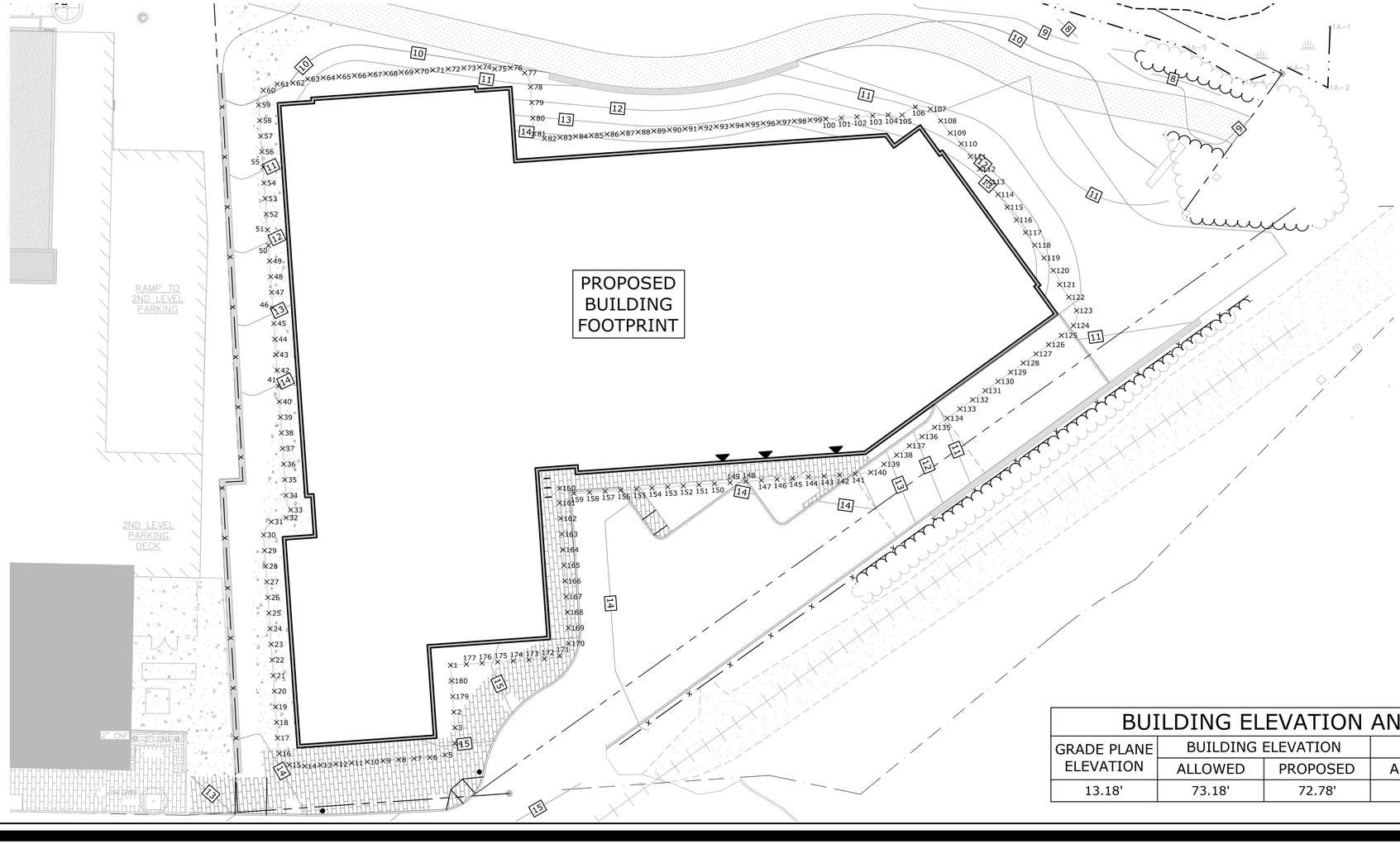
171	14.55
172	14.65
173	14.75
174	14.85
175	14.95
176	15.10
177	15.15
180	15.20
AVG.	**13.18**

PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

GRADE PLANE EXHIBIT



BUILDING ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
13.18'	73.18'	72.78'	60.00'	59.75

0 20' 40'
GRAPHIC SCALE

Tighe&Bond

July 7, 2021
C0960-011_C-DSGN.dwg

Last Save Date: July 6, 2021 2:02 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
Path/File Location: J:\C\C0960 Clients\C0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg Layout Tab: GRADE PLANE

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

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*, NAEEP-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\P0595 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

Site: 53 Green Street, Portsmouth, NH

Job Number: P-0595-007

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

Photograph No.: 2	**Date:** 10/29/2019	**Direction Taken:** Northeast
Description: 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
PORTSMOUTH, NEW HAMPSHIRE

PHOTO LOCATION PLAN

0 20' 40'

GRAPHIC SCALE

Tighe&Bond

January 27, 2021
C0960-011_C_Photo Location.dwg

Last Save Date: January 27, 2021 11:50 AM By: CML
Plot Date: Wednesday, January 27, 2021 Plotted By: Craig M. Langton
T&B File Location: J:\CIVIL\C0960 Cathartes\C-0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C_Photo Location.dwg Layout Tab: PHOTO LOCATION

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.

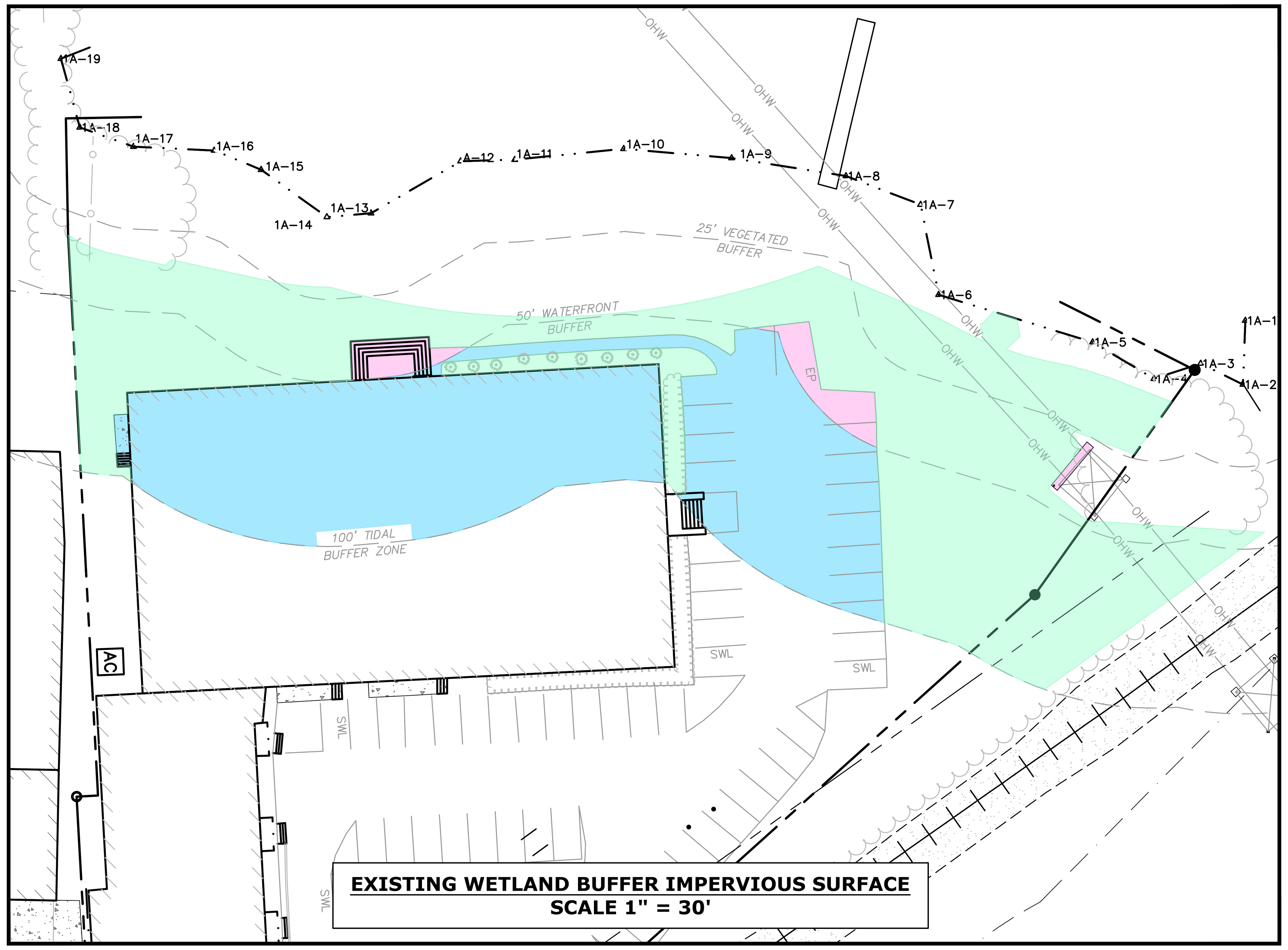
Photo #5: Looking southwest towards existing building and maintained lawn area located in 100-foot tidal wetland buffer.

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

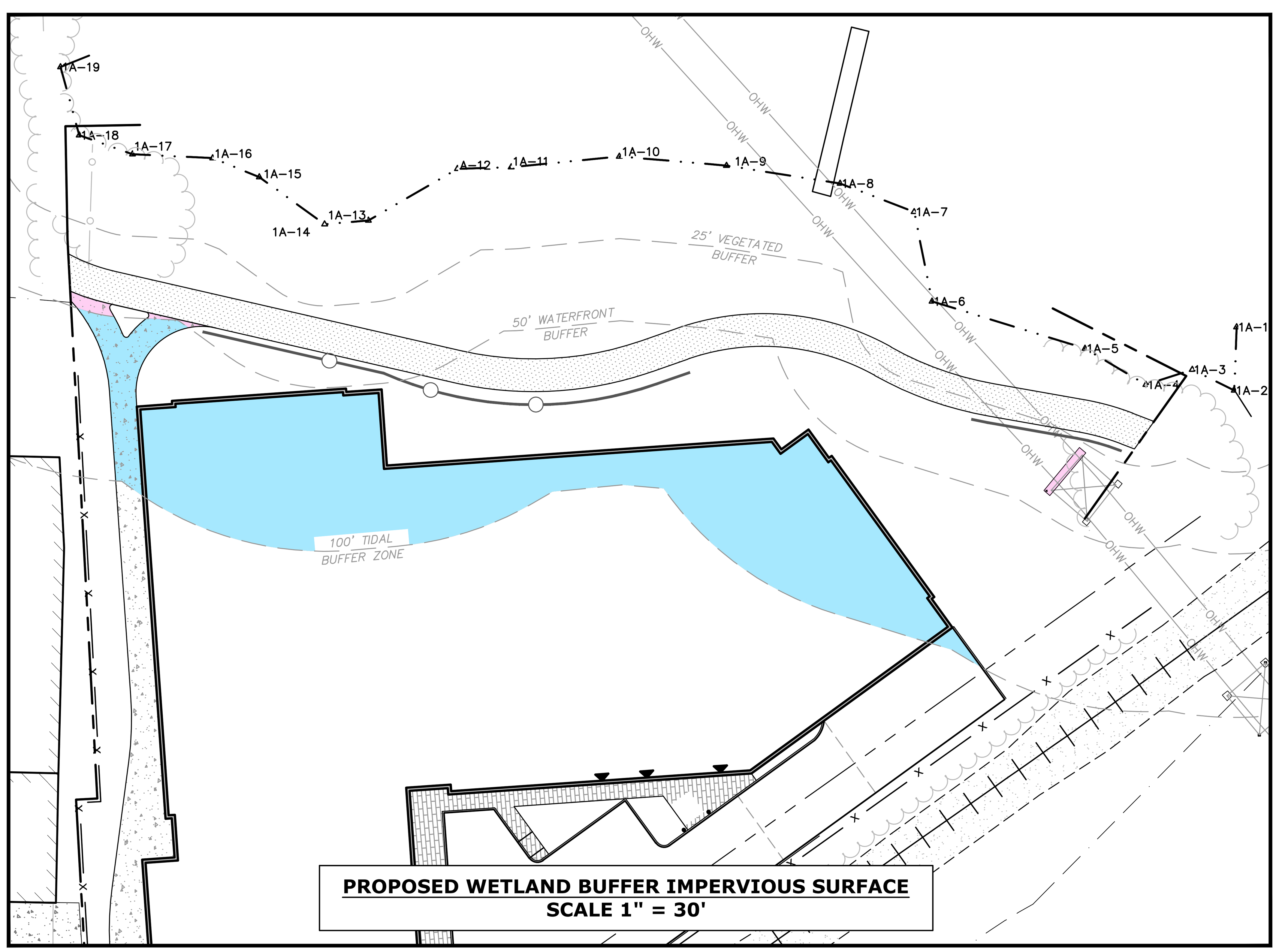
Photo #7: Looking north toward existing parking lot.

PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET

WETLAND BUFFER IMPERVIOUS SURFACE EXHIBIT



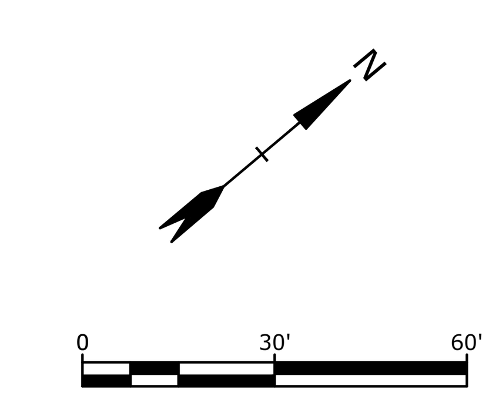
EXISTING WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 30'



PROPOSED WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 30'

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	110 SF
50 - 100 FT	10,836 SF	8,253 SF
Total Impervious Surface	**11,581 SF**	**8,363 SF**
Net Impervious Sruface	**-3,218 SF**	

AREA OF TEMPORARY WETLAND BUFFER IMPACTS FOR CONSTRUCTION



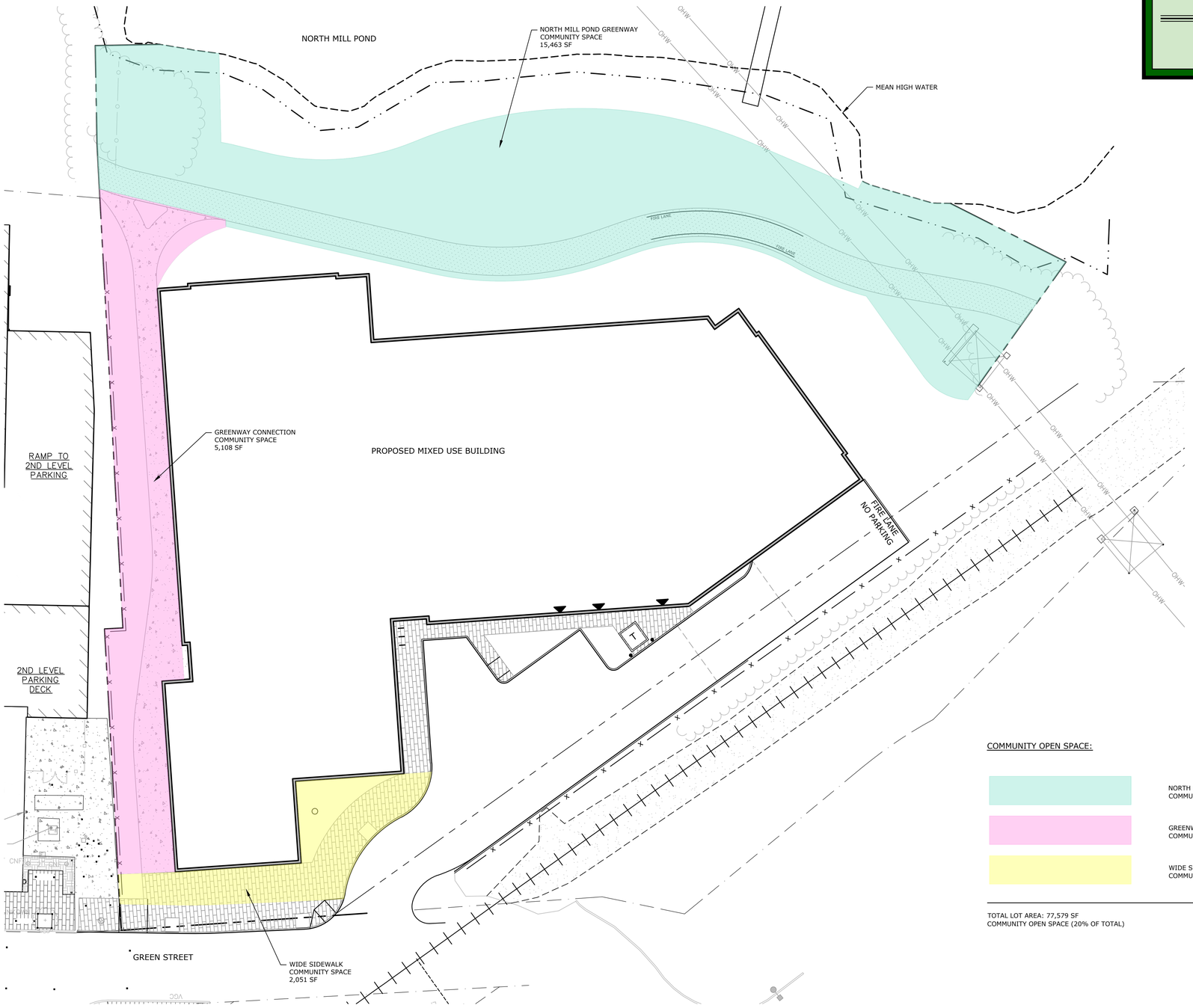
Tighe&Bond

July 7, 2021
C0960-011_C-FIGS.dwg

Last Save Date: July 6, 2021 2:39 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
T&B File Location: J:\C\C0960 Cathartes\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

COMMUNITY SPACE EXHIBIT



COMMUNITY OPEN SPACE:

	REQUIRED	PROVIDED
NORTH MILL POND GREENWAY COMMUNITY SPACE		15,463 SF
GREENWAY CONNECTION COMMUNITY SPACE		5,108 SF
WIDE SIDEWALK COMMUNITY SPACE		2,051 SF
TOTAL LOT AREA: 77,579 SF COMMUNITY OPEN SPACE (20% OF TOTAL)	15,516 SF	22,622 SF

N

0 20' 40'

GRAPHIC SCALE

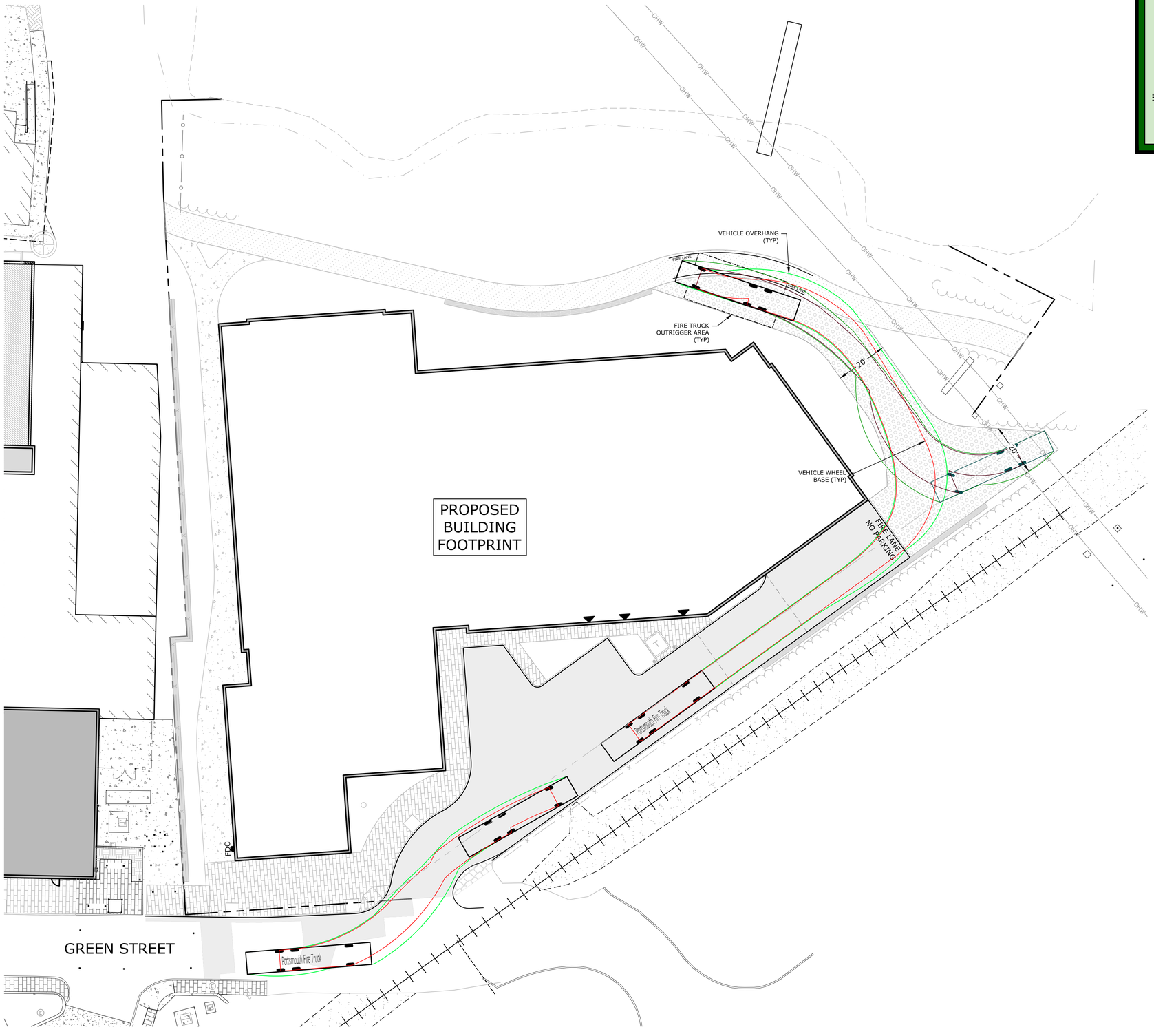
Tighe&Bond

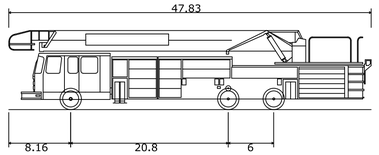
July 7, 2021
C0960-011_C-FIGS.dwg

Last Save Date: July 6, 2021 3:03 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
T&B File Location: J:\C\C0960 Cahners\C-C0960-011 53 Green St, Portsmouth, NH\Drawings, Figures\AutoCAD\C0960-011_C-FIGS.dwg Layout Tab: C_SPACE

PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING EXHIBIT 1





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

LEGEND

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

N

0 20' 40'

GRAPHIC SCALE

Tighe&Bond

July 7, 2021
C0960-011_C-DSGN.dwg

Last Save Date: July 6, 2021 3:11 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
Path/File Location: J:\C0960 Gatherest\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg Layout Tab: FIRE TRUCK 1

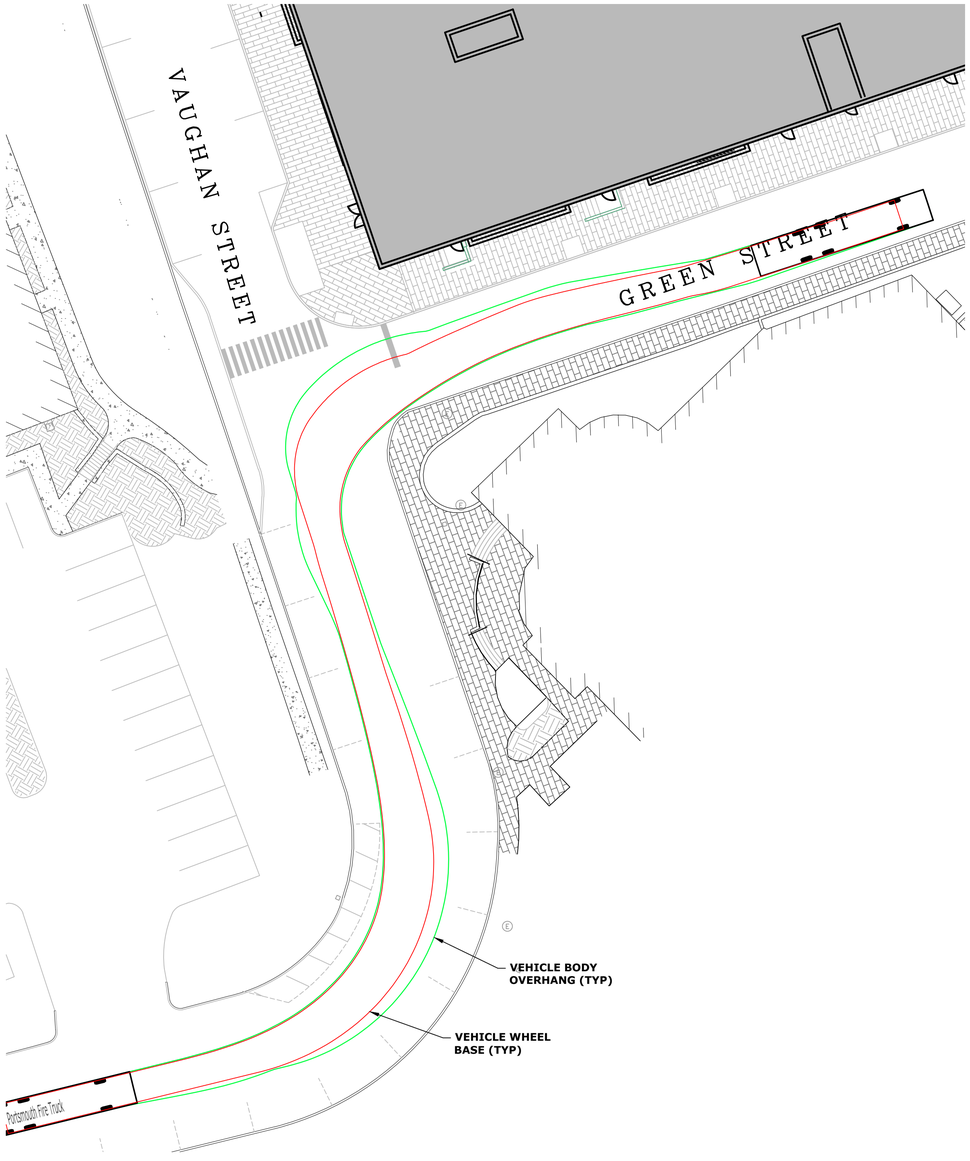
PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

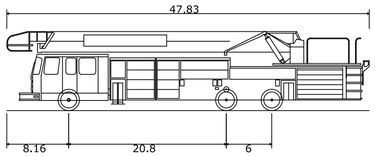
FIRE TRUCK TURNING EXHIBIT 2

LEGEND

VEHICLE WHEEL BASE

VEHICLE OVERHANG





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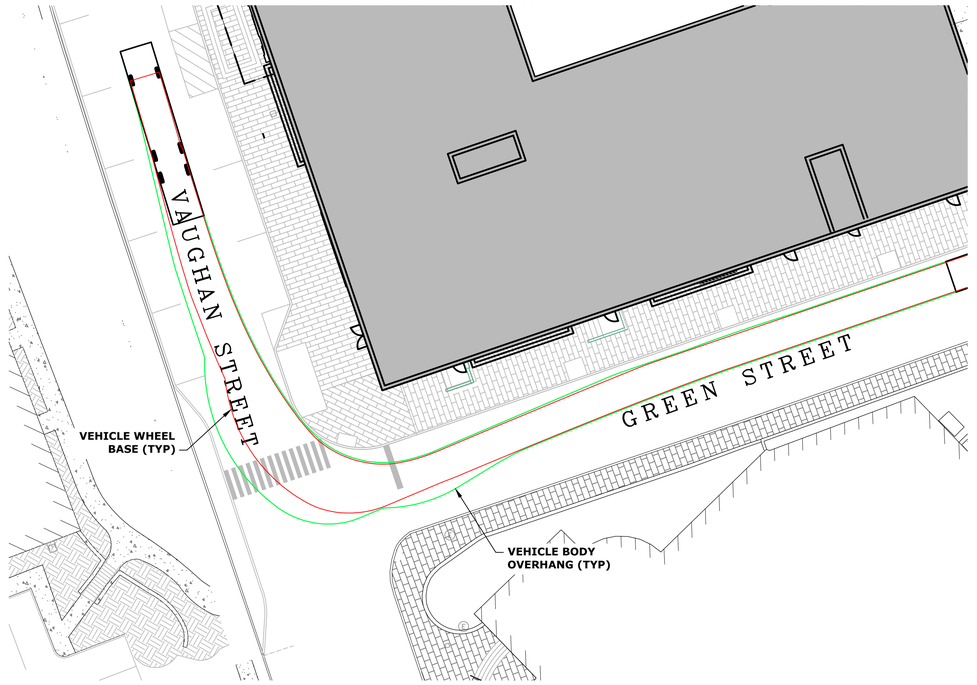
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°



0 20' 40'

GRAPHIC SCALE

Tighe&Bond

July 7, 2021
C0960-011_C-DSGN.dwg

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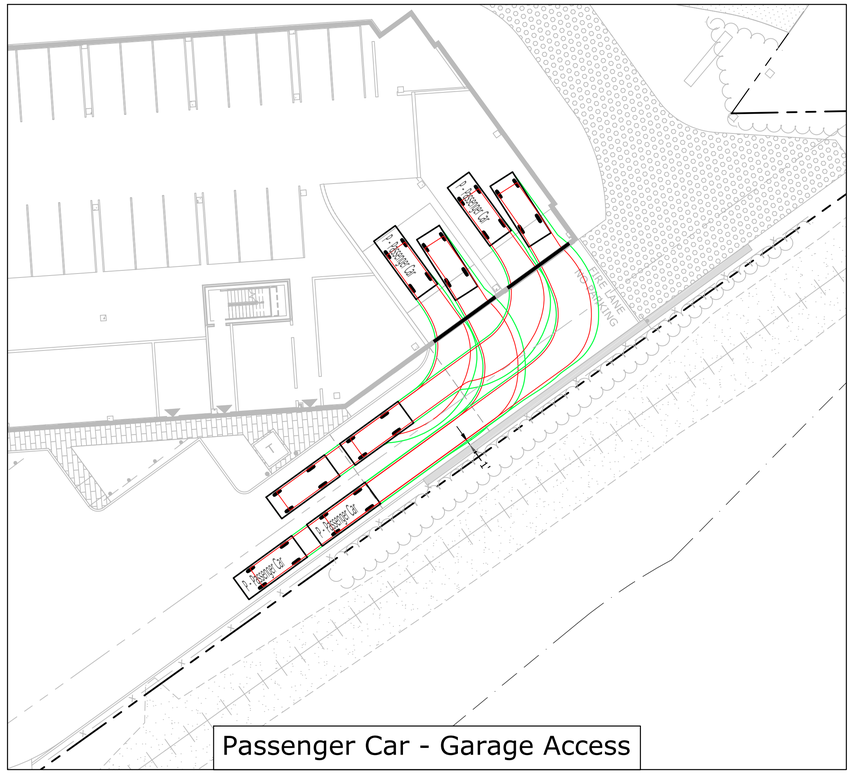
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
Plot File Location: J:\C0960 Cathedral\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg Layout Tab: FIRE TRUCK 2

LEGEND

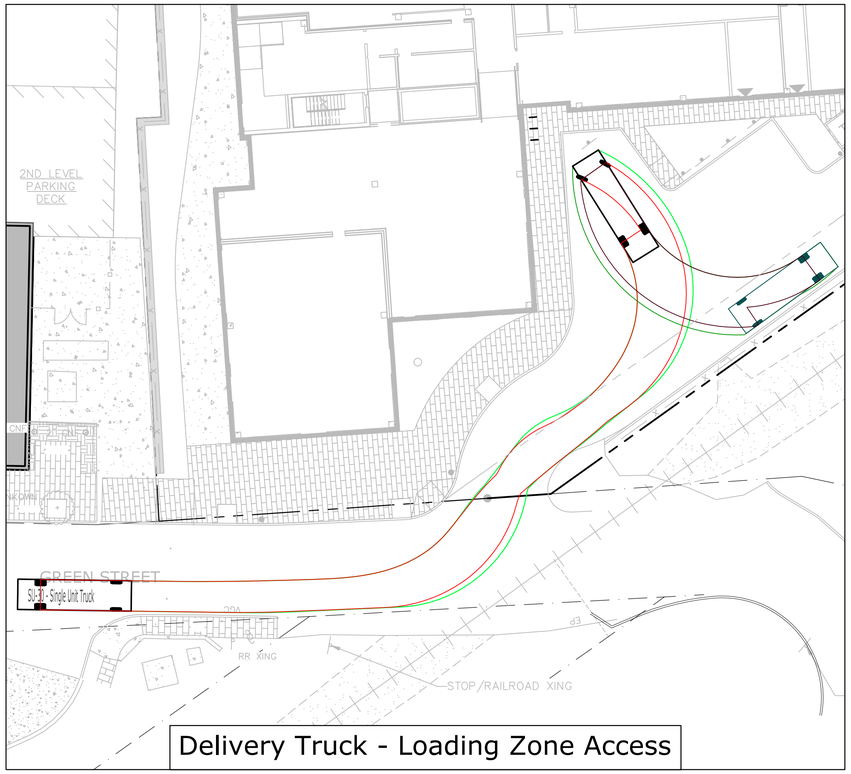
- VEHICLE WHEEL BASE
- VEHICLE OVERHANG
- VEHICLE WHEEL BASE (REVERSE)
- VEHICLE OVERHANG (REVERSE)

PROPOSED MIXED USE DEVELOPMENT
53 GREEN STREET
PORTSMOUTH, NEW HAMPSHIRE

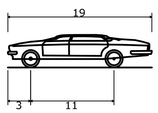
SITE TRAFFIC EXHIBIT



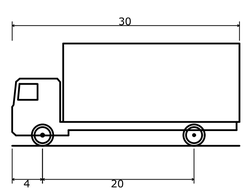
Passenger Car - Garage Access



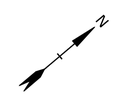
Delivery Truck - Loading Zone Access



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



SU-30 - Single Unit Truck	
Overall Length	30.000ft
Overall Width	8.000ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.367ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	31.80°



Tighe&Bond

July 7, 2021
C0960-011_C-DSGN.dwg

Last Save Date: July 6, 2021 3:08 PM By: ASELLAR
Plot Date: Tuesday, July 06, 2021 Plotted By: Alexander Sellar
File Location: J:\C0960 Cathertes\C-0960-011 53 Green St, Portsmouth, NH\Drawings_Figures\AutoCAD\C0960-011_C-DSGN.dwg Layout Tab: SITE TRAFFIC

C0960-011
July 7, 2021

Mr. Peter Rice, Director of Public Works
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 Peter:

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 45 dwelling units with associated on-site parking. The proposed building also includes ±2,350 SF of first floor commercial space along Green Street but there are no on-site parking spaces required for this use, however it was included as part of this Trip Generation Analysis to provide a more conservative analysis.

	Existing			Proposed		
	Office	Spa	Medical Office	Multifamily Housing	Commercial	Net Trips
Weekday AM Peak Hour						
Trips Entering	15	5	6	4	4	-18
Trips Exiting	2	0	2	12	1	+9
Total Vehicle Trips	**17**	**5**	**8**	**16**	**5**	**-9**
Weekday PM Peak Hour						
Trips Entering	3	1	3	12	2	+7
Trips Exiting	15	5	7	8	4	-15
Total Vehicle Trips	**18**	**6**	**10**	**20**	**6**	**-8**
Saturday Peak Hour						
Trips Entering	4	8	5	10	0	-7
Trips Exiting	4	13	4	10	1	-10
Total Vehicle Trips	**8**	**21**	**9**	**20**	**1**	**-17**

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

As depicted above, the proposed 45 residential units and 2,350 SF of small office space in place of the existing 14,600 SF of office use, 3,000 SF of medical office use and 4,070 SF of spa use will result in a reduction of 9 vehicle trips during the Weekday AM Peak Hour, 8 vehicle trips during the Weekday PM Peak Hour and 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 Potsmouth 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. My phone number is 603-294-5174.

Sincerely,

Janet Oliver
Senior Business Development Representative

CUSTOMER ENERGY SOLUTIONS
325 West Road
Portsmouth, NH 03801

T 888.486.4845 www.unitil.com

EVERSOURCE ENERGY

June 29, 2021

1700 Lafayette Road
Portsmouth, NH 03801

Michael J Busby
603-436-7708 x555-5678
michael.busby@eversource.com

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

Dear Rob:

I am responding to your request to confirm the availability of electric service for the proposed 53 Green Street Portsmouth, NH project being constructed for/by CPI Management, LCC. This letter to serve supersedes the previously signed letter dated June 15, 2021.

The proposed project consists of a 5-story building with 45 residential units approximately 2,200 s/f of retail/office space at the ground level and parking below grade. The proposed development will be constructed along Green Street.

The developer will be responsible for the installation of all underground facilities and infrastructure required to service the new building. The service will be as shown on attached marked up utility plans C-104 & C-401. The proposed building service will be fed from Green Street as depicted on utility plans C-104 & C-401. The developer will work with Eversource to obtain all necessary easements and licenses for the proposed underground facilities listed above.

This letter serves as confirmation that Eversource has sufficient capacity in the area to provide service to this proposed development. The cost of extending service to the aforementioned location and any associated infrastructure improvements necessary to provide service will be borne by the developer unless otherwise agreed upon.

The attached drawing titled "C-104 Utility Plan" dated 07/07/2021, shows transformer locations to service your proposed project. The attached drawing titled "C-401 Eversource Duct Bank" dated 04/21/2021, shows required infrastructure improvements along Russell Street required to supply service to your project.

Eversource approves the locations shown; assuming the final installed locations meet all clearances, physical protection, and access requirements as outlined in Eversource's "Information & Requirements For Electric Supply" (https://www.eversource.com/content/docs/default-source/pdfs/requirements-for-electric-service-connections.pdf?sfvrsn=2).

If you require additional information or I can be of further assistance please do not hesitate to contact me at our Portsmouth Office, 603-436-7708 Ext. 555-5678

Respectfully.

Michael J. Busby, PE
NH Eastern Regional Engineering and Design Manager, Eversource
cc: (via e-mail)
Thomas Boulter, Eastern Region Operations Manager, Eversource
Nickolai Kosko, Field Supervisor, Electric Design, Eversource

EMBARC

March 22, 2021

Portsmouth Planning Board
53 Green Street
Portsmouth, NH 03801

Green Building Statement
53 Green Street Proposed Mixed-Use Building

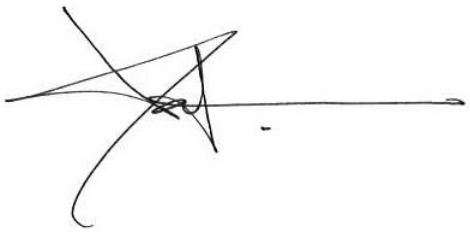
- **Site/Landscape:** In it's current condition, the site consists of the existing building, parking to the south and east, and a mown lawn to the top of the bank by the North Mill Pond. The building has a foundation planting of mature Rhododendron. A small area of trees is found at the northwest and 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 and 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

EMBARC | 60 K Street - 3rd Floor - Boston MA 02127 | 617.766.8330 | www.embarcstudio.com

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,



Dartagnan Brown | Founder + CEO

EMBARC | 60 K Street - 3rd Floor - Boston MA 02127 | 617.766.8330 | www.embarcstudio.com

WAC LIGHTING

Fixture Type:

Catalog Number:

Project:

Location:

Icon

Outdoor Wall Sconce 3000K

Model & Size	Color Temp & CRI	Finish	Watt	LED Lumens	Delivered Lumens
❍ WS-W54614 14"	3000K 90	❍ AL Brushed Aluminum ❍ BK Black ❍ BZ Bronze	10.9W	845	458

Example: **WS-W54614-BZ**

For custom requests please contact customs@waclighting.com

DESCRIPTION

Like a simple reference to something greater, the up and down lights accentuate linear architectural forms. A simple shape, with infinite applications, the Icon features a shieldedlight source for great low-glare illumination. Constructed with a solid die-cast aluminum and powder coated finish. The light engine is factory sealed for maximum protection against the

FEATURES

- Weather resistant powder coat finish
- Simple shape, simple idea, infinite applications
- Up & down light
- Shielded light source for great low-glare illumination
- Driver concealed within the fixture
- 5 year warranty

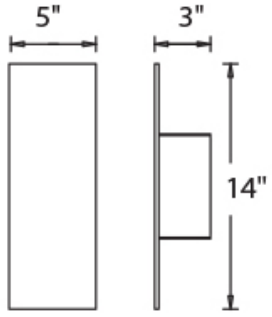
SPECIFICATIONS

Color Temp:	3000K
Input:	120-277 VAC,50/60Hz
CRI:	90
Dimming:	ELV: 100-10%
Rated Life:	54000 Hours
Mounting:	Can be mounted on wall in all orientations
Standards:	ETL, cETL,IP65
	Wet Location Listed
Construction:	Aluminum hardware with glass diffuser

FINISHES:

Brushed Aluminum | Black | Bronze

LINE DRAWING:



WAC Lighting retains the right to modify the design of our products at any time as part of the company's continuous improvement program. May 2021

WAC LIGHTING

Fixture Type:

Catalog Number:

Project:

Location:

Icon

Outdoor Wall Sconce 3000K

Model & Size	Color Temp & CRI	Finish	Watt	LED Lumens	Delivered Lumens
❍ WS-W54620 20"	3000K 90	❍ AL Brushed Aluminum ❍ BK Black ❍ BZ Bronze	11.1W	847	478

Example: **WS-W54620-BZ**

For custom requests please contact customs@waclighting.com

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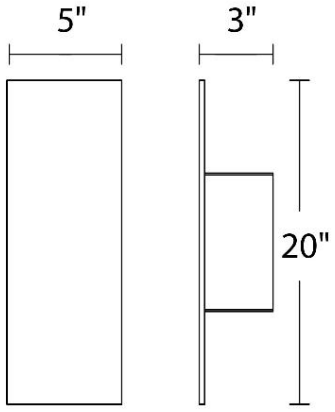
Brushed Aluminum | Black | Bronze

LINE DRAWING:



WS-W54620

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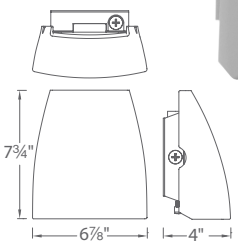
FIN - model: WP-LED1

Endurance Wallpack

WAC LIGHTING
Responsible Lighting®



IP66, WET

Fixture Type: _____

Catalog Number: _____

Project: _____

Location: _____

PRODUCT DESCRIPTION

Die cast aluminum factory sealed housings with patent pending design for a water and dust proof IP66 rated outdoor luminaire

FEATURES

- Factory-Sealed LED Light Engine
- 20° Forward Throw Illumination
- Photo/Motion Sensor Compatible (Sold Separately)
- Built-in Level For Easy Adjustment
- Suitable to install in all directions
- Multi-Function Dimming: ELV (120V) or 0-10V
- 85 CRI
- 100,000 hour rated life

SPECIFICATIONS

Construction: Die-cast aluminum

Power: Integral driver in luminaire. Universal voltage input (120V-277V)

Dimming: 100% - 30% with 0 - 10V dimmer (120V - 277V)

100% - 15% with Electronic Low Voltage (ELV) dimmer (120V only)

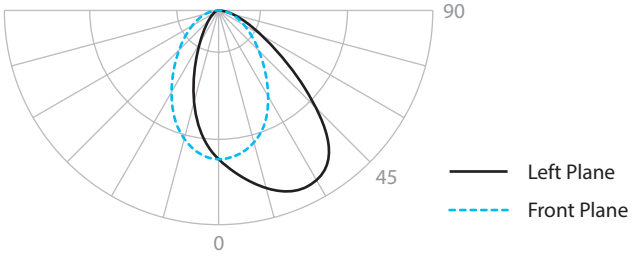
Finish: Architectural Bronze, Graphite, and White

Standards: IP66, Wet Location, ETL & cETL Listed

Total Harmonic Distortion: 35%

Operating Temperature: -40°C (-40°F) to 40°C (104°F)

PHOTOMETRY



ORDER NUMBER

	Power	Comparable	Color Temp		Delivered Lumens	CBCP
WP-LED119	*19W*	*39W HID*	**30**	*3000K*	*1390*	*1030*
			50	*5000K*	*1460*	*1048*
WP-LED127	*27W*	*70W HID*	**30**	*3000K*	*2075*	*1461*
			50	*5000K*	*2135*	*1467*
WP-LED135	*35W*	*100W HID*	**30**	*3000K*	*2750*	*1930*
			50	*5000K*	*2825*	*1921*

Finish		
aBZ	*Architectural Bronze*	
aGH	*Architectural Graphite*	
aWT	*Architectural White*	

_____ – ___ – ___

Example: **WP-LED119-50-BZ**

ACCESSORIES

Motion Sensor (120V)

MS-120-BZ	*Bronze*
MS-120-GY	*Gray*
MS-120-WT	*White*

Photo Sensor (120V)

PC-120-BZ	*Bronze*
PC-120-GY	*Gray*
PC-120-WT	*White*

WAC Lighting
www.waclighting.com
Phone (800) 526.2588 • Fax (800) 526.2585

Headquarters/Eastern Distribution Center
44 Harbor Park Drive • Port Washington, NY 11050
Phone (516) 515.5000 • Fax (516) 515.5050

Western Distribution Center
1750 Archibald Avenue • Ontario, CA 91760
Phone (800) 526.2588 • Fax (800) 526.2585

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SIGNAGE