



**Civil
Site Planning
Environmental
Engineering**

133 Court Street
Portsmouth, NH
03801-4413

May 8, 2023

Peter Britz, Planning and Sustainability Director
City of Portsmouth Municipal Complex
1 Junkins Avenue
Portsmouth, New Hampshire 03801

**Re: Application for Site Plan Review
Assessor's Map 148, Lot 37
765 Middle Street
Altus Project No. 5021
Portsmouth LU-22-196**

Dear Peter,

On behalf of the Applicant, Nicole J. Giusto and David A. Sinclair, Altus Engineering is pleased to submit plans and supporting documents for consideration at the May 18th Planning Board meeting. Nicole and David propose to construct a fourth dwelling unit and garage at their property at 765 Middle Street. The Proposed development will include a new detached structure with a 3-bay garage, stormwater management improvements, expanded driveway utility services and a robust landscape plan.

In October 2022, the Board of Adjustment granted variances for building setbacks and lot density to allow the project to proceed. The project received approval from HDC on May 3rd. On January 3rd, TAC voted to recommend approval of the application with three stipulations. It is our opinion that the revised plan package satisfactorily addresses their concerns as noted below.

1. Site Plan Note 19 on Sheet C-2 identifies that the Owner shall hire a Professional Engineer or a Certified Professional in Erosion and Sediment Control to annually inspect the stormwater system and to submit a report to the City.
2. The leaching catch basin has been relocated to the low point in the driveway. See Sheet C-3, Grading & Stormwater Plan.
3. Both the domestic water and fire suppression water services are depicted on the Utility Plan, Sheet C-4.

Enclosed please find the following items for consideration at the May 18th Planning Board Meeting:

- Letter of Authorization (Applicant to Altus)
- Site Plan Review Check list
- Sitework Cost Estimate
- Drainage Report

- Stormwater Inspection and Maintenance Manual
- "Green" Statement
- Abutter support letters
- Full sized Plan Set
- Rendering from Lincoln Avenue
- Rendering from Middle Street

Please call me if you have any questions or need any additional information.

Respectfully,

ALTUS ENGINEERING

Eric D. Weinrieb, PE
President



wde/5021 pb cvr ltr5-8-23.docx

Enclosures

eCopy: David Sinclair
Jennifer Ramsey, Somma Studios
Robbi Woodburn, Woodburn and Company
Timothy Phoenix, Esq.

Letter of Authorization

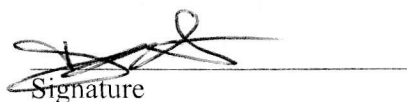
We, Nicole Giusto and David Sinclair, hereby authorize Altus Engineering, Inc. of Portsmouth, NH to represent us in all matters concerning the engineering and related permitting of improvements to the property located at 765 Middle Street in Portsmouth, NH on Assessors Map 148, Lot 37. This authorization shall include any signatures required for Federal, State and Municipal permit applications.


Signature

Nicole Giusto 10/28/22
Nicole Giusto Date


Witness

NANCY W. SINCLAIR 10/28/2022
Print Name Date


Signature

DAVID Sinclair 10/28/22
David Sinclair Date


Witness

NANCY W. SINCLAIR 10/28/2022
Print Name Date



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: Nicole J. Giusto & David A. Sinclair Date Submitted: 12/16/22

Application # (in City's online permitting): To Be Determined

Site Address: 765 Middle Street Portsmouth, NH Map: 148 Lot: 37

Application Requirements

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

Site Plan Review Application Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)	Green Statement	
<input checked="" type="checkbox"/>	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. (2.5.3.1C)	Site Prep Plan - Sheet C-1, Site Plan - Sheet C-2	N/A
<input checked="" type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)	Site Plan - Sheet C-1/ Zoning Summary	N/A

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. (2.5.3.1E)	Cover Sheet, Letter of Authorization	N/A
<input checked="" type="checkbox"/>	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. (2.5.3.1F)	Existing Conditions Plan - Sheet EX-1	N/A
<input checked="" type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. (2.5.3.1G)	Cover Sheet	N/A
<input checked="" type="checkbox"/>	List of reference plans. (2.5.3.1H)	Existing Conditions Plan - Sheet EX-1	N/A
<input checked="" type="checkbox"/>	List of names and contact information of all public or private utilities servicing the site. (2.5.3.1I)	Utility Plan - Sheet C-4/Note 11	N/A

Site Plan Specifications			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. (2.5.4.1A)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. (2.5.4.1B)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. (2.5.4.1C)	Existing Conditions Plan - Sheet EX-1/Note #5	N/A
<input checked="" type="checkbox"/>	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. (2.5.4.1D)	Required on all plan sheets	N/A
<input type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. (2.5.4.1E)	N/A	N/A
<input checked="" type="checkbox"/>	Title (name of development project), north point, scale, legend. (2.5.4.2A)	Cover Sheet, Site Plan - Sheet C-2	N/A
<input checked="" type="checkbox"/>	Date plans first submitted, date and explanation of revisions. (2.5.4.2B)	Title Block	N/A
<input checked="" type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. (2.5.4.2C)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Source and date of data displayed on the plan. (2.5.4.2D)	Title Block	N/A

Site Plan Specifications – Required Exhibits and Data

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

<input checked="" type="checkbox"/>	7. Utilities: (2.5.4.3G) <ul style="list-style-type: none"> The size, type and location of all above & below ground utilities; Size type and location of generator pads, transformers and other fixtures. 	Grading & Stormwater Plan - Sheet C-3, Utility Plan - Sheet C-4	
<input type="checkbox"/>	8. Solid Waste Facilities: (2.5.4.3H) <ul style="list-style-type: none"> The size, type and location of solid waste facilities. 	N/A	
<input checked="" type="checkbox"/>	9. Storm water Management: (2.5.4.3I) <ul style="list-style-type: none"> The location, elevation and layout of all storm-water drainage. The location of onsite snow storage areas and/or proposed off-site snow removal provisions. Location and containment measures for any salt storage facilities Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures. 	Site Plan - Sheet C-1, Grading & Stormwater Plan - Sheet C-3, Stormwater Inspection and Maintenance Manual	
<input checked="" type="checkbox"/>	10. Outdoor Lighting: (2.5.4.3J) <ul style="list-style-type: none"> Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan. 	Architectural - Proposed Elevations	
<input checked="" type="checkbox"/>	11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)	Architectural - Proposed Elevations	
<input checked="" type="checkbox"/>	12. Landscaping: (2.5.4.3K) <ul style="list-style-type: none"> Identify all undisturbed area, existing vegetation and that which is to be retained; Location of any irrigation system and water source. 	Landscape Plan - Sheet L-1	
<input checked="" type="checkbox"/>	13. Contours and Elevation: (2.5.4.3L) <ul style="list-style-type: none"> Existing/Proposed contours (2 foot minimum) and finished grade elevations. 	Grading & Stormwater Plan - Sheet C-3	
<input checked="" type="checkbox"/>	14. Open Space: (2.5.4.3M) <ul style="list-style-type: none"> Type, extent and location of all existing/proposed open space. 	Site Plan - Sheet C-2	
<input checked="" type="checkbox"/>	15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)	Existing Conditions Plan - Sheet EX-1	
<input type="checkbox"/>	16. Character/Civic District (All following information shall be included): (2.5.4.3P) <ul style="list-style-type: none"> Applicable Building Height (10.5A21.20 & 10.5A43.30); Applicable Special Requirements (10.5A21.30); Proposed building form/type (10.5A43); Proposed community space (10.5A46). 	N/A	
<input type="checkbox"/>	17. Special Flood Hazard Areas (2.5.4.3Q) <ul style="list-style-type: none"> The proposed development is consistent with the need to minimize flood damage; All public utilities and facilities are located and construction to minimize or eliminate flood damage; Adequate drainage is provided so as to reduce exposure to flood hazards. 	N/A	

Other 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"/>	Traffic Impact Study or Trip Generation Report, as required. (3.2.1-2)	N/A	
<input checked="" type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. (7.1)	Green Statement	
<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. (7.3.1)	N/A	
<input checked="" type="checkbox"/>	Stormwater Management and Erosion Control Plan. (7.4)	Notes Sheet - Sheet D-1	
<input checked="" type="checkbox"/>	Inspection and Maintenance Plan (7.6.5)	Stormwater Inspection and Maintenance Manual	

Final Site Plan Approval Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	All local approvals, permits, easements and licenses required, including but not limited to: <ul style="list-style-type: none"> • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. (2.5.3.2A)	Site Plan - Sheet C-2/Note #4	
<input checked="" type="checkbox"/>	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: <ul style="list-style-type: none"> • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. (2.5.3.2B)	Drainage Report, Stormwater Inspection and Maintenance Manual	
<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. (2.5.3.2D)	N/A	

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. (2.5.3.2E)	N/A	
<input checked="" type="checkbox"/>	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." (2.5.4.2E)	Site Plan - Sheet C-2/Note #18	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. (2.5.4.2F)	N/A	
<input checked="" type="checkbox"/>	Plan sheets submitted for recording shall include the following notes: <ul style="list-style-type: none"> a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." (2.13.3)		N/A

Applicant's Signature: Eric D. Weinrieb, PE Date: 12/16/22



Civil 133 Court Street
Site Planning Portsmouth, NH
Environmental 03801-4413
Engineering (603) 433-2335

Residential Development Expansion

765 Middle Street
Portsmouth, NH

Cost Estimate - Site Work

DATE: December 16, 2022
PROJECT: 5021

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
SITWORK DEMOLITION				
UTILITIES (ALLOWANCE)	1	LS	\$1,000.00	\$1,000.00
PAVEMENT SAWCUT	15	LF	\$5.00	\$75.00
CLEARING AND GRUBBING				
VEGETATION REMOVAL AND LOAM STRIPPING	1	LS	\$1,000.00	\$1,000.00
WATER SUPPLY				
2" DOMESTIC WATER SERVICE	75	LF	\$60.00	\$4,500.00
SEWER SERVICE				
6" SDR 35 SEWER PIPE	140	LF	\$60.00	\$8,400.00
ELECTRIC/PHONE/CABLE SERVICES				
SCH 40 CONDUIT (x4 PER TRENCH)	75	LF	\$30.00	\$2,250.00
STORM DRAINAGE SYSTEM				
4" CPP PERFORATED DRAINAGE PIPE	30	LF	\$15.00	\$450.00
4" CPP DRAINAGE PIPE	40	LF	\$25.00	\$1,000.00
6" CPP DRAINAGE PIPE	0	LF	\$40.00	\$0.00
RIP RAP/STONE DRIP EDGE	1	LS	\$650.00	\$650.00
SEDIMENT AND EROSION CONTROL				
TEMPORARY EROSION CONTROL	1	LS	\$2,000.00	\$2,000.00
CONCRETE FLATWORK				
CONCRETE PADS	1	LS	\$250.00	\$250.00
SIDEWALKS				
PATIO PAVERS	60	SY	\$18.00	\$1,080.00
AGGREGATE BASE COURSES				
CRUSHED GRAVEL (NHDOT 304.3)	170	CY	\$35.00	\$5,950.00
HOT BITUMINOUS PAVEMENT				
WEARING AND BINDER COURSE	60	TON	\$85.00	\$5,100.00
LANDSCAPING				
PATIOS	1	LS	\$25,000.00	\$25,000.00
LANDSCAPING (ALLOWANCE)	1	LS	\$14,400.00	\$14,400.00
SUBTOTAL				\$73,105
TOTAL:				\$73,105

EXCLUSIONS:

ITEMS EXCLUDED FROM THIS ESTIMATE INCLUDE, BUT ARE NOT LIMITED TO, THOSE ITEMS SPECIFIED ABOVE AS BEING NOT INCLUDED IN THIS ESTIMATE AND THE FOLLOWING:

INSPECTION FEES, MONUMENTATION, HVAC PADS, TEMPORARY FENCING AND BARRICADES, TRAFFIC CONTROL, MATERIALS AND COMPACTION TESTING, BUILDING FOUNDATION, BUILDING FOUNDATION EXCAVATION, BUILDING MOUNTED EXTERIOR LIGHTING, BUILDINGS (INCLUDING MODIFICATIONS TO EXISTING BUILDINGS), TEMPORARY STABILIZATION, STAGING, MOBILIZATION, TEMPORARY CONSTRUCTION FACILITIES, SWPPP REQUIREMENTS, UNFORESEEN CONDITIONS, PRICE ESCALATION, ETC.

THIS ESTIMATE IS FOR PERMIT APPLICATION PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION, CONSTRUCTION BIDDING, CONTRACTING OR SUBCONTRACTING.

RESIDENTIAL DEVELOPMENT EXPANSION

**765 Middle Street
Portsmouth, NH
Tax Map 148, Lot 37**

DRAINAGE ANALYSIS

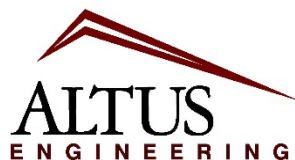
December 2022

Prepared for:

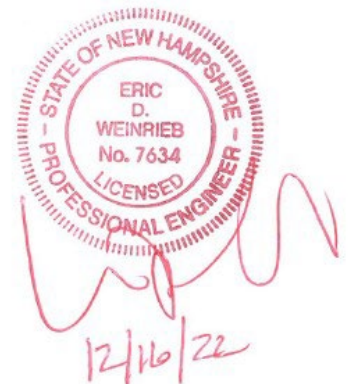
Nicole J. Giusto & David A. Sinclair

765 Middle Street
Portsmouth, NH 03801

Prepared By:



133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335



**765 Middle Street
Portsmouth, NH
Tax Map 148, Lot 37**

TABLE OF CONTENTS

- 1) Project Narrative
- 2) Site Location Plan (USGS Map)
- 3) Soil Data
 - Web Soil Survey
- 4) Drainage Analysis
 - Extreme Precipitation Table
 - Pre-Development
 - Post Development

Appendix: Plans: WS-1: Pre-Development Watershed Plan (*11" x 17"*)
WS-2: Post Development Watershed Plan (*11" x 17"*)

Project Plans (*22" x 34"*) (*project plans under separate attachment*)

Project Narrative

**765 Middle Street
Portsmouth, NH
Tax Map 148, Lot 37
Altus Project P5021**

PROJECT DESCRIPTION

Nicole J. Giusto & David A. Sinclair are proposing a residential development expansion on the site located at 765 Middle Street in Portsmouth, New Hampshire. The property is identified on the Portsmouth Assessors Map as Tax Map 148, Lot 37 and is approximately 21,504 s.f. with three existing residences on the site to remain. The applicant proposes to construct a three-bay garage with a second-floor apartment along with site improvements to the lot. The property access will remain off Lincoln Avenue.

Zoning relief was acquired in October 2022 to add the additional dwelling unit. The lot is currently serviced by municipal sewer and water. The driveway will be repaved and extended between the two existing structures to access the proposed unit.

Stormwater from impervious and other developed areas on the property will be treated using stormwater best management practices (BMPs) designed to remove fine particulates and suspended sediments. Roof gutters routed to an underground reservoir, roofline drip strips, an infiltration pond and other practices will be utilized to achieve the required stormwater management.

The original site had approximately 5,420 s.f. of impervious cover. The proposed project has a total impervious area of approximately 8,300 s.f. resulting in a net increase of 3,060 s.f. of impervious.

The proposed improvements will treat approximately 4,300 s.f. of impervious on site. Of the 4,300 s.f. impervious area being treated, 3,200 s.f. are new proposed impervious. This means that the proposed improvements will treat all impervious area being added to the site as well as 1,100 s.f. of existing impervious area.

CALCULATION METHODS

The drainage analysis was completed using HydroCAD v.10. The program generates runoff hydrographs for specified storm distributions and performs reservoir routing using the storage indication method. The criteria used for this drainage analysis are the 2-year, 10-year, 25-year, and 50-year 24-hour Type III frequency storm events based on the Northeast Regional Climate Center “extreme precipitation tables” for the Portsmouth, New Hampshire.

Recommended erosion control measures are based upon the “*New Hampshire Stormwater Manual*”, developed in 2008.

The following modeling conservative data and assumptions were incorporated into the analysis:

- Model based on 1.15% of the extreme precipitation values published by Cornell/UNH for coastal communities.
- Project area soils and hydrological group are based on NRCS Soils mapping.
- Minimum Tc of 6 minutes SCS TR-55 Urban Hydrology for Small Watersheds indicates that the minimum Tc is 0.1 hour or 6 minutes. The Federal Highway Administration Hydraulic Engineering and NHDOT Drainage Design for Highways states that minimum time of concentration (Tc) for urbanized areas should not be less than 5-minutes. Extremely short Tc times can lead to improbable runoff values and is not appropriate for design.

Disclaimer

Altus Engineering notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

DRAINAGE ANALYSIS

The NRCS web soils survey indicates the site consists of Urban land-Canton complex soils, a well-drained soil.

The pre-development watershed is delineated on the accompanying Sheet W-1, Pre-Development Watershed Plan. The runoff from watershed 10 flows off the roofs and pavement and sheet flows off the eastern side of the property represented as Point of Analysis (POA) 1. The runoff from watershed 20 consists mainly of runoff across the lawn. The lawn runoff sheets towards the eastern edge of the property represented as POA 2.

The post-development conditions were analyzed using the same Points of Analyses indicated in the pre-development watershed conditions. The post-development watersheds are delineated on the accompanying sheet WS-2, Post-Development Watershed Plan. Modifications to the delineated watersheds and associated groundcover were made to sub-catchments according to the improvements proposed for the property. Watershed 10 remains largely the same and still discharges to POA 1. Watershed 20 was split into multiple watersheds to account for the roof runoff from the proposed structure as well as the proposed pavement and grading improvements. Watershed 22 represents the back of the proposed structure which drains to a drip-edge. Watershed 23 represents the front of the proposed structure which drains to gutters that are routed to an underground reservoir. Watershed 21 still sends runoff to POA 2. Watershed 20 channels most runoff from the remaining lawn and proposed pavement to infiltration pond 20. The three proposed stormwater retention structures significantly reduce the amount of stormwater routed to POA 2 resulting in the reduction of runoff from the pre-development to post-development conditions.

A complete summary of the drainage model is included in the appendix of this report. The following table compares pre- and post-development peak rates at the two Points of Analyses identified on the plans for the 2, 10, 25, and 50 year storm events:

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Yr Storm (3.69 inch)	10-Yr Storm (5.60 inch)	25-Yr Storm (7.10 inch)	50-Yr Storm (8.50 inch)
POA #100				
Pre	0.24	0.54	0.79	1.04
Post	0.21	0.52	0.78	1.04
Net Change	-0.03 (12.5%)	-0.02 (3.7%)	-0.01 (1.3%)	0.00 (0.0%)
POA #200				
Pre	0.02	0.24	0.53	0.86
Post	0.01	0.07	0.15	0.23
Net Change	-0.01 (50.0%)	-0.17 (70.8%)	-0.38 (71.7%)	-0.63 (73.3%)

As the above table demonstrates, the proposed peak rates of runoff will be reduced from the existing conditions for all the analyzed storm events.

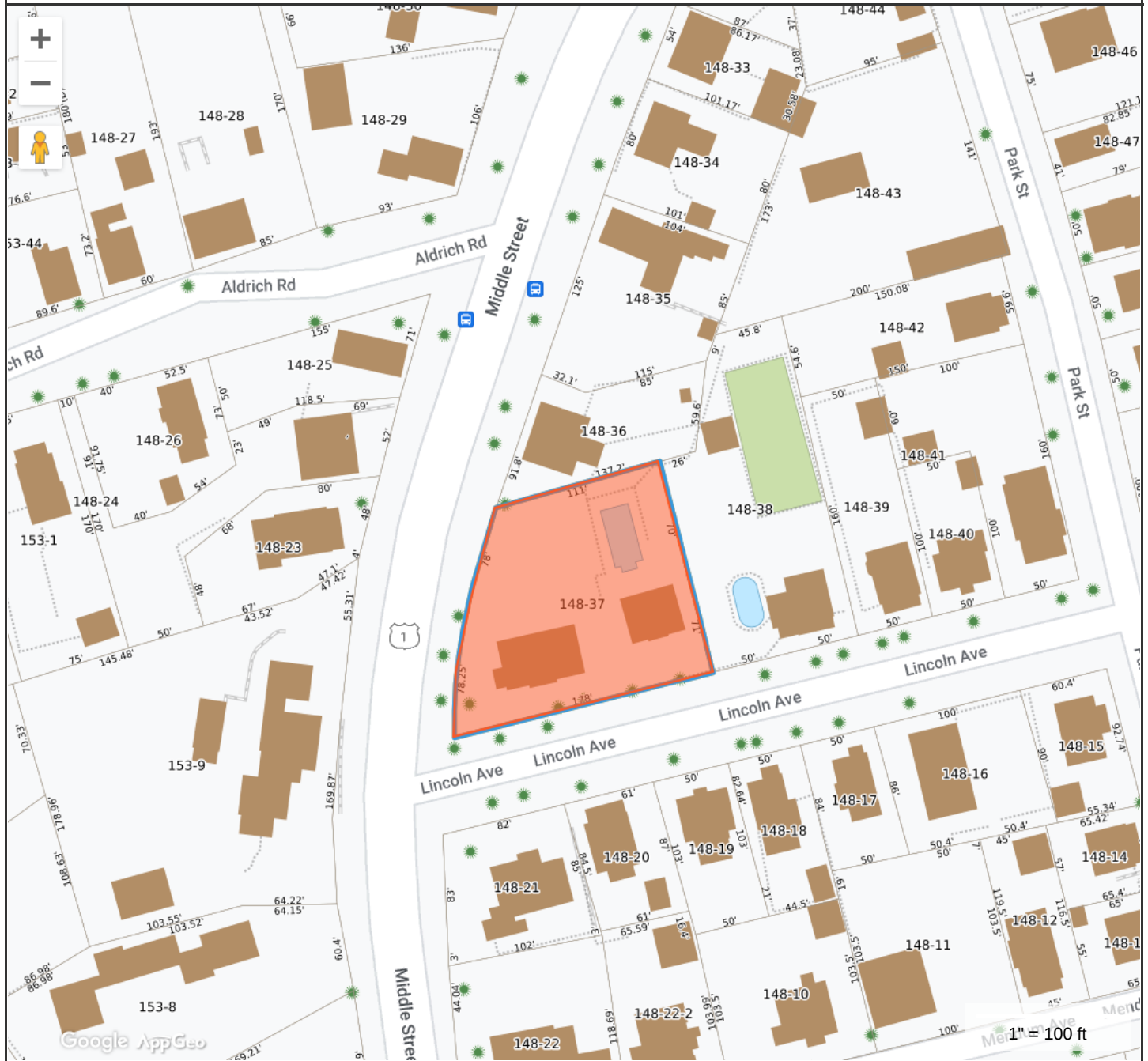
CONCLUSION

The proposed 3-bay garage will not have an adverse effect on abutting properties and infrastructure as a result of stormwater runoff. The proposed residential development will provide stormwater treatment and retention for the new structure, extended driveway, and other associated improvements with the construction of a stormwater infiltration pond, stone dripedge, and underground reservoir system. The analysis of the site shows that the peak runoff rates for the site will be reduced for all storm events up to and including the 50-year storm. Appropriate steps will be taken during construction to properly mitigate erosion and sedimentation using Best Management Practices for sediment and erosion control.

OPERATION AND MAINTENANCE

- **Manicured Landscaped Areas (Infiltration Pond)** - litter control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from the driveway, lawn, and other landscaped areas before materials are transported into surface waters.
- **Fertilizer Management** – fertilizer management includes controlling the rate, timing, and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting surface and ground waters. Fertilizer will not be applied to frozen ground. Fertilizer spills will be cleaned up in a timely manner. Fertilizer will not be allowed to be broadcasted into water bodies. When fertilizing a lawn; it will be watered thoroughly but not so much that water runs off the surface of the lawn and transports fertilizer to water bodies.
- **De-Icing Chemical Use and Storage** – salt will be stored inside a building to avoid contamination of wetlands and other sensitive areas. When the driveway and walkways are free of snow and ice, they shall be swept clean at least once annually. Disposal of sweepings shall be at a solid waste facility.
- **Gutters, Downspouts, and Drainage Pipes** – gutters and drainage pipes will be inspected semi-annually, or more often as need for accumulation of debris and structural integrity. Leaves and other debris will be removed to insure the functionality of the gutters and drainage pipes.
- **Underground Reservoir** – the underground reservoir will be inspected using the inspection port in the driveway semi-annually, or more often as needed, for the accumulation of debris, structural integrity, and to insure water is being infiltrated properly.
- **Stone Drip Edge** – the stone drip edge should be observed periodically during rain events for proper infiltration into the system and inspected at least once per year to verify water flow and exfiltration.
- **Trash & Recycling** - trash and recycling will be stored indoors to reduce the possibility of polluting surface and groundwaters.

765 Middle Street Portsmouth, NH



Property Information

Property ID 0148-0037-0000
Location 765 MIDDLE ST
Owner SINCLAIR DAVID A



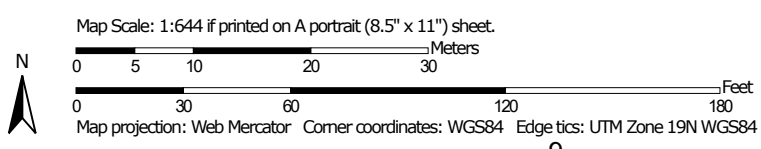
**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 09/21/2022
Data updated 3/9/2022

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Custom Soil Resource Report Soil Map



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 25, Sep 12, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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
799	Urban land-Canton complex, 3 to 15 percent slopes	1.4	100.0%
Totals for Area of Interest		1.4	100.0%

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, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

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

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)

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

Scituate and newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Custom Soil Resource Report

Chatfield

Percent of map unit: 4 percent
Hydric soil rating: No

Boxford and eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

Walpole

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.767 degrees West
Latitude	43.067 degrees North
Elevation	0 feet
Date/Time	Wed, 09 Nov 2022 17:10:37 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.03	2.66	2.92	1yr	2.35	2.81	3.22	3.94	4.55	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.49	3.21	3.57	2yr	2.84	3.43	3.94	4.68	5.33	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.61	5yr	1.08	1.47	1.89	2.43	3.14	4.07	4.58	5yr	3.60	4.40	5.04	5.94	6.70	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.89	3.75	4.87	5.53	10yr	4.31	5.32	6.08	7.11	7.98	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.33	25yr	1.53	2.14	2.77	3.63	4.74	6.17	7.10	25yr	5.46	6.83	7.80	9.02	10.05	25yr
50yr	0.53	0.86	1.10	1.53	2.07	2.75	50yr	1.78	2.52	3.28	4.32	5.66	7.39	8.58	50yr	6.54	8.25	9.42	10.81	11.98	50yr
100yr	0.59	0.96	1.24	1.77	2.41	3.25	100yr	2.08	2.97	3.90	5.15	6.77	8.85	10.38	100yr	7.84	9.98	11.38	12.96	14.28	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.83	200yr	2.43	3.51	4.61	6.12	8.08	10.61	12.55	200yr	9.39	12.07	13.75	15.55	17.03	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.75	500yr	2.99	4.37	5.75	7.69	10.21	13.49	16.15	500yr	11.93	15.53	17.67	19.78	21.50	500yr

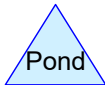
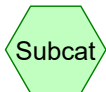
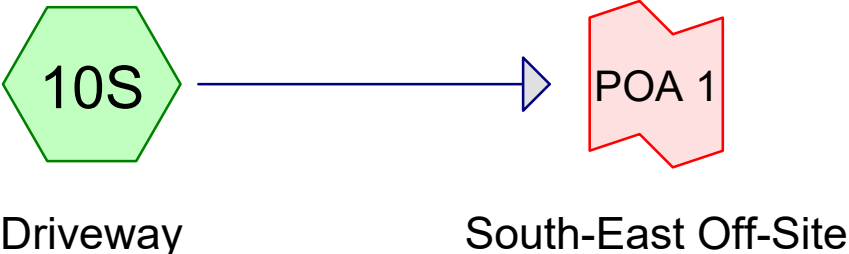
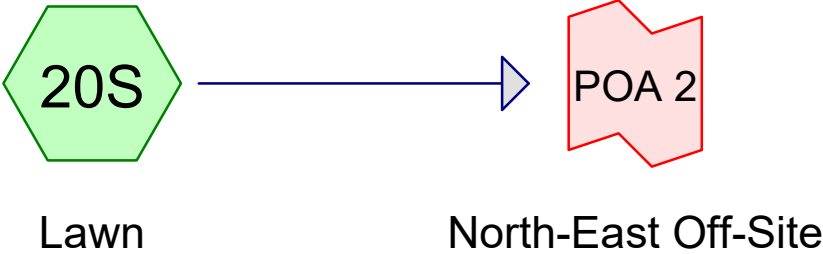
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.86	0.92	1.33	1.68	2.23	2.50	1yr	1.98	2.40	2.86	3.17	3.89	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.06	3.45	2yr	2.71	3.32	3.82	4.55	5.08	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.79	4.19	5yr	3.35	4.03	4.72	5.54	6.24	5yr
10yr	0.39	0.59	0.73	1.03	1.32	1.60	10yr	1.14	1.56	1.81	2.39	3.06	4.37	4.87	10yr	3.87	4.68	5.45	6.42	7.20	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.76	3.54	4.71	5.90	25yr	4.17	5.68	6.66	7.80	8.69	25yr
50yr	0.48	0.73	0.91	1.31	1.77	2.17	50yr	1.52	2.12	2.35	3.08	3.94	5.32	6.82	50yr	4.71	6.56	7.74	9.06	10.03	50yr
100yr	0.54	0.81	1.01	1.47	2.01	2.47	100yr	1.74	2.41	2.63	3.42	4.36	5.98	7.87	100yr	5.29	7.57	9.00	10.53	11.58	100yr
200yr	0.59	0.89	1.13	1.63	2.28	2.82	200yr	1.97	2.75	2.93	3.79	4.80	6.70	9.09	200yr	5.93	8.74	10.46	12.25	13.39	200yr
500yr	0.69	1.02	1.31	1.91	2.71	3.37	500yr	2.34	3.29	3.41	4.33	5.47	7.79	10.98	500yr	6.89	10.56	12.75	14.99	16.21	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.99	3.16	1yr	2.64	3.04	3.58	4.38	5.05	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.51	3.43	3.70	2yr	3.03	3.56	4.09	4.84	5.63	2yr
5yr	0.40	0.62	0.76	1.05	1.34	1.62	5yr	1.15	1.58	1.88	2.53	3.25	4.34	4.96	5yr	3.84	4.77	5.38	6.37	7.15	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.93	2.28	3.10	3.95	5.34	6.19	10yr	4.72	5.96	6.81	7.83	8.74	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.56	25yr	1.76	2.51	2.95	4.07	5.14	7.79	8.33	25yr	6.90	8.01	9.13	10.33	11.40	25yr
50yr	0.67	1.02	1.27	1.82	2.45	3.12	50yr	2.12	3.05	3.59	4.99	6.30	9.76	10.44	50yr	8.64	10.03	11.41	12.71	13.95	50yr
100yr	0.79	1.19	1.49	2.15	2.95	3.80	100yr	2.55	3.72	4.37	6.15	7.74	12.22	13.07	100yr	10.81	12.57	14.25	15.67	17.07	100yr
200yr	0.92	1.39	1.76	2.54	3.55	4.64	200yr	3.06	4.54	5.33	7.57	9.50	15.33	16.40	200yr	13.57	15.77	17.84	19.31	20.90	200yr
500yr	1.14	1.70	2.19	3.18	4.52	6.02	500yr	3.90	5.88	6.91	10.00	12.50	20.72	22.13	500yr	18.34	21.28	24.00	25.46	27.31	500yr

PRE-DEVELOPMENT



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.346	39	>75% Grass cover, Good, HSG A (10S, 20S)
0.026	96	Gravel surface, HSG A (10S, 20S)
0.069	98	Paved parking, HSG A (10S, 20S)
0.055	98	Roofs, HSG A (10S, 20S)
0.496	57	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.496	HSG A	10S, 20S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.496		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.346	0.000	0.000	0.000	0.000	0.346	>75% Grass cover, Good	10S, 20S
0.026	0.000	0.000	0.000	0.000	0.026	Gravel surface	10S, 20S
0.069	0.000	0.000	0.000	0.000	0.069	Paved parking	10S, 20S
0.055	0.000	0.000	0.000	0.000	0.055	Roofs	10S, 20S
0.496	0.000	0.000	0.000	0.000	0.496	TOTAL AREA	

5021-PRE

Type III 24-hr 10-yr Rainfall=5.60"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway

Runoff Area=7,515 sf 46.64% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=72 Runoff=0.54 cfs 0.038 af

Subcatchment 20S: Lawn

Runoff Area=14,092 sf 13.57% Impervious Runoff Depth>0.89"
Flow Length=167' Tc=6.0 min CN=49 Runoff=0.24 cfs 0.024 af

Link POA 1: South-East Off-Site

Inflow=0.54 cfs 0.038 af
Primary=0.54 cfs 0.038 af

Link POA 2: North-East Off-Site

Inflow=0.24 cfs 0.024 af
Primary=0.24 cfs 0.024 af

Total Runoff Area = 0.496 ac Runoff Volume = 0.062 af Average Runoff Depth = 1.51"
74.93% Pervious = 0.372 ac 25.07% Impervious = 0.124 ac

Summary for Subcatchment 10S: Driveway

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
1,941	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
3,345	39	>75% Grass cover, Good, HSG A
665	96	Gravel surface, HSG A
1,195	98	Roofs, HSG A
369	98	Paved parking, HSG A
7,515	72	Weighted Average
4,010		53.36% Pervious Area
3,505		46.64% Impervious Area

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

Summary for Subcatchment 20S: Lawn

Runoff = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
170	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
11,727	39	>75% Grass cover, Good, HSG A
453	96	Gravel surface, HSG A
1,198	98	Roofs, HSG A
544	98	Paved parking, HSG A
14,092	49	Weighted Average
12,180		86.43% Pervious Area
1,912		13.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	19	0.0278	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.69"
1.8	144	0.0345	1.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	4	0.2252	3.32		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.9	167				Total, Increased to minimum Tc = 6.0 min

Summary for Link POA 1: South-East Off-Site

Inflow Area = 0.173 ac, 46.64% Impervious, Inflow Depth > 2.67" for 10-yr event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af
Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Link POA 2: North-East Off-Site

Inflow Area = 0.324 ac, 13.57% Impervious, Inflow Depth > 0.89" for 10-yr event
Inflow = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af
Primary = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 2-yr Rainfall=3.69"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway

Runoff Area=7,515 sf 46.64% Impervious Runoff Depth>1.25"
Tc=6.0 min CN=72 Runoff=0.24 cfs 0.018 af

Subcatchment 20S: Lawn

Runoff Area=14,092 sf 13.57% Impervious Runoff Depth>0.21"
Flow Length=167' Tc=6.0 min CN=49 Runoff=0.02 cfs 0.006 af

Link POA 1: South-East Off-Site

Inflow=0.24 cfs 0.018 af
Primary=0.24 cfs 0.018 af

Link POA 2: North-East Off-Site

Inflow=0.02 cfs 0.006 af
Primary=0.02 cfs 0.006 af

5021-PRE

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Type III 24-hr 25-yr Rainfall=7.10"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway

Runoff Area=7,515 sf 46.64% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=72 Runoff=0.79 cfs 0.056 af

Subcatchment 20S: Lawn

Runoff Area=14,092 sf 13.57% Impervious Runoff Depth>1.63"
Flow Length=167' Tc=6.0 min CN=49 Runoff=0.53 cfs 0.044 af

Link POA 1: South-East Off-Site

Inflow=0.79 cfs 0.056 af
Primary=0.79 cfs 0.056 af

Link POA 2: North-East Off-Site

Inflow=0.53 cfs 0.044 af
Primary=0.53 cfs 0.044 af

5021-PRE

Type III 24-hr 50-yr Rainfall=8.50"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway

Runoff Area=7,515 sf 46.64% Impervious Runoff Depth>5.13"
Tc=6.0 min CN=72 Runoff=1.04 cfs 0.074 af

Subcatchment 20S: Lawn

Runoff Area=14,092 sf 13.57% Impervious Runoff Depth>2.44"
Flow Length=167' Tc=6.0 min CN=49 Runoff=0.86 cfs 0.066 af

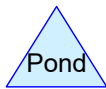
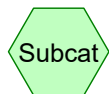
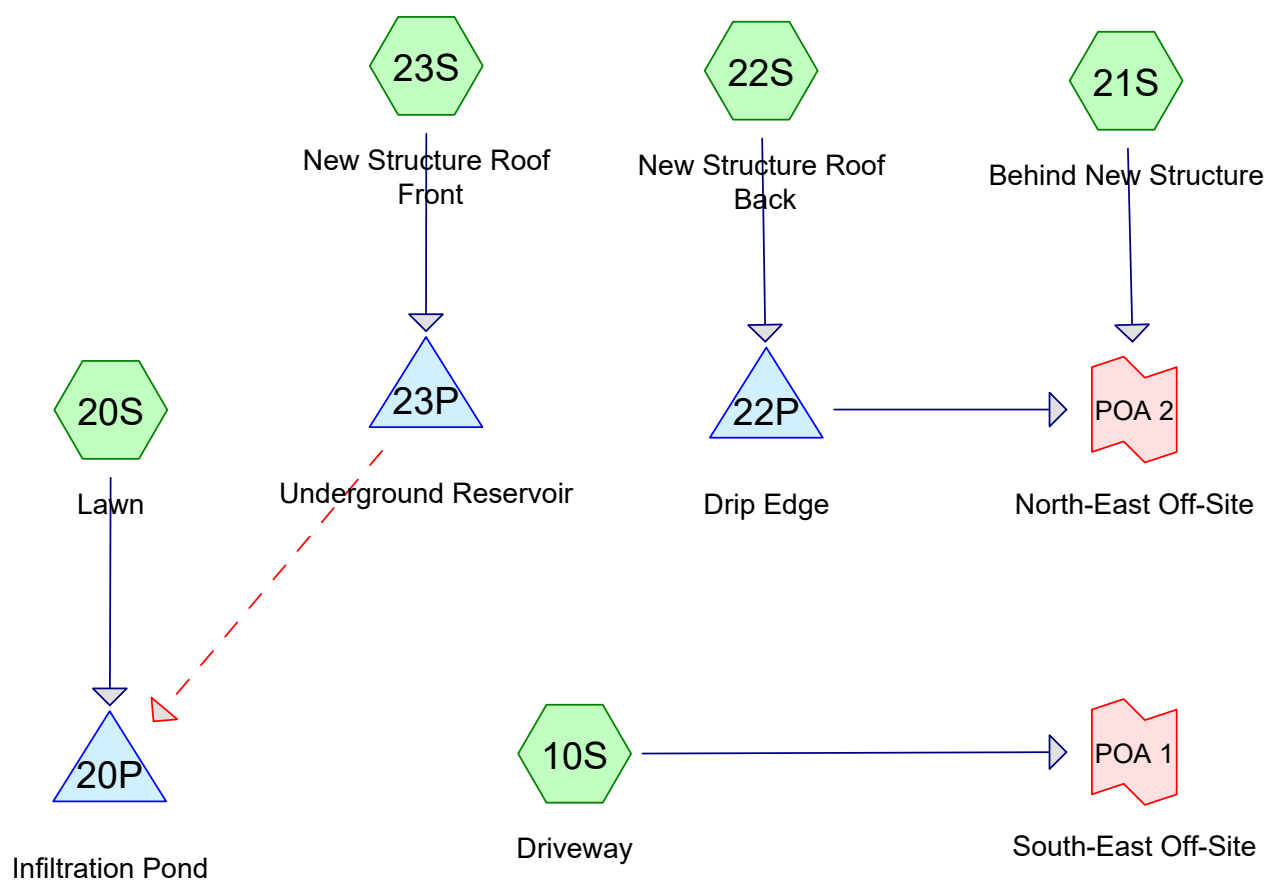
Link POA 1: South-East Off-Site

Inflow=1.04 cfs 0.074 af
Primary=1.04 cfs 0.074 af

Link POA 2: North-East Off-Site

Inflow=0.86 cfs 0.066 af
Primary=0.86 cfs 0.066 af

POST-DEVELOPMENT



Routing Diagram for 5021-POST
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.275	39	>75% Grass cover, Good, HSG A (10S, 20S, 21S)
0.031	96	Gravel surface, HSG A (10S, 20S, 21S, 22S)
0.090	98	Paved parking, HSG A (10S, 20S, 21S)
0.100	98	Roofs, HSG A (10S, 20S, 21S, 22S, 23S)
0.496	65	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.496	HSG A	10S, 20S, 21S, 22S, 23S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.496		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.275	0.000	0.000	0.000	0.000	0.275	>75% Grass cover, Good	10S, 20S, 21S
0.031	0.000	0.000	0.000	0.000	0.031	Gravel surface	10S, 20S, 21S, 22S
0.090	0.000	0.000	0.000	0.000	0.090	Paved parking	10S, 20S, 21S
0.100	0.000	0.000	0.000	0.000	0.100	Roofs	10S, 20S, 21S, 22S, 23S
0.496	0.000	0.000	0.000	0.000	0.496	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	23P	24.24	24.00	21.4	0.0112	0.010	4.0	0.0	0.0

5021-POST

Type III 24-hr 10-yr Rainfall=5.60"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway	Runoff Area=8,067 sf 42.98% Impervious Runoff Depth>2.40" Tc=6.0 min CN=69 Runoff=0.52 cfs 0.037 af
Subcatchment 20S: Lawn	Runoff Area=8,085 sf 27.74% Impervious Runoff Depth>1.44" Flow Length=97' Tc=6.0 min CN=57 Runoff=0.28 cfs 0.022 af
Subcatchment 21S: Behind New Structure	Runoff Area=3,205 sf 16.88% Impervious Runoff Depth>1.08" Flow Length=112' Tc=6.0 min CN=52 Runoff=0.07 cfs 0.007 af
Subcatchment 22S: New Structure Roof	Runoff Area=1,338 sf 84.23% Impervious Runoff Depth>5.36" Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af
Subcatchment 23S: New Structure Roof	Runoff Area=926 sf 100.00% Impervious Runoff Depth>5.36" Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af
Pond 20P: Infiltration Pond	Peak Elev=22.33' Storage=207 cf Inflow=0.28 cfs 0.022 af Outflow=0.07 cfs 0.022 af
Pond 22P: Drip Edge	Peak Elev=0.57' Storage=137 cf Inflow=0.17 cfs 0.014 af Discarded=0.03 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.014 af
Pond 23P: Underground Reservoir	Peak Elev=24.15' Storage=62 cf Inflow=0.12 cfs 0.009 af Discarded=0.04 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.009 af
Link POA 1: South-East Off-Site	Inflow=0.52 cfs 0.037 af Primary=0.52 cfs 0.037 af
Link POA 2: North-East Off-Site	Inflow=0.07 cfs 0.007 af Primary=0.07 cfs 0.007 af

Total Runoff Area = 0.496 ac Runoff Volume = 0.089 af Average Runoff Depth = 2.15"
61.59% Pervious = 0.306 ac 38.41% Impervious = 0.191 ac

Summary for Subcatchment 10S: Driveway

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
1,882	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
3,935	39	>75% Grass cover, Good, HSG A
665	96	Gravel surface, HSG A
1,195	98	Roofs, HSG A
390	98	Paved parking, HSG A
8,067	69	Weighted Average
4,600		57.02% Pervious Area
3,467		42.98% Impervious Area

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

Summary for Subcatchment 20S: Lawn

Runoff = 0.28 cfs @ 12.10 hrs, Volume= 0.022 af, Depth> 1.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
1,162	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
5,588	39	>75% Grass cover, Good, HSG A
254	96	Gravel surface, HSG A
983	98	Roofs, HSG A
98	98	Paved parking, HSG A
8,085	57	Weighted Average
5,842		72.26% Pervious Area
2,243		27.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	19	0.0268	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.69"
0.9	78	0.0385	1.37		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.0	97	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 21S: Behind New Structure

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.007 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
46	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
2,465	39	>75% Grass cover, Good, HSG A
199	96	Gravel surface, HSG A
145	98	Roofs, HSG A
350	98	Paved parking, HSG A
3,205	52	Weighted Average
2,664		83.12% Pervious Area
541		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	3	0.0333	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.69"
1.4	109	0.0321	1.25		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	112	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 22S: New Structure Roof Back

Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
0	39	>75% Grass cover, Good, HSG A
211	96	Gravel surface, HSG A
1,127	98	Roofs, HSG A
0	98	Paved parking, HSG A
1,338	98	Weighted Average
211		15.77% Pervious Area
1,127		84.23% Impervious Area

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

Summary for Subcatchment 23S: New Structure Roof Front

Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	30	Woods, Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	96	Gravel surface, HSG A
926	98	Roofs, HSG A
0	98	Paved parking, HSG A
926	98	Weighted Average
926		100.00% Impervious Area

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

Summary for Pond 20P: Infiltration Pond

Inflow Area = 0.186 ac, 27.74% Impervious, Inflow Depth > 1.44" for 10-yr event
 Inflow = 0.28 cfs @ 12.10 hrs, Volume= 0.022 af
 Outflow = 0.07 cfs @ 11.96 hrs, Volume= 0.022 af, Atten= 76%, Lag= 0.0 min
 Discarded = 0.07 cfs @ 11.96 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 22.33' @ 12.56 hrs Surf.Area= 479 sf Storage= 207 cf

Plug-Flow detention time= 18.8 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 18.5 min (893.7 - 875.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	21.25'	1,071 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
21.25	479	0.0	0	0	
22.25	479	40.0	192	192	
22.50	479	40.0	48	240	
24.00	479	5.0	36	275	
24.50	773	100.0	313	588	
25.00	1,158	100.0	483	1,071	

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.25'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 11.96 hrs HW=21.29' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Summary for Pond 22P: Drip Edge

Inflow Area = 0.031 ac, 84.23% Impervious, Inflow Depth > 5.36" for 10-yr event
 Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
 Outflow = 0.03 cfs @ 11.72 hrs, Volume= 0.014 af, Atten= 80%, Lag= 0.0 min
 Discarded = 0.03 cfs @ 11.72 hrs, Volume= 0.014 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.57' @ 12.51 hrs Surf.Area= 242 sf Storage= 137 cf

Plug-Flow detention time= 21.1 min calculated for 0.014 af (100% of inflow)
 Center-of-Mass det. time= 20.9 min (766.5 - 745.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	484 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	242	0	0
2.00	242	484	484

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	2.00'	59.0' long x 5.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65			
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88			

Discarded OutFlow Max=0.03 cfs @ 11.72 hrs HW=0.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 23P: Underground Reservoir

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth > 5.36" for 10-yr event
 Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af
 Outflow = 0.04 cfs @ 11.81 hrs, Volume= 0.009 af, Atten= 70%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 11.81 hrs, Volume= 0.009 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 24.15' @ 12.39 hrs Surf.Area= 256 sf Storage= 62 cf

Plug-Flow detention time= 7.2 min calculated for 0.009 af (100% of inflow)
 Center-of-Mass det. time= 7.2 min (752.8 - 745.6)

5021-POST

Type III 24-hr 10-yr Rainfall=5.60"

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Volume	Invert	Avail.Storage	Storage Description
#1	23.57'	101 cf	16.00'W x 16.00'L x 1.00'H Prismaoid 256 cf Overall - 3 cf Embedded = 253 cf x 40.0% Voids
#2	23.74'	3 cf	4.0" Round Pipe Storage Inside #1 L= 32.0'
		104 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.57'	6.000 in/hr Exfiltration over Surface area
#2	Secondary	24.24'	4.0" Round Culvert L= 21.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 24.24' / 24.00' S= 0.0112 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Discarded OutFlow Max=0.04 cfs @ 11.81 hrs HW=23.58' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=23.57' (Free Discharge)↑**2=Culvert** (Controls 0.00 cfs)**Summary for Link POA 1: South-East Off-Site**

Inflow Area = 0.185 ac, 42.98% Impervious, Inflow Depth > 2.40" for 10-yr event
 Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af
 Primary = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Link POA 2: North-East Off-Site

Inflow Area = 0.104 ac, 36.72% Impervious, Inflow Depth > 0.76" for 10-yr event
 Inflow = 0.07 cfs @ 12.11 hrs, Volume= 0.007 af
 Primary = 0.07 cfs @ 12.11 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

5021-POST*Type III 24-hr 2-yr Rainfall=3.69"*

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway	Runoff Area=8,067 sf 42.98% Impervious Runoff Depth>1.07" Tc=6.0 min CN=69 Runoff=0.21 cfs 0.016 af
Subcatchment 20S: Lawn	Runoff Area=8,085 sf 27.74% Impervious Runoff Depth>0.49" Flow Length=97' Tc=6.0 min CN=57 Runoff=0.06 cfs 0.008 af
Subcatchment 21S: Behind New Structure	Runoff Area=3,205 sf 16.88% Impervious Runoff Depth>0.31" Flow Length=112' Tc=6.0 min CN=52 Runoff=0.01 cfs 0.002 af
Subcatchment 22S: New Structure Roof	Runoff Area=1,338 sf 84.23% Impervious Runoff Depth>3.45" Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af
Subcatchment 23S: New Structure Roof	Runoff Area=926 sf 100.00% Impervious Runoff Depth>3.45" Tc=6.0 min CN=98 Runoff=0.08 cfs 0.006 af
Pond 20P: Infiltration Pond	Peak Elev=21.28' Storage=6 cf Inflow=0.06 cfs 0.008 af Outflow=0.06 cfs 0.008 af
Pond 22P: Drip Edge	Peak Elev=0.26' Storage=62 cf Inflow=0.11 cfs 0.009 af Discarded=0.03 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.009 af
Pond 23P: Underground Reservoir	Peak Elev=23.78' Storage=22 cf Inflow=0.08 cfs 0.006 af Discarded=0.04 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.006 af
Link POA 1: South-East Off-Site	Inflow=0.21 cfs 0.016 af Primary=0.21 cfs 0.016 af
Link POA 2: North-East Off-Site	Inflow=0.01 cfs 0.002 af Primary=0.01 cfs 0.002 af

Total Runoff Area = 0.496 ac Runoff Volume = 0.041 af Average Runoff Depth = 0.99"
61.59% Pervious = 0.306 ac 38.41% Impervious = 0.191 ac

5021-POST

Type III 24-hr 25-yr Rainfall=7.10"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 10S: Driveway	Runoff Area=8,067 sf 42.98% Impervious Runoff Depth>3.59" Tc=6.0 min CN=69 Runoff=0.78 cfs 0.055 af
Subcatchment 20S: Lawn	Runoff Area=8,085 sf 27.74% Impervious Runoff Depth>2.38" Flow Length=97' Tc=6.0 min CN=57 Runoff=0.49 cfs 0.037 af
Subcatchment 21S: Behind New Structure	Runoff Area=3,205 sf 16.88% Impervious Runoff Depth>1.90" Flow Length=112' Tc=6.0 min CN=52 Runoff=0.15 cfs 0.012 af
Subcatchment 22S: New Structure Roof	Runoff Area=1,338 sf 84.23% Impervious Runoff Depth>6.86" Tc=6.0 min CN=98 Runoff=0.21 cfs 0.018 af
Subcatchment 23S: New Structure Roof	Runoff Area=926 sf 100.00% Impervious Runoff Depth>6.86" Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af
Pond 20P: Infiltration Pond	Peak Elev=24.35' Storage=482 cf Inflow=0.49 cfs 0.037 af Outflow=0.10 cfs 0.037 af
Pond 22P: Drip Edge	Peak Elev=0.83' Storage=202 cf Inflow=0.21 cfs 0.018 af Discarded=0.03 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.018 af
Pond 23P: Underground Reservoir	Peak Elev=24.36' Storage=82 cf Inflow=0.15 cfs 0.012 af Discarded=0.04 cfs 0.012 af Secondary=0.03 cfs 0.001 af Outflow=0.07 cfs 0.012 af
Link POA 1: South-East Off-Site	Inflow=0.78 cfs 0.055 af Primary=0.78 cfs 0.055 af
Link POA 2: North-East Off-Site	Inflow=0.15 cfs 0.012 af Primary=0.15 cfs 0.012 af

Total Runoff Area = 0.496 ac Runoff Volume = 0.134 af Average Runoff Depth = 3.23"
61.59% Pervious = 0.306 ac 38.41% Impervious = 0.191 ac

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Type III 24-hr 50-yr Rainfall=8.50"

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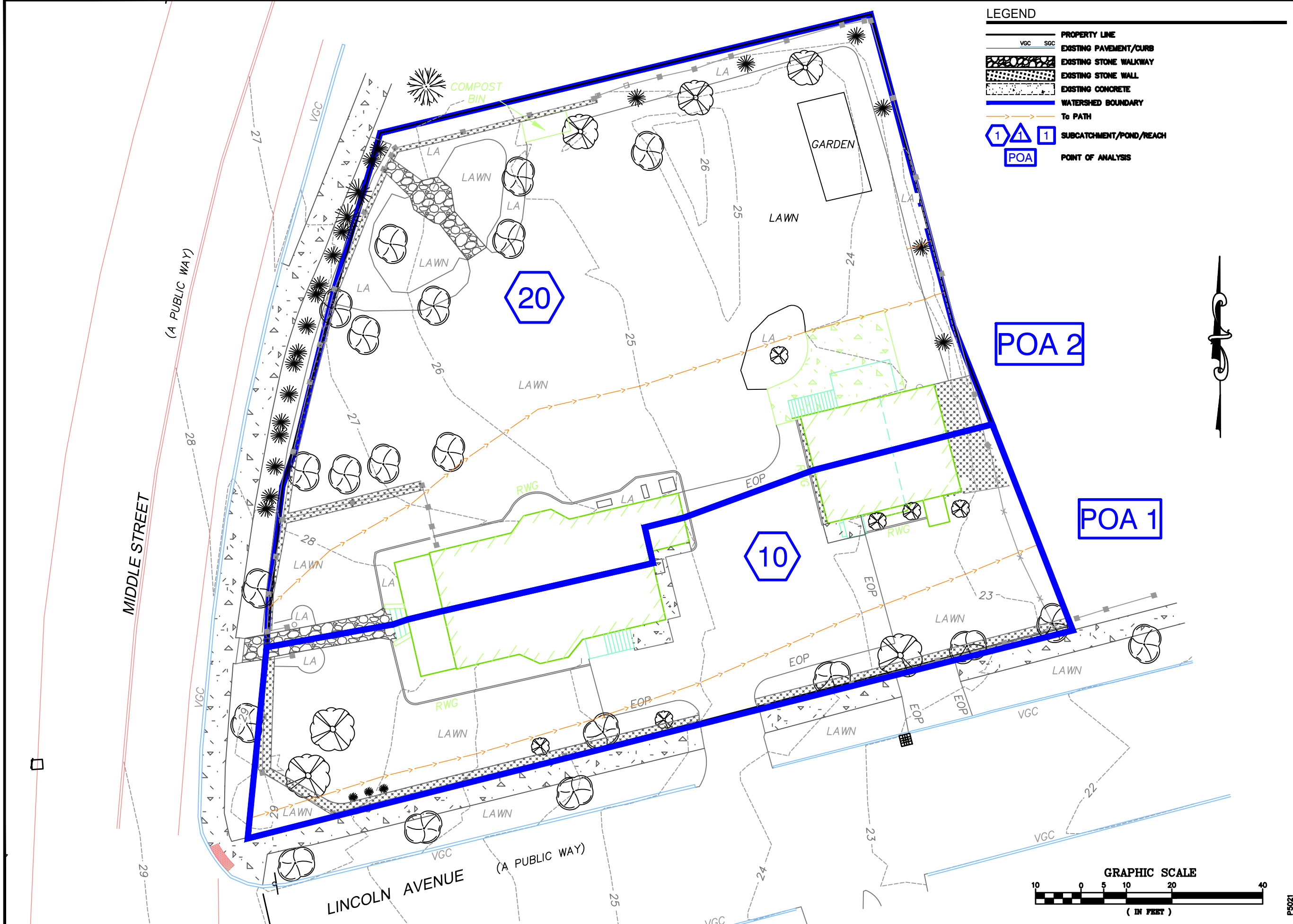
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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

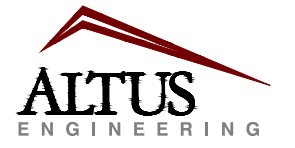
Subcatchment 10S: Driveway	Runoff Area=8,067 sf 42.98% Impervious Runoff Depth>4.77" Tc=6.0 min CN=69 Runoff=1.04 cfs 0.074 af
Subcatchment 20S: Lawn	Runoff Area=8,085 sf 27.74% Impervious Runoff Depth>3.36" Flow Length=97' Tc=6.0 min CN=57 Runoff=0.72 cfs 0.052 af
Subcatchment 21S: Behind New Structure	Runoff Area=3,205 sf 16.88% Impervious Runoff Depth>2.78" Flow Length=112' Tc=6.0 min CN=52 Runoff=0.23 cfs 0.017 af
Subcatchment 22S: New Structure Roof	Runoff Area=1,338 sf 84.23% Impervious Runoff Depth>8.25" Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af
Subcatchment 23S: New Structure Roof	Runoff Area=926 sf 100.00% Impervious Runoff Depth>8.25" Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af
Pond 20P: Infiltration Pond	Peak Elev=24.72' Storage=779 cf Inflow=0.72 cfs 0.053 af Outflow=0.13 cfs 0.053 af
Pond 22P: Drip Edge	Peak Elev=1.09' Storage=265 cf Inflow=0.26 cfs 0.021 af Discarded=0.03 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.021 af
Pond 23P: Underground Reservoir	Peak Elev=24.44' Storage=90 cf Inflow=0.18 cfs 0.015 af Discarded=0.04 cfs 0.013 af Secondary=0.08 cfs 0.002 af Outflow=0.12 cfs 0.015 af
Link POA 1: South-East Off-Site	Inflow=1.04 cfs 0.074 af Primary=1.04 cfs 0.074 af
Link POA 2: North-East Off-Site	Inflow=0.23 cfs 0.017 af Primary=0.23 cfs 0.017 af

Total Runoff Area = 0.496 ac Runoff Volume = 0.178 af Average Runoff Depth = 4.31"
61.59% Pervious = 0.306 ac 38.41% Impervious = 0.191 ac



LEGEND

- PROPERTY LINE
- EXISTING PAVEMENT/CURB
- EXISTING STONE WALKWAY
- EXISTING STONE WALL
- EXISTING CONCRETE
- WATERSHED BOUNDARY
- To PATH
- SUBCATCHMENT/POND/REACH
- POINT OF ANALYSIS



133 Court Street Portsmouth, NH 03801
 (603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: **TECHNICAL ADVISORY COMMITTEE**

ISSUE DATE: **DECEMBER 16, 2022**

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22

DRAWN BY: **MBS**
 APPROVED BY: **EDW**
 DRAWING FILE: **5021-SITE.dwg**

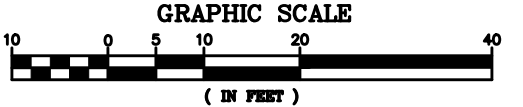
SCALE:
 (22"x34") 1" = 10'
 (11"x17") 1" = 20'

OWNER/APPLICANT:
NICOLE J. GIUSTO & DAVID A. SINCLAIR
 765 MIDDLE STREET
 PORTSMOUTH, NH 03801
 TAX MAP 148 PARCEL 37

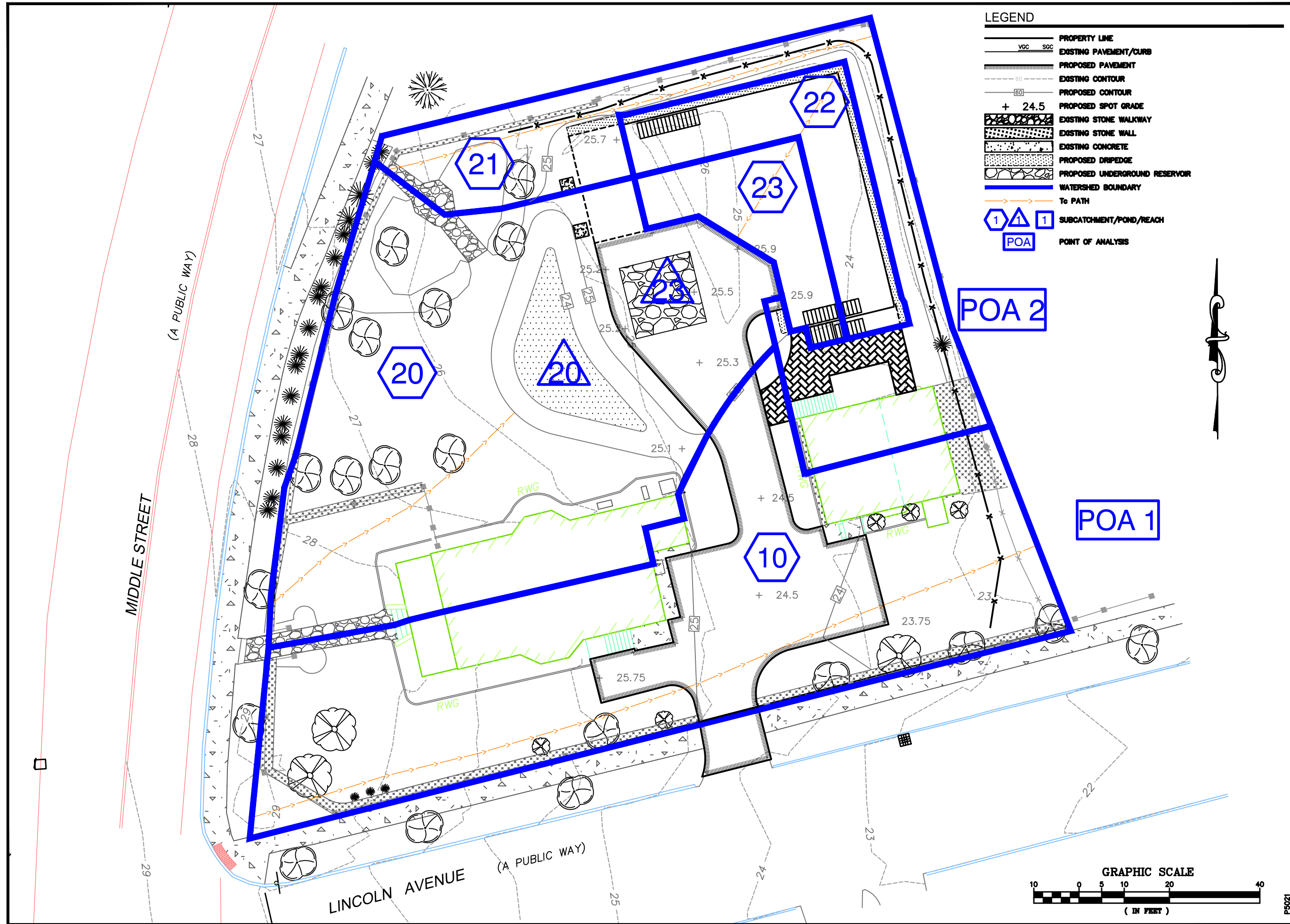
PROJECT:
 RESIDENTIAL DEVELOPMENT EXPANSION
 TAX MAP 148, LOT 37
 765 MIDDLE STREET
 PORTSMOUTH, NH

TITLE:
 PRE-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER:
WS-1



P5021



LEGEND

	PROPERTY LINE
	EXISTING PAVEMENT/CURB
	PROPOSED PAVEMENT
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT GRADE
	EXISTING STONE WALKWAY
	EXISTING STONE WALL
	EXISTING CONCRETE
	PROPOSED DRIPEDGE
	PROPOSED UNDERGROUND RESERVOIR
	WATERSHED BOUNDARY
	To PATH
	SUBCATCHMENT/POND/REACH
	POINT OF ANALYSIS

ALTUS
ENGINEERING

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: **TECHNICAL ADVISORY COMMITTEE**

ISSUE DATE: **DECEMBER 16, 2022**

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22

DRAWN BY: MBS
APPROVED BY: EDW
DRAWING FILE: 5021-SITE.dwg

SCALE:
(22"x34") 1" = 10'
(11"x17") 1" = 20'

OWNER/APPLICANT:

NICOLE J. GIUSTO &
DAVID A. SINCLAIR

765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT:

RESIDENTIAL DEVELOPMENT EXPANSION
TAX MAP 148, LOT 37

765 MIDDLE STREET
PORTSMOUTH, NH

TITLE:

POST-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER:

WS-2



**Civil
Site Planning
Environmental
Engineering**

133 Court Street
Portsmouth, NH
03801-4413

**“Green” Statement
3-BAY GARAGE AND APARTMENT
Assessor’s Map 148, Lot 37
765 Middle Street
Altus Project 5021
December 2022**

Pursuant to Section 2.5.3.1(a) of the Site Plan Review Regulations, Altus Engineering, Inc. respectfully submits the following list of the project’s “green” components for the construction of a new garage and apartment at 765 Middle Street.

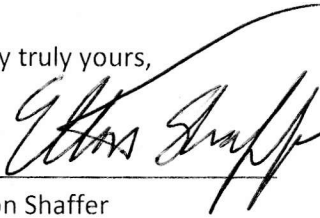
- The project is infill in a suburban area. The additional density in a developed landscape that does impact wetlands or wetland buffer is a green site design approach.
- The residential site was developed long before stormwater management was a consideration. A rain garden/bioretention basin and an infiltration basin will mitigate any runoff impacts and will provide treatment and groundwater recharge.
- A robust landscape planting plant with shade trees will reduce the heat island effect.
- The proposed 3-bay garage reduces the site impervious and improves stormwater runoff quality.
- The proposed site lighting will have LED fixtures. The lighting will be mounted at a maximum height of 14-feet. The lights will be dark sky friendly and will exceed the minimum City requirements.
- The existing mature trees along Middle Street and Lincon Avenue will be preserved.
- The new building will be code compliant building with components that will meet or exceed all applicable energy codes.
- The garage will be access via the existing driveway to avoid access on Middle Street and to minimize impervious coverage.

May 27th, 2022

To Whom it May Concern:

We Elton Shaffer and Paula Rais, own a property at 748 Middle St, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,



Elton Shaffer



Paula Rais

Sept 8th, 2022

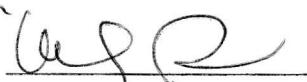
To Whom it May Concern:

We Peter Dawson and Karen Dawson, own a property at 648 Lincoln Ave, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,



Peter Dawson



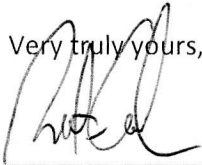
Karen Dawson

September 8th, 2022

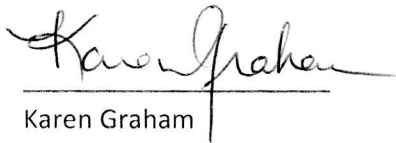
To Whom it May Concern:

We Robert Graham and Karen Graham, own a property at 664 Lincoln Avenue, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,



Robert Graham



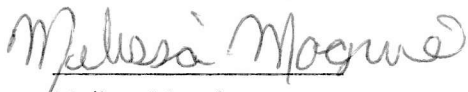
Karen Graham

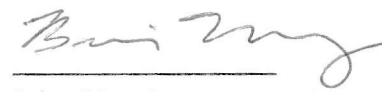
September 8th, 2022

To Whom it May Concern:

We Melissa & Brian Maguire, own a property at 774 Middle St #3, Portsmouth, New Hampshire. I am abutter to/ neighbor of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that I have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,


Melissa Maguire

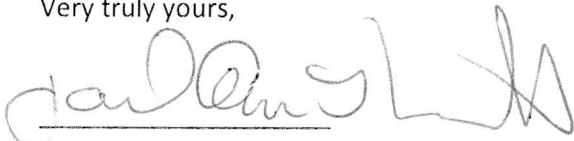

Brian Maguire

September 9th, 2022

To Whom it May Concern:

I Joel Ann Thibeault, own a property at 670 Lincoln Ave, Portsmouth, New Hampshire. I am abutter to/ neighbor of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that I have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,

A handwritten signature in black ink, appearing to read "Joel Ann Thibeault", written over a horizontal line.

Joel Ann Thibeault

September 9th, 2022

To Whom it May Concern:

We Patricia and Charles Corlin, own a property at 736 Middle St, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,



Patricia Corlin



Charles Corlin

Follow up re variance 765 Middle Street

Kristie Jorgensen <knejorg@gmail.com>
cc: sleddiver@gmail.com
cc: "Nathan H. Jorgensen" <nhjorgensen@mac.com>

Tue, Sep 20, 2022 at 10:22 AM

Dear David and Nicole,

We received your packet in our mailbox last week after returning from our trip traveling abroad. It was addressed to a "Carla" but we are the current owners across the street, located at 774 Middle Street, Unit 1, Portsmouth, NH.

My apologies for a delayed response but I am still ill with a Covid infection from our trip back home. I hope we are not too late in offering our support for your variance request. I just wanted to let you know that we, as abutters to the subject property at 765 Middle Street, Portsmouth, NH support your variance request and feel that it will be a very pleasant addition to the neighborhood. It does not impact parking or impact abutting structures and conforms nicely with the area and for the historic district.

Please feel free to reach out to us in the near future if you need further support in any way. As abutters and good neighbors, we are here to help.

All the best to you and your plans.

Kristie and Nathan Jorgensen
774 Middle Street, Unit 1
Portsmouth, NH 03801
Kristie's Cell: 603-767-7182
Email: knejorg@gmail.com

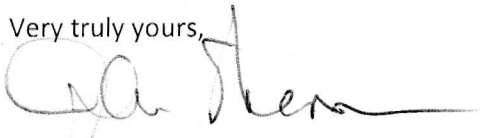
KRISTIE JORGENSEN
Vice President, Associate Broker, Realtor
Licensed in ME & NH
Legacy Properties Sotheby's International Realty
141 Maine Street, Brunswick, ME 04011
c 603-767-7182 | ME 207-200-5082
kjorgensen@legacysir.com
MyProfile | LegacySIR | SothebysRealty

January 9th, 2023

To Whom it May Concern:

We Marcia ~~Shearman~~^{Shearman} and John ~~Shearman~~^{Shearman}, own a property at 635 Lincoln Ave, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,



John & Marcia Shearman

January 9th, 2023

To Whom it May Concern:

We Shelley Vessels and Corey Vessels, own a property at ^{795 Middle St}~~635 Lincoln Ave~~, Portsmouth, New Hampshire. We are abutters to/ neighbors of David Sinclair and Nicole Giusto at 765 Middle Street, Portsmouth, NH. David and Nicole have provided me with their garage/dwelling project for which they are seeking relief from the Portsmouth zoning board of adjustment and Portsmouth Historic District Commission. This is to provide notice that we have no objection to the project. We support the granting of any and all variances or other relief required.

Very truly yours,


Corey & Shelly Vessels

RESIDENTIAL DEVELOPMENT EXPANSION

765 Middle Street
Portsmouth, NH

Assessor's Parcel 148, Lot 37

Plan Issue Date:

DECEMBER 16, 2022
JANUARY 30, 2023
MAY 8, 2023

TECHNICAL ADVISORY COMMITTEE
HDC REVIEW
PLANNING BOARD SUBMISSION

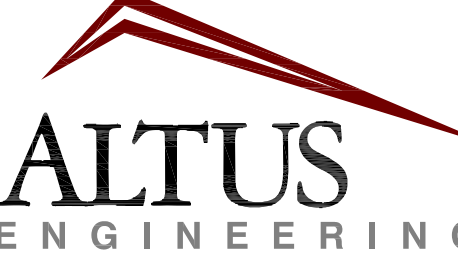
Owner/Applicant:

Nicole J. Giusto
David A. Sinclair
765 Middle Street
Portsmouth, NH 03801
(720) 244-2095

Surveyor:

James Verra
& Associates Inc.
LAND SURVEYORS
101 SHATTUCK WAY, SUITE 8
Newington, New Hampshire
03801-7876
Tel 603-436-3557

Civil Engineer:

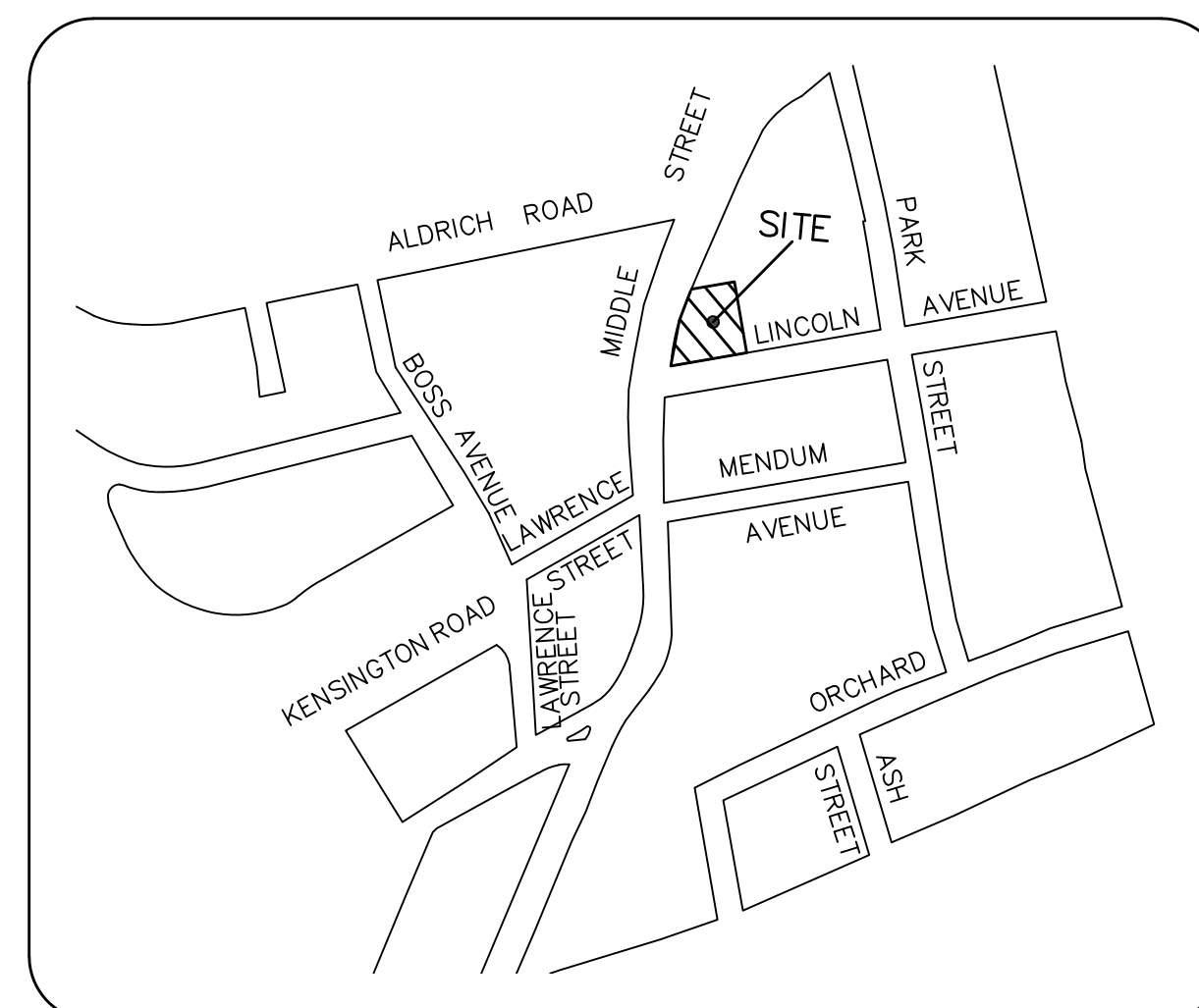

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

Landscape Architect:

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

Architectural Designer:

 Jennifer Ramsey,
Somma Studios
36 Maplewood Ave
Portsmouth, NH 03801
(603) 766-3760



LOCUS

NOT TO SCALE

Sheet Index
Title

Sheet No.: *Rev.* *Date*

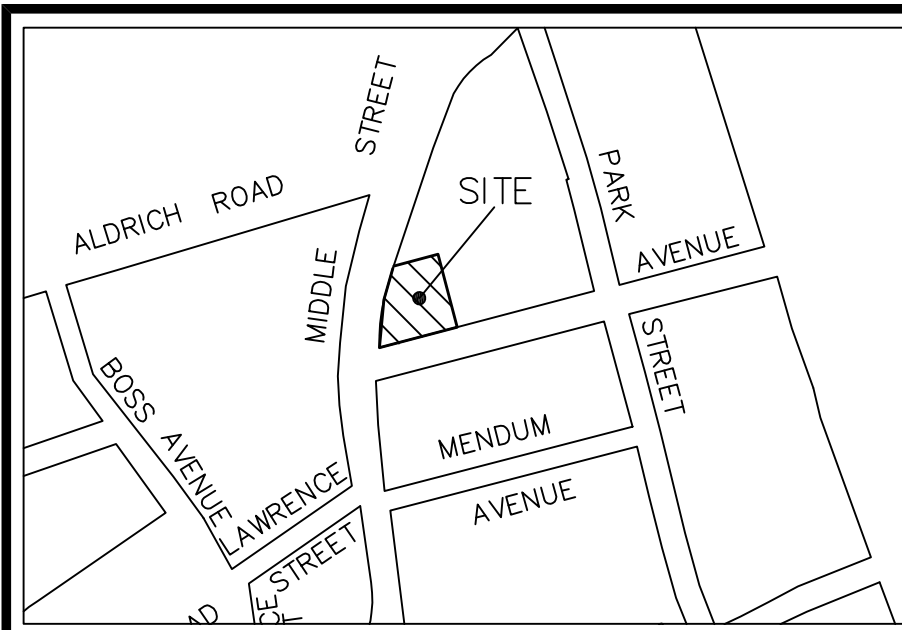
Existing Conditions Plan	EX-1	0	03/02/20
Site Preparation Plan	C-1	0	12/16/22
Recording Site Plan	C-2	2	05/08/23
Grading & Stormwater Plan	C-3	2	05/08/23
Utility Plan	C-4	2	05/08/23
Landscape Plan	L-1	3	04/07/23
Notes Sheet	D-1	0	12/16/22
Detail Sheet	D-2	0	12/16/22
Detail Sheet	D-3	0	12/16/22
Garage: Proposed First Floor (by SOMMA)	1	0	04/14/23
Garage: Proposed Second Floor (by SOMMA)	2	0	04/14/23
Architectural Elevation (by SOMMA)	-	0	04/14/23
Architectural Elevation (by SOMMA)	-	0	04/14/23

Permit Summary

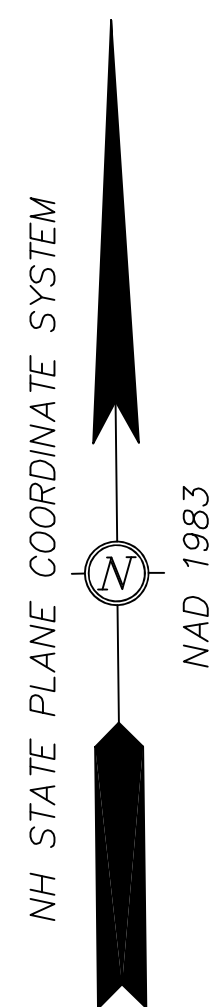
Received

City of Portsmouth HDC Approval
City of Portsmouth ZBA Approval
City of Portsmouth PB Approval

05/03/23
10/18/22
-



LOCUS
(N.T.S.)



RIM AND INVERT DATA

CB #1026 RIM = 22.71	SMH #5714 RIM = 21.55
(1) INV (6"HDPE)=18.51±	(1) INV (18"PVC)=14.05
(2) INV (6"PVC)=19.52	(2) INV (18"PVC)=13.93
(3) (WATER LEVEL)=18.41	
CB #1008 RIM = 28.82	SMH #5715 RIM = 29.00
(1) INV (12"PVC)=25.17	(1) INV CL=17.52
	(2) INV (15"PVC)=17.89
DMH #1010 RIM = 28.82	
INACCESSIBLE(LATCHED)	
CB #1030 RIM = 21.72	
(1) INV (6"HDPE)=18.92	
(2) INV (12"HDPE)=18.42	
(3) INV (12"HDPE)=18.32(WATER LEVEL)	

MISC. ELEVATION TABLE

LOCATION	DESCRIPTION	ELEVATION
"A"	WOOD THRESHOLD	31.31
"B"	TOP CONCRETE	24.68
"C"	WOOD THRESHOLD	31.30
"D"	WOOD THRESHOLD	26.37
"E"	TOP CONCRETE	25.42
"F"	TOP CONCRETE	25.84

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
L1	S 75°27'47" W	187.45
L2	N 05°38'52" E	78.07
L3	N 15°28'02" E	80.69
L4	N 76°23'57" E	111.18
L5	S 14°46'51" E	70.80
L6	S 21°33'57" E	71.07
L7	S 21°33'57" E	0.18(TIE)
L8	N 76°29'48" E	151.84

148-23
ELTON L. SHAFFER
PAULA M. RAIS
748 MIDDLE STREET
PORTSMOUTH, NH 03801
2693/2930

153-09
MIDDLE STREET
TOWNHOUSE CONDOMINIUMS

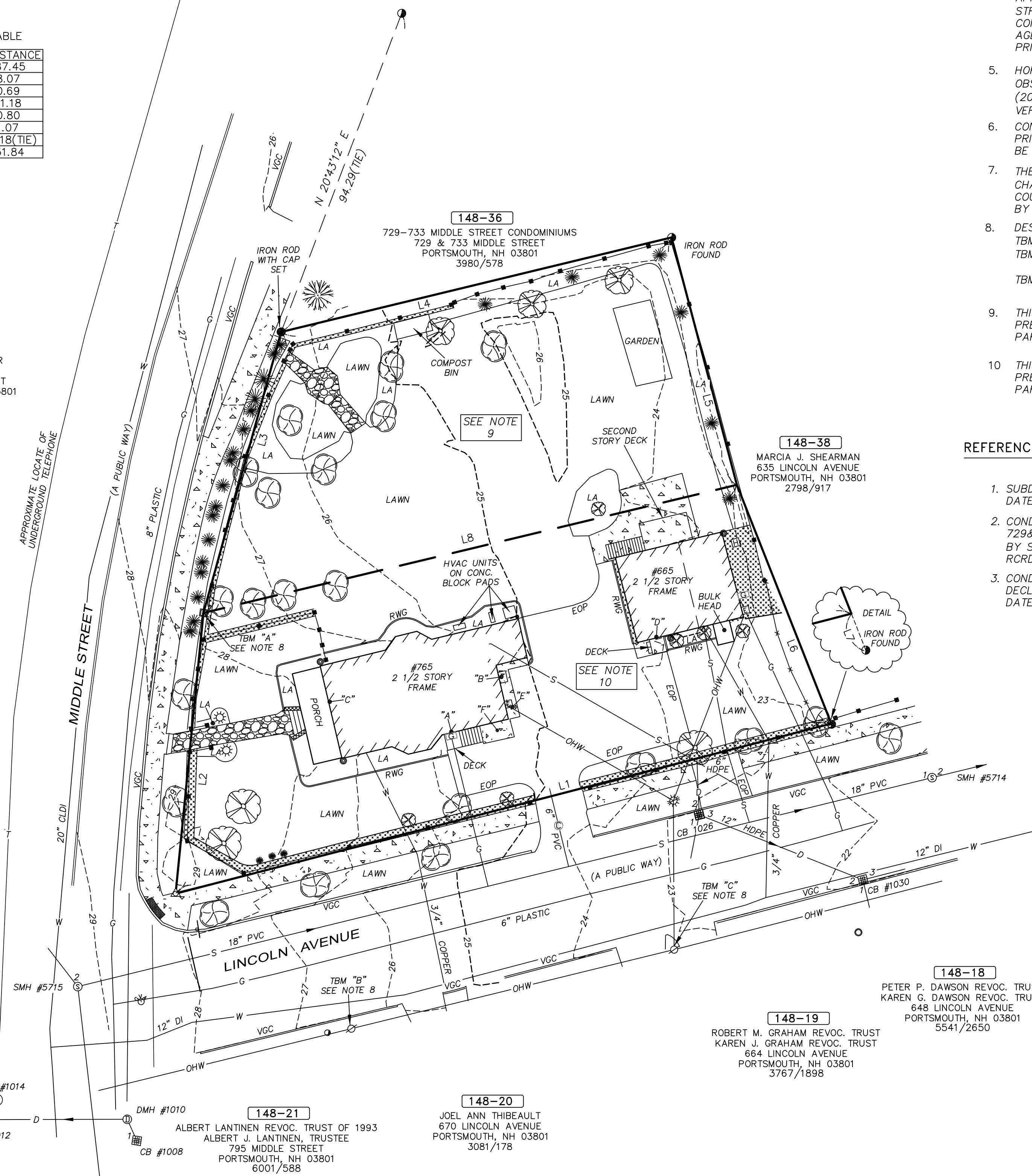
148-21
ALBERT LANTINEN REVOC. TRUST OF 1993
ALBERT J. LANTINEN, TRUSTEE
795 MIDDLE STREET
PORTSMOUTH, NH 03801
6001/588

148-20
JOEL ANN THIBEAULT
670 LINCOLN AVENUE
PORTSMOUTH, NH 03801
3081/178

148-19
ROBERT M. GRAHAM REVOC. TRUST
KAREN J. GRAHAM REVOC. TRUST
684 LINCOLN AVENUE
PORTSMOUTH, NH 03801
3767/1898

148-38
MARCIA J. SHEARMAN
635 LINCOLN AVENUE
PORTSMOUTH, NH 03801
2798/917

148-36
729-733 MIDDLE STREET CONDOMINIUMS
729 & 733 MIDDLE STREET
PORTSMOUTH, NH 03801
3980/578



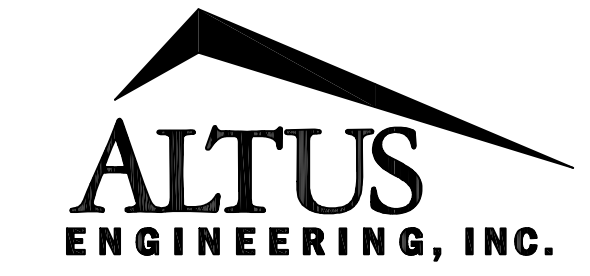
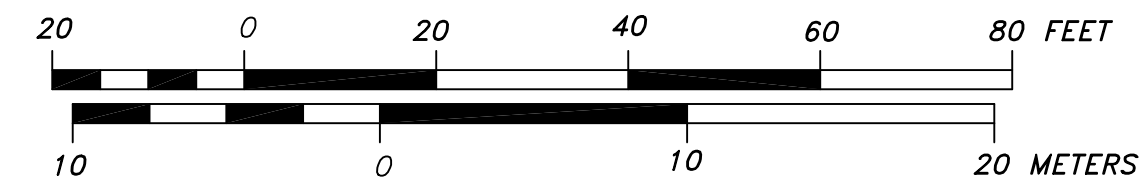
NOTES:

- OWNER OF RECORD.....DAVID A. SINCLAIR & NICOLE J. GIUSTO
ADDRESS.....765 MIDDLE STREET, PORTSMOUTH, NH 03801
DEED REFERENCE.....5543/442
TAX SHEET / LOT.....148-37
- ZONED.....GENERAL RESIDENCE A
MINIMUM LOT AREA...7,500 S.F. FRONT YARD SETBACK.....15'
FRONTAGE.....100' SIDE YARD SETBACK.....10'
PARCEL AREA.....21,504 S.F. 0.49 ACRES REAR YARD SETBACK.....20'
HISTORIC OVERLAY DISTRICT
- THE RELATIVE ERROR OF CLOSURE WAS LESS THAN 1 FOOT IN 15,000 FEET.
- THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG-SAFE @ 1-888-DIG-SAFE.
- HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011)(EPOCH: 2010.0000), US SURVEY FOOT.
VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: CITY OF PORTSMOUTH "ROBE"
- CONTRACTOR TO VERIFY SITE BENCHMARKS BY LEVELING BETWEEN 2 BENCHMARKS PRIOR TO THE ESTABLISHMENT OF ANY GRADES OR ELEVATIONS. DISCREPANCIES ARE TO BE REPORTED TO JAMES VERRA AND ASSOCIATES, INC..
- THE PARCEL SHOWN HEREON LIES WITHIN ZONE X (AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS IDENTIFIED ON FLOOD INSURANCE RATE MAP, ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0259E, EFFECTIVE DATE MAY 17, 2005 BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
- DESCRIPTIONS OF THE SITE BENCHMARKS:
TBM "A": MARKED SE CORNER GRANITE BOUND ELEVATION=27.83
TBM "B": SURVEY NAIL FOUND IN UTILITY POLE #PSNH 84/28 0.20' ABOVE GRADE ELEV.=27.63
TBM "C": SURVEY NAIL SET IN UTILITY POLE #NETT 5 1.0' ABOVE GRADE ELEV.=24.52
- THIS PARCEL IS SHOWN AS LOT PLAN 40, LOT 7 ON THE PORTSMOUTH TAX MAPS PREPARED BY JOHN W. DURGIN PRIOR TO 1979 & AS RCRD BK. 5543, PG. 442, PARCEL 2.
- THIS PARCEL IS SHOWN AS LOT PLAN 40, LOT 1 ON THE PORTSMOUTH TAX MAPS PREPARED BY JOHN W. DURGIN PRIOR TO 1979 & AS RCRD BK. 5543, PG. 442, PARCEL 1.

REFERENCE PLANS:

- SUBDIVISION OF LAND, PORTSMOUTH, NH. FOR EDWARD H. & EMMA L. PATERSON DATED MAY 1982 RCRD PLAN #C-11243
- CONDOMINIUM SITE PLAN, 729-733 MIDDLE STREET CONDOMINIUM FOR PROPERTY AT 729&733 MIDDLE STREET, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE OWNED BY SHAWN O. GORMAN & CARIANN M. GOODRICH-GORMAN DATED 12/17/02 RCRD PLAN #D-30540
- CONDOMINIUM SITE PLAN FOR 605 LINCOLN AVENUE, A CONDOMINIUM, MARK MCNALLY DECLARANT, TAX MAP 148, LOT 41, PORTSMOUTH, NH DATED 11-8-2008 RCRD PLAN #D-35685.

- LEGEND:**
- GRANITE BOUND FOUND
 - IRON ROD (AS NOTED)
 - ▲ SURVEY NAIL SET
 - × WOVEN VINYL FENCE
 - WOOD FENCE
 - CEMENT CONCRETE PAD
 - CRUSHED STONE
 - FLAG STONE
 - STONE RETAINING WALL
 - UTILITY POLE
 - ⊗ UTILITY POLE W/TRANSFORMER
 - GUY
 - OHV- OVERHEAD WIRES
 - OHE- OVERHEAD ELECTRIC
 - OHC- OVERHEAD COMMUNICATION WIRES
 - RCRD ROCKINGHAM COUNTY REGISTRY OF DEEDS
 - 137-01 TAX SHEET / LOT NO.
 - EOP EDGE OF PAVEMENT
 - LA LANDSCAPED AREA
 - CATCH BASIN
 - DRAIN MANHOLE
 - ROOF DOWNSPOUT
 - SEWER CLEAN OUT
 - SEWER MANHOLE
 - SEWER CLEAN OUT
 - W- WATER LINE
 - S- SEWER LINE
 - D- DRAIN LINE
 - G- GAS LINE
 - WATER GATE VALVE
 - WATER SHUT OFF VALVE
 - HYDRANT
 - VGC VERTICAL FACED GRANITE CURB
 - GRANITE COBBLESTONE BORDER WALL
 - PSNH PUBLIC SERVICE CO. OF NH
 - EVS EVERSOURCE
 - PP/PL PLASTIC GAS LINE
 - GAS METER
 - NETT NEW ENGLAND TELEPHONE AND TELEGRAPH CO.
 - PSNH PUBLIC SERVICE CO. OF NH
 - ELECTRIC METER



133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com

James Verra & Associates, Inc.
LAND SURVEYORS

101 SHATTUCK WAY - SUITE 8
NEWINGTON, N.H. 03801-7876
603-436-3557

JOB NO: 23826

ISSUED FOR: CLIENT REVIEW

ISSUE DATE: 3-2-2020

REVISIONS

NO.	DESCRIPTION	BY	DATE

DRAWN BY: GTD
APPROVED BY: JV
DRAWING FILE: 23826.DWG

SCALE:
22" x 34" - 1" = 20'
11" x 17" - 1" = 40'

APPLICANT:
DAVID A. SINCLAIR
NICOLE J. GIUSTO
765 MIDDLE STREET
PORTSMOUTH, NH 03801

OWNER:
DAVID A. SINCLAIR &
NICOLE J. GIUSTO
765 MIDDLE STREET
PORTSMOUTH, NH 03801

PROJECT:
EXISTING CONDITIONS
PLAN
**TAX MAP 148,
LOT 37**
**765 MIDDLE STREET
PORTSMOUTH, NH**

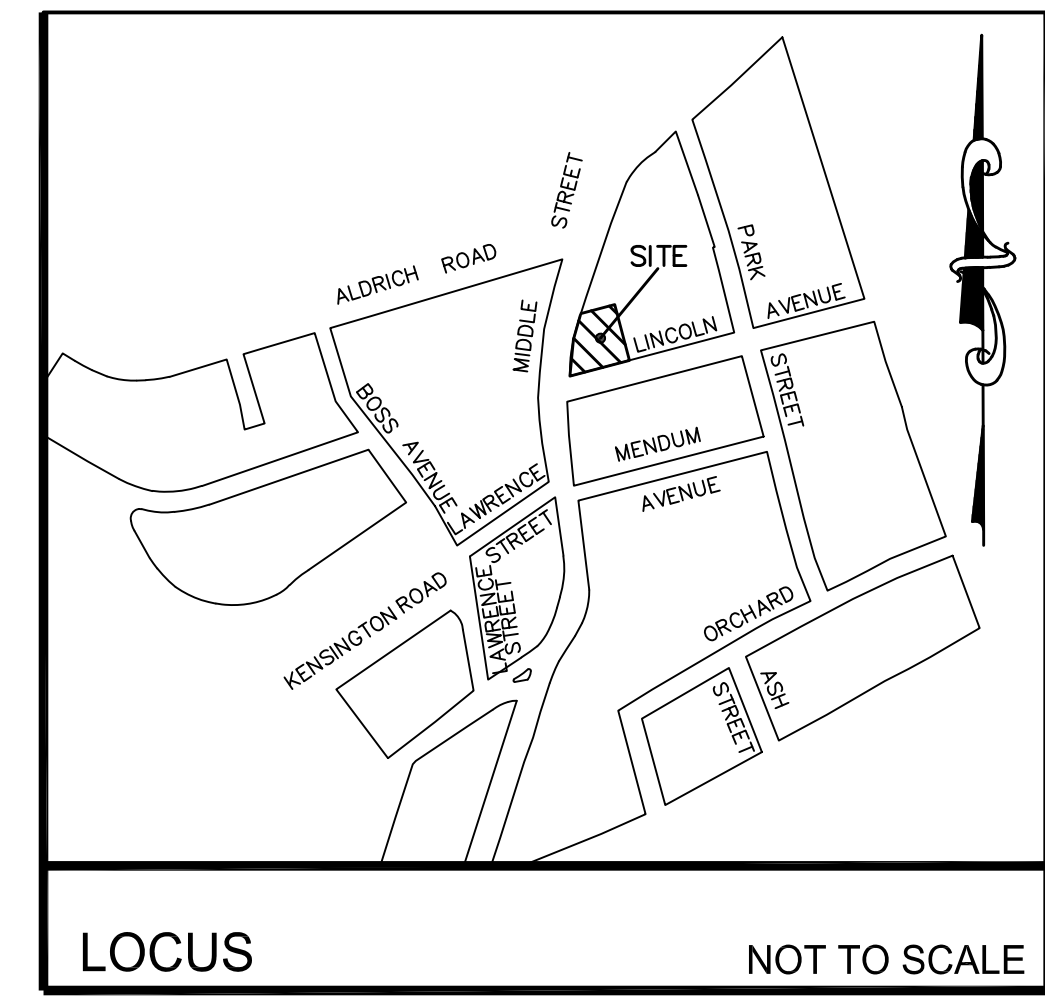
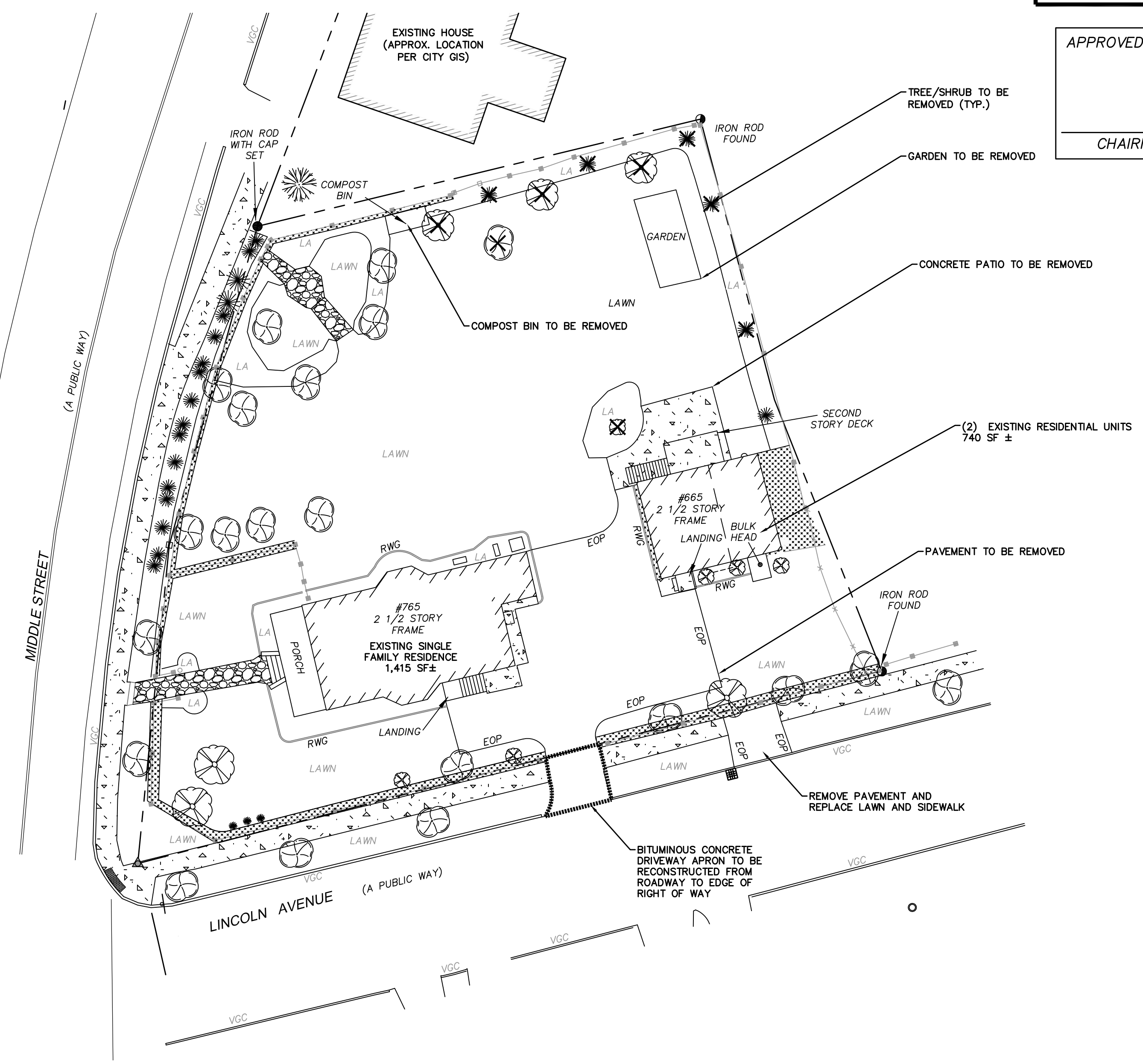
TITLE:
EXISTING
CONDITIONS PLAN
765 MIDDLE STREET
PORTSMOUTH, NH

SHEET NUMBER:
EX-1

P5021

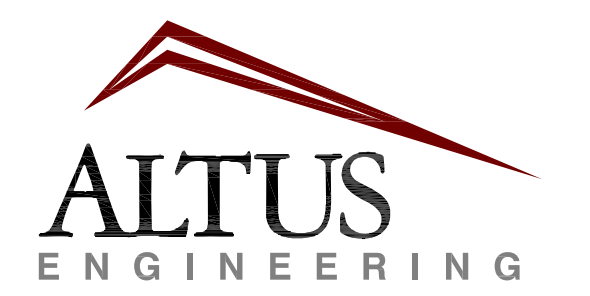
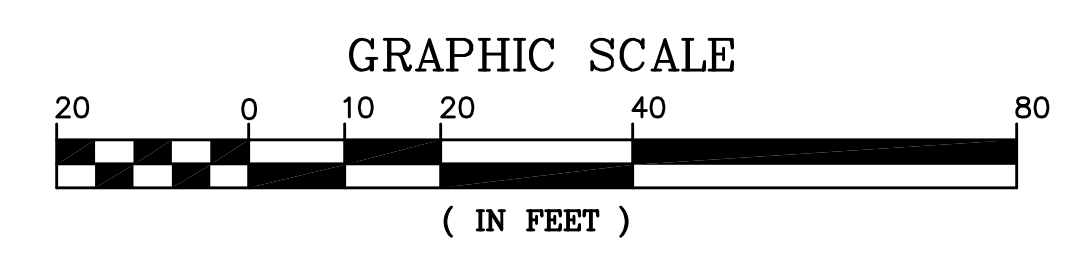
DEMOLITION NOTES

1. THE CONTRACTOR SHALL BRING ANY AND ALL DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS TO THE ATTENTION OF THE OWNER AND ENGINEER IMMEDIATELY FOR RESOLUTION.
2. THIS DEMOLITION PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR THE DEMOLITION OF EXISTING SITE FEATURES AND TO SHOW THE MAJOR ITEMS OF WORK REQUIRED FOR PREPARING THE SITE FOR THE CONSTRUCTION OF THE PROPOSED PROJECT. UNLESS OTHERWISE NOTED TO REMAIN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL PAVEMENT, CONCRETE, CURBING, SIGNS, POLES, UTILITIES, FENCES, VEGETATION AND OTHER EXISTING FEATURES, AS NECESSARY TO FULLY CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL INSPECT THE SITE PRIOR TO BIDDING AND BE RESPONSIBLE FOR PREPARING THE SITE FOR CONSTRUCTION AS NEEDED TO COMPLETE THE PROPOSED IMPROVEMENTS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR ANY DAMAGE DONE TO EXISTING UTILITIES AT NO EXTRA COST TO THE OWNER. UTILITY CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, OWNER, AND APPROPRIATE UTILITY COMPANIES.
4. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES SCHEDULED TO REMAIN.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY NOTIFICATION OF ALL PARTIES, CORPORATIONS, COMPANIES, INDIVIDUALS AND STATE AND LOCAL AUTHORITIES OWNING AND/OR HAVING JURISDICTION OVER ANY UTILITIES RUNNING TO, THROUGH OR ACROSS AREAS TO BE DISTURBED BY DEMOLITION AND/OR CONSTRUCTION ACTIVITIES WHETHER OR NOT SAID UTILITIES ARE SUBJECT TO DEMOLITION, RELOCATION, MODIFICATION AND/OR CONSTRUCTION.
6. ALL UTILITY DISCONNECTIONS/DEMOLITIONS/RELOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED EXCAVATION, TRENCHING AND BACKFILLING.
7. ALL BUILDINGS, CURBING, CONCRETE, PAVEMENT AND SUBBASE MATERIALS SHALL BE REMOVED FROM PROPOSED LANDSCAPE AREAS TO A MINIMUM DEPTH OF 12" BELOW FINISH GRADE AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPE PURPOSES AND MEETING THE PROJECT SPECIFICATIONS.
8. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
9. HAZARDOUS MATERIALS ENCOUNTERED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
10. THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG THE PROPERTY LINE IN ALL AREAS WHERE SILT FENCING IS NOT OTHERWISE REQUIRED.
11. SEE EROSION CONTROL PLANS FOR EROSION CONTROL REQUIREMENTS TO BE IN PLACE PRIOR TO START OF DEMOLITION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO; SEDIMENT BARRIERS, STABILIZED CONSTRUCTION SITE EXIT, AND STORM DRAIN INLET PROTECTION.
12. ALL DEMOLISHED MATERIAL OR MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
13. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BE LEGALLY DISPOSED IN ACCORDANCE WITH ALL LOCAL, STATE & FEDERAL REGULATIONS AND CODES.
14. INSTALL STABILIZED CONSTRUCTION EXIT; MAINTAIN AND RELOCATE DURING CONSTRUCTION, AS NEEDED BASED ON ACTIVE CONSTRUCTION STAGES.



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: APPROVAL

ISSUE DATE: DECEMBER 16, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22

DRAWN BY: MBS/RLH
APPROVED BY: EDW
DRAWING FILE: 5021-SITE.dwg

SCALE:
(22"x34") 1" = 20'
(11"x17") 1" = 40'

OWNER/APPLICANT:

NICOLE J. GIUSTO &
DAVID A. SINCLAIR

765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT:
RESIDENTIAL DEVELOPMENT EXPANSION
TAX MAP 148, LOT 37
765 MIDDLE STREET
PORTSMOUTH, NH

TITLE:
SITE PREPARATION PLAN

SHEET NUMBER:
C-1

P5021

SITE NOTES

- DESIGN INTENT – THIS PLAN SET IS INTENDED TO DEPICT A CONSTRUCTION OF A DETACHED GARAGE WITH A DWELLING UNIT ON THE SECOND FLOOR.
- APPROXIMATE LOT AREA: 21,504 SF
- ZONE: GRA
- ON OCTOBER 18, 2022, THE ZONING BOARD OF ADJUSTMENT APPROVED THE FOLLOWING VARIANCES:
 Section 10.513 TO ALLOW 3 PRINCIPAL DWELLINGS ON A LOT WHERE ONLY 1 IS ALLOWED.
 Section 10.521 TO ALLOW A LOT AREA OF 5,376 SF WHERE 7,500 SF IS REQUIRED PER DWELLING UNIT AND A REAR YARD WHERE 20- FEET IS REQUIRED.
- PARKING REQUIREMENTS:**
 RESIDENTIAL 1.3 SPACE PER DWELLING UNIT GFA OVER 750 SF
 4 DWELLING UNITS = 5.2 SPACES REQUIRED
 6 SPACES PROVIDED (UNSTRIPED)
- ON-SITE WETLANDS BUFFER ANALYSIS – NO WETLANDS ON THE PROPERTY OR WITHIN 75- FEET OF THE SITE
- AREA OF DISTURBANCE UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT NOT REQUIRED.
- SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN AREAS SHOWN HEREON, AND/OR TRUCKED OFF SITE AS APPROPRIATE.
- PAVEMENT MARKINGS – RESIDENTIAL USE – STRIPING NOT PROPOSED.
- ALL CONSTRUCTION SHALL MEET THE MINIMUM STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATION FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITIONS. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
- CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINES WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW PAVER SURFACE.
- ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
- BUILDING AREA SHOWN IS BASED ON FOOTPRINT MEASURED TO THE EDGE OF FOUNDATIONS AND/OR SLABS. ACTUAL INTERIOR SPACE WILL DIFFER.
- NO CHANGES TO THE DRIVEWAY WITHIN THE CITY RIGHT-OF-WAY IS PROPOSED.
- TRASH AND RECYCLING TO BE STORED INSIDE BUILDINGS.
- ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS
- THE OWNER SHALL HIRE A PROFESSIONAL ENGINEER OR CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL TO ANNUALLY INSPECT THE STORMWATER SYSTEM AND TO SUBMIT A REPORT TO THE CITY.

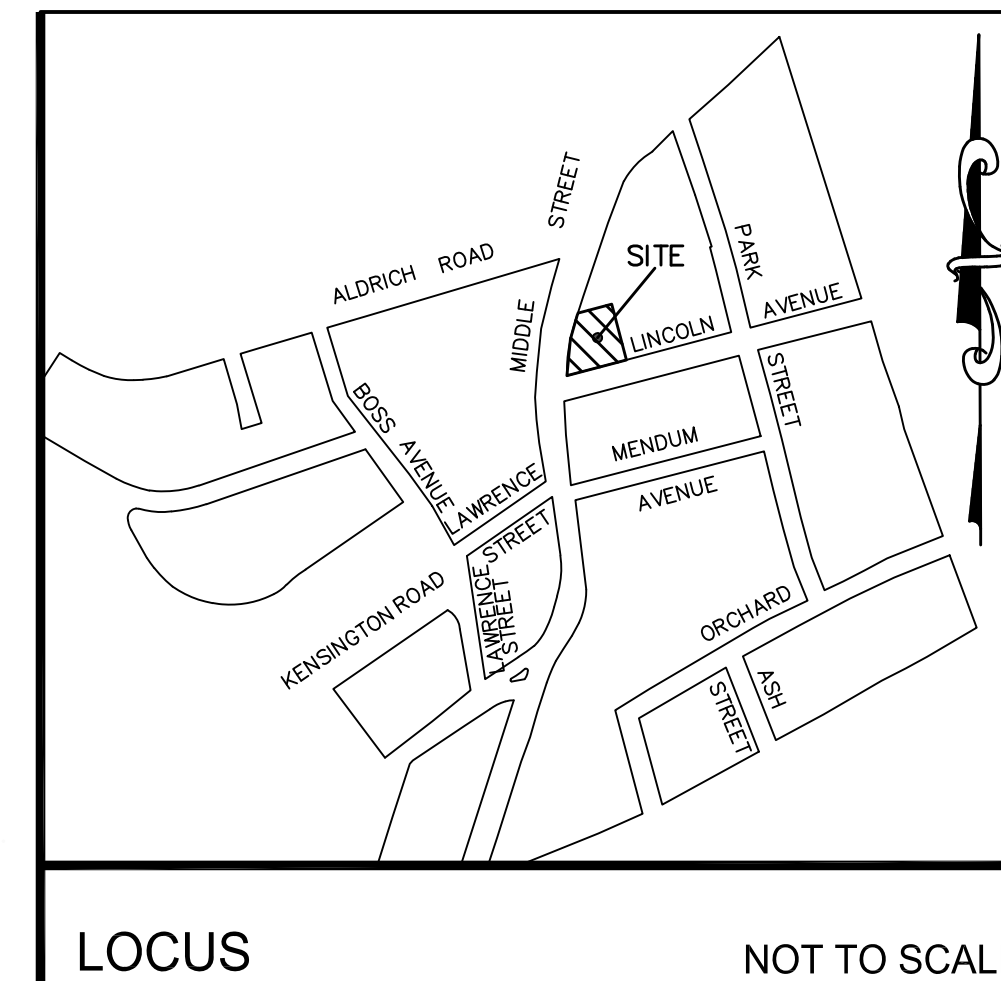
ZONING SUMMARY

ZONE: GRA (GENERAL RESIDENCE A)
 EXISTING LOT AREA: 0.49 AC±

DIMENSIONAL REQUIREMENTS

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA:	7,500 S.F.	21,504 S.F.	21,504 S.F.
MIN. LOT AREA PER DWELLING UNIT:	7,500 S.F.	7,168 S.F.±	5,376 S.F.± **
DWELLING UNITS:	3	3	4 ***
MIN. STREET FRONTAGE:	100'	158' (MIDDLE ST.)	158'±
MIN. LOT DEPTH:	70'	111'±	111'±
FRONT SETBACK: *	15'	26.1'±(EX.)(MIDDLE ST.)	26.1'±
		19.5'±(EX.)(LINCOLN ST.)	19.5'±
		74'±(EX.)	10.0' (NEW)**
SIDE SETBACK:	10'	10.0' (EX.)	8.7'± (EX.)
REAR SETBACK:	20'	8.7'±(EX)	10.0' (NEW)
			<35' (PROP.)
MAX. HEIGHT:	35'	<35' (EX.)	<35' (PROP.)
MAX. BUILDING COVERAGE:	25%	12.1%±(INCL. DECKS)	21.2%± (INCL. DECKS)
MIN. OPEN SPACE:	30%	70.6%±	59.8%±

* FRONT SETBACK IS FROM BOTH STREET ADDRESS STREET AND ACCESS STREET
 ** VARIANCES FROM SECTION 10.521 TO ALLOW 1) A LOT AREA PER DWELLING OF 5,376 S.F. WHERE 7,500 IS REQUIRED PER UNIT AND 2) A 10 FOOT REAR YARD WHERE 20 FEET IS REQUIRED
 *** VARIANCE FROM SECTION 10.513 TO ALLOW 3 PRINCIPAL DWELLINGS ON A LOT WHERE ONLY 1 IS ALLOWED PER LOT



LOCUS NOT TO SCALE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

RECORDING OF THIS PLAN IS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR JAMES VERRA & ASSOCIATES, INC.

DATE

148-38
 MARCIA J. SHEARMAN REVOC. TRUST
 JOHN SHEARMAN REVOC. TRUST
 635 LINCOLN AVENUE
 PORTSMOUTH, NH 03801
 6400/2444

148-18
 PETER P. DAWSON REVOC. TRUST
 KAREN G. DAWSON REVOC. TRUST
 648 LINCOLN AVENUE
 PORTSMOUTH, NH 03801
 5541/2650

148-19
 ROBERT M. GRAHAM REVOC. TRUST
 KAREN J. GRAHAM REVOC. TRUST
 664 LINCOLN AVENUE
 PORTSMOUTH, NH 03801
 3767/1898

148-21
 COREY T. &
 SHELLY A. VESSELS
 795 MIDDLE STREET
 PORTSMOUTH, NH 03801
 6443/784

148-20
 JOEL ANN THIBEAULT
 670 LINCOLN AVENUE
 PORTSMOUTH, NH 03801
 3081/178

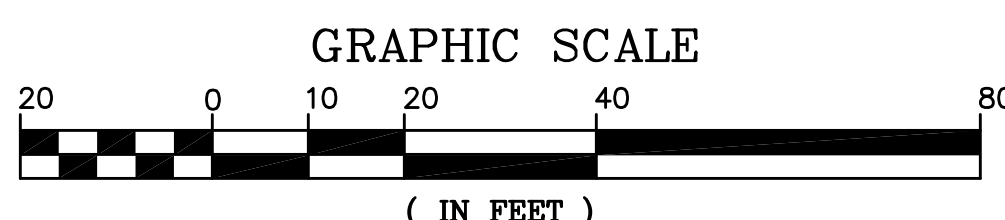
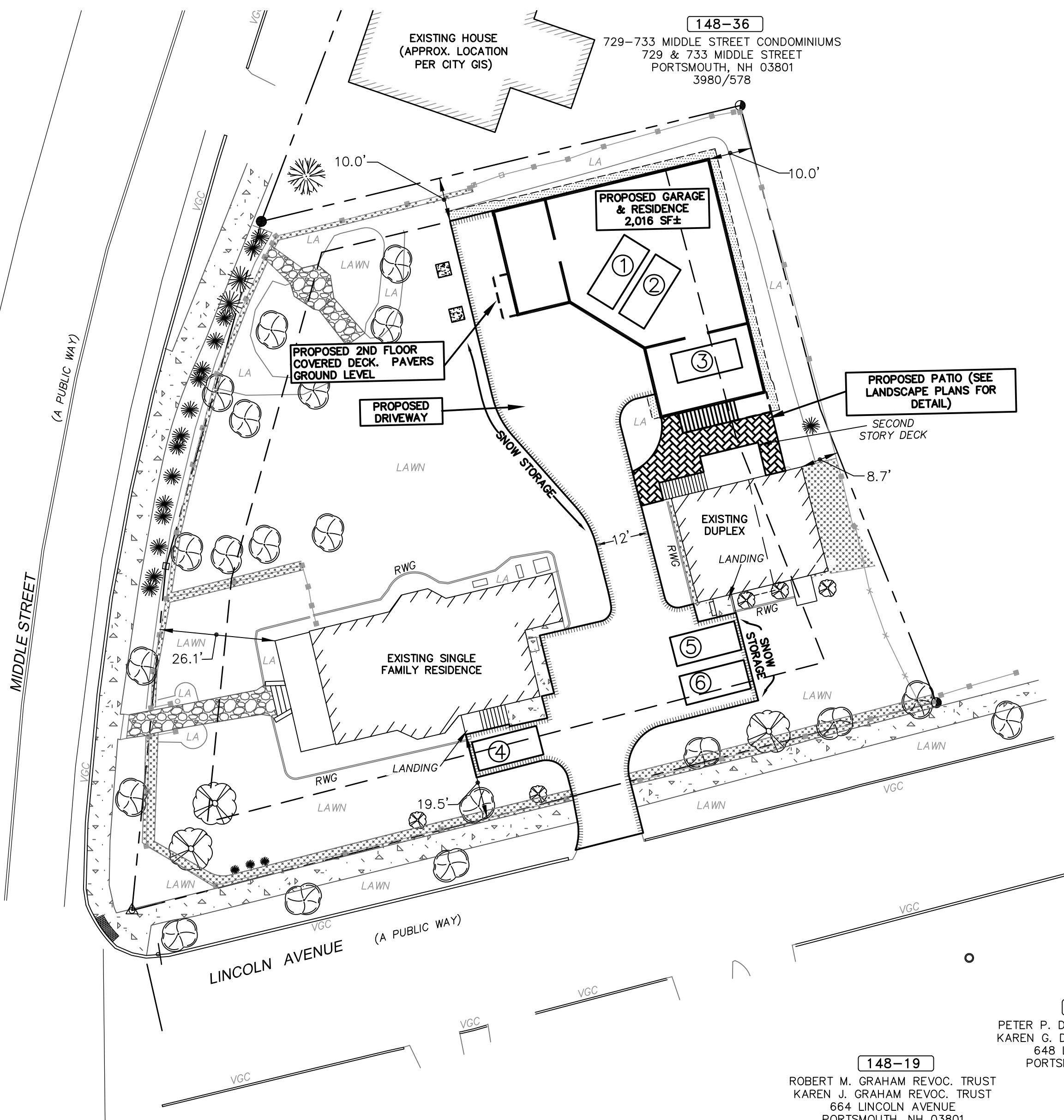
148-23
 ELTON L. SHAFFER
 PAULA M. RAIS
 748 MIDDLE STREET
 PORTSMOUTH, NH 03801
 2693/2930

153-09
 MIDDLE STREET
 TOWNHOUSE CONDOMINIUMS
 UNIT 1
 JORGENSEN FAMILY TRUST
 NATHAN H. & KRISTIE L. JORGENSEN, TRUSTEES
 774 MIDDLE STREET UNIT 1
 PORTSMOUTH, NH 03801
 5684/1841

UNIT 2
 STACEY CARLA SIMONOFF
 774 MIDDLE STREET UNIT 2
 PORTSMOUTH, NH 03801
 6155/990

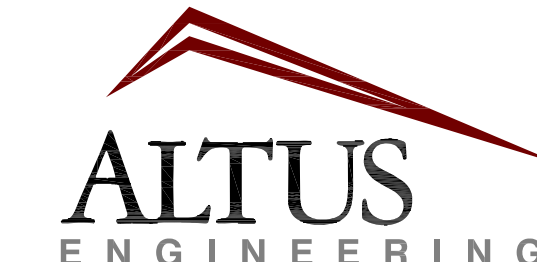
UNIT 3
 BRIAN T. &
 MELLISSA J. MAGUIRE
 774 MIDDLE STREET UNIT 3
 PORTSMOUTH, NH 03801
 5662/2283

UNIT 4
 ALISON L. PYOTT &
 CHRISTOPHER J. PYOTT
 774 MIDDLE STREET UNIT 4
 PORTSMOUTH, NH 03801
 3295/1018

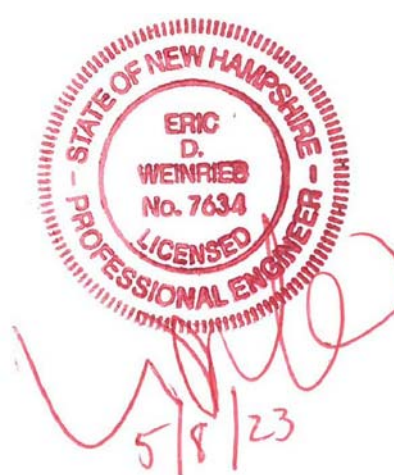


LEGEND

- PROPERTY LINE
- - - BUILDING SETBACK
- VGC SGC EXISTING PAVEMENT/CURB
- ██████████ PROPOSED PAVEMENT
- ▨▨▨▨▨▨ PROPOSED SAWCUT
- ▨▨▨▨▨▨ EXISTING STONE WALKWAY
- ▨▨▨▨▨▨ EXISTING STONE WALL
- ▨▨▨▨▨▨ PROPOSED DRIPEDGE



133 Court Street Portsmouth, NH 03801
 (603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: MAY 8, 2023

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22
1	BLDG. MINOR REVISION	EDW	1/30/23
2	PB SUBMISSION	EDW	05/08/23

DRAWN BY: MBS/RLH
 APPROVED BY: EDW
 DRAWING FILE: 5021-SITE.dwg

SCALE:
 (22"x34") 1" = 20'
 (11"x17") 1" = 40'

OWNER/APPLICANT:
 NICOLE J. GIUSTO &
 DAVID A. SINCLAIR
 765 MIDDLE STREET
 PORTSMOUTH, NH 03801
 TAX MAP 148 PARCEL 37

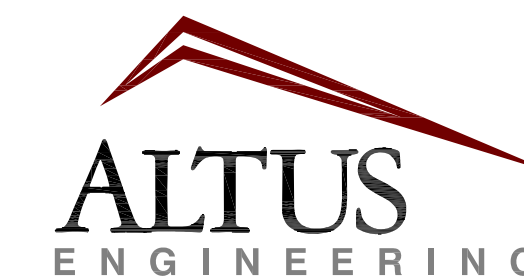
PROJECT:
 RESIDENTIAL
 DEVELOPMENT
 EXPANSION
 TAX MAP 148, LOT 37
 765 MIDDLE STREET
 PORTSMOUTH, NH

TITLE:
 RECORDING
 SITE PLAN (C-2)

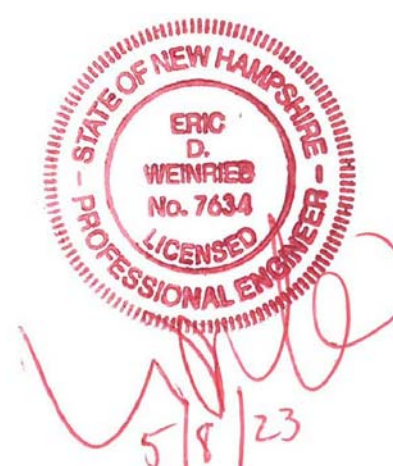
SHEET NUMBER:
 1 of 1

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: **PLANNING BOARD**

ISSUE DATE: **MAY 8, 2023**

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22
1	BLDG. MINOR REVISION	EDW	1/30/23
2	PB SUBMISSION	EDW	05/08/23

DRAWN BY: _____ MBS/RLH
APPROVED BY: _____ EDW
DRAWING FILE: _____ 5021-SITE.dwg

SCALE:
(22"x34") 1" = 10'
(11"x17") 1" = 20'

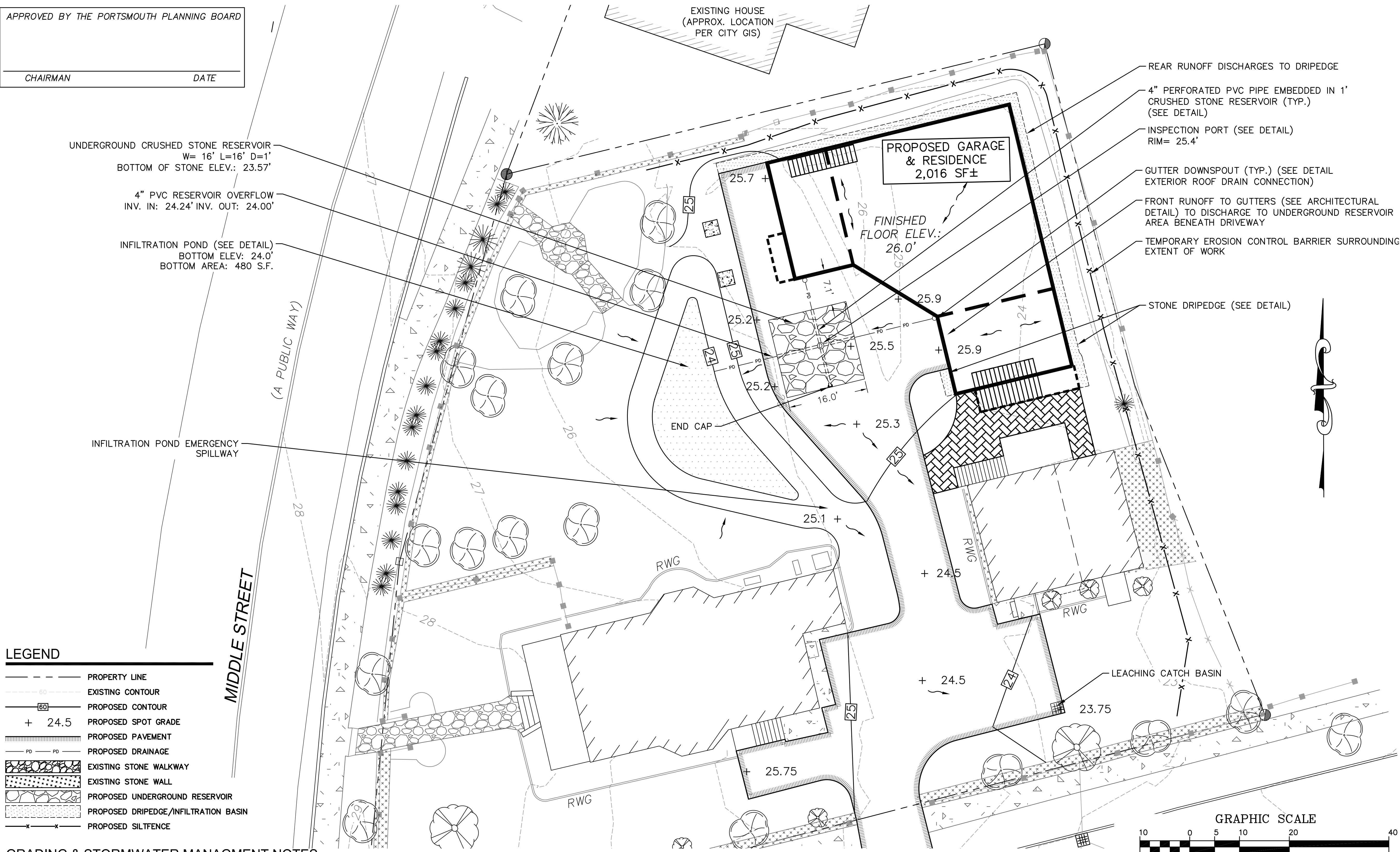
OWNER/APPLICANT:
**NICOLE J. GIUSTO &
DAVID A. SINCLAIR**

765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT:
**RESIDENTIAL
DEVELOPMENT
EXPANSION**
TAX MAP 148, LOT 37
765 MIDDLE STREET
PORTSMOUTH, NH

TITLE:
**GRADING &
STORMWATER PLAN**

SHEET NUMBER:
C-3

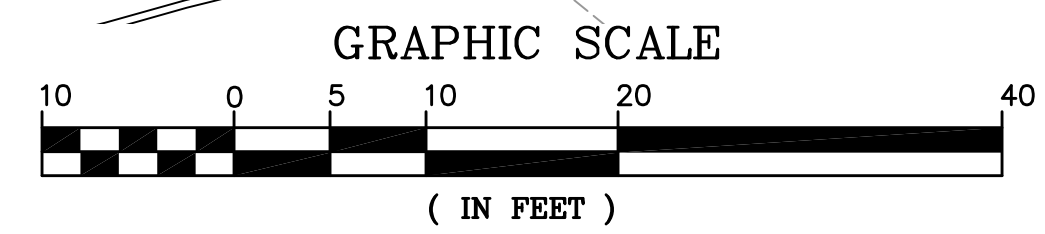


LEGEND

---	PROPERTY LINE
---	EXISTING CONTOUR
---	PROPOSED CONTOUR
+ 24.5	PROPOSED SPOT GRADE
---	PROPOSED PAVEMENT
---	PROPOSED DRAINAGE
---	EXISTING STONE WALKWAY
---	EXISTING STONE WALL
---	PROPOSED UNDERGROUND RESERVOIR
---	PROPOSED DRIPEDGE/INFILTRATION BASIN
---	PROPOSED SILTFENCE

GRADING & STORMWATER MANAGMENT NOTES

- DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
- ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
- UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
- PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
- NO EARTHWORK SHALL COMMENCE UNTIL ALL APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND THE SITE IS STABILIZED.
- PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
- CONTRACTOR SHALL CONTROL DUST BY SPRAYING WATER, SWEEPING PAVED SURFACES, PROVIDING TEMPORARY VEGETATION, AND/OR MULCHING EXPOSED AREAS AND STOCKPILES.
- ALL ROOF DRAIN RISERS SHALL BE LOCATED IN COORDINATION WITH THE ARCHITECTURAL PLANS TO MATCH GUTTER DOWNSPOUTS. RISERS SHALL BE SET TO FINISH GRADE PLUS 1" (MIN.).
- ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS AND LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
- ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
- IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. SYMBOLS MAY NOT BE INDICATIVE OF THE CENTER OF A STRUCTURE, PARTICULARLY WHEN SHOWN ADJACENT TO A CURB LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.
- UPON COMPLETION OF CONSTRUCTION, ALL DRAINAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
- UPON COMPLETION OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED BY THE REMOVAL SMOOTHED AND REVEGETATED.



P5021

- LEGEND**
- PROPERTY LINE
 - PS PROPOSED SEWER SERVICE
 - PW PROPOSED WATER SERVICE
 - + 24.5 PROPOSED SPOT GRADE
 - PROPOSED PAVEMENT
 - PD PROPOSED DRAINAGE
 - EXISTING STONE WALKWAY
 - EXISTING STONE WALL
 - PROPOSED CONCRETE PAD
 - PROPOSED DRIPEDGE/INFILTRATION BASIN
 - PG PROPOSED GAS LINE
 - UGE PROPOSED UNDERGROUND UTILITIES

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

PROPOSED MECH & HVAC PADS (TYP.) FINAL SIZE, LOCATION, AND QUANTITY BY OTHERS

APPROXIMATE LOCATE OF UNDERGROUND TELEPHONE (A PUBLIC WAY)

8" PLASTIC

REPLACE EXISTING SEWER MATCH TO EXISTING INVERT AT FOUNDATION WALL

PROPOSED CLEANOUT (SEE DETAIL)

CAP EXISTING SEWER SERVICE FROM HOUSE

CONNECT TO EXISTING SEWER STUB

REPLACE EXISTING 3/4" WATER SERVICE WITH NEW 1" DOMESTIC WATER LINE TO FEED MAIN HOUSE

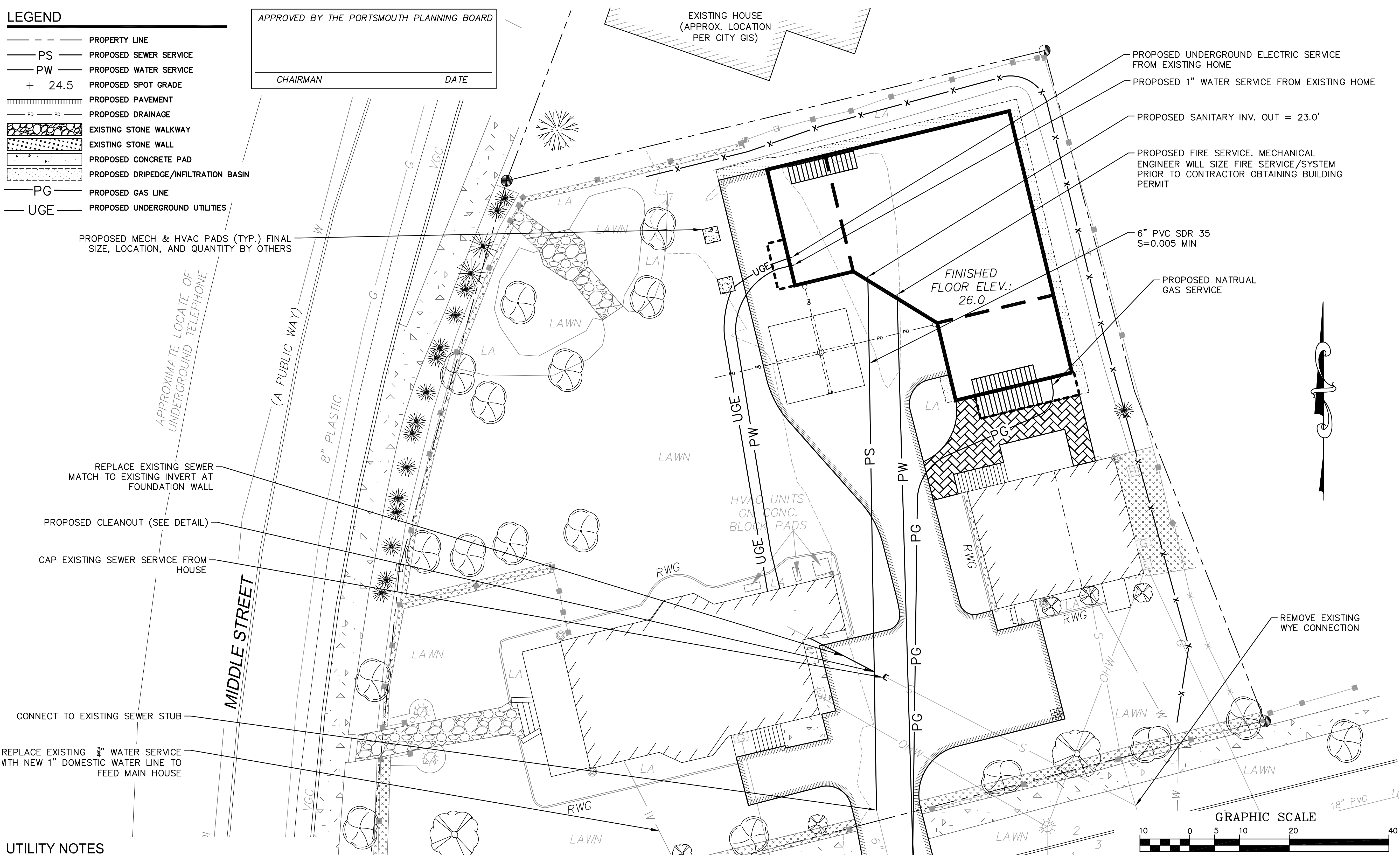
UTILITY NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.

4. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH NHDOT, THE PORTSMOUTH POLICE DEPARTMENT AND DPW AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
6. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
7. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
8. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
9. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDING. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND

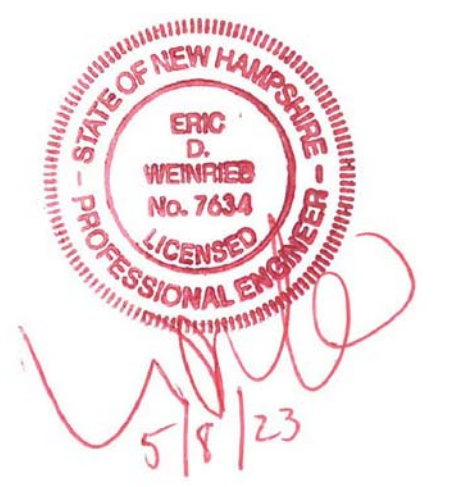
- DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO COMMENCING RELATED WORK.
10. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE ARCHITECT, CONTRACTOR, APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DPW.
 11. UTILITY PROVIDERS AND CONTACTS:
 - WATER & SEWER: PORTSMOUTH DPW, JIM TOW, (603) 427-1530.
 - GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144.
 - TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
 - CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
 - ELECTRICAL: EVERSOURCE, MICHAEL BUSBY, (603) 352-4227, EXT. 5555334. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL, 48-HOUR MINIMUM NOTICE REQUIRED.
 12. CONTRACTOR TO PROVIDE BOLLARDS AT SERVICE ENTRANCES PER THE SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
 13. ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL BE CONSTRUCTED AND TESTED PER PORTSMOUTH DPW STANDARDS AND SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE TO THE STANDARDS AND SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.

14. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
15. WATER AND SANITARY SEWER LINES SHALL BE LOCATED AT LEAST 10' HORIZONTALLY FROM EACH OTHER. WHERE CROSSING, 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER INSTALLED OVER SEWER.
16. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDINGS. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY PRIOR TO COMMENCING RELATED WORK.
17. ALL MEANS, METHODS, MATERIALS AND INSTALLATION OF NEW SEWER LATERALS SHALL BE APPROVED AND WITNESSED BY PORTSMOUTH DPW PRIOR TO BACKFILLING.
18. THE CONTRACTOR SHALL CONFIRM ALL WATERLINE SIZES WITH THE MEP PLANS PRIOR TO INSTALLATION. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



ALTUS ENGINEERING

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com



NOT FOR CONSTRUCTION

ISSUED FOR: **PLANNING BOARD**

ISSUE DATE: **MAY 8, 2023**

REVISIONS NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	12/16/22
1	BLDG. MINOR REVISION	EDW	1/30/23
2	PB SUBMISSION	EDW	05/08/23

DRAWN BY: _____ MBS/RLH

APPROVED BY: _____ EDW

DRAWING FILE: _____ 5021-SITE.dwg

SCALE:

(22"x34") 1" = 10'

(11"x17") 1" = 20'

OWNER/APPLICANT:

NICOLE J. GIUSTO & DAVID A. SINCLAIR

765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT:

RESIDENTIAL DEVELOPMENT EXPANSION

TAX MAP 148, LOT 37

765 MIDDLE STREET
PORTSMOUTH, NH

TITLE:

UTILITY PLAN

SHEET NUMBER:

C-4

P5021

Do not heavily prune the tree at planting. Prune only cross-over limbs, co-dominant leaders, and broken or dead branches. Some interior twigs and lateral branches may be pruned; however, Do NOT remove the terminal buds of branches that extend to the edge of the crown.

Trees less than 3" in caliper shall be staked with three stakes per tree, spaced evenly around the trunk with 12 gauge wire. Plastic hose sections shall be used at attachment to trees. Each wire shall be flagged with a visual marker. 5' long min. wooden stakes shall be used to anchor the wires. Stakes shall be driven at least 12" outside the edge of the planting pit into stable soil. Remove all staking NO LATER than the end of the first growing season after planting.

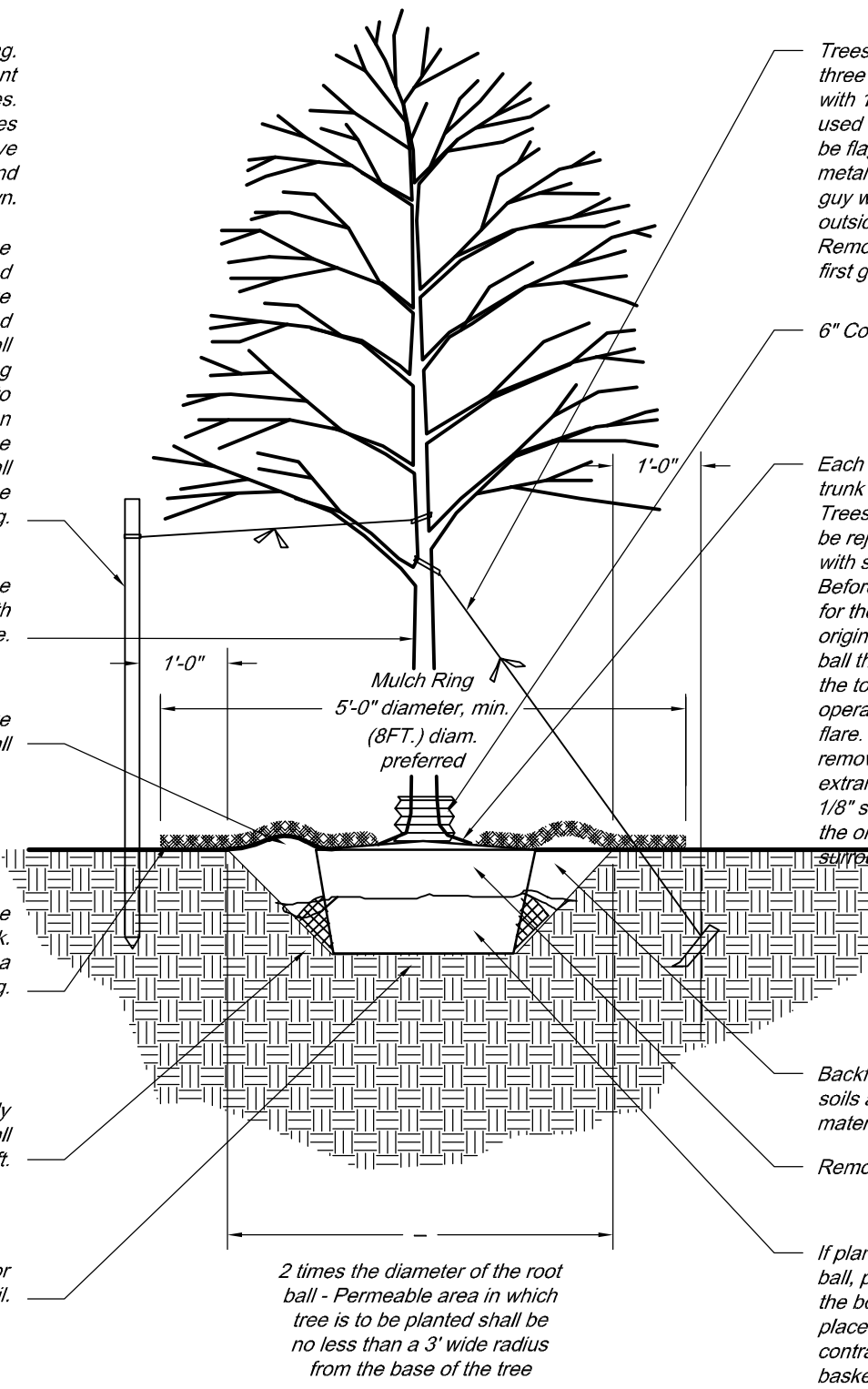
Mark the north side of the tree in the nursery. Rotate the tree to face north at the site whenever possible.

4 in. high earth saucer beyond edge of root ball

2 IN. max. Mulch. Do NOT place mulch in contact with tree trunk. Maintain the mulch weed-free for a minimum of three years after planting.

Tamp soil around root ball base firmly with foot pressure so that root ball does not shift.

Place root ball on unexcavated or tamped soil.



Trees greater than 3" in caliper shall be guyed with three guys per tree, spaced evenly around the trunk with 12 gauge wire. Plastic hose sections shall be used at attachment to trees. Each guy wire shall be flagged with a visual marker. 24" stakes or metal drive anchors shall be used to anchor the guy wires. Stakes/Anchors shall be driven 12" min. outside the edge of the planting pit into stable soil. Remove all guying NO LATER than the end of the first growing season after planting.

6" Corrugated PVC tree sock

Each tree must be planted such that the original trunk flare is visible at the top of the root ball. Trees where the original trunk flare is not visible may be rejected. Do NOT cover the top of the root ball with soil. Before planting Contractor shall inspect the rootball for the location of the original root flare. If the original root flare is not visible at the top of the root ball then the Contractor shall then gently remove from the top of the root ball any excess soil from nursery operations that may be covering the original root flare. All secondary and girdling roots shall be removed prior to planting. Trees with 4" or more of extraneous soil and/or adventitious roots greater than 1/8" shall be rejected. The tree shall be planted with the original root flare at or slightly (2-3") above surrounding finished grade.

Backfill with existing soil, in sandy and heavy clay soils add 20% max. by volume composted organic material to the existing soil. Remove all twine, rope, wire, and butrap

If plant is shipped with a wire basket around the root ball, prior to planting, the contractor shall cut away the bottom of the wire basket, leaving the sides in place. Once the tree is placed and faced, the contractor shall remove the remainder of the wire basket and backfill the planting pit as noted above.

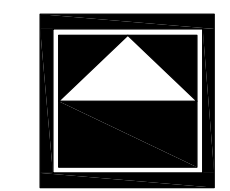
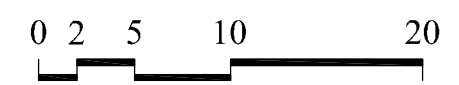
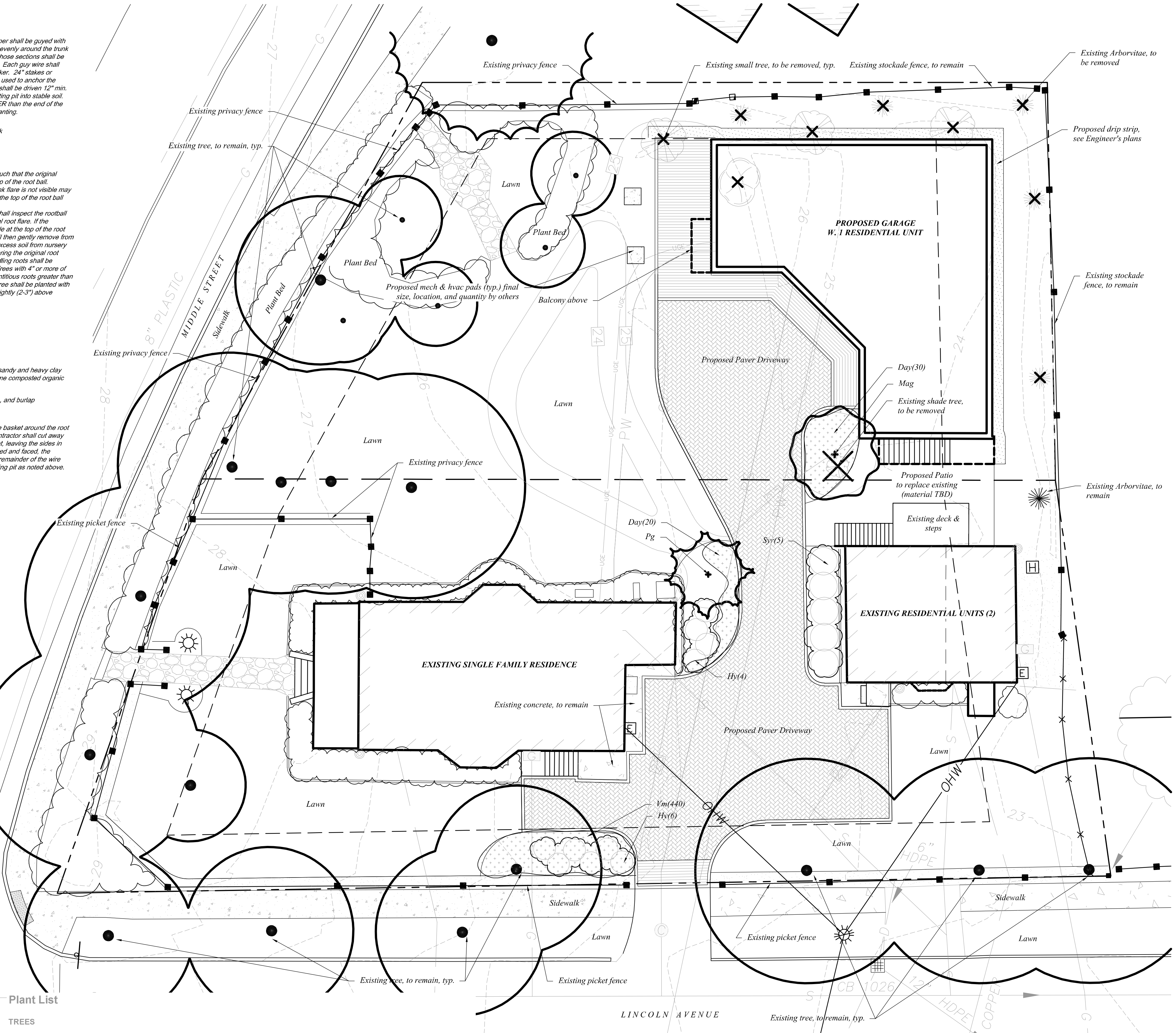
Tree Planting Detail

Landscape Notes

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

Plant List

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Pg	<i>Picea orientalis</i> 'Gowdy'	Gowdy Oriental Spruce	1	8-10' Ht	B&B
Mag	<i>Magnolia</i> 'Betty'	Betty Magnolia	1	8-10' Ht	B&B
SHRUBS					
Hy	<i>Hydrangea arborescens</i> 'Incrediball'	Incrediball Hydrangea	10	5 gal	
Syr	<i>Syringa meyeri</i> 'Palibin'	Dwarf Korean Lilac	5	3-4' Ht	B&B
PERENNIALS, GROUNDCOVERS, VINES and ANNUALS					
Day	<i>Hemerocallis</i> 'Siloam Double Classic'	Siloam Double Classic Daylily	50	1 gal	
Vm	<i>Vinca minor</i> 'Bowles'	Bowles Periwinkle	440	2.5" pots	



SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

RESIDENTIAL DEVELOPMENT EXPANSION
NICOLE J. GIUSTO & DAVID A. SINCLAIR
765 MIDDLE STREET
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 418, LOT 37

LONGITUDE: 70°46'00" W
LATITUDE: 43°04'01" N

OWNER / APPLICANT:

NICOLE J. GIUSTO & DAVID A. SINCLAIR
765 MIDDLE STREET
PORTSMOUTH, NH 03801

DESCRIPTION

The project consists of the development of the lot for the construction of a three-bay garage with a second story apartment along with associated site improvements.

DISTURBED AREA

The total area to be disturbed for the redevelopment improvements is approximately 8,000 S.F. (±0.18 acres).

PROJECT PHASING

The proposed project will be completed in one phase.

NAME OF RECEIVING WATER

The site drains overlaid onto adjacent properties.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures including silt fences, stabilized construction entrance and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Strip loam and stockpile.
3. Site features as shown on plan.
4. Rough grade site including placement of borrow materials.
5. Construct drainage structures, culverts, utilities, swales & pavement base course materials.
6. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
7. Install pavement.
8. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 - 3", issued December 2008, as amended. As indicated in the sequence of Major Activities, the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through hay bale barriers, stone check dams, and silt fences. All storm drain inlets shall be provided with hay bale filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Stabilize all ditches, swales, & level spreaders prior to directing flow to them.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.25 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built-up sediment shall be removed from silt fence or other barriers when it has reached one-third the height of the fence or bale, or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
 - a. Base course gravels have been installed in areas to be paved;
 - b. A minimum of 85% vegetated growth as been established;
 - c. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; - or -
 - d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing - In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
 - a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
 - b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on an area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

2. Guidelines for Winter Mulch Application -

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting (Erosion Blanket)	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1-1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	<ul style="list-style-type: none"> • The organic matter content is between 80 and 100% dry weight basis. • Particle size by weight is 100% passing a 6" screen and a minimum of 70 % maximum of 85% passing a 0.75" screen. • The organic portion needs to be fibrous and elongated. • Large portions of silts, clays or fine sands are not acceptable in the mix. • Soluble salts content is less than 4.0 mmhos/cm. • The pH should fall between 5.0 and 8.0.

3. Maintenance - All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. TEMPORARY GRASS COVER

1. Seedbed Preparation - Apply fertilizer at the rate of 600 pounds per acre of 10-10-10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.
2. Seeding -
 - a. Utilize annual rye grass at a rate of 40 lbs/acre.
 - b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
 - c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.
3. Maintenance - Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

4. FILTERS
 1. Sequence of Installation - Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.
 2. Maintenance -
 - a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.
 - b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
 - c. Sediment deposits must be removed when deposits reach approximately one-third (1/3) the height of the barrier.
 - d. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.
 - e. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.

D. FILTERS

1. Bedding - stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.
2. Fertilizer - lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

Agricultural Limestone @ 100 lbs. per 1,000 s.f.
10-20-20 fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended):

Type	Lbs. / Acre	Lbs. / 1,000 sf
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Seed Mixture (For slope embankments):
Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified:

Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs./Acre)
Creeping Red Fescue (c)	96	85	45 (40)
Perennial Rye Grass (a)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	90(e)	5 (5)
			Total 90 (80)

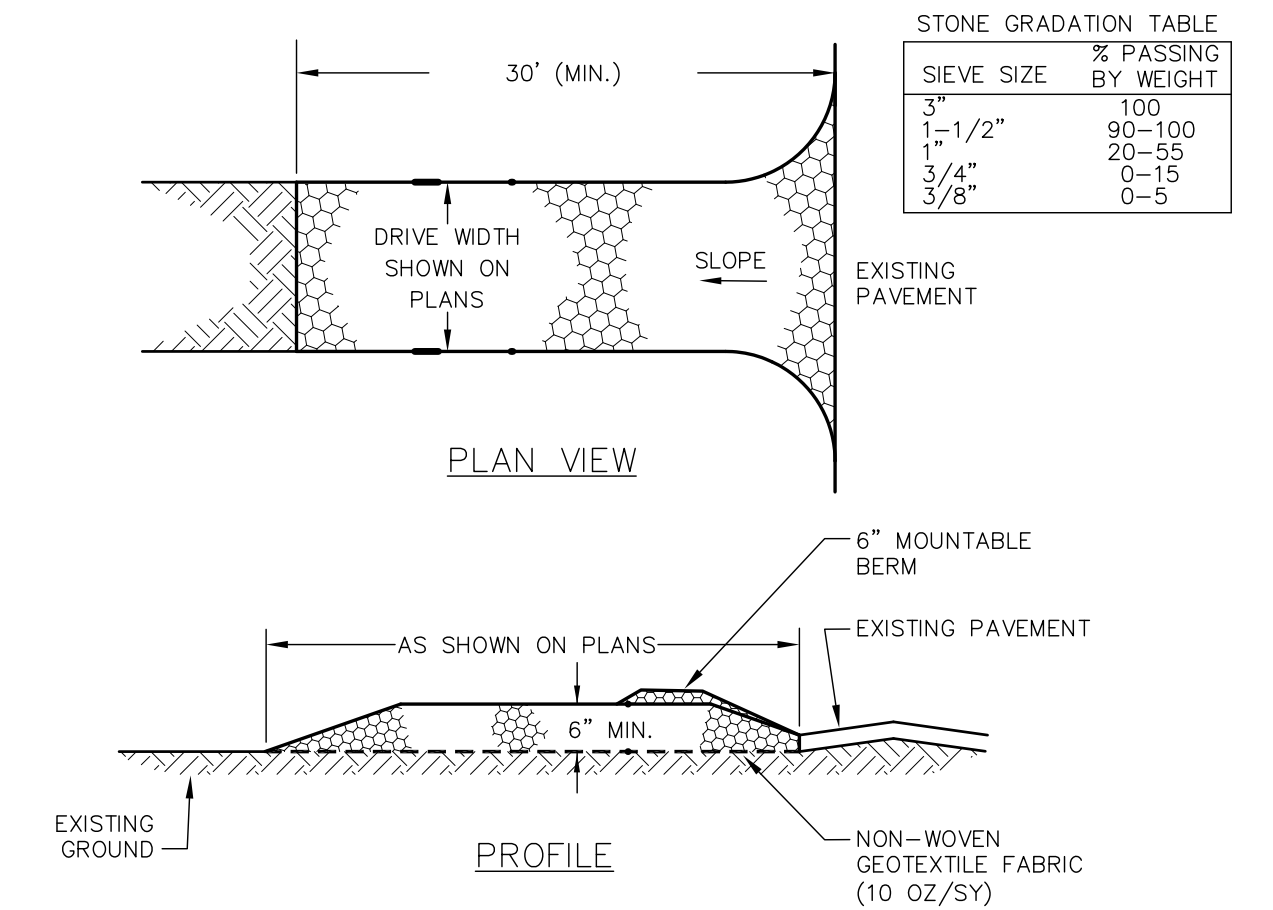
- a. Ryegrass shall be a certified fine-textured variety such as Pennfine, Fiesta, Yorktown, Diplomat, or equal.
- b. Fescue varieties shall include - Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

4. Sodding - sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION NOTES

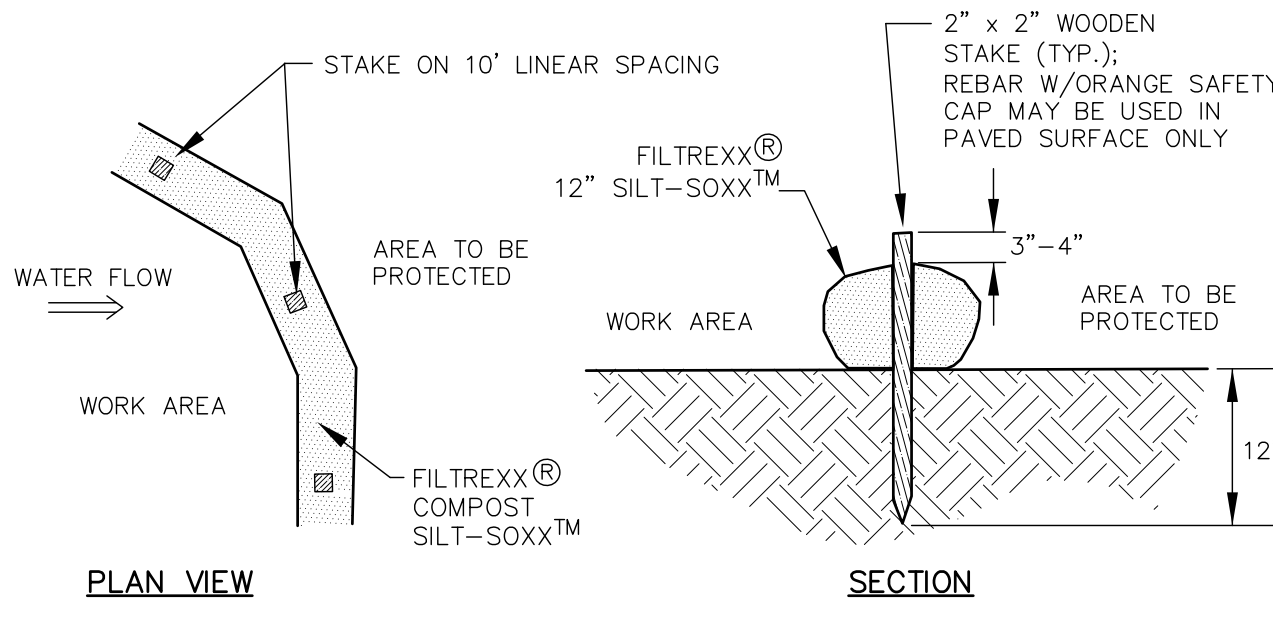
1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. 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;
2. 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; and
3. 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.



CONSTRUCTION SPECIFICATIONS

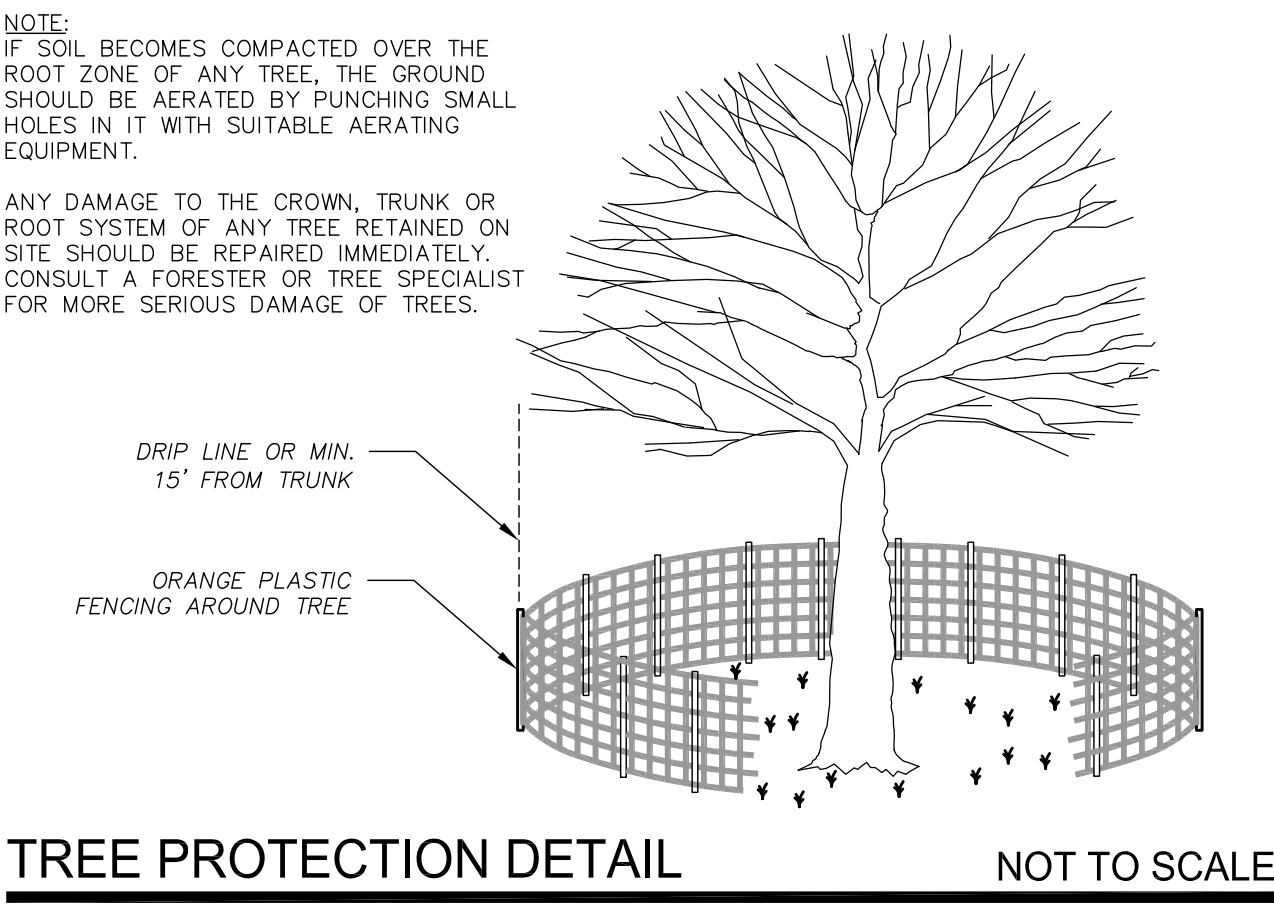
1. STONE SIZE - NHDOT STANDARD STONE SIZE #4 - SECTION 703 OF NHDOT STANDARD.
2. LENGTH - DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS - SIX (6) INCHES (MINIMUM).
4. WIDTH - FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC - MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL - ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS-OF-WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

STABILIZED CONSTRUCTION EXIT NOT TO SCALE

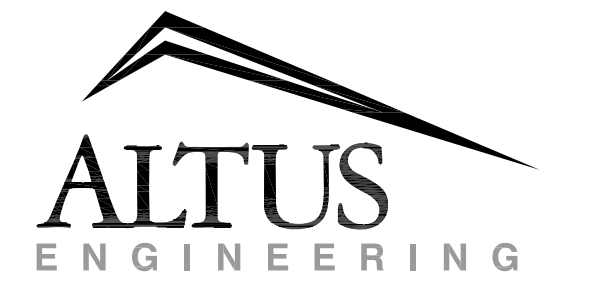


- NOTES:
1. SILTsoxx MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
 2. ALL MATERIAL TO MEET FILTERREXX SPECIFICATIONS.
 3. SILTsoxx COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
 4. ALL SEDIMENT TRAPPED BY SILTsoxx SHALL BE DISPOSED OF PROPERLY.

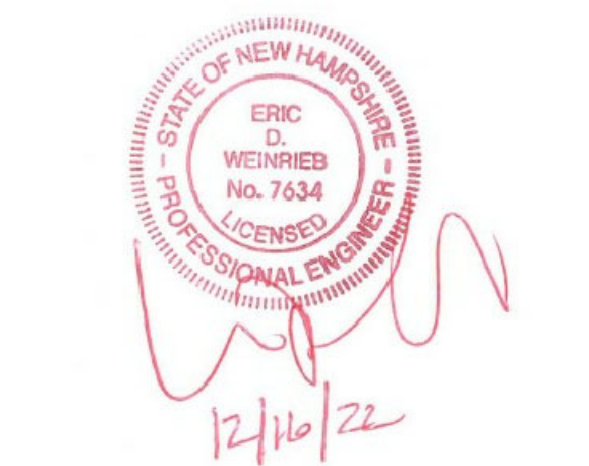
TUBULAR SEDIMENT BARRIER NOT TO SCALE



TREE PROTECTION DETAIL NOT TO SCALE



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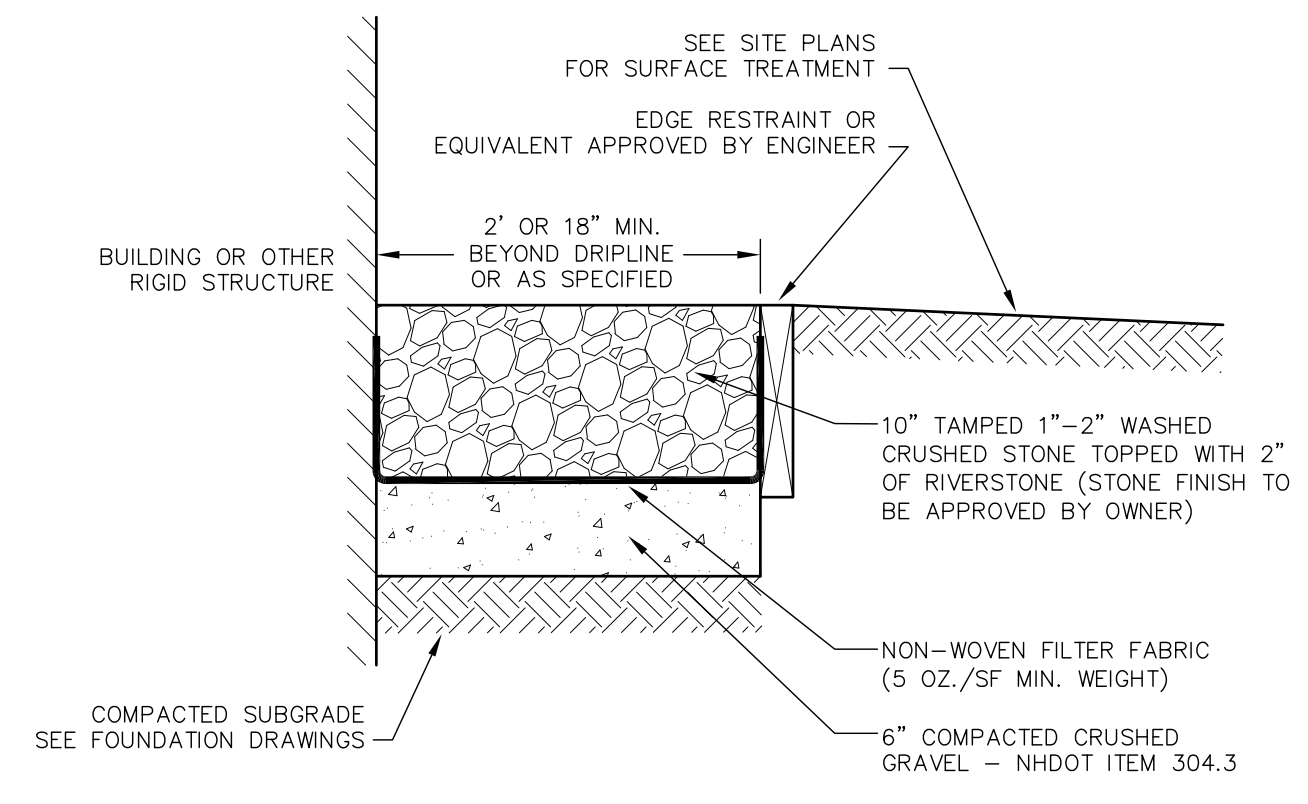
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DRAWING FILE: 5021-SITE.dwg

SCALE: NOT TO SCALE

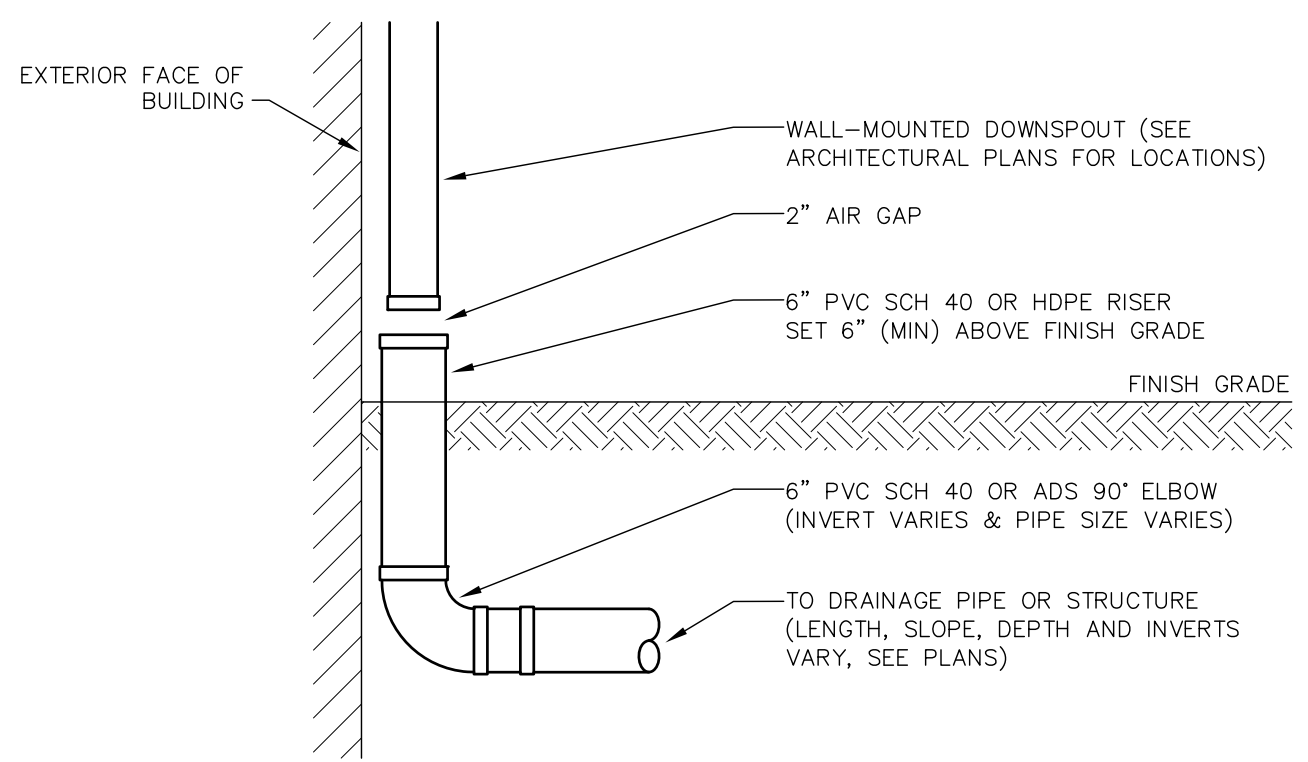
OWNER/APPLICANT:
NICOLE J. GIUSTO & DAVID A. SINCLAIR
765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT: RESIDENTIAL DEVELOPMENT EXPANSION
TAX MAP 148, LOT 37
765 MIDDLE STREET
PORTSMOUTH, NH

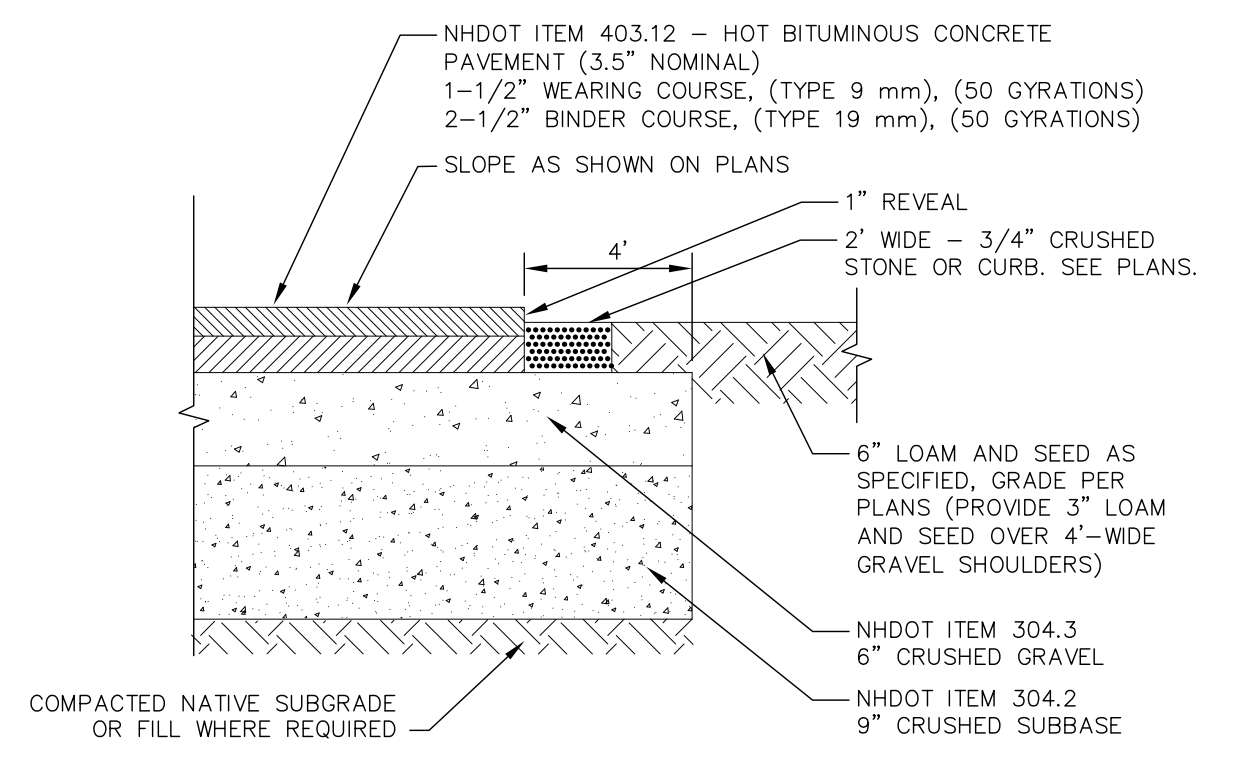
TITLE: NOTES SHEET
SHEET NUMBER: D-1



STONE DRIP EDGE NOT TO SCALE



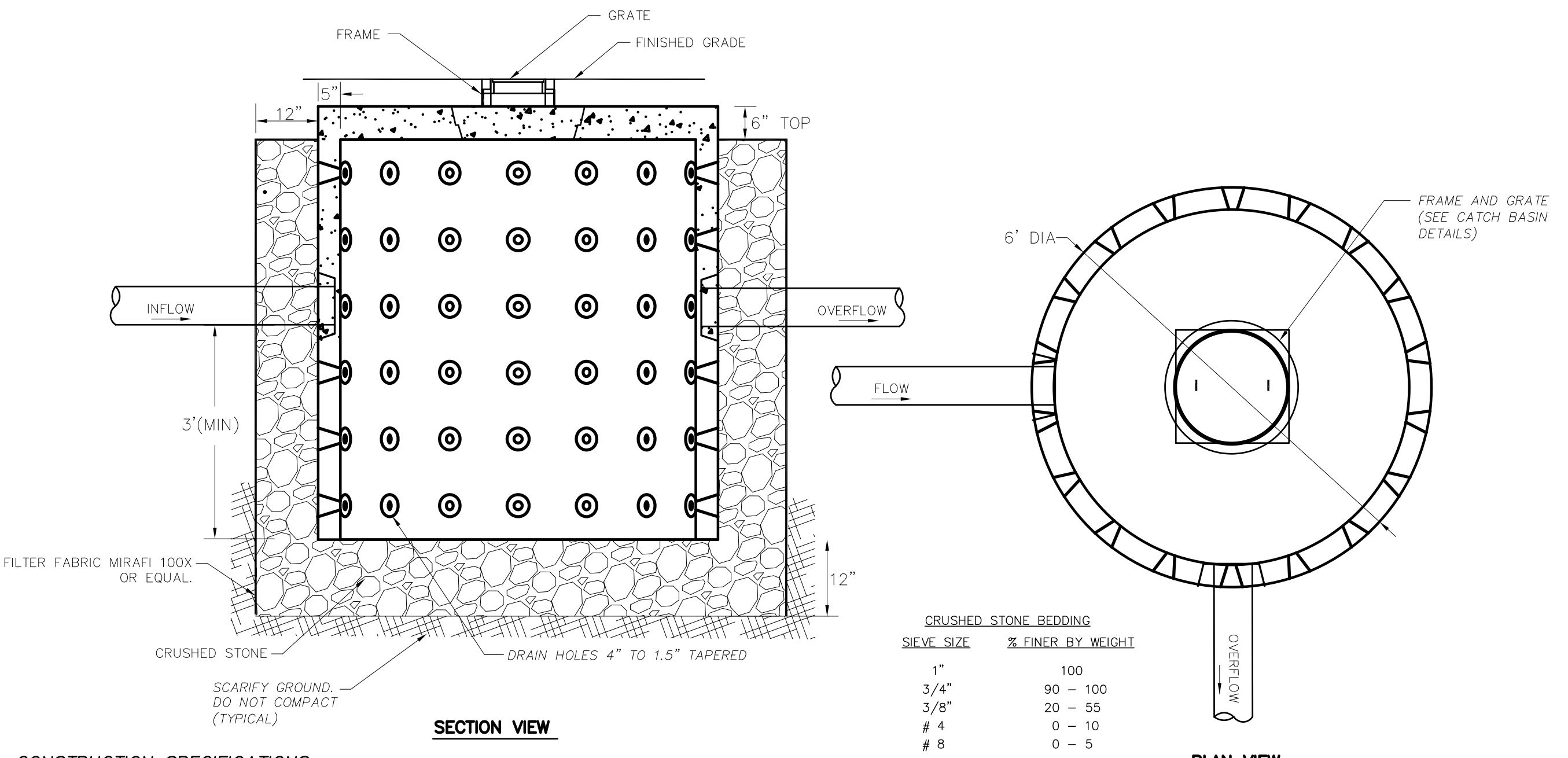
EXTERIOR ROOF DRAIN CONNECTION NOT TO SCALE



NOTES:

- INSTALL TACK COAT TO BINDER COURSE PAVEMENT PRIOR TO INSTALLING WEARING COURSE.
- REMOVE LEDGE WITHIN 30" OF SURFACE.
- ALL LOAM, CLAY, MUCK, ORGANIC AND/OR YIELDING MATERIAL SHALL BE REMOVED TO A DEPTH OF NO LESS THAN 18.5" BELOW FINISH GRADE. INSTALL COMPACTED SAND OR GRAVEL BORROW TO SUBGRADE, AS NECESSARY.
- SUBGRADE SHALL BE FREE OF VOIDS THAT ALLOW MOVEMENT/SETTLEMENT OF MATERIALS.
- SUBGRADE SHALL BE PROOF ROLLED WITH A FULLY LOADED DUMP TRUCK PRIOR TO PLACEMENT OF GRAVEL. PROOF ROLLING TO BE VIEWED AND APPROVED BY ENGINEER.

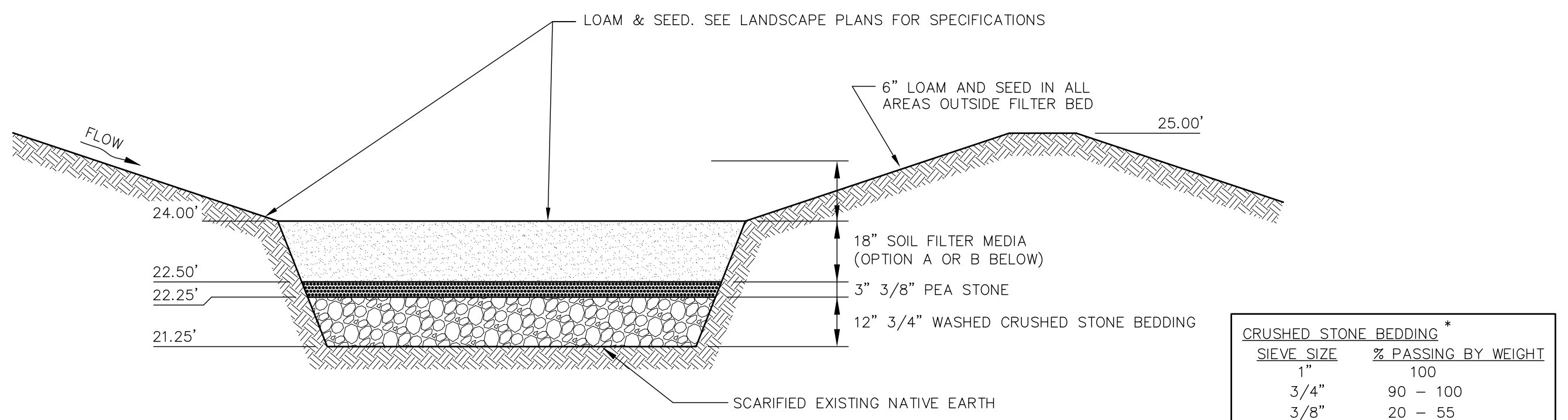
PAVEMENT CROSS SECTION NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

- LEACHING BASIN SHALL BE CONSTRUCTED ONSITE OR PRECAST TO EQUAL DIMENSIONS.
- LEACHING BASIN SHALL BE DESIGNED AND BUILT TO WITHSTAND H20 LOADING.
- ALL CONCRETE SHALL BE 4,000 PSI MINIMUM.

LEACHING CATCH BASIN (DRY WELL) DETAIL NOT TO SCALE



NOTES:

- WHEN CONTRACTOR EXCAVATES INFILTRATION POND AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
- SOIL FILTER MEDIA SHALL EITHER OPTION A OR OPTION B AT CONTRACTOR'S DISCRETION.
- DO NOT PLACE INFILTRATION POND INTO SERVICE UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS STABILIZED.
- DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES TO THE INFILTRATION POND DURING ANY STAGE OF CONSTRUCTION.
- DO NOT TRAFFIC EXPOSED SURFACES OF INFILTRATION POND WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATION ACTIVITIES WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE BASIN.

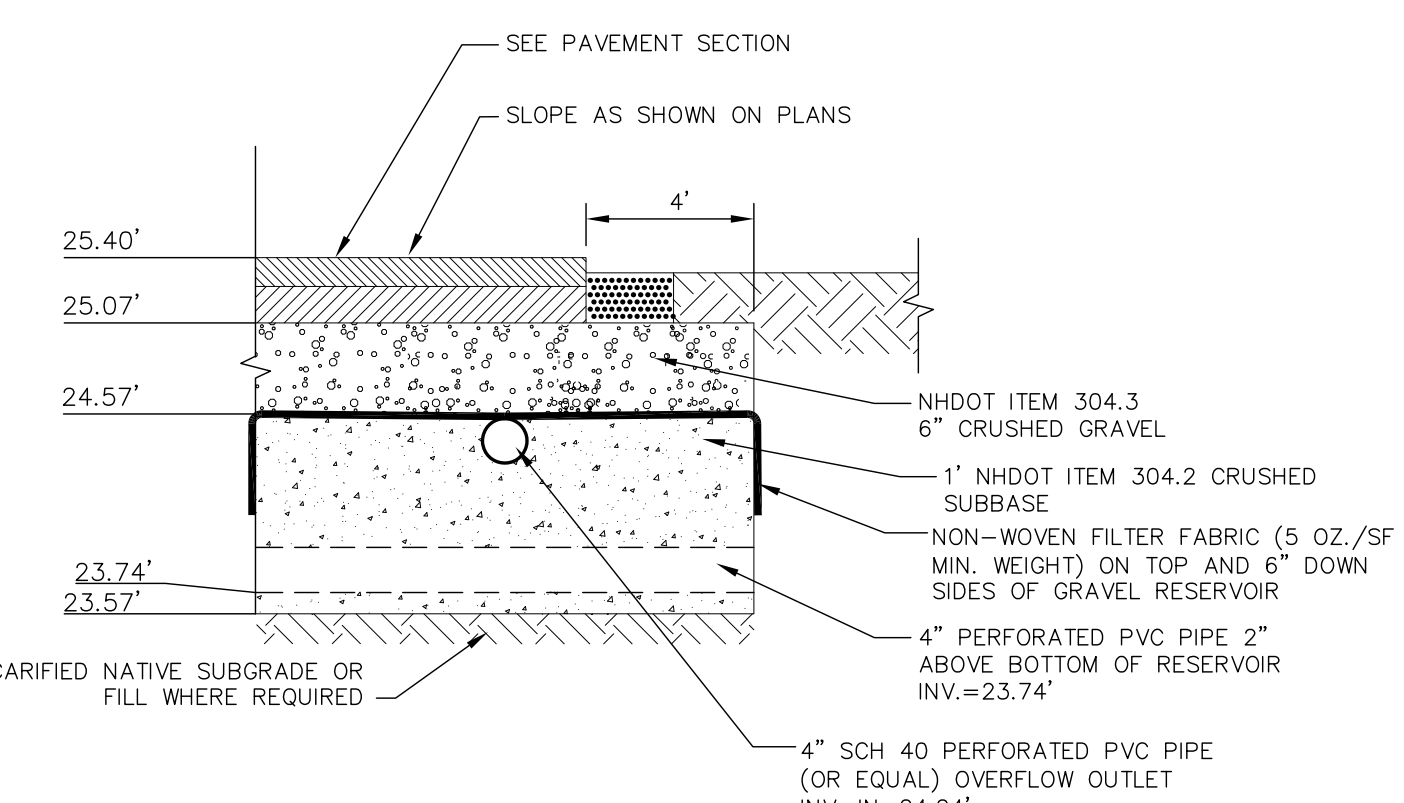
MAINTENANCE REQUIREMENTS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

- UNH STORMWATER CENTER
- EPA (1999A)
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

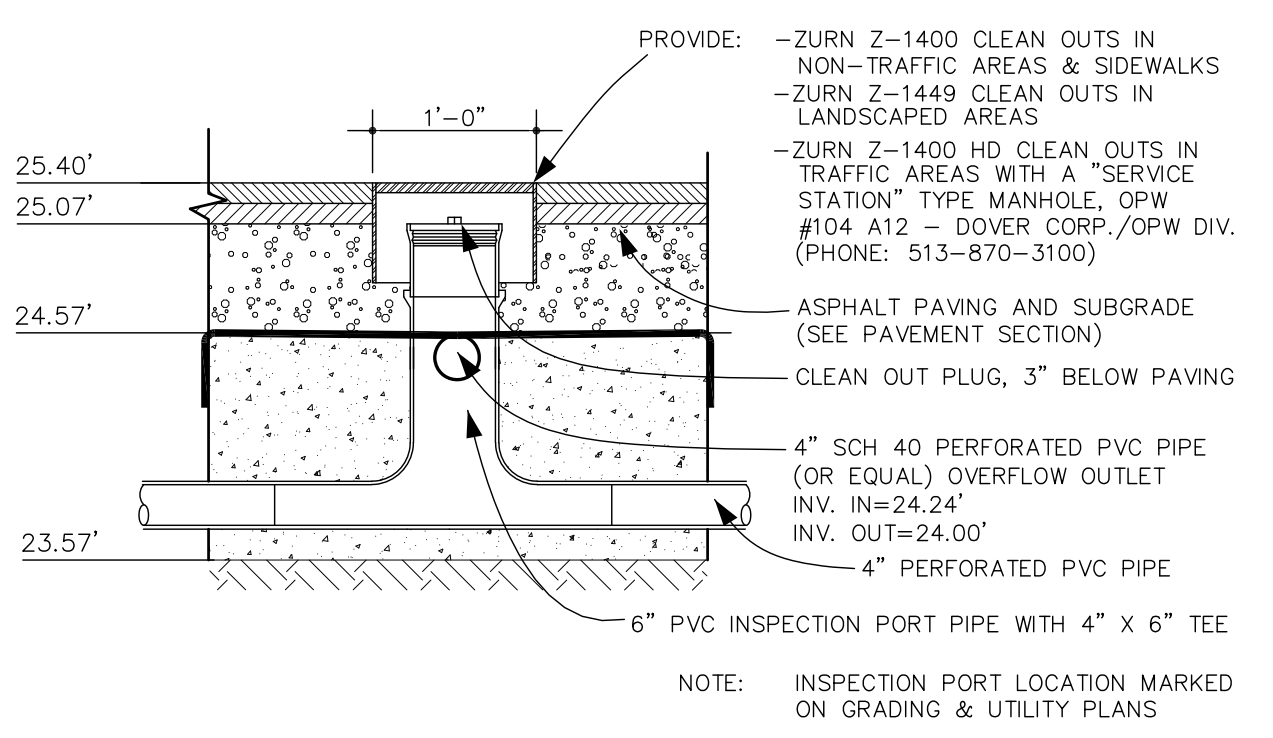
INFILTRATION POND NOT TO SCALE



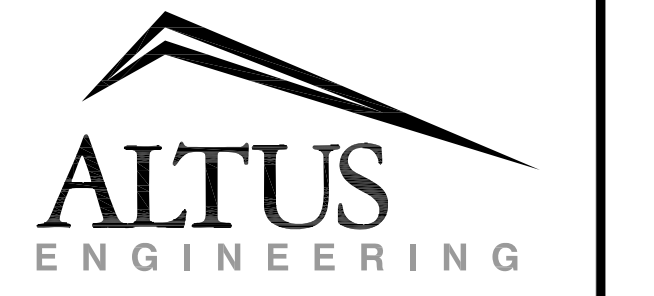
NOTES:

- INSTALL TACK COAT TO BINDER COURSE PAVEMENT PRIOR TO INSTALLING WEARING COURSE.
- REMOVE LEDGE WITHIN 30" OF SURFACE.
- ALL LOAM, CLAY, MUCK, ORGANIC AND/OR YIELDING MATERIAL SHALL BE REMOVED TO A DEPTH OF NO LESS THAN 18.5" BELOW FINISH GRADE. INSTALL COMPACTED SAND OR GRAVEL BORROW TO SUBGRADE, AS NECESSARY.
- SUBGRADE SHALL BE FREE OF VOIDS THAT ALLOW MOVEMENT/SETTLEMENT OF MATERIALS.
- SUBGRADE SHALL BE SCARIFIED TO PROMOTE RUNOFF. MECHANICAL SHALL NOT BE PLACED WITHIN BASIN AREA.

UNDERGROUND RESERVOIR NOT TO SCALE



INSPECTION PORT NOT TO SCALE



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APPROVED BY: EDW
DRAWING FILE: 5021-SITE.dwg

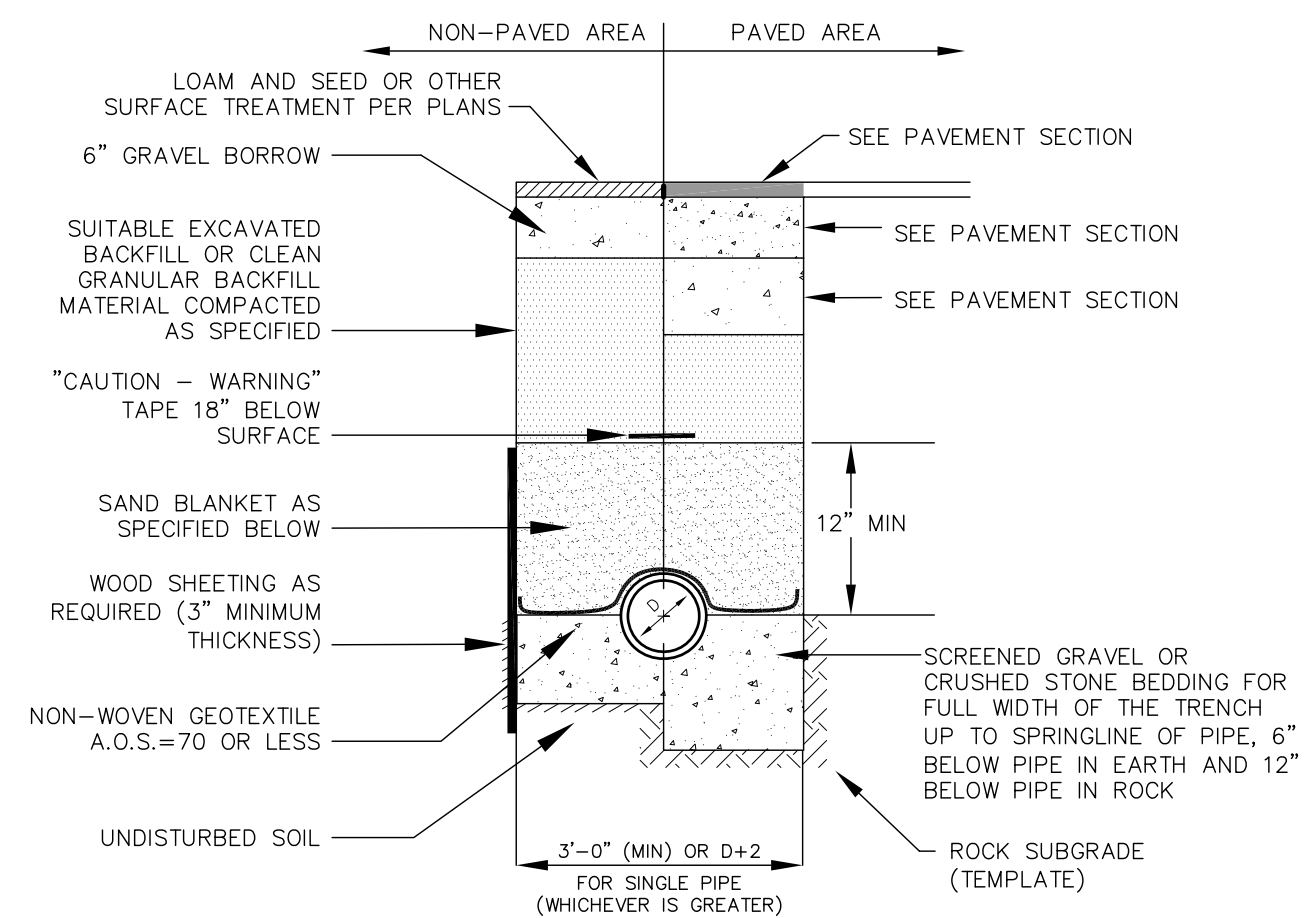
SCALE:
(22"x34") 1" = 10'
(11"x17") 1" = 20'

OWNER/APPLICANT:
NICOLE J. GIUSTO & DAVID A. SINCLAIR
765 MIDDLE STREET
PORTSMOUTH, NH 03801
TAX MAP 148 PARCEL 37

PROJECT:
RESIDENTIAL DEVELOPMENT EXPANSION
TAX MAP 148, LOT 37
765 MIDDLE STREET
PORTSMOUTH, NH

TITLE:
DETAIL SHEET

SHEET NUMBER:
D-2



NOTES

- BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
- INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
- MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

SAND BLANKET/BARRIER		SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% PASSING BY WEIGHT
1/2"	90 - 100	1"	100
200	0 - 15	3/4"	90 - 100
		3/8"	20 - 55
		# 4	0 - 10
		# 8	0 - 5

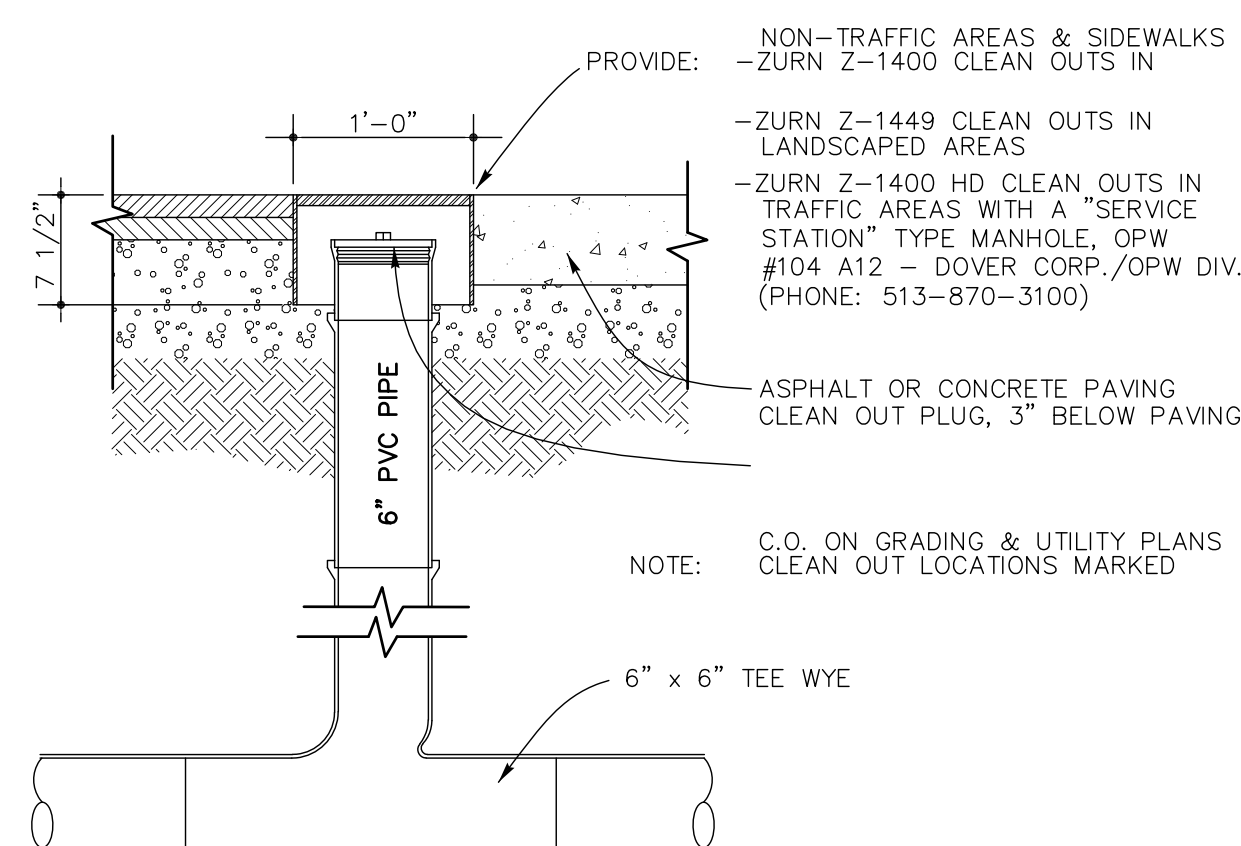
* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

DRAINAGE, SEWER & FORCEMAIN TRENCH

NOT TO SCALE

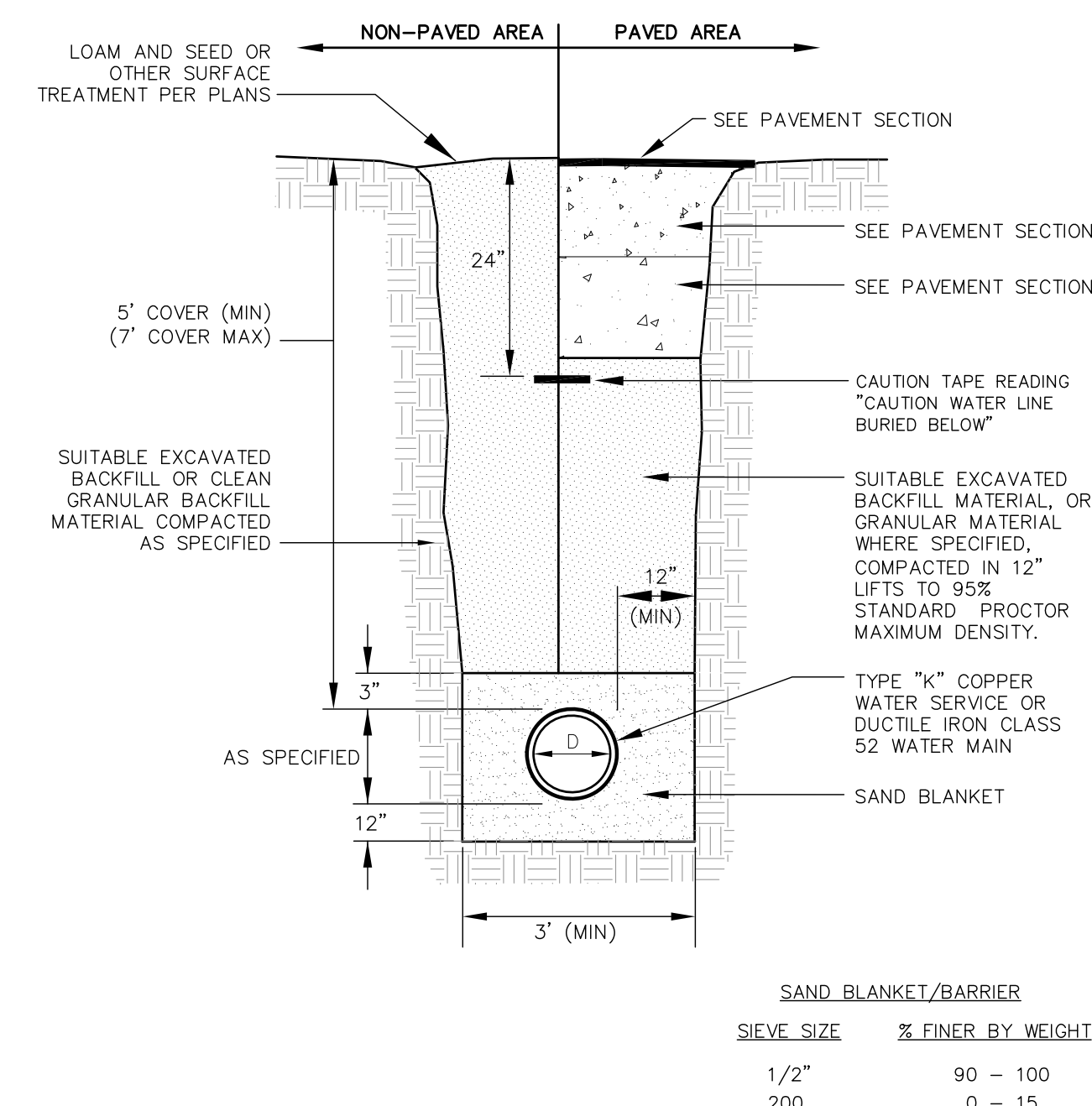
STANDARD TRENCH NOTES

- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
- BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
- SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. BLANKET MAY BE REPLACED WITH BEDDING MATERIAL FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE AND THE GEOTEXTILE IS RELOCATED ACCORDINGLY.
- SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY, ALL EXCAVATED LEDGE MATERIAL, ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. 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 SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
- SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
- 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 IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
- FOR CROSS COUNTRY CONSTRUCTION, BACKFILL, FILL AND/OR LOAM SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#) CONCRETE AS FOLLOWS:
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG
CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH
CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
- CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
- NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO TOWN'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.



SEWER CLEANOUT

NOT TO SCALE

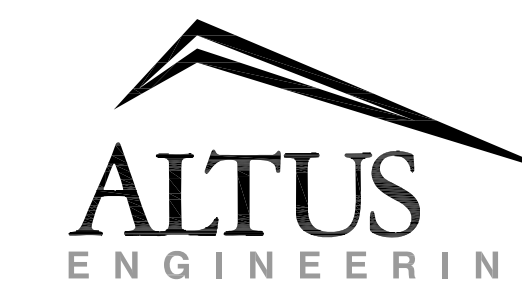


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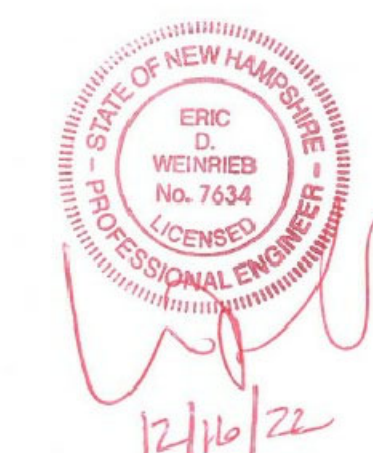
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- ALL WATER MAIN INSTALLATIONS SHALL BE ENCASED IN 8 MIL POLYETHYLENE.

WATER MAIN TRENCH

NOT TO SCALE



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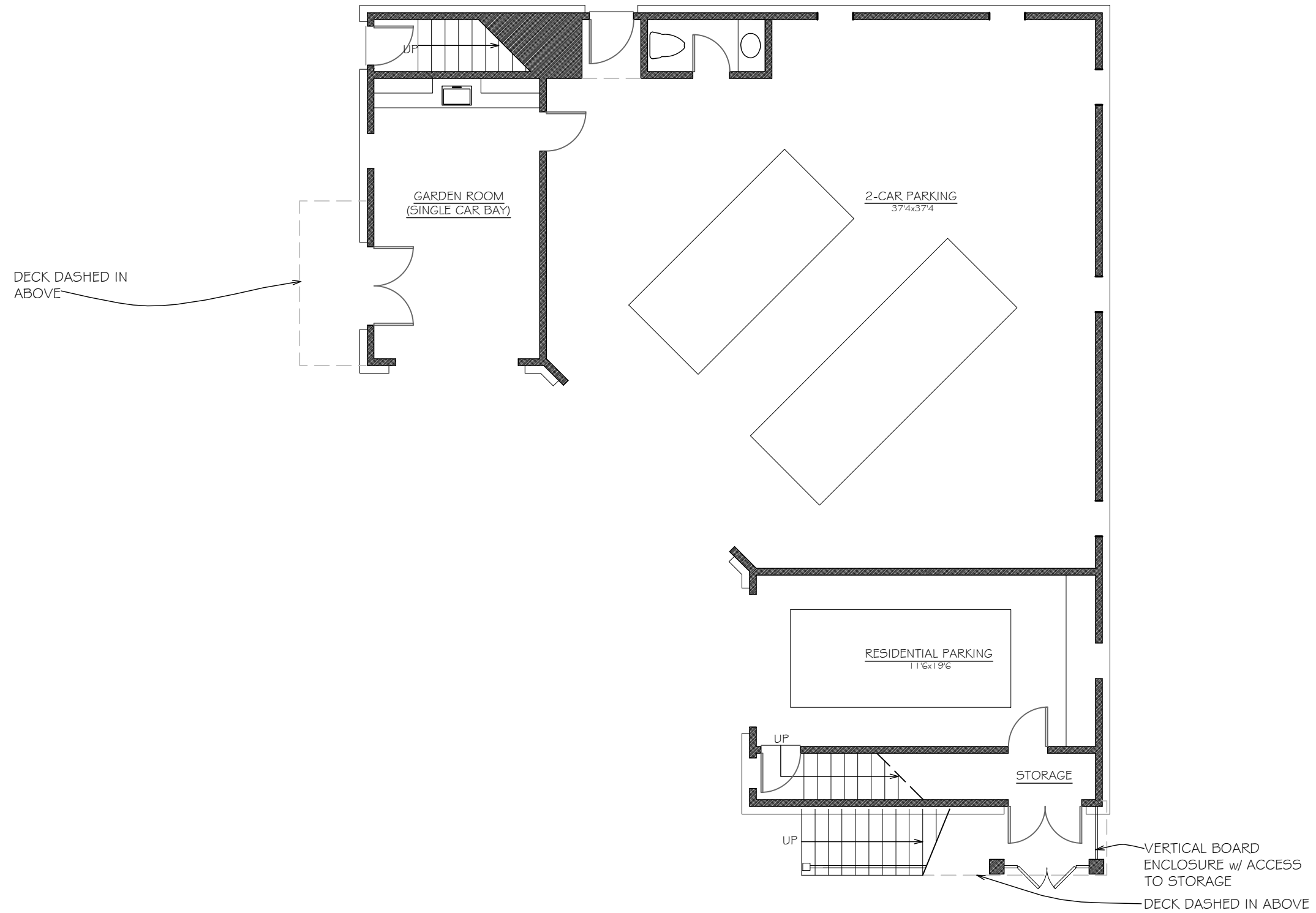
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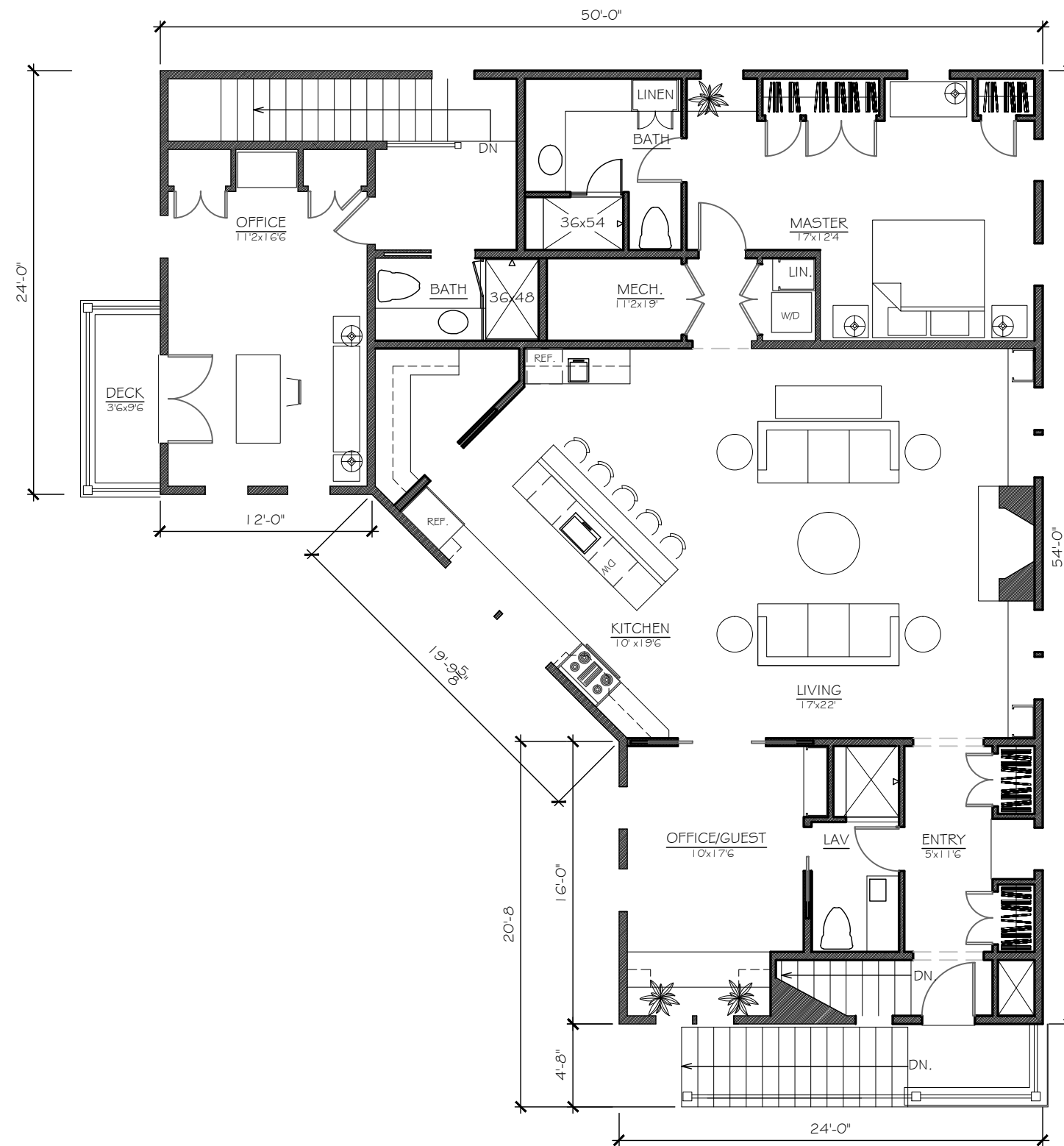
P5021



GARAGE: Proposed First Floor

SCALE: 1/8" = 1'-0"





GARAGE: Proposed Second Floor

SCALE: 1/8" = 1'-0"









