

**AMBIT ENGINEERING, INC.** CIVIL ENGINEERS AND LAND SURVEYORS

200 Griffin Road, Unit 3, Portsmouth, NH 03801  
Phone (603) 430-9282 Fax 436-2315

23 August 2022

Peter Stith, Technical Advisory Committee Chair  
City of Portsmouth  
1 Junkins Avenue  
Portsmouth, NH 03801

**RE: Request Site Plan Approval at 161 Deer Street to be known as 88 Maplewood Avenue, Mixed Use Site Development**

Dear Mr. Stith and TAC Members:

On behalf of Tom Balon and EightKPH, LLC we are pleased to submit the attached plan set for **Site Plan Review** for the above-mentioned project and request that we be placed on the agenda for your **September 6, 2022** Technical Advisory Committee Meeting. The project consists of the replacement of the existing one story commercial building at 161 Deer Street with a new 4 story with a Penthouse building with the associated and required site improvements. The new building is intended to be known as 88 Maplewood Avenue. The re-development will include parking below street level.

The site redevelopment consists of replacing the existing structure with a new structure. The site is known as DSA Lot 5; part of the Consolidation and Subdivision Approved by the Planning Board in 2016. The property was a part of the overall planning for development on the 5 lots and had a proposed building designed; however that building did not go through and complete the permit process entirely. This application revises the proposed building and as such will go through HDC review. The property is located in the CD – 5, Downtown Overlay, North End Incentive, and Historic Districts. The design package has been revised from the Conceptual Phase to conform to the required Density and Development Standards. The project therefore will not require an application with the Zoning Board of Adjustment for the site development. The site has been to the Planning Board and completed the Design Review process; thereby vesting to current zoning.

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- Plan of Restrictive Covenant – The plan shows a restriction on the railroad property to benefit the locus site.
- Subdivision Plan – This plan show the plan which created the current property boundaries.
- Existing Conditions Plan C1 – This plan shows the existing site conditions in detail.
- Demolition Plan C2 – This plan shows demolition of the existing building and associated site features.

- Site Plan C3 – This plan shows the site development in detail with the associated Zoning Development Standards and Floor Area calculations. Also shown are impervious surface calculations and the areas dedicated to Community Space. The plan dedicated Community Space to gain building height.
- Architectural Renderings Floor Plans, and Building Elevations.
- Landscape Plans – Site landscape features and specifications.
- Parking Level Plan C4 – This plan shows the lower level parking layout.
- Utility Plan C5 – This plan shows proposed site utilities.
- Grading Plan C6 – This plan shows proposed site grading.
- Detail Sheets D1 to D4 – These plans show site details.

### Trip Generation

Gorrill Palmer, Traffic Engineer, prepared a report based on calculations of trip generation and determined that the currently proposed uses in Lot 5 will generate less traffic than the originally approved uses. This is primarily due to the decrease in building size. The original building was to include:

- 45 dwelling units
- 13,814 SF of retail space
- 17,274 SF of general office space
- 2,702 SF bank
- Parking for the building

The currently proposed building is to include:

- 19 dwelling units
- 6,615 SF of general office or retail space
- 4,954 SF restaurant
- 324 SF ATM space
- Parking for the building

Although a 4,954 SF restaurant has been added to the building uses, the proposed building has been reduced by 26 dwelling units, 24,473 SF of office or retail space, and the bank has been removed in favor of an ATM. This significant reduction in building size has caused an approximately 40% reduction in the trip generation associated with the building. More information on the trip generation calculations is provided in the complete report. The net change in trips between the approved development and the currently proposed development is summarized in the following table:

**Table 5: Trip Generation Comparison**

<b>Time Period</b>	<b>Total Trips</b>	<b>Total Primary Trips</b>
Weekday Daily	-452	-432
Weekday AM Peak Hour	-24	-29
Weekday PM Peak Hour	-80	-49
Saturday Daily	+40	-142
Saturday Midday Peak Hour	-58	-39

There is an increase in total trips on Saturday, but given the changes in proposed uses, the number of primary trips decreased. The primary trips are the trips that are new to the adjacent roadway network. Because the currently proposed uses in Lot 5 do not exceed the previously approved uses of Lot 5 by more than 100 trips during a peak hour or 750 trips for the day, it is the understanding of Gorrill Palmer that no additional traffic effort will be required other than submittal of this memo and supporting attachments. This is due to the proposed building being considerably smaller in size than the original approval.

Additional Information Provided:

- Site Plan Checklist
- Green Building Components
- Proposed Bike Rack Specification
- Notice of the Completion of Design Review
- Drainage Analysis Front End
- Copies of previous Plans and Approvals

We look forward to the Technical Advisory Committee review of this submission and look forward to an in-person presentation.

Sincerely,



John R. Chagnon, PE  
CC: Tom Balon, Carla Goodknight, Terrance Parker, Randy Dunton



# 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: EIGHT KPH Date Submitted: 8-23-2022

Application # (in City's online permitting): TBD

Site Address: 88 MAPLEWOOD AVENUE Map: 125 Lot: 17-3

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

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)	SUPPLEMENTAL	
<input type="checkbox"/>	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. (2.5.3.1C)	A1.0-3.0	N/A
<input type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)	COVER SHEET	N/A

**Site Plan Review Application Required Information**

<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. <b>(2.5.3.1E)</b>	COVER SHEET	N/A
<input type="checkbox"/>	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. <b>(2.5.3.1F)</b>	SHEET C1	N/A
<input type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. <b>(2.5.3.1G)</b>	COVER SHEET	N/A
<input type="checkbox"/>	List of reference plans. <b>(2.5.3.1H)</b>	SHEET C1	N/A
<input type="checkbox"/>	List of names and contact information of all public or private utilities servicing the site. <b>(2.5.3.1I)</b>	COVER SHEET	N/A

**Site Plan Specifications**

<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input type="checkbox"/>	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. <b>(2.5.4.1A)</b>	Required on all plan sheets	N/A
<input type="checkbox"/>	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. <b>(2.5.4.1B)</b>	Required on all plan sheets	N/A
<input type="checkbox"/>	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. <b>(2.5.4.1C)</b>	SHEET C1	N/A
<input type="checkbox"/>	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. <b>(2.5.4.1D)</b>	Required on all plan sheets	N/A
<input type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. <b>(2.5.4.1E)</b>	N/A	N/A
<input type="checkbox"/>	Title (name of development project), north point, scale, legend. <b>(2.5.4.2A)</b>	COVER SHEET	N/A
<input type="checkbox"/>	Date plans first submitted, date and explanation of revisions. <b>(2.5.4.2B)</b>	EACH SHEET	N/A
<input type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. <b>(2.5.4.2C)</b>	Required on all plan sheets	N/A
<input type="checkbox"/>	Source and date of data displayed on the plan. <b>(2.5.4.2D)</b>	SHEET C1	N/A

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

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	<p><b>1. Existing Conditions: (2.5.4.3A)</b></p> <ul style="list-style-type: none"> <li>• Surveyed plan of site showing existing natural and built features;</li> <li>• Existing building footprints and gross floor area;</li> <li>• Existing parking areas and number of parking spaces provided;</li> <li>• Zoning district boundaries;</li> <li>• Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre;</li> <li>• Existing impervious and disturbed areas;</li> <li>• Limits and type of existing vegetation;</li> <li>• Wetland delineation, wetland function and value assessment (including vernal pools);</li> <li>• SFHA, 100-year flood elevation line and BFE data, as required.</li> </ul>	SHEET C1	
<input type="checkbox"/>	<p><b>2. Buildings and Structures: (2.5.4.3B)</b></p> <ul style="list-style-type: none"> <li>• Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation;</li> <li>• Elevations: Height, massing, placement, materials, lighting, façade treatments;</li> <li>• Total Floor Area;</li> <li>• Number of Usable Floors;</li> <li>• Gross floor area by floor and use.</li> </ul>	A1-A3	
<input type="checkbox"/>	<p><b>3. Access and Circulation: (2.5.4.3C)</b></p> <ul style="list-style-type: none"> <li>• Location/width of access ways within site;</li> <li>• Location of curbing, right of ways, edge of pavement and sidewalks;</li> <li>• Location, type, size and design of traffic signing (pavement markings);</li> <li>• Names/layout of existing abutting streets;</li> <li>• Driveway curb cuts for abutting prop. and public roads;</li> <li>• If subdivision; Names of all roads, right of way lines and easements noted;</li> <li>• AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).</li> </ul>	SHEET C3	
<input type="checkbox"/>	<p><b>4. Parking and Loading: (2.5.4.3D)</b></p> <ul style="list-style-type: none"> <li>• Location of off street parking/loading areas, landscaped areas/buffers;</li> <li>• Parking Calculations (# required and the # provided).</li> </ul>	SHEET C3 & SHEET C4	
<input type="checkbox"/>	<p><b>5. Water Infrastructure: (2.5.4.3E)</b></p> <ul style="list-style-type: none"> <li>• Size, type and location of water mains, shut-offs, hydrants &amp; Engineering data;</li> <li>• Location of wells and monitoring wells (include protective radii).</li> </ul>	SHEET C5	
<input type="checkbox"/>	<p><b>6. Sewer Infrastructure: (2.5.4.3F)</b></p> <ul style="list-style-type: none"> <li>• Size, type and location of sanitary sewage facilities &amp; Engineering data, including any onsite temporary facilities during construction period.</li> </ul>	SHEET C5	

<input type="checkbox"/>	<b>7. Utilities: (2.5.4.3G)</b> <ul style="list-style-type: none"> <li>The size, type and location of all above &amp; below ground utilities;</li> <li>Size type and location of generator pads, transformers and other fixtures.</li> </ul>	SHEET C5	
<input type="checkbox"/>	<b>8. Solid Waste Facilities: (2.5.4.3H)</b> <ul style="list-style-type: none"> <li>The size, type and location of solid waste facilities.</li> </ul>	SHEET A2.0	
<input type="checkbox"/>	<b>9. Storm water Management: (2.5.4.3I)</b> <ul style="list-style-type: none"> <li>The location, elevation and layout of all storm-water drainage.</li> <li>The location of onsite snow storage areas and/or proposed off-site snow removal provisions.</li> <li>Location and containment measures for any salt storage facilities</li> <li>Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.</li> </ul>	SHEET C6	
<input type="checkbox"/>	<b>10. Outdoor Lighting: (2.5.4.3J)</b> <ul style="list-style-type: none"> <li>Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.</li> </ul>	TBD	
<input type="checkbox"/>	<b>11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)</b>	TBD	
<input type="checkbox"/>	<b>12. Landscaping: (2.5.4.3K)</b> <ul style="list-style-type: none"> <li>Identify all undisturbed area, existing vegetation and that which is to be retained;</li> <li>Location of any irrigation system and water source.</li> </ul>	SHEET L1 SHEET C5	
<input type="checkbox"/>	<b>13. Contours and Elevation: (2.5.4.3L)</b> <ul style="list-style-type: none"> <li>Existing/Proposed contours (2 foot minimum) and finished grade elevations.</li> </ul>	SHEET C6	
<input type="checkbox"/>	<b>14. Open Space: (2.5.4.3M)</b> <ul style="list-style-type: none"> <li>Type, extent and location of all existing/proposed open space.</li> </ul>	SHEET C3	
<input type="checkbox"/>	<b>15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)</b>	SHEET C1	
<input type="checkbox"/>	<b>16. Character/Civic District (All following information shall be included): (2.5.4.3P)</b> <ul style="list-style-type: none"> <li>Applicable Building Height (10.5A21.20 &amp; 10.5A43.30);</li> <li>Applicable Special Requirements (10.5A21.30);</li> <li>Proposed building form/type (10.5A43);</li> <li>Proposed community space (10.5A46).</li> </ul>	SHEET C3	
<input type="checkbox"/>	<b>17. Special Flood Hazard Areas (2.5.4.3Q)</b> <ul style="list-style-type: none"> <li>The proposed development is consistent with the need to minimize flood damage;</li> <li>All public utilities and facilities are located and construction to minimize or eliminate flood damage;</li> <li>Adequate drainage is provided so as to reduce exposure to flood hazards.</li> </ul>	NOT IN ZONE	

<b>Other Required Information</b>			
<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input type="checkbox"/>	Traffic Impact Study or Trip Generation Report, as required. <b>(3.2.1-2)</b>	ONLINE	
<input type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. <b>(7.1)</b>	SHEET C6	
<input type="checkbox"/>	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. <b>(7.3.1)</b>	N/A	
<input type="checkbox"/>	Stormwater Management and Erosion Control Plan. <b>(7.4)</b>	SHEET D1	
<input type="checkbox"/>	Inspection and Maintenance Plan <b>(7.6.5)</b>	DRAINAGE REPORT	

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

**Final Site Plan Approval Required Information**

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	A list of any required state and federal permit applications required for the project and the status of same. <b>(2.5.3.2E)</b>	COVER SHEET	
<input type="checkbox"/>	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." <b>(2.5.4.2E)</b>	COVER SHEET	N/A
<input type="checkbox"/>	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. <b>(2.5.4.2F)</b>	N/A	
<input type="checkbox"/>	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." <b>(2.13.3)</b>	SHEET C3	N/A

Applicant's Signature: John Chagnon Date: 8-23-2022

## PROPOSED GREEN BUILDING COMPONENTS

### LOCATION AND TRANSPORTATION

**1. Public Transportation** – This site is about three blocks from Coast Bus service at the Hanover Garage Location.

**2. Walkable Amenities** – This site is a short walking distance the Portsmouth downtown core and adjacent to the Foundry garage.

**3. Bicycle Storage** - Bicycle storage will be provided for building occupants inside the building parking garage with potential for exterior public temporary customer storage. Condo owners will also be able to charge electric bikes in the garage (see parking section also).

**4. Increased Density** - The project will provide increased residential density in a previously developed commercial location.

### SITE

**5. Adaptive Reuse** – Redevelopment of (demo and replace) an existing single-story commercial building for multi-story infill development.

**6. Reduce Impervious Surfaces** - Impervious surfaces have been reduced slightly, with increased areas for landscaping and community green space along the rail corridor.

**7. Stormwater Design** - The stormwater system has been designed using Low Impact Design techniques, such as R-tank stormwater detention and more pervious community space surfaces (i.e. expanded tree boxes).

**8. Parking** - Parking calculations have been performed using the City's parking requirements and have been exceeded. All garage parking spaces will have a dedicated electrical feed for charging an electric vehicle connected to each individual condo owner's electric service. EV chargers to ultimately provided by condo owners. Goal of 100% EV condo owners to minimize need for garage ventilation.

### WATER

**9. Plumbing Fixtures** - Dual flush or low-flow toilets and other low-flow fixtures will be provided where possible.

**10. Domestic Hot Water** - Will be designed to exceed code requirements, anticipated to be hybrid-hot water which provides supplemental HVAC cooling capacity in summer.

## ENERGY

**11. Building Envelope** - The building envelope will be designed as a high-performance assembly to exceed minimum Energy Code requirements to minimize heating and cooling expenses. Design elements include inset balcony patios to shade the interiors of lower floor units and a 3' roof overhang on the penthouse for summer shading.

**12. HVAC Units** - High-efficiency Air Source Heat Pumps controlled by the condo tenant. An Energy Recovery Ventilation (ERV) type system is also anticipated to provide continuous fresh air ventilation.

**13. High-Efficiency Lighting** - Efficient LED lighting will be used for interior and exterior fixtures, occupancy sensors where required.

**14. Energy Star Appliances** - Appliances provided by Owner will be Energy Star rated where appropriate. All cooktops will be induction electric and ovens will be electric. The elevator will be electric traction regenerative (not electric-hydraulic) for energy efficiency and transport speed. Emergency power for the elevator is anticipated to be Tesla Power Wall Battery (no gas or diesel generator).

**15. Roofing** - Flat roofing will be of a light-colored, reflective membrane roofing to reduce the heat island effect. Darker roofing may be used if covered with solar panels. Solar panels will not be visible per code.

## MATERIALS AND RESOURCES

**16. Minimize Waste** - Material waste will be minimized as much as possible during construction.

## INDOOR ENVIRONMENTAL QUALITY

**17. Low-VOC Materials** - Building materials with low volatile organic compound levels will be specified where possible.

**18. Indoor Air Quality** - Residential dwelling units will have operable windows for access to fresh air and patios will have folding glass doors to open the units to the outdoors. Natural gas will be omitted (no gas stoves or fireplaces) from the building to reduce NOx, CO and methane emissions.

**19. Daylight** - Habitable spaces will have access to windows for daylight.

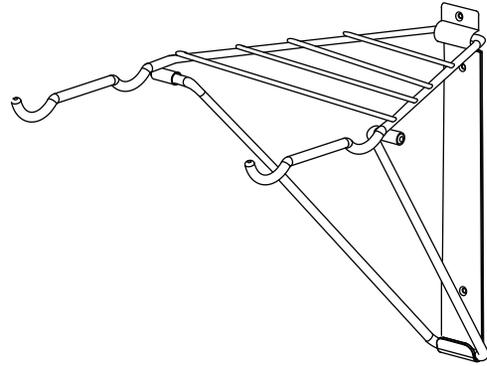
**20. Thermal Comfort** - Each residential unit will have a dedicated HVAC controlled by the condo owner.

**21. Acoustic Comfort** - Acoustic and vibration separations will be provided between dwelling units at demising walls, rock wool sound insulation in the ceiling assemblies and floors as well as "acoustiblok" within the exterior walls, because of proximity the Rail corridor. Windows will be the highest STC available, again because of proximity the Rail corridor.

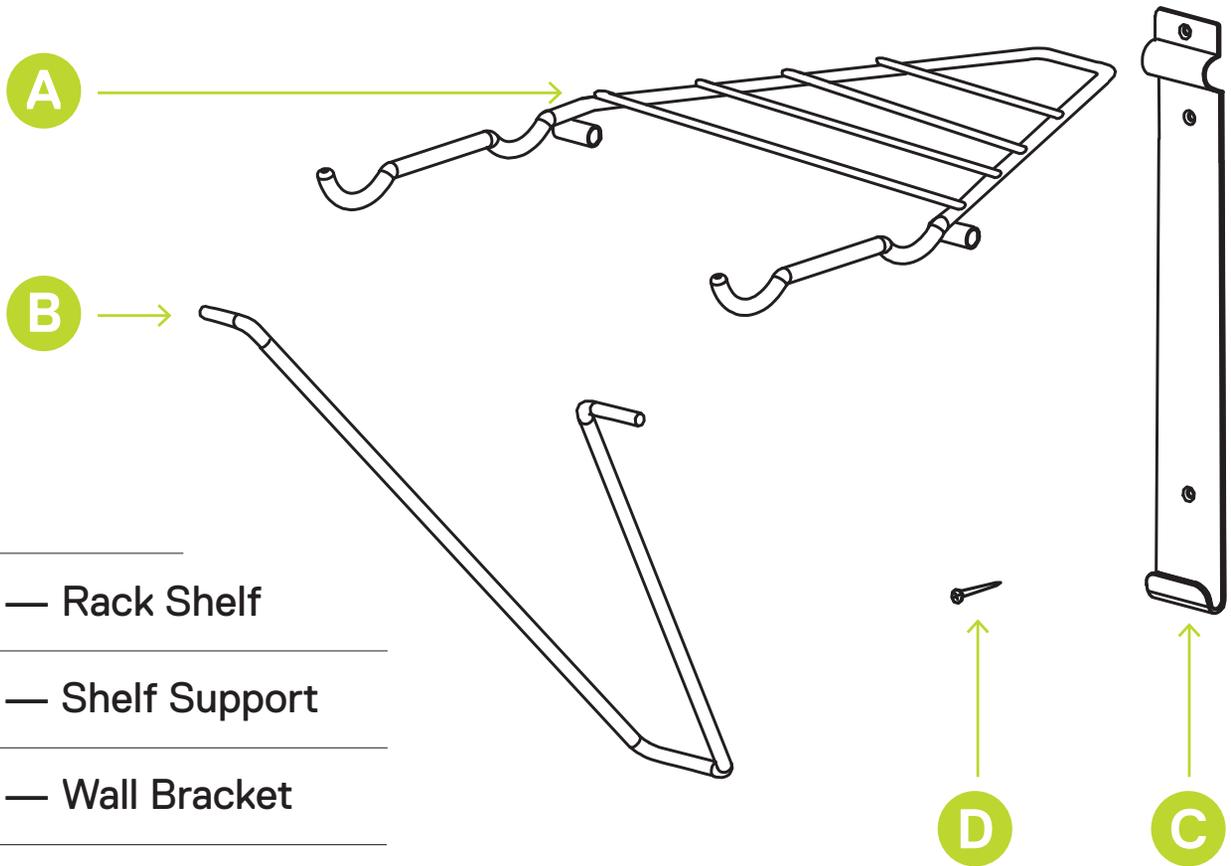
*Note: Green building components reflect proposed project features and are subject to feasibility of construction.*

# delta<sub>Δ</sub>

## Two Bike Wall Mount Rack w/shelf



Assembly instructions RS5103

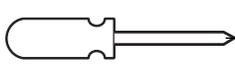


### Parts

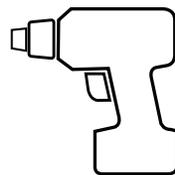
- A** x1 — Rack Shelf
- B** x1 — Shelf Support
- C** x1 — Wall Bracket
- D** x3 — Screws

### Tool(s) Required

Phillips Head  
Screwdriver



Drill



### WARNING

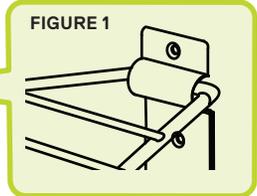
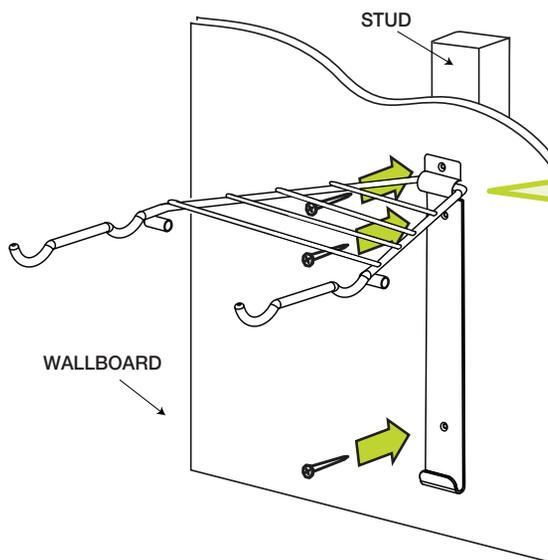
NEVER EXCEED MAXIMUM TOTAL WEIGHT LIMIT OF 65 LBS (30 Kgs)  
INCORRECT WALL MOUNTING COULD RESULT IN ITEMS FALLING AND INJURY TO PERSONS.

IMPROPER INSTALLATION OR USE CAN RESULT IN PERSONAL INJURY AND/OR DAMAGE TO  
PROPERTY

1

Locate stud beneath wallboard.  
Position wall bracket at desired height.

Before mounting wall bracket  
position rack shelf behind upper part of bracket.  
(Figure 1)  
Make sure the rack shelf is level when mounting.  
Once in correct position screw into place.  
(screws should be in the center of Wall Stud)

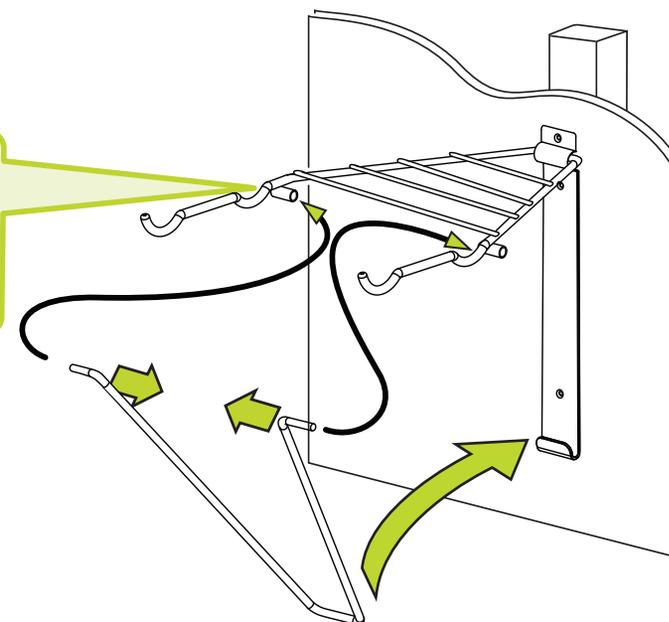
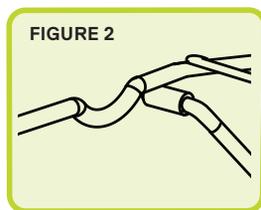


**IMPORTANT SAFETY NOTE**

Beware of drilling into electrical wire or pipes within wall!

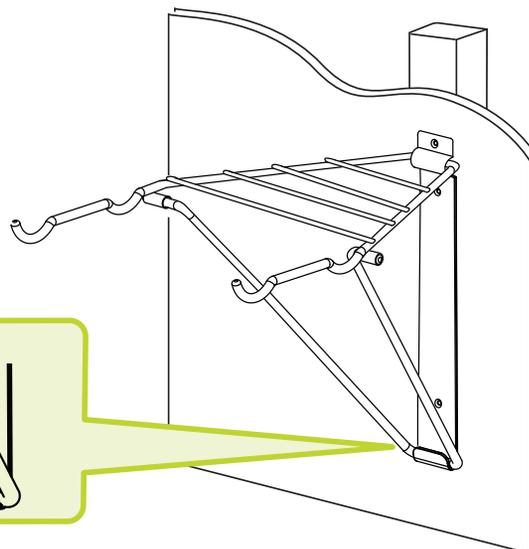
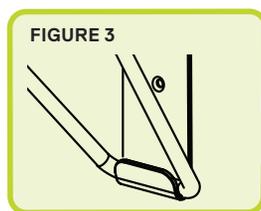
2

Compress shelf support slightly  
and release into holes on shelf.  
(Figure 2)



3

Make sure that shelf support is securely  
placed in bottom of wall bracket.  
(Figure 3)



**Need help?**

Email us at [service@designbydelta.com](mailto:service@designbydelta.com)  
& we'll help solve your issue.

**Assembly video**

Visit [designbydelta.com/downloads](http://designbydelta.com/downloads)



Preliminary Conceptual Consultation or Design Review Phase Approval  
**LUPD-22-7**

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Your Submission

Attachments

Guests (1)

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- ✔ Application Completeness Review
- ✔ Planning Department Review and Fee Calculation
- ✔ Application Permit Fee
- ✔ Planning Board Review Complete
- ✔ Postage/Advertising Fees for PB Meeting - 05/19/22
- ✔ Design Review Request Accepted by Planning Board
- ✔ **Design Review Phase Complete**

## Design Review Phase Complete

✔ **Complete.** This step was completed on Jun 6, 2022 at 1:08pm.

---

Message the reviewer

Send Message

---

**City of Portsmouth, NH**

Your Profile

Your Records (/dashboard/records)

## Resources

[Search for Records \(/search\)](#)

[Claim a Record \(/claimRecord\)](#)

[Employee Login \(https://portsmouthnh.viewpointcloud.io\)](https://portsmouthnh.viewpointcloud.io)

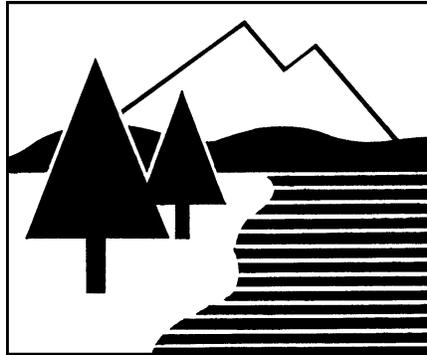
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Portal powered by **OpenGov**

**DRAINAGE ANALYSIS**

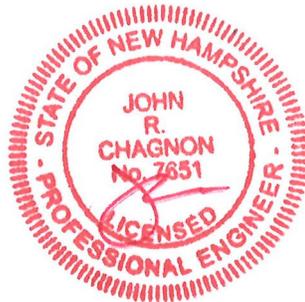
**SITE DEVELOPMENT**

88 MAPLEWOOD AVE.  
PORTSMOUTH, NH



PREPARED FOR  
EIGHTKPH, LLC.

23 AUGUST 2022



**AMBIT ENGINEERING, INC.**

**Civil Engineers & Land Surveyors**

200 Griffin Road, Unit 3

Portsmouth, NH 03801

Phone: 603.430.9282; Fax: 603.436.2315

E-mail: [jrc@ambitengineering.com](mailto:jrc@ambitengineering.com)

(Ambit Job Number 2271.04)

**TABLE OF CONTENTS*****REPORT***

Executive Summary	1
Introduction / Project Description	2
Methodology	2
Site Specific Information	3
Pre-Development Drainage	4
Post-Development Drainage	5
Offsite Infrastructure Capacity	6
Erosion and Sediment Control Practices	6
Conclusion	7
References	8

***ATTACHMENTS***

Existing Subcatchment Plan	
Proposed Subcatchment Plan	

***APPENDIX***

Vicinity (Tax) Map	A
Tables, Charts, Etc.	B
HydroCAD Drainage Analysis Calculations	C
Soil Survey Information	D
FEMA FIRM Map	E
Inspection & Long Term Maintenance Plan	F

## **EXECUTIVE SUMMARY**

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed building at 88 Maplewood Ave in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 125 as Lot 17-3. The project proposes to replace the current building and associated parking lot. The total size of the lot together is 22,667 square-feet (0.520 acres). The size of the total drainage area is 26,073 square-feet (0.599 acres).

The site plans will provide for the future construction of a new building, with associated landscaping, utilities, and underground parking. The new building will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

## **INTRODUCTION / PROJECT DESCRIPTION**

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 125 as Lot 17-3. Bounding the site to north is a railroad and then a cemetery. Bounding the site to east is Maplewood Ave. Bounding the site to south is Deer Street. Bounding the site to the west is an existing Banking facility with drive-up window. A vicinity map is included in the Appendix to this report. The existing building and associated parking lot will be demolished.

This report includes information about the existing site and the proposed construction necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site.

Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

## **METHODOLOGY**

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for

the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from “The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.”

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Ambit Engineering and field observations to confirm.

**SITE SPECIFIC INFORMATION**

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of two soil types:

<b>Soil Symbol</b>	<b>Soil Name and Slopes</b>
<b>699</b>	Urban land
<b>799</b>	Urban land – Canton Complex (3-15% slopes)

**Canton complex** is well drained with a stated depth to water table and restrictive feature of more than 80 inches. However, due to the primary urban fill component of the soil, as well as the proximity to North Mill Pond, the Hydrologic Soil Group will be assumed to be D.

The physical characteristics of the site consist of flat (0-15%) grades that generally slope from the northeast to the southwest. Elevations on the site range from 12 to 15 feet above sea level. The existing site is developed and includes an existing building located in the center of the lot, with an asphalt parking lot to the north. Vegetation around the developed portion of the lot consists of established grasses.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0259F (effective date January 29, 2021), the project site is

located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

### **PRE-DEVELOPMENT DRAINAGE**

In the pre-development condition, the site has been analyzed as two watershed basins (E1 and E2) based on localized topography and discharge location. Subcatchment E1 contains the southwesterly part of the lot and drains to the southwest. Subcatchment E2 contains a much smaller northeasterly part of the lot and drains north. Subcatchments E1 and E2 drain to discharge points DP1 and DP2, respectively.

The “Deer Street Outfall Drainage Evaluation” published October 17, 2018, raises concerns about the existing pipe to which both discharge points are currently connected. From the report: “Based on the evaluations described above, and in detail in the following report, we have concluded additional drainage capacity is needed now and in the future at the Deer Street Outfall.” The report estimates that the pipe nearest the site (from DMH 4980) will flow at capacity during the 10-year storm event, and several of the surrounding pipes in the drainage network will be surcharged. The possibility was raised that part of this flow be diverted through an additional outlet pipe through Maplewood Ave. Therefore, a stormwater design that diverts drainage toward the Maplewood Ave. drainage network would be advantageous toward such an outlet pipe, by easing the peak flow off of the existing infrastructure.

***Table 1: Pre-Development Watershed Basin Summary***

<b>Watershed Basin ID</b>	<b>Basin Area (SF)</b>	<b>Tc (MIN)</b>	<b>CN</b>	<b>10-Year Runoff (CFS)</b>	<b>50-Year Runoff (CFS)</b>	<b>To Design Point</b>
<b>E1</b>	23,085	5.0	94	4.14	6.39	DP1
<b>E2</b>	2,987	5.0	87	0.48	0.78	DP2

## **POST-DEVELOPMENT DRAINAGE**

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as three subcatchment basins, (P1, P1a and P2). Subcatchments P1 and P1a are related to the area of subcatchment E1, but are much smaller. Subcatchment P1a contains half the roof of the proposed building. Subcatchment P2 is related to the area of subcatchment E2, but now takes up about half the drainage area. Subcatchments P1 and P2 drain to Discharge Points DP1 and DP2, respectively. Note that Subcatchment P2 drains toward Maplewood Ave., allowing for the easing of peak flow on the existing outlet pipe in the event of a new outlet pipe development, as discussed in the previous section.

***Table 2: Post-Development Watershed Basin Summary***

<b>Watershed Basin ID</b>	<b>Basin Area (SF)</b>	<b>Tc (MIN)</b>	<b>CN</b>	<b>10-Year Runoff (CFS)</b>	<b>50-Year Runoff (CFS)</b>	<b>Design Point</b>
<b>P1</b>	3,667	5.0	94	0.66	1.02	DP1
<b>P1a</b>	9,126	5.0	98	1.69	2.56	DP1
<b>P2</b>	13,280	5.0	97	2.44	3.72	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 0.452 acres (75.58%) in the pre-development condition to 0.525 acres (87.77%) in the post-development condition. The project proposes the construction of a R-Tank storage system on site, reducing the peak flow discharge from the site, as well as a downspout filter, providing treatment.

Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point. The comparison shows the reduced flows as a result of the R-Tank. Note the inclusion of Discharge Point 3 (DP3), representative of the net flows from DP1 and DP2.

**Table 3: Pre-Development to Post-Development Comparison**

Design Point	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		Description
	Pre	Post	Pre	Post	Pre	Post	
DP1	2.63	1.30	4.14	2.20	6.39	3.44	West lot
DP2	0.28	1.59	0.48	2.44	0.78	3.72	East lot
DP3	2.91	2.82	4.62	4.62	7.18	7.15	Combined Flow

Discharge Point 2 experiences a significant increase in peak discharge, however, the city infrastructure to be utilized by both discharge points are connected by the same drainage network, as shown by DP3. The net effect of both discharge points on the drainage network shows peak flows at or below existing levels.

### **OFFSITE INFRASTRUCTURE CAPACITY**

Retention and routing of the stormwater to the City infrastructure is done on-site through the use of the R-Tank storage system, and has been designed as not to increase the peak flow rate to the local drainage system, therefore no impact to city infrastructure is anticipated.

### **EROSION AND SEDIMENT CONTROL PRACTICES**

The erosion potential for this site as it exists is high due to the presence of loam areas that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to “The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.” Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Filter baskets in catch basins

- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

## **CONCLUSION**

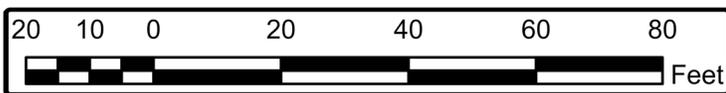
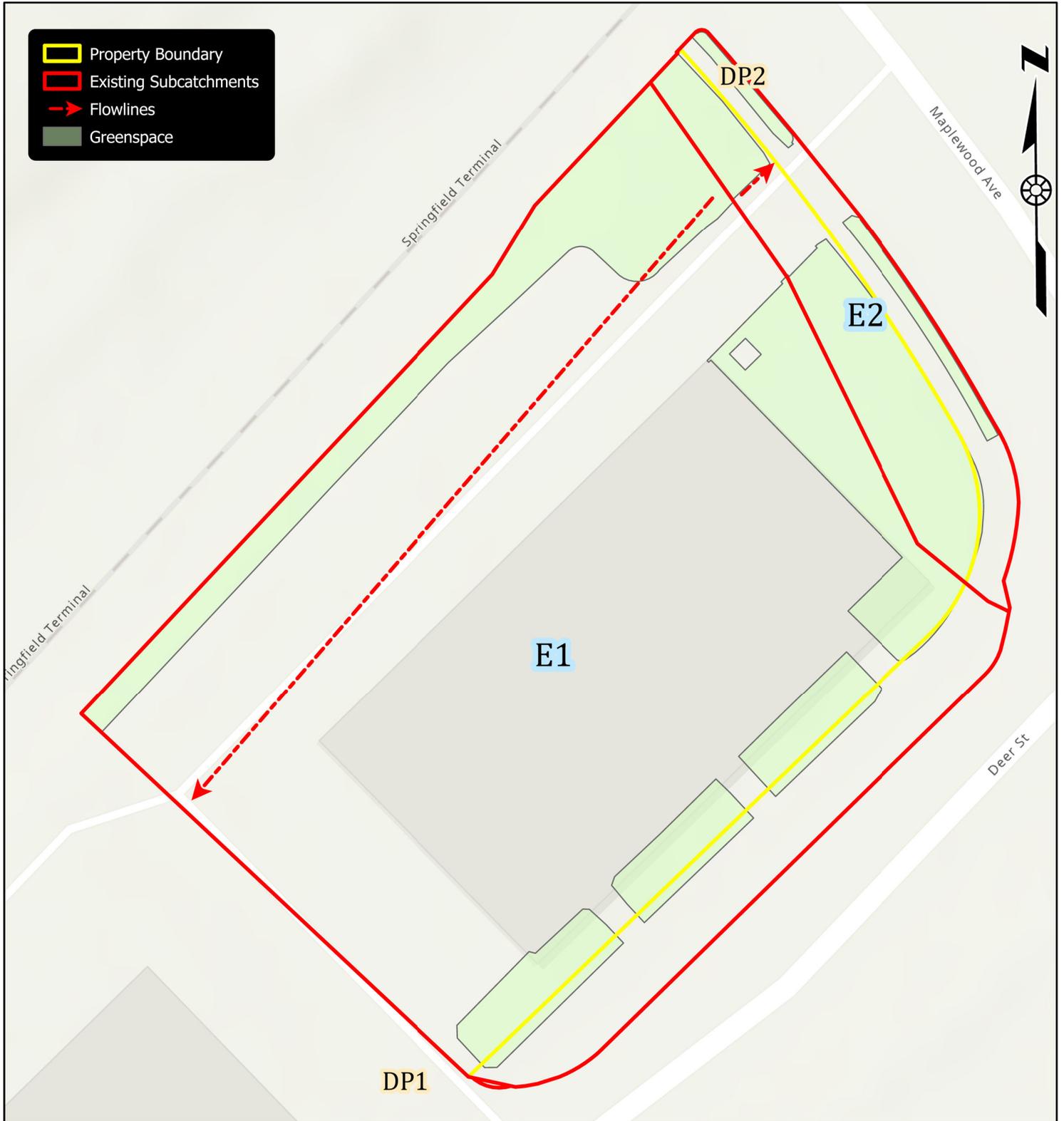
The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the R-Tank system, the post-development runoff rates are reduced to below the pre-development runoff rates. The proposed downspout filter will provide treatment to part of the runoff. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project. Additionally, the separation of flows from the site will be advantageous in the event the City pursues an additional outlet pipe to North Mill Pond through Maplewood Ave.

**REFERENCES**

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2013.
4. CMA Engineers. *Deer Street Outfall Drainage Evaluation*, October 2018.

SITE DEVELOPMENT  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.

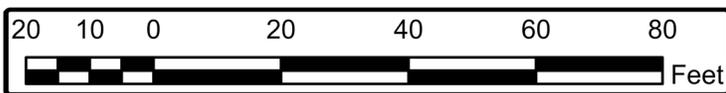
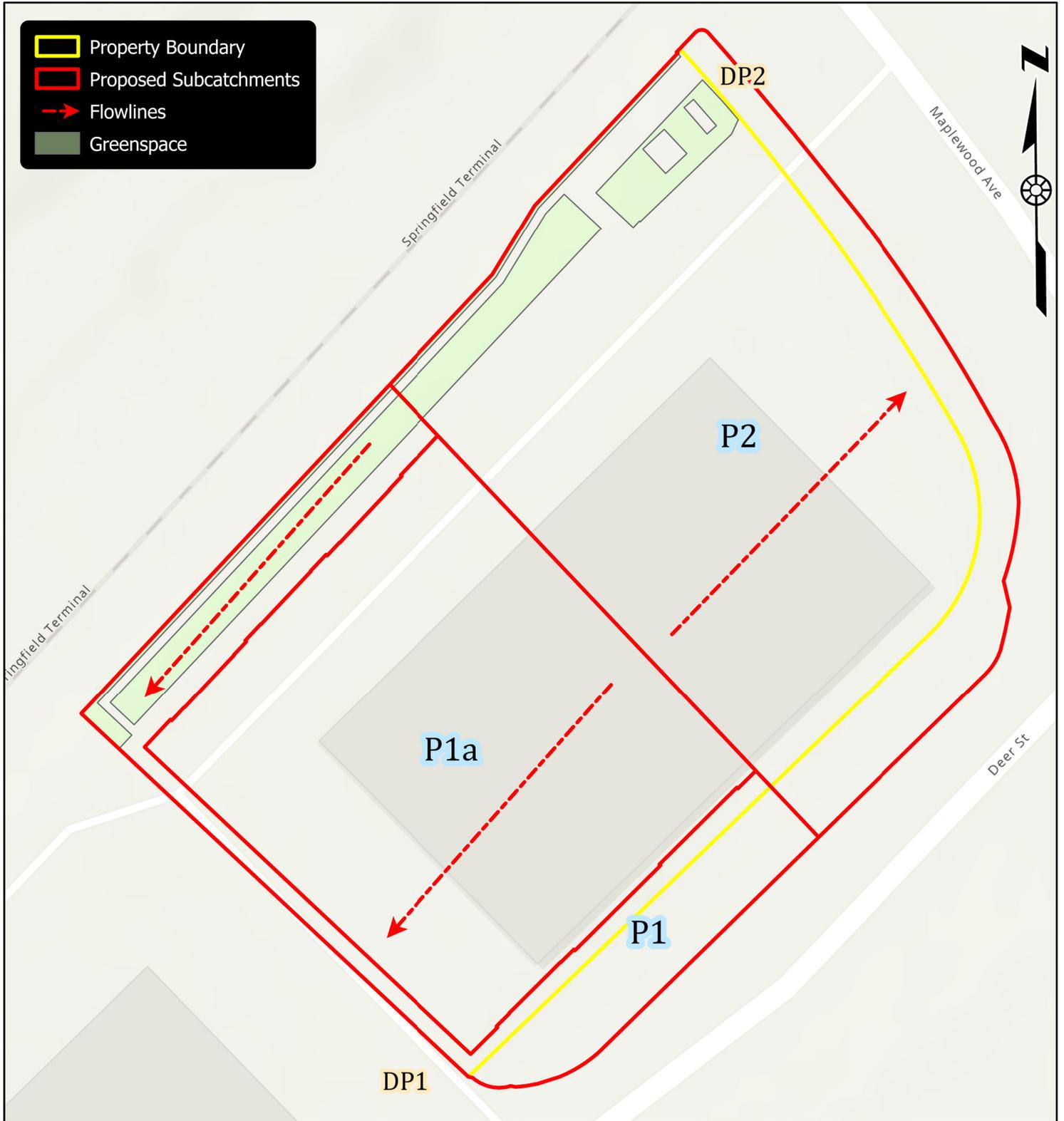
JOB NUMBER: 2271  
SCALE: 1" = 30'  
SUBMITTED: 08-04-2022



Greenspace = 6367 sf  
Net = -3179 sf

SITE DEVELOPMENT  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.

JOB NUMBER: 2271  
SCALE: 1" = 30'  
SUBMITTED: 08-18-2022





# CITY OF PORTSMOUTH

Community Development Department  
(603) 431-2006, ext. 232

Planning Department  
(603) 431-2006, ext. 216

## PLANNING DEPARTMENT

July 25, 2005

Lucy Gobin  
Centrix Bank & Trust  
P. O. Box 10454  
Bedford, NH 03110

### **RE: Site Review Approval for Property Located at 165 Deer Street**

Dear Ms. Gobin:

The Planning Board, at its regularly scheduled meeting of July 21, 2005 and after due Public Hearing, considered the application wherein site plan approval was requested for the addition of a covered entrance and porte-cochere with a teller window, with related paving, utilities, landscaping, drainage and associated site improvements. As a result of such consideration, the Board voted to **grant** Site Review Approval subject to the following **stipulations**:

- 1) That the Planning Department will work with the applicant to review the parking requirement based on the proposed uses;
- 2) That a sidewalk easement be prepared for review and approval by the City Legal Department;
- 3) That as this building has a sprinkler system, the building must be supervised and provide automatic notification of emergency forces. It would also require that the alarm system also automatically notify emergency forces in the event of an evacuation;
- 4) That the lots shall be consolidated and that the documentation be reviewed by the Planning and Legal Department as to content and form.
- 5) That an additional directional arrow be painted on the pavement at the exit coming out the drive-thru;
- 6) That a work limit line for the sidewalks be added to the plans;
- 7) That an easement for the City waterline be prepared for review and approval by the City Legal Department;
- 8) That the rectangular area under the first two parking spaces, coming off of Maplewood Avenue, be labeled as property of the railroad with an explanatory note that it was not counted for parking and also that the City takes no position as to the ownership of the parcel and is not under review by the Site Review Committee;
- 9) That landscaping to be worked out with Lucy Tillman and DPW following Site Plan approval from the Planning Board;
- 10) That the directional arrow behind the proposed bank building be eliminated replaced with the wording "Do Not Enter"; also, a sign be added to the building that says "Do Not Enter";

Page two.  
RE: 165 Deer Street  
July 25, 2005

- 11) That the snow storage area off of Bridge Street would be plantings and grass and the pavement would be removed, and the second snow storage area next to Redlon and Johnson would remain in its present condition;
- 12) That the handicapped parking space be moved from the westerly section of the #165 two-story wood building to the other side of the same building;
- 13) That it is recommended that all site lighting shall be Dark Sky Friendly;
- 14) That the existing dumpster be added to the Site Plans; and;
- 15) That a "Do Not Enter" sign be added to the rear of the #165 two-story wood building or on a pole in the same vicinity.

Please submit three sets of the amended plan to the Planning Department for record keeping purposes. **The Site Review process is not complete until a Site Review Agreement has been executed and a bond to cover the proposed site improvements has been posted.**

Site Review approval by the Planning Board shall expire unless used within a period of one year from the date of approval. A request for a one-year extension of the Site Review approval may be submitted in writing prior to the expiration date. Please refer to the *Site Review Regulations* concerning additional extension requests.

In addition, please note that the building/construction plans must be reviewed and approved by the Inspection Department prior to a Building Permit being issued.

The minutes and audio recording of the meeting may be reviewed in the Planning Department.

Very truly yours,

*David M. Holden /jms*

David M. Holden, Planning Director  
for Kenneth Smith, Chairman of the Planning Board  
DMH:jms

cc: Richard A. Hopley, Building Inspector  
John Chagnon, P.E.  
William Tucker, Esq.

*Also -  
site entrance  
sidewalk  
update cost  
estimate*



# CITY OF PORTSMOUTH

Community Development Department  
(603) 610-7281

Planning Department  
(603) 610-7216

## PLANNING DEPARTMENT

August 21, 2017

Maxwell P. Rogers  
Deer Street Associates, Inc.  
P. O. Box 100  
York Harbor, ME 03911

RE: Site Plan Application for Property Located at 165 Deer Street

Dear Mr. Rogers:

The Planning Board, at its regularly scheduled meeting of August 17, 2017, considered your Site Plan Review application requesting the creation of a temporary parking lot having 73 standard parking spaces and 3 handicap accessible parking spaces, with related paving, lighting, utilities, landscaping, drainage and associated site improvements. As a result of said consideration, the Board voted as follows:

1. Voted to determine that the application for Site Plan approval is complete according to the Site Plan Regulations and to accept it for consideration.
2. Voted to find that a waiver will not have the effect of nullifying the spirit and intent of the City's Master Plan or the Site Plan Review Regulations, and to waive the following regulations:
  - 1) Section 2.5.3 2(b):
    - 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.

Page two.  
RE: 165 Deer Street  
August 21, 2017

- 2) Section 2.5.4 3:
  - (i) Stormwater Management
  - (j) Outdoor Lighting
  - (k) Landscaping
  
3. Voted to grant Site Plan Approval with the following stipulations:
  - 1) The temporary parking lot shall be in operation for no longer than 27 months from the date of the Planning Board approval.
  - 2) The Site Plan (Sheet C2) shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.
  - 3) The applicant shall include existing low spot on the southern corner of the parking lot in the pavement shimming that is being undertaken to create positive drainage.
  - 4) The plan sheet(s) submitted for recording shall include the following 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. The property owner and all future property owners shall be responsible for the maintenance, repair and replacement of all required screening and landscape materials.
    4. All required plant materials shall be tended and maintained in a healthy growing condition, replaced when necessary, and kept free of refuse and debris. All required fences and walls shall be maintained in good repair.
    5. The property owner shall be responsible to remove and replace dead or diseased plant materials immediately with the same type, size and quantity of plant materials as originally installed, unless alternative plantings are requested, justified and approved by the Planning Board or Planning Director.”

Three complete sets of revised Site Plans must be provided to the Planning Department, along with a pdf version.

The Site Plan Review process is not complete until a Site Review Agreement has been fully executed and a Site Review bond (i.e. Irrevocable Letter of Credit, Surety Bond or cash) has been approved by the City.

As a reminder, digital as-built plans are required in a CAD or ESRI file format prior to the release of your Site Review Bond. Please refer to the Site Plan Review Regulations for special requirements.

The City's Land Use Compliance Agent, Vincent Hayes, will be inspecting the work during construction.

Page three.

RE: 165 Deer Street  
August 21, 2017

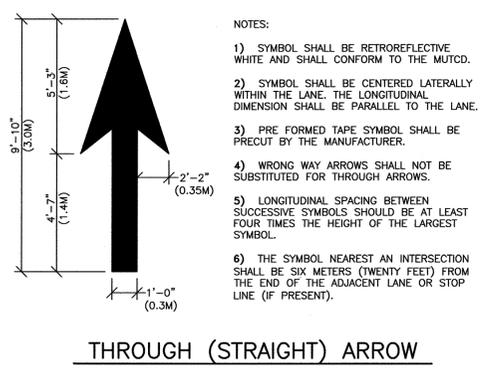
The minutes and audio recording of this meeting are available through the Planning Department.

Very truly yours,

A handwritten signature in black ink, appearing to read "Juliet T.H. Walker". The signature is fluid and cursive, with a long horizontal stroke at the end.

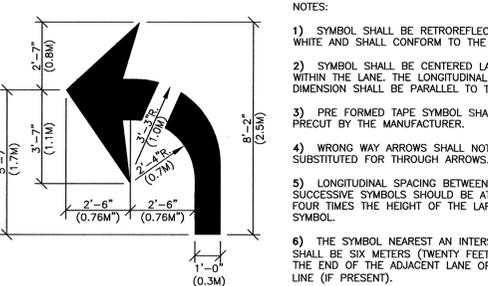
Juliet T.H. Walker, Planning Director  
for Dexter Legg, Chairman of the Planning Board  
JTHW:jms

cc: Robert Marsilia, Building Inspector  
Rosann Maurice-Lentz, City Assessor  
John Chagnon, P. E., Ambit Engineering



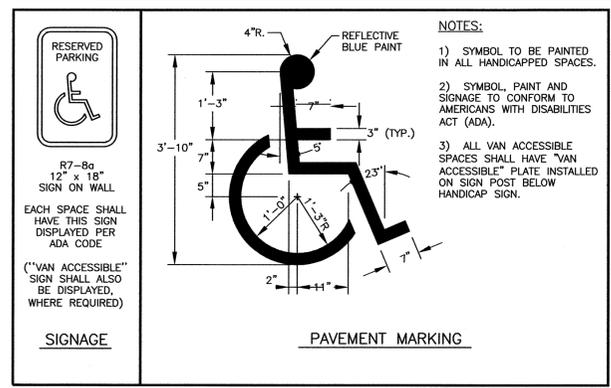
- NOTES:
- 1) SYMBOL SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE MUTCD.
  - 2) SYMBOL SHALL BE CENTERED LATERALLY WITHIN THE LANE. THE LONGITUDINAL DIMENSION SHALL BE PARALLEL TO THE LANE.
  - 3) PRE FORMED TAPE SYMBOL SHALL BE PRECUT BY THE MANUFACTURER.
  - 4) WRONG WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.
  - 5) LONGITUDINAL SPACING BETWEEN SUCCESSIVE SYMBOLS SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE LARGEST SYMBOL.
  - 6) THE SYMBOL NEAREST AN INTERSECTION SHALL BE SIX METERS (TWENTY FEET) FROM THE END OF THE ADJACENT LANE OR STOP LINE (IF PRESENT).

THROUGH (STRAIGHT) ARROW



- NOTES:
- 1) SYMBOL SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE MUTCD.
  - 2) SYMBOL SHALL BE CENTERED LATERALLY WITHIN THE LANE. THE LONGITUDINAL DIMENSION SHALL BE PARALLEL TO THE LANE.
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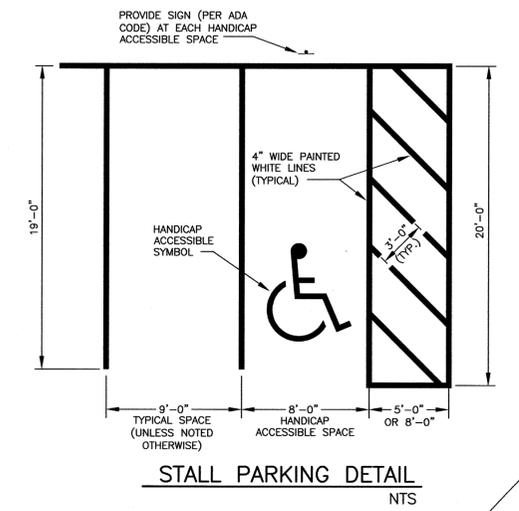
LEFT TURN ARROW  
(RIGHT TURN ARROW OPPOSITE IN KIND) NTS



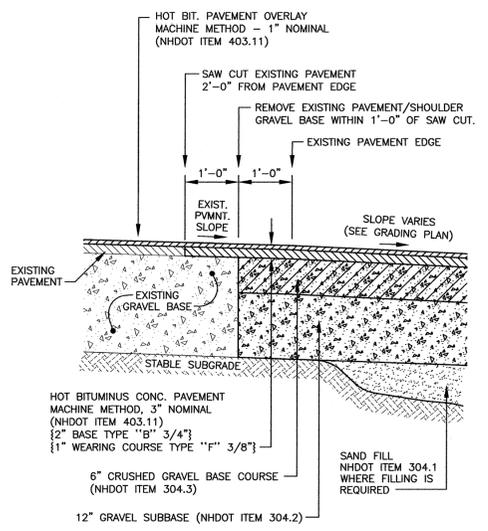
- NOTES:
- 1) SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES.
  - 2) SYMBOL PAINT AND SIGNAGE TO CONFORM TO AMERICANS WITH DISABILITIES ACT (ADA).
  - 3) ALL VAN ACCESSIBLE SPACES SHALL HAVE "VAN ACCESSIBLE" PLATE INSTALLED ON SIGN POST BELOW HANDICAP SIGN.

SIGNAGE PAVEMENT MARKING

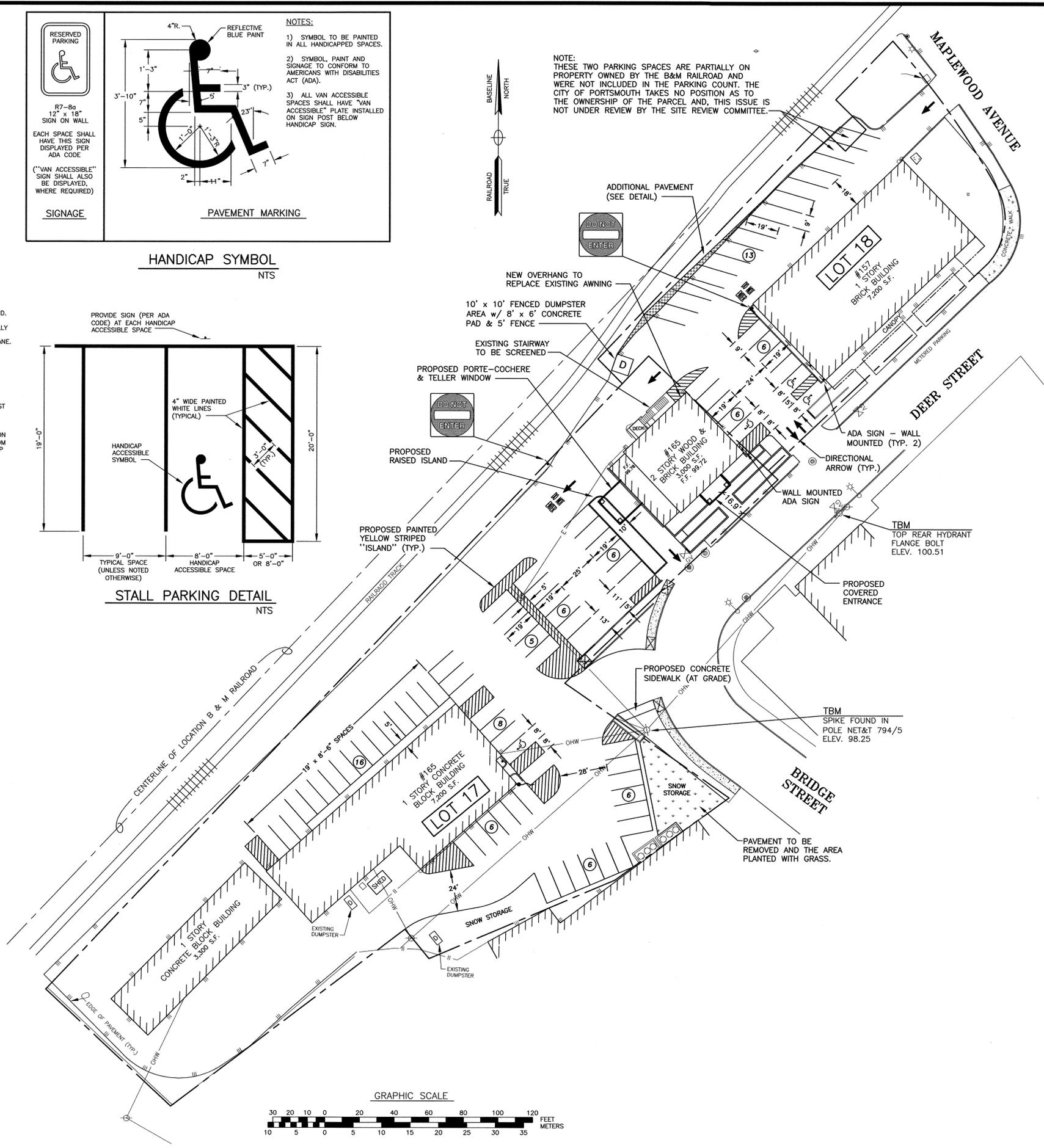
HANDICAP SYMBOL NTS



STALL PARKING DETAIL NTS



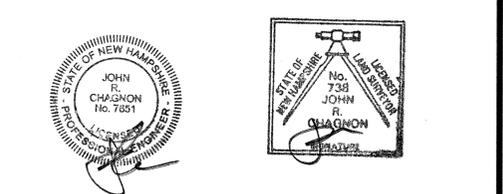
FULL DEPTH PAVEMENT SECTION AND PAVEMENT JOINT DETAIL NTS



- NOTES:
- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
  - 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
  - 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH "STORM WATER MANAGEMENT & EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE" (RCCD AUGUST 1992) BEST MANAGEMENT PRACTICES, AND "BEST MANAGEMENT PRACTICES FOR URBAN STORM WATER RUNOFF" (NHDES JANUARY 1996).
  - 4) SEE SHEET D1 FOR LANDSCAPING PLAN.
  - 5) NO CHANGES TO SITE UTILITIES ARE PROPOSED.
  - 6) PROPOSED RENOVATIONS FROM PLANS DATED 1 JUNE 2005 BY DESTEFANO ARCHITECTS.
  - 7) PARKING CALCULATIONS:  
 #157-161 3,300 S.F. WELLS FARGO MORTGAGE BUSINESS OFFICE @ 1/250 = 13.2 SPACES  
 1,400 S.F. FRAME SHOP RETAIL @ 1/400 = 3.5 SPACES  
 2,400 S.F. EYE DOCTOR PROFESSIONAL OFFICE @ 1/200 = 12 SPACES  
 50 S.F. VESTIBULE @ 1/400 = 0.1 SPACES  
 50 S.F. VESTIBULE @ 1/250 = 0.2 SPACES  
 #165 3,000 S.F. CENTRIX BANK 3,000 S.F. @ 1/400 = 7.5 SPACES  
 2,200 S.F. YOGA EAST 20 STUDENTS @ 1/4 = 5 SPACES  
 6,000 S.F. GARY'S BEVERAGE RETAIL @ 1/400 = 15 SPACES  
 2,600 S.F. PIZZA RESTAURANT RESTAURANT @ 1/75 = 34.7 SPACES  
 600 S.F. RAILROAD OFFICE OFFICE @ 1/250 = 2.4 SPACES  
 3,300 S.F. STORAGE BUILDING STORAGE @ 1/2000 = 1.6 SPACES  
 TOTAL REQUIRED PARKING = 95.2 SPACES (PER CALCULATIONS ON FILE AT CITY)  
 THERE IS NO UNMET PARKING NEEDED  
 TOTAL PARKING PROVIDED: 84 (4 HANDICAPPED)

**PROPOSED RENOVATIONS  
CENTRIX BANK & TRUST  
157 & 165 DEER STREET  
PORTSMOUTH, N.H.**

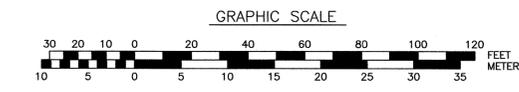
6	DUMPSTER PAD, PARKING, ENTRANCE	10/28/05
5	PARKING CALCULATIONS	9/9/05
4	ADD SIDEWALK, SIG., RELOCATE HANDICAP SPACE	8/29/05
3	PAVEMENT MARKINGS & NOTES	7/15/05
2	REVISED PARKING LAYOUT	7/11/05
1	ISSUED FOR APPROVAL	6/20/05
0	ISSUED FOR COMMENT	6/14/05
NO.	DESCRIPTION	DATE
REVISIONS		



SCALE: 1" = 30' MAY 2005

**PROPOSED  
SITE PLAN** **C2**

APPROVED BY THE PORTSMOUTH PLANNING BOARD  
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



**SIGN DETAILS**



**EXTERIOR INFORMATIONAL SIGN**  
NTS



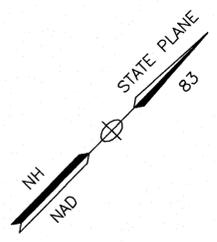
**INTERIOR MARKING SIGN**  
NTS

**APPROVAL NOTES:**

- 1) THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- 2) ALL IMPROVEMENTS SHOWN ON THIS 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) THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
- 4) ALL REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
- 5) THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.

**LEGEND:**

N/F	NOW OR FORMERLY RECORD OF PROBATE	+HYD	HYDRANT
RP	ROCKINGHAM COUNTY REGISTRY OF DEEDS	⊠	METER (GAS, WATER, ELECTRIC)
RCRD	MAP 11 / LOT 21	⊙	CATCH BASIN
⊙	RR SPK FND	⊕	TELEPHONE MANHOLE
⊙	IR FND	⊕	SEWER MANHOLE
⊙	IP FND	⊕	DRAIN MANHOLE
⊙	DP FND	⊕	TEST BORING
⊙	DH FND	⊕	AIR CONDITIONER UNIT SIGNS
⊕	CONC BND w/DH	⊕	ASBESTOS CEMENT PIPE
⊕	ST BND w/DH	⊕	CAST IRON PIPE
FM	FORCE MAIN	DI	DUCTILE IRON PIPE
S	SEWER LINE	PVC	POLYVINYL CHLORIDE PIPE
G	GAS LINE	RCP	REINFORCED CONCRETE PIPE
D	STORM DRAIN	VC	VITRIFIED CLAY PIPE
W	WATER LINE	PP	PLASTIC PIPE
---	UNDERGROUND ELECTRIC	EL	ELEVATION
---	OVERHEAD ELECTRIC/WIRES	EP	EDGE OF PAVEMENT
---	CHAIN LINK FENCE	FF	FINISHED FLOOR
---	CONTOUR	INV.	INVERT
---	SPOT ELEVATION	TBM	TEMPORARY BENCHMARK
---	EDGE OF PAVEMENT (EP)	TYP.	TYPICAL
⊕	UTILITY POLE (w/ GUY)	VGC/SGC	VERTICAL/SLOPED GRANITE CURB
⊕	SHUT OFF (GAS / WATER)	CCB	CAPE COD BERM
⊕	GATE VALVE	AG	ABOVE GRADE
⊕	BOLLARD		



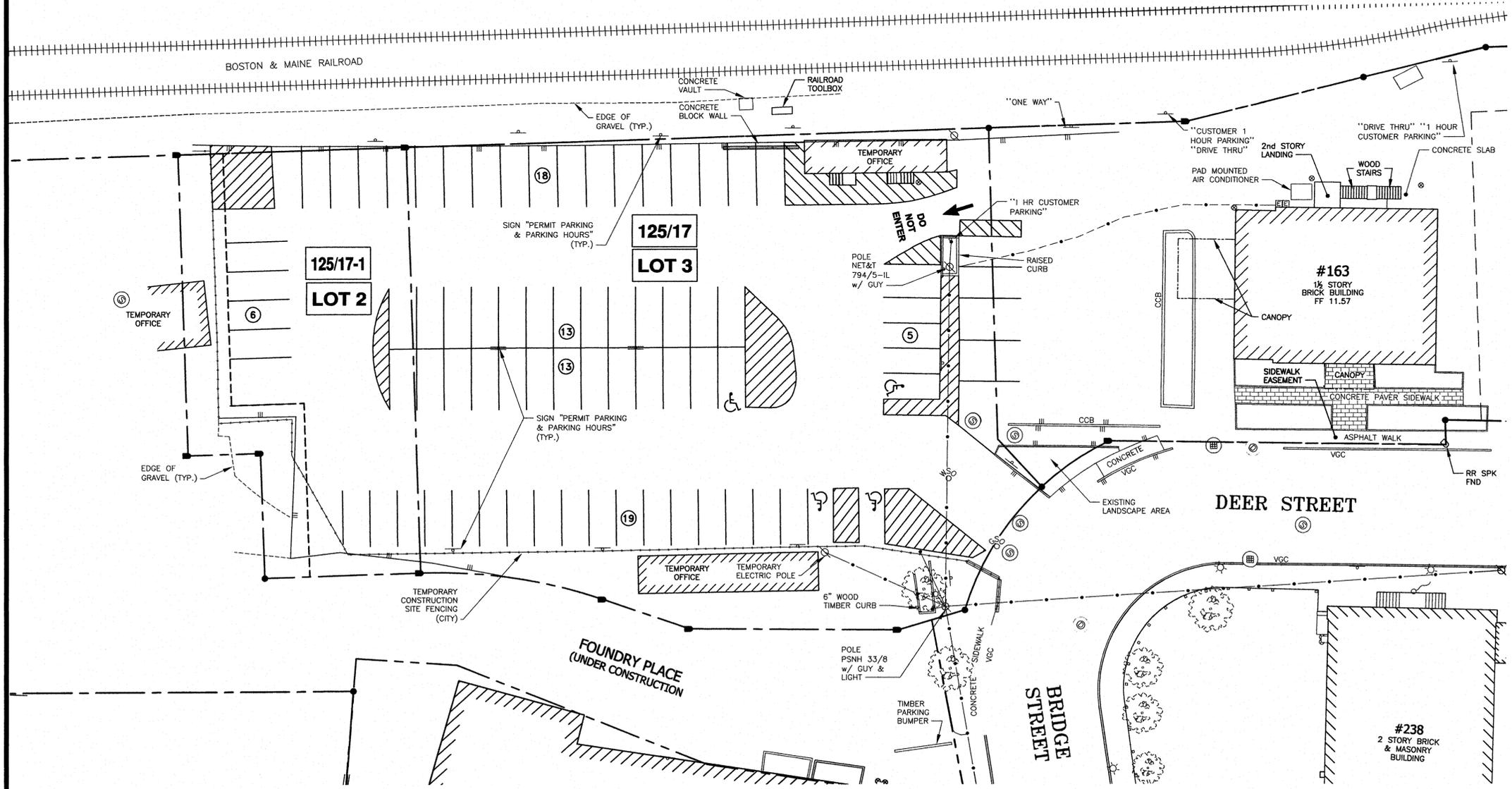
**AMBIT ENGINEERING, INC.**  
Civil Engineers & Land Surveyors  
200 Griffin Road - Unit 3  
Portsmouth, N.H. 03801-7114  
Tel (603) 430-9282  
Fax (603) 436-2315

**NOTES:**

- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
- 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
- 3) THE PURPOSE OF THIS PLAN IS TO DEPICT A TEMPORARY PRIVATE PARKING LOT TO BE LEASED.  
  
PROPOSED PARKING SPACES: 76  
  
FOR USE BY #163 5  
FOR USE BY TEMPORARY OFFICE 2  
TO BE LEASED 68  
TOTAL PARKING SPACES: 75
- 4) THIS SITE PLAN APPROVAL IS FOR A TEMPORARY PARKING LOT FOR A PERIOD OF 27 MONTHS UNLESS AN EXTENSION IS GRANTED BY THE PORTSMOUTH PLANNING BOARD.
- 5) THE AREA FORMALLY OCCUPIED BY THE BUILDING WILL BE SHIMMED WITH PAVEMENT TO ELIMINATE ANY FLAT SPOTS AND CREATE POSITIVE DRAINAGE. MINIMUM 1/2" SHIM.
- 6) THE EXTENSION OF HOURS OF USE, TO ALLOW FOR PUBLIC PARKING IN THE EVENING, WILL REQUIRE FUTURE APPROVAL BY THE PLANNING BOARD OR PLANNING DEPARTMENT.
- 7) THE PROPOSED LANDSCAPE AREA SHALL INCORPORATE NON-COMBUSTIBLE MULCH.

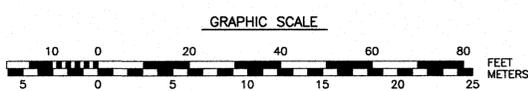
STATE OF NEW HAMPSHIRE  
JOHN R. CHAGNON  
No. 7861  
LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE  
JOHN R. CHAGNON  
No. 738  
LICENSED PROFESSIONAL ENGINEER



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



SEE PREVIOUS SITE PLAN RECORDED AT RCRD D-40624



NO.	DESCRIPTION	DATE
1	ISSUED FOR RECORDING	2/26/18
0	ISSUED FOR COMMENT	1/2/18

**AMENDED SITE PLAN**  
**TEMPORARY PARKING AREA**  
**TAX MAP 125**  
**LOTS 17 & 17-1**  
FOR  
**DEER STREET ASSOCIATES**  
165 DEER STREET  
CITY OF PORTSMOUTH  
COUNTY OF ROCKINGHAM  
STATE OF NEW HAMPSHIRE

J:\JOBS\13300s\13320s\13327\2017 Parking Site Plan\Plans & Specs\13327\_01\_AB\_PARKING.DWG, AMENDED, SITE PLAN\_RCRD

ARCHITECT  
Legat Architects  
2015 Spring Road, Suite 175  
Oak Brook, Illinois 60523  
P: 630.990.3535  
F: 630.990.3541  
www.legat.com

CIVIL ENGINEER / LANDSCAPE ARCHITECT  
GORRILL PALMER  
707 Sable Oaks Drive, Suite 30  
South Portland, ME 04106  
P: 207.772.2515  
www.gorrillpalmer.com

STRUCTURAL ENGINEER  
IMEG Corp  
623 28th Avenue  
Rock Island, Illinois 61201  
P: 312.294.0501  
F: 312.294.0003  
www.imegcorp.com

MEP/FP ENGINEER  
ADVANCED CONSULTING  
300 W Adams Street, Suite 420  
Chicago, Illinois 60606  
Address Line 2  
P: 312.357.1840  
www.acgintl.com

INTERIORS  
SHEEDY/DELAROA  
4045 N. Rockwell Avenue  
Chicago, IL 60618  
P: 312.886.5246  
www.nataliesheedy.com

SURVEYOR  
AMBIT ENGINEERING  
200 Griffin Road, Unit 3  
Portsmouth, NH 03801  
P: 603.430.9282

OWNER OF RECORD  
FOUNDRY PLACE LLC  
157 Deer Street  
Portsmouth NH 03801



REVISIONS

NO.	DESCRIPTION	DATE
1	SCOPE REVISION	6/21/19
2	EXTENSION REQUEST	11/5/19
3	ADDED BIKE RACKS	12/10/19
4	RECORD DRAWING	2/19/20

PROJECT NUMBER 3256.13  
DATE OF ISSUE 11.30.2018  
DRAWN BY CG  
CHECKED BY DER

OVERALL SITE PLAN

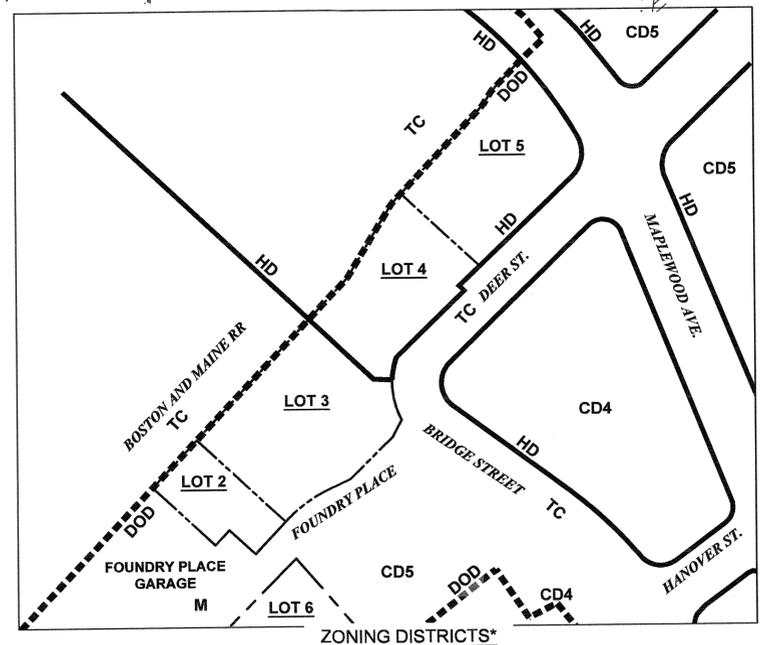
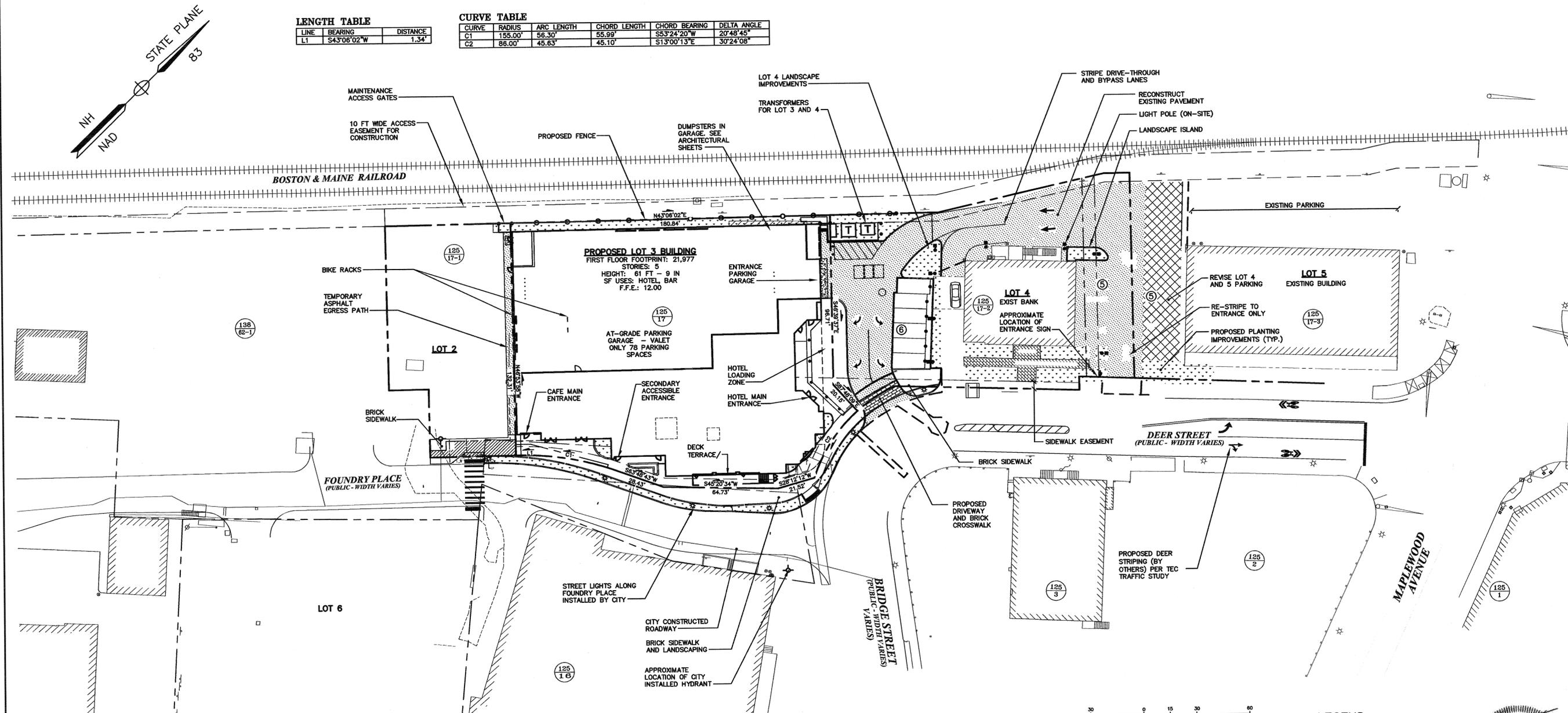
C3.0  
RECORD DRAWING

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	S43°08'02"W	1.34'

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	155.00'	56.30'	65.99'	S53°24'20"W	20°48'45"
C2	86.00'	45.63'	45.10'	S13°00'13"E	30°24'08"



ZONING LEGEND\*

CD5	CHARACTER DISTRICT 5
CD4	CHARACTER DISTRICT 4
M	MUNICIPAL DISTRICT
DOD	DOWNTOWN OVERLAY DISTRICT
HD	HISTORIC DISTRICT
TC	TRANSPORTATION CORRIDOR

\*ZONING IMAGE AND INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH MAPGEO WEBSITE.

NOTES:

- FOR DETAILED LAYOUT AND MATERIALS OF SITE PLAN SEE SHEETS C3.1-C3.3.
- SEE ARCHITECTURE SHEET T.02T FOR FULL BUILDING AND SITE INFORMATION.
- SEE ARCHITECTURAL SHEET A1.01T FOR FULL PARKING AND FIRST FLOOR LAYOUT.
- SOLID WASTE DUMPSTERS ARE LOCATED WITHIN GARAGE. SEE ARCHITECTURAL SHEETS FOR DETAILS.
- SEE LANDSCAPE SHEET (L SERIES) FOR LANDSCAPE AND STREETSCAPE LAYOUT AND DETAILS.
- SEE LIGHTING AND ELECTRICAL SHEETS FOR SITE LIGHTING DETAILS.
- ALL CONDITIONS OF THE PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REGULATIONS.
- 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.
- BRICK COLOR IN VEHICULAR TRAVEL LANES AND PASSENGER LOADING AREAS SHALL BE SELECTED BY OWNER DURING SHOP DRAWINGS.
- ALL SNOW REMOVED FOR LOTS 3 AND SHALL BE DISPOSED OF OFF SITE AND SHALL NOT BE STORED ON CITY PROPERTY.
- BRICK DRIVEWAY CROSSWALK SHALL BE IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND BE KEPT IN GOOD REPAIR AND SHALL BE REPAIRED WITHIN 90 DAYS OF THE DATE OF NOTICE FROM THE CITY. THE MAXIMUM ACCESSIBLE RUNNING SLOPE IS 1/20 OR 5.0%. THE MAXIMUM ACCESSIBLE CROSS SLOPE SHALL BE 1/48 OR 2.08%.
- PARKING GARAGE SPRINKLERS SHALL BE PROVIDED TO PROVIDE ADEQUATE COVERAGE TO UPPER AND LOWER VEHICLE LIFTS.
- THE SITE AND STORMWATER FACILITIES SHALL BE MAINTAINED (AT MINIMUM) PER THE LONG TERM OPERATIONS AND MAINTENANCE PLAN INCLUDED IN THE STORMWATER MANAGEMENT PLAN.
- THE LANDSCAPE SHEETS (L-SERIES) ARE MADE PART OF THIS SITE PLAN.
- A TEMPORARY DEWATERING PERMIT WILL BE REQUIRED FOR ANY TEMPORARY GROUNDWATER DISCHARGES INTO THE CITY STORM DRAIN.
- THE CONSTRUCTION OF A DECK WITHIN THE PUBLIC ROW SHALL REQUIRE A LICENSE.
- ENTRY SIGNS AND WAYFINDING SIGNS WILL REQUIRE A SEPARATE PERMIT.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



Relationships. Responsiveness. Results.  
www.gorrillpalmer.com  
207.772.2515

**OWNER/APPLICANT:**

**EIGHTKPH, LLC**  
233 VAUGHAN STREET, UNIT 301  
PORTSMOUTH, N.H. 03801  
Tel. (617) 901-7993

**CIVIL ENGINEER & LAND SURVEYOR:**

**AMBIT ENGINEERING, INC.**  
200 GRIFFIN ROAD, UNIT 3  
PORTSMOUTH, N.H. 03801  
Tel. (603) 430-9282  
Fax (603) 436-2315

**ARCHITECT:**

**CJ ARCHITECTS**  
233 VAUGHAN STREET, SUITE 101  
PORTSMOUTH, N.H. 03801  
TEL. (603) 431-2808

**LANDSCAPE ARCHITECT:**

**TERRA FIRMA LANDSCAPE ARCHITECTURE**  
163A COURT STREET  
PORTSMOUTH, NH 03801  
TEL. (603) 430-8388

**TRAFFIC ENGINEER:**

**GORRILL PALMER**  
707 SABLE OAKS DRIVE, SUITE 30  
SOUTH PORTLAND, ME 04106  
TEL. (207) 772-2515

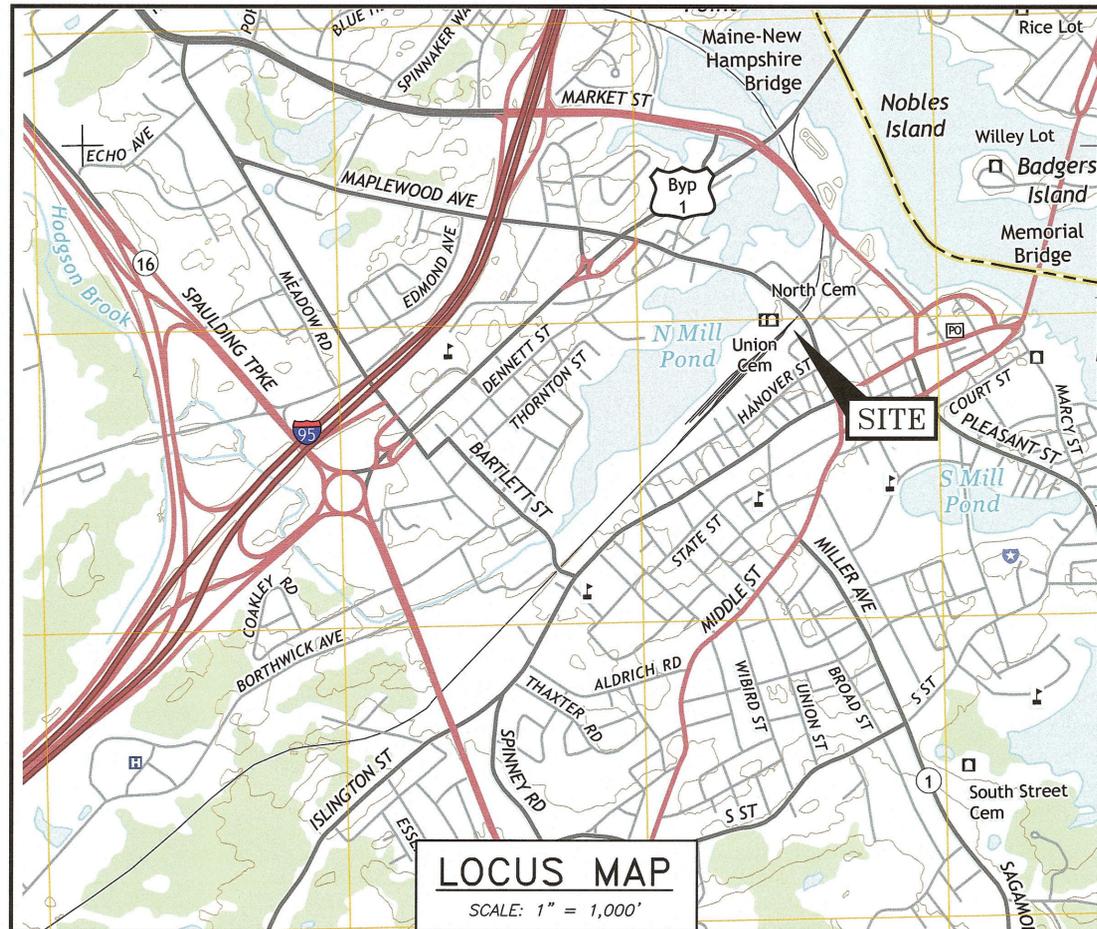
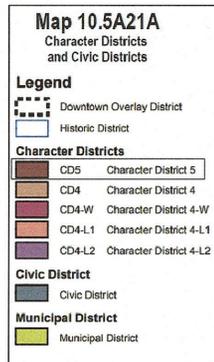
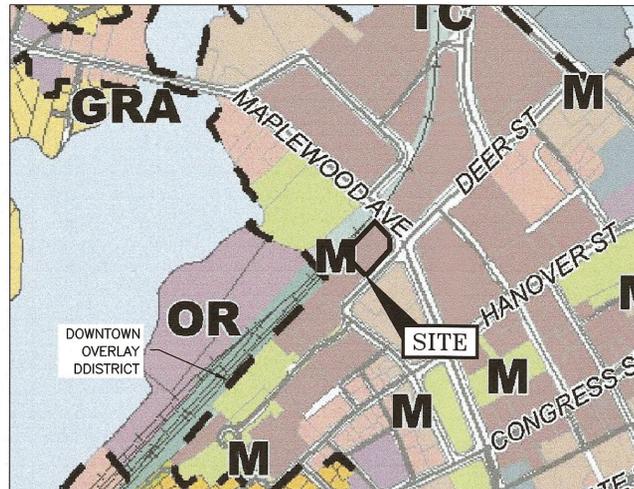
# SITE DEVELOPMENT EIGHTKPH, LLC

## 88 MAPLEWOOD AVENUE (FORMERLY 161 DEER STREET) PORTSMOUTH, NEW HAMPSHIRE PERMIT PLANS

PERMIT LIST:  
NHDES SEWER DISCHARGE PERMIT:  
PORTSMOUTH HDC:  
PORTSMOUTH SITE PLAN:

**LEGEND:**

EXISTING	PROPOSED	
---	---	PROPERTY LINE
---	---	SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
	EP	EDGE OF PAVEMENT (EP)
	CONTOUR	CONTOUR
	SPOT ELEVATION	SPOT ELEVATION
	UTILITY POLE	UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
		GATE VALVE
		HYDRANT
		CATCH BASIN
		SEWER MANHOLE
		DRAIN MANHOLE
		TELEPHONE MANHOLE
		PARKING SPACE COUNT
		PARKING METER
		LANDSCAPED AREA
		TO BE DETERMINED
		CAST IRON PIPE
		COPPER PIPE
		DUCTILE IRON PIPE
		PVC POLYVINYL CHLORIDE PIPE
		RCP REINFORCED CONCRETE PIPE
		ASBESTOS CEMENT PIPE
		VITRIFIED CLAY PIPE
		EDGE OF PAVEMENT
		ELEVATION
		FINISHED FLOOR
		INVERT
		SLOPE FT/FT
		TEMPORARY BENCH MARK
		TYPICAL



**INDEX OF SHEETS**

DWG. NO.	
-	SUBDIVISION PLAN
C1	EXISTING CONDITIONS PLAN
C2	DEMOLITION PLAN
C3	SITE PLAN
A1-A3	ARCHITECTURAL PLANS
L1-L2	LANDSCAPE PLANS
C4	PARKING LEVEL PLAN
C5	UTILITY PLAN
C6	GRADING PLAN
D1-D4	DETAILS

**UTILITY CONTACTS**

**ELECTRIC:**  
EVERSOURCE  
1700 LAFAYETTE ROAD  
PORTSMOUTH, N.H. 03801  
Tel. (603) 436-7708, Ext. 555.5678  
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

**NATURAL GAS:**  
UNITIL  
325 WEST ROAD  
PORTSMOUTH, N.H. 03801  
Tel. (603) 294-5144  
ATTN: DAVE BEAULIEU

**CABLE:**  
COMCAST  
155 COMMERCE WAY  
PORTSMOUTH, N.H. 03801  
Tel. (603) 679-5695 (X1037)  
ATTN: MIKE COLLINS

**SEWER & WATER:**  
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS  
680 PEVERLY HILL ROAD  
PORTSMOUTH, N.H. 03801  
Tel. (603) 427-1530  
ATTN: JIM TOW

**COMMUNICATIONS:**  
CONSOLIDATED COMMUNICATIONS  
JOE CONSIDINE  
1575 GREENLAND ROAD  
GREENLAND, N.H. 03840  
Tel. (603) 427-5525

PORTSMOUTH APPROVAL CONDITIONS NOTE:  
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

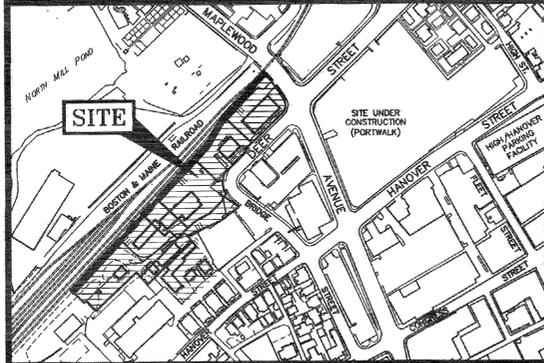
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**SITE PERMIT PLANS  
SITE DEVELOPMENT  
EIGHTKPH, LLC  
88 MAPLEWOOD AVENUE  
FORMERLY 161 DEER STREET  
PORTSMOUTH, N.H.**

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

PLAN SET SUBMITTAL DATE: 23 AUGUST 2022

C/H  
L-CHIP  
ROA355694



LOCATION MAP SCALE: 1" = 300'

**CURVE TABLE**

No.	Delta	Radius	Arc Length	Chord Length	Chord Bearing
C1	1°10'56"	486.00'	10.03'	10.03'	S42°39'42"E

**LENGTH TABLE**

No.	Bearing	Distance
L1	N46°09'30"W	10.00'
L2	S46°53'58"E	10.00'
L3	N46°53'58"W	10.00'
L4	N31°17'20"E	40.14'
L5	N31°26'32"E	17.92'
L6	N43°07'25"E	48.84'
L7	S43°07'25"W	47.08'
L8	S31°26'32"W	17.92'
L9	S31°17'20"W	39.07'
L10	S43°06'02"W	61.50'

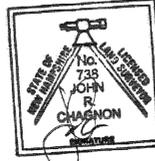
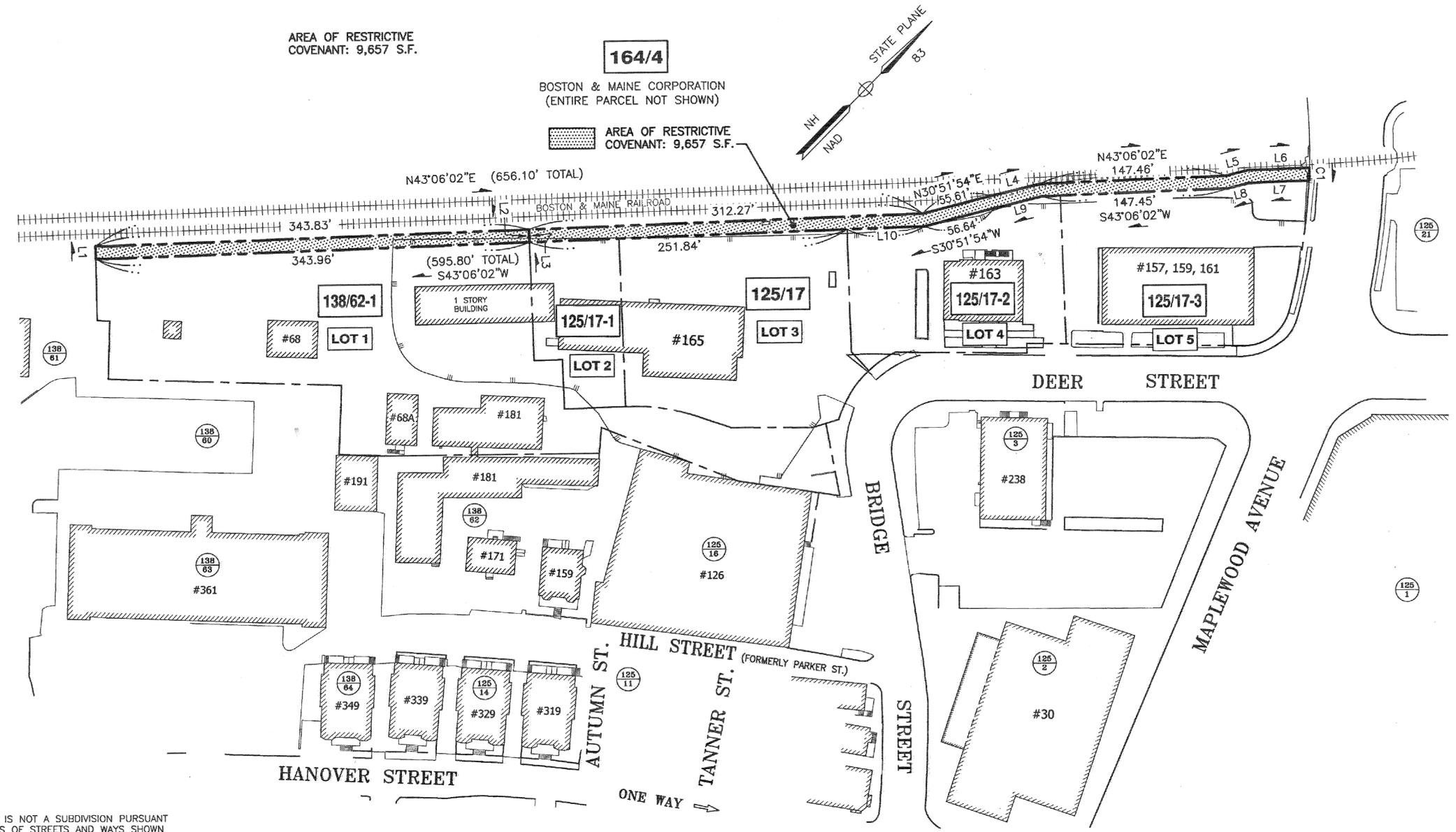
**LEGEND:**

- N/F NOW OR FORMERLY
- RP RECORD OF PROBATE
- RCRD ROCKINGHAM COUNTY REGISTRY OF DEEDS
- MAP 11/LOT 21
- IR FND IRON ROD FOUND
- IP FND IRON PIPE FOUND
- IR SET IRON ROD SET
- DH FND DRILL HOLE FOUND
- DH SET DRILL HOLE SET
- NHDB NHDOT BOUND FOUND
- BND w/DH BOUND WITH DRILL HOLE
- ST BND w/DH STONE BOUND WITH DRILL HOLE
- RR SPK RAILROAD SPIKE

**PLAN REFERENCE:**  
 1. CONSOLIDATION & SUBDIVISION PLAN,  
 DEER STREET ASSOCIATES, 1" = 50',  
 JULY 2015. RCRD D-39699.

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

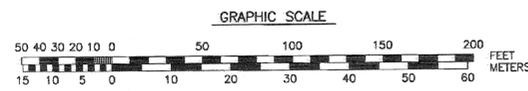
- NOTES:**
- 1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP AS MAP 164, LOT 4.
  - 2) OWNER OF RECORD:  
 BOSTON & MAINE CORPORATION  
 c/o PAN AM SYSTEMS, INC.  
 IRON HORSE PARK  
 HIGH STREET  
 NORTH BILLERICA, MA 01862
  - 3) THE PURPOSE OF THIS PLAN IS TO SHOW THE LOCATION OF AN AREA ON MAP 164, LOT 4 AS SHOWN ON THIS PLAN WHICH WILL BE ENCUMBERED BY A RESTRICTIVE COVENANT TO BENEFIT THE ADJACENT PARCELS.



I CERTIFY THAT THIS SURVEY PLAN IS NOT A SUBDIVISION PURSUANT TO THIS TITLE 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.

JOHN R. CHAGNON, L.L.S. #738

12/16/16  
DATE

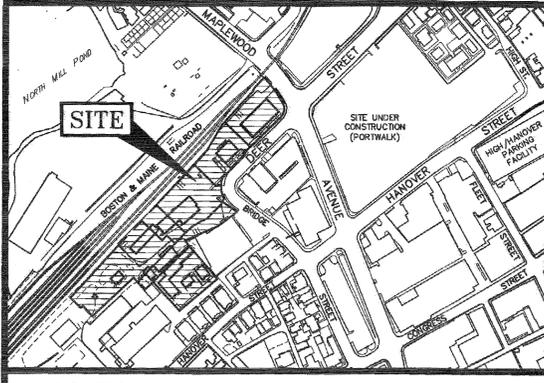


NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	12/16/16

**PLAN OF RESTRICTIVE COVENANT**  
 TAX MAP 164, LOT 4  
 BOSTON & MAINE CORPORATION  
 TO  
 DEER STREET ASSOCIATES  
 BRIDGE & DEER STREETS  
 CITY OF PORTSMOUTH  
 COUNTY OF ROCKINGHAM  
 STATE OF NEW HAMPSHIRE

D-39951

C/H  
L-CHIP  
ROA338849



LOCATION MAP SCALE: 1" = 300'

LEGEND:

- N/F NOW OR FORMERLY
- RP RECORD OF PROBATE
- RCRD ROCKINGHAM COUNTY REGISTRY OF DEEDS
- MAP 11/LOT 21
- IR FND IRON ROD FOUND
- IP FND IRON PIPE FOUND
- IR SET IRON ROD SET
- DH FND DRILL HOLE FOUND
- DH SET DRILL HOLE SET
- NHND NHDOT BOUND FOUND
- BND w/DH BOUND WITH DRILL HOLE
- ST BND w/DH STONE BOUND WITH DRILL HOLE
- RR SPK RAILROAD SPIKE

138-62-1 ASSESSOR'S MAP 138 LOT 62-1

ASSESSOR'S MAP/LOT NUMBER ASSIGNMENT

LOT 1	138-62-1
LOT 2	125-17-1
LOT 3	125-17
LOT 4	125-17-2
LOT 5	125-17-3
LOT 6	138-62

ABUTTERS LIST

- |  |  |   |
|--|--|---|
| <p>125 1<br/>N/F HANOVER APARTMENTS, LLC<br/>c/o CATHARTES PRIVATE INVESTMENTS<br/>11 BEACON STREET, SUITE 1120<br/>BOSTON, MA 02108<br/>5387/2814</p> | <p>125 16<br/>N/F JOHN W. GRAY REVOCABLE TRUST<br/>BRADFORD A. GRAY REVOCABLE TRUST<br/>7 PATRIOTS WAY<br/>RYE, N.H. 03870<br/>3895/643</p>                            | <p>138 61<br/>N/F PETER HAPPNY<br/>66 ROCK STREET<br/>PORTSMOUTH, N.H. 03801<br/>2302/1079<br/>D-31107</p>                            |
| <p>125 2<br/>N/F THIRTY MAPLEWOOD, LLC<br/>117 BOW STREET<br/>PORTSMOUTH, N.H. 03801<br/>5099/2424</p>   | <p>125 21<br/>N/F NORTH END MASTER DEVELOPMENT L.P.<br/>501 DANFORTH STREET<br/>PORTLAND, ME 04102<br/>5569/2553</p>   | <p>138 62<br/>N/F DEER STREET ASSOCIATES<br/>P.O. BOX 100<br/>YORK HARBOR, ME. 03911<br/>5518/2744</p>                                |
| <p>125 3<br/>N/F EMERSON HOVEY<br/>POST 168 VWV<br/>23R DEER STREET<br/>PORTSMOUTH, N.H. 03801</p>   | <p>125 28<br/>N/F GOWEN G. EDWARD, JR.<br/>REVOCABLE LIVING TRUST<br/>COWEN G. EDWARD, JR., TRUSTEE<br/>355 GREAT BAY ROAD<br/>GREENLAND, N.H. 03840<br/>4327/2531</p> | <p>138 63<br/>N/F KEARSARGE MILL CONDOMINIUM ASSOCIATION<br/>191 HILL STREET<br/>PORTSMOUTH, N.H. 03801<br/>2596/1585<br/>D-14855</p> |
| <p>125 11<br/>N/F 136 HILL STREET CONDOMINIUM ASSOCIATION<br/>136 HILL STREET<br/>PORTSMOUTH, N.H. 03801<br/>4823/873<br/>C-34853</p>                  | <p>138 60<br/>N/F CITY OF PORTSMOUTH<br/>P.O. BOX 628<br/>PORTSMOUTH, N.H. 03802</p>   | <p>138 64<br/>N/F HANOVER PLACE CONDOMINIUM ASSOCIATION<br/>349 HANOVER STREET<br/>PORTSMOUTH, N.H. 03801<br/>4807/18<br/>D-33379</p> |
| <p>125 14<br/>N/F HILL HANOVER GROUP, LLC<br/>c/o JPK PROPERTIES, LLC<br/>1 NEW HAMPSHIRE AVENUE, #125<br/>PORTSMOUTH, N.H. 03801<br/>4356/10</p>      |  |   |

CURVE TABLE

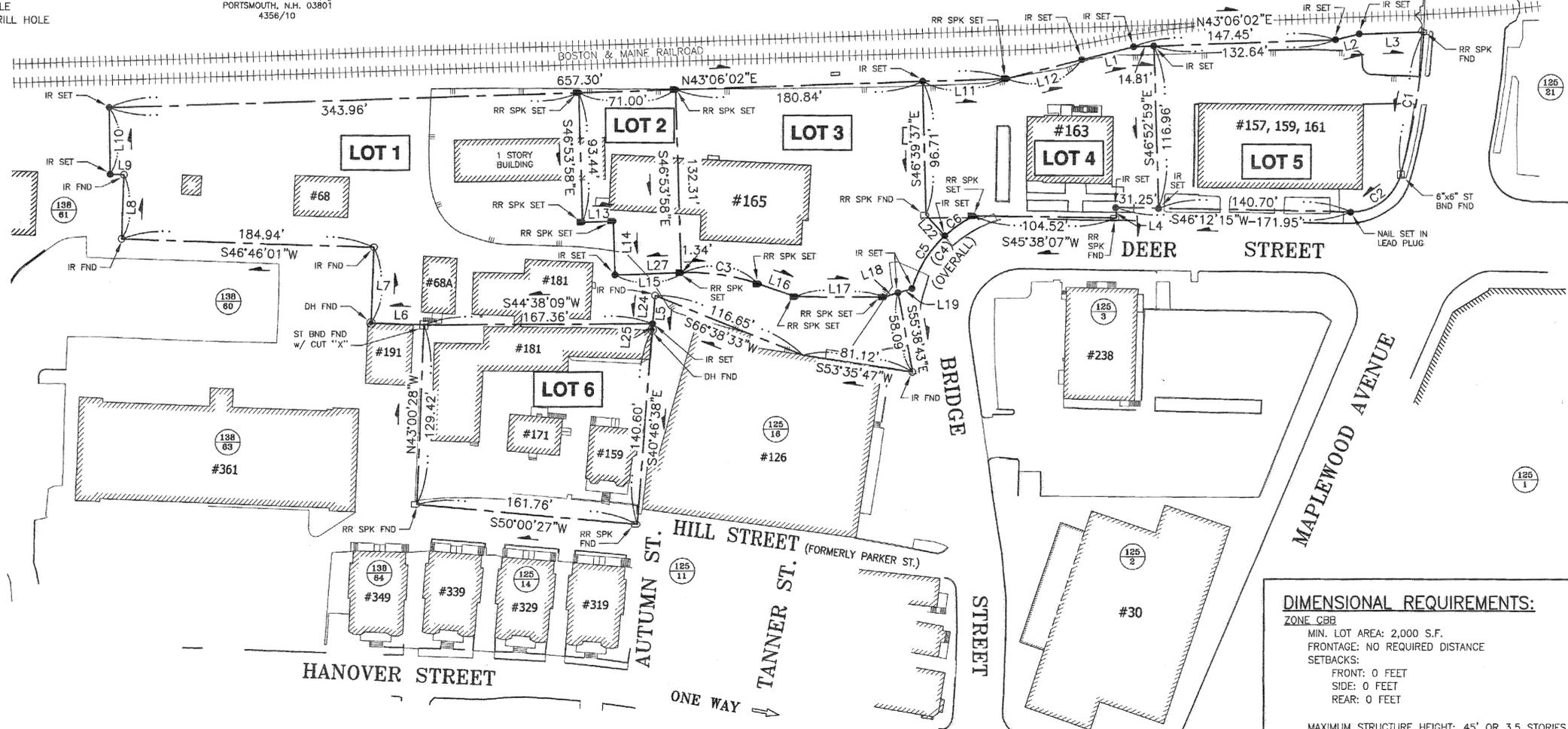
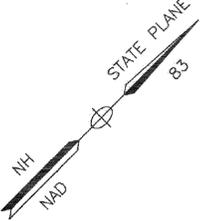
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	486.00'	104.20'	104.00'	S35°55'41"E	12°17'05"
C2	37.00'	48.72'	45.28'	S07°58'11"W	75°26'43"
C3	155.00'	56.30'	55.99'	N53°24'20"E	20°48'43"
C4	86.00'	71.12'	69.11'	S04°30'52"E	47°22'49"
C5	86.00'	45.63'	45.10'	S13°00'13"E	30°24'08"
C6	86.00'	25.48'	25.39'	S10°41'12"W	16°58'41"

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	N31°17'20"E	39.07'
L2	N31°26'32"E	17.92'
L3	N43°07'25"E	47.08'
L4	S46°46'25"E	7.69'
L5	S40°13'28"E	24.63'
L6	S47°00'33"W	38.74'
L7	N42°48'33"W	54.65'
L8	N43°03'00"W	46.10'
L9	S46°48'04"W	10.00'
L10	N46°09'30"W	48.26'
L11	N43°06'02"E	61.50'
L12	N30°51'54"E	56.64'
L13	N43°06'02"E	22.52'
L14	S46°53'58"E	38.87'
L15	N43°06'02"E	49.82'
L16	N63°48'43"E	28.42'
L17	N45°20'34"E	64.73'
L18	N28°12'12"E	10.82'
L19	N28°12'12"E	10.70'
L20	N55°38'43"W	57.54'
L21	N45°47'00"E	31.08'
L22	S87°48'09"E	20.15'
L23	N45°47'00"E	34.67'
L24	S40°13'28"E	20.31'
L25	S40°13'28"E	4.32'
L26	N39°12'52"E	42.20'
L27	S43°06'02"W	48.48'

PLAN REFERENCES:

- PLAN OF LAND FOR NETTY AND GERALD TAUBE, AUGUST 2004 BY MILLETTE, SPRAGUE & COLWELL, RCRD D-32051.
- CONDOMINIUM SITE PLAN FOR HANOVER PLACE CONDOMINIUM, 349 HANOVER STREET, PORTSMOUTH NH. BY MILLETTE, SPRAGUE AND COLWELL, INC. DATED 12/20/05. RCRD D-33379.
- KEARSARGE MILL CONDOMINIUMS, HANOVER STREET, PORTSMOUTH, NH. BY KIMBALL CHASE DATED 2/18/17. RCRD D-34716.
- BOUNDARY LINE AGREEMENT PLAN, KEARSARGE MILL CONDOMINIUMS, PORTSMOUTH, NH. BY JONES & BEACH ENGINEERS, INC. DATED 4/10/97. RCRD D-25421.
- KEARSARGE MILLS CONDOMINIUM PLANS FOR MAYFAIR REALTY TRUST, CAMBRIDGE PORT TRUST, PORTSMOUTH, NH. BY KIMBALL CHASE. RCRD D-14855.
- EASEMENT PLAN, TAX MAP 164 - LOT 4, BOSTON & MAINE CORPORATION TO THE CITY OF PORTSMOUTH OFF BREWSTER STREET, PORTSMOUTH, NH. BY AMBIT ENGINEERING, INC. DATED 4/19/03. RCRD D-37720.
- SUBDIVISION OF LAND OF PORTSMOUTH MFG. AND POWER CO., PORTSMOUTH, NH BY JOHN W. DURGIN DATED NOV. 1925. RCRD #0368.
- LAND IN PORTSMOUTH, NH PORTS. MFG. & POWER CO. TO HAROLD S. WOODS. BY JOHN W. DURGIN DATED NOV. 1926. RCRD #00389.
- TAX MAP 125 LOT 14 & MAP 138 LOT 62, PROPERTY OF HILL HANOVER GROUP, LLC, HILL, HANOVER & AUTUMN STREETS, PORTSMOUTH, NH. BY MSC, INC. DATED 10/10/2008. NOT RECORDED.
- PLAN OF LAND IN PORTSMOUTH, NH, PORTSMOUTH MFG. & POWER CO. TO FRANK E. BROOKS BY JOHN W. DURGIN DATED FEB. 1918. RCRD #078.
- CONDOMINIUM SITE PLAN, 136 HILL STREET CONDOMINIUM, PORTSMOUTH, NH, TAX MAP 125 LOT 11. BY ANDOVER CONSULTANTS, INC. DATED JULY 12, 2007. RCRD C-34853.
- LAND IN PORTSMOUTH, NH, BOSTON & MAINE RAILROAD TO ROGER E. MOULTON AND CHESTER GOODWIN, DATED MARCH 1950. RCRD 01684.
- PROPOSED PROPERTY TRANSFER, TAX MAP 125 - LOT 17, BOSTON & MAINE TO DEER STREET LIMITED PARTNERSHIP, 165 DEER STREET, PORTSMOUTH, NH BY AMBIT ENGINEERING, INC. DATED 6/13/13. RCRD D-37797.
- PLAN OF LAND FOR DEER STREET ASSOCIATES, DEER & BRIDGE STREETS AND MAPLEWOOD AVENUE, PORTSMOUTH AVENUE BY AMBIT SURVEY DATED SEPTEMBER 1993. RCRD D-22543.
- PROPOSED ROADWAY ALIGNMENT AND LAND TRANSFER PLAN, CITY OF PORTSMOUTH TO DEER STREET ASSOCIATES (TO BE RECORDED).



**DIMENSIONAL REQUIREMENTS:**  
 ZONE CBB  
 MIN. LOT AREA: 2,000 S.F.  
 FRONTAGE: NO REQUIRED DISTANCE  
 SETBACKS:  
 FRONT: 0 FEET  
 SIDE: 0 FEET  
 REAR: 0 FEET  
 MAXIMUM STRUCTURE HEIGHT: 45' OR 3.5 STORIES, WHICHEVER IS LESS  
 MAXIMUM BUILDING COVERAGE: 95%  
 MINIMUM OPEN SPACE: 0%  
 ZONE OR  
 DUE TO THE PROXIMITY TO NORTH MILL POND, ZONE REQUIREMENTS ARE A MIX OF OFFICE RESEARCH & INDUSTRIAL ZONES. REFER TO ZONING ORDINANCE FOR DIMENSIONS.

NOTES:

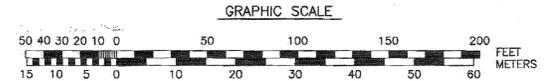
- PARCELS ARE SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAPS AS MAP 125, LOT 17 & MAP 138, LOT 62.
- OWNERS OF RECORD:  
 MAP 125, LOT 17  
 DEER STREET ASSOCIATES  
 P.O. BOX 100  
 YORK HARBOR, ME 03911  
 3395/2669, 5534/2077, 5453/138  
 MAP 138, LOT 62  
 DEER STREET ASSOCIATES  
 P.O. BOX 100  
 YORK HARBOR, ME 03911  
 5518/2744
- PARCELS ARE NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0259E. MAY 17, 2005.
- EXISTING LOT AREA:  
 LOT 17 109,987 S.F. 2.5250 ACRES  
 LOT 62 42,604 S.F. 0.9781 AC  
 PROPOSED LOT AREAS:  
 LOT 1 54,017 S.F. 1.2401 AC.  
 LOT 2 8,519 S.F. 0.1956 AC.  
 LOT 3 26,503 S.F. 0.6084 AC.  
 LOT 4 18,347 S.F. 0.4212 AC.  
 LOT 5 22,667 S.F. 0.5204 AC.  
 LOT 6 22,538 S.F. 0.5174 AC.
- ZONING DISTRICTS:  
 CENTRAL BUSINESS B (CBB), HISTORIC OVERLAY DISTRICT (PARTIAL), & OFFICE RESEARCH (OR)
- THE PURPOSE OF THIS PLAN IS TO SHOW THE CONSOLIDATION OF TAX MAP 125 LOT 17 AND TAX MAP 138 LOT 62 AND THE SUBDIVISION OF THAT LOT INTO 6 LOTS.
- LOT 2 TO BE A NON-BUILDABLE LOT UNTIL SUCH TIME AS FRONTAGE IS CREATED OR LOT 2 IS MERGED WITH AN ADJACENT PARCEL.
- THE EXISTING SITE IMPROVEMENTS SHALL BE ALLOWED TO REMAIN. AT SUCH TIME AS THE LOTS ARE NOT UNDER COMMON OWNERSHIP, EASEMENTS SHALL BE CREATED TO ALLOW THE BUILDINGS ACROSS BOUNDARY LINES TO REMAIN OR THE BUILDINGS SHALL BE REMOVED. ANY EASEMENTS CREATED SHALL BE REVIEWED AND APPROVED BY THE CITY OF PORTSMOUTH.
- FOR SITE EASEMENT RESTRICTIONS AND LOCATIONS SEE "PROPERTY EASEMENTS" PLAN DATED 12/15/14 BY AMBIT ENGINEERING.

NO.	DESCRIPTION	DATE
4	TAX MAP/LOT NUMBERS	5/18/16
3	ISSUED FOR RECORDING; MONUMENTS	3/24/16
2	REVISED LOTS 1, 2, AND 3	8/6/15
1	ISSUED FOR APPROVAL	7/31/15
0	ISSUED FOR COMMENT	7/28/15

**CONSOLIDATION & SUBDIVISION PLAN**  
 TAX MAP 125, LOT 17 & TAX MAP 138, LOT 62  
 DEER STREET ASSOCIATES  
 BRIDGE, DEER, & HILL STREETS  
 CITY OF PORTSMOUTH  
 COUNTY OF ROCKINGHAM  
 STATE OF NEW HAMPSHIRE

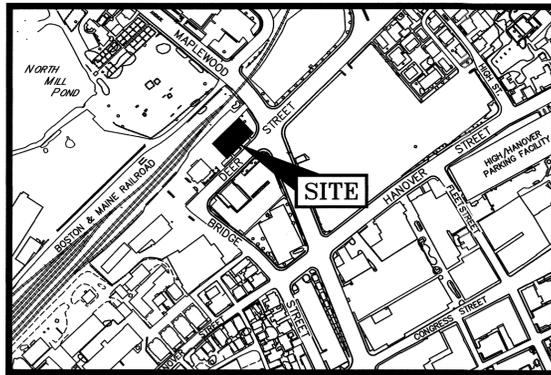
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN 9/7/16  
 DATE



D-39699

J:\JOBSET\1422009\UN2270a\UN2271\Subdivision\Plans & Specs\Site\2271\Subdivision\PaperSpace.DWG, CONSOLID. SUBDPY



LOCATION MAP

SCALE: 1" = 300'

SEWER STRUCTURE TABLE

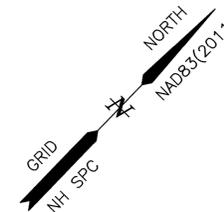
STRUCTURE	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	PIPE SIZE & TYPE
1499	15.80	-1.80	-1.80	48" BRICK BOX
		-1.80	-1.80	48" BRICK BOX
1501	13.58	-0.30	-0.30	24" (NNE)
		-0.32	-0.32	24" (SE)
2305	10.90	-1.17	-1.17	48" VC

PLAN REFERENCES:

- 1) CONSOLIDATION & SUBDIVISION PLAN TAX MAP 125, LOT 17 & TAX MAP 138, LOT 62 DEER STREET ASSOCIATES, BRIDGE, DEER, AND HILL STREETS. PREPARED BY AMBIT ENGINEERING, INC. DATED JULY 2015. SCALE: 1"=50'. RCRD D-39699.
- 2) PLAN OF RESTRICTIVE COVENANT TAX MAP 164, LOT 4 BOSTON AND MAINE CORPORATION TO DEER STREET ASSOCIATES. PREPARED BY AMBIT ENGINEERING, INC. DATED DECEMBER 2016. SCALE: 1"=50'.
- 3) EASEMENT PLAN TAX MAP 125- LOT 17, FOR FOUNDRY PLACE, LLC. PREPARED BY AMBIT ENGINEERING, INC. DATED NOVEMBER 2018. LATEST REVISION #3 DATED 4/16/20. SCALE: 1" = 20'.

TBM 4  
CHISELED SQUARE  
IN NE CORNER OF  
TRANSFORMER PAD  
EL.=14.77

TBM 5  
CHISELED SQUARE  
IN NE QUADRANT  
OF MAST BASE  
EL.=15.20



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

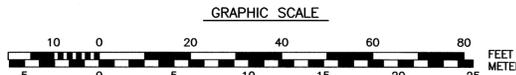
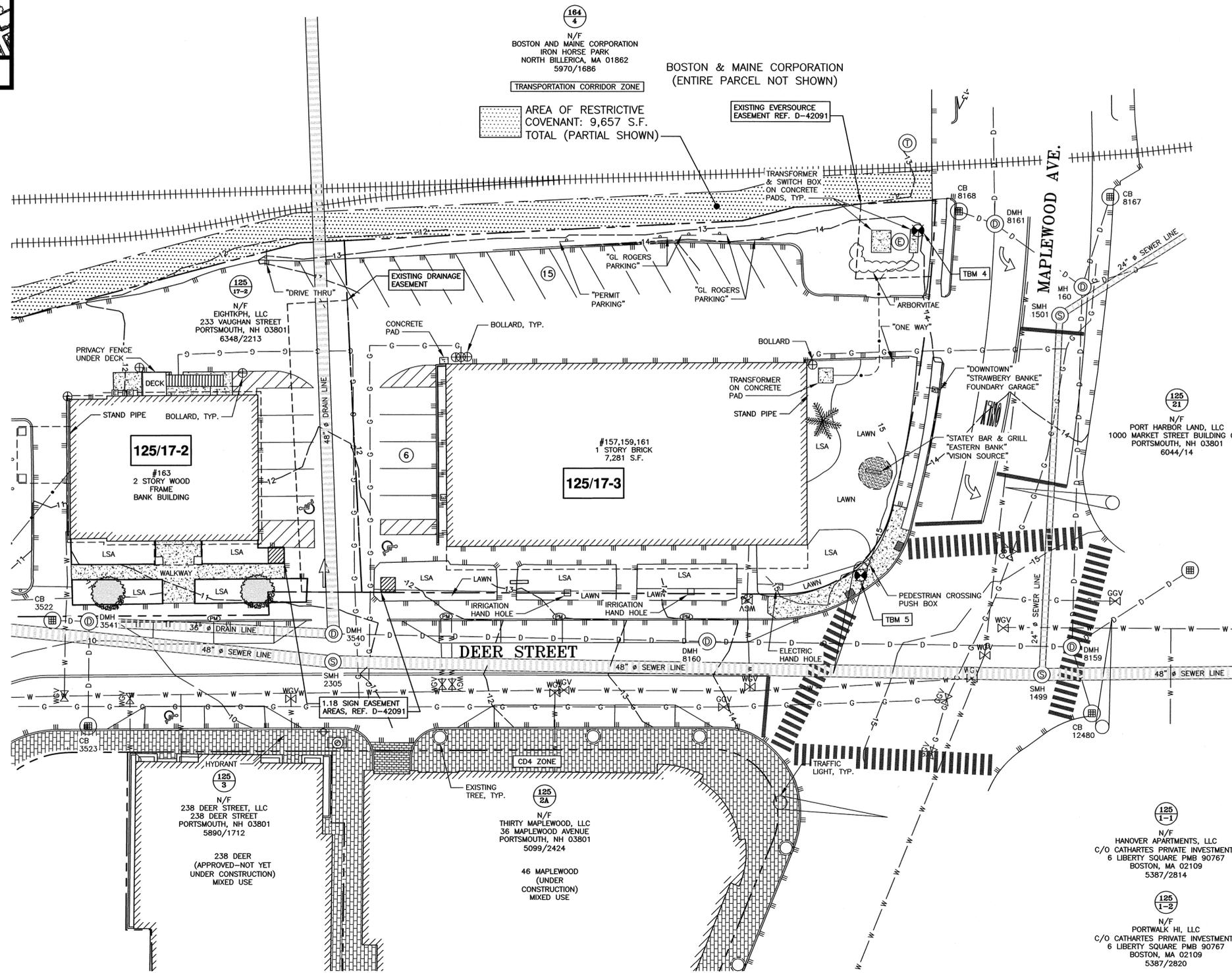
NOTES:

- 1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSORS MAP 125 AS LOT 17-3.
- 2) OWNER OF RECORD:  
EIGHTKPH, LLC  
233 VAUGHAN STREET  
UNIT 301  
PORTSMOUTH, NH 03801  
6348/2213
- 3) PARCEL IS LOCATED IN CHARACTER DISTRICT 5 ZONE; DOWNTOWN OVERLAY, NORTH END INCENTIVE OVERLAY & HISTORIC DISTRICTS.
- 4) DIMENSIONAL REQUIREMENTS (ALSO SEE ORDINANCE):  
CHARACTER DISTRICT 5:  
MIN. LOT AREA: NO REQUIREMENT  
FRONTAGE: NO REQUIREMENT  
SETBACKS:  
FRONT (MAX.) 5 FEET (PRIMARY)  
FRONT (MAX.) 5 FEET (SECONDARY)  
SIDE NO REQUIREMENT  
REAR GREATER OF 5 FEET FROM REAR LOT LINE OR 10 FEET FROM CENTER OF ALLEY  
  
MAXIMUM STRUCTURE HEIGHT: SEE CITY PLAN  
MAXIMUM STRUCTURE COVERAGE: 90%  
MAXIMUM BUILDING FOOTPRINT: 20,000 S.F.  
MINIMUM OPEN SPACE: 5%  
MINIMUM FRONT LOT LINE BUILDOUT: 80%
- 5) LOT AREA: 22,667 S.F.  
0.5204 ACRES
- 6) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F, EFFECTIVE JANUARY 29, 2021
- 7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON TAX MAP 125, LOT 17-3 IN PORTSMOUTH, NH.
- 8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBS.
- 9) PARCEL MAY BE SUBJECT TO TEMPORARY CONSTRUCTION EASEMENTS AS SHOWN ON RCRD D-42091 SHEET 2.
- 10) PARCEL IS SUBJECT TO AGREEMENT REGARDING RELOCATION OF UNDERGROUND FACILITIES 5751/1504.

LEGEND (SEE COVER SHEET)

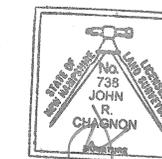
DRAIN STRUCTURE TABLE

STRUCTURE	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	PIPE SIZE & TYPE
CB 3522	10.12	-	7.52±	12" RCP (NE)
		-	-	-
CB 3523	9.52	-	6.32	12" (NW)
		-	-	-
DMH 3540	10.81	NA	1.56	18" RCP (NE) 36" (SW)
		-	-	-
DMH 3541	10.26	7.52±	1.96	48" RCP (NW)
		7.52±	-	12" RCP (SW) 12" RCP (SE) 36" (S)
		2.10	-	36" (NE)
		1.96	-	36" (NE)
DMH 8159	15.96	12.36	4.96	12" RCP (NNE) 12" RCP (SSE) 18" CPP (ESE) 12" RCP (SW)
		11.81	-	18" RCP (SW)
		8.78	-	18" RCP (SW)
		5.06	-	18" RCP (SW)
DMH 8160	13.50	9.5	5.55	12" PVC (NNE) 12" RCP (NNW) 12" RCP (W)
		8.6	-	12" RCP (SE)
		5.5	-	12" RCP (SE)
DMH 8161	13.20	9.75	5.68	12" RCP (WSW) 12" RCP (NW)
		5.72	-	12" RCP (ENE)
CB 8167	13.45	-	-	12" RCP (SSE)
CB 8168	13.19	-	-	12" RCP (ENE)
CB 12480	15.46	-	-	18" CPP (WNW)



**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22
REVISIONS		



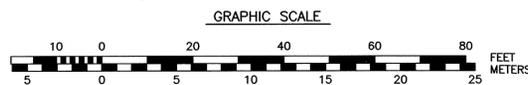
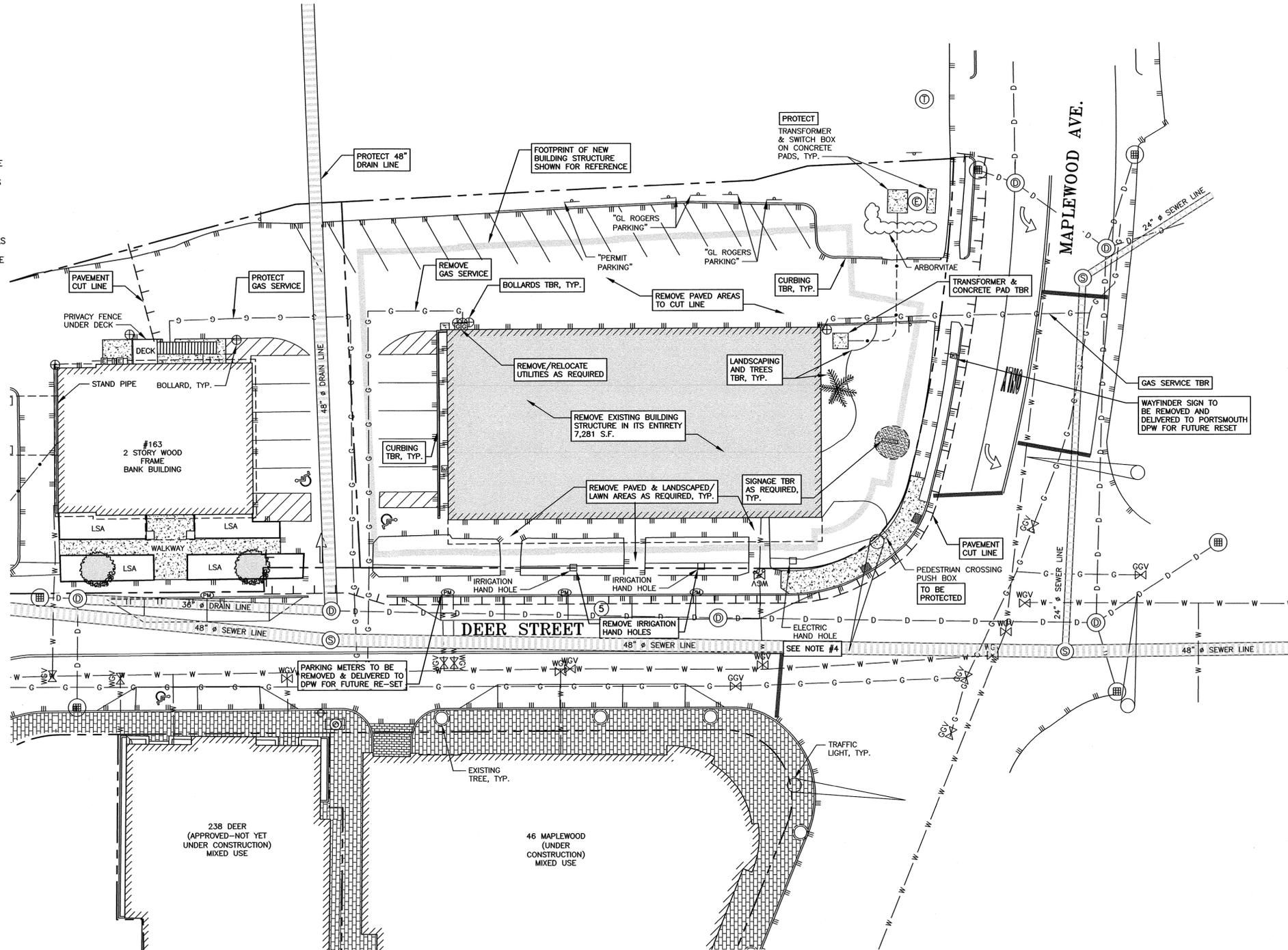
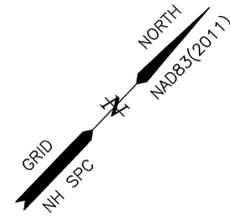
SCALE: 1" = 20' AUGUST 2022

EXISTING CONDITIONS PLAN

C1

**DEMOLITION NOTES**

- A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.
- B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
- C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
- E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.
- F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.
- G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.
- H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.
- I) ALL WORK WITHIN THE CITY OF PORTSMOUTH RIGHT OF WAY SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS (DPW).
- J) REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL SLUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF-SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
- K) CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED, THE CONTRACTOR SHALL EMPLOY A NH LICENSED LAND SURVEYOR TO REPLACE THEM.
- L) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN 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 WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
- M) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
- N) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS

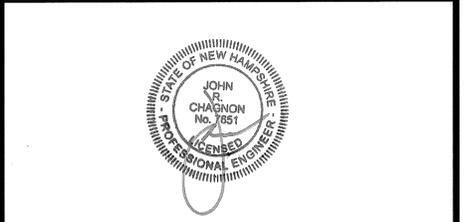


**AMBIT ENGINEERING, INC.**  
 Civil Engineers & Land Surveyors  
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 Portsmouth, N.H. 03801-7114  
 Tel (603) 430-9282  
 Fax (603) 436-2315

- NOTES:**
- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.
  - 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
  - 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).
  - 4) CITY STREET LIGHTING CIRCUIT TO BE REVIEWED PRIOR TO CONSTRUCTION AND REPLACEMENT POWER SOURCE IDENTIFIED.

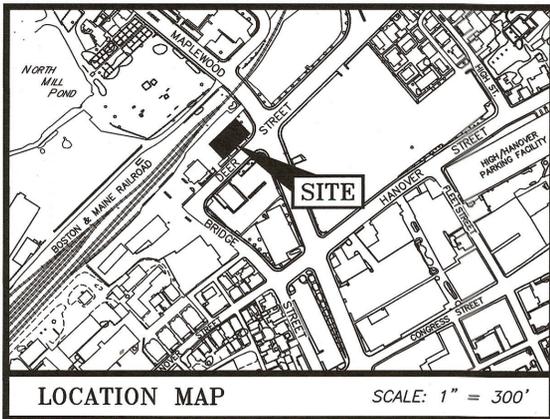
**SITE DEVELOPMENT  
 EIGHTKPH, LLC  
 88 MAPLEWOOD AVENUE  
 PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22



SCALE: 1" = 20'      AUGUST 2022

**DEMOLITION PLAN**      **C2**



LOCATION MAP

SCALE: 1" = 300'

**PLAN REFERENCES:**

- 1) CONSOLIDATION & SUBDIVISION PLAN TAX MAP 125, LOT 17 & TAX MAP 138, LOT 62 DEER STREET ASSOCIATES, BRIDGE, DEER, AND HILL STREETS. PREPARED BY AMBIT ENGINEERING, INC. DATED JULY 2015. SCALE: 1"=50'. RCRD D-39699.
- 2) PLAN OF RESTRICTIVE COVENANT TAX MAP 164, LOT 4 BOSTON AND MAINE CORPORATION TO DEER STREET ASSOCIATES. PREPARED BY AMBIT ENGINEERING, INC. DATED DECEMBER 2016. SCALE: 1"=50'.
- 3) EASEMENT PLAN TAX MAP 125- LOT 17, FOR FOUNDRY PLACE, LLC. PREPARED BY AMBIT ENGINEERING, INC. DATED NOVEMBER 2018. LATEST REVISION #3 DATED 4/16/20. SCALE: 1" = 20'.

**COMMUNITY SPACE:**

TOTAL LOT AREA: 22,667 S.F.

PROPOSED COMMUNITY SPACE: 4,591 S.F. (20.3%)

12' WIDE PEDESTRIAN SIDEWALK: 1,355 S.F.

POCKET PARK AND PUBLIC UTILITIES: 3,236 S.F.

**CONCEPTUAL AREA SUMMARY:**

FIRST FLOOR: 11,896 GSF  
 SECOND FLOOR: 16,944 GSF  
 THIRD FLOOR: 16,944 GSF  
 FOURTH FLOOR: 16,944 GSF  
 PENTHOUSE: 7,167 GSF  
 TOTAL GSF: 69,895 GSF

**BUILDING DATA:**

PROPOSED BUILDING:  
 16,944 S.F. FOOTPRINT

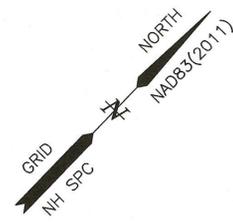
**HEIGHT DATA:**

LOT	REQUIRED HEIGHT & STORIES	PROPOSED HEIGHT & STORIES
17-3	4 STORIES AND PENTHOUSE	*62'

\*SEE COMMUNITY SPACE

**IMPERVIOUS SURFACE AREAS  
 (TO PROPERTY LINE)**

STRUCTURE	EXISTING IMPERVIOUS (S.F.)	PROPOSED IMPERVIOUS (S.F.)
MAIN STRUCTURE	7281	16944
SIDEWALKS	0	2,906
PAVEMENT	9465	371
CONCRETE	98	128
RETAINING WALL	0	411
CURBING	123	51
STEPS	0	15
TOTAL	16,967	20,826
LOT SIZE	22,667	22,667
% LOT COVERAGE	74.9%	91.9%



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

**NOTES:**

- 1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSORS MAP 125 AS LOT 17-3.
- 2) OWNER OF RECORD: EIGHTKPH, LLC, 233 VAUGHAN STREET, UNIT 301, PORTSMOUTH, NH 03801, 6348/2213
- 3) PARCEL IS LOCATED IN CHARACTER DISTRICT 5 ZONE; DOWNTOWN OVERLAY, NORTH END INCENTIVE OVERLAY & HISTORIC DISTRICTS.
- 4) DIMENSIONAL REQUIREMENTS: SEE ZONING TABLE.
- 5) LOT AREA: 22,667 S.F. 0.5204 ACRES
- 6) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F, EFFECTIVE JANUARY 29, 2021
- 7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED DEVELOPMENT ON TAX MAP 125, LOT 17-3 IN PORTSMOUTH, NH. PROPOSED USE: FIRST FLOOR COMMERCIAL AND 19 RESIDENTIAL UNITS ON UPPER FLOORS.
- 8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBS.
- 9) PARCEL IS BENEFITTED BY A RESTRICTIVE COVENANT (NO BUILD EASEMENT) ON THE ADJACENT BOSTON AND MAINE PROPERTY.
- 10) REQUIRED PARKING:  
 125-17-2  
 COMMERCIAL BANKING: 4,500 S.F.  
 4,500 S.F. X 1/400 S.F. = 12 SPACES REQUIRED  
 13 SPACES PROVIDED  
 125-17-3  
 FIRST FLOOR: EXEMPT  
 19 DWELLING UNITS: 1.3/UNIT X 19 UNITS = 25 VISITOR: 19/5 X 1 = 4  
 29 SPACES REQUIRED  
 29 SPACES PROVIDED

**ZONING DEVELOPMENT STANDARD**

CD5: CHARACTER DISTRICT 5

BUILDING PLACEMENT (PRINCIPAL):

	157-161 DEER	88 MAPLEWOOD	
REQUIRED	EXISTING	PROPOSED	
MAX. PRINCIPLE FRONT YARD:	5 FEET	15'	5.0'
MAX. SECONDARY FRONT YARD:	5 FEET	24'	5.7'*
MIN. SIDE YARD:	NR	29'	4.0'
MIN. REAR YARD:	5 FEET	42'	15.8'
FRONT LOT LINE BUILDOUT:	80% MIN	75%	83%
ABUT RAILROAD:	15'	42'	15.4'

BUILDING TYPES:  
 PERMITTED BUILDING TYPES: LIVE/WORK BUILDING\*, SMALL COMMERCIAL BUILDING, LARGE COMMERCIAL BUILDING, MIXED-USE BUILDING\*, FLEX SPACE BUILDING, COMMUNITY BUILDING PROPOSED: MIXED-USE BUILDING  
 \*RESIDENTIAL USES ARE NOT PERMITTED ON THE GROUND FLOOR IN THE DOWNTOWN OVERLAY DISTRICT.

PERMITTED FACADE TYPES: STOOP, STEP, SHOPFRONT, OFFICEFRONT, RECESSED ENTRY, GALLERY, ARCADE

BUILDING FORM:

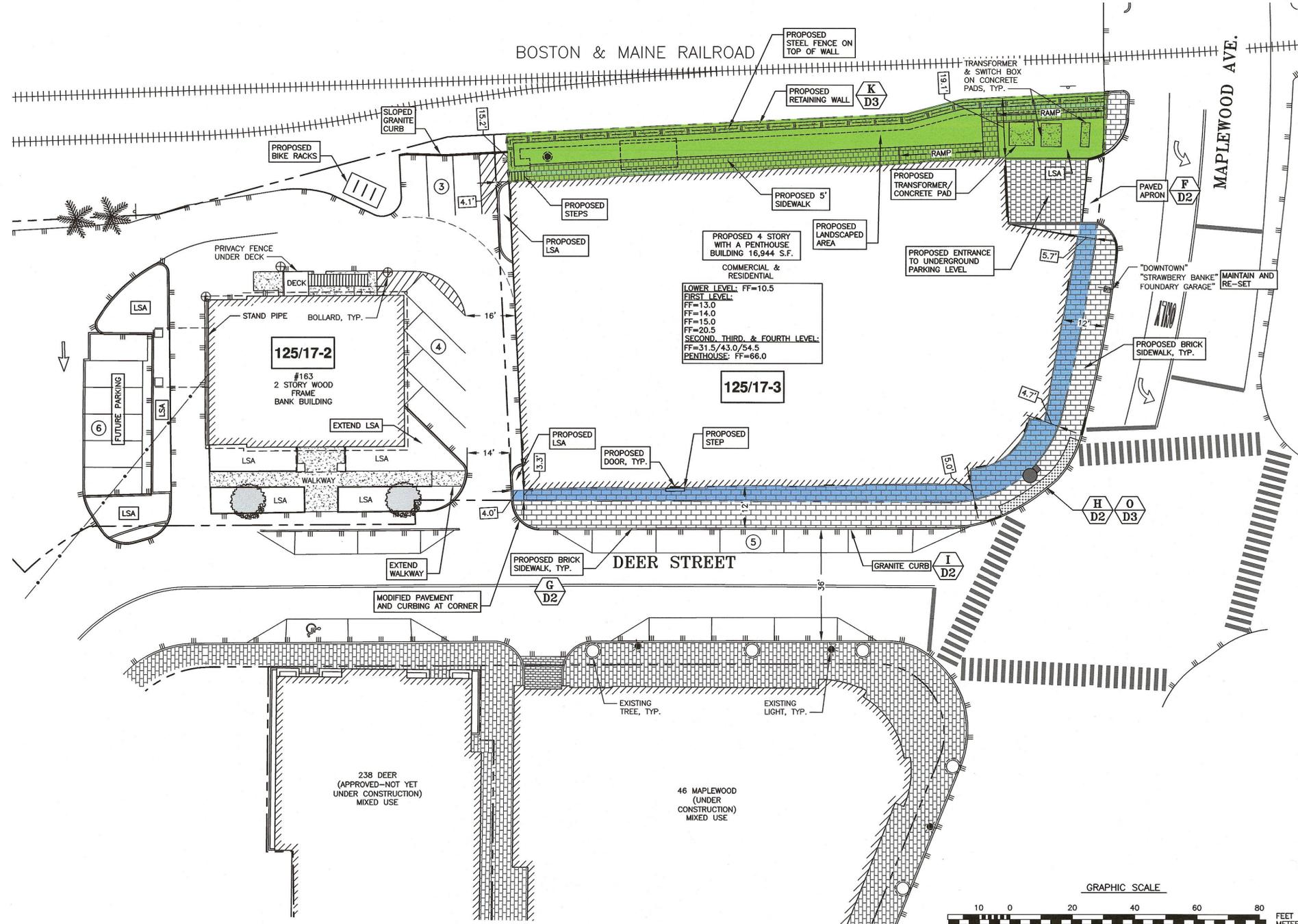
	REQUIRED	EXISTING	PROPOSED
MAX STRUCTURE HEIGHT:	62* FEET	<35'	62'
MAX. FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 INCHES	4"	18"
MIN. GROUND STORY HEIGHT:	12 FEET	-	17'
MIN. SECOND STORY HEIGHT:	10 FEET	-	11.5'
FACADE GLAZING (WINDOW/PERIMETER):	70% SHOP 20-50% OTHER	-	COMPLIES

ROOF TYPE ALLOWED: FLAT, GABLE, HIP

LOT OCCUPATION:

	REQUIRED	EXISTING	PROPOSED
MAX BUILDING BLOCK:	225 FEET	120'	180'
MAX FACADE MOD. LENGTH:	100 FEET	120'	60'
MIN. ENTRANCE SPACING:	50 FEET	40'+/-	50'
MAX BUILDING COVERAGE:	90%	32%	74.7%
MAX BUILDING FOOTPRINT:	20,000 SF	7,281 S.F.	16,944 S.F.
MIN. LOT AREA:	NR	22,667 S.F.	22,667 S.F.
MIN. LOT AREA/DWELLING (LOT AREA/# OF UNITS):	NR	-	-
MIN. OPEN SPACE :	5%	68%	20.3%

\*WITH COMMUNITY SPACE AND PENTHOUSE



THIS SITE SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

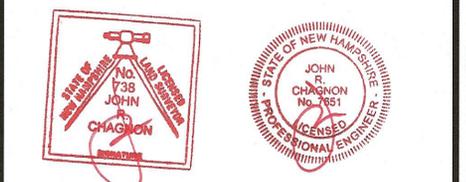
ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE ON THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

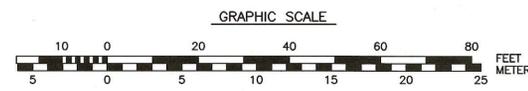
**SITE DEVELOPMENT  
 EIGHTKPH, LLC  
 88 MAPLEWOOD AVENUE  
 PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22



SCALE: 1" = 20' AUGUST 2022

SITE PLAN **C3**





REVISIONS:

EIGHT KPH, LLC  
 88 MAPLEWOOD AVENUE  
 PORTSMOUTH, NEW HAMPSHIRE



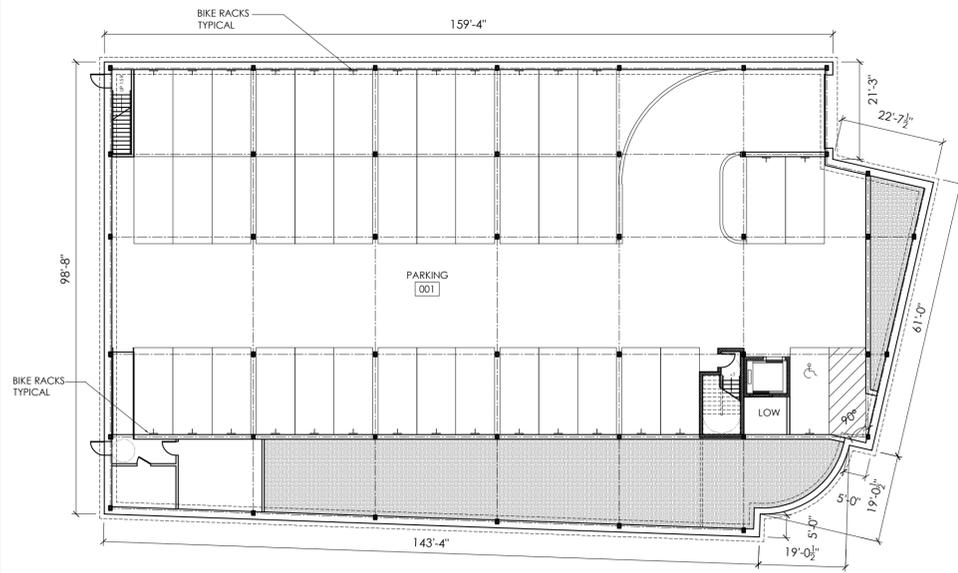
ARCHITECTS

233 VAUGHAN STREET  
 SUITE 101  
 PORTSMOUTH, NH 03801  
 (603) 431-2808  
 www.cjarchitects.net

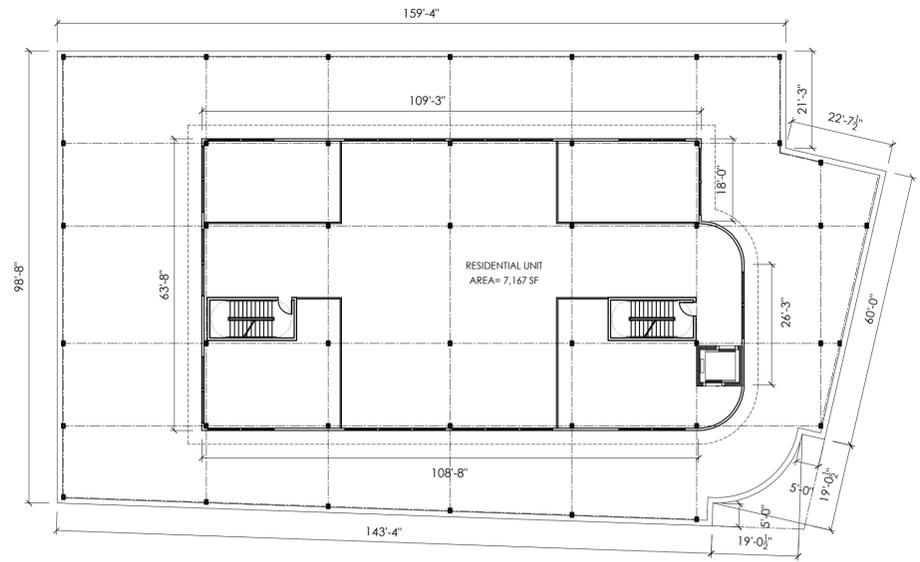
DATE: 09/06/2022  
 DRAWN BY: SRT  
 APPROVED BY: CJG  
 SCALE:  
 JOB NUMBER: 2201

A1

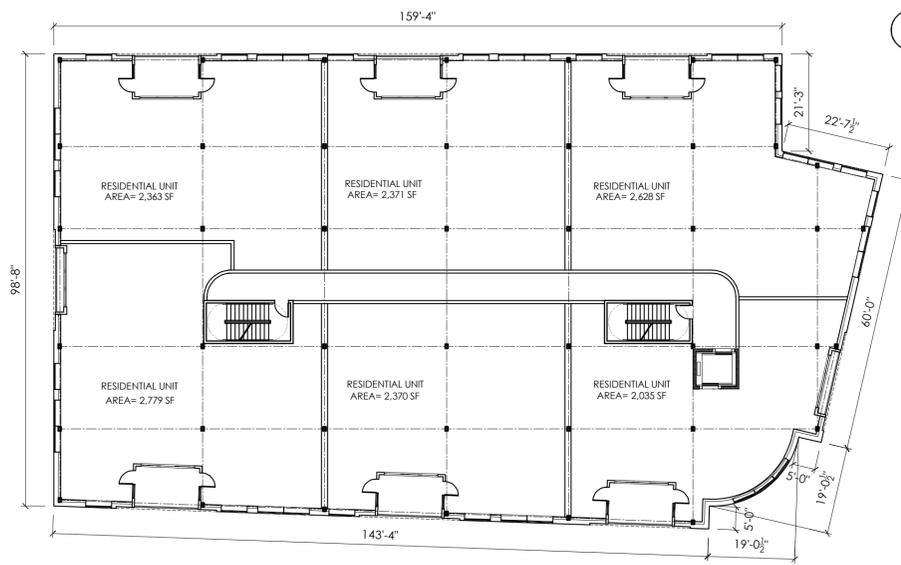
NOT FOR CONSTRUCTION



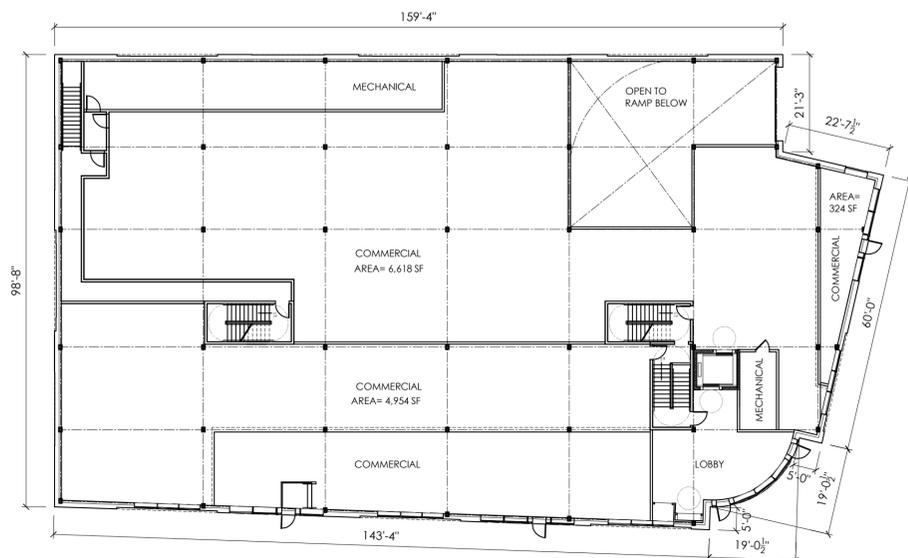
1 LOWER LEVEL PLAN  
1" = 20'



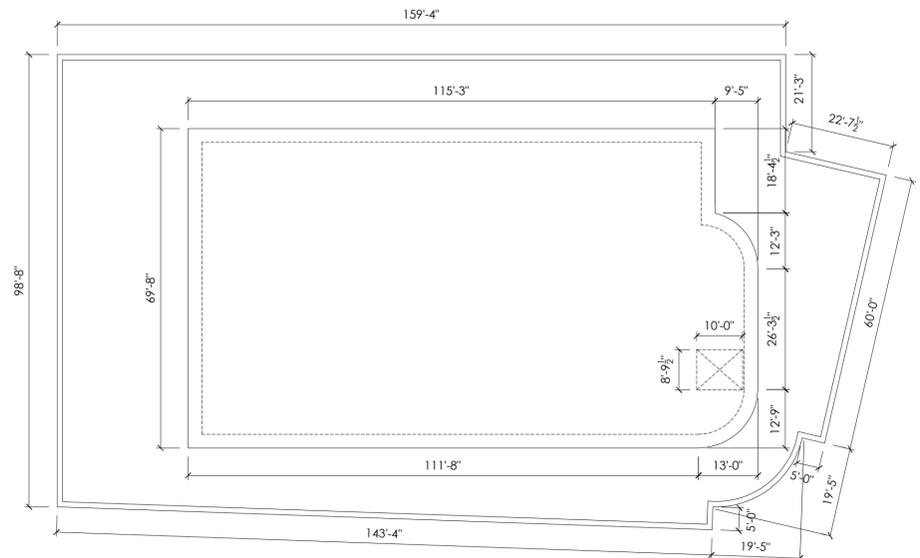
4 PENTHOUSE LEVEL PLAN  
1" = 20'



3 SECOND, THIRD, AND FOURTH LEVEL PLAN  
1" = 20'



2 FIRST LEVEL PLAN  
1" = 20'



5 ROOF PLAN  
1" = 20'

NOT FOR CONSTRUCTION

EIGHT KPH, LLC  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, NEW HAMPSHIRE



ARCHITECTS  
233 VAUGHAN STREET  
SUITE 101  
PORTSMOUTH, NH 03801  
(603) 431-2808  
www.ejarchitects.net

PLANS

DATE: 09/06/2022  
DRAWN BY: SRT  
APPROVED BY: CJG  
SCALE: 1" = 20'  
JOB NUMBER: 2201

A2



1 DEER STREET ELEVATION  
1" = 10'



2 MAPLEWOOD AVENUE ELEVATION  
1" = 10'



3 RAILROAD ELEVATION  
1" = 10'



4 SIDE ELEVATION  
1" = 10'

REVISIONS:

EIGHT KPH, LLC  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, NEW HAMPSHIRE



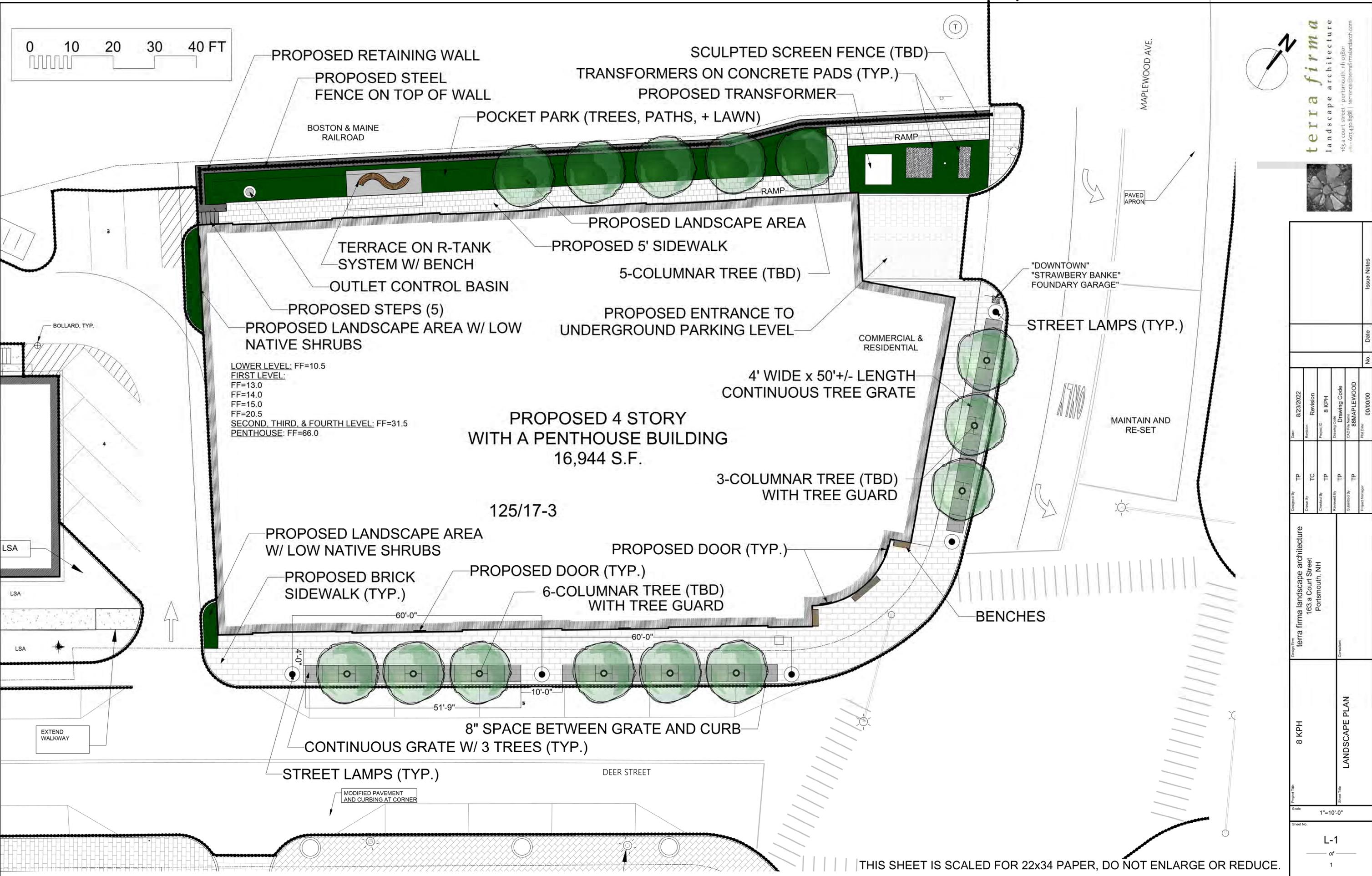
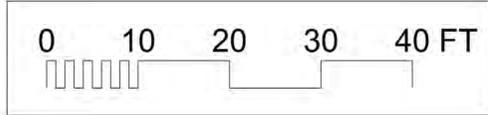
ARCHITECTS  
233 VAUGHAN STREET  
SUITE 101  
PORTSMOUTH, NH 03801  
(603) 431-2808  
www.cjarchitects.net

ELEVATIONS

DATE:	09/06/2022
DRAWN BY:	SRT
APPROVED BY:	CJG
SCALE:	
JOB NUMBER:	2201

A3

NOT FOR CONSTRUCTION

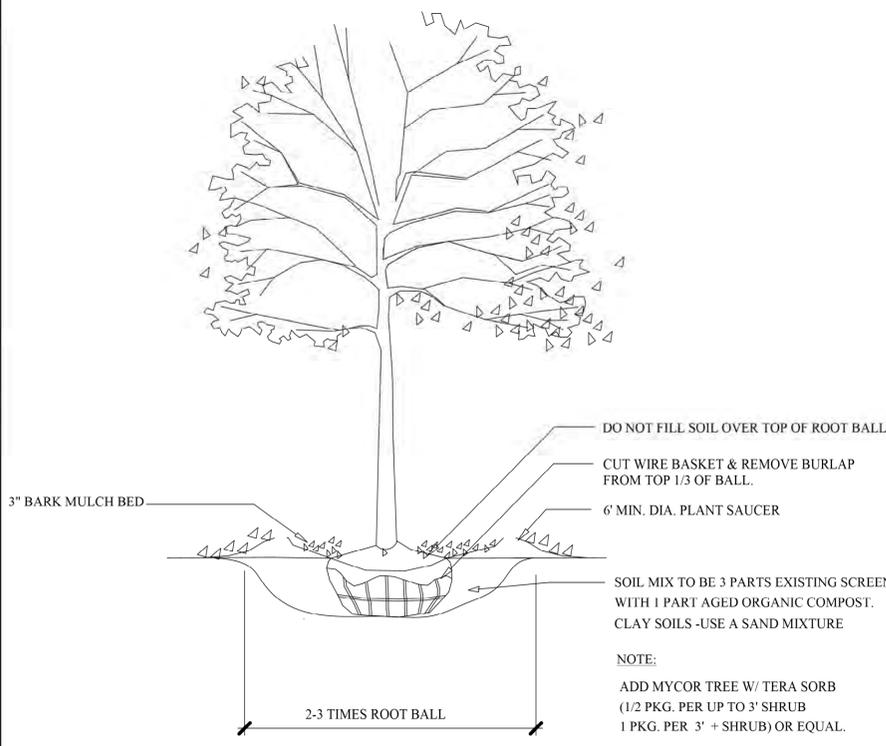


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 FF=13.0  
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 SECOND, THIRD, & FOURTH LEVEL: FF=31.5  
 PENTHOUSE: FF=66.0

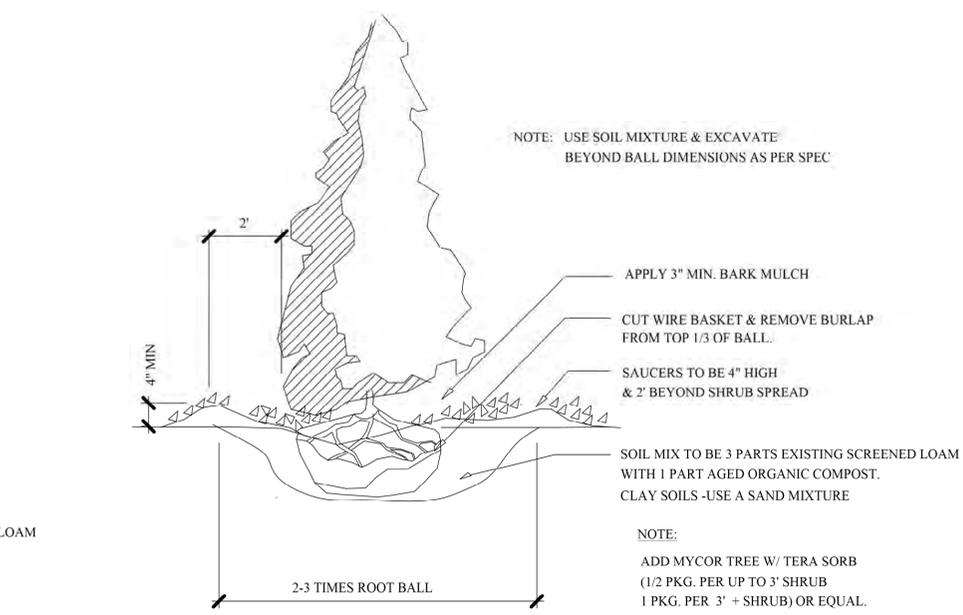
**terra firma**  
 landscape architecture  
 163 a court street - portsmouth, nh 03801  
 phone: 603.430.8388 | terra.firma@terrafirmalandscape.com

Project No.	88MAPLEWOOD	Issue No.	00/00/00
Date	8/23/2022	Date	
Designed By	TP	Revision	
Drawn By	TC	Project ID	8 KPH
Checked By	TP	Drawing Code	
Reviewed By	TP	CAO Firm Name	88MAPLEWOOD
Submitted By	TP	Plot Date	00/00/00
Project Manager			
Design Firm	terra firma landscape architecture 163 a Court Street Portsmouth, NH		
Project File	8 KPH		
Scale	1"=10'-0"		
Sheet Title	LANDSCAPE PLAN		
Sheet No.	L-1		

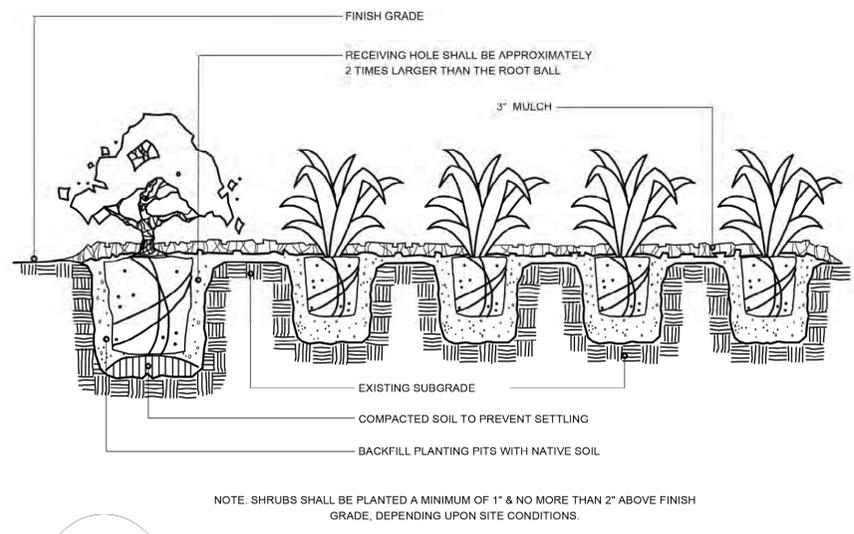
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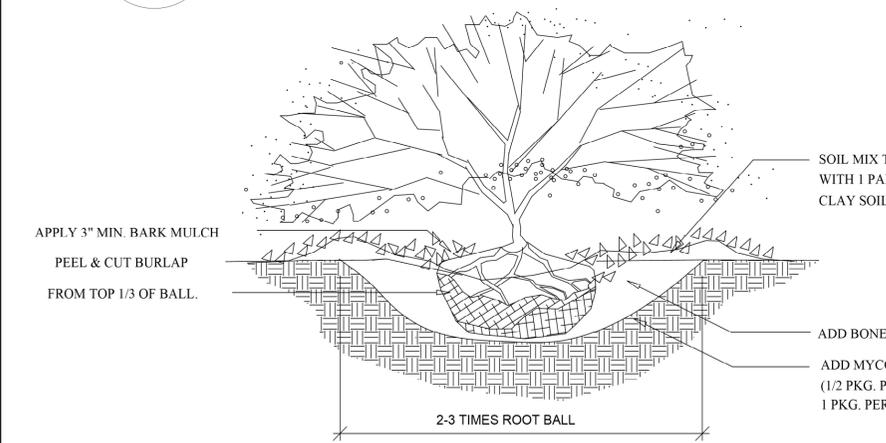
**1**  
L-2  
**TREE PLANTING - 2"+ CAL.**  
SCALE: NTS



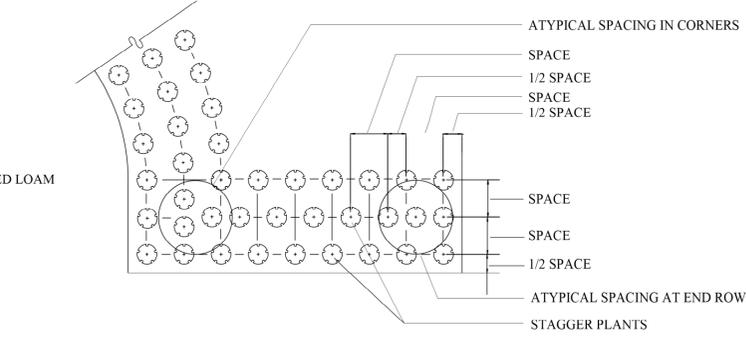
**2**  
L-2  
**PYRAMIDAL EVERGREEN TREE PLANTING**  
SCALE: NTS



**3**  
L-3  
**SHRUB/GROUND COVER PLANTING DETAIL**  
SCALE: NTS



**4**  
L-2  
**B&B SHRUB PLANTING**  
SCALE: NTS



**5**  
L-2  
**GROUND COVER SPACING DETAIL**  
SCALE: NTS

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSEYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 2" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.

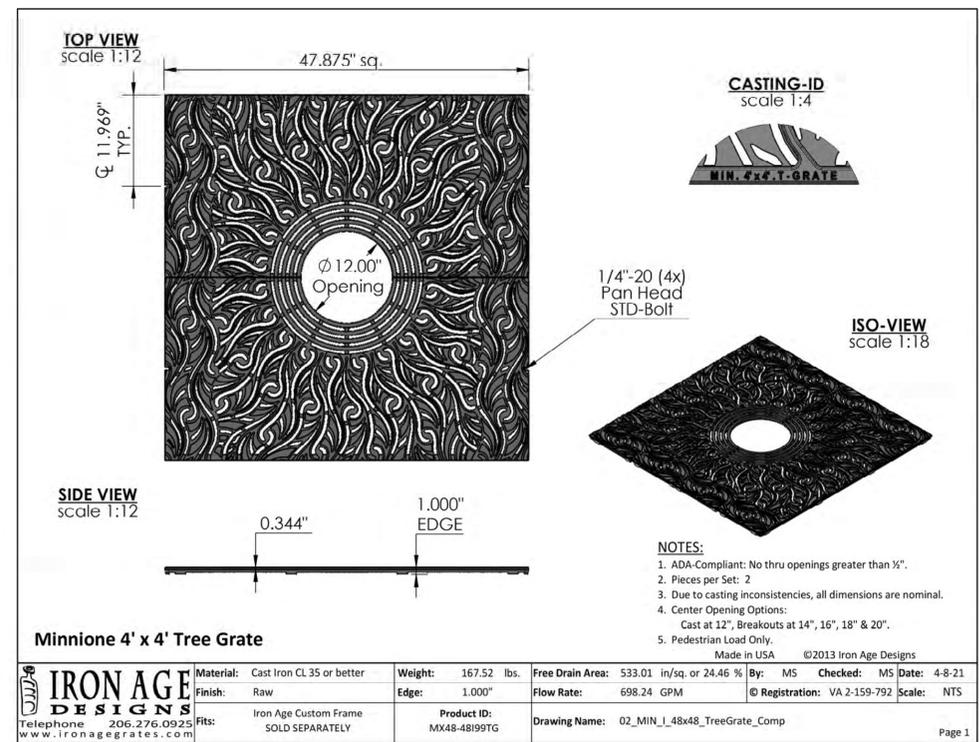
Date		Revision		Project ID		Drawing Code		CAD File Name		Plot Date	
8/23/2022		8 KPH		8 KPH		88MAPLEWOOD		88MAPLEWOOD		00/00/00	
Designed By	TP	Drawn By	TC	Checked By	TP	Reviewed By	TP	Submitted By	TP	Project Manager	
Design Firm	terra firma landscape architecture			163.a Court Street		Portsmouth, NH					
Project File	8 KPH			LANDSCAPE PLAN							
Scale	SEE DETAILS										
Sheet No.	L-2										
	of 1										



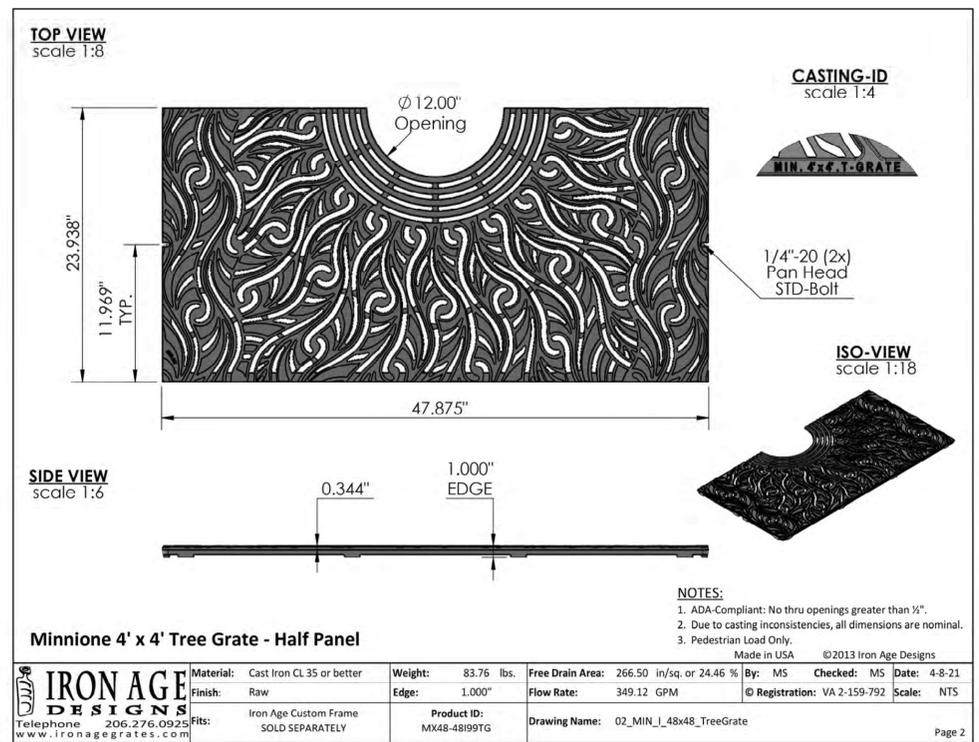
**IRON AGE DESIGNS**  
 (877) 418-3568 or (206) 276-0925  
 2104 SW 152nd St. Suite #4  
 Burien, WA 98166  
 info@ironagegrates.com

OR EQUAL

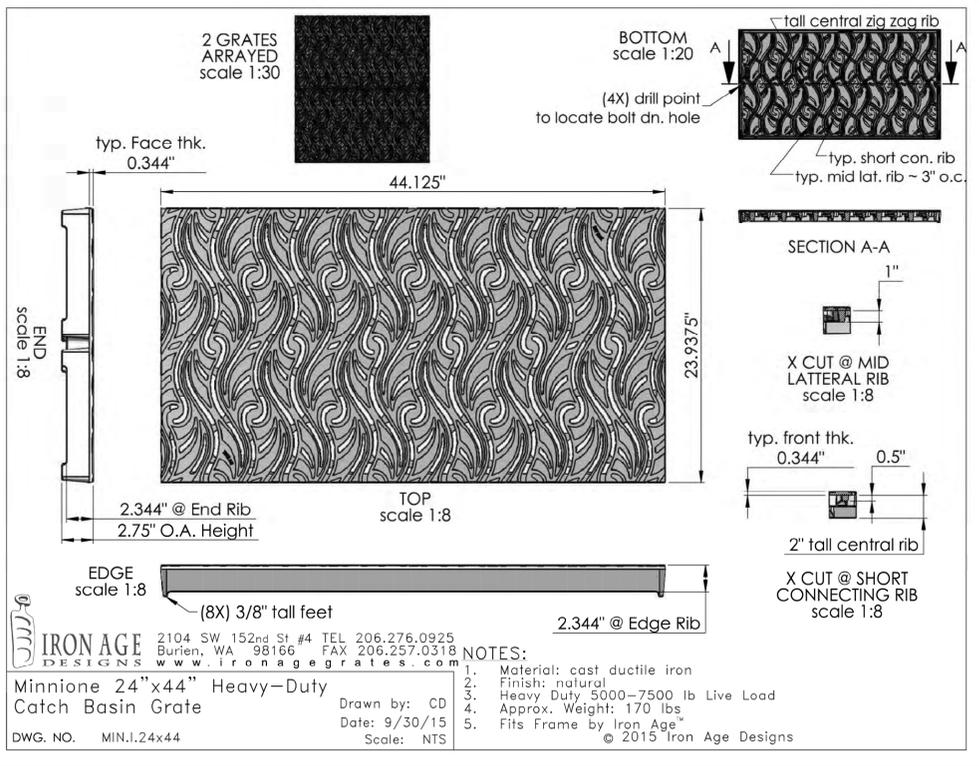
1 CONTINUOUS TREE GRATE (4' WIDE x 50' LONG)  
 L-3 SCALE: NTS



<b>IRON AGE DESIGNS</b> Telephone 206.276.0925 www.ironagegrates.com	Material: Cast Iron CL 35 or better	Weight: 167.52 lbs.	Free Drain Area: 533.01 in/sq. or 24.46 %	By: MS	Checked: MS	Date: 4-8-21
	Finish: Raw	Edge: 1.000"	Flow Rate: 698.24 GPM	© Registration: VA 2-159-792	Scale: NTS	
	Fits: Iron Age Custom Frame SOLD SEPARATELY	Product ID: MX48-48199TG	Drawing Name: 02_MIN_I_48x48_TreeGrate_Comp	Page 1		



<b>IRON AGE DESIGNS</b> Telephone 206.276.0925 www.ironagegrates.com	Material: Cast Iron CL 35 or better	Weight: 83.76 lbs.	Free Drain Area: 266.50 in/sq. or 24.46 %	By: MS	Checked: MS	Date: 4-8-21
	Finish: Raw	Edge: 1.000"	Flow Rate: 349.12 GPM	© Registration: VA 2-159-792	Scale: NTS	
	Fits: Iron Age Custom Frame SOLD SEPARATELY	Product ID: MX48-48199TG	Drawing Name: 02_MIN_I_48x48_TreeGrate	Page 2		

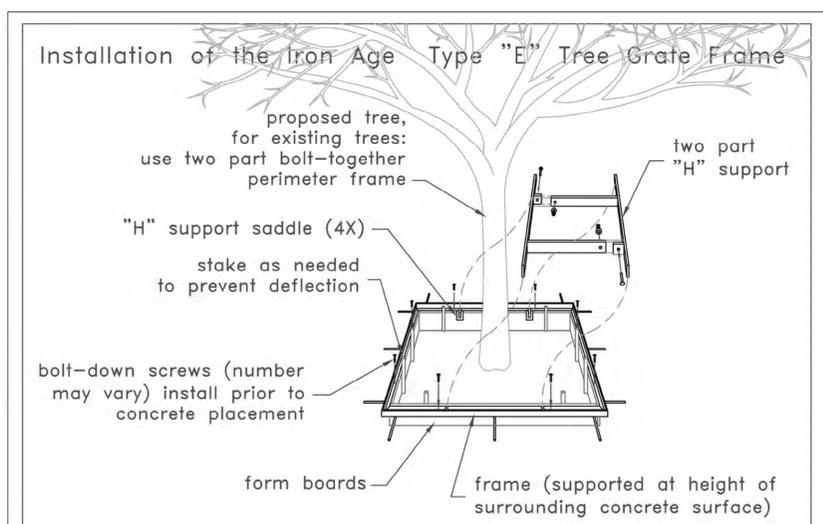


<b>IRON AGE DESIGNS</b> 2104 SW 152nd St #4 TEL 206.276.0925 Burien, WA 98166 FAX 206.257.0318 www.ironagegrates.com	Material: cast ductile iron	Finish: natural	
	Heavy Duty 5000-7500 lb Live Load	Approx. Weight: 170 lbs	Fits Frame by Iron Age
Minnione 24"x44" Heavy-Duty Catch Basin Grate	Drawn by: CD	Date: 9/30/15	Scale: NTS
DWG. NO. MIN.I.24x44	© 2015 Iron Age Designs		

MINNIONE 4' SQ. TREE GRATES ARRAYED WITH 2' x 4' EXTENSION PANELS. OR EQUAL. MANUFACTURERS MID-SUPPORTS TO BE USED AS NEEDED.

CAST IRON WITH A BAKED-ON-OIL FINISH.

TREES PLANTED IN TREE GRATE SYSTEM TO BE PLANTED IN "CU-STRUCTURAL SOIL" TO 36" DEPTH, "CU-STRUCTURAL SOIL" OR EQUAL TO BE UNDER EXTENSION PANELS TO 36" DEEP. BACKFILL TREE PIT WITH TOPSOIL.



- Installation of the Iron Age type "E" Embed tree grate frame.
- Excavate tree pit to approximate depth of concrete
  - Use interior frame dimensions as guide for form work dimension.
  - Build wooden form for concrete, provide for "H" support at saddle.
  - Support frame (and form) w/ top of frame at height of surrounding concrete surface, using curb stakes - 18" O.C. max.

NOTE: Spreaders or adequate staking will be necessary to prevent the frame from deforming during concrete placement. The actual grates or plywood templates can be used to prevent frame deflection. If using the grates, take care to protect during concrete placement.

- IMPORTANT: in all situations, be sure to use the bolt-down screws provided to protect the receiving threads from fouling. Bolting down the grates or templates will help hold the frame rigid during concrete placement.
- Allow concrete to cure before removing forms or preparing tree pit for planting

THIS SHEET IS SCALED FOR 22x34 PAPER, DO NOT ENLARGE OR REDUCE.

**terra firma**  
 landscape architecture  
 163.a court street - portsmouth, nh 03801  
 phone: 603.430.8388 | terrace@terrafirmalandscape.com

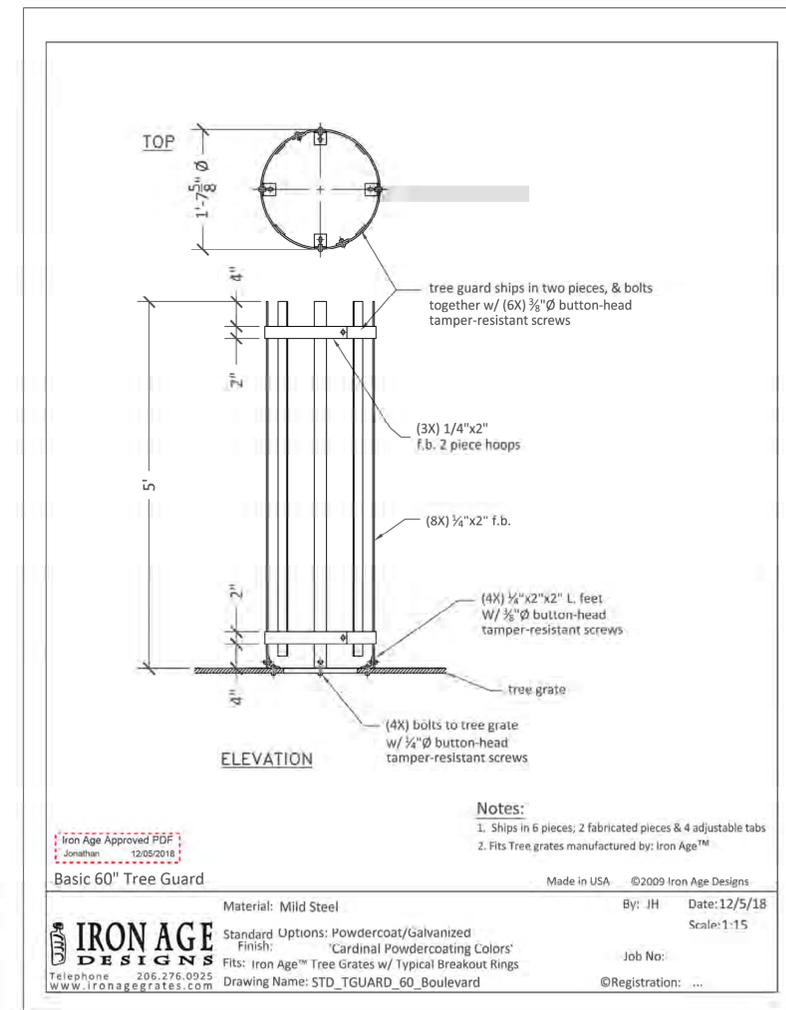
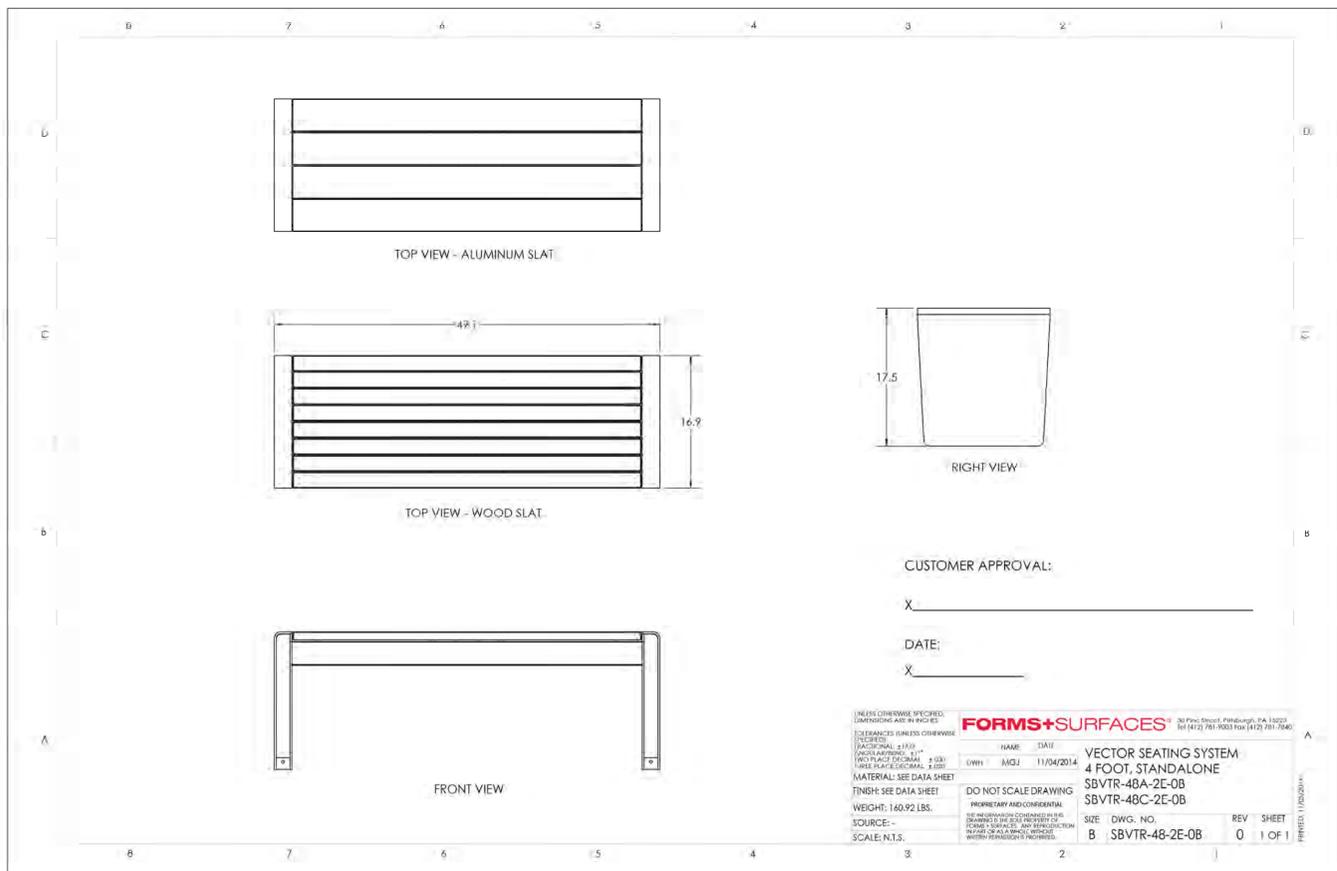
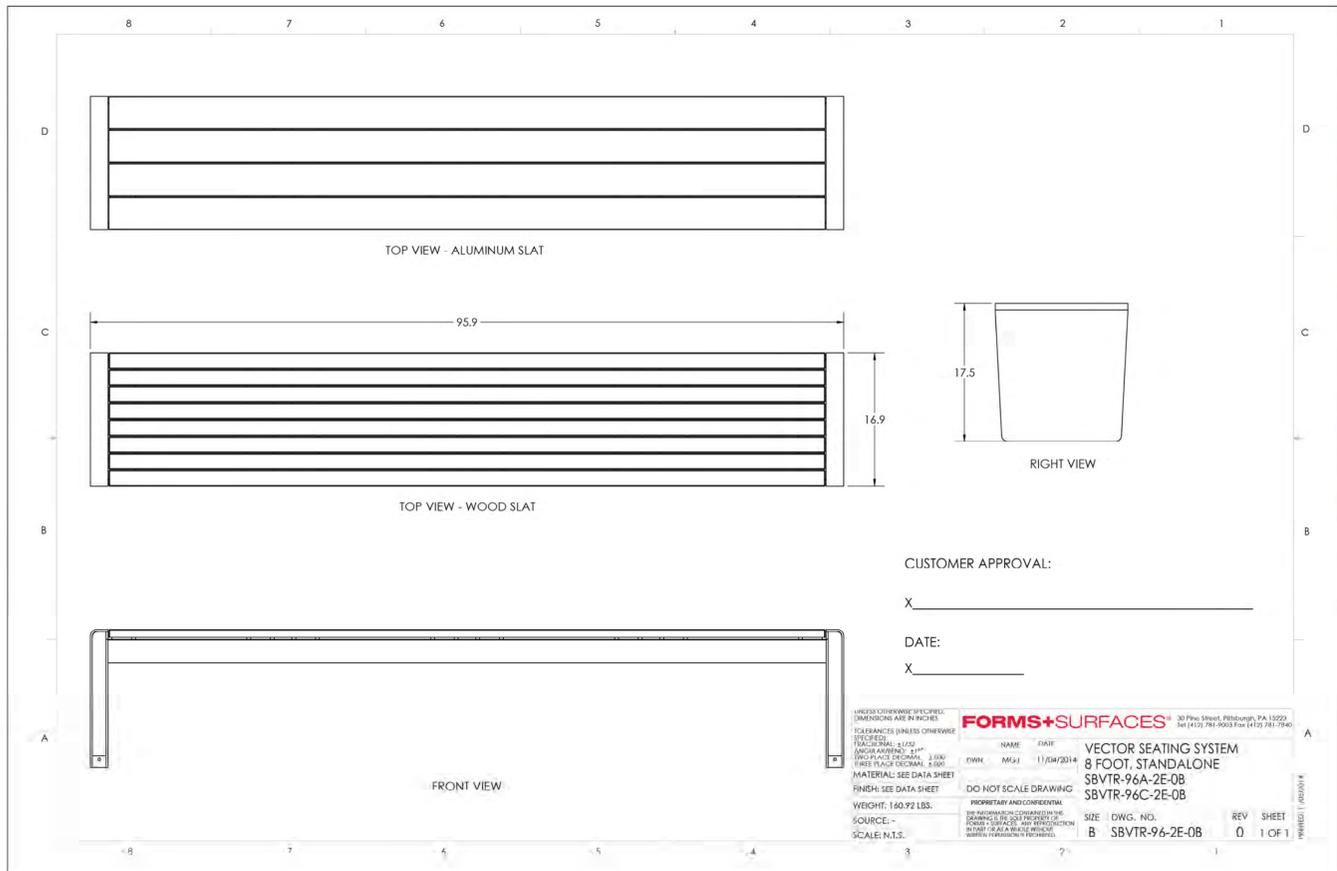
Design Firm	terra firma landscape architecture	Project Title	8 KPH
Project File	163.a Court Street Portsmouth, NH	Scale	SEE DETAILS
Sheet No.	L-3	Sheet Title	LANDSCAPE PLAN

Date	8/23/2022	Revision	8 KPH	Project ID	8 KPH	Drawing Code	88MAPLEWOOD	Plot Date	00/00/00
Designed By	TP	Checked By	TP	Drawn By	TC	Reviewed By	TP	Submitted By	TP
Project Manager									

Issue Notes

Date

No.



2  
L-4

**TREE GUARD**  
SCALE: NTS

**IRON AGE DESIGNS**  
(877) 418-3568 or (206) 276-0925  
2104 SW 152nd St. Suite #4  
Burien, WA 98166  
info@ironagegrates.com  
OR EQUAL

THIS SHEET IS SCALED FOR 22x34 PAPER, DO NOT ENLARGE OR REDUCE.

1  
L-4

**BENCH**  
SCALE: NTS

FORMS + SURFACES VECTOR SEATING 4' + 8' STAND-ALONE BENCHES OR EQUAL  
DARK BRONZE METALLIC TEXTURE POWDER COAT  
WOOD SLAT

Project Name	8 KPH	Project No.	00/00/00	Date	
Revision	8 KPH	Revision	00/00/00	Date	
Project ID	8 KPH	Project ID	00/00/00	Date	
Drawing Code	8 KPH	Drawing Code	00/00/00	Date	
LAND File Name	88MAPLEWOOD	LAND File Name	00/00/00	Date	
Project Manager		Project Manager		Date	
Design Firm	terra firma landscape architecture 163 a Court Street Portsmouth, NH	Design Firm		Date	
Project File	8 KPH	Project File		Date	
Sheet Title	LANDSCAPE PLAN	Sheet Title		Date	
Scale	SEE DETAILS	Scale		Date	
Sheet No.	L-4	Sheet No.		Date	
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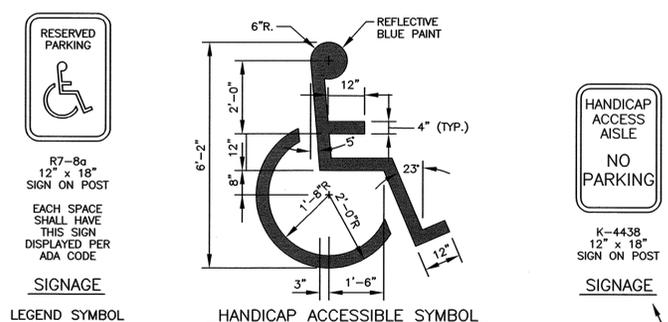
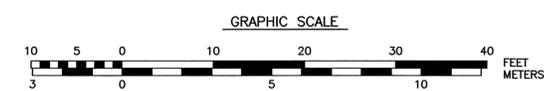
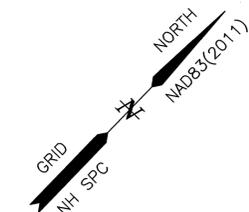
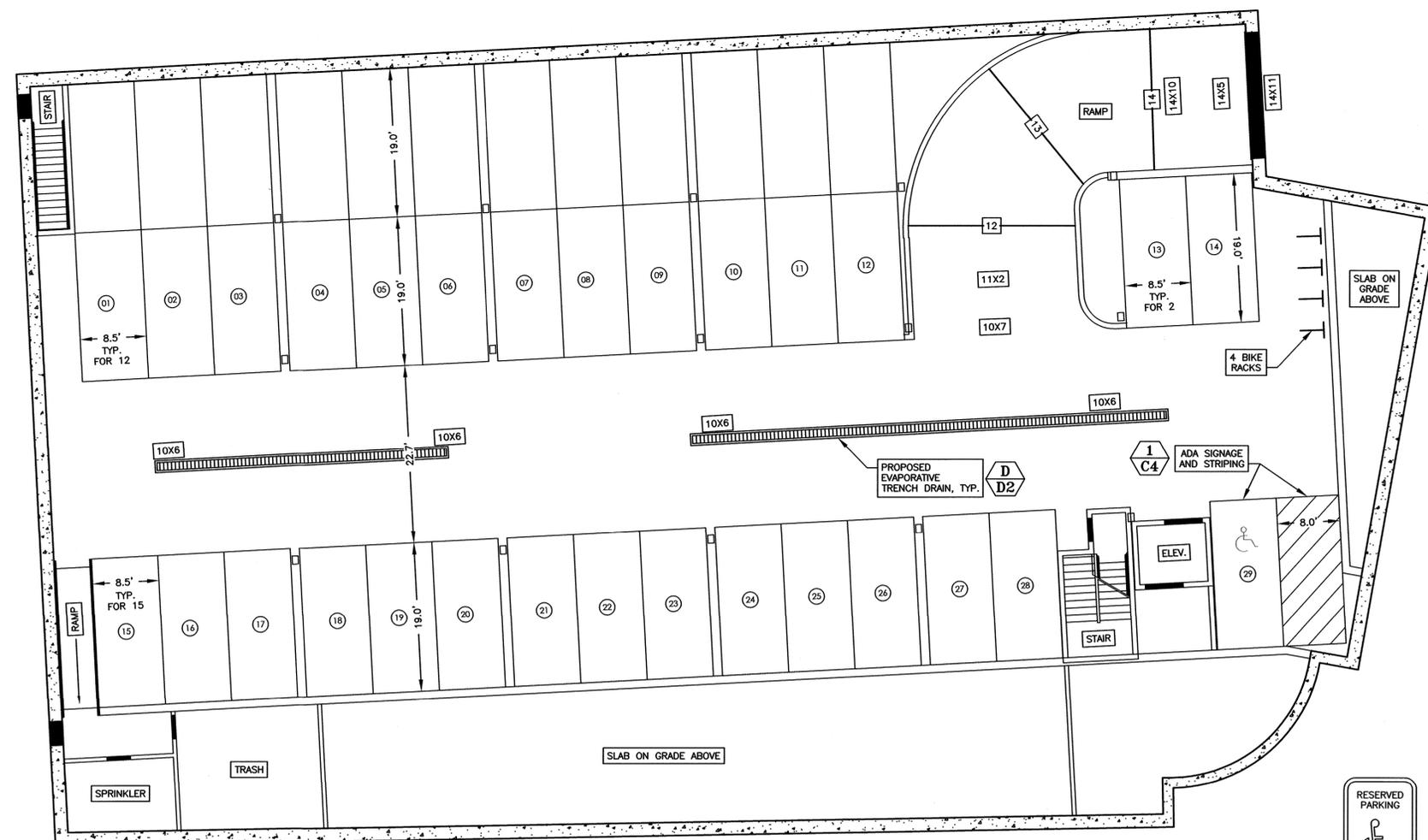




**AMBIT ENGINEERING, INC.**  
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Portsmouth, N.H. 03801-7114  
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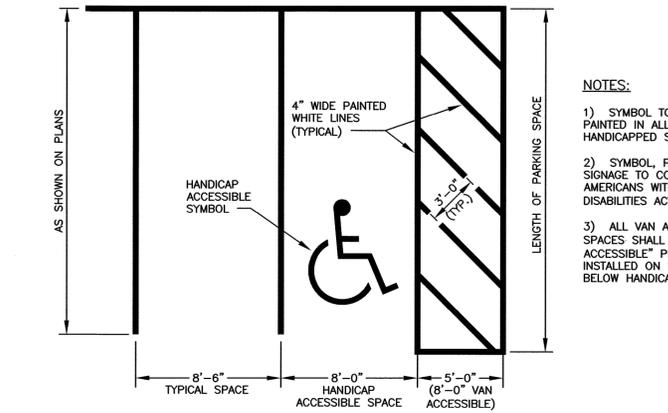
**NOTES:**

- 1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSORS MAP 125 AS LOT 17-3.
- 2) OWNER OF RECORD:  
EIGHTKPH, LLC  
233 VAUGHAN STREET  
UNIT 301  
PORTSMOUTH, NH 03801  
6348/2213
- 3) THE PURPOSE OF THIS PLAN IS TO SHOW THE PARKING FOR THE PROPOSED SITE DEVELOPMENT ON ASSESSOR'S MAP 125 LOT 17-3 IN THE CITY OF PORTSMOUTH.
- 4) REQUIRED PARKING:  
FIRST FLOOR: EXEMPT  
19 DWELLING UNITS: 1.3/UNIT X 19 UNITS = 25  
VISITOR: 19/5 X 1 = 4  
TOTAL REQUIRED: 29  
TOTAL PROVIDED: 29



PROVIDE SIGN (PER ADA CODE) AT EACH HANDICAP ACCESSIBLE SPACE

HANDICAP ACCESS AISLE NO PARKING SIGN

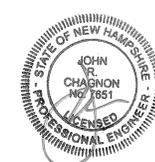


- NOTES:**
- 1) SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES.
  - 2) SYMBOL, PAINT AND SIGNAGE TO CONFORM TO AMERICANS WITH DISABILITIES ACT (ADA).
  - 3) ALL VAN ACCESSIBLE SPACES SHALL HAVE "VAN ACCESSIBLE" PLATE INSTALLED ON SIGN POST BELOW HANDICAP SIGN.

**1** HANDICAP PARKING DETAIL  
**C4** NTS

**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22
REVISIONS		



SCALE: 1" = 10'      AUGUST 2022

**PARKING LEVEL PLAN**      **C4**

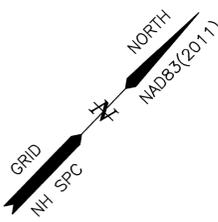
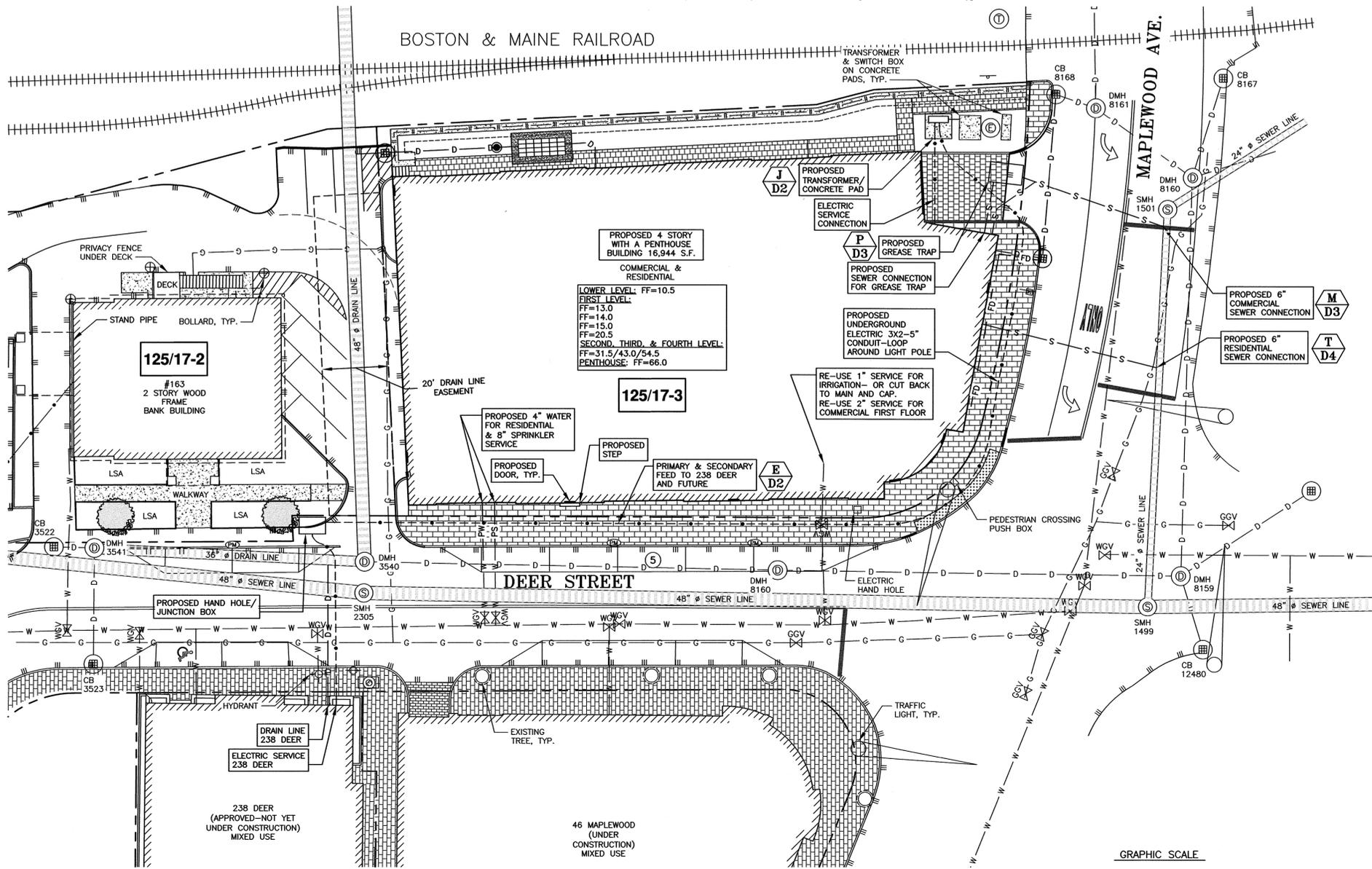
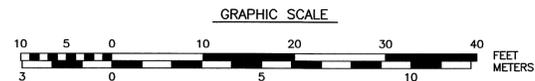
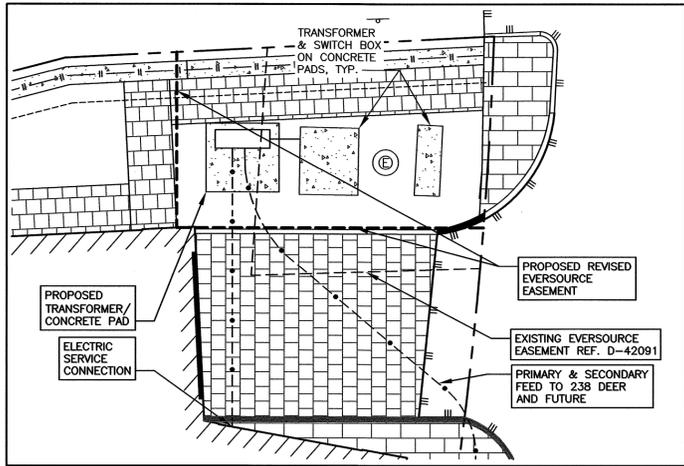
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**UTILITY NOTES:**

- 1) SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
- 2) COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
- 3) SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
- 4) ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, POLYWRAPPED, CEMENT LINED DUCTILE IRON PIPE.
- 5) ALL WATERMAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.
- 6) ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
- 7) ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH.
- 8) CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ADJUTING PROPERTIES THROUGHOUT CONSTRUCTION.
- 9) ANY CONNECTION TO EXISTING WATERMAIN SHALL BE CONSTRUCTED BY THE CITY OF PORTSMOUTH.
- 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) ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
- 12) THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
- 13) ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
- 14) ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
- 15) THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
- 16) THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
- 17) CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
- 18) 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 WATER ABOVE SEWER.
- 19) SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
- 20) GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
- 21) COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
- 22) ALL SEWER PIPES WITH LESS THAN 6" COVER SHALL BE INSULATED.
- 23) 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.
- 24) CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ADJUTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH UTILITY COMPANY AND AFFECTED ABUTTER.

SEWER STRUCTURE SCHEDULE						
STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
SMH 1499	EX	15.80	48" BRICK BOX	-1.80	-1.80	
SMH 1501	EX	13.58	24"	-0.30	-0.32	
SMH 2305	EX	10.90	48" VC	-1.17		
6" COMM.	PROP		6"	-0.35 @ PIPE	12.0 @ BLDG.	
6" RES.	PROP		6"	-0.64 @ PIPE	12.0 @ BLDG.	



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

- NOTES:**
- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
  - 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
  - 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).
  - 4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.
  - 5) ALL WATER MAIN AND SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE NEW HAMPSHIRE STATE PLUMBING CODE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.
  - 6) UTILITY AS-BUILTS SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS UPON COMPLETION OF THE PROJECT.
  - 7) EVERSOURCE WORK ORDER #TBD.
  - 8) PROPOSED SEWER FLOW:  
15,263 S.F. COMMERCIAL  
15,263 X (2.5 GPD/100 S.F.)=382 GALLONS PER DAY. (POSSIBLE RESTAURANT) (4,000 GPD)  
19 UNITS X 210 GPD=3,990 GPD  
TOTAL FLOW: 4,372 GPD TO 7,990 GPD

**SITE DEVELOPMENT  
EIGHTKPH, LLC  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
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REVISIONS		

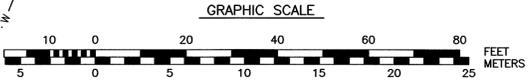


SCALE: 1" = 20' AUGUST 2022

UTILITY PLAN **C5**

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



DRAINAGE STRUCTURE SCHEDULE						
STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB 8168	EX	13.19	12" RCP	9.93	9.83	NE
DMH 3540	EX	10.81	48" RCP		1.56	NW
OCS 1	PROP	16.45	10"/12"	10.9	7.92	
CB 1	PROP	11.50	12" HDPE	7.79	7.69	
CB 2	PROP	13.56	12" HDPE	10.22	10.12	

PIPE SCHEDULE			
PIPE #	PIPE SIZE	LENGTH	SLOPE
P1	12"	13'	0.05
P2	12"	47'	0.004
P3	12"	5'	0.02
P4	12"	31'	0.004
P5	12"	8'	0.004
P6	TWIN 10"	17'	0.17

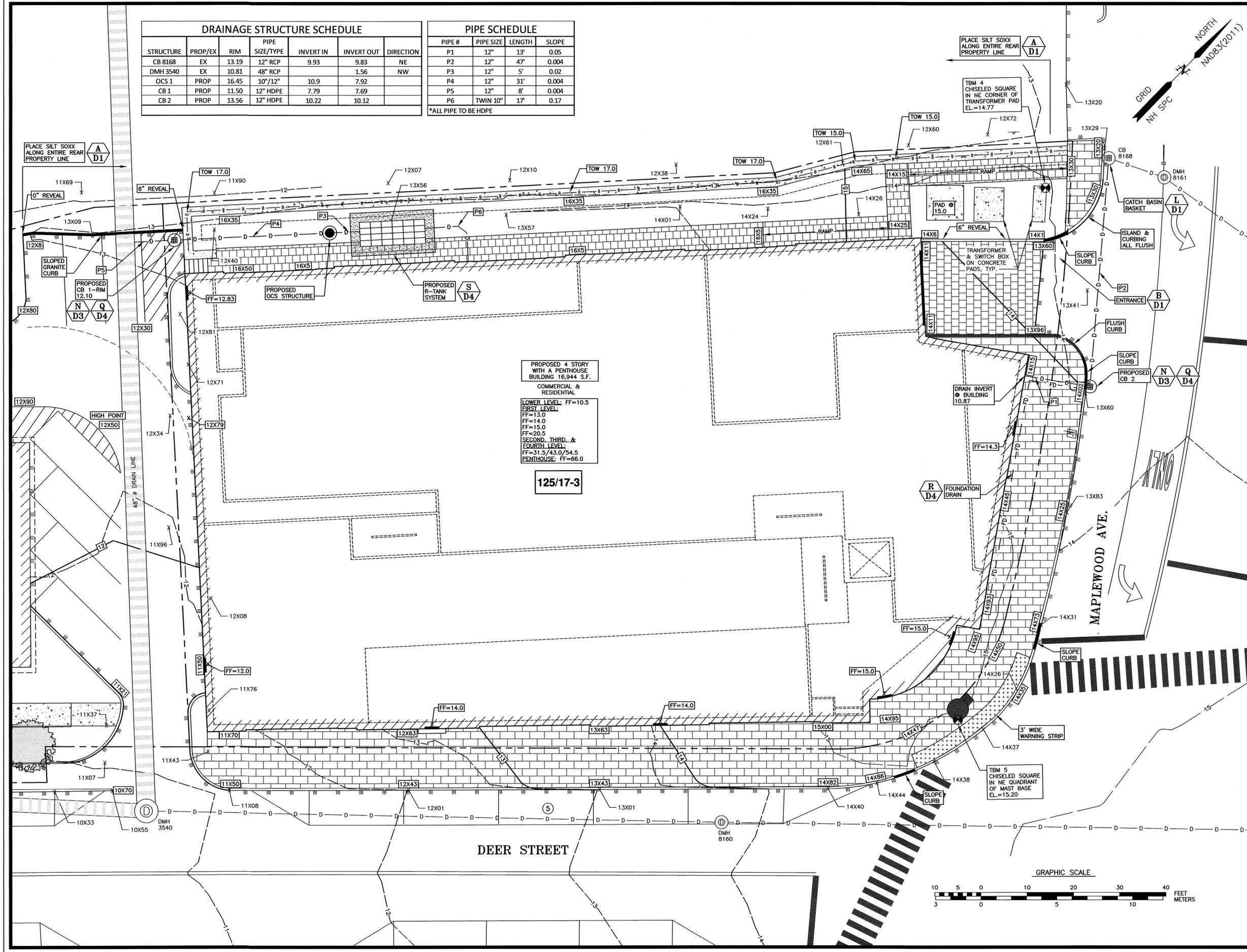
\*ALL PIPE TO BE HDPE



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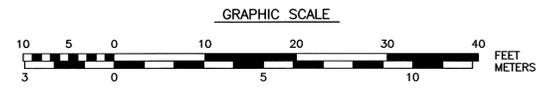
**NOTES:**

- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.
- 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
- 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).



PROPOSED 4 STORY WITH A PENTHOUSE BUILDING 16,944 S.F. COMMERCIAL & RESIDENTIAL  
LOWER LEVEL: FF=10.5  
FIRST LEVEL: FF=13.0  
FF=14.0  
FF=15.0  
FF=20.5  
SECOND, THIRD, & FOURTH LEVEL: FF=31.5/43.0/54.5  
PENTHOUSE: FF=66.0

125/17-3



**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22
REVISIONS		



SCALE: 1" = 10' AUGUST 2022

**GRADING & DRAINAGE PLAN** **C6**

**EROSION CONTROL NOTES**

**CONSTRUCTION SEQUENCE**

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN NPDES PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I.) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE S.W.P.P.P. AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (N.O.T.) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

INSTALL PERIMETER CONTROLS, I.E., SILTISOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE AND OFF SITE AREAS AS NEEDED BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

PLACE FODS OR OTHER SITE ENTRANCE AS NEEDED.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED. DEMOLISH BUILDINGS AND FENCES AS NEEDED.

ROUGH GRADE SITE: CONSTRUCT RETAINING WALL.

CONSTRUCT BUILDING FOUNDATION.

LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

COMPLETE BUILDING.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.

CONSTRUCT SIDEWALKS.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

**GENERAL CONSTRUCTION NOTES**

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". 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.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

DUST CONTROL: IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILT FENCES AND SILTISOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILT FENCES AND SILTISOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

AVOID THE USE OF FUTURE OPEN SPACES ( LOAM AND SEED AREAS ) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ACCESS DRIVES AND PARKING AREAS.

ADDITIONAL TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS--CONSTRUCT SILT FENCE OR SILTISOXX AROUND TOPSOIL STOCKPILE.

AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. STUMPS SHALL BE DISPOSED OF IN AN APPROVED FACILITY.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:  
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED;  
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED  
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED  
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED

**VEGETATIVE PRACTICE**

FOR PERMANENT MEASURES AND PLANTINGS:

LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.

FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.

SEED SHALL BE SOWN AT THE RATES SHOWN IN THE TABLE BELOW. 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. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE, AND SHALL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.

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 SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.

A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE:

GENERAL COVER	PROPORTION	SEEDING RATE
CREeping RED FESCUE	50%	100 LBS/ACRE
KENTUCKY BLUEGRASS	50%	

SLOPE SEED (USED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1)

CREeping RED FESCUE	42%	
TALL FESCUE	42%	48 LBS/ACRE
BIRDSFOOT TREFLOIL	16%	

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SEED LAWS.

FOR TEMPORARY PROTECTION OF DISTURBED AREAS:  
 MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:  
 PERENNIAL RYE: 0.7 LBS/1,000 S.F.  
 MULCH: 1.5 TONS/ACRE

**MAINTENANCE AND PROTECTION**

THE CONTRACTOR SHALL MAINTAIN ALL LOAM & SEED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE CONTRACT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REMOVAL OF STONES AND OTHER FOREIGN OBJECTS OVER 1/2 INCHES IN DIAMETER WHICH MAY APPEAR AND THE FIRST TWO (2) CUTTINGS OF GRASS NO CLOSER THEN TEN (10) DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2 1/2 TO 3 INCHES HIGH. ALL BARE AND DEAD SPOTS WHICH BECOME APPARENT SHALL BE PROPERLY PREPARED, LIMED AND FERTILIZED, AND RESEED BY THE CONTRACTOR AT HIS EXPENSE AS MANY TIMES AS NECESSARY TO SECURE GOOD GROWTH. THE ENTIRE AREA SHALL BE MAINTAINED, WATERED AND CUT UNTIL ACCEPTANCE OF THE LAWN BY THE OWNER'S REPRESENTATIVE.

THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS DEVELOPING.

TO BE ACCEPTABLE, SEEDED AREAS SHALL CONSIST OF A UNIFORM STAND OF AT LEAST 90 PERCENT ESTABLISHED PERMANENT GRASS SPECIES, WITH UNIFORM COUNT OF AT LEAST 100 PLANTS PER SQUARE FOOT.

SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.

THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.

THE SILT FENCE OR SILTISOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

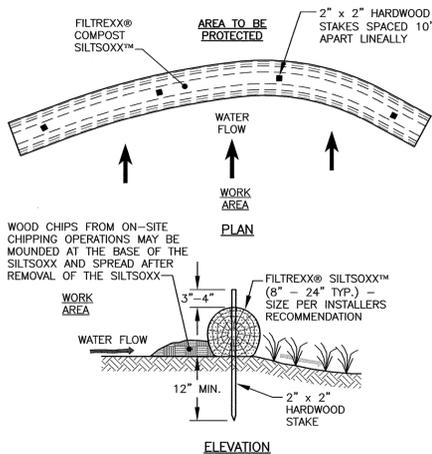
SILT FENCING AND SILTISOXX SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE AND SILTISOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

**WINTER NOTES**

ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, 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.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

AFTER NOVEMBER 15TH, 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.



- NOTES:**
1. ALL MATERIAL TO MEET FILTRExx SPECIFICATIONS.
  2. FILTRExx SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTRExx INSTALLER.
  3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
  4. SILTISOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
  5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

**FILTRExx® SILTISOXX™ FILTRATION SYSTEM**  
 (AS NEEDED) NTS

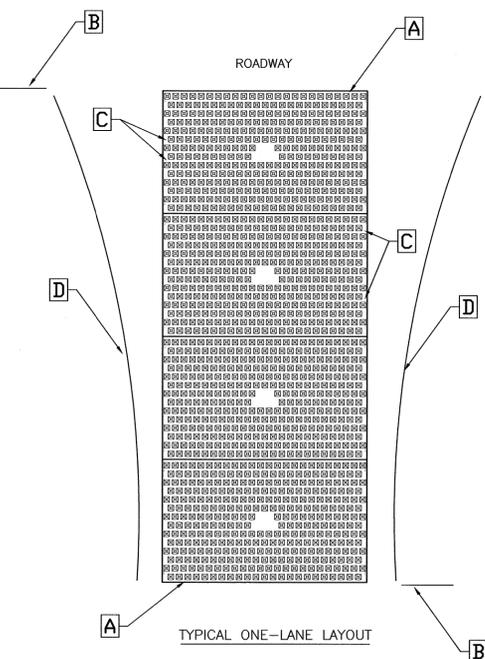
**FODS TRACKOUT CONTROL SYSTEM**

**INSTALLATION:**

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

**KEY NOTES:**

- A. FODS TRACKOUT CONTROL SYSTEM MAT.
- B. FODS SAFETY SIGN.
- C. ANCHOR POINT.
- D. SILT OR ORANGE CONSTRUCTION FENCE.



**Stormwater Management System Components**

The Stormwater Management System is designed to mitigate both the quantity and quality of site-generated stormwater runoff. As a result, the design includes the following elements:

**Non-Structural BMPs**

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching and grass cover
- Trees, Shrubs and ground covers and landscape plantings
- Dust control
- Sediment barriers; Catch basin bags
- Stabilized construction entrance

**Structural BMPs**

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- ACF R-Tank stormwater storage system
- Bio Clean Downspout Filter
- Outlet Control Structures and Storm Drains

**Inspection and Maintenance Requirements**

The following summarizes the inspection and maintenance requirements for the various BMPs that may be found on this project.

**Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.

**Plantings:** Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year. Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.

**Bio Clean Downspout Filter:** Refer to the manufacturer's Operation and Maintenance manual for guidance, included herewith.

**ACF R-Tank stormwater storage system:** Reference the attached operations and maintenance manual for proper maintenance of the system.

**Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the outlet pipe. During construction, maintain inlet protection until all roadways and parking areas have been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.



**AMBIT ENGINEERING, INC.**

Civil Engineers & Land Surveyors

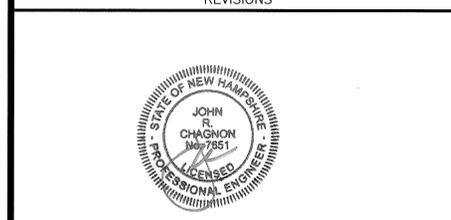
200 Griffin Road - Unit 3  
 Portsmouth, N.H. 03801-7114  
 Tel (603) 430-9282  
 Fax (603) 436-2315

**NOTES:**

1. THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE. (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
2. UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).
4. DEER STREET SHALL BE SWEEPED DAILY DURING THE ENTIRE CONSTRUCTION DURATION.
5. PROJECT CMPP WILL BE REQUIRED. CONSTRUCTION TEAM TO COORDINATE WITH CITY OF PORTSMOUTH.

**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

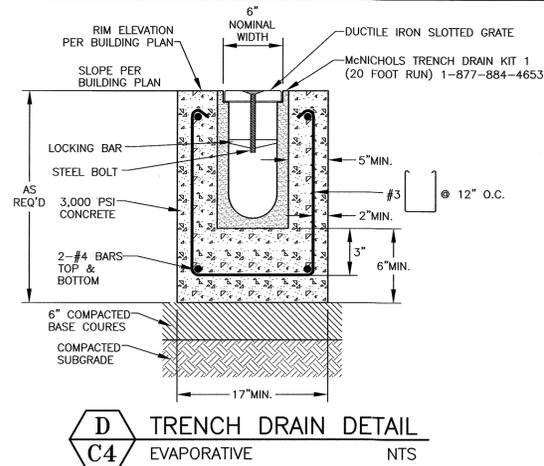
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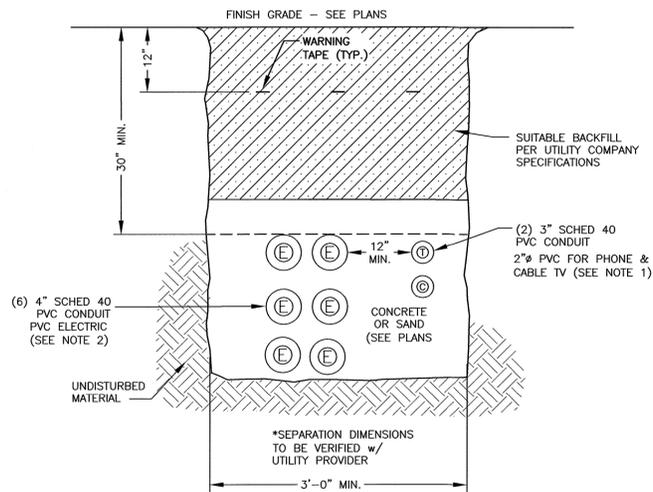
SCALE: AS SHOWN AUGUST 2022

**EROSION PROTECTION NOTES AND DETAILS**

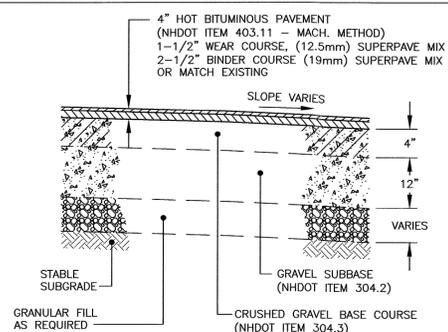
**D1**



- NOTES:
- 1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCHED. 40 FOR THE REMAINDER.
  - 2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
  - 3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
  - 4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
  - 5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANY'S PRIOR TO ANY CONSTRUCTION.

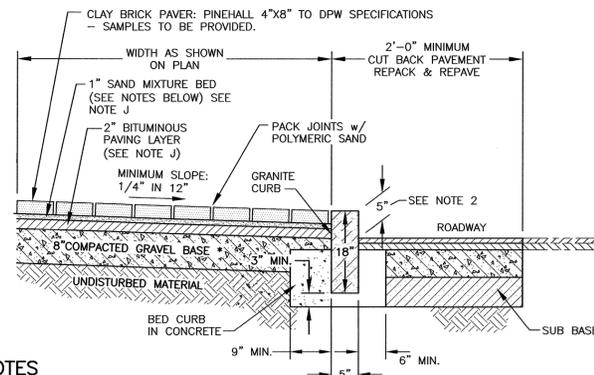


**E** BURIED ELEC/COMM CABLE  
**C5** (MAY NOT BE IN SAME TRENCH SEE PLANS) NTS



**F** TYPICAL PAVEMENT CROSS-SECTION  
**C3** ON SITE PROPERTY ONLY NTS

**CONSTRUCTION NOTE:**  
EXISTING GRANITE CURB DISTURBED BY CONSTRUCTION SHALL BE REUSED AND ANY MISSING CURB SHALL BE REPLACED WITH NEW CURB MATCHING EXISTING CURB SIZE. NO CURB LESS THAN 3' IN LENGTH WILL BE ALLOWED.



**BRICK PAVEMENT NOTES**

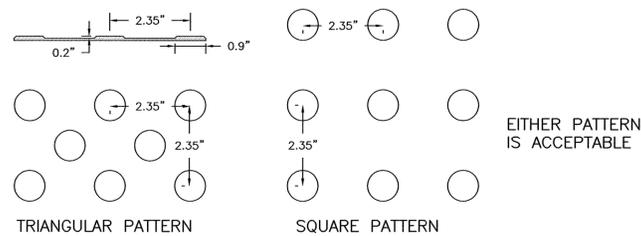
**SCOPE OF WORK:**

- 1) THE WORK SHALL CONSIST OF CONSTRUCTING/RECONSTRUCTING THE SUB-BASE AND CONSTRUCTING A NEW BRICK SIDEWALK AS DIRECTED IN THE FIELD BY THE ENGINEER.
- 2) REVEAL SHALL BE 5" (COORDINATE WITH PORTSMOUTH DPW).

**METHODS OF CONSTRUCTION:**

- A) ALL LABOR AND MATERIALS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 608, AND CITY OF PORTSMOUTH SPECIFICATIONS FOR NEW BRICK SIDEWALK, SECTION 6.
- B) ALL BRICKS SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD SPECIFICATIONS FOR BUILDING BRICKS: CLASS SX, TYPE 1, APPLICATION PX. THE BRICKS SHALL BE NO. 1, WIRE CUT TYPE FOR PAVING, WITH A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 POUNDS PER SQUARE INCH. THE BRICKS SHALL NOT BE CORED OR HAVE FROGS AND SHALL BE OF A STANDARD SIZE (2.25" X 4 X 8").
- C) EXCAVATION FOR SIDEWALKS SHALL BE AT A DEPTH OF 10 INCHES BELOW FINISH GRADE. IN AREAS NOT BUTTING CURBING OR BUILDINGS, THE EXCAVATION SHALL BE 6 INCHES WIDER THAN THE FINISHED SIDEWALK WIDTH. AT ALL DRIVE CROSSINGS, THE DEPTH OF EXCAVATION SHALL BE INCREASED ACCORDINGLY. THE CONTRACTOR SHALL PROVIDE NEAT AND SQUARE CUTTING OF EXISTING ASPHALT ROAD SURFACE AS NEEDED. ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S OWN EXPENSE.
- D) THE BASE MATERIAL SHALL CONSIST OF A MIXTURE OF STONES OR ROCK FRAGMENTS AND PARTICLES WITH 100% PASSING THE 3 INCH SIEVE, 95% TO 100% PASSING THE 2 INCH SIEVE, 55% TO 85% PASSING THE 1 INCH SIEVE, AND 27% TO 52% PASSING THE NO. 4 SIEVE. AT LEAST 50% OF THE MATERIALS RETAINED ON THE 1 INCH SIEVE SHALL HAVE A FRACTURED FACE. THE BASE MATERIAL SHALL BE THOROUGHLY COMPACTED TO THE DEPTH SPECIFIED OR DIRECTED. IN THE WAY OF ALL DRIVE CROSSINGS THE BASE WILL BE INCREASED TO A COMPACTED DEPTH OF 12 INCHES. GRAVEL REQUIREMENTS FOR RECONSTRUCTION WILL BE AS DIRECTED, BASED ON SITE CONDITIONS. THE WORK INCLUDES BACKING UP ANY AND ALL CURB BEING INSTALLED BY OTHERS ON BOTH SIDES.
- E) THE CLAY BRICK PAVERS SHALL BE LAID IN A 1 INCH BED OF A SAND MIXTURE COMPRISED OF: 3 PARTS SAND MIXED WITH 1 PART PORTLAND CEMENT.
- F) THE CONTRACTOR SHALL LAY THE BRICKS SO THAT APPROXIMATELY 5.2 BRICKS SHALL COVER ONE SQUARE FOOT.
- G) THE SIDEWALK SHALL PITCH TOWARDS THE STREET AS SHOWN ON THE GRADING PLAN.
- H) IN AREAS WHERE THE FRONT OF THE BRICK SIDEWALK IS NOT ADJACENT TO THE GRANITE CURBING, THE CONTRACTOR SHALL INSTALL EDGING TO HOLD THE BRICKS IN PLACE. SUCH EDGING SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
- I) THE CONTRACTOR SHALL SUBMIT A SAMPLE OF THE BRICKS FOR APPROVAL BY THE CITY BEFORE BRICKS ARE INSTALLED.
- J) 2" BITUMINOUS PAVING LAYER MAY BE SUBSTITUTED WITH 2" COMPACTED GRAVEL ON SITE AREAS THAT ARE PRIVATE PROPERTY.

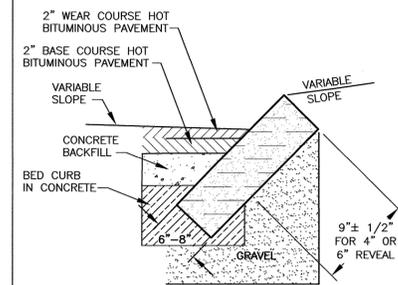
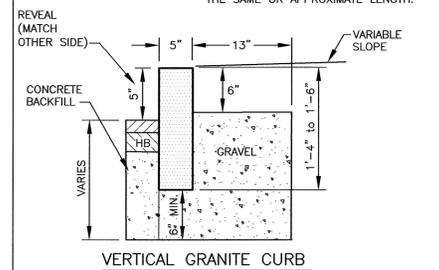
**G** BRICK SIDEWALK w/ VERTICAL GRANITE CURB  
**C3** (STONE DUST BEDDING OVER BITUMINOUS PAVING) NTS



**NOTES:**  
1. CURB RAMPS MUST HAVE A DETECTABLE WARNING FEATURE EXTENDING THE FULL WIDTH OF THE RAMP. A HEIGHT OF NOMINAL 0.2", THE DETECTABLE SURFACE MUST CONSIST OF RAISED TRUNCATED SPACING OF NOMINAL 2.35". THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (LIGHT-ON-DARK OR DARK-ON-LIGHT).  
2. DETECTABLE WARNING SURFACE SHALL BE IRON PANEL TO FILL THE SPACE SHOWN ON THE SITE PLAN.

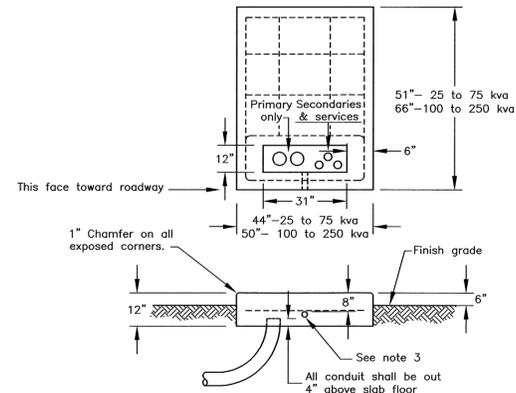
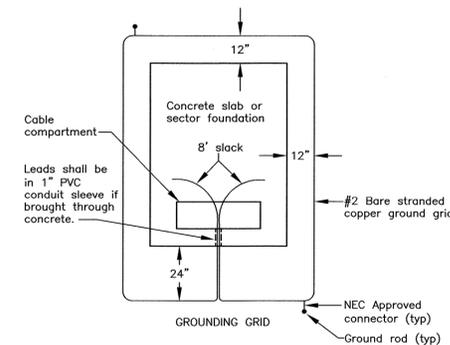
**H** DETECTABLE WARNING SURFACE  
**C3** NTS

Radius	Max. length
21'	3'
22' - 28'	4'
29' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
over 60'	10'



Radius for stones with square joints	Maximum length
16' - 28'	6" - 1'
29' - 41'	2'
42' - 55'	3'
56' - 68'	4'
69' - 82'	5'
83' - 96'	6'
97' - 110'	7'
over 110'	8'

**I** GRANITE CURBING DETAILS  
**C3** WHERE AND IF SPECIFIED NTS



- NOTES:**
1. See sheet "Requirements for Padmounted Transformer Slab Details".
  2. All reinforcing to be #6 bars.
  3. 1" PVC conduit sleeve for ground grid leads.
  4. The ground grid shall be supplied and installed by the customer and is to be buried at least 12" 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' ground rods may be either galvanized steel or copperweld and they shall be connected to the grid with NEC approved connectors.

**J** TRANSFORMER PAD  
**C5** EVERSOURCE NTS

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- 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

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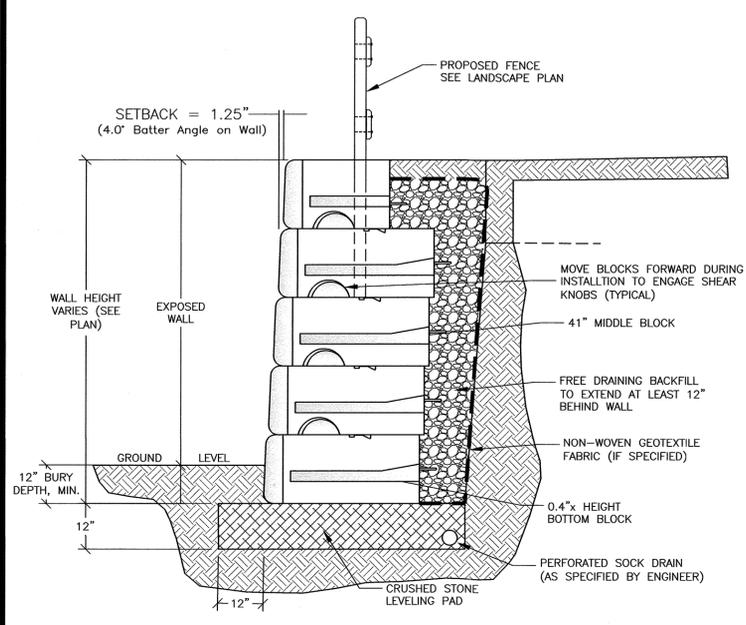


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**DETAILS** **D2**

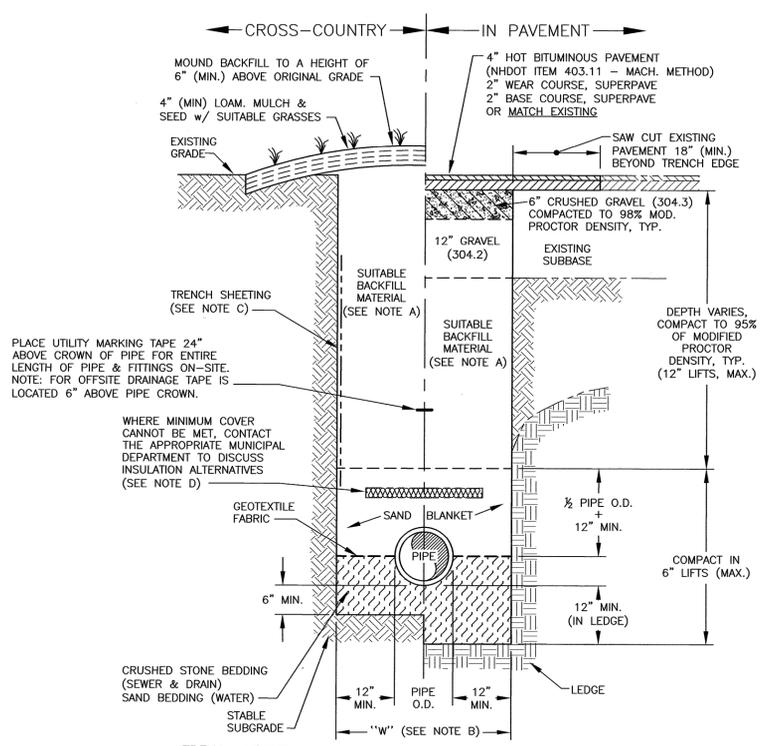
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**K C3** REDI-ROCK MODULAR LARGE BLOCK RETAINING WALL (OR APPROVED EQUAL) NTS

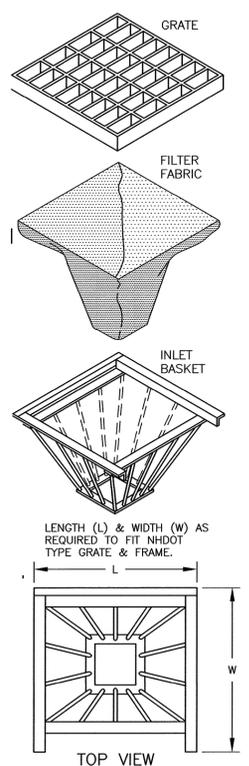
NOTE: STAMPED DESIGN DRAWINGS SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH FOR APPROVAL PRIOR TO CONSTRUCTION.



**M C5** TYPICAL PIPE TRENCH NTS

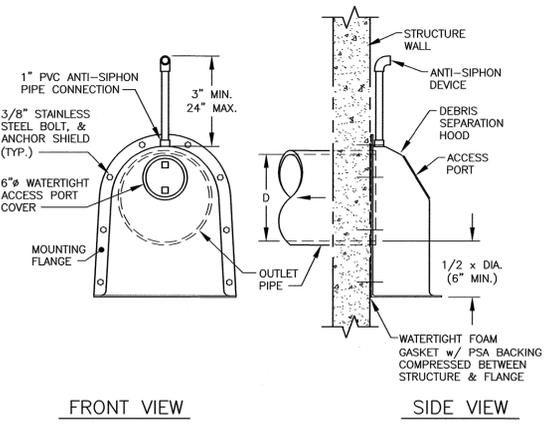
TRENCH NOTES:

- A) TRENCH BACKFILL: - IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.
- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.
- B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..
- C) TRENCH SHEETING: THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFE EXCAVATION PRACTICES.
- D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):  
 5' MINIMUM FOR SEWER (IN PAVEMENT)  
 4' MINIMUM FOR SEWER (CROSS COUNTRY)  
 3' MINIMUM FOR STORMWATER DRAINS  
 5' MINIMUM FOR WATER MAINS
- E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

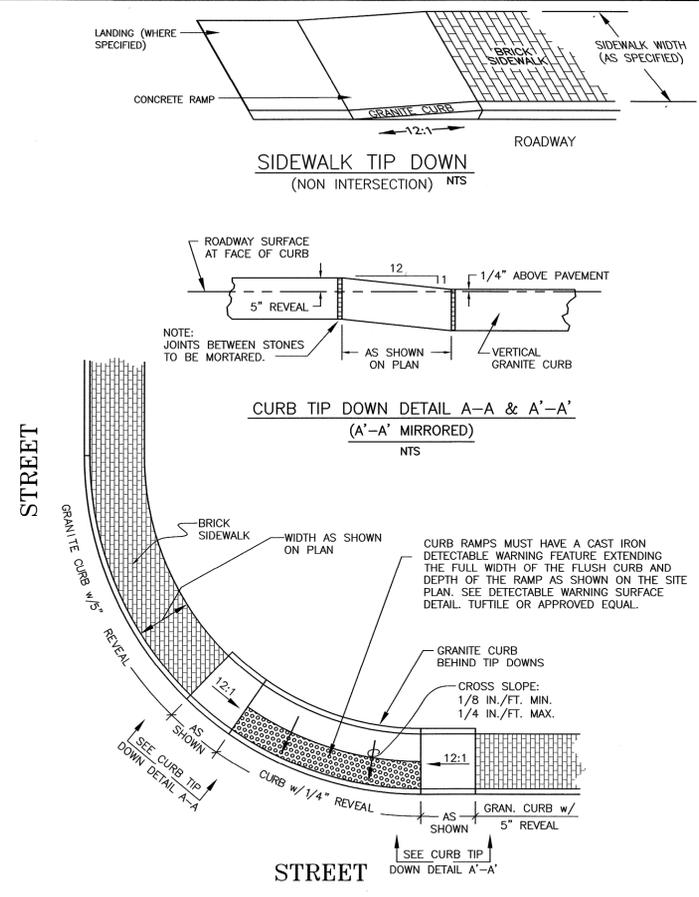


**L C6** CATCH BASIN INLET BASKET NTS

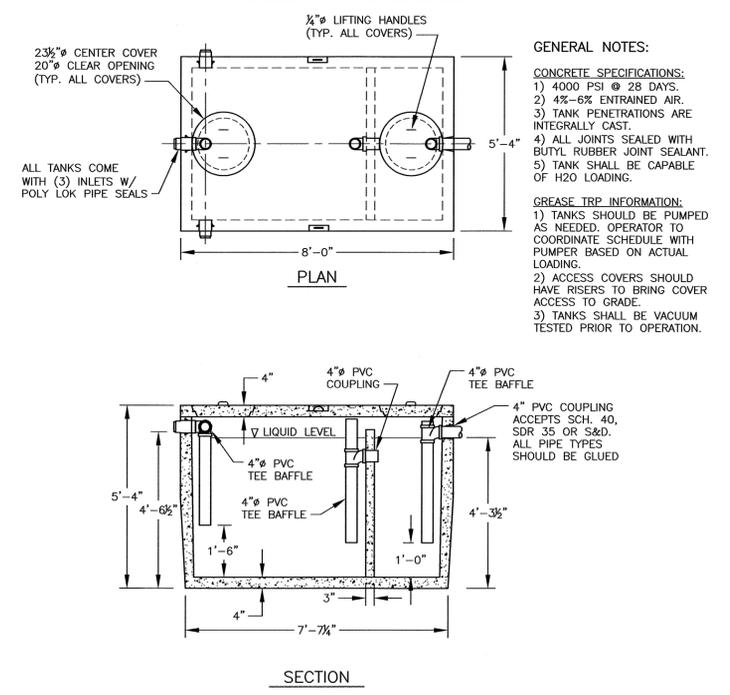
- 1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.
- 2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.
- 3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:  
 -RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)  
 -MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)
- 4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)
- 5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
- 6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES GLOGGED.



**N C6** CATCH BASIN OUTLET HOOD THE "SNOUT" NTS



**O C3** TYPICAL SIDEWALK TIP DOWNS NTS



**P C5** 1,000 GALLON 2 COMPARTMENT GREASE TRAP AMERICAN CONCRETE INDUSTRIES 9,200 Lbs TEM # 8827(H20) NTS

**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
 88 MAPLEWOOD AVENUE  
 PORTSMOUTH, N.H.

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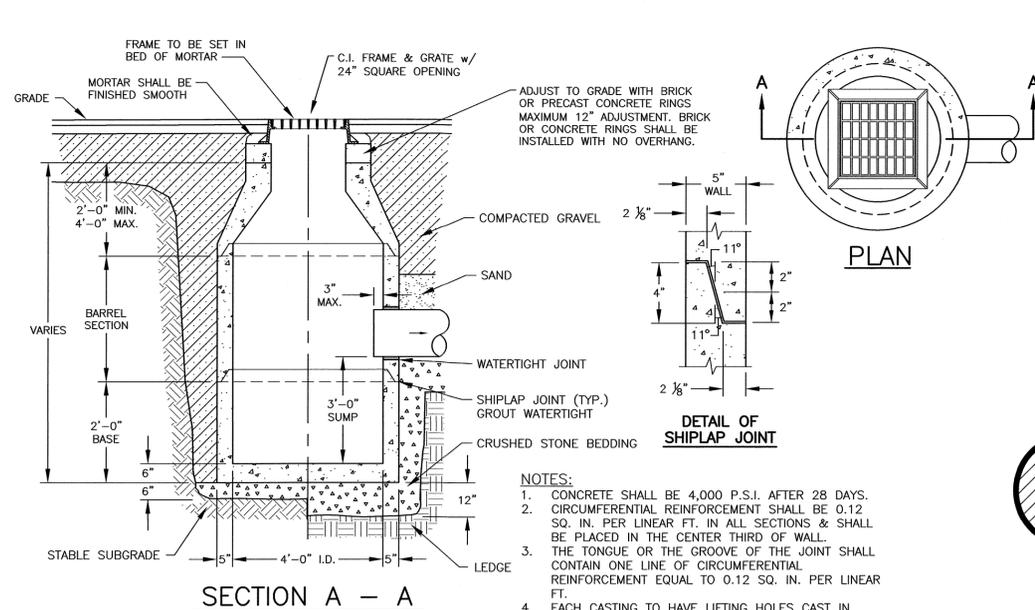
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DETAILS **D3**



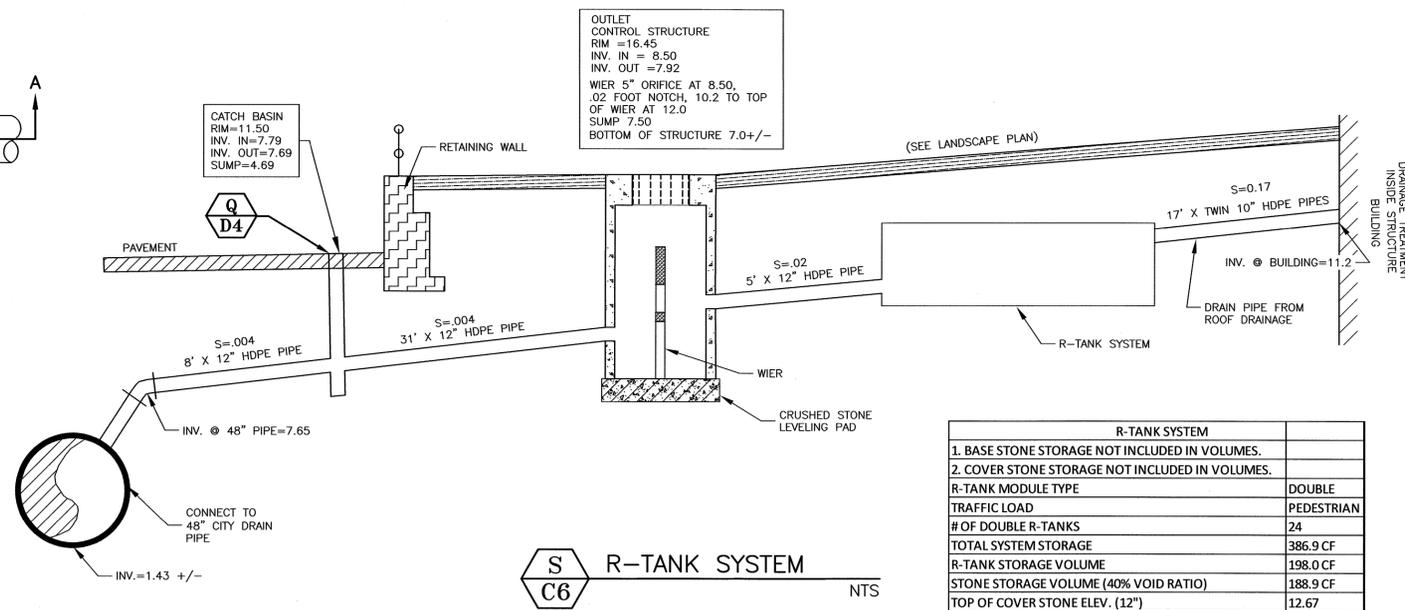
**AMBIT ENGINEERING, INC.**  
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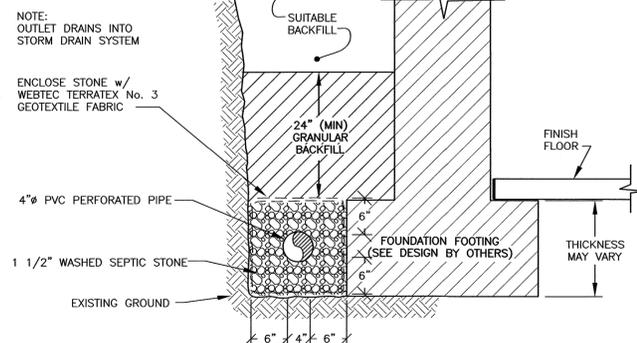


- NOTES:**
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS & SHALL BE PLACED IN THE CENTER THIRD OF WALL.
  2. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
  3. EACH CASTING TO HAVE LIFTING HOLES CAST IN.

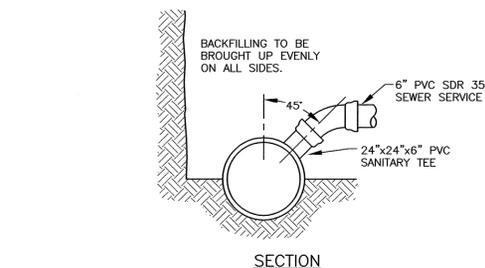
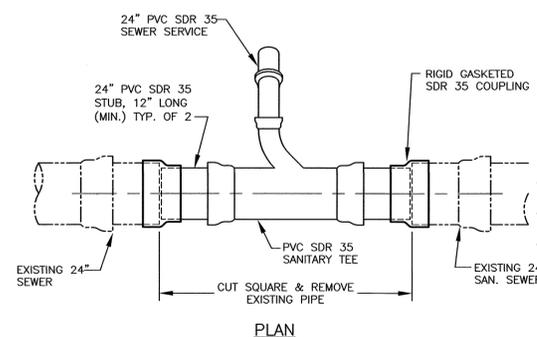
**Q**  
**C6** CATCH BASIN DETAIL  
NTS



R-TANK SYSTEM	
1. BASE STONE STORAGE NOT INCLUDED IN VOLUMES.	
2. COVER STONE STORAGE NOT INCLUDED IN VOLUMES.	
R-TANK MODULE TYPE	DOUBLE
TRAFFIC LOAD	PEDESTRIAN
# OF DOUBLE R-TANKS	24
TOTAL SYSTEM STORAGE	386.9 CF
R-TANK STORAGE VOLUME	198.0 CF
STONE STORAGE VOLUME (40% VOID RATIO)	188.9 CF
TOP OF COVER STONE ELEV. (12")	12.67
ACF BX-12 GEOGRID ELEV.	12.67
TOP OF R-TANK ELEV.	11.67
TANK INVERT IN	10.9
INVERT OF STONE BASE (3") OUT	8.6
MIN. STONE PERIMETER WIDTH 2.0 FT	2.0 FT
SYSTEM IS 18.07 FT LONG BY 9.25 FT WIDE	



**R**  
**C6** TYPICAL FOUNDATION DRAIN  
WHERE SHOWN ON PLAN NTS



**T**  
**C5** SEWER SERVICE CONNECTION DETAIL  
NTS

NOTE: COORDINATE DESIGN OF SEWER CONNECTION WITH CITY OF PORTSMOUTH DPW. PROVIDE SHOP DRAWINGS FOR REVIEW.

**GENERAL NOTES:**

- 1) MINIMUM PIPE SIZE FOR HOME SERVICES SHALL BE SIX INCHES.
- 2) PIPE AND JOINT MATERIALS:
  - A. PLASTIC SEWER PIPE
    - 1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 To T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

      - \*PVC: POLYVINYL CHLORIDE
  - 2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.
  - B. DUCTILE IRON PIPE, FITTINGS AND JOINTS.
    - 1. DUCTILE IRON PIPE AND FITTINGS FOR SEWERS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
      - A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
      - A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND LINED MOLDS FOR SEWER APPLICATIONS.
    - 2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
      - A21.11 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.
- 3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
- 4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.
- 5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE DEPENDING ON THE PIPE ENCOUNTERED, FOR PVC PIPE, USE PVC SADDLES OR INSERT-A-TEE, OR CUT IN A SANITARY TEE. FOR CLAY PIPE, USE INSERT-A-TEE OR CUT IN A SANITARY TEE. ALL WORK TO BE APPROVED BY GOVERNING BODY.
- 6) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES. THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
- 7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV-WQ 704.07.
- 8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM DWELLING TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.
- 9) WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

**GENERAL NOTES- CONT'D:**

- 10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.
 

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%- 55% PASSING	3/8 INCH SCREEN
0%- 10% PASSING	#4 SIEVE
0%- 5% PASSING	#8 SIEVE

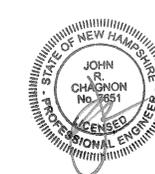
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.
- 11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.
- 12) CAST-IN-PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:
  - CEMENT: 6.0 BAGS PER CUBIC YARD
  - WATER: 5.75 GALLONS PER BAG OF CEMENT
  - MAXIMUM AGGREGATE SIZE: 3/4 INCH
- 13) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION OR MAIN CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.
- 14) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE-GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE-EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.
- 15) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB-SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.
- 16) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.
- 17) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% - 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.
- 18) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.
- 19) FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUND TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- 20) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
- 21) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).
- 22) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.
- 23) THE PURPOSE OF THESE NOTES IS TO DETAIL STANDARDS FOR SEWER CONSTRUCTION.
- 24) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

**NOTES:**

- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.
- 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
- 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

**SITE DEVELOPMENT**  
**EIGHTKPH, LLC**  
**88 MAPLEWOOD AVENUE**  
**PORTSMOUTH, N.H.**

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	8/23/22
REVISIONS		



SCALE: AS SHOWN AUGUST 2022

DETAILS

D4

**MEMORANDUM**  
**TRAFFIC DUE DILIGENCE**  
**Lot 5, Deer Street Development**  
**Augusta 22, 2022**

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## **INTRODUCTION**

Gorrill Palmer (GP) has been retained by Ambit Engineering to compare the approved trip generation for Lot 5 of the Deer Street Development as submitted by TEC, Inc. on December 19, 2016, to the currently proposed development for Lot 5.

It is our understanding from Eric Eby, City Traffic Engineer, that if the trip generation associated with the proposed uses of Lot 5 does not exceed the previously approved trip generation by more than 100 trips during a peak hour or 750 trips for the day, no additional traffic effort would be required other than submittal of that information with supporting memo and calculations. If the 100 hourly or 750 daily thresholds are exceeded, a discussion with the City would be needed at that time and potentially a larger traffic effort would be required.

Upon completion of our review, based on the calculations included in Attachment A, it was determined that the currently proposed uses in Lot 5 will generate less traffic than originally approved. This is primarily due to the decrease in building size. The original building was to include:

- 45 dwelling units
- 13,814 SF of retail space
- 17,274 SF of general office space
- 2,702 SF bank
- Parking for the building

The currently proposed building is to include:

- 19 dwelling units
- 6,615 SF of general office or retail space
- 4,954 SF restaurant
- 324 SF ATM space
- Parking for the building

Although a 4,954 SF restaurant has been added to the building uses, the proposed building has been reduced by 26 dwelling units, 24,473 SF of office or retail space, and the bank has been removed in favor of an ATM. This significant reduction in building size has caused an approximately 40% reduction in the trip generation associated with the building. More information on the trip generation calculations is provided in the following sections.



## **TRIP GENERATION AS APPROVED**

The following excerpt is from GP's Peer Review of the traffic study submitted by TEC, Inc. on December 19, 2016, regarding the methodology used for calculating trip generation in the submittal. The Peer Review was dated March 8, 2017.

- *Lot 5:*
  - *GP concurs with the methodology used to forecast the trip generation for the office space and the residential units.*
  - *The methodology used to forecast the trip generation for the retail space appears to be reasonable. However, the retail space has been identified as a Pharmacy, so in the future LUC 880 – Pharmacy/Drugstore without Drive-Through should be considered.*
  - *Although Eastern Bank in Building 5 will have a drive-through associated with it, the drive-through is not in the same building as the rest of the bank. For this reason, the trip generation may be different than that of a typical bank with a drive-through. An alternative to LUC 912 for the entire bank would be utilizing LUC 911 – Walk-In Bank for the portion of the bank in Building 5 and using information from Eastern Bank for the drive-through ATM trip generation on Lot 4.*

*Internal Trip Capture – GP concurs with the use of shared trip reduction for Lots 3-6. The ITE information for mixed-use trips appears to be reasonable and appropriate for this use. An alternative method for calculating an internal trip capture would be the use of the National Cooperative Highway Research Program (NCHRP) 684 Internal Trip Capture spreadsheet for the AM and PM peak hours. The NCHRP 684 spreadsheet is based on ITE information, so similar internal trip capture rates would be expected.*

*Transit Trips – The 1.5% reduction in trip generation for transit trips appears to be reasonable. It is our understanding that this reduction is based on the entire City of Portsmouth. The reduction may have been higher if data from only Downtown Portsmouth was utilized.*

*Walking and Bicycling Trips – The 8% reduction in trip generation for walking and bicycling trips appears to be reasonable. Similar to the transit trip reduction, the reduction may have been greater if only data from Downtown Portsmouth was utilized.*

*Pass-By Trips – GP concurs with the pass-by trips applied to the retail and restaurant uses. Not applying pass-by trips to office, hotel, and residential uses appears to be reasonable.*

As identified above, the building as originally approved included:

- 45 dwelling units
- 13,814 SF of retail space
- 17,274 SF of general office space
- 2,702 SF bank
- Parking for the building

The Institute of Transportation Engineers' (ITE's) publication, *Trip Generation Handbook, 9<sup>th</sup> Edition* was used to calculate the trip generation for the site, as that was the most current edition available at the time of the original submittal. The trip generation calculations produced the following results as approved by the City:



**Table I: Approved Trip Generation for Lot 5**

<b>Time Period</b>	<b>Total Trips</b>	<b>Total Primary Trips</b>
Weekday Daily	1502	1034
Weekday AM Peak Hour	94	72
Weekday PM Peak Hour	158	90
Saturday Daily	1144	828
Saturday Midday Peak Hour	170	105

As seen in Table I above, the originally approved development was forecast to generate 1034 primary trips on a weekday, 72 and 90 primary trips during weekday AM & PM peak hours respectively and 105 peak hour trips on Saturday. The difference between the “total trips” and “total primary trips” are a result of the the *Internal Trip Capture, Transit Trip, Walking and Bicycle Trip, and Pass-By Trip* reduction calculations discussed previously. The complete Trip generation calculations associated with Lot 5 in the original submittal – including the reduction calculations, are included in Attachment A.

### **TRIP GENERATION AS CURRENTLY PROPOSED**

To be consistent with the trip generation calculations included with the approved submittal, GP used the 9<sup>th</sup> edition of the *Trip Generation Handbook* to calculate the trips associated with the proposed building. This was done to compare the approved building and the currently proposed building (i.e. “apples to apples”). Therefore, GP also used the same approach when calculating the reductions associated with the *Internal Trip Capture, Transit Trip, Walking and Bicycle Trip, and Pass-By Trip* reduction calculations discussed above. This means that the trip generation calculations associated with the currently proposed development were reduced by the same percentages for the same reductions as discussed in the prior section.

As was mentioned above, the currently proposed building is to include:

- 19 dwelling units
- 6,615 SF of general office or retail space
- 4,954 SF restaurant
- 324 SF ATM space
- Parking for the building

It should be noted that since the developer has not refined the final allotment or breakdown of the “6,615 SF of general office or retail space”, the trip generation calculations were completed for three scenarios: 1) assuming that space would all be office space, 2) assuming it would be all retail space, and 3) assuming it would be split 50/50 between office and retail space. It was also assumed that no trips to the building would be made for the ATM space. The ATM space is intended for use by residents and patrons of the building, as well as pedestrians in the vicinity, and the use is not expected to generate significant vehicular traffic. No other bank-related services are being proposed at the updated building.

As identified, the Institute of Transportation Engineers’ (ITE’s) publication, *Trip Generation Handbook, 9<sup>th</sup> Edition* was used to calculate the trip generation for the site uses. The following tables present the trip generation for the whole building (all uses) with each of the three office/retail space scenarios outlined in the paragraph above:



**Table 2: Updated Trip Generation for Lot 5 (using 50/50 Office/Retail)**

Time Period	Total Trips	Total Primary Trips
Weekday Daily	938	542
Weekday AM Peak Hour	74	47
Weekday PM Peak Hour	72	40
Saturday Daily	1054	604
Saturday Midday Peak Hour	98	57

**Table 3: Updated Trip Generation for Lot 5 (using all Office)**

Time Period	Total Trips	Total Primary Trips
Weekday Daily	828	478
Weekday AM Peak Hour	74	49
Weekday PM Peak Hour	70	40
Saturday Daily	922	520
Saturday Midday Peak Hour	82	47

**Table 4: Updated Trip Generation for Lot 5 (using all Retail)**

Time Period	Total Trips	Total Primary Trips
Weekday Daily	1050	602
Weekday AM Peak Hour	70	43
Weekday PM Peak Hour	78	41
Saturday Daily	1184	686
Saturday Midday Peak Hour	112	66

As seen in the tables above, depending on the time period (weekday, AM or PM peak hour, or Saturday peak hour), the highest trip generation varies slightly. However, the general overall highest scenario appears to be when the office/retail space is considered all retail. In that scenario, the proposed building is forecast to generate 602 trips on a weekday, 43 and 41 trips ends during the AM & PM peak hours respectively, and 66 trip ends during the Saturday peak hour. It should be noted that the difference between the “total trips” and the “total primary trips” appears greater in the currently proposed building than the approved building because the percentage of the building area dedicated to residential and office space has decreased and trips associated with the residential and office spaces are not reduced in the same way as the restaurant and retail spaces. The complete Trip generation calculations associated with Lot 5 as currently proposed – including the reduction calculations, are included in Attachment B.

**NET TRIP GENERATION SUMMARY**

The net change in trips between the approved development and the currently proposed development is summarized in the following table:



**Table 5: Trip Generation Comparison**

<b>Time Period</b>	<b>Total Trips</b>	<b>Total Primary Trips</b>
Weekday Daily	-452	-432
Weekday AM Peak Hour	-24	-29
Weekday PM Peak Hour	-80	-49
Saturday Daily	+40	-142
Saturday Midday Peak Hour	-58	-39

There is an increase in total trips on Saturday, but given the changes in proposed uses, the number of primary trips decreased. The primary trips are the trips that are new to the adjacent roadway network. Because the currently proposed uses in Lot 5 do not exceed the previously approved uses of Lot 5 by more than 100 trips during a peak hour or 750 trips for the day, it is the understanding of GP that no additional traffic effort will be required other than submittal of this memo and supporting attachments.

## **CONCLUSION**

Upon completion of our review, based on the calculations included in Attachments A & B, it was determined that the currently proposed uses in Lot 5 will generate less traffic than originally approved. This is primarily due to the proposed building being considerably smaller in size than the original approval.

## **ATTACHMENTS**

- A – As Submitted Trip Generation Spreadsheets
- B – Currently Proposed Trip Generation Spreadsheets



# Attachment A

## As Submitted Trip Generation Calculations

**Lot 5**

**45-Unit Residential Apartments (ITE LUC 220)**

Units: 45 Units

Residential

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	300		300	50%	50%	150	150	2	2	12	12	136	136	20	20	0	256	0	0	128	128
Weekday AM PH	22		22	20%	80%	4	18	0	0	0	1	4	17	0	2	0	20	0	0	4	16
Weekday PM PH	28		28	65%	35%	18	10	0	0	1	1	17	9	4	2	0	22	0	0	14	8
Saturday Daily	288		288	50%	50%	144	144	2	2	12	12	130	130	14	14	0	256	0	0	128	128
Saturday Midday PH	24		24	50%	50%	12	12	0	0	1	1	11	11	2	2	0	20	0	0	10	10

**17,274 SF Office (ITE LUC 710)**

Units: 17.27 KSF

Office

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	190		190	50%	50%	95	95	1	1	8	8	86	86	12	12	0	164	0	0	82	82
Weekday AM PH	26		26	88%	12%	23	3	0	0	2	0	21	3	2	0	0	24	0	0	21	3
Weekday PM PH	26		26	17%	83%	4	22	0	0	0	2	4	20	0	4	0	22	0	0	4	18
Saturday Daily	42		42	50%	50%	21	21	0	0	2	2	19	19	2	2	0	38	0	0	19	19
Saturday Midday PH	8		8	54%	46%	4	4	0	0	0	0	4	4	0	0	0	8	0	0	4	4

**13,814 SF Retail (ITE LUC 820)**

Units: 13.81 KSF

Retail

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	612		612	50%	50%	306	306	5	5	24	24	277	277	58	58	126	360	63	63	180	180
Weekday AM PH	14		14	62%	38%	9	5	0	0	1	0	8	5	2	4	2	6	1	1	6	0
Weekday PM PH	38		38	44%	56%	17	21	0	0	1	2	16	19	12	10	6	10	3	3	2	8
Saturday Daily	580		580	50%	50%	290	290	4	4	23	23	263	263	28	28	134	382	67	67	191	191
Saturday Midday PH	66		66	52%	48%	34	32	1	0	3	3	30	29	6	6	14	39	7	7	20	19

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820  
 Pass-by rate of 34% for Weekday PM PH, 26% for all other periods.

**2,702 SF Drive-In Bank (ITE LUC 912)**

Units: 2.70 KSF

Retail

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	400		400	50%	50%	200	200	3	3	16	16	181	181	26	26	88	254	44	44	127	127
Weekday AM PH	32		32	57%	43%	18	14	0	0	1	1	17	13	2	0	8	22	4	4	12	10
Weekday PM PH	66		66	50%	50%	33	33	0	0	3	3	30	30	6	6	18	36	9	9	18	18
Saturday Daily	234		234	50%	50%	117	117	2	2	9	9	106	106	12	12	54	152	27	27	76	76
Saturday Midday PH	72		72	51%	49%	37	35	1	1	3	3	33	31	4	4	24	38	12	12	20	18

Pass-by rate of 29% for Weekday AM PH, 35% for Weekday PM PH, and 38% for Saturday Midday PH. 26% pass-by rate assumed for Weekday Daily and Saturday Daily

**LOT 5 TOTALS**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	1502	0	1502			751	751	11	11	60	60	680	680	116	116	214	1034	107	107	517	517
Weekday AM PH	94	0	94			54	40	0	0	4	2	50	38	6	6	8	72	5	5	43	29
Weekday PM PH	158	0	158			72	86	0	0	5	8	67	78	22	22	24	90	12	12	38	52
Saturday Daily	1144	0	1144			572	572	8	8	46	46	518	518	56	56	188	828	94	94	414	414
Saturday Midday PH	170	0	170			87	83	2	1	7	7	78	75	12	12	38	105	19	19	54	51

Lot 6, Lot 3, Lot 4, & Lot 5	Total Trips	% In	% Out	Total New Trips		Total Transit Trips		Total Walk / Bicycle Trips		Total Autos Only Trips		Total Multi-Use Trips		Total New Pass-by Trips	Total New Primary Trips	Total Pass-by Trips		Total Primary Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out			In	Out	In	Out
Weekday Daily	4706	50%	50%	2353	2353	34	34	189	189	2130	2130	296	296	998	3048	499	499	1524	1524
Weekday AM Peak Hour	320	58%	42%	185	135	2	1	14	9	169	125	8	8	58	243	29	29	146	97
Weekday PM Peak Hour	444	50%	50%	223	221	2	0	17	18	204	203	48	48	82	264	41	41	132	132
Saturday Daily	4726	50%	50%	2363	2363	36	36	189	189	2138	2138	196	196	1172	3090	586	586	1545	1545
Saturday Midday Peak Hour	510	53%	47%	268	242	5	3	21	19	242	220	26	26	126	324	63	63	174	150

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: November 17, 2016  
Analyst: Eric R. Paquette, E.I.T.  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 220 Apartment

Average Vehicle Trips Ends vs: Dwelling Units  
Independent Variable (X): 45  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 6.65 * (X)$   
 $T = 6.65 * 45.00$   
 $T = \boxed{300}$  vehicle trips  
with 50% entering ( 150 vpd) and with 50% exiting ( 150 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.51 * (X)$   
 $T = 0.51 * 45.00$   
 $T = \boxed{22}$  vehicle trips  
with 20% entering ( 4 vpd) and with 80% exiting ( 18 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 0.62 * (X)$   
 $T = 0.62 * 45.00$   
 $T = \boxed{28}$  vehicle trips  
with 65% entering ( 18 vpd) and with 35% exiting ( 10 vpd)

### AVERAGE SATURDAY DAILY

$T = 6.39 * (X)$   
 $T = 6.39 * 45.00$   
 $T = \boxed{288}$  vehicle trips  
with 50% entering ( 144 vpd) and with 50% exiting ( 144 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 0.52 * (X)$   
 $T = 0.52 * 45.00$   
 $T = \boxed{24}$  vehicle trips  
with 50% entering ( 12 vpd) and with 50% exiting ( 12 vpd)

### AVERAGE SUNDAY DAILY

$T = 5.86 * (X)$   
 $T = 5.86 * 45.00$   
 $T = \boxed{264}$  vehicle trips  
with 50% entering ( 132 vpd) and with 50% exiting ( 132 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 0.51 * (X)$   
 $T = 0.51 * 45.00$   
 $T = \boxed{22}$  vehicle trips  
with 50% entering ( 11 vpd) and with 50% exiting ( 11 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: November 17, 2016  
Analyst: Eric R. Paquette, E.I.T.  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 710 General Office Building

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
Independent Variable (X): 17.274  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 11.03 * (X)$   
 $T = 11.03 * 17.27$   
 $T = \boxed{190}$  vehicle trips  
with 50% entering ( 95 vpd) and with 50% exiting ( 95 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 1.56 * (X)$   
 $T = 1.56 * 17.27$   
 $T = \boxed{26}$  vehicle trips  
with 88% entering ( 23 vpd) and with 12% exiting ( 3 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 1.49 * (X)$   
 $T = 1.49 * 17.27$   
 $T = \boxed{26}$  vehicle trips  
with 17% entering ( 4 vpd) and with 83% exiting ( 22 vpd)

### AVERAGE SATURDAY DAILY

$T = 2.46 * (X)$   
 $T = 2.46 * 17.27$   
 $T = \boxed{42}$  vehicle trips  
with 50% entering ( 21 vpd) and with 50% exiting ( 21 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 0.43 * (X)$   
 $T = 0.43 * 17.27$   
 $T = \boxed{8}$  vehicle trips  
with 54% entering ( 4 vpd) and with 46% exiting ( 4 vpd)

### AVERAGE SUNDAY DAILY

$T = 1.05 * (X)$   
 $T = 1.05 * 17.27$   
 $T = \boxed{18}$  vehicle trips  
with 50% entering ( 9 vpd) and with 50% exiting ( 9 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 0.16 * (X)$   
 $T = 0.16 * 17.27$   
 $T = \boxed{2}$  vehicle trips  
with 58% entering ( 1 vpd) and with 42% exiting ( 1 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: November 17, 2016  
Analyst: Eric R. Paquette, E.I.T.  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 820 Shopping Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 13.814  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 42.70 * (X)$   
 $T = 42.70 * 13.81$   
 $T = \boxed{590}$  vehicle trips  
with 50% entering ( 295 vpd) and with 50% exiting ( 295 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.96 * (X)$   
 $T = 0.96 * 13.81$   
 $T = \boxed{14}$  vehicle trips  
with 62% entering ( 9 vpd) and with 38% exiting ( 5 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 3.71 * (X)$   
 $T = 3.71 * 13.81$   
 $T = \boxed{52}$  vehicle trips  
with 48% entering ( 25 vpd) and with 52% exiting ( 27 vpd)

### AVERAGE SATURDAY DAILY

$T = 49.97 * (X)$   
 $T = 49.97 * 13.81$   
 $T = \boxed{690}$  vehicle trips  
with 50% entering ( 345 vpd) and with 50% exiting ( 345 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 4.82 * (X)$   
 $T = 4.82 * 13.81$   
 $T = \boxed{66}$  vehicle trips  
with 52% entering ( 34 vpd) and with 48% exiting ( 32 vpd)

### AVERAGE SUNDAY DAILY

$T = 25.24 * (X)$   
 $T = 25.24 * 13.81$   
 $T = \boxed{348}$  vehicle trips  
with 50% entering ( 174 vpd) and with 50% exiting ( 174 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 3.12 * (X)$   
 $T = 3.12 * 13.81$   
 $T = \boxed{44}$  vehicle trips  
with 49% entering ( 22 vpd) and with 51% exiting ( 22 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: November 17, 2016  
Analyst: Eric R. Paquette, E.I.T.  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 826 Specialty Retail Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 13.814  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 44.32 * (X)$   
 $T = 44.32 * 13.81$   
 $T = \boxed{612}$  vehicle trips  
with 50% entering ( 306 vpd) and with 50% exiting ( 306 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 13.81$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 2.71 * (X)$   
 $T = 2.71 * 13.81$   
 $T = \boxed{38}$  vehicle trips  
with 44% entering ( 17 vpd) and with 56% exiting ( 21 vpd)

### AVERAGE SATURDAY DAILY

$T = 42.04 * (X)$   
 $T = 42.04 * 13.81$   
 $T = \boxed{580}$  vehicle trips  
with 50% entering ( 290 vpd) and with 50% exiting ( 290 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 13.81$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### AVERAGE SUNDAY DAILY

$T = 20.43 * (X)$   
 $T = 20.43 * 13.81$   
 $T = \boxed{282}$  vehicle trips  
with 50% entering ( 141 vpd) and with 50% exiting ( 141 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 13.81$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
 Date: November 17, 2016  
 Analyst: Eric R. Paquette, E.I.T.  
 Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 912 Drive-In Bank

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
 Independent Variable (X): 2.702  
 Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 148.15 * (X)$   
 $T = 148.15 * 2.70$   
 $T = \boxed{400}$  vehicle trips  
 with 50% entering ( 200 vpd) and with 50% exiting ( 200 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 12.08 * (X)$   
 $T = 12.08 * 2.70$   
 $T = \boxed{32}$  vehicle trips  
 with 57% entering ( 18 vpd) and with 43% exiting ( 14 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 24.30 * (X)$   
 $T = 24.30 * 2.70$   
 $T = \boxed{66}$  vehicle trips  
 with 50% entering ( 33 vpd) and with 50% exiting ( 33 vpd)

### AVERAGE SATURDAY DAILY

$T = 86.32 * (X)$   
 $T = 86.32 * 2.70$   
 $T = \boxed{234}$  vehicle trips  
 with 50% entering ( 117 vpd) and with 50% exiting ( 117 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 26.31 * (X)$   
 $T = 26.31 * 2.70$   
 $T = \boxed{72}$  vehicle trips  
 with 51% entering ( 37 vpd) and with 49% exiting ( 35 vpd)

### AVERAGE SUNDAY DAILY

$T = 31.90 * (X)$   
 $T = 31.90 * 2.70$   
 $T = \boxed{86}$  vehicle trips  
 with 50% entering ( 43 vpd) and with 50% exiting ( 43 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 4.78 * (X)$   
 $T = 4.78 * 2.70$   
 $T = \boxed{12}$  vehicle trips  
 with 50% entering ( 6 vpd) and with 50% exiting ( 6 vpd)



# Attachment B

## Currently Proposed Trip Generation Calculations

**Lot 5 (Half Office / Half Retail)**

**19-Unit Residential Apartments (ITE LUC 220)**

Units: 19 Units Residential

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	126		126	50%	50%	63	63	1	1	5	5	57	57	8	8	0	108	0	0	54	54
Weekday AM PH	10		10	20%	80%	2	8	0	0	0	1	2	7	0	0	0	10	0	0	2	8
Weekday PM PH	12		12	65%	35%	8	4	0	0	1	0	7	4	2	0	0	10	0	0	6	4
Saturday Daily	122		122	50%	50%	61	61	1	1	5	5	55	55	6	6	0	108	0	0	54	54
Saturday Midday PH	10		10	50%	50%	5	5	0	0	0	0	5	5	0	0	0	10	0	0	5	5

**3,308 SF Office (ITE LUC 710)**

Units: 3.31 KSF Office

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	36		36	50%	50%	18	18	0	0	1	1	17	17	2	2	0	32	0	0	16	16
Weekday AM PH	6		6	88%	12%	5	1	0	0	0	0	5	1	0	0	0	6	0	0	5	1
Weekday PM PH	4		4	17%	83%	1	3	0	0	0	0	1	3	0	0	0	4	0	0	1	3
Saturday Daily	8		8	50%	50%	4	4	0	0	0	0	4	4	0	0	0	8	0	0	4	4
Saturday Midday PH	2		2	54%	46%	1	1	0	0	0	0	1	1	0	0	0	2	0	0	1	1

**3,308 SF Retail (ITE LUC 826)**

Units: 3.31 KSF Retail

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	146		146	50%	50%	73	73	1	1	6	6	66	66	9	9	32	94	16	16	47	47
Weekday AM PH	4		4	62%	38%	2	2	0	0	0	0	2	2	0	0	2	2	1	1	1	1
Weekday PM PH	8		8	44%	56%	4	4	0	0	0	0	4	4	1	1	2	4	1	1	2	2
Saturday Daily	140		140	50%	50%	70	70	1	1	6	6	63	63	7	7	32	92	16	16	46	46
Saturday Midday PH	16		16	52%	48%	8	8	0	0	1	1	7	7	1	1	4	10	2	2	5	5

Trip generation rates

Pass-by rate of 34% for Weekday PM PH, 26% for all other periods.

**4,954 SF Restaurant (ITE LUC 932)**

Units: 4.95 KSF Restaurant

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	630		630	50%	50%	315	315	5	5	25	25	285	285	40	40	232	308	116	116	154	154
Weekday AM PH	54		54	55%	45%	30	24	0	0	2	2	28	22	2	1	22	29	11	11	17	12
Weekday PM PH	48		48	60%	40%	29	19	0	0	2	2	27	17	6	4	16	22	8	8	15	7
Saturday Daily	784		784	50%	50%	392	392	6	6	31	31	355	355	39	39	298	396	149	149	198	198
Saturday Midday PH	70		70	53%	47%	37	33	1	0	3	3	33	30	3	3	28	35	14	14	19	16

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820.

Pass-by rate of 43% for all periods.

**LOT 5 TOTALS**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	938	0	938			469	469	7	7	37	37	425	425	59	59	264	542	132	132	271	271
Weekday AM PH	74	0	74			39	35	0	0	2	3	37	32	2	1	24	47	12	12	25	22
Weekday PM PH	72	0	72			42	30	0	0	3	2	39	28	9	5	18	40	9	9	24	16
Saturday Daily	1054	0	1054			527	527	8	8	42	42	477	477	52	52	330	604	165	165	302	302
Saturday Midday PH	98	0	98			51	47	1	0	4	4	46	43	4	4	32	57	16	16	30	27

Lot 6, Lot 3, Lot 4, & Lot 5	Total Trips	% In	% Out	Total New Trips		Total Transit Trips		Total Walk / Bicycle Trips		Total Autos Only Trips		Total Multi-Use Trips		Total New Pass-by Trips	Total New Primary Trips	Total Pass-by Trips		Total Primary Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out			In	Out	In	Out
Weekday Daily	4142	50%	50%	2071	2071	30	30	166	166	1875	1875	239	239	1048	2556	524	524	1278	1278
Weekday AM Peak Hour	300	57%	43%	170	130	2	1	12	10	156	119	4	3	72	218	36	36	128	90
Weekday PM Peak Hour	358	54%	46%	193	165	2	0	15	12	176	153	35	31	76	214	38	38	118	96
Saturday Daily	4636	50%	50%	2318	2318	36	36	185	185	2097	2097	192	192	1314	2866	657	657	1433	1433
Saturday Midday Peak Hour	438	53%	47%	232	206	4	2	18	16	210	188	18	18	120	276	60	60	150	126

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 220 Apartment

Average Vehicle Trips Ends vs: Dwelling Units  
Independent Variable (X): 19  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

T = 6.65 \* (X)  
T = 6.65 \* 19.00  
T = **126** vehicle trips  
with 50% entering ( 63 vpd) and with 50% exiting ( 63 vpd)

### WEEKDAY MORNING PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 20% entering ( 2 vpd) and with 80% exiting ( 8 vpd)

### WEEKDAY EVENING PEAK HOUR

T = 0.62 \* (X)  
T = 0.62 \* 19.00  
T = **12** vehicle trips  
with 65% entering ( 8 vpd) and with 35% exiting ( 4 vpd)

### AVERAGE SATURDAY DAILY

T = 6.39 \* (X)  
T = 6.39 \* 19.00  
T = **122** vehicle trips  
with 50% entering ( 61 vpd) and with 50% exiting ( 61 vpd)

### SATURDAY MIDDAY PEAK HOUR

T = 0.52 \* (X)  
T = 0.52 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

### AVERAGE SUNDAY DAILY

T = 5.86 \* (X)  
T = 5.86 \* 19.00  
T = **112** vehicle trips  
with 50% entering ( 56 vpd) and with 50% exiting ( 56 vpd)

### SUNDAY MIDDAY PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 710 General Office Building

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
Independent Variable (X): 3.308  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

T = 11.03 \* (X)  
T = 11.03 \* 3.31  
T = **36** vehicle trips  
with 50% entering ( 18 vpd) and with 50% exiting ( 18 vpd)

### WEEKDAY MORNING PEAK HOUR

T = 1.56 \* (X)  
T = 1.56 \* 3.31  
T = **6** vehicle trips  
with 88% entering ( 5 vpd) and with 12% exiting ( 1 vpd)

### WEEKDAY EVENING PEAK HOUR

T = 1.49 \* (X)  
T = 1.49 \* 3.31  
T = **4** vehicle trips  
with 17% entering ( 1 vpd) and with 83% exiting ( 3 vpd)

### AVERAGE SATURDAY DAILY

T = 2.46 \* (X)  
T = 2.46 \* 3.31  
T = **8** vehicle trips  
with 50% entering ( 4 vpd) and with 50% exiting ( 4 vpd)

### SATURDAY MIDDAY PEAK HOUR

T = 0.43 \* (X)  
T = 0.43 \* 3.31  
T = **2** vehicle trips  
with 54% entering ( 1 vpd) and with 46% exiting ( 1 vpd)

### AVERAGE SUNDAY DAILY

T = 1.05 \* (X)  
T = 1.05 \* 3.31  
T = **4** vehicle trips  
with 50% entering ( 2 vpd) and with 50% exiting ( 2 vpd)

### SUNDAY MIDDAY PEAK HOUR

T = 0.16 \* (X)  
T = 0.16 \* 3.31  
T = **-** vehicle trips  
with 58% entering ( - vpd) and with 42% exiting ( - vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 820 Shopping Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 3.308  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 42.70 * (X)$   
 $T = 42.70 * 3.31$   
 $T = \boxed{142}$  vehicle trips  
with 50% entering ( 71 vpd) and with 50% exiting ( 71 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.96 * (X)$   
 $T = 0.96 * 3.31$   
 $T = \boxed{4}$  vehicle trips  
with 62% entering ( 2 vpd) and with 38% exiting ( 2 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 3.71 * (X)$   
 $T = 3.71 * 3.31$   
 $T = \boxed{12}$  vehicle trips  
with 48% entering ( 6 vpd) and with 52% exiting ( 6 vpd)

### AVERAGE SATURDAY DAILY

$T = 49.97 * (X)$   
 $T = 49.97 * 3.31$   
 $T = \boxed{166}$  vehicle trips  
with 50% entering ( 83 vpd) and with 50% exiting ( 83 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 4.82 * (X)$   
 $T = 4.82 * 3.31$   
 $T = \boxed{16}$  vehicle trips  
with 52% entering ( 8 vpd) and with 48% exiting ( 8 vpd)

### AVERAGE SUNDAY DAILY

$T = 25.24 * (X)$   
 $T = 25.24 * 3.31$   
 $T = \boxed{84}$  vehicle trips  
with 50% entering ( 42 vpd) and with 50% exiting ( 42 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 3.12 * (X)$   
 $T = 3.12 * 3.31$   
 $T = \boxed{10}$  vehicle trips  
with 49% entering ( 5 vpd) and with 51% exiting ( 5 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 826 Specialty Retail Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 3.308  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 44.32 * (X)$   
 $T = 44.32 * 3.31$   
 $T = \boxed{146}$  vehicle trips  
with 50% entering ( 73 vpd) and with 50% exiting ( 73 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 3.31$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 2.71 * (X)$   
 $T = 2.71 * 3.31$   
 $T = \boxed{8}$  vehicle trips  
with 44% entering ( 4 vpd) and with 56% exiting ( 4 vpd)

### AVERAGE SATURDAY DAILY

$T = 42.04 * (X)$   
 $T = 42.04 * 3.31$   
 $T = \boxed{140}$  vehicle trips  
with 50% entering ( 70 vpd) and with 50% exiting ( 70 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 3.31$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### AVERAGE SUNDAY DAILY

$T = 20.43 * (X)$   
 $T = 20.43 * 3.31$   
 $T = \boxed{68}$  vehicle trips  
with 50% entering ( 34 vpd) and with 50% exiting ( 34 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 0.00 * (X)$   
 $T = 0.00 * 3.31$   
 $T = \boxed{-}$  vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
 Date: 11/17/2016 - Revised By GP 8/19/2022  
 Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
 Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 932 High-Turnover (Sit-Down) Restaurant

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
 Independent Variable (X): 4.954  
 Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 127.15 * (X)$   
 $T = 127.15 * 4.95$   
 $T = \boxed{630}$  vehicle trips  
 with 50% entering ( 315 vpd) and with 50% exiting ( 315 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 10.81 * (X)$   
 $T = 10.81 * 4.95$   
 $T = \boxed{54}$  vehicle trips  
 with 55% entering ( 30 vpd) and with 45% exiting ( 24 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 9.85 * (X)$   
 $T = 9.85 * 4.95$   
 $T = \boxed{48}$  vehicle trips  
 with 60% entering ( 29 vpd) and with 40% exiting ( 19 vpd)

### AVERAGE SATURDAY DAILY

$T = 158.37 * (X)$   
 $T = 158.37 * 4.95$   
 $T = \boxed{784}$  vehicle trips  
 with 50% entering ( 392 vpd) and with 50% exiting ( 392 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 14.07 * (X)$   
 $T = 14.07 * 4.95$   
 $T = \boxed{70}$  vehicle trips  
 with 53% entering ( 37 vpd) and with 47% exiting ( 33 vpd)

### AVERAGE SUNDAY DAILY

$T = 131.84 * (X)$   
 $T = 131.84 * 4.95$   
 $T = \boxed{654}$  vehicle trips  
 with 50% entering ( 327 vpd) and with 50% exiting ( 327 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 18.46 * (X)$   
 $T = 18.46 * 4.95$   
 $T = \boxed{92}$  vehicle trips  
 with 55% entering ( 51 vpd) and with 45% exiting ( 41 vpd)

**Lot 5 All Office**

**19-Unit Residential Apartments (ITE LUC 220)**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
	Residential																				
Weekday Daily	126		126	50%	50%	63	63	1	1	5	5	57	57	8	8	0	108	0	0	54	54
Weekday AM PH	10		10	20%	80%	2	8	0	0	0	1	2	7	0	0	0	10	0	0	2	8
Weekday PM PH	12		12	65%	35%	8	4	0	0	1	0	7	4	2	0	0	10	0	0	6	4
Saturday Daily	122		122	50%	50%	61	61	1	1	5	5	55	55	6	6	0	108	0	0	54	54
Saturday Midday PH	10		10	50%	50%	5	5	0	0	0	0	5	5	0	0	0	10	0	0	5	5

**6,615 SF Office (ITE LUC 710)**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
	Office																				
Weekday Daily	72		72	50%	50%	36	36	1	1	3	3	32	32	4	4	0	62	0	0	31	31
Weekday AM PH	10		10	88%	12%	9	1	0	0	1	0	8	1	0	0	0	10	0	0	9	1
Weekday PM PH	10		10	17%	83%	2	8	0	0	0	1	2	7	0	2	0	8	0	0	2	6
Saturday Daily	16		16	50%	50%	8	8	0	0	1	1	7	7	0	0	0	16	0	0	8	8
Saturday Midday PH	2		2	54%	46%	1	1	0	0	0	0	1	1	0	0	0	2	0	0	1	1

**0SF Retail (ITE LUC 826)**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
	Retail																				
Weekday Daily	0		0	50%	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weekday AM PH	0		0	62%	38%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weekday PM PH	0		0	44%	56%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturday Daily	0		0	50%	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturday Midday PH	0		0	52%	48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820.

Pass-by rate of 34% for Weekday PM PH, 26% for all other periods.

**4,954 SF Restaurant (ITE LUC 932)**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
	Restaurant																				
Weekday Daily	630		630	50%	50%	315	315	5	5	25	25	285	285	40	40	232	308	116	116	154	154
Weekday AM PH	54		54	55%	45%	30	24	0	0	2	2	28	22	2	1	22	29	11	11	17	12
Weekday PM PH	48		48	60%	40%	29	19	0	0	2	2	27	17	6	4	16	22	8	8	15	7
Saturday Daily	784		784	50%	50%	392	392	6	6	31	31	355	355	39	39	298	396	149	149	198	198
Saturday Midday PH	70		70	53%	47%	37	33	1	0	3	3	33	30	3	3	28	35	14	14	19	16

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820.

Pass-by rate of 43% for all periods.

**LOT 5 TOTALS**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	828	0	828			414	414	7	7	33	33	374	374	52	52	232	478	116	116	239	239
Weekday AM PH	74	0	74			41	33	0	0	3	3	38	30	2	1	22	49	11	11	28	21
Weekday PM PH	70	0	70			39	31	0	0	3	3	36	28	8	6	16	40	8	8	23	17
Saturday Daily	922	0	922			461	461	7	7	37	37	417	417	45	45	298	520	149	149	260	260
Saturday Midday PH	82	0	82			43	39	1	0	3	3	39	36	3	3	28	47	14	14	25	22

Lot 6, Lot 3, Lot 4, & Lot 5	Total Trips	% In	% Out	Total New Trips		Total Transit Trips		Total Walk / Bicycle Trips		Total Autos Only Trips		Total Multi-Use Trips		Total New Pass-by Trips	Total New Primary Trips	Total Pass-by Trips		Total Primary Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out			In	Out		
Weekday Daily	4032	50%	50%	2016	2016	30	30	162	162	1824	1824	232	232	1016	2492	508	508	1246	1246
Weekday AM Peak Hour	300	57%	43%	172	128	2	1	13	10	157	117	4	3	70	220	35	35	131	89
Weekday PM Peak Hour	356	53%	47%	190	166	2	0	15	13	173	153	34	32	74	214	37	37	117	97
Saturday Daily	4504	50%	50%	2252	2252	35	35	180	180	2037	2037	185	185	1282	2782	641	641	1391	1391
Saturday Midday Peak Hour	422	53%	47%	224	198	4	2	17	15	203	181	17	17	116	266	58	58	145	121

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 220 Apartment

Average Vehicle Trips Ends vs: Dwelling Units  
Independent Variable (X): 19  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

T = 6.65 \* (X)  
T = 6.65 \* 19.00  
T = **126** vehicle trips  
with 50% entering ( 63 vpd) and with 50% exiting ( 63 vpd)

### WEEKDAY MORNING PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 20% entering ( 2 vpd) and with 80% exiting ( 8 vpd)

### WEEKDAY EVENING PEAK HOUR

T = 0.62 \* (X)  
T = 0.62 \* 19.00  
T = **12** vehicle trips  
with 65% entering ( 8 vpd) and with 35% exiting ( 4 vpd)

### AVERAGE SATURDAY DAILY

T = 6.39 \* (X)  
T = 6.39 \* 19.00  
T = **122** vehicle trips  
with 50% entering ( 61 vpd) and with 50% exiting ( 61 vpd)

### SATURDAY MIDDAY PEAK HOUR

T = 0.52 \* (X)  
T = 0.52 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

### AVERAGE SUNDAY DAILY

T = 5.86 \* (X)  
T = 5.86 \* 19.00  
T = **112** vehicle trips  
with 50% entering ( 56 vpd) and with 50% exiting ( 56 vpd)

### SUNDAY MIDDAY PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 710 General Office Building

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
Independent Variable (X): 6.615  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 11.03 * (X)$   
 $T = 11.03 * 6.62$   
 $T = \boxed{72}$  vehicle trips  
with 50% entering ( 36 vpd) and with 50% exiting ( 36 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 1.56 * (X)$   
 $T = 1.56 * 6.62$   
 $T = \boxed{10}$  vehicle trips  
with 88% entering ( 9 vpd) and with 12% exiting ( 1 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 1.49 * (X)$   
 $T = 1.49 * 6.62$   
 $T = \boxed{10}$  vehicle trips  
with 17% entering ( 2 vpd) and with 83% exiting ( 8 vpd)

### AVERAGE SATURDAY DAILY

$T = 2.46 * (X)$   
 $T = 2.46 * 6.62$   
 $T = \boxed{16}$  vehicle trips  
with 50% entering ( 8 vpd) and with 50% exiting ( 8 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 0.43 * (X)$   
 $T = 0.43 * 6.62$   
 $T = \boxed{2}$  vehicle trips  
with 54% entering ( 1 vpd) and with 46% exiting ( 1 vpd)

### AVERAGE SUNDAY DAILY

$T = 1.05 * (X)$   
 $T = 1.05 * 6.62$   
 $T = \boxed{6}$  vehicle trips  
with 50% entering ( 3 vpd) and with 50% exiting ( 3 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 0.16 * (X)$   
 $T = 0.16 * 6.62$   
 $T = \boxed{2}$  vehicle trips  
with 58% entering ( 1 vpd) and with 42% exiting ( 1 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
 Date: 11/17/2016 - Revised By GP 8/19/2022  
 Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
 Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 932 High-Turnover (Sit-Down) Restaurant

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
 Independent Variable (X): 4.954  
 Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 127.15 * (X)$   
 $T = 127.15 * 4.95$   
 $T = \boxed{630}$  vehicle trips  
 with 50% entering ( 315 vpd) and with 50% exiting ( 315 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 10.81 * (X)$   
 $T = 10.81 * 4.95$   
 $T = \boxed{54}$  vehicle trips  
 with 55% entering ( 30 vpd) and with 45% exiting ( 24 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 9.85 * (X)$   
 $T = 9.85 * 4.95$   
 $T = \boxed{48}$  vehicle trips  
 with 60% entering ( 29 vpd) and with 40% exiting ( 19 vpd)

### AVERAGE SATURDAY DAILY

$T = 158.37 * (X)$   
 $T = 158.37 * 4.95$   
 $T = \boxed{784}$  vehicle trips  
 with 50% entering ( 392 vpd) and with 50% exiting ( 392 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 14.07 * (X)$   
 $T = 14.07 * 4.95$   
 $T = \boxed{70}$  vehicle trips  
 with 53% entering ( 37 vpd) and with 47% exiting ( 33 vpd)

### AVERAGE SUNDAY DAILY

$T = 131.84 * (X)$   
 $T = 131.84 * 4.95$   
 $T = \boxed{654}$  vehicle trips  
 with 50% entering ( 327 vpd) and with 50% exiting ( 327 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 18.46 * (X)$   
 $T = 18.46 * 4.95$   
 $T = \boxed{92}$  vehicle trips  
 with 55% entering ( 51 vpd) and with 45% exiting ( 41 vpd)

**Lot 5 All Retail**

**19-Unit Residential Apartments (ITE LUC 220)**

Units: 19 Units

Residential

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	126		126	50%	50%	63	63	1	1	5	5	57	57	8	8	0	108	0	0	54	54
Weekday AM PH	10		10	20%	80%	2	8	0	0	0	1	2	7	0	0	0	10	0	0	2	8
Weekday PM PH	12		12	65%	35%	8	4	0	0	1	0	7	4	2	0	0	10	0	0	6	4
Saturday Daily	122		122	50%	50%	61	61	1	1	5	5	55	55	6	6	0	108	0	0	54	54
Saturday Midday PH	10		10	50%	50%	5	5	0	0	0	0	5	5	0	0	0	10	0	0	5	5

**0 SF Office (ITE LUC 710)**

Units: 0.00 KSF

Office

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	0		0	50%	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weekday AM PH	0		0	88%	12%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weekday PM PH	0		0	17%	83%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturday Daily	0		0	50%	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturday Midday PH	0		0	54%	46%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**6,615SF Retail (ITE LUC 826)**

Units: 6.62 KSF

Retail

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	294		294	50%	50%	147	147	2	2	12	12	133	133	19	19	66	186	33	33	93	93
Weekday AM PH	6		6	62%	38%	4	2	0	0	0	0	4	2	0	0	2	4	1	1	3	1
Weekday PM PH	18		18	44%	56%	8	10	0	0	1	1	7	9	1	2	6	9	3	3	4	5
Saturday Daily	278		278	50%	50%	139	139	2	2	11	11	126	126	14	14	64	182	32	32	91	91
Saturday Midday PH	32		32	52%	48%	17	15	0	0	1	1	16	14	2	1	8	21	4	4	11	10

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820.

Pass-by rate of 34% for Weekday PM PH, 26% for all other periods.

**4,954 SF Restaurant (ITE LUC 932)**

Units: 4.95 KSF

Restaurant

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	630		630	50%	50%	315	315	5	5	25	25	285	285	40	40	232	308	116	116	154	154
Weekday AM PH	54		54	55%	45%	30	24	0	0	2	2	28	22	2	1	22	29	11	11	17	12
Weekday PM PH	48		48	60%	40%	29	19	0	0	2	2	27	17	6	4	16	22	8	8	15	7
Saturday Daily	784		784	50%	50%	392	392	6	6	31	31	355	355	39	39	298	396	149	149	198	198
Saturday Midday PH	70		70	53%	47%	37	33	1	0	3	3	33	30	3	3	28	35	14	14	19	16

Trip generation rates for Weekday AM PH and Saturday Midday PH sourced from ITE LUC 820.

Pass-by rate of 43% for all periods.

**LOT 5 TOTALS**

	Total Trips		Total New Trips	% Distribution		# New Trips		Transit Trips		Walk / Bicycle Trips		Autos Only		Multi-Use		Total New Pass-by Trips	Total New Primary Trips	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT			IN	OUT	IN	OUT
Weekday Daily	1050	0	1050			525	525	8	8	42	42	475	475	67	67	298	602	149	149	301	301
Weekday AM PH	70	0	70			36	34	0	0	2	3	34	31	2	1	24	43	12	12	22	21
Weekday PM PH	78	0	78			45	33	0	0	4	3	41	30	9	6	22	41	11	11	25	16
Saturday Daily	1184	0	1184			592	592	9	9	47	47	536	536	59	59	362	686	181	181	343	343
Saturday Midday PH	112	0	112			59	53	1	0	4	4	54	49	5	4	36	66	18	18	35	31

Lot 6, Lot 3, Lot 4, & Lot 5	Total Trips		Total New Trips	% In % Out		Total New Trips		Total Transit Trips		Total Walk / Bicycle Trips		Total Autos Only Trips		Total Multi-Use Trips		Total New Pass-by Trips	Total New Primary Trips	Total Pass-by Trips		Total Primary Trips	
	In	Out		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out			In	Out	In	Out
Weekday Daily	4254	50%	50%	2127	2127	31	30	171	171	1925	1925	247	247	1082	2616	541	541	1308	1308		
Weekday AM Peak Hour	296	56%	44%	167	129	2	1	12	10	153	118	4	3	72	214	36	36	125	89		
Weekday PM Peak Hour	364	54%	46%	196	168	2	0	16	13	178	155	35	32	80	215	40	40	119	96		
Saturday Daily	4766	50%	50%	2383	2383	37	37	190	190	2156	2156	199	199	1346	2948	673	673	1474	1474		
Saturday Midday Peak Hour	452	53%	47%	240	212	4	2	18	16	218	194	19	18	124	285	62	62	155	130		

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 220 Apartment

Average Vehicle Trips Ends vs: Dwelling Units  
Independent Variable (X): 19  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

T = 6.65 \* (X)  
T = 6.65 \* 19.00  
T = **126** vehicle trips  
with 50% entering ( 63 vpd) and with 50% exiting ( 63 vpd)

### WEEKDAY MORNING PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 20% entering ( 2 vpd) and with 80% exiting ( 8 vpd)

### WEEKDAY EVENING PEAK HOUR

T = 0.62 \* (X)  
T = 0.62 \* 19.00  
T = **12** vehicle trips  
with 65% entering ( 8 vpd) and with 35% exiting ( 4 vpd)

### AVERAGE SATURDAY DAILY

T = 6.39 \* (X)  
T = 6.39 \* 19.00  
T = **122** vehicle trips  
with 50% entering ( 61 vpd) and with 50% exiting ( 61 vpd)

### SATURDAY MIDDAY PEAK HOUR

T = 0.52 \* (X)  
T = 0.52 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

### AVERAGE SUNDAY DAILY

T = 5.86 \* (X)  
T = 5.86 \* 19.00  
T = **112** vehicle trips  
with 50% entering ( 56 vpd) and with 50% exiting ( 56 vpd)

### SUNDAY MIDDAY PEAK HOUR

T = 0.51 \* (X)  
T = 0.51 \* 19.00  
T = **10** vehicle trips  
with 50% entering ( 5 vpd) and with 50% exiting ( 5 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 820 Shopping Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 6.615  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 42.70 * (X)$   
 $T = 42.70 * 6.62$   
 $T = \boxed{282}$  vehicle trips  
with 50% entering ( 141 vpd) and with 50% exiting ( 141 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 0.96 * (X)$   
 $T = 0.96 * 6.62$   
 $T = \boxed{6}$  vehicle trips  
with 62% entering ( 4 vpd) and with 38% exiting ( 2 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 3.71 * (X)$   
 $T = 3.71 * 6.62$   
 $T = \boxed{24}$  vehicle trips  
with 48% entering ( 12 vpd) and with 52% exiting ( 12 vpd)

### AVERAGE SATURDAY DAILY

$T = 49.97 * (X)$   
 $T = 49.97 * 6.62$   
 $T = \boxed{330}$  vehicle trips  
with 50% entering ( 165 vpd) and with 50% exiting ( 165 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 4.82 * (X)$   
 $T = 4.82 * 6.62$   
 $T = \boxed{32}$  vehicle trips  
with 52% entering ( 17 vpd) and with 48% exiting ( 15 vpd)

### AVERAGE SUNDAY DAILY

$T = 25.24 * (X)$   
 $T = 25.24 * 6.62$   
 $T = \boxed{166}$  vehicle trips  
with 50% entering ( 83 vpd) and with 50% exiting ( 83 vpd)

### SUNDAY MIDDAY PEAK HOUR

$T = 3.12 * (X)$   
 $T = 3.12 * 6.62$   
 $T = \boxed{20}$  vehicle trips  
with 49% entering ( 10 vpd) and with 51% exiting ( 10 vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
Date: 11/17/2016 - Revised By GP 8/19/2022  
Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 826 Specialty Retail Center

Average Vehicle Trips Ends vs: 1000 SF Gross Leasable Area  
Independent Variable (X): 6.615  
Curve Method: Average

### AVERAGE WEEKDAY DAILY

T = 44.32 \* (X)  
T = 44.32 \* 6.62  
T = **294** vehicle trips  
with 50% entering ( 147 vpd) and with 50% exiting ( 147 vpd)

### WEEKDAY MORNING PEAK HOUR

T = 0.00 \* (X)  
T = 0.00 \* 6.62  
T = **-** vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### WEEKDAY EVENING PEAK HOUR

T = 2.71 \* (X)  
T = 2.71 \* 6.62  
T = **18** vehicle trips  
with 44% entering ( 8 vpd) and with 56% exiting ( 10 vpd)

### AVERAGE SATURDAY DAILY

T = 42.04 \* (X)  
T = 42.04 \* 6.62  
T = **278** vehicle trips  
with 50% entering ( 139 vpd) and with 50% exiting ( 139 vpd)

### SATURDAY MIDDAY PEAK HOUR

T = 0.00 \* (X)  
T = 0.00 \* 6.62  
T = **-** vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

### AVERAGE SUNDAY DAILY

T = 20.43 \* (X)  
T = 20.43 \* 6.62  
T = **136** vehicle trips  
with 50% entering ( 68 vpd) and with 50% exiting ( 68 vpd)

### SUNDAY MIDDAY PEAK HOUR

T = 0.00 \* (X)  
T = 0.00 \* 6.62  
T = **-** vehicle trips  
with 50% entering ( - vpd) and with 50% exiting ( - vpd)

## Trip Generation Estimate

Project: Deer Street Garage and Deer Street Associates  
 Date: 11/17/2016 - Revised By GP 8/19/2022  
 Analyst: Eric R. Paquette, E.I.T. Revised By Brad Pineau, EI  
 Source: Institute of Transportation Engineers - Trip Generation, 9th Edition

**ITE Land Use Code (LUC):** 932 High-Turnover (Sit-Down) Restaurant

Average Vehicle Trips Ends vs: 1000 SF Gross Floor Area  
 Independent Variable (X): 4.954  
 Curve Method: Average

### AVERAGE WEEKDAY DAILY

$T = 127.15 * (X)$   
 $T = 127.15 * 4.95$   
 $T = \boxed{630}$  vehicle trips  
 with 50% entering ( 315 vpd) and with 50% exiting ( 315 vpd)

### WEEKDAY MORNING PEAK HOUR

$T = 10.81 * (X)$   
 $T = 10.81 * 4.95$   
 $T = \boxed{54}$  vehicle trips  
 with 55% entering ( 30 vpd) and with 45% exiting ( 24 vpd)

### WEEKDAY EVENING PEAK HOUR

$T = 9.85 * (X)$   
 $T = 9.85 * 4.95$   
 $T = \boxed{48}$  vehicle trips  
 with 60% entering ( 29 vpd) and with 40% exiting ( 19 vpd)

### AVERAGE SATURDAY DAILY

$T = 158.37 * (X)$   
 $T = 158.37 * 4.95$   
 $T = \boxed{784}$  vehicle trips  
 with 50% entering ( 392 vpd) and with 50% exiting ( 392 vpd)

### SATURDAY MIDDAY PEAK HOUR

$T = 14.07 * (X)$   
 $T = 14.07 * 4.95$   
 $T = \boxed{70}$  vehicle trips  
 with 53% entering ( 37 vpd) and with 47% exiting ( 33 vpd)

### AVERAGE SUNDAY DAILY

$T = 131.84 * (X)$   
 $T = 131.84 * 4.95$   
 $T = \boxed{654}$  vehicle trips  
 with 50% entering ( 327 vpd) and with 50% exiting ( 327 vpd)

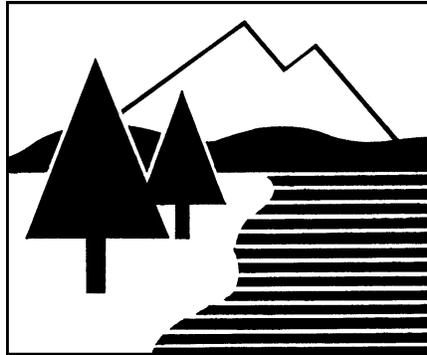
### SUNDAY MIDDAY PEAK HOUR

$T = 18.46 * (X)$   
 $T = 18.46 * 4.95$   
 $T = \boxed{92}$  vehicle trips  
 with 55% entering ( 51 vpd) and with 45% exiting ( 41 vpd)

**DRAINAGE ANALYSIS**

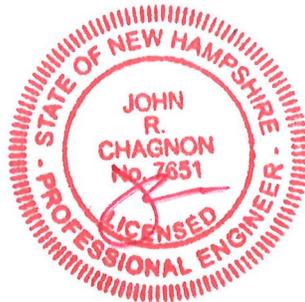
**SITE DEVELOPMENT**

88 MAPLEWOOD AVE.  
PORTSMOUTH, NH



PREPARED FOR  
EIGHTKPH, LLC.

23 AUGUST 2022



**AMBIT ENGINEERING, INC.**

**Civil Engineers & Land Surveyors**

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E-mail: [jrc@ambitengineering.com](mailto:jrc@ambitengineering.com)

(Ambit Job Number 2271.04)

**TABLE OF CONTENTS*****REPORT***

Executive Summary	1
Introduction / Project Description	2
Methodology	2
Site Specific Information	3
Pre-Development Drainage	4
Post-Development Drainage	5
Offsite Infrastructure Capacity	6
Erosion and Sediment Control Practices	6
Conclusion	7
References	8

***ATTACHMENTS***

Existing Subcatchment Plan	
Proposed Subcatchment Plan	

***APPENDIX***

Vicinity (Tax) Map	A
Tables, Charts, Etc.	B
HydroCAD Drainage Analysis Calculations	C
Soil Survey Information	D
FEMA FIRM Map	E
Inspection & Long Term Maintenance Plan	F

## **EXECUTIVE SUMMARY**

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed building at 88 Maplewood Ave in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 125 as Lot 17-3. The project proposes to replace the current building and associated parking lot. The total size of the lot together is 22,667 square-feet (0.520 acres). The size of the total drainage area is 26,073 square-feet (0.599 acres).

The site plans will provide for the future construction of a new building, with associated landscaping, utilities, and underground parking. The new building will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

## **INTRODUCTION / PROJECT DESCRIPTION**

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 125 as Lot 17-3. Bounding the site to north is a railroad and then a cemetery. Bounding the site to east is Maplewood Ave. Bounding the site to south is Deer Street. Bounding the site to the west is an existing Banking facility with drive-up window. A vicinity map is included in the Appendix to this report. The existing building and associated parking lot will be demolished.

This report includes information about the existing site and the proposed construction necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site.

Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

## **METHODOLOGY**

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for

the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from “The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.”

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Ambit Engineering and field observations to confirm.

**SITE SPECIFIC INFORMATION**

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of two soil types:

<b>Soil Symbol</b>	<b>Soil Name and Slopes</b>
<b>699</b>	Urban land
<b>799</b>	Urban land – Canton Complex (3-15% slopes)

**Canton complex** is well drained with a stated depth to water table and restrictive feature of more than 80 inches. However, due to the primary urban fill component of the soil, as well as the proximity to North Mill Pond, the Hydrologic Soil Group will be assumed to be D.

The physical characteristics of the site consist of flat (0-15%) grades that generally slope from the northeast to the southwest. Elevations on the site range from 12 to 15 feet above sea level. The existing site is developed and includes an existing building located in the center of the lot, with an asphalt parking lot to the north. Vegetation around the developed portion of the lot consists of established grasses.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0259F (effective date January 29, 2021), the project site is

located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

### **PRE-DEVELOPMENT DRAINAGE**

In the pre-development condition, the site has been analyzed as two watershed basins (E1 and E2) based on localized topography and discharge location. Subcatchment E1 contains the southwesterly part of the lot and drains to the southwest. Subcatchment E2 contains a much smaller northeasterly part of the lot and drains north. Subcatchments E1 and E2 drain to discharge points DP1 and DP2, respectively.

The “Deer Street Outfall Drainage Evaluation” published October 17, 2018, raises concerns about the existing pipe to which both discharge points are currently connected. From the report: “Based on the evaluations described above, and in detail in the following report, we have concluded additional drainage capacity is needed now and in the future at the Deer Street Outfall.” The report estimates that the pipe nearest the site (from DMH 4980) will flow at capacity during the 10-year storm event, and several of the surrounding pipes in the drainage network will be surcharged. The possibility was raised that part of this flow be diverted through an additional outlet pipe through Maplewood Ave. Therefore, a stormwater design that diverts drainage toward the Maplewood Ave. drainage network would be advantageous toward such an outlet pipe, by easing the peak flow off of the existing infrastructure.

***Table 1: Pre-Development Watershed Basin Summary***

<b>Watershed Basin ID</b>	<b>Basin Area (SF)</b>	<b>Tc (MIN)</b>	<b>CN</b>	<b>10-Year Runoff (CFS)</b>	<b>50-Year Runoff (CFS)</b>	<b>To Design Point</b>
<b>E1</b>	23,085	5.0	94	4.14	6.39	DP1
<b>E2</b>	2,987	5.0	87	0.48	0.78	DP2

## **POST-DEVELOPMENT DRAINAGE**

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as three subcatchment basins, (P1, P1a and P2). Subcatchments P1 and P1a are related to the area of subcatchment E1, but are much smaller. Subcatchment P1a contains half the roof of the proposed building. Subcatchment P2 is related to the area of subcatchment E2, but now takes up about half the drainage area. Subcatchments P1 and P2 drain to Discharge Points DP1 and DP2, respectively. Note that Subcatchment P2 drains toward Maplewood Ave., allowing for the easing of peak flow on the existing outlet pipe in the event of a new outlet pipe development, as discussed in the previous section.

***Table 2: Post-Development Watershed Basin Summary***

<b>Watershed Basin ID</b>	<b>Basin Area (SF)</b>	<b>Tc (MIN)</b>	<b>CN</b>	<b>10-Year Runoff (CFS)</b>	<b>50-Year Runoff (CFS)</b>	<b>Design Point</b>
<b>P1</b>	3,667	5.0	94	0.66	1.02	DP1
<b>P1a</b>	9,126	5.0	98	1.69	2.56	DP1
<b>P2</b>	13,280	5.0	97	2.44	3.72	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 0.452 acres (75.58%) in the pre-development condition to 0.525 acres (87.77%) in the post-development condition. The project proposes the construction of a R-Tank storage system on site, reducing the peak flow discharge from the site, as well as a downspout filter, providing treatment.

Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point. The comparison shows the reduced flows as a result of the R-Tank. Note the inclusion of Discharge Point 3 (DP3), representative of the net flows from DP1 and DP2.

**Table 3: Pre-Development to Post-Development Comparison**

Design Point	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		Description
	Pre	Post	Pre	Post	Pre	Post	
DP1	2.63	1.30	4.14	2.20	6.39	3.44	West lot
DP2	0.28	1.59	0.48	2.44	0.78	3.72	East lot
DP3	2.91	2.82	4.62	4.62	7.18	7.15	Combined Flow

Discharge Point 2 experiences a significant increase in peak discharge, however, the city infrastructure to be utilized by both discharge points are connected by the same drainage network, as shown by DP3. The net effect of both discharge points on the drainage network shows peak flows at or below existing levels.

### **OFFSITE INFRASTRUCTURE CAPACITY**

Retention and routing of the stormwater to the City infrastructure is done on-site through the use of the R-Tank storage system, and has been designed as not to increase the peak flow rate to the local drainage system, therefore no impact to city infrastructure is anticipated.

### **EROSION AND SEDIMENT CONTROL PRACTICES**

The erosion potential for this site as it exists is high due to the presence of loam areas that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to “The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.” Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Filter baskets in catch basins

- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

## **CONCLUSION**

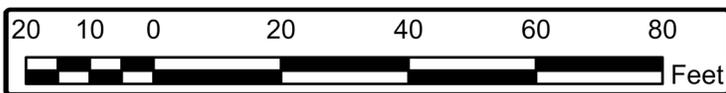
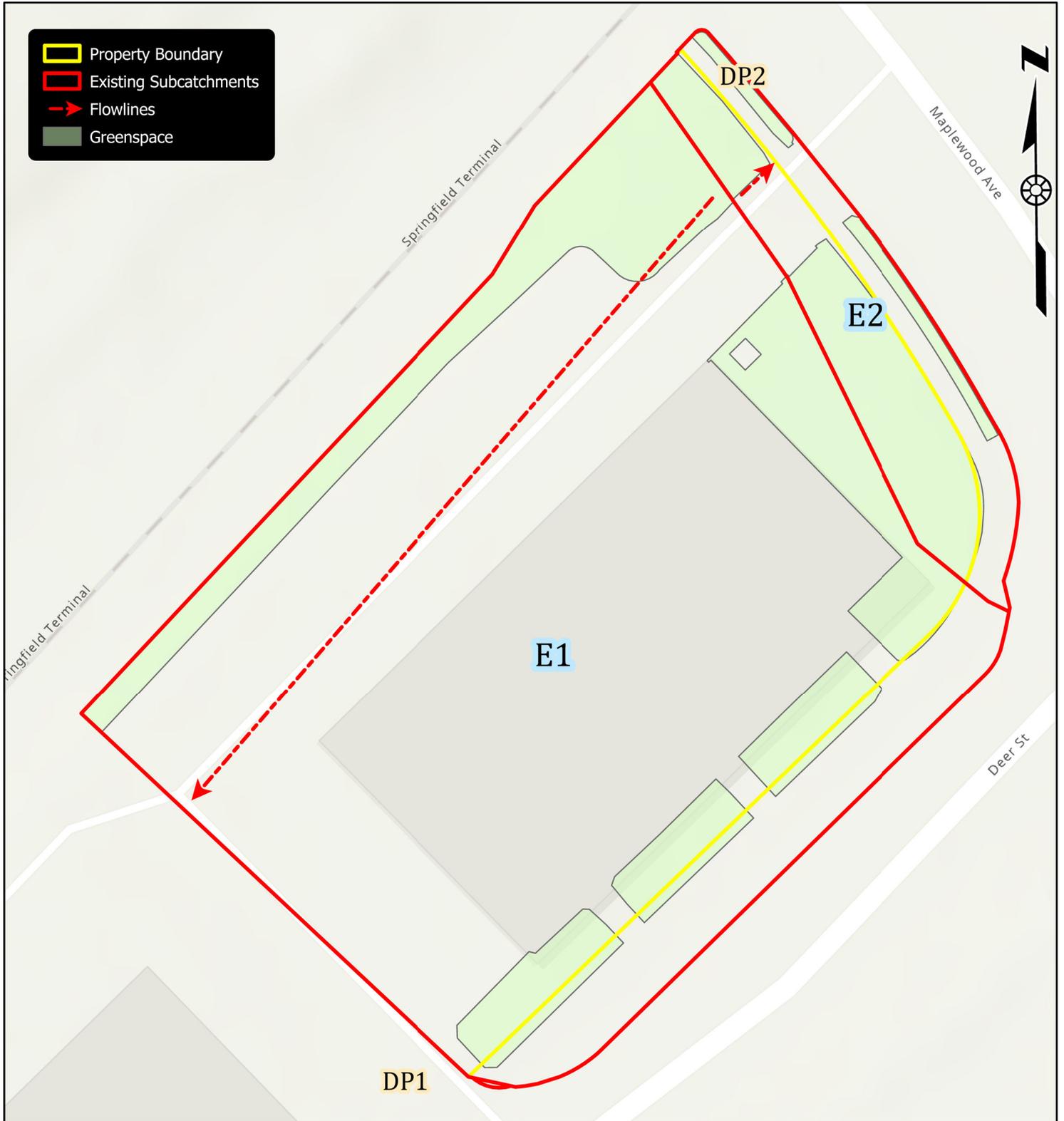
The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the R-Tank system, the post-development runoff rates are reduced to below the pre-development runoff rates. The proposed downspout filter will provide treatment to part of the runoff. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project. Additionally, the separation of flows from the site will be advantageous in the event the City pursues an additional outlet pipe to North Mill Pond through Maplewood Ave.

**REFERENCES**

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2013.
4. CMA Engineers. *Deer Street Outfall Drainage Evaluation*, October 2018.

SITE DEVELOPMENT  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.

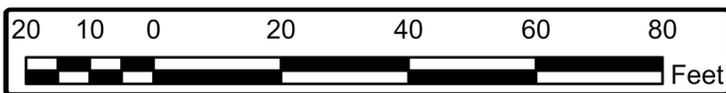
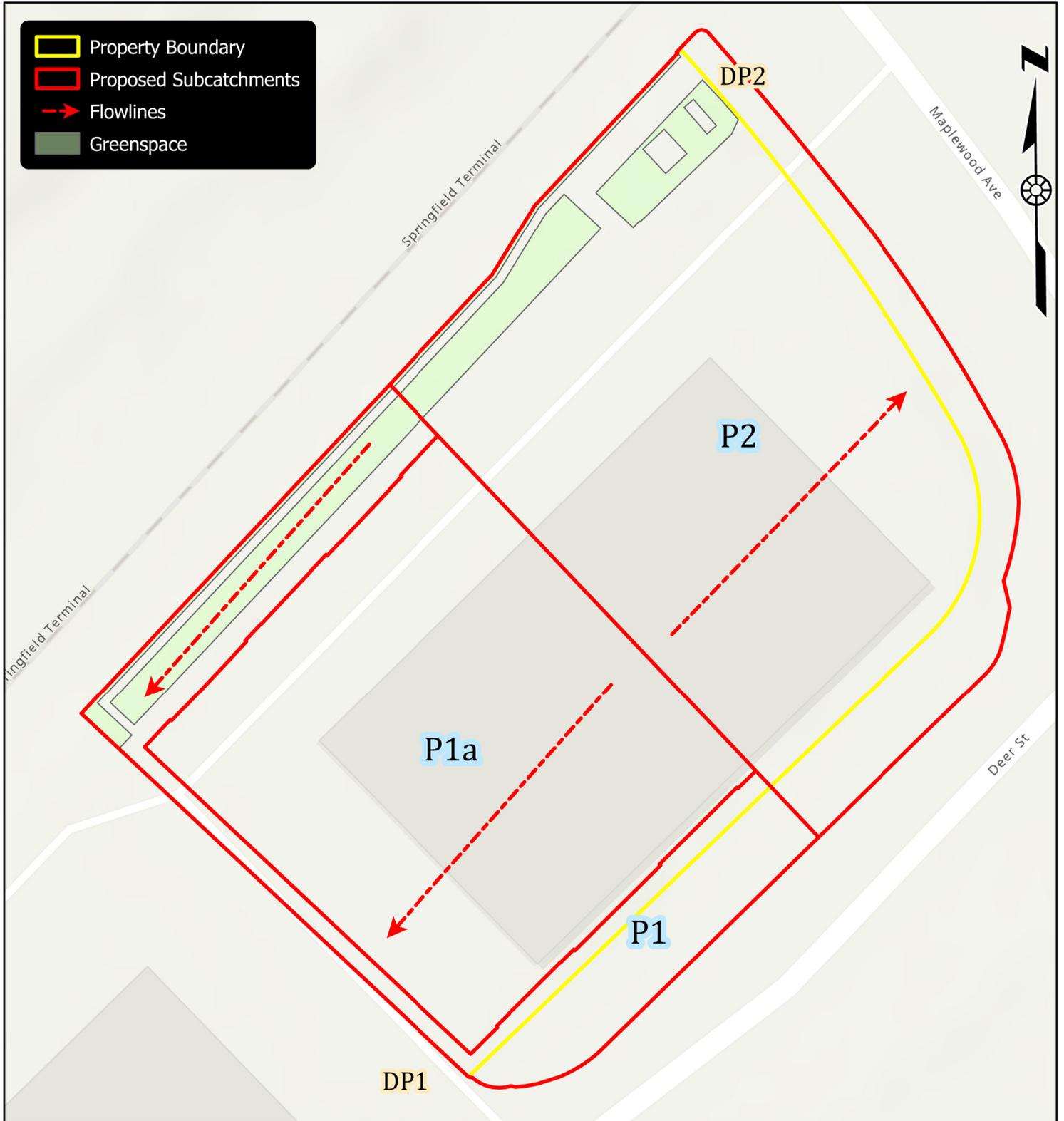
JOB NUMBER: 2271  
SCALE: 1" = 30'  
SUBMITTED: 08-04-2022



Greenspace = 6367 sf  
Net = -3179 sf

SITE DEVELOPMENT  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.

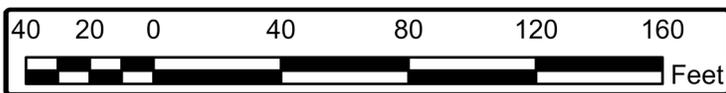
JOB NUMBER: 2271  
SCALE: 1" = 30'  
SUBMITTED: 08-18-2022



**APPENDIX A**  
**VICINITY (TAX) MAP**

SITE DEVELOPMENT  
88 MAPLEWOOD AVENUE  
PORTSMOUTH, N.H.

JOB NUMBER: 2271  
SCALE: 1" = 60'  
SUBMITTED: 08-04-2022



**APPENDIX B**  
**TABLES, CHARTS, ETC.**

# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

<b>Smoothing</b>	Yes
<b>State</b>	New Hampshire
<b>Location</b>	
<b>Longitude</b>	70.762 degrees West
<b>Latitude</b>	43.078 degrees North
<b>Elevation</b>	0 feet
<b>Date/Time</b>	Thu, 19 May 2022 11:11:02 -0400

### Extreme Precipitation Estimates

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

### Lower Confidence Limits

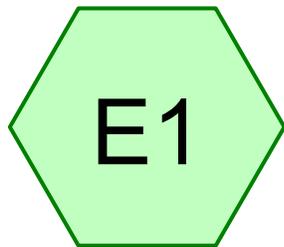
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
<b>1yr</b>	0.23	0.36	0.44	0.59	0.73	0.88	<b>1yr</b>	0.63	0.86	0.92	1.33	1.68	2.23	2.48	<b>1yr</b>	1.97	2.39	2.86	3.18	3.88	<b>1yr</b>
<b>2yr</b>	0.31	0.49	0.60	0.81	1.00	1.19	<b>2yr</b>	0.86	1.16	1.37	1.82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

### Upper Confidence Limits

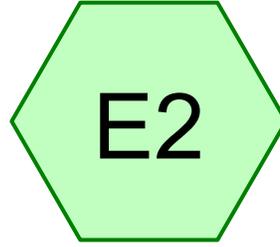
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
<b>1yr</b>	0.28	0.44	0.54	0.72	0.89	1.08	<b>1yr</b>	0.77	1.06	1.26	1.74	2.21	2.98	3.16	<b>1yr</b>	2.64	3.04	3.58	4.37	5.04	<b>1yr</b>
<b>2yr</b>	0.34	0.52	0.64	0.86	1.07	1.27	<b>2yr</b>	0.92	1.24	1.48	1.96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



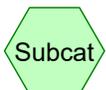
**APPENDIX C**  
**HYDROCAD DRAINAGE**  
**ANALYSIS CALCULATIONS**



DP1



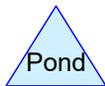
DP2



Subcat



Reach



Pond



Link

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Page 2

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### **Project Notes**

Defined 5 rainfall events from output (37) IDF

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Page 3

## Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.48	2

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Page 4

### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.146	80	>75% Grass cover, Good, HSG D (E1, E2)
0.285	98	Paved parking, HSG D (E1, E2)
0.167	98	Roofs, HSG D (E1)
<b>0.599</b>	<b>94</b>	<b>TOTAL AREA</b>

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Page 5

## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.599	HSG D	E1, E2
0.000	Other	
<b>0.599</b>		<b>TOTAL AREA</b>

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Page 6

## Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.146	0.000	0.146	>75% Grass cover, Good	E1, E2
0.000	0.000	0.000	0.285	0.000	0.285	Paved parking	E1, E2
0.000	0.000	0.000	0.167	0.000	0.167	Roofs	E1
<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.599</b>	<b>0.000</b>	<b>0.599</b>	<b>TOTAL AREA</b>	

**Existing Conditions David T**

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Type II 24-hr 2-yr Rainfall=3.68"

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Page 7

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: DP1**

Runoff Area=23,085 sf 80.32% Impervious Runoff Depth>2.82"  
Tc=5.0 min CN=94 Runoff=2.63 cfs 0.125 af

**Subcatchment E2: DP2**

Runoff Area=2,987 sf 38.97% Impervious Runoff Depth>2.18"  
Tc=5.0 min CN=87 Runoff=0.28 cfs 0.012 af

**Link DP3:**

above 1,000.00 cfs Inflow=2.91 cfs 0.137 af  
Primary=0.00 cfs 0.000 af Secondary=2.91 cfs 0.137 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.137 af Average Runoff Depth = 2.75"**  
**24.42% Pervious = 0.146 ac 75.58% Impervious = 0.452 ac**

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Type II 24-hr 2-yr Rainfall=3.68"

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Page 8

**Summary for Subcatchment E1: DP1**

[49] Hint: Tc&lt;2dt may require smaller dt

Runoff = 2.63 cfs @ 11.95 hrs, Volume= 0.125 af, Depth> 2.82"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
7,281	98	Roofs, HSG D
4,544	80	>75% Grass cover, Good, HSG D
23,085	94	Weighted Average
4,544		19.68% Pervious Area
18,541		80.32% Impervious Area

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

**Summary for Subcatchment E2: DP2**

[49] Hint: Tc&lt;2dt may require smaller dt

Runoff = 0.28 cfs @ 11.95 hrs, Volume= 0.012 af, Depth> 2.18"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
1,164	98	Paved parking, HSG D
1,823	80	>75% Grass cover, Good, HSG D
2,987	87	Weighted Average
1,823		61.03% Pervious Area
1,164		38.97% Impervious Area

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

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 75.58% Impervious, Inflow Depth > 2.75" for 2-yr event  
 Inflow = 2.91 cfs @ 11.95 hrs, Volume= 0.137 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Secondary = 2.91 cfs @ 11.95 hrs, Volume= 0.137 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 10-yr Rainfall=5.59"

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Page 9

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: DP1**

Runoff Area=23,085 sf 80.32% Impervious Runoff Depth>4.57"  
Tc=5.0 min CN=94 Runoff=4.14 cfs 0.202 af

**Subcatchment E2: DP2**

Runoff Area=2,987 sf 38.97% Impervious Runoff Depth>3.87"  
Tc=5.0 min CN=87 Runoff=0.48 cfs 0.022 af

**Link DP3:**

above 1,000.00 cfs Inflow=4.62 cfs 0.224 af  
Primary=0.00 cfs 0.000 af Secondary=4.62 cfs 0.224 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.224 af Average Runoff Depth = 4.49"**  
**24.42% Pervious = 0.146 ac 75.58% Impervious = 0.452 ac**

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Type II 24-hr 10-yr Rainfall=5.59"

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Page 10

**Summary for Subcatchment E1: DP1**

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

Runoff = 4.14 cfs @ 11.95 hrs, Volume= 0.202 af, Depth> 4.57"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
7,281	98	Roofs, HSG D
4,544	80	>75% Grass cover, Good, HSG D
23,085	94	Weighted Average
4,544		19.68% Pervious Area
18,541		80.32% Impervious Area

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

**Summary for Subcatchment E2: DP2**

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

Runoff = 0.48 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 3.87"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
1,164	98	Paved parking, HSG D
1,823	80	>75% Grass cover, Good, HSG D
2,987	87	Weighted Average
1,823		61.03% Pervious Area
1,164		38.97% Impervious Area

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

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 75.58% Impervious, Inflow Depth > 4.49" for 10-yr event  
Inflow = 4.62 cfs @ 11.95 hrs, Volume= 0.224 af  
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
Secondary = 4.62 cfs @ 11.95 hrs, Volume= 0.224 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 25-yr Rainfall=7.08"

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Page 11

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: DP1**

Runoff Area=23,085 sf 80.32% Impervious Runoff Depth>5.93"  
Tc=5.0 min CN=94 Runoff=5.30 cfs 0.262 af

**Subcatchment E2: DP2**

Runoff Area=2,987 sf 38.97% Impervious Runoff Depth>5.21"  
Tc=5.0 min CN=87 Runoff=0.64 cfs 0.030 af

**Link DP3:**

above 1,000.00 cfs Inflow=5.94 cfs 0.291 af  
Primary=0.00 cfs 0.000 af Secondary=5.94 cfs 0.291 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.291 af Average Runoff Depth = 5.84"**  
**24.42% Pervious = 0.146 ac 75.58% Impervious = 0.452 ac**

**Existing Conditions David T**

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Type II 24-hr 25-yr Rainfall=7.08"

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Page 12

**Summary for Subcatchment E1: DP1**

[49] Hint: Tc&lt;2dt may require smaller dt

Runoff = 5.30 cfs @ 11.95 hrs, Volume= 0.262 af, Depth> 5.93"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
7,281	98	Roofs, HSG D
4,544	80	>75% Grass cover, Good, HSG D
23,085	94	Weighted Average
4,544		19.68% Pervious Area
18,541		80.32% Impervious Area

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

**Summary for Subcatchment E2: DP2**

[49] Hint: Tc&lt;2dt may require smaller dt

Runoff = 0.64 cfs @ 11.95 hrs, Volume= 0.030 af, Depth> 5.21"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
1,164	98	Paved parking, HSG D
1,823	80	>75% Grass cover, Good, HSG D
2,987	87	Weighted Average
1,823		61.03% Pervious Area
1,164		38.97% Impervious Area

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

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 75.58% Impervious, Inflow Depth > 5.84" for 25-yr event  
 Inflow = 5.94 cfs @ 11.95 hrs, Volume= 0.291 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Secondary = 5.94 cfs @ 11.95 hrs, Volume= 0.291 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Existing Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 13

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: DP1**

Runoff Area=23,085 sf 80.32% Impervious Runoff Depth>7.20"  
Tc=5.0 min CN=94 Runoff=6.39 cfs 0.318 af

**Subcatchment E2: DP2**

Runoff Area=2,987 sf 38.97% Impervious Runoff Depth>6.49"  
Tc=5.0 min CN=87 Runoff=0.78 cfs 0.037 af

**Link DP3:**

above 1,000.00 cfs Inflow=7.18 cfs 0.355 af  
Primary=0.00 cfs 0.000 af Secondary=7.18 cfs 0.355 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.355 af Average Runoff Depth = 7.12"**  
**24.42% Pervious = 0.146 ac 75.58% Impervious = 0.452 ac**

**Existing Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 14

**Summary for Subcatchment E1: DP1**[49] Hint:  $T_c < 2dt$  may require smaller dt

Runoff = 6.39 cfs @ 11.95 hrs, Volume= 0.318 af, Depth> 7.20"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 50-yr Rainfall=8.48"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
7,281	98	Roofs, HSG D
4,544	80	>75% Grass cover, Good, HSG D
23,085	94	Weighted Average
4,544		19.68% Pervious Area
18,541		80.32% Impervious Area

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

**Summary for Subcatchment E2: DP2**[49] Hint:  $T_c < 2dt$  may require smaller dt

Runoff = 0.78 cfs @ 11.95 hrs, Volume= 0.037 af, Depth> 6.49"  
 Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type II 24-hr 50-yr Rainfall=8.48"

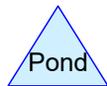
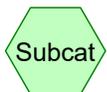
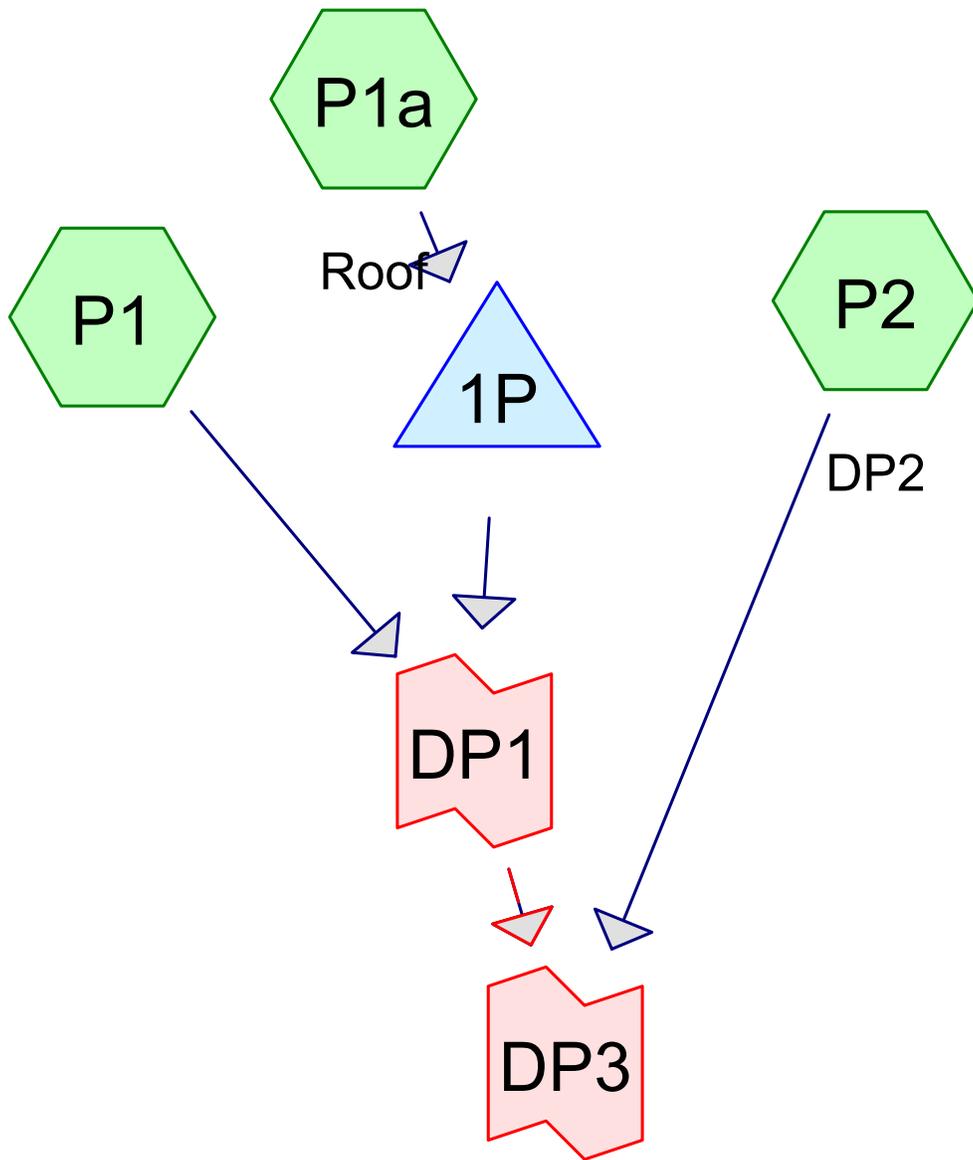
Area (sf)	CN	Description
1,164	98	Paved parking, HSG D
1,823	80	>75% Grass cover, Good, HSG D
2,987	87	Weighted Average
1,823		61.03% Pervious Area
1,164		38.97% Impervious Area

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

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 75.58% Impervious, Inflow Depth > 7.12" for 50-yr event  
 Inflow = 7.18 cfs @ 11.95 hrs, Volume= 0.355 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Secondary = 7.18 cfs @ 11.95 hrs, Volume= 0.355 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



**Routing Diagram for Proposed Conditions David T**  
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## **Proposed Conditions David T**

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Page 2

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### **Project Notes**

Defined 5 rainfall events from output (37) IDF

# Proposed Conditions David T

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Page 3

## Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.48	2

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Page 4

### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.210	98	(P1a)
0.040	80	>75% Grass cover, Good, HSG D (P1, P2)
0.170	98	Paved parking, HSG D (P1, P2)
0.179	98	Roofs, HSG D (P2)
<b>0.599</b>	<b>97</b>	<b>TOTAL AREA</b>

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Page 5

## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.389	HSG D	P1, P2
0.210	Other	P1a
<b>0.599</b>		<b>TOTAL AREA</b>

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Page 6

## Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.210	0.210		P1a
0.000	0.000	0.000	0.040	0.000	0.040	>75% Grass cover, Good	P1, P2
0.000	0.000	0.000	0.170	0.000	0.170	Paved parking	P1, P2
0.000	0.000	0.000	0.179	0.000	0.179	Roofs	P2
<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.389</b>	<b>0.210</b>	<b>0.599</b>	<b>TOTAL AREA</b>	

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Page 7

### Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1P	0.00	-0.17	44.0	0.0039	0.013	0.0	12.0	0.0

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Type II 24-hr 2-yr Rainfall=3.68"

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Page 8

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment P1:** Runoff Area=3,667 sf 77.61% Impervious Runoff Depth>2.82"  
Tc=5.0 min CN=94 Runoff=0.42 cfs 0.020 af

**Subcatchment P1a: Roof** Runoff Area=9,126 sf 100.00% Impervious Runoff Depth>3.18"  
Tc=5.0 min CN=98 Runoff=1.10 cfs 0.056 af

**Subcatchment P2: DP2** Runoff Area=13,280 sf 93.07% Impervious Runoff Depth>3.10"  
Tc=5.0 min CN=97 Runoff=1.59 cfs 0.079 af

**Pond 1P:** Peak Elev=1.93' Storage=0.005 af Inflow=1.10 cfs 0.056 af  
Outflow=0.93 cfs 0.055 af

**Link DP1:** above 1,000.00 cfs Inflow=1.30 cfs 0.075 af  
Primary=0.00 cfs 0.000 af Secondary=1.30 cfs 0.075 af

**Link DP3:** above 1,000.00 cfs Inflow=2.82 cfs 0.154 af  
Primary=0.00 cfs 0.000 af Secondary=2.82 cfs 0.154 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.154 af Average Runoff Depth = 3.09"**  
**6.68% Pervious = 0.040 ac 93.32% Impervious = 0.559 ac**

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Type II 24-hr 2-yr Rainfall=3.68"

Printed 2022-08-18

Page 9

**Summary for Subcatchment P1:**

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

Runoff = 0.42 cfs @ 11.95 hrs, Volume= 0.020 af, Depth> 2.82"  
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
821	80	>75% Grass cover, Good, HSG D
2,846	98	Paved parking, HSG D
3,667	94	Weighted Average
821		22.39% Pervious Area
2,846		77.61% Impervious Area

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

**Summary for Subcatchment P1a: Roof**

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

Runoff = 1.10 cfs @ 11.95 hrs, Volume= 0.056 af, Depth> 3.18"  
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
* 9,126	98	
9,126		100.00% Impervious Area

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

**Summary for Subcatchment P2: DP2**

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

Runoff = 1.59 cfs @ 11.95 hrs, Volume= 0.079 af, Depth> 3.10"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2-yr Rainfall=3.68"

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Type II 24-hr 2-yr Rainfall=3.68"

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Page 10

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
4,542	98	Paved parking, HSG D
7,818	98	Roofs, HSG D
13,280	97	Weighted Average
920		6.93% Pervious Area
12,360		93.07% Impervious Area

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

**Summary for Pond 1P:**

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.210 ac, 100.00% Impervious, Inflow Depth > 3.18" for 2-yr event  
 Inflow = 1.10 cfs @ 11.95 hrs, Volume= 0.056 af  
 Outflow = 0.93 cfs @ 12.00 hrs, Volume= 0.055 af, Atten= 16%, Lag= 3.0 min  
 Primary = 0.93 cfs @ 12.00 hrs, Volume= 0.055 af  
 Routed to Link DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 1.93' @ 12.00 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 3.8 min calculated for 0.055 af (100% of inflow)  
 Center-of-Mass det. time= 2.7 min ( 734.1 - 731.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.004 af	<b>9.25'W x 18.07'L x 4.07'H Field A</b> 0.016 af Overall - 0.005 af Embedded = 0.011 af x 40.0% Voids
#2A	0.25'	0.005 af	<b>ACF R-Tank LD 2 x 24 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 24 Chambers in 4 Rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	<b>12.0" Round Culvert</b> L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -0.17' S= 0.0039 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	1.70'	<b>Custom Weir/Orifice, Cv= 2.62 (C= 3.28)</b> Elev. (feet) 1.70 3.50 3.50 4.00 Width (feet) 0.20 0.20 4.00 4.00
#3	Device 1	0.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 2-yr Rainfall=3.68"

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Page 11

**Primary OutFlow** Max=0.93 cfs @ 12.00 hrs HW=1.92' (Free Discharge)

↑ **1=Culvert** (Passes 0.93 cfs of 3.88 cfs potential flow)

↑ **2=Custom Weir/Orifice** (Weir Controls 0.07 cfs @ 1.55 fps)

↑ **3=Orifice/Grate** (Orifice Controls 0.86 cfs @ 6.31 fps)

**Summary for Link DP1:**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.17'

Inflow Area =	0.294 ac, 93.58% Impervious, Inflow Depth > 3.07"	for 2-yr event
Inflow =	1.30 cfs @ 11.98 hrs, Volume=	0.075 af
Primary =	0.00 cfs @ 5.00 hrs, Volume=	0.000 af, Atten= 100%, Lag= 0.0 min
Routed to Link DP3 :		
Secondary =	1.30 cfs @ 11.98 hrs, Volume=	0.075 af
Routed to Link DP3 :		

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Summary for Link DP3:**

Inflow Area =	0.599 ac, 93.32% Impervious, Inflow Depth > 3.09"	for 2-yr event
Inflow =	2.82 cfs @ 11.96 hrs, Volume=	0.154 af
Primary =	0.00 cfs @ 5.00 hrs, Volume=	0.000 af, Atten= 100%, Lag= 0.0 min
Secondary =	2.82 cfs @ 11.96 hrs, Volume=	0.154 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 10-yr Rainfall=5.59"

Printed 2022-08-18

Page 12

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment P1:** Runoff Area=3,667 sf 77.61% Impervious Runoff Depth>4.57"  
Tc=5.0 min CN=94 Runoff=0.66 cfs 0.032 af

**Subcatchment P1a: Roof** Runoff Area=9,126 sf 100.00% Impervious Runoff Depth>4.90"  
Tc=5.0 min CN=98 Runoff=1.69 cfs 0.086 af

**Subcatchment P2: DP2** Runoff Area=13,280 sf 93.07% Impervious Runoff Depth>4.83"  
Tc=5.0 min CN=97 Runoff=2.44 cfs 0.123 af

**Pond 1P:** Peak Elev=2.61' Storage=0.006 af Inflow=1.69 cfs 0.086 af  
Outflow=1.58 cfs 0.085 af

**Link DP1:** above 1,000.00 cfs Inflow=2.20 cfs 0.117 af  
Primary=0.00 cfs 0.000 af Secondary=2.20 cfs 0.117 af

**Link DP3:** above 1,000.00 cfs Inflow=4.62 cfs 0.240 af  
Primary=0.00 cfs 0.000 af Secondary=4.62 cfs 0.240 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.240 af Average Runoff Depth = 4.82"**  
**6.68% Pervious = 0.040 ac 93.32% Impervious = 0.559 ac**

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Type II 24-hr 10-yr Rainfall=5.59"

Printed 2022-08-18

Page 13

**Summary for Subcatchment P1:**

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

Runoff = 0.66 cfs @ 11.95 hrs, Volume= 0.032 af, Depth> 4.57"  
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
821	80	>75% Grass cover, Good, HSG D
2,846	98	Paved parking, HSG D
3,667	94	Weighted Average
821		22.39% Pervious Area
2,846		77.61% Impervious Area

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

**Summary for Subcatchment P1a: Roof**

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

Runoff = 1.69 cfs @ 11.95 hrs, Volume= 0.086 af, Depth> 4.90"  
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
* 9,126	98	
9,126		100.00% Impervious Area

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

**Summary for Subcatchment P2: DP2**

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

Runoff = 2.44 cfs @ 11.95 hrs, Volume= 0.123 af, Depth> 4.83"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10-yr Rainfall=5.59"

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Type II 24-hr 10-yr Rainfall=5.59"

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Page 14

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
4,542	98	Paved parking, HSG D
7,818	98	Roofs, HSG D
13,280	97	Weighted Average
920		6.93% Pervious Area
12,360		93.07% Impervious Area

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

**Summary for Pond 1P:**

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.210 ac, 100.00% Impervious, Inflow Depth > 4.90" for 10-yr event  
 Inflow = 1.69 cfs @ 11.95 hrs, Volume= 0.086 af  
 Outflow = 1.58 cfs @ 11.98 hrs, Volume= 0.085 af, Atten= 6%, Lag= 1.8 min  
 Primary = 1.58 cfs @ 11.98 hrs, Volume= 0.085 af  
 Routed to Link DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 2.61' @ 11.98 hrs Surf.Area= 0.004 ac Storage= 0.006 af

Plug-Flow detention time= 3.4 min calculated for 0.085 af (99% of inflow)  
 Center-of-Mass det. time= 2.5 min ( 731.3 - 728.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.004 af	<b>9.25'W x 18.07'L x 4.07'H Field A</b> 0.016 af Overall - 0.005 af Embedded = 0.011 af x 40.0% Voids
#2A	0.25'	0.005 af	<b>ACF R-Tank LD 2 x 24 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 24 Chambers in 4 Rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	<b>12.0" Round Culvert</b> L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -0.17' S= 0.0039 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	1.70'	<b>Custom Weir/Orifice, Cv= 2.62 (C= 3.28)</b> Elev. (feet) 1.70 3.50 3.50 4.00 Width (feet) 0.20 0.20 4.00 4.00
#3	Device 1	0.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 10-yr Rainfall=5.59"

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Page 15

**Primary OutFlow** Max=1.52 cfs @ 11.98 hrs HW=2.55' (Free Discharge)

↑ **1=Culvert** (Passes 1.52 cfs of 4.88 cfs potential flow)

↑ **2=Custom Weir/Orifice** (Weir Controls 0.52 cfs @ 3.03 fps)

↑ **3=Orifice/Grate** (Orifice Controls 1.01 cfs @ 7.38 fps)

**Summary for Link DP1:**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.17'

Inflow Area = 0.294 ac, 93.58% Impervious, Inflow Depth > 4.80" for 10-yr event

Inflow = 2.20 cfs @ 11.97 hrs, Volume= 0.117 af

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routed to Link DP3 :

Secondary = 2.20 cfs @ 11.97 hrs, Volume= 0.117 af

Routed to Link DP3 :

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 93.32% Impervious, Inflow Depth > 4.82" for 10-yr event

Inflow = 4.62 cfs @ 11.96 hrs, Volume= 0.240 af

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Secondary = 4.62 cfs @ 11.96 hrs, Volume= 0.240 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 25-yr Rainfall=7.08"

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Page 16

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment P1:** Runoff Area=3,667 sf 77.61% Impervious Runoff Depth>5.93"  
Tc=5.0 min CN=94 Runoff=0.84 cfs 0.042 af

**Subcatchment P1a: Roof** Runoff Area=9,126 sf 100.00% Impervious Runoff Depth>6.24"  
Tc=5.0 min CN=98 Runoff=2.14 cfs 0.109 af

**Subcatchment P2: DP2** Runoff Area=13,280 sf 93.07% Impervious Runoff Depth>6.17"  
Tc=5.0 min CN=97 Runoff=3.10 cfs 0.157 af

**Pond 1P:** Peak Elev=2.97' Storage=0.007 af Inflow=2.14 cfs 0.109 af  
Outflow=2.02 cfs 0.109 af

**Link DP1:** above 1,000.00 cfs Inflow=2.84 cfs 0.150 af  
Primary=0.00 cfs 0.000 af Secondary=2.84 cfs 0.150 af

**Link DP3:** above 1,000.00 cfs Inflow=5.92 cfs 0.307 af  
Primary=0.00 cfs 0.000 af Secondary=5.92 cfs 0.307 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.307 af Average Runoff Depth = 6.16"**  
**6.68% Pervious = 0.040 ac 93.32% Impervious = 0.559 ac**

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Type II 24-hr 25-yr Rainfall=7.08"

Printed 2022-08-18

Page 17

**Summary for Subcatchment P1:**

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

Runoff = 0.84 cfs @ 11.95 hrs, Volume= 0.042 af, Depth> 5.93"  
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
821	80	>75% Grass cover, Good, HSG D
2,846	98	Paved parking, HSG D
3,667	94	Weighted Average
821		22.39% Pervious Area
2,846		77.61% Impervious Area

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

**Summary for Subcatchment P1a: Roof**

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

Runoff = 2.14 cfs @ 11.95 hrs, Volume= 0.109 af, Depth> 6.24"  
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
* 9,126	98	
9,126		100.00% Impervious Area

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

**Summary for Subcatchment P2: DP2**

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

Runoff = 3.10 cfs @ 11.95 hrs, Volume= 0.157 af, Depth> 6.17"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25-yr Rainfall=7.08"

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Type II 24-hr 25-yr Rainfall=7.08"

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Page 18

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
4,542	98	Paved parking, HSG D
7,818	98	Roofs, HSG D
13,280	97	Weighted Average
920		6.93% Pervious Area
12,360		93.07% Impervious Area

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

**Summary for Pond 1P:**

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.210 ac, 100.00% Impervious, Inflow Depth > 6.24" for 25-yr event  
 Inflow = 2.14 cfs @ 11.95 hrs, Volume= 0.109 af  
 Outflow = 2.02 cfs @ 11.97 hrs, Volume= 0.109 af, Atten= 6%, Lag= 1.5 min  
 Primary = 2.02 cfs @ 11.97 hrs, Volume= 0.109 af  
 Routed to Link DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 2.97' @ 11.97 hrs Surf.Area= 0.004 ac Storage= 0.007 af

Plug-Flow detention time= 3.2 min calculated for 0.109 af (100% of inflow)  
 Center-of-Mass det. time= 2.3 min ( 730.2 - 727.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.004 af	<b>9.25'W x 18.07'L x 4.07'H Field A</b> 0.016 af Overall - 0.005 af Embedded = 0.011 af x 40.0% Voids
#2A	0.25'	0.005 af	<b>ACF R-Tank LD 2 x 24 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 24 Chambers in 4 Rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	<b>12.0" Round Culvert</b> L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -0.17' S= 0.0039 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	1.70'	<b>Custom Weir/Orifice, Cv= 2.62 (C= 3.28)</b> Elev. (feet) 1.70 3.50 3.50 4.00 Width (feet) 0.20 0.20 4.00 4.00
#3	Device 1	0.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Proposed Conditions David T**

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Type II 24-hr 25-yr Rainfall=7.08"

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Page 19

**Primary OutFlow** Max=1.96 cfs @ 11.97 hrs HW=2.92' (Free Discharge)

↑ **1=Culvert** (Passes 1.96 cfs of 5.37 cfs potential flow)

↑ **2=Custom Weir/Orifice** (Weir Controls 0.88 cfs @ 3.61 fps)

↑ **3=Orifice/Grate** (Orifice Controls 1.08 cfs @ 7.93 fps)

**Summary for Link DP1:**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.17'

Inflow Area = 0.294 ac, 93.58% Impervious, Inflow Depth > 6.14" for 25-yr event

Inflow = 2.84 cfs @ 11.97 hrs, Volume= 0.150 af

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routed to Link DP3 :

Secondary = 2.84 cfs @ 11.97 hrs, Volume= 0.150 af

Routed to Link DP3 :

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Summary for Link DP3:**

Inflow Area = 0.599 ac, 93.32% Impervious, Inflow Depth > 6.16" for 25-yr event

Inflow = 5.92 cfs @ 11.96 hrs, Volume= 0.307 af

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Secondary = 5.92 cfs @ 11.96 hrs, Volume= 0.307 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Proposed Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 20

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment P1:** Runoff Area=3,667 sf 77.61% Impervious Runoff Depth>7.20"  
Tc=5.0 min CN=94 Runoff=1.02 cfs 0.051 af

**Subcatchment P1a: Roof** Runoff Area=9,126 sf 100.00% Impervious Runoff Depth>7.49"  
Tc=5.0 min CN=98 Runoff=2.56 cfs 0.131 af

**Subcatchment P2: DP2** Runoff Area=13,280 sf 93.07% Impervious Runoff Depth>7.43"  
Tc=5.0 min CN=97 Runoff=3.72 cfs 0.189 af

**Pond 1P:** Peak Elev=3.29' Storage=0.008 af Inflow=2.56 cfs 0.131 af  
Outflow=2.47 cfs 0.131 af

**Link DP1:** above 1,000.00 cfs Inflow=3.47 cfs 0.181 af  
Primary=0.00 cfs 0.000 af Secondary=3.47 cfs 0.181 af

**Link DP3:** above 1,000.00 cfs Inflow=7.18 cfs 0.370 af  
Primary=0.00 cfs 0.000 af Secondary=7.18 cfs 0.370 af

**Total Runoff Area = 0.599 ac Runoff Volume = 0.370 af Average Runoff Depth = 7.42"**  
**6.68% Pervious = 0.040 ac 93.32% Impervious = 0.559 ac**

**Proposed Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 21

**Summary for Subcatchment P1:**

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

Runoff = 1.02 cfs @ 11.95 hrs, Volume= 0.051 af, Depth> 7.20"  
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50-yr Rainfall=8.48"

Area (sf)	CN	Description
821	80	>75% Grass cover, Good, HSG D
2,846	98	Paved parking, HSG D
3,667	94	Weighted Average
821		22.39% Pervious Area
2,846		77.61% Impervious Area

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

**Summary for Subcatchment P1a: Roof**

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

Runoff = 2.56 cfs @ 11.95 hrs, Volume= 0.131 af, Depth> 7.49"  
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50-yr Rainfall=8.48"

Area (sf)	CN	Description
* 9,126	98	
9,126		100.00% Impervious Area

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

**Summary for Subcatchment P2: DP2**

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

Runoff = 3.72 cfs @ 11.95 hrs, Volume= 0.189 af, Depth> 7.43"  
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50-yr Rainfall=8.48"

**Proposed Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 22

Area (sf)	CN	Description
920	80	>75% Grass cover, Good, HSG D
4,542	98	Paved parking, HSG D
7,818	98	Roofs, HSG D
13,280	97	Weighted Average
920		6.93% Pervious Area
12,360		93.07% Impervious Area

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

**Summary for Pond 1P:**

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.210 ac, 100.00% Impervious, Inflow Depth > 7.49" for 50-yr event  
 Inflow = 2.56 cfs @ 11.95 hrs, Volume= 0.131 af  
 Outflow = 2.47 cfs @ 11.97 hrs, Volume= 0.131 af, Atten= 4%, Lag= 1.1 min  
 Primary = 2.47 cfs @ 11.97 hrs, Volume= 0.131 af  
 Routed to Link DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 3.29' @ 11.97 hrs Surf.Area= 0.004 ac Storage= 0.008 af

Plug-Flow detention time= 3.1 min calculated for 0.130 af (100% of inflow)  
 Center-of-Mass det. time= 2.2 min ( 729.6 - 727.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.004 af	<b>9.25'W x 18.07'L x 4.07'H Field A</b> 0.016 af Overall - 0.005 af Embedded = 0.011 af x 40.0% Voids
#2A	0.25'	0.005 af	<b>ACF R-Tank LD 2 x 24 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 24 Chambers in 4 Rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	<b>12.0" Round Culvert</b> L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -0.17' S= 0.0039 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	1.70'	<b>Custom Weir/Orifice, Cv= 2.62 (C= 3.28)</b> Elev. (feet) 1.70 3.50 3.50 4.00 Width (feet) 0.20 0.20 4.00 4.00
#3	Device 1	0.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Proposed Conditions David T**

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Type II 24-hr 50-yr Rainfall=8.48"

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Page 23

**Primary OutFlow** Max=2.39 cfs @ 11.97 hrs HW=3.24' (Free Discharge)

↑ **1=Culvert** (Passes 2.39 cfs of 5.76 cfs potential flow)

↑ **2=Custom Weir/Orifice** (Weir Controls 1.25 cfs @ 4.06 fps)

↑ **3=Orifice/Grate** (Orifice Controls 1.14 cfs @ 8.38 fps)

**Summary for Link DP1:**

[79] Warning: Submerged Pond 1P Primary device # 1 OUTLET by 0.17'

Inflow Area =	0.294 ac, 93.58% Impervious, Inflow Depth > 7.40"	for 50-yr event
Inflow =	3.47 cfs @ 11.96 hrs, Volume=	0.181 af
Primary =	0.00 cfs @ 5.00 hrs, Volume=	0.000 af, Atten= 100%, Lag= 0.0 min
Routed to Link DP3 :		
Secondary =	3.47 cfs @ 11.96 hrs, Volume=	0.181 af
Routed to Link DP3 :		

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Summary for Link DP3:**

Inflow Area =	0.599 ac, 93.32% Impervious, Inflow Depth > 7.42"	for 50-yr event
Inflow =	7.18 cfs @ 11.96 hrs, Volume=	0.370 af
Primary =	0.00 cfs @ 5.00 hrs, Volume=	0.000 af, Atten= 100%, Lag= 0.0 min
Secondary =	7.18 cfs @ 11.96 hrs, Volume=	0.370 af

Primary outflow = Inflow above 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**APPENDIX D**  
**SOIL SURVEY INFORMATION**



United States  
Department of  
Agriculture

**NRCS**

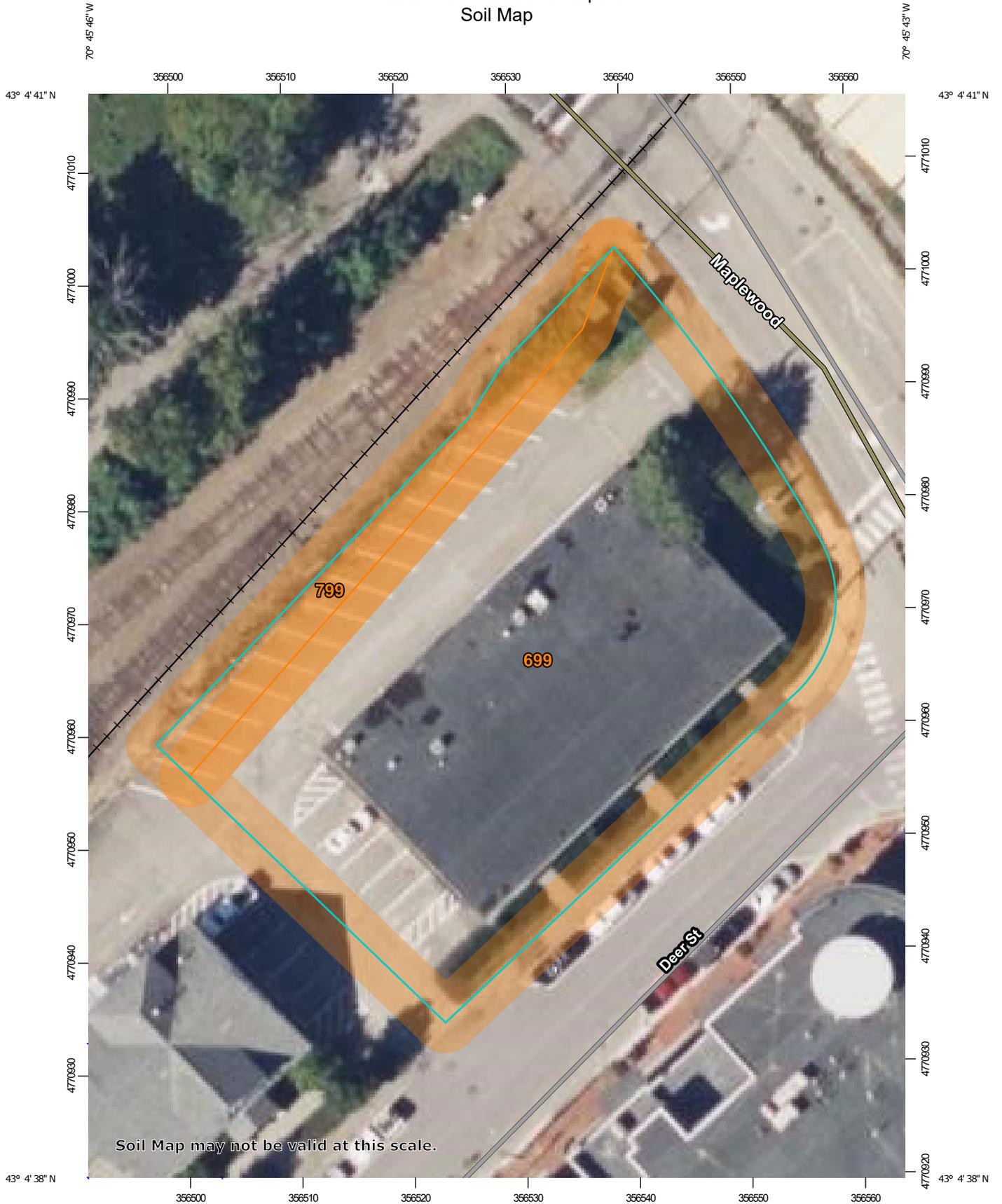
Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Rockingham County, New Hampshire

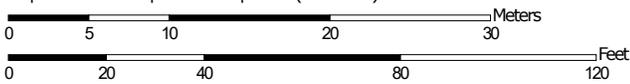


# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:468 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire  
 Survey Area Data: Version 24, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 19, 2021—Nov 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
699	Urban land	0.5	91.5%
799	Urban land-Canton complex, 3 to 15 percent slopes	0.0	8.5%
<b>Totals for Area of Interest</b>		<b>0.5</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

## Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Rockingham County, New Hampshire

### 699—Urban land

#### Map Unit Composition

*Urban land:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Minor Components

##### Not named

*Percent of map unit:* 15 percent

*Hydric soil rating:* No

### 799—Urban land-Canton complex, 3 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9cq0

*Elevation:* 0 to 1,000 feet

*Mean annual precipitation:* 42 to 46 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 120 to 160 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Urban land:* 55 percent

*Canton and similar soils:* 20 percent

*Minor components:* 25 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Canton

##### Setting

*Parent material:* Till

##### Typical profile

*H1 - 0 to 5 inches:* gravelly fine sandy loam

*H2 - 5 to 21 inches:* gravelly fine sandy loam

*H3 - 21 to 60 inches:* loamy sand

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

## Custom Soil Resource Report

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY034CT - Well Drained Till Uplands  
*Hydric soil rating:* No

### **Minor Components**

#### **Udorthents**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Squamscott and scitico**

*Percent of map unit:* 4 percent  
*Landform:* Marine terraces  
*Hydric soil rating:* Yes

#### **Walpole**

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### **Chatfield**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Scituate and newfields**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Boxford and eldridge**

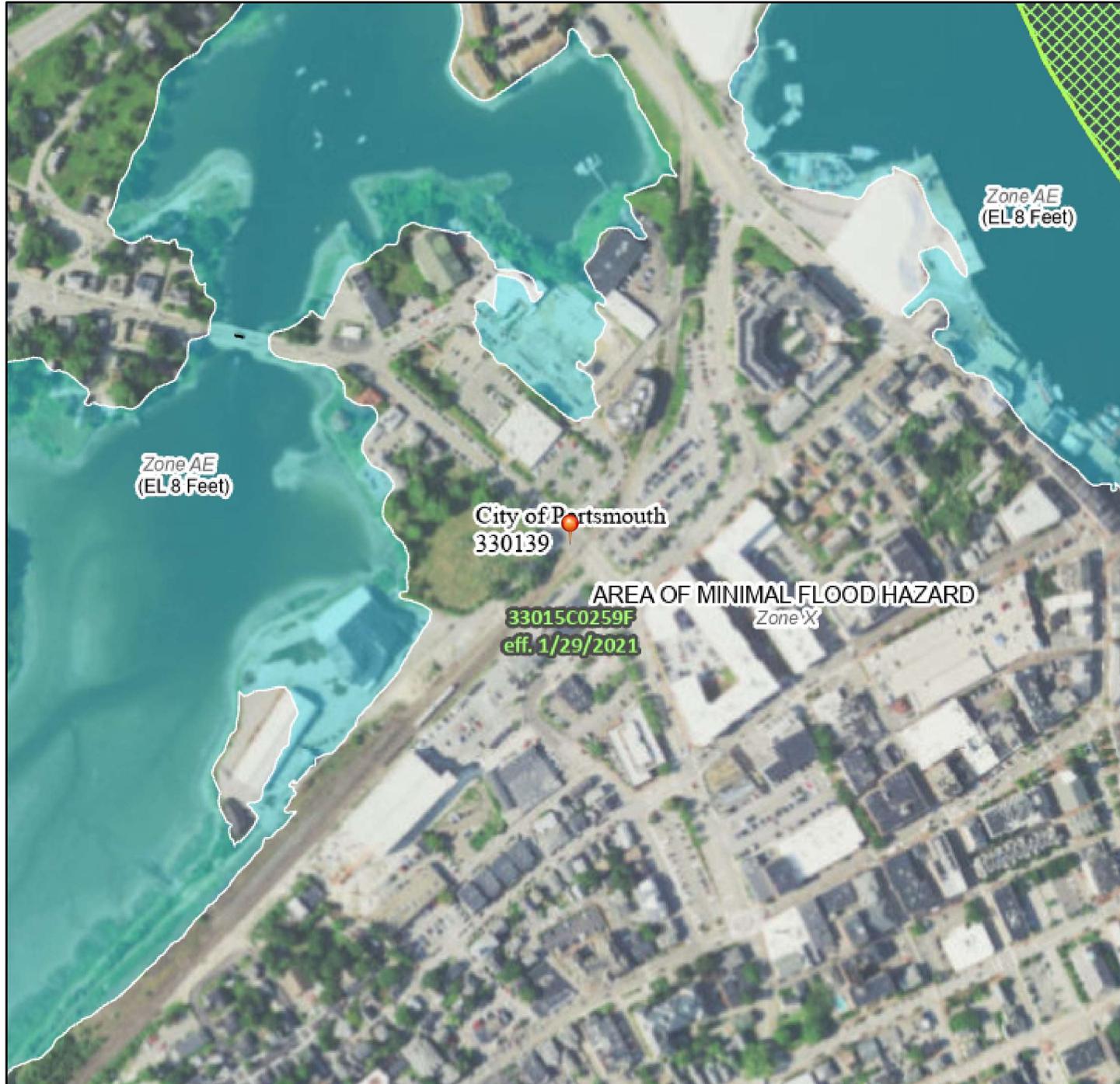
*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

**APPENDIX E**  
**FEMA FIRM MAP**

# National Flood Hazard Layer FIRMMette



70°46'3"W 43°4'55"N



70°45'26"W 43°4'29"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>	With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
	Regulatory Floodway	

	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
	Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
	Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
	Area with Flood Risk due to Levee <i>Zone D</i>

### OTHER AREAS OF FLOOD HAZARD

	NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
	Effective LOMRs
	Area of Undetermined Flood Hazard <i>Zone D</i>

GENERAL STRUCTURES	
	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall

	20.2	Cross Sections with 1% Annual Chance
	17.5	Water Surface Elevation
	8	Coastal Transect
	5.5	Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

OTHER FEATURES	
	Digital Data Available
	No Digital Data Available
	Unmapped

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/19/2022 at 11:08 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

**APPENDIX F**  
**INSPECTION & LONG TERM**  
**MAINTENANCE PLAN**



**AMBIT ENGINEERING, INC.**  
**Civil Engineers & Land Surveyors**

***INSPECTION & LONG-TERM MAINTENANCE PLAN  
FOR  
SITE DEVELOPMENT***

**88 MAPLEWOOD AVE.  
PORTSMOUTH, NH**

***Introduction***

The intent of this plan is to provide EightKPH, LLC (herein referred to as “owner”) with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the Bio Clean downspout filter, R-Tank storage units and associated structures on the project site (collectively referred to as the “Stormwater Management System”). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

***Annual Report***

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system’s maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the City of Portsmouth Code Enforcement Officer, if required.

***Inspection & Maintenance Checklist/Log***

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

## *Stormwater Management System Components*

The Stormwater Management System is designed to mitigate both the quantity and quality of site-generated stormwater runoff. As a result, the design includes the following elements:

### *Non-Structural BMPs*

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance

### *Structural BMPs*

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- ACF R-Tank stormwater storage system
- Bio Clean Downspout Filter
- Outlet Control Structures and Storm Drains

## *Inspection and Maintenance Requirements*

The following summarizes the inspection and maintenance requirements for the various BMPs that may be found on this project.

1. **Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.
2. **Plantings:** Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year.

Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.

3. **Bio Clean Downspout Filter:** Refer to the manufacturer's Operation and Maintenance manual for guidance, included herewith.
4. **ACF R-Tank stormwater storage system:** Reference the attached operations and maintenance manual for proper maintenance of the system.
5. **Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the outlet pipe. During construction, maintain inlet protection until all roadways and parking areas have been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.

### **Pollution Prevention**

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

#### **Spill Procedures**

Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

#### **Sanitary Facilities**

Sanitary facilities shall be provided during all phases of construction.

#### **Material Storage**

No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

#### **Material Disposal**

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

### *Snow & Ice Management for Standard Asphalt and Walkways*

Snow storage will be located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt storage areas shall be covered and located such that no direct discharges are possible to receiving waters from the storage site. Salt and sand shall be used as minimally as possible.

### *Invasive Species*

Monitor the Stormwater Management System for signs of invasive species growth. If caught early, their eradication is much easier. The most likely places where invasions start is in wetter, disturbed soils or detention ponds. Species such as phragmites and purple loose-strife are common invaders in these wetter areas. If they are found, the owner shall refer to the fact-sheet created by the University of New Hampshire Cooperative Extension (or other source) or contact a wetlands scientist with experience in invasive species control to implement a plan of action for eradication. Measures that do not require the application of chemical herbicides should be the first line of defense.

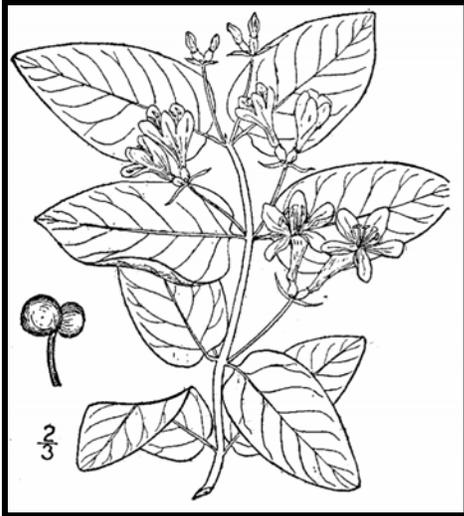


Figure 1: *Lythrum salicaria*, Purple Loosestrife. Photo by Liz West.

Figure 2: *Phragmites australis*. Photo by Le Loup Gris

## 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](http://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.

**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.



**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.

**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.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple <i>(Acer platanoides)</i> European barberry <i>(Berberis vulgaris)</i> Japanese barberry <i>(Berberis thunbergii)</i> autumn olive <i>(Elaeagnus umbellata)</i> burning bush <i>(Euonymus alatus)</i> Morrow's honeysuckle <i>(Lonicera morrowii)</i> Tatarian honeysuckle <i>(Lonicera tatarica)</i> showy bush honeysuckle <i>(Lonicera x bella)</i> common buckthorn <i>(Rhamnus cathartica)</i> glossy buckthorn <i>(Frangula alnus)</i>		<p><b>Prior to fruit/seed ripening</b></p> <p>Seedlings and small plants</p> <ul style="list-style-type: none"> <li>▪ Pull or cut and leave on site with roots exposed. No special care needed.</li> </ul> <p>Larger plants</p> <ul style="list-style-type: none"> <li>▪ Use as firewood.</li> <li>▪ Make a brush pile.</li> <li>▪ Chip.</li> <li>▪ Burn.</li> </ul>
		<p><b>After fruit/seed is ripe</b></p> <p>Don't remove from site.</p> <ul style="list-style-type: none"> <li>▪ Burn.</li> <li>▪ Make a covered brush pile.</li> <li>▪ Chip once all fruit has dropped from branches.</li> <li>▪ Leave resulting chips on site and monitor.</li> </ul>
oriental bittersweet <i>(Celastrus orbiculatus)</i> multiflora rose <i>(Rosa multiflora)</i>		<p><b>Prior to fruit/seed ripening</b></p> <p>Seedlings and small plants</p> <ul style="list-style-type: none"> <li>▪ Pull or cut and leave on site with roots exposed. No special care needed.</li> </ul> <p>Larger plants</p> <ul style="list-style-type: none"> <li>▪ Make a brush pile.</li> <li>▪ Burn.</li> </ul>
		<p><b>After fruit/seed is ripe</b></p> <p>Don't remove from site.</p> <ul style="list-style-type: none"> <li>▪ Burn.</li> <li>▪ Make a covered brush pile.</li> <li>▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</li> </ul>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
<p>garlic mustard (<i>Alliaria petiolata</i>)</p> <p>spotted knapweed (<i>Centaurea maculosa</i>)</p> <ul style="list-style-type: none"> <li>▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.</li> </ul> <p>black swallow-wort (<i>Cynanchum nigrum</i>)</p> <ul style="list-style-type: none"> <li>▪ May cause skin rash. Wear gloves and long sleeves when handling.</li> </ul> <p>pale swallow-wort (<i>Cynanchum rossicum</i>)</p> <p>giant hogweed (<i>Heracleum mantegazzianum</i>)</p> <ul style="list-style-type: none"> <li>▪ Can cause major skin rash. Wear gloves and long sleeves when handling.</li> </ul> <p>dame's rocket (<i>Hesperis matronalis</i>)</p> <p>perennial pepperweed (<i>Lepidium latifolium</i>)</p> <p>purple loosestrife (<i>Lythrum salicaria</i>)</p> <p>Japanese stilt grass (<i>Microstegium vimineum</i>)</p> <p>mile-a-minute weed (<i>Polygonum perfoliatum</i>)</p>	<p><b>Fruits and Seeds</b></p> 	<p><b>Prior to flowering</b></p> <p>Depends on scale of infestation</p> <p>Small infestation</p> <ul style="list-style-type: none"> <li>▪ Pull or cut plant and leave on site with roots exposed.</li> </ul> <p>Large infestation</p> <ul style="list-style-type: none"> <li>▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).</li> <li>▪ Monitor. Remove any re-sprouting material.</li> </ul> <hr/> <p><b>During and following flowering</b></p> <p>Do nothing until the following year or remove flowering heads and bag and let rot.</p> <p>Small infestation</p> <ul style="list-style-type: none"> <li>▪ Pull or cut plant and leave on site with roots exposed.</li> </ul> <p>Large infestation</p> <ul style="list-style-type: none"> <li>▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).</li> <li>▪ Monitor. Remove any re-sprouting material.</li> </ul>
<p>common reed (<i>Phragmites australis</i>)</p> <p>Japanese knotweed (<i>Polygonum cuspidatum</i>)</p> <p>Bohemian knotweed (<i>Polygonum x bohemicum</i>)</p>	<p><b>Fruits, Seeds, Plant Fragments</b></p> <p>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.</p>	<p><b>Small infestation</b></p> <ul style="list-style-type: none"> <li>▪ Bag all plant material and let rot.</li> <li>▪ Never pile and use resulting material as compost.</li> <li>▪ Burn.</li> </ul> <p><b>Large infestation</b></p> <ul style="list-style-type: none"> <li>▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.</li> <li>▪ Monitor and remove any sprouting material.</li> <li>▪ Pile, let dry, and burn.</li> </ul>

January 2010

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## CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	FREQUENCY	MAINTENANCE REQUIREMENTS
<ul style="list-style-type: none"> <li>-Outlet Control Structures</li> <li>-Drain Manholes</li> <li>-Catch Basins</li> </ul>	Every other Month	<ul style="list-style-type: none"> <li><i>Check for erosion or short-circuiting</i></li> <li><i>Check for sediment accumulation</i></li> <li><i>Check for floatable contaminants</i></li> </ul>
<ul style="list-style-type: none"> <li>-Drainage Pipes</li> </ul>	1 time per 2 years	<ul style="list-style-type: none"> <li><i>Check for sediment accumulation/clogging, or soiled runoff.</i></li> <li><i>Check for erosion at outlets.</i></li> </ul>

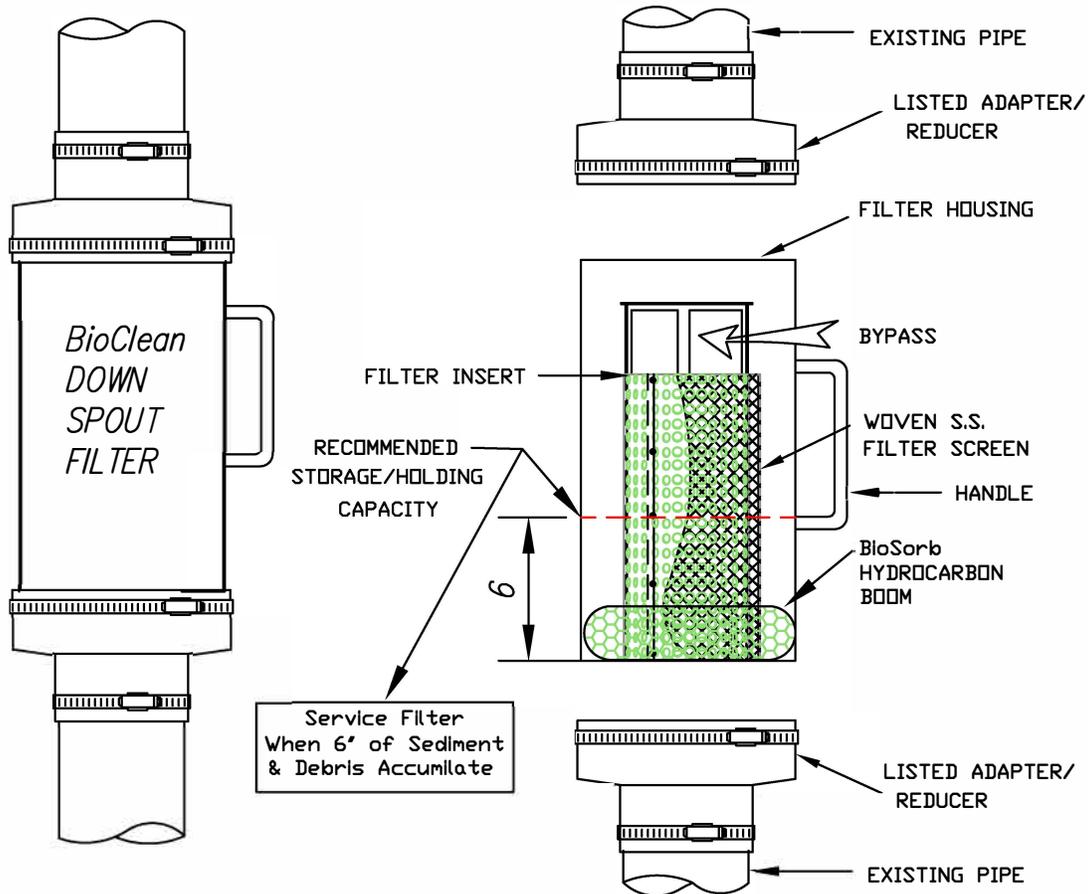
MAINTENANCE LOG	
<b>PROJECT NAME</b>	
<b>INSPECTOR NAME</b>	<b>INSPECTOR CONTACT INFO</b>
<b>DATE OF INSPECTION</b>	<b>REASON FOR INSPECTION</b> <input type="checkbox"/> LARGE STORM EVENT <input type="checkbox"/> PERIODIC CHECK-IN
<b>IS CORRECTIVE ACTION NEEDED?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	<b>DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE</b>
<b>DATE OF MAINTENANCE</b>	<b>PERFORMED BY</b>
<b>NOTES</b>	

# SERVICE MANUAL

## (Cleaning Procedures)

### Bio Clean DOWNSPOUT FILTER

#### Screen Type With Hydrocarbon Boom



#### TOOLS AND EQUIPMENT NEEDED:

1. Medium size flat scred driver
2. BioSorb hydrocarbon boom. 25-1/2" X 2" dia.  
(Call Bio Clean to order)
3. Trash container or bag
4. Wooden dowel approx. 3' x 1/2' dia.

#### DETAIL OF PARTS

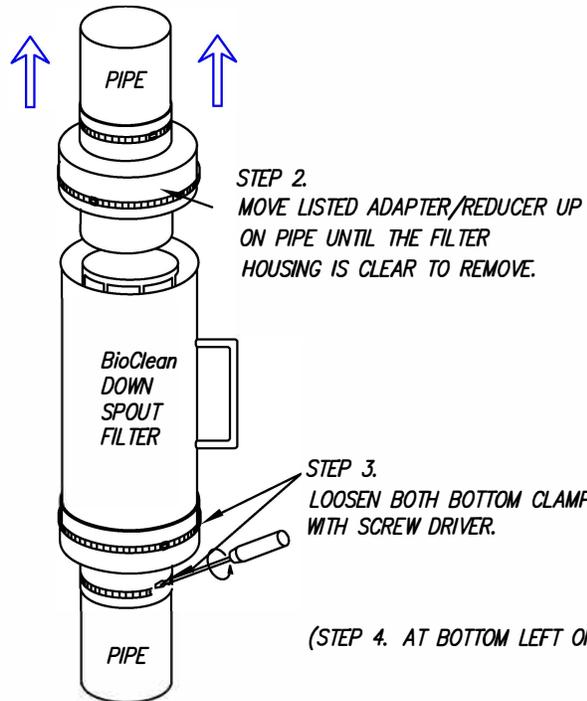
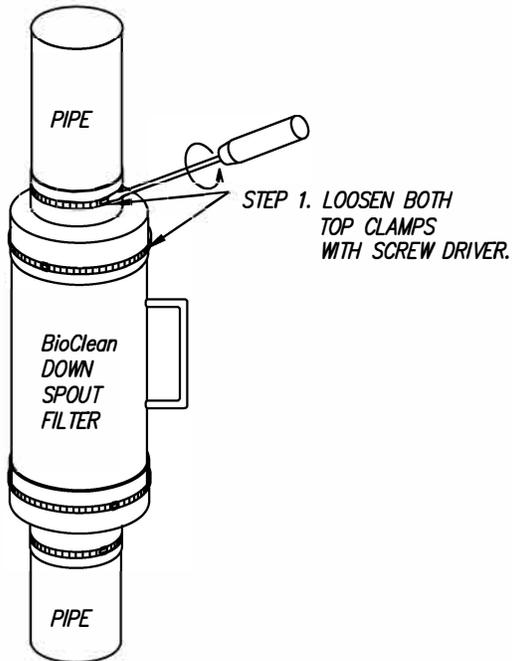
**Bio Clean**

A Forterra Company

P.O. BOX 869, Oceanside, Ca. 92049  
(760) 433-7640 Fax (760) 433-3176  
[www.biocleanenvironmental.net](http://www.biocleanenvironmental.net)



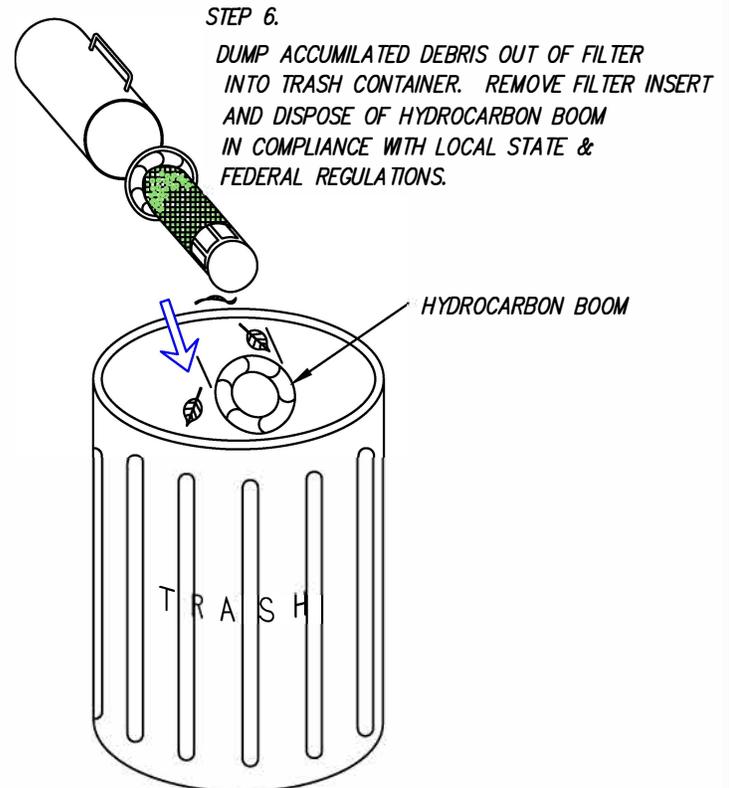
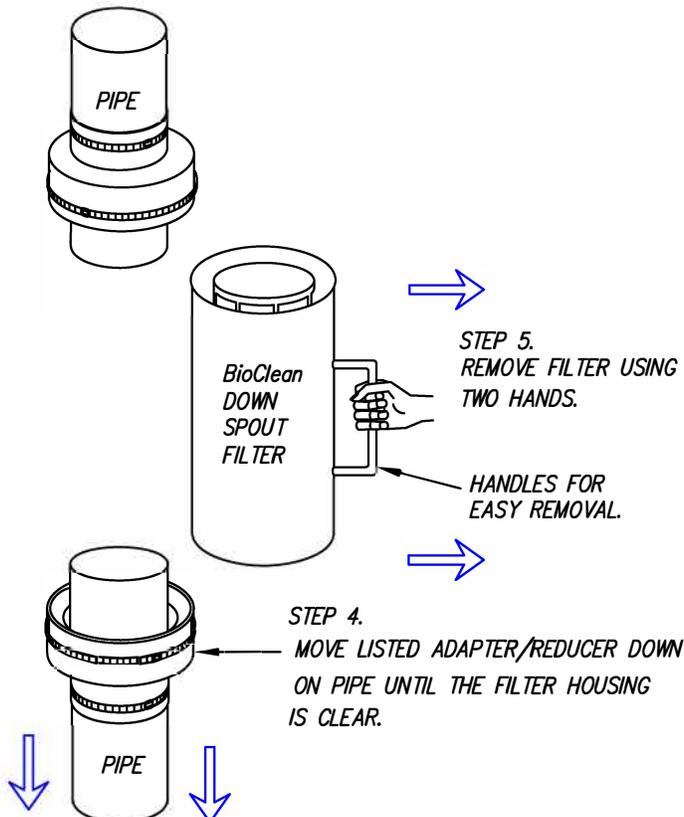
## REMOVING FILTER

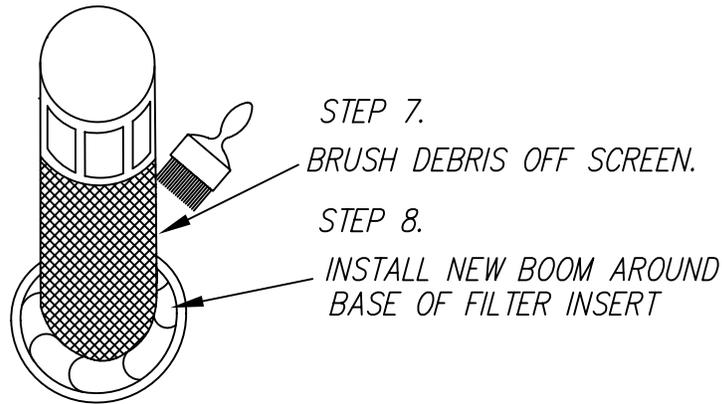


STEP 3. LOOSEN BOTH BOTTOM CLAMPS WITH SCREW DRIVER.

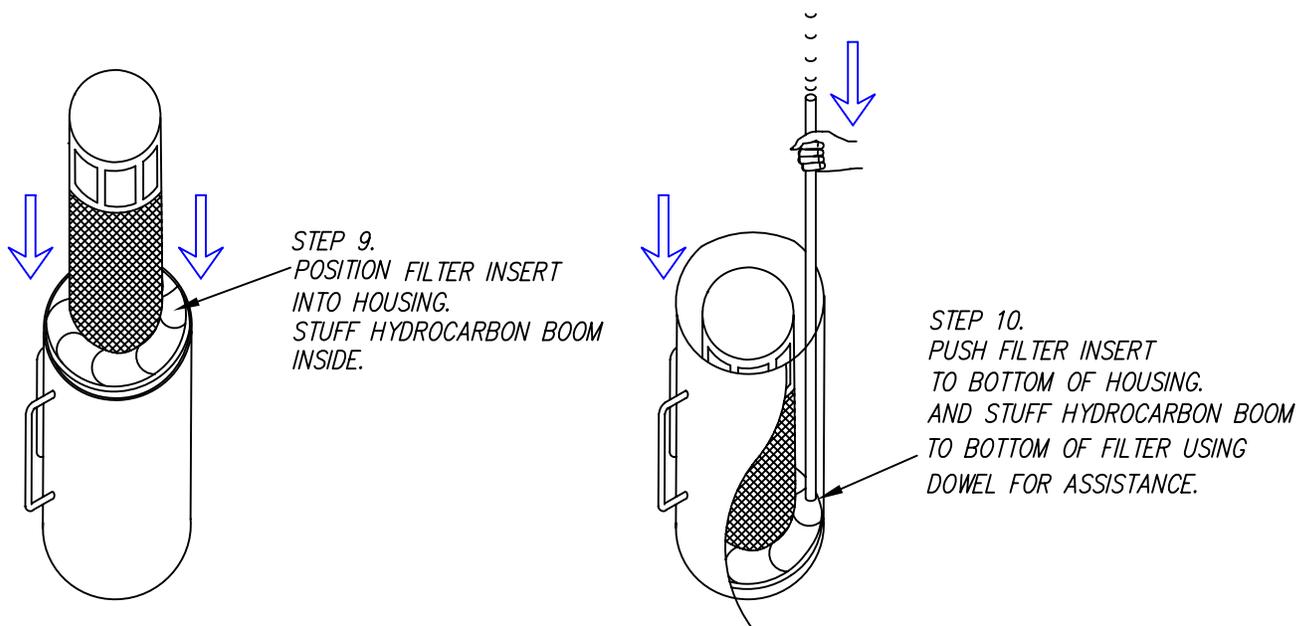
(STEP 4. AT BOTTOM LEFT OF PAGE)

## CLEANING FILTER

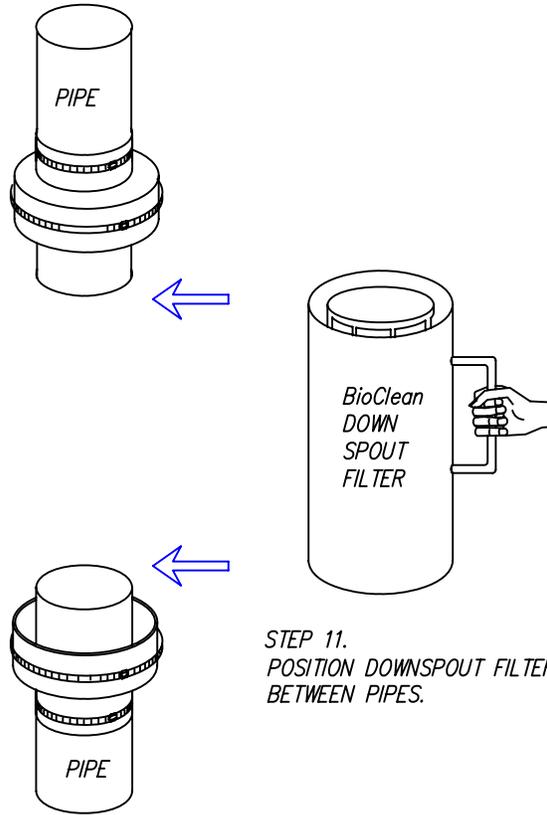




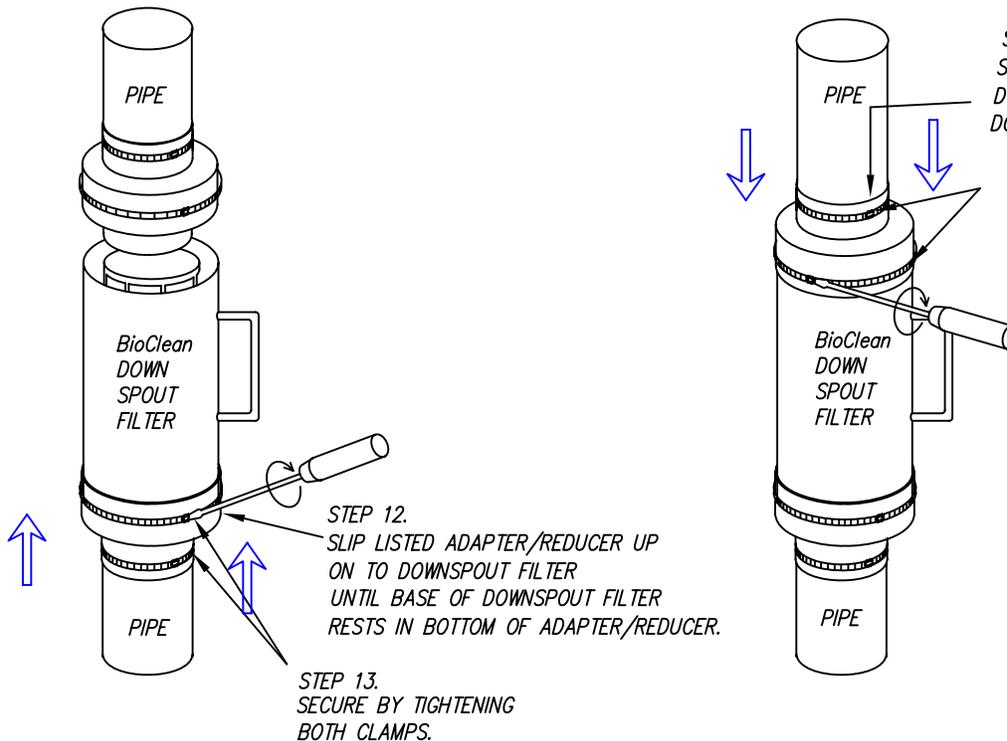
## REPLACING FILTER INSERT



# REPLACING FILTER



STEP 11.  
POSITION DOWNSPOUT FILTER  
BETWEEN PIPES.



STEP 14.  
SLIP LISTED ADAPTER/REDUCER  
DOWNWARD ON TO  
DOWNSPOUT FILTER.

STEP 15.  
SECURE BY TIGHTENING  
BOTH CLAMPS  
WITH SCREWDRIVER.

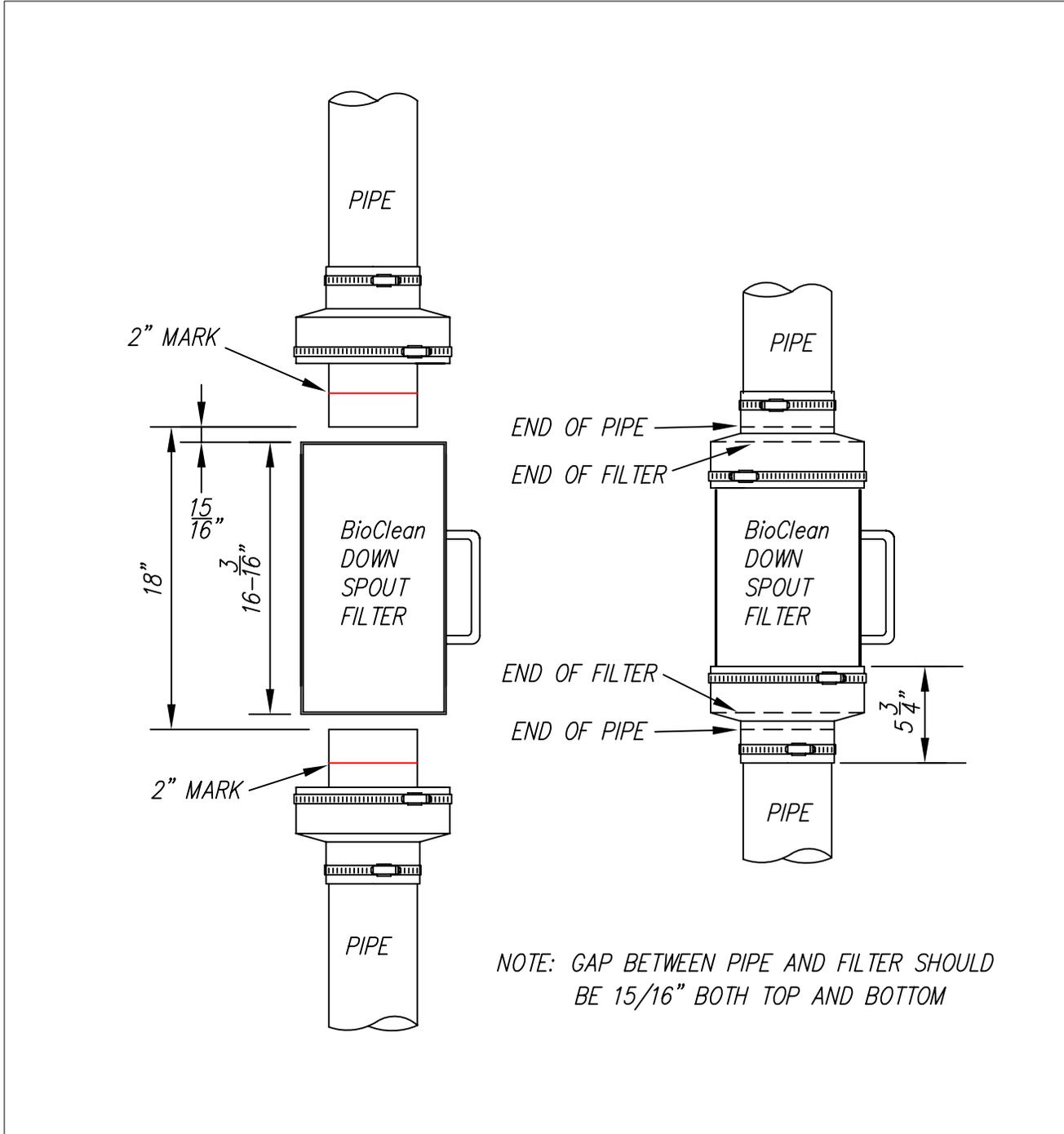
ENSURE CLAMPS  
ARE PROPERLY TIGHTENED.  
SERVICE COMPLETE.

STEP 12.  
SLIP LISTED ADAPTER/REDUCER  
UP ON TO DOWNSPOUT FILTER  
UNTIL BASE OF DOWNSPOUT FILTER  
RESTS IN BOTTOM OF ADAPTER/REDUCER.

STEP 13.  
SECURE BY TIGHTENING  
BOTH CLAMPS.

## APPROPRIATE INSTALLATION

FILTER CENTERED BETWEEN PIPES WITH EVEN GAPS ON TOP AND BOTTOM



A Forterra Company

P.O. BOX 869, Oceanside, Ca. 92049  
(760) 433-7640 Fax (760) 433-3176  
[www.biocleanenvironmental.net](http://www.biocleanenvironmental.net)

## STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	FREQUENCY	MAINTENANCE REQUIREMENTS
ENTRANCE SURFACE <i>-Check for sediment accumulation/clogging of stone</i> <i>-Check Vegetative filter strips</i>	After heavy rains, as necessary	<i>-Top dress pad with new stone.</i> <i>-Replace stone completely if completely clogged.</i> <i>-Maintain vigorous stand of vegetation.</i>
WASHING FACILITIES (if applicable) <i>-Monitor Sediment Accumulation</i>	As often as necessary	<i>-Remove Sediments from traps.</i>

MAINTENANCE LOG	
<b>PROJECT NAME</b>	
<b>INSPECTOR NAME</b>	<b>INSPECTOR CONTACT INFO</b>
<b>DATE OF INSPECTION</b>	<b>REASON FOR INSPECTION</b> <input type="checkbox"/> LARGE STORM EVENT <input type="checkbox"/> PERIODIC CHECK-IN
<b>IS CORRECTIVE ACTION NEEDED?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	<b>DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE</b>
<b>DATE OF MAINTENANCE</b>	<b>PERFORMED BY</b>
<b>NOTES</b>	



# R-TANK OPERATION, INSPECTION & MAINTENANCE

## **Operation**

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

## **Inspection**

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you **MUST** follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

### **Inspection Ports**

Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

### **Maintenance Ports**

Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

### **Manholes**

Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does **NOT** necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

# R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

## Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

**Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.**

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).



2831 Cardwell Road  
Richmond, Virginia, 23234  
800.448.3636  
FAX 804.743.7779  
[acfenvironmental.com](http://acfenvironmental.com)

## Step-By-Step Inspection & Maintenance Routine

### 1) Inspection

- a. Inspection Port
  - i. Remove Cap
  - ii. Use flashlight to detect sediment deposits
  - iii. If present, measure sediment depth with stadia rod
  - iv. Record results on Maintenance Log
  - v. Replace Cap
- b. Maintenance Port/s
  - i. Remove Cap
  - ii. Use flashlight to detect sediment deposits
  - iii. If present, measure sediment depth with stadia rod
  - iv. Record results on Maintenance Log
  - v. Replace Cap
  - vi. Repeat for ALL Maintenance Ports
- c. Adjacent Manholes
  - i. Remove Cover
  - ii. Use flashlight to detect sediment deposits
  - iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
  - iv. Inspect pipes connecting to R-Tank
  - v. Record results on Maintenance Log
  - vi. Replace Cover
  - vii. Repeat for ALL Manholes that connect to the R-Tank

### 2) Maintenance

- a. Plug system outlet to prevent discharge of back-flush water
- b. Determine best location to pump out back-flush water
- c. Remove Cap from Maintenance Port
- d. Pump water as rapidly as possible (without over-topping port) into system until at least 1" of water covers system bottom
- e. Replace Cap
- f. Repeat at ALL Maintenance Ports
- g. Pump out back-flush water to complete back-flushing
- h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
- i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
- j. Replace any remaining Caps or Covers
- k. Record the back-flushing event in your Maintenance Log with any relevant specifics

