CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room, City Hall, 288 Central Ave, Dover NH 03820
Meeting Date: **Thursday, September 5, 2024**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for 5 Sherman Street, LLC, Assessor's Map 19, Lot 8, zoned R-12, located at 103 Court Street. (Proposal is to convert the existing home into a duplex, construct a second duplex in addition to five (5) new single-family homes for a total of nine (9) dwelling units. (SITE-2024-0012)

2. 11:15 AM – 12:00 PM: Site Review for Allen Majors Associates, Inc., (Owners: 114 Silver Street Group, LLC), Assessor's Map 12, Lot 148. Zoned HR, located at 114 Silver Street. (Proposal is to convert the single-family home into a 4-unit multi-family dwelling on one lot and construct a 3-story, 4 unit multi-family dwelling on the other with 8 associated parking stalls for each building. (SITE-2024-0006)*[This item was previously heard by the Planning Technical Review Committee on July 18, 2024]*

PLAN SNAPSHOT REPORT SITE-2024-0012
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	08/15/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	10/19/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: The applicant proposes utilizing the City of Dover Transfer Development Rights (TDR) regulations to redevelop Map 19 Lot 8. The proposal calls for the conversion of the existing home into a duplex, the construction of an additional duplex and the construction of five (5) new single-family homes for a total of nine (9) units. The TDR Base Density Calculation provide for a Base Density of three (3)units, therefore, six (6) of these units will be obtained under the TDR regulations. The four (4) units located in the two (2) duplex buildings will be deed restricted to a Fair Market Rent (FMR) set by Housing Urban Development (HUD). The five (5) new single-family homes with be size restricted to maximum of 1400 square feet of total living space per unit. The TDR application also request relief from the thirty (30) foot buffer requirement and relief from the thirty (30) foot rear setback requirement. The Landscape Design provides for new screening as mitigation for this relief.

Parcel:	19008-000000	Main	**Address:**	103 Court St Dover, NH	Main
Zone:					

Engineer	Surveyor	Applicant	Applicant
Tritech Engineering Corp. 755 Central Avenue Dover, NH 03820 Business: (603) 742-8107	Tritech Engineering Corp. 755 Central Avenue Dover, NH 03820 Business: (603) 742-8107	Robert Baldwin Home: (603) 986-2373 Business: (603) 986-2373 Mobile: (603) 986-2373	Tritech Engineering Corp. 755 Central Avenue Dover, NH 03820 Business: (603) 742-8107

Plan Custom Fields

Total	0	Total2	0	Total3	0
Total4	0	Total5	0	Total6	0
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	16	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Total Acres (GIS)	1.19
Deed Book	5172	Total SQFT	51836.4	Deed Page	55
Deed Date	03/15/2024	Proposed Property Use	The applicant proposes utilizing the City of Dover Transfer Development Rights (TDR) regulations to redevelop Map 19 Lot 8. The proposal calls for the conversion of the existing home into a duplex, the construction of an additional duplex and the construction of five (5) new single-family homes for a total of nine (9) units. The TDR Base Density Calculation provide for a Base Density of three (3)units, therefore, six (6) of these units will be obtained under the TDR regulations. The four (4) units located in the two (2) duplex buildings will be deed restricted to a Fair Market Rent (FMR) set by Housing Urban		Development (HUD). The five (5) new single-family homes with be size restricted to maximum of 1400 square feet of total living space per unit. The TDR application also request relief from the thirty (30) foot buffer requirement and relief from the thirty (30) foot rear setback requirement. The Landscape Design provides for new screening as mitigation for this relief.

PLAN SNAPSHOT REPORT (SITE-2024-0012)

Area of Parcel to be Developed (SQFT)	52000	Number of Parking Spaces Existing	2	Number of Parking Spaces Proposed	18
Number of Employees Total	0	Number of Employees in Max Shift	0	Distance to City Water	20
Distance to City Sewer	20	Type of Building to be Built	Wood Frame	Estimated Construction Value	1600000.00
Refuse Removal	Private	Is there an existing Conservation Easement?	No	Existing Conservation Easement Details	
TotalImpactFeeSDTOD	0.00	TotalImpactFeeTHTOD	0.00	TotalImpactFee23FTOD	0.00
TotalImpactFeeA4TOD	0.00	TotalImpactFeeMHTOD	0.00	TotalImpactFeeADUTOD	0.00
TotalImpactFeeAONRTOD	0.00	TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00
Sub Total Residential	0.00	TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00
TotalImpactFeeITWCTOD	0.00	TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00
TotalImpactFeeAFAOTOD	0.00	Sub Total Non-Residential	0.00	Total of Impact Fees to be Assessed	0.00

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Robert_Stowell_8/15/2024.jpg	08/15/2024 11:52	Stowell, Robert		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00008987	Planning General Application Fee	$200.00	$0.00
	Total for Invoice INV-00008987	$200.00	$0.00
	Grand Total for Plan	**$200.00**	**$0.00**

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		08/16/2024 9:52	
Confirm application complete v.1	Generic Action		08/16/2024 9:52
Technical Review Committee Meeting Agenda v.1	Task	08/16/2024 9:52	
Land Use Plan Technical Review v.1	Receive Submittal		
Technical Review Committee Meeting v.1	Hold Meeting		
Planning Board v.1			
Planning Board Agenda v.1	Task		
Invoice for Notices v.1	Task		
Send Notices v.1	Task		
Planner Creates Staff Recommendations v.1	Plan Activity		
Distribute Planning Board Materials v.1	Task		
Planning Board Hearing v.1	Hold Hearing		
Planning Board Decision v.1	Plan Activity		
NOD Sent to Applicant v.1	Create Report		
Final Plan v.1			
Land Use Plan Stamped and Signed v.1	Generic Action		
Recording v.1	Task		
Document Archival v.1	Generic Action		
Internal Notification of Plan Completion v.1	Generic Action		
Building Official Notifies Address v.1	Generic Action		
Pre-Con Meeting v.1	Hold Meeting		
Create/Link to Records v.1			
Create / Link to Permit - Building Major v.1	Create Sub Permit		

Create / Link to Permit - Site Work, Construction v.1 Create Sub Permit

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: 5 Sherman Street, LLC Telephone #_____

Address of Applicant: 242 Central Ave. Dover, NH 03820

E-Mail Address: robert@centralfallsrealty.com

Name of Property Owner (*if different from applicant*): _____ Telephone #_____

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 103 Court Street Dover, NH 03820

Assessor's Map # 19 Lot(s) # 8

Zoning District(s) R-12 Overlay District(s) N/A

Size of Parcel: 52,241 sq. ft. 1.199 ac. Property Deed: Book _____ Page: _____

Existing Use of Property: Single Family Residence

SITE PLAN INFORMATION

Describe Proposed Use: (2) Two Duplexes (4 Units) & 5 Single Family

Area of Parcel to be Developed: 52,000 sq. ft.

If Multi-family Residential: Number of Units 9 & Buildings Proposed 7

If lodging: Number of Units _____ & number of Buildings _____

Number of Parking Spaces: Existing 2 Proposed 18

Highway Access (check where applicable): X City Street ____ State Highway

Number of Employees Total: N/A In Maximum Shift: N/A

Disposition of Parcel:

Building Footprint Varies sq. ft.

Total Building Area Varies sq. ft.

Paved Area 16,000 sq. ft.

Building Setbacks:

Front Yard 15 ft.

Rear Yard 30 ft.

Side Yard: Right 15 ft. Left 15 ft.

City Water? X Yes ___ No How far is city water from the property? At Property

City Sewer? X Yes ___ No How far is city sewer from the property? At Property

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

Type of TRANSFER OF DEVELOPMENT RIGHT REQUEST (Check All That Apply):

□ Residential ☒ Residential (reduced size) □ Industrial | ☒ Purchase □ Land Preservation

Relief sought (Check All That Apply):

□ Lot Size □ Frontage ☒ Setback ☒ 30' Buffer ☒ Increase by 6 units

Describe Proposed Use or Activity that requires TDR; describe any impacts and document mitigation:

See Project Narrative

BUILDING INFORMATION

Type of Building to be Built: Wood Frame

Height of Building: Varies Finished Floor Elevation: Varies

Number of Seats (where applicable) N/A

Estimated value of construction: $1,600,000 Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: _____

Justification for waiver request(s) (*attach additional sheets as needed*):

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Robert Stowell; Tritech Engineering Corp.

Address 755 Central Ave. Dover, NH Telephone #: 603 742 8107

Professional License #: 884 E-mail address: rjs@tritecheng.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Robert Stowell; Tritech Engineering Corp.

Address 755 Central Ave. Dover, NH Telephone #: 603 742 8107

Professional License #: 884 E-mail address: rjs@tritecheng.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) _____

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Romy N. Maurer; Terrain Planning & Design

Address 311 Kost Hill Rd. Hopkinton, NH 03229 Telephone #: 603 746 3512

Professional License #: 086 E-mail address: romy@terrainplanning.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Michael Mariano; Highland Soil Services

Address 75 Prospect St. Somersworth, NH Telephone #: 609 692 4457

Professional License #: 76 E-mail address: highlandsoilservices@comcast.net

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: _____

Signature of Agent: _____, PRESIDENT Date: 08/15/24

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: _____

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: _____

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: _____

CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
19	8	5 Sherman Street, LLC	242 Central Ave. Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
Robert Baldwin	5 Sherman Street, LLC	242 Central Ave. Dover, NH 03820

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Robert J. Stowell	Tritech Engineering Corp.	755 Central Ave. Dover, NH 03820
Michael Mariano	Highland Soil Services	75 Prospect St. Somersworth, NH 03878
Romy N. Maurer	Terrain Planning & Design	311 Kost Hill Rd. Hopkinton, NH 03229

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 153-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

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: 5 Sherman Street, LLC File Number: _____

PROJECT TITLE: 103 Court Street

PROPERTY LOCATION: 103 Court St. Dover, NH Tax Map: 19 Lot: 8

	Where/How Provided	Reviewed
1. Completed and signed Application form	Attached	
2. Plan Review Fees are provided	Hand Delivered	
3. Electronic copy of the engineered/surveyed plan layout	Via Portal	
4. Electronic copy of supplementary materials and application	Via Portal	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	Attached	
6. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
7. Conditional Use Permit applications	N/A	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	Architectural Plans	
9. A colored architectural plan showing all sides of buildings	Architectural Plans	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	Attached	
Location map at appropriate scale	Sheet Ex-1 Locus Map	
Proposed Project name and title and Planning File #	Title Block	
Date, north arrow and scale	Shown	
Names of all abutting property owners	Shown	
Name and address of owners and/or applicants	Shown	
Signature & stamp of NH licensed land surveyor and/or engineer	Shown on Applicable Sheets	
Zoning District boundaries, including any special or overlay districts	Sheet SP-1	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Sheet SP-1	
Location and widths of existing & proposed easements & right of ways	Sheet SP-1	
Location and width of existing and proposed access/egress ways	Sheet SP-1	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	Sheet SP-1	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Shown All Plans	
Existing and proposed topographic information at two foot intervals	Shown All Plans	
Existing and proposed buildings and structure locations	Sheet SP-1	
Minimum building setbacks or build to lines on all lots	Sheet SP-1	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Sheet SP-3	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Sheet SP-3	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	Sheet L-3	
Existing and proposed stormwater lines and facilities	Sheet L-1 & SP-5	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Sheet L-1	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	N/A	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Sheet T-2	
Existing natural features and/or significant vegetation on property	Sheet EX-1	
Depict existing contours up to 100 ft. beyond project limits	Sheet EX-1	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	Sheet LA-1	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Sheet SP-1	
Location, material and size of existing and proposed pavement area	Sheet SP-1	
Location of proposed fire lanes	Sheet SP-2	
Specify finished floor elevations of buildings	Sheet SP-4	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	N/A - Private Pickup	
Depict all service, storage, loading bays and utility areas	N/A	
All applicable Dover Common Site Plan notes	Sheet SN-1	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Drainage Report	
Stormwater Management System Operation and Maintenance Plan	Stormwater Mgmt., Maintenance & Insp. Plan	
Letter to Serve from Public and Private Utilities	Pending	
Erosion and Sedimentation Control Plan	Drainage Report	
Landscape Operation and Maintenance Plan	Sheet LA-1	
Proposed restrictive covenants or homeowners association documents	Pending	
Dates and permit numbers of all required state and federal permits	Pending	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Sheet SSS-1	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	N/A	

REVIEWED BY: _____ DATE_____ TRC DATE_____

TRITECH
ENGINEERING CORPORATION

755 Central Avenue
Dover, New Hampshire 03820

Telephone 603.742.8107
Facsimile 603.742.3830

August 15, 2024

Donna Benton, AICP
Director of Planning & Community Development
City of Dover, Planning Department
288 Central Avenue
Dover, New Hampshire 03820

Subject: Site Review & TDR Proposal
103 Court Street
Dover Tax Map 19 Lot 8
103 Court Street
Dover, New Hampshire
Job No. 24101

Dear Donna:

Project Narrative

On behalf of our client, 5 Sherman Street LLC, we are submitting this Application for Transfer Development Rights (TDR) and Site Review Application for the development of 103 Court Street. The property is shown as City of Dover Tax Map 19 Lot 8, is located at 103 Court Street, currently contains a single-family home, is located in the R-12 Zoning District, contains 1.199 acres and is serviced by municipal water & sewer.

The applicant proposes utilizing the City of Dover Transfer Development Rights (TDR) regulations to redevelop Map 19 Lot 8. The proposal calls for the conversion of the existing home into a duplex, the construction of an additional duplex and the construction of five (5) new single-family homes for a total of nine (9) units. The TDR Base Density Calculation provide for a Base Density of three (3)units, therefore, six (6) of these units will be obtained under the TDR regulations. The four (4) units located in the two (2) duplex buildings will be deed restricted to a Fair Market Rent (FMR) set by Housing Urban Development (HUD). The five (5) new single-family homes with be size restricted to maximum of 1400 square feet of total living space per unit. The TDR application also request relief from the thirty (30) foot buffer requirement and relief from the thirty (30) foot rear setback requirement. The Landscape Design provides for new screening as mitigation for this relief.

This development will include the construction of a 360-foot-long driveway beginning from Court Street and ending near the rear of property adjacent to the Pine Hill Cemetery. Municipal water & Sewer will be extended from Court Street to service the structures. Electric, Telephone & Cable TV along with Natural Gas will be installed underground for all new structures.

The Stormwater Analysis and Design detail the use of Stormtech underground chambers for flow mitigation, a bioretention basin for the Stormwater Treatment and Stormtech underground chambers for Groundwater Recharge. Ultimately, all the Stormwater Runoff is directed to Court Street closed drainage system.

Project Submittal

Attached please find the supporting documentation:

- Five (5) Copies of this Project Narrative.
- Five (5) Copies of the Site Review Application.
- Five (5) Copies of the TDR Application.
- Five (5) Copies of the Traffic Impact Analysis.
- Five (5) Copies of the Water & Sewer Demand.
- Five (5) Copies of the Landscape Operation & Maintenance Plan.
- Five (5) Copies of the Site Development Plan set.
- Five (5) Copies (half size) of the color renderings and streetscape.
- One (1) copy of the Site Development Design Criteria Narrative.
- One (1) Copy of the Stormwater Analysis.
- Electronic submittal to the online portal.

We look forward to meeting with the Technical Review Committee (TRC) at their September 5th meeting and discussing this development plan.

Please advise should you have any questions.

Very truly yours,
TRITECH ENGINEERING CORP.

Robert J. Stowell, P.E., L.L.S.
President

RJS / cmp
Attachments
\\24101_CourtStSubmittalltr.docx

Water and Sewer Demand

for

103 COURT STREET

103 Court Street
Dover, New Hampshire
August 2024

Water and Sewer Demand for 103 Court Street Dover, NH

5 Proposed 3 Bedroom Cottages:

5 Cottages X 3 Bedrooms each x 150 gal/day per BDR =

2250 gal/day

Existing single family house to be converted to duplex:

2 Units X 2 Bedrooms each x 150 gal/day per BDR =

600 gal/day

Proposed Duplex:

2 Units x 2 Bedrooms each x 150 gal/day per BDR =

600 gal/day

Total estimated Design Flow = 3450 gal/day

**This design flow rate is based on NHDES Env.Wq 1008.03 Table 1008-1 Unit Design Flow Figures*

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING, AND POLICY

93 Stiles Road, Suite 201, Salem, New Hampshire 03079 USA
800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

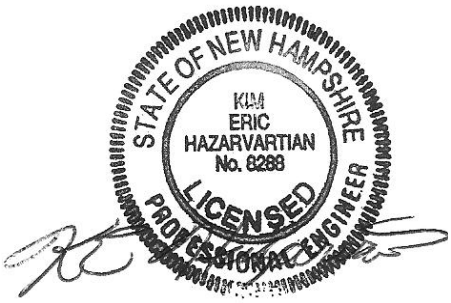
MEMORANDUM

Ref: 1711

Subject: Traffic-Assessment Memorandum
103 Court Street
Dover, New Hampshire

From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
keh@teppllc.com

Date: August 15, 2024



INTRODUCTION

Tritech Engineering Corporation has retained TEPP LLC to prepare this traffic-assessment memorandum (TAM). This TAM regards the proposed redevelopment at 103 Court Street in the City of Dover, New Hampshire.

This TAM includes:

- existing site description
- proposed project description
- road description
- public transit
- sight distances
- trip generation
- trip distribution/assignment
- potential traffic impacts

This TAM concludes that:

- relevant sight distances at the Court Street/proposed driveway intersection will be adequate
- the proposed project is not anticipated to add significant new traffic to the area

EXISTING SITE DESCRIPTION

The site:

- is along the south side of Court Street
- has an area of about 1.19 acres
- includes one single-family-detached house
- has one driveway along the south side of Court Street
- is bounded on the north by Court Street
- is bounded on the south by a cemetery
- is bounded on the east and west by residential development

PROPOSED PROJECT DESCRIPTION

The project will:

- renovate the existing house
- remove the existing driveway
- provide five cottage dwelling units
- result in four duplex housing units
- provide a relocated driveway

ROAD DESCRIPTION

Court Street:

- is an east-west collector street under the jurisdiction of the City of Dover
- provides connections, to and from the west with Central Avenue, an arterial street, and with central Dover
- provides connections, to and from the east, with Middle Road, a collector street, and with eastern and southern Dover
- has a horizontal alignment with minor-to-moderate curvature
- has a vertical alignment with minor grades
- has a speed limit of 30 miles per hour
- has asphalt-cement-concrete pavement in overall good condition
- has one travel lane per direction
- has pavement markings including double-yellow lines, separating traffic directions, and single-white edge lines

- near the site, has utility poles on the south side, including one pole with a luminaire along the site frontage

PUBLIC TRANSIT

Scheduled public transit is not available within one-quarter mile of the project site.

SIGHT DISTANCES

Tritech Engineering Corporation states that relevant sight distances at the Court Street/proposed driveway intersection will be over 400 feet in both directions along Court Street. These sight distances are appropriate.

TRIP GENERATION

The Institute of Transportation Engineers (ITE) publishes trip-generation information in the authoritative *Trip Generation Manual*.[1] This information is based on empirical data for a variety of land uses including:

- land use 210, single-family-detached housing, based on dwelling units[2]
- land use 215, single-family-attached housing, based on dwelling units[3]

Table 1 shows changes in calculated weekday vehicle-trips due to the project as:

- daily, 67 (total of in and out)
- AM-street-peak hour, 6 (1 in and 5 out)
- PM-street-peak hour, 6 (3 in and 3 out)

TRIP DISTRIBUTION/ASSIGNMENT

Calculated trip generation is so low that area traffic operations will not be sensitive to trip distribution/assignment. Trips will be split along Court Street to/from the east and west and further split beyond the eastern and western termini of Court Street.

[1] ITE, *Trip Generation Manual*, 11th Edition (Washington DC, September 2021).

[2] ITE, *Trip Generation Manual*, Volume 3, pages 218 to 236.

[3] ITE, *Trip Generation Manual*, Volume 3, pages 237 to 251.

Table 1. Calculated trip generation.

	Weekday Vehicle-Trips						
		AM-Street-Peak Hour			PM-Street-Peak Hour		
	Daily	Total	In	Out	Total	In	Out
Existing							
Detached[a] (1 Dwelling Unit)	9	1	0	1	1	1	0
Total	9	1	0	1	1	1	0
Proposed							
Detached[a] (5 Delling Units)	47	5	1	4	5	3	2
Attached[b] (4 Dwelling Units)	29	2	0	2	2	1	1
Total	76	7	1	6	7	4	3
Differences Due to Project	67	6	1	5	6	3	3

[a] Based on ITE, *Trip Generation Manual*, land use 210, single-family-detached housing.

[b] Based on ITE, *Trip Generation Manual*, land use 215, single-family-attached housing.

POTENTIAL TRAFFIC IMPACTS

ITE suggests that land developments generating at least 100 peak-hour vehicle trips, in the busier direction, are candidates for consideration of traffic impact analysis.[4] Tabulated peak-hour trip generation of the project is well below this national ITE threshold. The project is not anticipated to add significant new traffic to the area.

CONCLUSION

This TAM concludes that.

- relevant sight distances at the Court Street/proposed driveway intersection will be adequate
- the proposed project is not anticipated to add significant new traffic to the area

[4] ITE, *Manual of Transportation Engineering Studies* (Prentice Hall: Englewood Cliffs, New Jersey, 2000), page 144.

LANDSCAPE
OPERATION & MAINTENANCE PLAN

for

103 COURT STREET

103 Court Street
Dover, New Hampshire
August 2024

Weekly Tasks

1. Mow and edge lawns if needed. Lawns to be cut to 3.5" height.
2. Prune back any shrubs overhanging curbs or sidewalks.
3. Prune back any groundcover overhanging curbs or sidewalks.
4. Remove litter and leaves from plants, planters, and parking lots.
5. Remove any broken or fallen branches from trees. Remove sucker growth from tree trunks.
6. Remove any weeds larger than 2 inches (5 cm) high or wide from planters. Weeds 2 inches (5 cm) and larger must be removed, not just killed.
7. Replace bark mulch which has been knocked or washed out of planters. Smooth mulch layer if it has been disturbed.
8. Replace decorative rock which has been knocked or washed out of drip strips. Smooth decorative rock surface if it has been disturbed.
9. Check plants for signs of stress, pests or disease. Request authorization to replace other dead or missing plants. Note: Maintenance contractor must request authorization to make replacements within one week of the damage becoming evident.
10. Sweep or blow clean all walkways, curbs, and gutters.
11. Treat for any signs of disease or pest infestation.
12. Complete any items required on the Monthly Checklist.
13. Hand water any plants that are dry and stressed.
14. Check the irrigation system (if there is a system). Make emergency repairs as needed or request authorization to make major repairs. Note: Maintenance contractor must request authorization for repairs within one week of the damage becoming evident.
15. Adjust the irrigation controllers for current water needs of plants.
16. **Gently prune shrubs at appropriate time of year based on species, for shape and form. DO NOT shear.**

Yearly Tasks

Early Spring

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.
2. Apply granular fertilizer to shrubs beds and lawns. Be sure to make application prior to a moderate rainfall in drip-irrigated planters so the rain will wash the fertilizer in.
3. Submit receipts to owner's authorized representative as proof of fertilizer purchase.
4. Trim any perennial foliage left in the fall for winter interest to within six inches of the ground.

5. Add new mulch to planters where the mulch depth has been reduced to less than 2 inches (5 cm) thick. Mulch depth shall not exceed 2". Additional mulch not required where shrubs or groundcover completely hide the soil surface from view.
6. Where there is irrigation and after threat of frost is gone, flush out irrigation systems as needed and check for proper operation of each valve zone.Clean or replace plugged sprinkler nozzles. Replace plugged drip emitters.
7. Replace irrigation controller program back-up batteries.

June:

No additional items

July:

No additional items

August:

No additional items

September:

1. Inventory all plant materials. Inventory shall include an exact count of all shrubs and trees, itemized by planter. Replace any dead or missing plants.

October:

1. Prepare irrigation system for winter. Make sure backflow preventer is well insulated or drained prior to first freeze. Blow out pipes using compressed air in areas where freezing could result in breakage.
2. Mow field areas.

November:

1. "WILT-PRUF" broadleaf evergreens when temperature permits.

December:

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.

STORMWATER ANALYSIS

and

Erosion & Sediment Control Plan

NARRATIVE

for

103 COURT STREET

103 Court Street
Dover, New Hampshire
August 2024

PREPARED FOR

5 SHERMAN STREET, LLC

242 CENTRAL AVE
DOVER, NEW HAMPSHIRE 03820

PREPARED BY

TRITECH ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

STORMWATER ANALYSIS

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SECTION I

NARRATIVE

STORMWATER ANALYSIS

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103 COURT STREET

103 Court Street
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1. PROJECT DESCRIPTION

The attached Site Plans are for 5 Sherman Street, LLC and show the development of an approximately 1.199-acre parcel with an existing single family house. This site is located on the Southernern side of Court Street in Dover, New Hampshire. The site is identified on Dover Property as Map 19 Lot 8.

The development of this site will include the conversion of the single family existing house into a duplex as well as the construction of an additional duplex structure. Both of these duplexes (4 units) will be HUD rent restricted and will be obtained under the Transfer Development Rights (TDR) ordinance. The development will include the construction of 5 single family size restricted homes. These homes will be constructed under the TDR ordinance. 3 base units and the purchase of 2 size restricted units. The development will include associated infrastructure such as an access road, all utilities, and stormwater management.

Included in the stormwater management system is the construction of a Bioretention Area. The Bioretention Area is shown on the construction plans and provide permanent stormwater quality and quantity treatment, prior to the stormwater exiting the site.

Proposed site development details are shown on the Site Plan and Construction Plans for 5 Sherman Street, LLC as prepared by Tritech Engineering Corporation. Site and Construction plans are based upon an actual on-ground survey performed by Tritech Engineering Corporation, and on-site Wetland & Site Specific Soil delineation performed by Highland Soil Services.

2. METHODOLOGY

This stormwater runoff analysis and drainage design was accomplished using SCS TR-20 Methodology a third party computer software program was used in the facilitation of this analysis. This software is HydroCAD Stormwater Modeling System Version 10.20-4a, by Applied Microcomputer Systems. Analysis and design were performed for the Two-Year, Ten-Year, Twenty-Five Year and Fifty Year Storm Events.

STORMWATER ANALYSIS

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3. STORMWATER HYDROLOGIC REVIEW

EXISTING CONDITIONS

Table A – Existing Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Pre Development Volume (af)**	**Pre-Development Peak Flows (cfs)**			
Analysis Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
1	0.111	0.90	2.17	3.27	4.37

DEVELOPED CONDITIONS

Table B – Developed Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Post Development Volume (af)**	**Post Development Peak Flows (cfs)**			
Analysis Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
1	0.191	0.77	2.17	3.19	3.96

HYDROLOGIC COMPARISON

Table C – Pre/Post Development Comparison (2, 10, 25, and 50-year storm events)

Watershed	**Pre/Post Development Volume (af)**	**Pre/Post Development Peak Flows (cfs)**			
Analysis Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
1	0.111/**0.191**	0.90/**0.77**	2.17/**2.17**	3.27/**3.19**	4.37/**3.96**

STORMWATER ANALYSIS

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4. STORMWATER RUNOFF QUALITY

Stormwater runoff from the site is collected in a system of open drainage swales, yard drains and catch basins, pretreated via deep sump catch basins and stormtech chambers, and treated, detained, and infiltrated via the Bioretention areas.

5. CONCLUSIONS

Treatment of drainage occurs in deep sump catch basins, stormtech chambers and Bioretention Practices. This Stormwater Management System effectively treats and detains the runoff from the Site Development, while maintaining the down gradient water quality through treatment.

The development of this project will result in no adverse impacts to downstream properties.

6. SOIL TYPES

Soils consist almost entirely of moderately well drained silty marine deposits. There is a small area of similar soils that are somewhat poorly drained in the NW corner and some well drained to somewhat excessively drained sandy outwash at the southerly property line. The house sets on a small leveled area of urban land.
.

7. RAINFALL DATA

As part of the 2007 Alteration of Terrain rules update, New Hampshire began using “extreme precipitation” in lieu of the previously accepted standard UDSA SCS rainfall distribution.

We have used the interactive web tool for extreme precipitation analysis published by Cornell University. On March 7, 2024, we submitted our site location (longitude 70.868° West, Latitude 43.187° North). A table with the resulting rainfall data is provided in the appendix.

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8. WETLANDS & SITE SPECIFIC SOILS MAP

Highland Soil Services, Michael Mariano, Certified Wetland #183 and Soil Scientist #76, conducted an on site wetlands deliniation investigation of the subject parcel. There are no wetlands located on the site. Highland Soil Services also completed a site-specific soil survey, the results of which are depicted on sheet SSS-1, D-1, & D-2

9. ADJACENT AREAS

The site is zoned R-12. The site is bounded to the north by Court Street, to the south by Pine Hill Cemetary and to the east and west by residential properties.

10. CRITICAL AREAS

Anywhere on the site that existing vegetation is to be removed will require immediate erosion control treatment.

11. EXISTING CONDITIONS

The site is currently a single family residential property.

STORMWATER ANALYSIS

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103 Court Street
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12. EROSION AND SEDIMENT CONTROL PRACTICES

Erosion and sediment control practices will include the use of permanent grass ditches, vegetated filter strips, & Silt Soxx. All erosion control practices will be constructed and maintained according to the minimum standards and specifications contained in the "Erosion and Sediment Control Design Handbook for Developing Areas of New Hampshire".

A. Erosion and Sediment Control Measures

1. The erosion control procedures shall conform to Section 645 of the "Standard Specifications for Road and Bridge Construction" of the NH DOT, and the "Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire.
2. During Construction and thereafter, erosion control measures are to be implemented as noted. The smallest practical area of land should be exposed at any one time during development.
3. During grading operations, install hay bale barriers at 50 foot intervals in drainage swales and at drain inlets where shown. Barriers are to be maintained and cleaned until disturbed areas are stabilized.
4. Any disturbed areas which are to be left temporarily, and which will be regarded later during construction shall be machine hay mulched and seeded with rye grass to prevent erosion.
5. Silt Soxx shall be periodically inspected during the life of the project and after each storm. All damaged Silt Soxx shall be repaired. Sediment deposits shall periodically be removed.
6. Avoid the use of future open spaces (loam and seed areas) wherever possible during the construction. Construction traffic shall use the roadbeds of future roads and parking areas.
7. Topsoil required for the establishment of vegetation shall be stock piled in amounts necessary to complete finished grading of all exposed areas.
8. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. Stumps shall be disposed by grinding or fill in an approved facility.
9. All fills shall be placed and compacted to reduce erosion, slippage settlement, subsidence or other related problems.
10. All fill shall be placed and compacted in layers not to exceed 8 inches in thickness.
11. Frozen material or soft, mucky or highly compressible material shall not be incorporated into fills.

12. Fill material shall not be placed on a frozen foundation subgrade.
13. Disturbed areas shall be seeded immediately following finished grading.
14. At no time shall any disturbed area remain unstabilized for longer than thirty days. All areas where construction is not completed within thirty days of the initial disturbance shall be machine hay mulched and seeded with rye grass to prevent erosion.
15. Dewatering: Where groundwater is encountered during excavation, the contractor shall use a mechanical pump, pumping the water to a Dirt Bag™ or equivalent prior to discharge. Alternate systems must meet applicable sections of the 2017 CGP and NHDES requirements, and be approved by Tritech. Avoid allowing water to flow over disturbed or newly vegetated areas.

B. <u>Vegetative Practice</u>

1. All disturbed areas shall be loamed (4") and limed. Lime shall be thoroughly incorporated into the loam layer at a rate of 2 tons per acre.
2. Fertilizer shall be spread on the top layer of loam and worked into the surface. Fertilizer application rate shall be 500 pounds per acre of 10-20-20 fertilizers.
3. Seed shall be 48 lbs. per acre, SCS mixture "C".
   Immediately before seeding, the soil shall be lightly raked. One half the seed shall be sown in one direction and the other half at right angles to the original direction. It shall be lightly raked into the soil to a depth not over 1/4 inch and rolled with a hand roller weighing not over 100 pounds per linear foot of width.
4. Hay mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre and shall be held in place using appropriate techniques from the Erosion and Sediment Control Handbook.
5. The surface shall be watered and kept moist with a fine spray as required, without washing away the soil, until the grass is well established. Any areas which are not satisfactorily covered with grass shall be reseeded, and all noxious weeds removed.

STORMWATER ANALYSIS

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103 COURT STREET

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13. CONSTRUCTION SEQUENCE

A. Do not begin construction until all local, state and federal permits have been applied for and received.

B. Install Silt Soxx and hay bale barriers necessary to control erosion and prevent sediment contamination of wetlands prior to any earth moving activities.

C. Cut and remove all trees, shrubs, saplings, brush, vines and other debris and rubbish as required. Remove unsuitable materials as required.

D. Care shall be taken to preserve the infiltration capacity of the infiltrating soil. Seet the New Hampshire Stormwater Manual for additional information.

E. Construct Stormwater Bioretention Basin #101. Do not direct runoff to the practice until the practice and contributing areas are fully stabilized.

F. Constuct of buildings, driveways, parking, & utilities.

G. Loam and seed disturbed areas in accordance with vegetative practice and general construction notes. Cut and fill slopes shall be seeded immediately after their construction.

H. Land leveling operations for buildings and other structures shall be completed along with off road storm sewer systems and utilities.

I. Maintain disturbed areas as necessary.

14. MAINTENANCE

During the period of construction and/or until long term vegetation is established:

A. Seeded areas will be fertilized and reseeded as necessary to insure vegetative establishment.

B. The ditches will be checked after each significant rainfall and cleaned of sediment as needed to retain flow capacity.

C. The ditches will be checked weekly and repaired when necessary until adequate vegetation is established.

D. The silt fence barriers will be checked regularly. Necessary repairs will be made to correct undermining or deterioration of the structures.

STORMWATER ANALYSIS

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for

103 COURT STREET

103 Court Street
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August 2024

SECTION II

COMPUTATIONS

LEGEND

- 98 — 2FT GRANIT CONTOUR
- 100 — 10FT GRANIT CONTOUR
- SOILS BOUNDARY
- PROPERTY LINE
- SUBCAT BOUNDARY
- FLOW PATH
- (1) SUBCAT LABEL
- 1 ANALYSIS POINT
- TREE LINE
- 915B SITE-SPECIFIC SOIL TYPE LABEL
- ScA NRCS SOIL TYPE LABEL

30 0 15 30 60 120

1"=30'

N

TRITECH
ENGINEERING CORPORATION

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755 CENTRAL AVENUE
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TELEPHONE 603 742 8107
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REVISIONS
DATE: DESCRIPTION:

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER
ROBERT STOWELL No. 9803 LICENSED

PRE-CONSTRUCTION DRAINAGE PLAN

103 COURT STREET

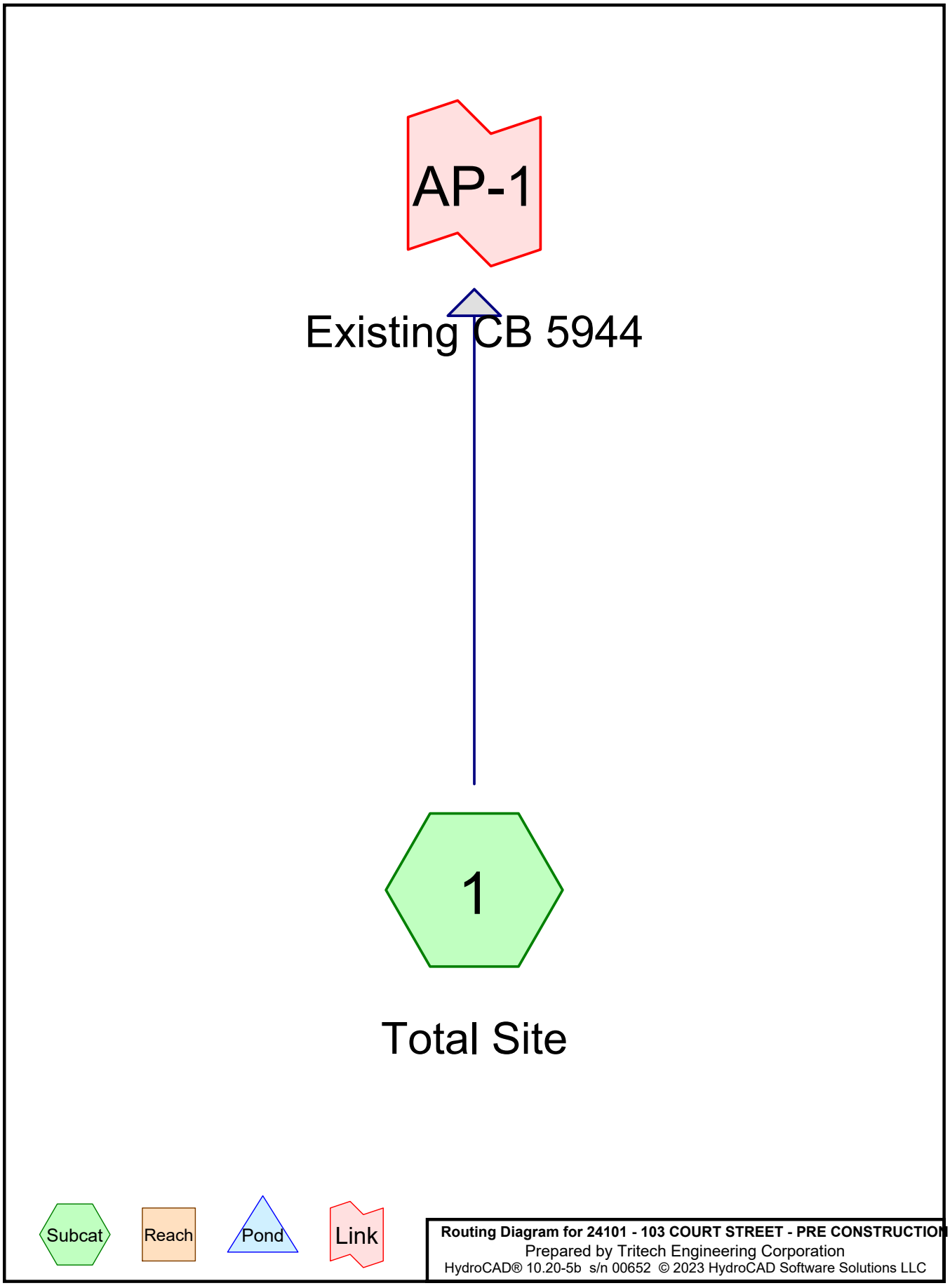
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

SCALE: 1" = 30'

SHEET No.

D-1



Routing Diagram for 24101 - 103 COURT STREET - PRE CONSTRUCTION
Prepared by Tritech Engineering Corporation
HydroCAD® 10.20-5b s/n 00652 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.132	74	>75% Grass cover, Good, HSG C (1)
0.062	80	>75% Grass cover, Good, HSG D (1)
0.015	98	Paved parking, HSG A (1)
0.034	98	Paved parking, HSG C (1)
0.017	98	Paved parking, HSG D (1)
0.041	98	Roofs, HSG C (1)
0.060	30	Woods, Good, HSG A (1)
0.103	70	Woods, Good, HSG C (1)
0.044	77	Woods, Good, HSG D (1)
0.038	32	Woods/grass comb., Good, HSG A (1)
0.888	72	Woods/grass comb., Good, HSG C (1)
0.046	79	Woods/grass comb., Good, HSG D (1)
1.479	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.112	HSG A	1
0.000	HSG B	
1.198	HSG C	1
0.169	HSG D	1
0.000	Other	
1.479		**TOTAL AREA**

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Total Site Runoff Area=64,430 sf 7.23% Impervious Runoff Depth=0.90"
Flow Length=435' Tc=23.3 min CN=72 Runoff=0.90 cfs 0.111 af

Link AP-1: Existing CB 5944 Inflow=0.90 cfs 0.111 af
Primary=0.90 cfs 0.111 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.111 af Average Runoff Depth = 0.90"
92.77% Pervious = 1.372 ac 7.23% Impervious = 0.107 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Total Site Runoff Area=64,430 sf 7.23% Impervious Runoff Depth=2.01"
Flow Length=435' Tc=23.3 min CN=72 Runoff=2.17 cfs 0.248 af

Link AP-1: Existing CB 5944 Inflow=2.17 cfs 0.248 af
Primary=2.17 cfs 0.248 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.248 af Average Runoff Depth = 2.01"
92.77% Pervious = 1.372 ac 7.23% Impervious = 0.107 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Total Site Runoff Area=64,430 sf 7.23% Impervious Runoff Depth=3.00"
Flow Length=435' Tc=23.3 min CN=72 Runoff=3.27 cfs 0.370 af

Link AP-1: Existing CB 5944 Inflow=3.27 cfs 0.370 af
Primary=3.27 cfs 0.370 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.370 af Average Runoff Depth = 3.00"
92.77% Pervious = 1.372 ac 7.23% Impervious = 0.107 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Total Site Runoff Area=64,430 sf 7.23% Impervious Runoff Depth=3.99"
Flow Length=435' Tc=23.3 min CN=72 Runoff=4.37 cfs 0.492 af

Link AP-1: Existing CB 5944 Inflow=4.37 cfs 0.492 af
Primary=4.37 cfs 0.492 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.492 af Average Runoff Depth = 3.99"
92.77% Pervious = 1.372 ac 7.23% Impervious = 0.107 ac

Summary for Subcatchment 1: Total Site

Runoff = 2.17 cfs @ 12.34 hrs, Volume= 0.248 af, Depth= 2.01"
Routed to Link AP-1 : Existing CB 5944

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,498	98	Paved parking, HSG C
1,780	98	Roofs, HSG C
4,497	70	Woods, Good, HSG C
38,680	72	Woods/grass comb., Good, HSG C
5,730	74	>75% Grass cover, Good, HSG C
1,645	32	Woods/grass comb., Good, HSG A
2,600	30	Woods, Good, HSG A
635	98	Paved parking, HSG A
745	98	Paved parking, HSG D
2,010	79	Woods/grass comb., Good, HSG D
2,705	80	>75% Grass cover, Good, HSG D
1,905	77	Woods, Good, HSG D
64,430	72	Weighted Average
59,772		92.77% Pervious Area
4,658		7.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.75		**Sheet Flow, Sheet Pave** Smooth surfaces n= 0.011 P2= 3.15"
14.4	30	0.0200	0.03		**Sheet Flow, Sheet woods** Woods: Dense underbrush n= 0.800 P2= 3.15"
5.7	65	0.0250	0.19		**Sheet Flow, sheet range** Range n= 0.130 P2= 3.15"
1.9	245	0.0450	2.12		**Shallow Concentrated Flow, SC range** Nearly Bare & Untilled Kv= 10.0 fps
1.2	90	0.0650	1.27		**Shallow Concentrated Flow, SC woods** Woodland Kv= 5.0 fps
23.3	435	Total			

Summary for Link AP-1: Existing CB 5944

Inflow Area = 1.479 ac, 7.23% Impervious, Inflow Depth = 2.01" for 10-YR SEACOAST event
Inflow = 2.17 cfs @ 12.34 hrs, Volume= 0.248 af
Primary = 2.17 cfs @ 12.34 hrs, Volume= 0.248 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs



TRITECH
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N

SHEET No.

D-2

POST-CONSTRUCTION DRAINAGE PLAN

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

SCALE: 1" = 30'

STATE OF NEW HAMPSHIRE
ROBERT J. STOWELL
No. 9903
LICENSED PROFESSIONAL ENGINEER

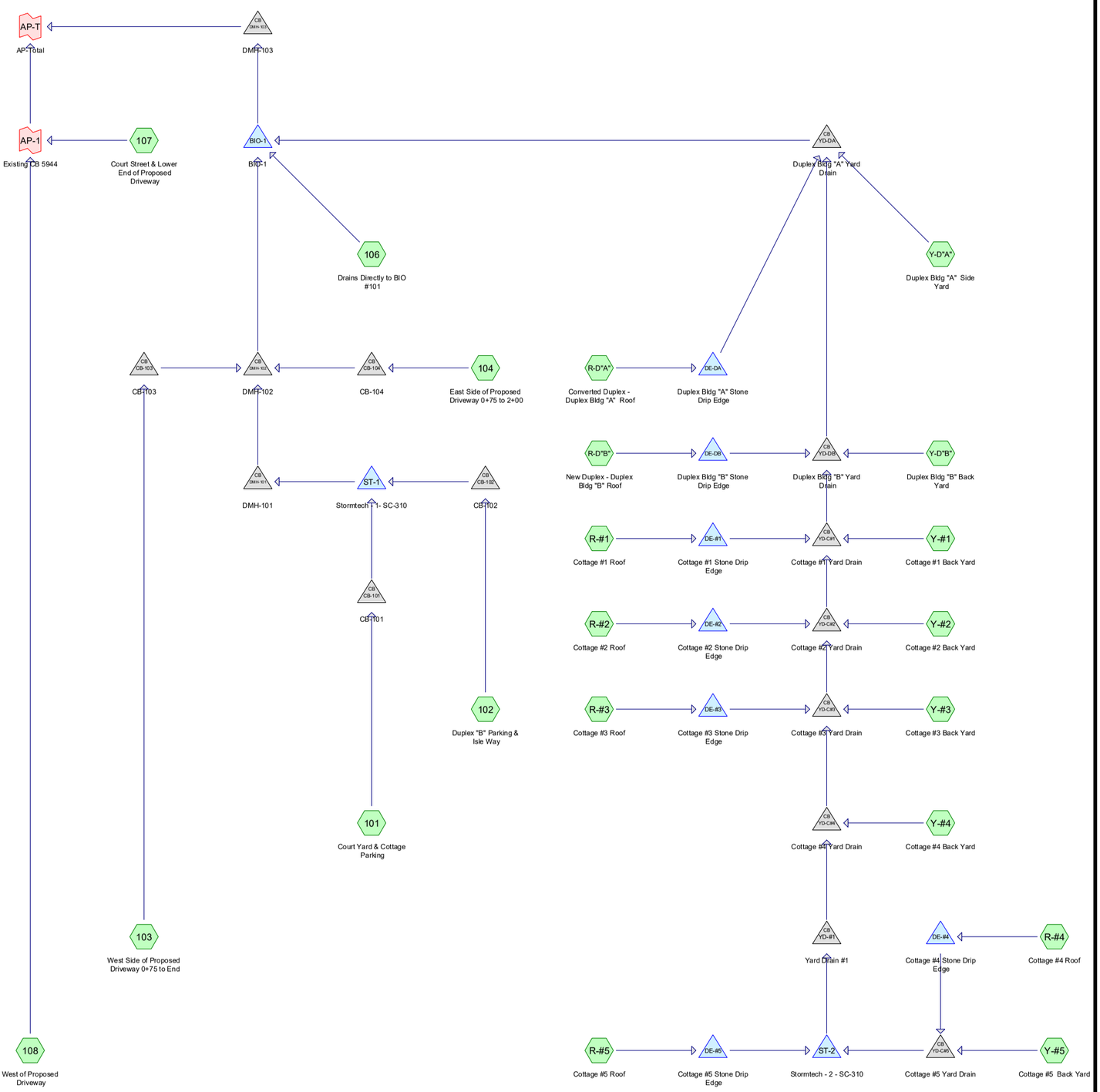
REVISIONS

DATE:	DESCRIPTION:

TRITECH
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Subcat Reach Pond Link

Routing Diagram for JN 24101 - 103 COURT STREET - POST CONSTRUCTION

Prepared by Tritech Engineering Corporation

HydroCAD® 10.20-5b s/n 00652 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR SEACOAST	Type III 24-hr		Default	24.00	1	3.15	2
2	10-YR SEACOAST	Type III 24-hr		Default	24.00	1	4.76	2
3	25-YR SEACOAST	Type III 24-hr		Default	24.00	1	6.01	2
4	50-YR SEACOAST	Type III 24-hr		Default	24.00	1	7.19	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.068	39	>75% Grass cover, Good, HSG A (101, 108, Y-#5)
0.644	74	>75% Grass cover, Good, HSG C (101, 102, 103, 104, 106, 108, Y-#1, Y-#2, Y-#3, Y-#4, Y-#5, Y-D"A", Y-D"B")
0.037	80	>75% Grass cover, Good, HSG D (104, 106, 108)
0.028	98	Paved parking, HSG A (101, 103, 108, Y-#5)
0.334	98	Paved parking, HSG C (101, 102, 103, 104, 106, 107, Y-D"A")
0.096	98	Paved parking, HSG D (103, 104, 107)
0.011	98	Roofs, HSG A (R-#5)
0.132	98	Roofs, HSG C (R-#1, R-#2, R-#3, R-#4, R-#5, R-D"A", R-D"B")
0.002	98	Unconnected pavement, HSG D (108)
0.005	32	Woods/grass comb., Good, HSG A (108)
0.086	72	Woods/grass comb., Good, HSG C (108)
0.036	79	Woods/grass comb., Good, HSG D (108)
1.479	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.112	HSG A	101, 103, 108, R-#5, Y-#5
0.000	HSG B	
1.197	HSG C	101, 102, 103, 104, 106, 107, 108, R-#1, R-#2, R-#3, R-#4, R-#5, R-D"A", R-D"B", Y-#1, Y-#2, Y-#3, Y-#4, Y-#5, Y-D"A", Y-D"B"
0.170	HSG D	103, 104, 106, 107, 108
0.000	Other	
1.479		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	BIO-1	96.40	95.90	24.0	0.0208	0.012	0.0	12.0	0.0	
2	CB-101	106.70	106.40	24.0	0.0125	0.012	0.0	12.0	0.0	
3	CB-102	106.70	106.40	28.0	0.0107	0.012	0.0	12.0	0.0	
4	CB-103	101.20	101.00	15.0	0.0133	0.012	0.0	12.0	0.0	
5	CB-104	101.10	101.00	5.0	0.0200	0.012	0.0	12.0	0.0	
6	DE-#1	110.50	108.00	5.0	0.5000	0.012	0.0	6.0	0.0	
7	DE-#2	112.50	110.00	5.0	0.5000	0.012	0.0	6.0	0.0	
8	DE-#3	114.00	112.00	5.0	0.4000	0.012	0.0	6.0	0.0	
9	DE-#4	115.00	114.90	18.0	0.0056	0.012	0.0	6.0	0.0	
10	DE-#5	116.75	114.50	10.0	0.2250	0.012	0.0	6.0	0.0	
11	DE-DA	105.50	102.10	20.0	0.1700	0.012	0.0	6.0	0.0	
12	DE-DB	106.00	105.50	22.0	0.0227	0.012	0.0	6.0	0.0	
13	DMH-101	103.25	101.00	96.0	0.0234	0.012	0.0	12.0	0.0	
14	DMH-102	100.90	100.70	16.0	0.0125	0.012	0.0	15.0	0.0	
15	DMH-103	90.80	90.52	85.0	0.0033	0.013	0.0	18.0	0.0	
16	ST-1	104.40	104.35	4.0	0.0125	0.012	0.0	6.0	0.0	
17	ST-2	114.50	114.00	30.0	0.0167	0.012	0.0	6.0	0.0	
18	YD-#1	113.90	113.50	59.0	0.0068	0.012	0.0	12.0	0.0	
19	YD-C#1	107.90	105.50	95.0	0.0253	0.012	0.0	12.0	0.0	
20	YD-C#2	109.90	108.00	48.0	0.0396	0.012	0.0	12.0	0.0	
21	YD-C#3	111.90	110.00	52.0	0.0365	0.012	0.0	12.0	0.0	
22	YD-C#4	113.40	112.00	50.0	0.0280	0.012	0.0	12.0	0.0	
23	YD-C#5	114.60	114.50	9.0	0.0111	0.012	0.0	6.0	0.0	
24	YD-DA	102.00	101.50	38.0	0.0132	0.012	0.0	15.0	0.0	
25	YD-DB	105.40	102.10	59.0	0.0559	0.012	0.0	12.0	0.0	

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 101: Court Yard & Cottage Runoff Area=10,755 sf 46.30% Impervious Runoff Depth=1.72"
Flow Length=190' Tc=8.9 min CN=85 Runoff=0.45 cfs 0.035 af

Subcatchment 102: Duplex "B" Parking & Runoff Area=2,558 sf 79.67% Impervious Runoff Depth=2.40"
Tc=6.0 min CN=93 Runoff=0.16 cfs 0.012 af

Subcatchment 103: West Side of Proposed Runoff Area=3,118 sf 99.52% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment 104: East Side of Proposed Runoff Area=7,280 sf 57.76% Impervious Runoff Depth=1.95"
Flow Length=230' Tc=7.3 min CN=88 Runoff=0.36 cfs 0.027 af

Subcatchment 106: Drains Directly to BIO Runoff Area=3,255 sf 5.53% Impervious Runoff Depth=1.06"
Tc=6.0 min CN=75 Runoff=0.09 cfs 0.007 af

Subcatchment 107: Court Street & Lower Runoff Area=4,210 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.023 af

Subcatchment 108: West of Proposed Runoff Area=11,150 sf 5.02% Impervious Runoff Depth=1.00"
Flow Length=430' Tc=7.8 min CN=74 Runoff=0.27 cfs 0.021 af

Subcatchment R-#1: Cottage #1 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment R-#2: Cottage #2 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment R-#3: Cottage #3 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment R-#4: Cottage #4 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment R-#5: Cottage #5 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment R-D"A": Converted Duplex - Runoff Area=945 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment R-D"B": New Duplex - Runoff Area=1,227 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment Y-#1: Cottage #1 Back Yard Runoff Area=1,328 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=74 Runoff=0.03 cfs 0.003 af

Subcatchment Y-#2: Cottage #2 Back Yard Runoff Area=1,425 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=74 Runoff=0.04 cfs 0.003 af

Subcatchment Y-#3: Cottage #3 Back Yard Runoff Area=1,381 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=74 Runoff=0.04 cfs 0.003 af

Subcatchment Y-#4: Cottage #4 Back Yard Runoff Area=1,200 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=74 Runoff=0.03 cfs 0.002 af

Subcatchment Y-#5: Cottage #5 Back Yard Runoff Area=4,468 sf 14.77% Impervious Runoff Depth=0.29"
Tc=6.0 min CN=57 Runoff=0.01 cfs 0.003 af

Subcatchment Y-D"A": Duplex Bldg "A" Runoff Area=2,952 sf 2.37% Impervious Runoff Depth=1.06"
Tc=6.0 min CN=75 Runoff=0.08 cfs 0.006 af

Subcatchment Y-D"B": Duplex Bldg "B" Runoff Area=3,120 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=74 Runoff=0.08 cfs 0.006 af

Pond BIO-1: BIO-1 Peak Elev=100.92' Storage=1,878 cf Inflow=1.65 cfs 0.146 af
Outflow=0.45 cfs 0.146 af

Pond CB-101: CB-101 Peak Elev=107.03' Inflow=0.45 cfs 0.035 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0125 '/' Outflow=0.45 cfs 0.035 af

Pond CB-102: CB-102 Peak Elev=106.89' Inflow=0.16 cfs 0.012 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0107 '/' Outflow=0.16 cfs 0.012 af

Pond CB-103: CB-103 Peak Elev=101.51' Inflow=0.22 cfs 0.017 af
12.0" Round Culvert n=0.012 L=15.0' S=0.0133 '/' Outflow=0.22 cfs 0.017 af

Pond CB-104: CB-104 Peak Elev=101.51' Inflow=0.36 cfs 0.027 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.36 cfs 0.027 af

Pond DE-#1: Cottage #1 Stone Drip Edge Peak Elev=110.78' Storage=16 cf Inflow=0.06 cfs 0.005 af
Outflow=0.03 cfs 0.005 af

Pond DE-#2: Cottage #2 Stone Drip Edge Peak Elev=112.78' Storage=16 cf Inflow=0.06 cfs 0.005 af
Outflow=0.03 cfs 0.005 af

Pond DE-#3: Cottage #3 Stone Drip Edge Peak Elev=114.28' Storage=16 cf Inflow=0.06 cfs 0.005 af
Outflow=0.03 cfs 0.005 af

Pond DE-#4: Cottage #4 Stone Drip Edge Peak Elev=115.30' Storage=17 cf Inflow=0.06 cfs 0.005 af
Outflow=0.03 cfs 0.005 af

Pond DE-#5: Cottage #5 Stone Drip Edge Peak Elev=116.09' Storage=7 cf Inflow=0.06 cfs 0.005 af
Discarded=0.04 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.005 af

Pond DE-DA: Duplex Bldg "A" Stone Drip Edge Peak Elev=105.88' Storage=21 cf Inflow=0.07 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond DE-DB: Duplex Bldg "B" Stone Drip Edge Peak Elev=106.32' Storage=26 cf Inflow=0.09 cfs 0.007 af
Outflow=0.05 cfs 0.007 af

Pond DMH-101: DMH-101 Peak Elev=103.62' Inflow=0.55 cfs 0.047 af
12.0" Round Culvert n=0.012 L=96.0' S=0.0234 '/' Outflow=0.55 cfs 0.047 af

Pond DMH-102: DMH-102 Peak Elev=101.43' Inflow=1.09 cfs 0.092 af
15.0" Round Culvert n=0.012 L=16.0' S=0.0125 '/' Outflow=1.09 cfs 0.092 af

Pond DMH-103: DMH-103 Peak Elev=91.17' Inflow=0.45 cfs 0.146 af
18.0" Round Culvert n=0.013 L=85.0' S=0.0033 '/' Outflow=0.45 cfs 0.146 af

Pond ST-1: Stormtech - 1- SC-310 Peak Elev=105.05' Storage=99 cf Inflow=0.60 cfs 0.047 af
6.0" Round Culvert n=0.012 L=4.0' S=0.0125 '/' Outflow=0.55 cfs 0.047 af

Pond ST-2: Stormtech - 2 - SC-310 Peak Elev=113.58' Storage=9 cf Inflow=0.05 cfs 0.007 af
Discarded=0.05 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.007 af

Pond YD-#1: Yard Drain #1 Peak Elev=113.90' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0068 '/' Outflow=0.00 cfs 0.000 af

Pond YD-C#1: Cottage #1 Yard Drain Peak Elev=108.17' Inflow=0.24 cfs 0.024 af
12.0" Round Culvert n=0.012 L=95.0' S=0.0253 '/' Outflow=0.24 cfs 0.024 af

Pond YD-C#2: Cottage #2 Yard Drain Peak Elev=110.13' Inflow=0.17 cfs 0.017 af
12.0" Round Culvert n=0.012 L=48.0' S=0.0396 '/' Outflow=0.17 cfs 0.017 af

Pond YD-C#3: Cottage #3 Yard Drain Peak Elev=112.07' Inflow=0.10 cfs 0.009 af
12.0" Round Culvert n=0.012 L=52.0' S=0.0365 '/' Outflow=0.10 cfs 0.009 af

Pond YD-C#4: Cottage #4 Yard Drain Peak Elev=113.49' Inflow=0.03 cfs 0.002 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0280 '/' Outflow=0.03 cfs 0.002 af

Pond YD-C#5: Cottage #5 Yard Drain Peak Elev=114.74' Inflow=0.05 cfs 0.007 af
6.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.05 cfs 0.007 af

Pond YD-DA: Duplex Bldg "A" Yard Drain Peak Elev=102.36' Inflow=0.48 cfs 0.048 af
15.0" Round Culvert n=0.012 L=38.0' S=0.0132 '/' Outflow=0.48 cfs 0.048 af

Pond YD-DB: Duplex Bldg "B" Yard Drain Peak Elev=105.74' Inflow=0.37 cfs 0.037 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0559 '/' Outflow=0.37 cfs 0.037 af

Link AP-1: Existing CB 5944 Inflow=0.55 cfs 0.045 af
Primary=0.55 cfs 0.045 af

Link AP-T: AP-Total Inflow=0.77 cfs 0.191 af
Primary=0.77 cfs 0.191 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.203 af Average Runoff Depth = 1.64"
59.29% Pervious = 0.877 ac 40.71% Impervious = 0.602 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 101: Court Yard & Cottage Runoff Area=10,755 sf 46.30% Impervious Runoff Depth=3.15"
Flow Length=190' Tc=8.9 min CN=85 Runoff=0.82 cfs 0.065 af

Subcatchment 102: Duplex "B" Parking & Runoff Area=2,558 sf 79.67% Impervious Runoff Depth=3.96"
Tc=6.0 min CN=93 Runoff=0.26 cfs 0.019 af

Subcatchment 103: West Side of Proposed Runoff Area=3,118 sf 99.52% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment 104: East Side of Proposed Runoff Area=7,280 sf 57.76% Impervious Runoff Depth=3.44"
Flow Length=230' Tc=7.3 min CN=88 Runoff=0.63 cfs 0.048 af

Subcatchment 106: Drains Directly to BIO Runoff Area=3,255 sf 5.53% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=75 Runoff=0.20 cfs 0.014 af

Subcatchment 107: Court Street & Lower Runoff Area=4,210 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.036 af

Subcatchment 108: West of Proposed Runoff Area=11,150 sf 5.02% Impervious Runoff Depth=2.17"
Flow Length=430' Tc=7.8 min CN=74 Runoff=0.61 cfs 0.046 af

Subcatchment R-#1: Cottage #1 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment R-#2: Cottage #2 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment R-#3: Cottage #3 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment R-#4: Cottage #4 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment R-#5: Cottage #5 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment R-D"A": Converted Duplex - Runoff Area=945 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment R-D"B": New Duplex - Runoff Area=1,227 sf 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment Y-#1: Cottage #1 Back Yard Runoff Area=1,328 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=74 Runoff=0.08 cfs 0.006 af

Subcatchment Y-#2: Cottage #2 Back Yard Runoff Area=1,425 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=74 Runoff=0.08 cfs 0.006 af

Subcatchment Y-#3: Cottage #3 Back Yard Runoff Area=1,381 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=74 Runoff=0.08 cfs 0.006 af

Subcatchment Y-#4: Cottage #4 Back Yard Runoff Area=1,200 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=74 Runoff=0.07 cfs 0.005 af

Subcatchment Y-#5: Cottage #5 Back Yard Runoff Area=4,468 sf 14.77% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=57 Runoff=0.10 cfs 0.008 af

Subcatchment Y-D"A": Duplex Bldg "A" Runoff Area=2,952 sf 2.37% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=75 Runoff=0.18 cfs 0.013 af

Subcatchment Y-D"B": Duplex Bldg "B" Runoff Area=3,120 sf 0.00% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.013 af

Pond BIO-1: BIO-1 Peak Elev=102.03' Storage=2,564 cf Inflow=2.84 cfs 0.261 af
Outflow=1.63 cfs 0.261 af

Pond CB-101: CB-101 Peak Elev=107.17' Inflow=0.82 cfs 0.065 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0125 '/' Outflow=0.82 cfs 0.065 af

Pond CB-102: CB-102 Peak Elev=106.95' Inflow=0.26 cfs 0.019 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0107 '/' Outflow=0.26 cfs 0.019 af

Pond CB-103: CB-103 Peak Elev=102.07' Inflow=0.33 cfs 0.027 af
12.0" Round Culvert n=0.012 L=15.0' S=0.0133 '/' Outflow=0.33 cfs 0.027 af

Pond CB-104: CB-104 Peak Elev=102.07' Inflow=0.63 cfs 0.048 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.63 cfs 0.048 af

Pond DE-#1: Cottage #1 Stone Drip Edge Peak Elev=111.16' Storage=36 cf Inflow=0.09 cfs 0.007 af
Outflow=0.04 cfs 0.007 af

Pond DE-#2: Cottage #2 Stone Drip Edge Peak Elev=113.16' Storage=36 cf Inflow=0.09 cfs 0.007 af
Outflow=0.04 cfs 0.007 af

Pond DE-#3: Cottage #3 Stone Drip Edge Peak Elev=114.66' Storage=36 cf Inflow=0.09 cfs 0.007 af
Outflow=0.04 cfs 0.007 af

Pond DE-#4: Cottage #4 Stone Drip Edge Peak Elev=115.67' Storage=37 cf Inflow=0.09 cfs 0.007 af
Outflow=0.04 cfs 0.007 af

Pond DE-#5: Cottage #5 Stone Drip Edge Peak Elev=116.34' Storage=25 cf Inflow=0.09 cfs 0.007 af
Discarded=0.04 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.007 af

Pond DE-DA: Duplex Bldg "A" Stone Drip Edge Peak Elev=106.38' Storage=48 cf Inflow=0.10 cfs 0.008 af
Outflow=0.04 cfs 0.008 af

Pond DE-DB: Duplex Bldg "B" Stone Drip Edge Peak Elev=106.72' Storage=58 cf Inflow=0.13 cfs 0.011 af
Outflow=0.05 cfs 0.011 af

Pond DMH-101: DMH-101 Peak Elev=103.73' Inflow=0.89 cfs 0.084 af
12.0" Round Culvert n=0.012 L=96.0' S=0.0234 '/' Outflow=0.89 cfs 0.084 af

Pond DMH-102: DMH-102 Peak Elev=102.06' Inflow=1.78 cfs 0.159 af
15.0" Round Culvert n=0.012 L=16.0' S=0.0125 '/' Outflow=1.78 cfs 0.159 af

Pond DMH-103: DMH-103 Peak Elev=91.54' Inflow=1.63 cfs 0.261 af
18.0" Round Culvert n=0.013 L=85.0' S=0.0033 '/' Outflow=1.63 cfs 0.261 af

Pond ST-1: Stormtech - 1- SC-310 Peak Elev=105.54' Storage=191 cf Inflow=1.06 cfs 0.084 af
6.0" Round Culvert n=0.012 L=4.0' S=0.0125 '/' Outflow=0.89 cfs 0.084 af

Pond ST-2: Stormtech - 2 - SC-310 Peak Elev=114.04' Storage=67 cf Inflow=0.13 cfs 0.015 af
Discarded=0.07 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.015 af

Pond YD-#1: Yard Drain #1 Peak Elev=113.90' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0068 '/' Outflow=0.00 cfs 0.000 af

Pond YD-C#1: Cottage #1 Yard Drain Peak Elev=108.26' Inflow=0.42 cfs 0.043 af
12.0" Round Culvert n=0.012 L=95.0' S=0.0253 '/' Outflow=0.42 cfs 0.043 af

Pond YD-C#2: Cottage #2 Yard Drain Peak Elev=110.21' Inflow=0.30 cfs 0.031 af
12.0" Round Culvert n=0.012 L=48.0' S=0.0396 '/' Outflow=0.30 cfs 0.031 af

Pond YD-C#3: Cottage #3 Yard Drain Peak Elev=112.14' Inflow=0.19 cfs 0.018 af
12.0" Round Culvert n=0.012 L=52.0' S=0.0365 '/' Outflow=0.19 cfs 0.018 af

Pond YD-C#4: Cottage #4 Yard Drain Peak Elev=113.54' Inflow=0.07 cfs 0.005 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0280 '/' Outflow=0.07 cfs 0.005 af

Pond YD-C#5: Cottage #5 Yard Drain Peak Elev=114.85' Inflow=0.13 cfs 0.015 af
6.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.13 cfs 0.015 af

Pond YD-DA: Duplex Bldg "A" Yard Drain Peak Elev=102.50' Inflow=0.86 cfs 0.088 af
15.0" Round Culvert n=0.012 L=38.0' S=0.0132 '/' Outflow=0.86 cfs 0.088 af

Pond YD-DB: Duplex Bldg "B" Yard Drain Peak Elev=105.86' Inflow=0.65 cfs 0.067 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0559 '/' Outflow=0.65 cfs 0.067 af

Link AP-1: Existing CB 5944 Inflow=1.04 cfs 0.083 af
Primary=1.04 cfs 0.083 af

Link AP-T: AP-Total Inflow=2.17 cfs 0.344 af
Primary=2.17 cfs 0.344 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.366 af Average Runoff Depth = 2.97"
59.29% Pervious = 0.877 ac 40.71% Impervious = 0.602 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 101: Court Yard & Cottage Runoff Area=10,755 sf 46.30% Impervious Runoff Depth=4.31"
Flow Length=190' Tc=8.9 min CN=85 Runoff=1.11 cfs 0.089 af

Subcatchment 102: Duplex "B" Parking & Runoff Area=2,558 sf 79.67% Impervious Runoff Depth=5.19"
Tc=6.0 min CN=93 Runoff=0.33 cfs 0.025 af

Subcatchment 103: West Side of Proposed Runoff Area=3,118 sf 99.52% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.034 af

Subcatchment 104: East Side of Proposed Runoff Area=7,280 sf 57.76% Impervious Runoff Depth=4.64"
Flow Length=230' Tc=7.3 min CN=88 Runoff=0.84 cfs 0.065 af

Subcatchment 106: Drains Directly to BIO Runoff Area=3,255 sf 5.53% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=75 Runoff=0.29 cfs 0.020 af

Subcatchment 107: Court Street & Lower Runoff Area=4,210 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.57 cfs 0.046 af

Subcatchment 108: West of Proposed Runoff Area=11,150 sf 5.02% Impervious Runoff Depth=3.19"
Flow Length=430' Tc=7.8 min CN=74 Runoff=0.90 cfs 0.068 af

Subcatchment R-#1: Cottage #1 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment R-#2: Cottage #2 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment R-#3: Cottage #3 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment R-#4: Cottage #4 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment R-#5: Cottage #5 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment R-D"A": Converted Duplex - Runoff Area=945 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.010 af

Subcatchment R-D"B": New Duplex - Runoff Area=1,227 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment Y-#1: Cottage #1 Back Yard Runoff Area=1,328 sf 0.00% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=74 Runoff=0.11 cfs 0.008 af

Subcatchment Y-#2: Cottage #2 Back Yard Runoff Area=1,425 sf 0.00% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=74 Runoff=0.12 cfs 0.009 af

Subcatchment Y-#3: Cottage #3 Back Yard Runoff Area=1,381 sf 0.00% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=74 Runoff=0.12 cfs 0.008 af

Subcatchment Y-#4: Cottage #4 Back Yard Runoff Area=1,200 sf 0.00% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=74 Runoff=0.10 cfs 0.007 af

Subcatchment Y-#5: Cottage #5 Back Yard Runoff Area=4,468 sf 14.77% Impervious Runoff Depth=1.68"
Tc=6.0 min CN=57 Runoff=0.19 cfs 0.014 af

Subcatchment Y-D"A": Duplex Bldg "A" Runoff Area=2,952 sf 2.37% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=75 Runoff=0.26 cfs 0.019 af

Subcatchment Y-D"B": Duplex Bldg "B" Runoff Area=3,120 sf 0.00% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=74 Runoff=0.27 cfs 0.019 af

Pond BIO-1: BIO-1 Peak Elev=102.83' Storage=3,280 cf Inflow=3.68 cfs 0.355 af
Outflow=2.15 cfs 0.355 af

Pond CB-101: CB-101 Peak Elev=107.26' Inflow=1.11 cfs 0.089 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0125 '/' Outflow=1.11 cfs 0.089 af

Pond CB-102: CB-102 Peak Elev=106.99' Inflow=0.33 cfs 0.025 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0107 '/' Outflow=0.33 cfs 0.025 af

Pond CB-103: CB-103 Peak Elev=102.89' Inflow=0.42 cfs 0.034 af
12.0" Round Culvert n=0.012 L=15.0' S=0.0133 '/' Outflow=0.42 cfs 0.034 af

Pond CB-104: CB-104 Peak Elev=102.90' Inflow=0.84 cfs 0.065 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.84 cfs 0.065 af

Pond DE-#1: Cottage #1 Stone Drip Edge Peak Elev=111.53' Storage=56 cf Inflow=0.11 cfs 0.009 af
Outflow=0.04 cfs 0.009 af

Pond DE-#2: Cottage #2 Stone Drip Edge Peak Elev=113.53' Storage=56 cf Inflow=0.11 cfs 0.009 af
Outflow=0.04 cfs 0.009 af

Pond DE-#3: Cottage #3 Stone Drip Edge Peak Elev=115.03' Storage=56 cf Inflow=0.11 cfs 0.009 af
Outflow=0.04 cfs 0.009 af

Pond DE-#4: Cottage #4 Stone Drip Edge Peak Elev=116.04' Storage=57 cf Inflow=0.11 cfs 0.009 af
Outflow=0.04 cfs 0.009 af

Pond DE-#5: Cottage #5 Stone Drip Edge Peak Elev=116.60' Storage=44 cf Inflow=0.11 cfs 0.009 af
Discarded=0.04 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.009 af

Pond DE-DA: Duplex Bldg "A" Stone Drip Edge Peak Elev=106.86' Storage=74 cf Inflow=0.13 cfs 0.010 af
Outflow=0.04 cfs 0.010 af

Pond DE-DB: Duplex Bldg "B" Stone Drip Edge Peak Elev=107.12' Storage=91 cf Inflow=0.17 cfs 0.014 af
Outflow=0.06 cfs 0.014 af

Pond DMH-101: DMH-101 Peak Elev=103.80' Inflow=1.10 cfs 0.114 af
12.0" Round Culvert n=0.012 L=96.0' S=0.0234 '/' Outflow=1.10 cfs 0.114 af

Pond DMH-102: DMH-102 Peak Elev=102.89' Inflow=2.22 cfs 0.213 af
15.0" Round Culvert n=0.012 L=16.0' S=0.0125 '/' Outflow=2.22 cfs 0.213 af

Pond DMH-103: DMH-103 Peak Elev=91.66' Inflow=2.15 cfs 0.355 af
18.0" Round Culvert n=0.013 L=85.0' S=0.0033 '/' Outflow=2.15 cfs 0.355 af

Pond ST-1: Stormtech - 1- SC-310 Peak Elev=106.01' Storage=312 cf Inflow=1.42 cfs 0.114 af
6.0" Round Culvert n=0.012 L=4.0' S=0.0125 '/' Outflow=1.10 cfs 0.114 af

Pond ST-2: Stormtech - 2 - SC-310 Peak Elev=114.54' Storage=168 cf Inflow=0.22 cfs 0.023 af
Discarded=0.08 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.023 af

Pond YD-#1: Yard Drain #1 Peak Elev=113.94' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0068 '/' Outflow=0.00 cfs 0.000 af

Pond YD-C#1: Cottage #1 Yard Drain Peak Elev=108.33' Inflow=0.57 cfs 0.059 af
12.0" Round Culvert n=0.012 L=95.0' S=0.0253 '/' Outflow=0.57 cfs 0.059 af

Pond YD-C#2: Cottage #2 Yard Drain Peak Elev=110.26' Inflow=0.42 cfs 0.042 af
12.0" Round Culvert n=0.012 L=48.0' S=0.0396 '/' Outflow=0.42 cfs 0.042 af

Pond YD-C#3: Cottage #3 Yard Drain Peak Elev=112.18' Inflow=0.26 cfs 0.025 af
12.0" Round Culvert n=0.012 L=52.0' S=0.0365 '/' Outflow=0.26 cfs 0.025 af

Pond YD-C#4: Cottage #4 Yard Drain Peak Elev=113.57' Inflow=0.10 cfs 0.007 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0280 '/' Outflow=0.10 cfs 0.007 af

Pond YD-C#5: Cottage #5 Yard Drain Peak Elev=114.94' Inflow=0.22 cfs 0.023 af
6.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.22 cfs 0.023 af

Pond YD-DA: Duplex Bldg "A" Yard Drain Peak Elev=102.87' Inflow=1.19 cfs 0.121 af
15.0" Round Culvert n=0.012 L=38.0' S=0.0132 '/' Outflow=1.19 cfs 0.121 af

Pond YD-DB: Duplex Bldg "B" Yard Drain Peak Elev=105.95' Inflow=0.89 cfs 0.092 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0559 '/' Outflow=0.89 cfs 0.092 af

Link AP-1: Existing CB 5944 Inflow=1.45 cfs 0.115 af
Primary=1.45 cfs 0.115 af

Link AP-T: AP-Total Inflow=3.19 cfs 0.469 af
Primary=3.19 cfs 0.469 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.502 af Average Runoff Depth = 4.07"
59.29% Pervious = 0.877 ac 40.71% Impervious = 0.602 ac

Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 101: Court Yard & Cottage Runoff Area=10,755 sf 46.30% Impervious Runoff Depth=5.43"
Flow Length=190' Tc=8.9 min CN=85 Runoff=1.38 cfs 0.112 af

Subcatchment 102: Duplex "B" Parking & Runoff Area=2,558 sf 79.67% Impervious Runoff Depth=6.36"
Tc=6.0 min CN=93 Runoff=0.40 cfs 0.031 af

Subcatchment 103: West Side of Proposed Runoff Area=3,118 sf 99.52% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.51 cfs 0.041 af

Subcatchment 104: East Side of Proposed Runoff Area=7,280 sf 57.76% Impervious Runoff Depth=5.78"
Flow Length=230' Tc=7.3 min CN=88 Runoff=1.03 cfs 0.080 af

Subcatchment 106: Drains Directly to BIO Runoff Area=3,255 sf 5.53% Impervious Runoff Depth=4.32"
Tc=6.0 min CN=75 Runoff=0.38 cfs 0.027 af

Subcatchment 107: Court Street & Lower Runoff Area=4,210 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.68 cfs 0.056 af

Subcatchment 108: West of Proposed Runoff Area=11,150 sf 5.02% Impervious Runoff Depth=4.21"
Flow Length=430' Tc=7.8 min CN=74 Runoff=1.19 cfs 0.090 af

Subcatchment R-#1: Cottage #1 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment R-#2: Cottage #2 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment R-#3: Cottage #3 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment R-#4: Cottage #4 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment R-#5: Cottage #5 Roof Runoff Area=810 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment R-D"A": Converted Duplex - Runoff Area=945 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.013 af

Subcatchment R-D"B": New Duplex - Runoff Area=1,227 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.016 af

Subcatchment Y-#1: Cottage #1 Back Yard Runoff Area=1,328 sf 0.00% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=74 Runoff=0.15 cfs 0.011 af

Subcatchment Y-#2: Cottage #2 Back Yard Runoff Area=1,425 sf 0.00% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=74 Runoff=0.16 cfs 0.011 af

Subcatchment Y-#3: Cottage #3 Back Yard Runoff Area=1,381 sf 0.00% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=74 Runoff=0.16 cfs 0.011 af

Subcatchment Y-#4: Cottage #4 Back Yard Runoff Area=1,200 sf 0.00% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=74 Runoff=0.14 cfs 0.010 af

Subcatchment Y-#5: Cottage #5 Back Yard Runoff Area=4,468 sf 14.77% Impervious Runoff Depth=2.44"
Tc=6.0 min CN=57 Runoff=0.28 cfs 0.021 af

Subcatchment Y-D"A": Duplex Bldg "A" Runoff Area=2,952 sf 2.37% Impervious Runoff Depth=4.32"
Tc=6.0 min CN=75 Runoff=0.34 cfs 0.024 af

Subcatchment Y-D"B": Duplex Bldg "B" Runoff Area=3,120 sf 0.00% Impervious Runoff Depth=4.21"
Tc=6.0 min CN=74 Runoff=0.35 cfs 0.025 af

Pond BIO-1: BIO-1 Peak Elev=103.58' Storage=4,125 cf Inflow=4.51 cfs 0.449 af
Outflow=2.53 cfs 0.449 af

Pond CB-101: CB-101 Peak Elev=107.34' Inflow=1.38 cfs 0.112 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0125 '/' Outflow=1.38 cfs 0.112 af

Pond CB-102: CB-102 Peak Elev=107.02' Inflow=0.40 cfs 0.031 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0107 '/' Outflow=0.40 cfs 0.031 af

Pond CB-103: CB-103 Peak Elev=103.65' Inflow=0.51 cfs 0.041 af
12.0" Round Culvert n=0.012 L=15.0' S=0.0133 '/' Outflow=0.51 cfs 0.041 af

Pond CB-104: CB-104 Peak Elev=103.66' Inflow=1.03 cfs 0.080 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.03 cfs 0.080 af

Pond DE-#1: Cottage #1 Stone Drip Edge Peak Elev=111.92' Storage=77 cf Inflow=0.13 cfs 0.011 af
Outflow=0.04 cfs 0.011 af

Pond DE-#2: Cottage #2 Stone Drip Edge Peak Elev=113.92' Storage=77 cf Inflow=0.13 cfs 0.011 af
Outflow=0.04 cfs 0.011 af

Pond DE-#3: Cottage #3 Stone Drip Edge Peak Elev=115.42' Storage=77 cf Inflow=0.13 cfs 0.011 af
Outflow=0.04 cfs 0.011 af

Pond DE-#4: Cottage #4 Stone Drip Edge Peak Elev=116.43' Storage=78 cf Inflow=0.13 cfs 0.011 af
Outflow=0.04 cfs 0.011 af

Pond DE-#5: Cottage #5 Stone Drip Edge Peak Elev=116.82' Storage=60 cf Inflow=0.13 cfs 0.011 af
Discarded=0.05 cfs 0.011 af Primary=0.02 cfs 0.000 af Outflow=0.06 cfs 0.011 af

Pond DE-DA: Duplex Bldg "A" Stone Drip Edge Peak Elev=107.33' Storage=99 cf Inflow=0.15 cfs 0.013 af
Outflow=0.05 cfs 0.013 af

Pond DE-DB: Duplex Bldg "B" Stone Drip Peak Elev=107.54' Storage=124 cf Inflow=0.20 cfs 0.016 af
Outflow=0.06 cfs 0.016 af

Pond DMH-101: DMH-101 Peak Elev=104.01' Inflow=1.32 cfs 0.143 af
12.0" Round Culvert n=0.012 L=96.0' S=0.0234 '/' Outflow=1.32 cfs 0.143 af

Pond DMH-102: DMH-102 Peak Elev=103.65' Inflow=2.65 cfs 0.265 af
15.0" Round Culvert n=0.012 L=16.0' S=0.0125 '/' Outflow=2.65 cfs 0.265 af

Pond DMH-103: DMH-103 Peak Elev=91.75' Inflow=2.53 cfs 0.449 af
18.0" Round Culvert n=0.013 L=85.0' S=0.0033 '/' Outflow=2.53 cfs 0.449 af

Pond ST-1: Stormtech - 1- SC-310 Peak Elev=106.60' Storage=440 cf Inflow=1.76 cfs 0.143 af
6.0" Round Culvert n=0.012 L=4.0' S=0.0125 '/' Outflow=1.32 cfs 0.143 af

Pond ST-2: Stormtech - 2 - SC-310 Peak Elev=114.71' Storage=200 cf Inflow=0.32 cfs 0.032 af
Discarded=0.08 cfs 0.029 af Primary=0.12 cfs 0.003 af Outflow=0.20 cfs 0.032 af

Pond YD-#1: Yard Drain #1 Peak Elev=114.09' Inflow=0.12 cfs 0.003 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0068 '/' Outflow=0.12 cfs 0.003 af

Pond YD-C#1: Cottage #1 Yard Drain Peak Elev=108.39' Inflow=0.72 cfs 0.079 af
12.0" Round Culvert n=0.012 L=95.0' S=0.0253 '/' Outflow=0.72 cfs 0.079 af

Pond YD-C#2: Cottage #2 Yard Drain Peak Elev=110.31' Inflow=0.53 cfs 0.057 af
12.0" Round Culvert n=0.012 L=48.0' S=0.0396 '/' Outflow=0.53 cfs 0.057 af

Pond YD-C#3: Cottage #3 Yard Drain Peak Elev=112.22' Inflow=0.33 cfs 0.035 af
12.0" Round Culvert n=0.012 L=52.0' S=0.0365 '/' Outflow=0.33 cfs 0.035 af

Pond YD-C#4: Cottage #4 Yard Drain Peak Elev=113.63' Inflow=0.18 cfs 0.013 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0280 '/' Outflow=0.18 cfs 0.013 af

Pond YD-C#5: Cottage #5 Yard Drain Peak Elev=115.03' Inflow=0.32 cfs 0.032 af
6.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.32 cfs 0.032 af

Pond YD-DA: Duplex Bldg "A" Yard Drain Peak Elev=103.61' Inflow=1.52 cfs 0.157 af
15.0" Round Culvert n=0.012 L=38.0' S=0.0132 '/' Outflow=1.52 cfs 0.157 af

Pond YD-DB: Duplex Bldg "B" Yard Drain Peak Elev=106.04' Inflow=1.13 cfs 0.120 af
12.0" Round Culvert n=0.012 L=59.0' S=0.0559 '/' Outflow=1.13 cfs 0.120 af

Link AP-1: Existing CB 5944 Inflow=1.84 cfs 0.146 af
Primary=1.84 cfs 0.146 af

Link AP-T: AP-Total Inflow=3.96 cfs 0.594 af
Primary=3.96 cfs 0.594 af

Total Runoff Area = 1.479 ac Runoff Volume = 0.634 af Average Runoff Depth = 5.14"
59.29% Pervious = 0.877 ac 40.71% Impervious = 0.602 ac

Summary for Subcatchment 101: Court Yard & Cottage Parking

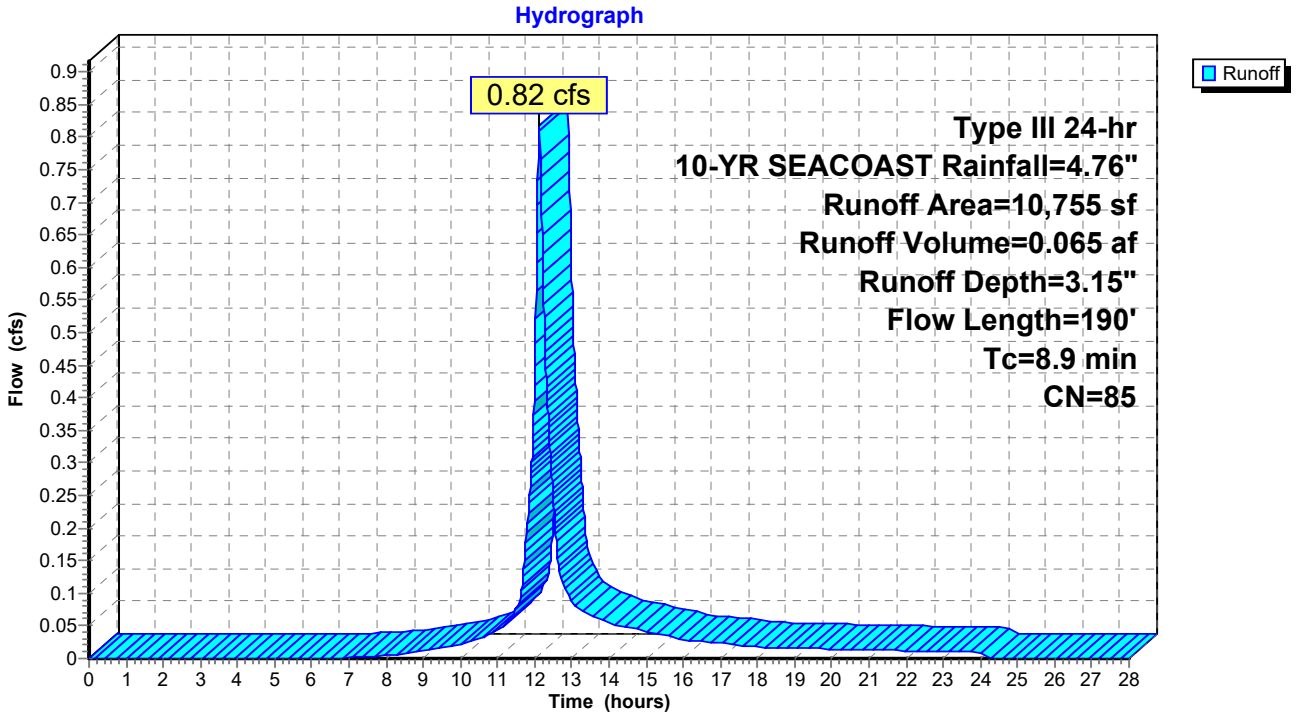
Runoff = 0.82 cfs @ 12.12 hrs, Volume= 0.065 af, Depth= 3.15"
Routed to Pond CB-101 : CB-101

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
45	39	>75% Grass cover, Good, HSG A
10	98	Paved parking, HSG A
4,970	98	Paved parking, HSG C
5,730	74	>75% Grass cover, Good, HSG C
10,755	85	Weighted Average
5,775		53.70% Pervious Area
4,980		46.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	21	0.0500	0.18		**Sheet Flow, sheet grass** Grass: Short n= 0.150 P2= 3.15"
0.1	5	0.0100	0.57		**Sheet Flow, sheet sidewalk** Smooth surfaces n= 0.011 P2= 3.15"
2.5	25	0.0400	0.17		**Sheet Flow, sheet grass** Grass: Short n= 0.150 P2= 3.15"
0.2	13	0.0200	0.91		**Sheet Flow, sheet sidewalk** Smooth surfaces n= 0.011 P2= 3.15"
3.6	35	0.0300	0.16		**Sheet Flow, sheet grass** Grass: Short n= 0.150 P2= 3.15"
0.2	17	0.0300	1.21		**Shallow Concentrated Flow, sc sidewalk** Short Grass Pasture Kv= 7.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, sc sidewalk** Paved Kv= 20.3 fps
0.1	24	0.0400	3.00		**Shallow Concentrated Flow, sc grass** Grassed Waterway Kv= 15.0 fps
0.1	40	0.0500	4.54		**Shallow Concentrated Flow, sc pave** Paved Kv= 20.3 fps
8.9	190	Total			

Subcatchment 101: Court Yard & Cottage Parking



Summary for Subcatchment 102: Duplex "B" Parking & Isle Way

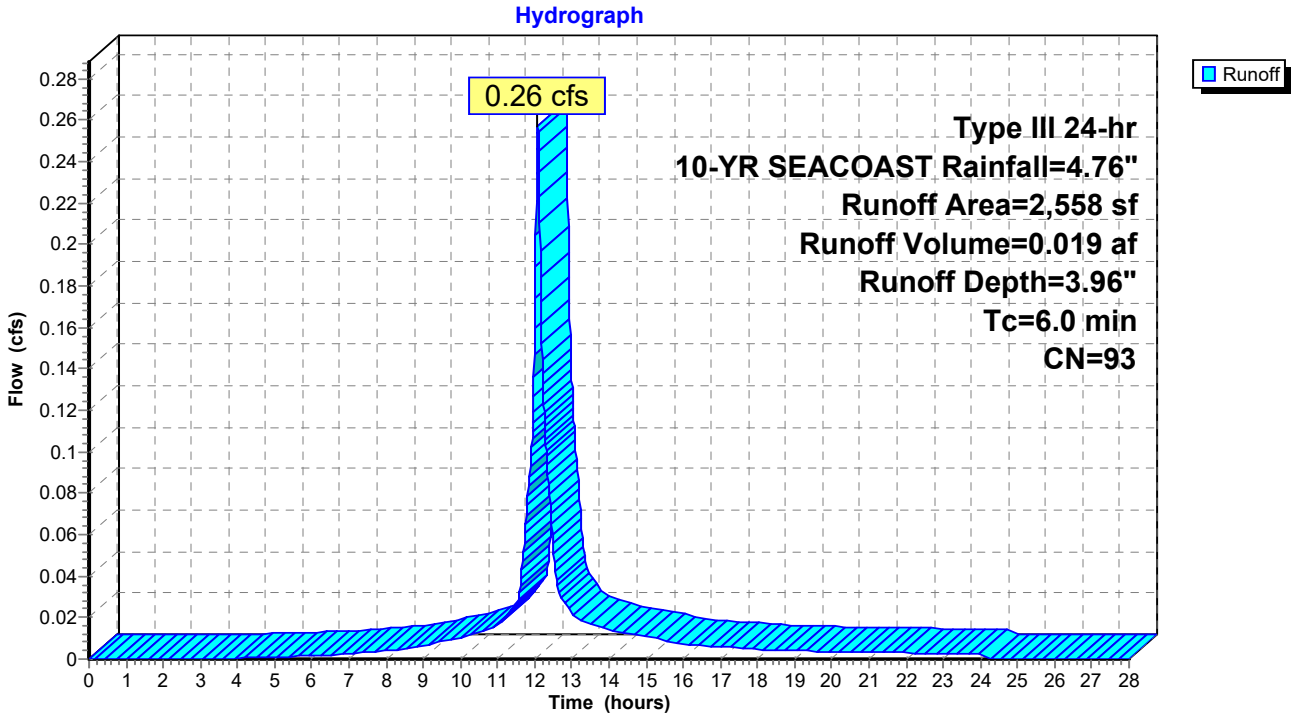
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 3.96"
Routed to Pond CB-102 : CB-102

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
2,038	98	Paved parking, HSG C
520	74	>75% Grass cover, Good, HSG C
2,558	93	Weighted Average
520		20.33% Pervious Area
2,038		79.67% Impervious Area

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

Subcatchment 102: Duplex "B" Parking & Isle Way



Summary for Subcatchment 103: West Side of Proposed Driveway 0+75 to End

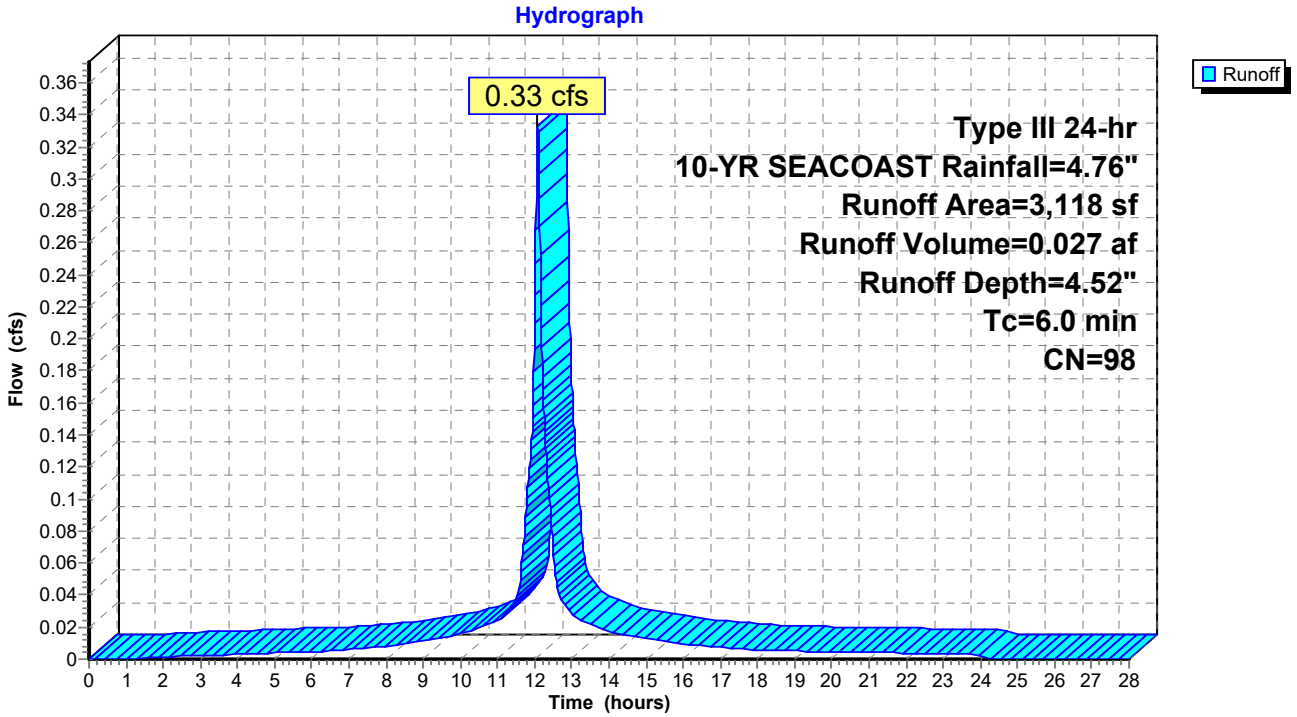
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 4.52"
Routed to Pond CB-103 : CB-103

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
45	98	Paved parking, HSG A
2,368	98	Paved parking, HSG C
15	74	>75% Grass cover, Good, HSG C
690	98	Paved parking, HSG D
3,118	98	Weighted Average
15		0.48% Pervious Area
3,103		99.52% Impervious Area

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

Subcatchment 103: West Side of Proposed Driveway 0+75 to End



Summary for Subcatchment 104: East Side of Proposed Driveway 0+75 to 2+00

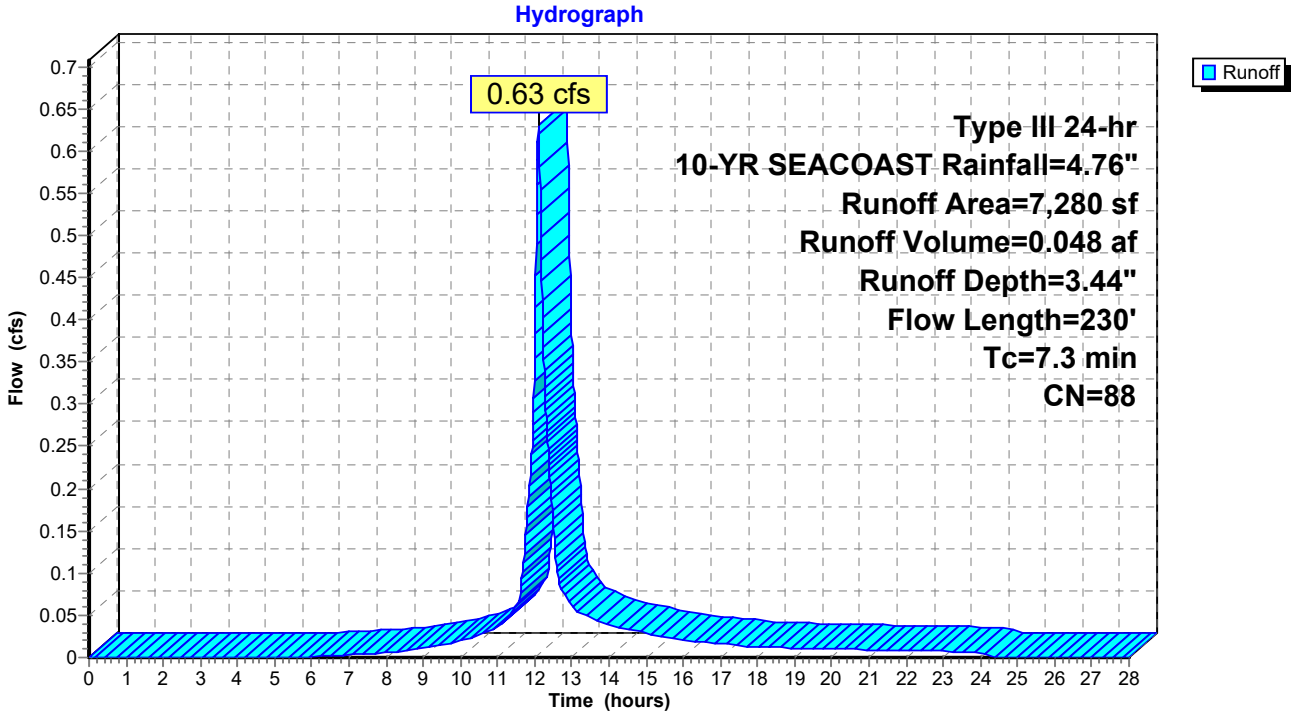
Runoff = 0.63 cfs @ 12.10 hrs, Volume= 0.048 af, Depth= 3.44"
Routed to Pond CB-104 : CB-104

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,080	98	Paved parking, HSG D
35	80	>75% Grass cover, Good, HSG D
3,125	98	Paved parking, HSG C
3,040	74	>75% Grass cover, Good, HSG C
7,280	88	Weighted Average
3,075		42.24% Pervious Area
4,205		57.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.07		**Sheet Flow, roof** Smooth surfaces n= 0.011 P2= 3.15"
6.3	70	0.0300	0.18		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 3.15"
0.5	130	0.0385	3.98		**Shallow Concentrated Flow, pave** Paved Kv= 20.3 fps
7.3	230	Total			

Subcatchment 104: East Side of Proposed Driveway 0+75 to 2+00



Summary for Subcatchment 106: Drains Directly to BIO #101

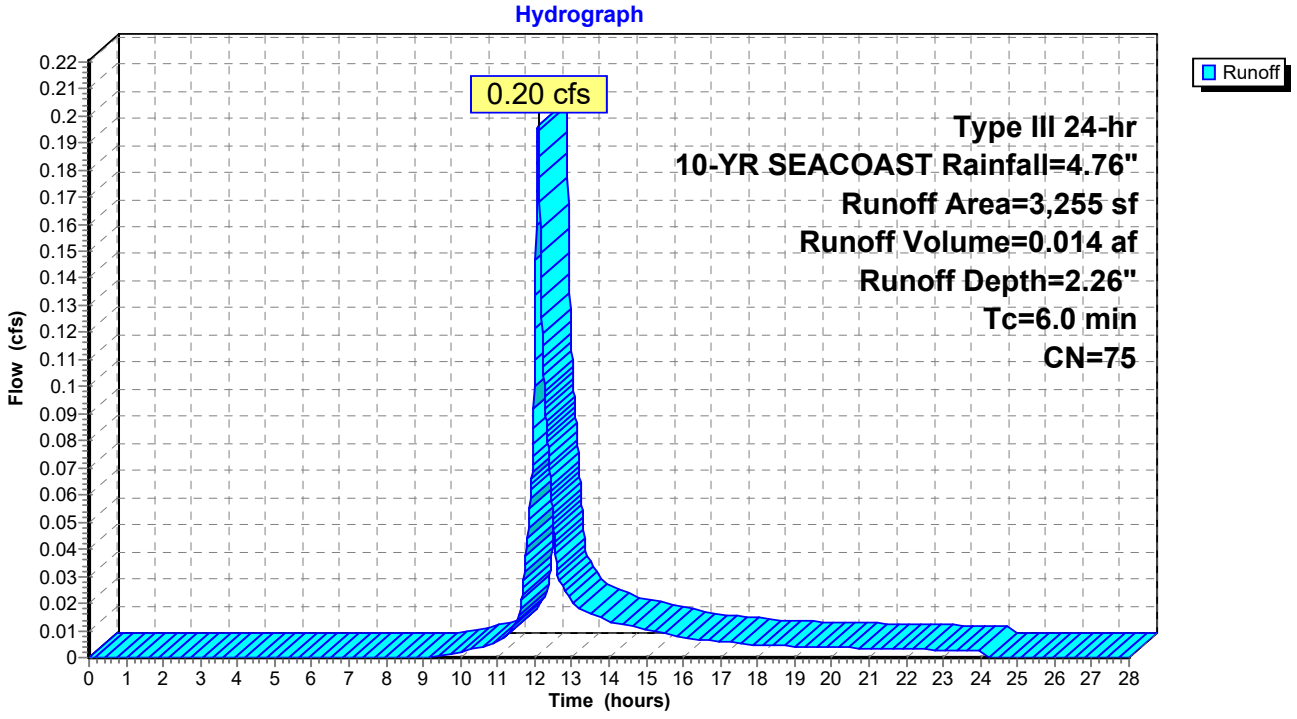
Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 2.26"
Routed to Pond BIO-1 : BIO-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
3,020	74	>75% Grass cover, Good, HSG C
180	98	Paved parking, HSG C
55	80	>75% Grass cover, Good, HSG D
3,255	75	Weighted Average
3,075		94.47% Pervious Area
180		5.53% Impervious Area

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

Subcatchment 106: Drains Directly to BIO #101



Summary for Subcatchment 107: Court Street & Lower End of Proposed Driveway

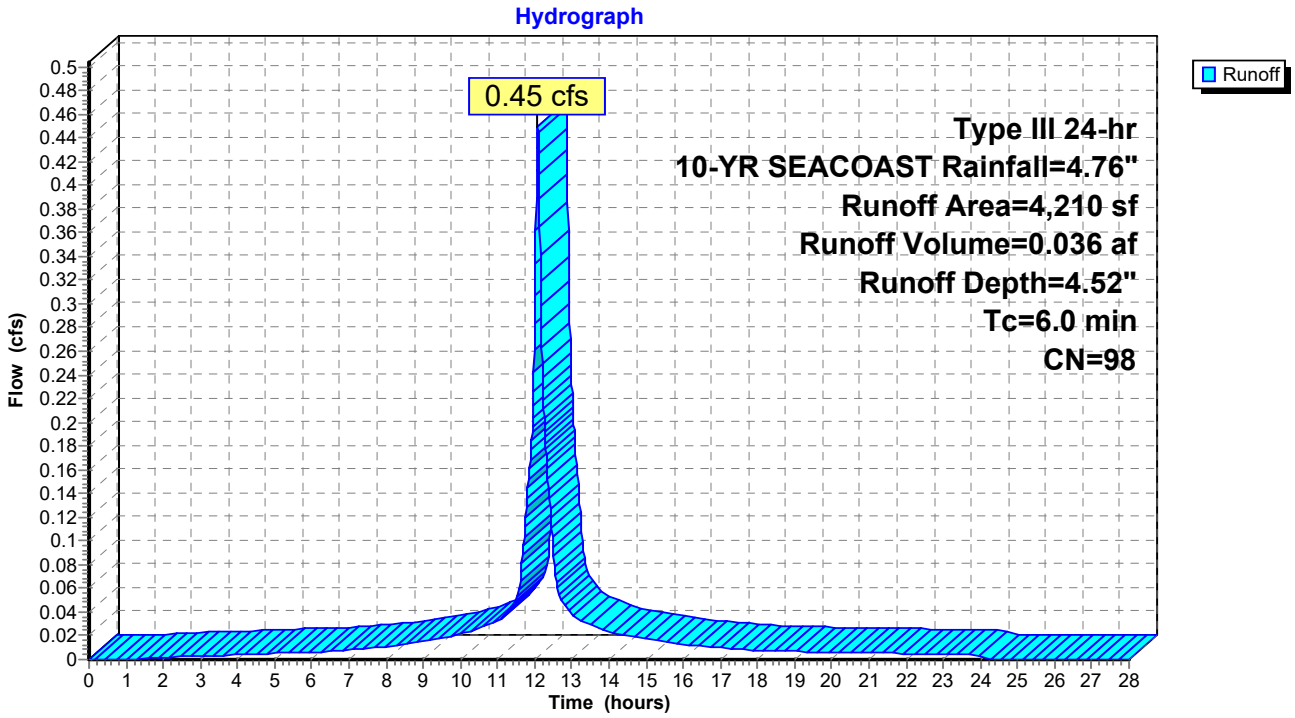
Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.52"
Routed to Link AP-1 : Existing CB 5944

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,810	98	Paved parking, HSG C
2,400	98	Paved parking, HSG D
4,210	98	Weighted Average
4,210		100.00% Impervious Area

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

Subcatchment 107: Court Street & Lower End of Proposed Driveway



Summary for Subcatchment 108: West of Proposed Driveway

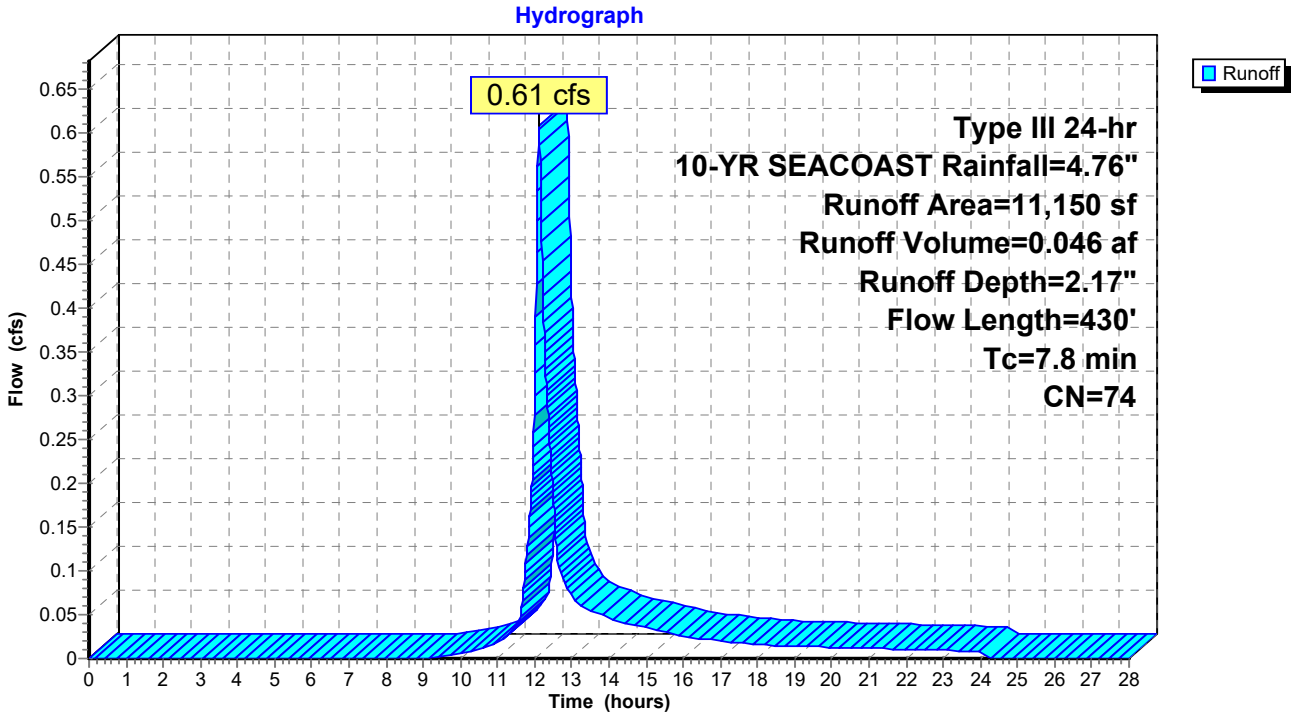
Runoff = 0.61 cfs @ 12.11 hrs, Volume= 0.046 af, Depth= 2.17"
Routed to Link AP-1 : Existing CB 5944

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
277	39	>75% Grass cover, Good, HSG A
490	98	Paved parking, HSG A
230	32	Woods/grass comb., Good, HSG A
1,520	80	>75% Grass cover, Good, HSG D
1,555	79	Woods/grass comb., Good, HSG D
70	98	Unconnected pavement, HSG D
3,758	72	Woods/grass comb., Good, HSG C
3,250	74	>75% Grass cover, Good, HSG C
11,150	74	Weighted Average
10,590		94.98% Pervious Area
560		5.02% Impervious Area
70		12.50% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	30	0.0400	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.15"
4.9	400	0.0375	1.36		**Shallow Concentrated Flow, brush** Short Grass Pasture Kv= 7.0 fps
7.8	430	Total			

Subcatchment 108: West of Proposed Driveway



Summary for Subcatchment R-#1: Cottage #1 Roof

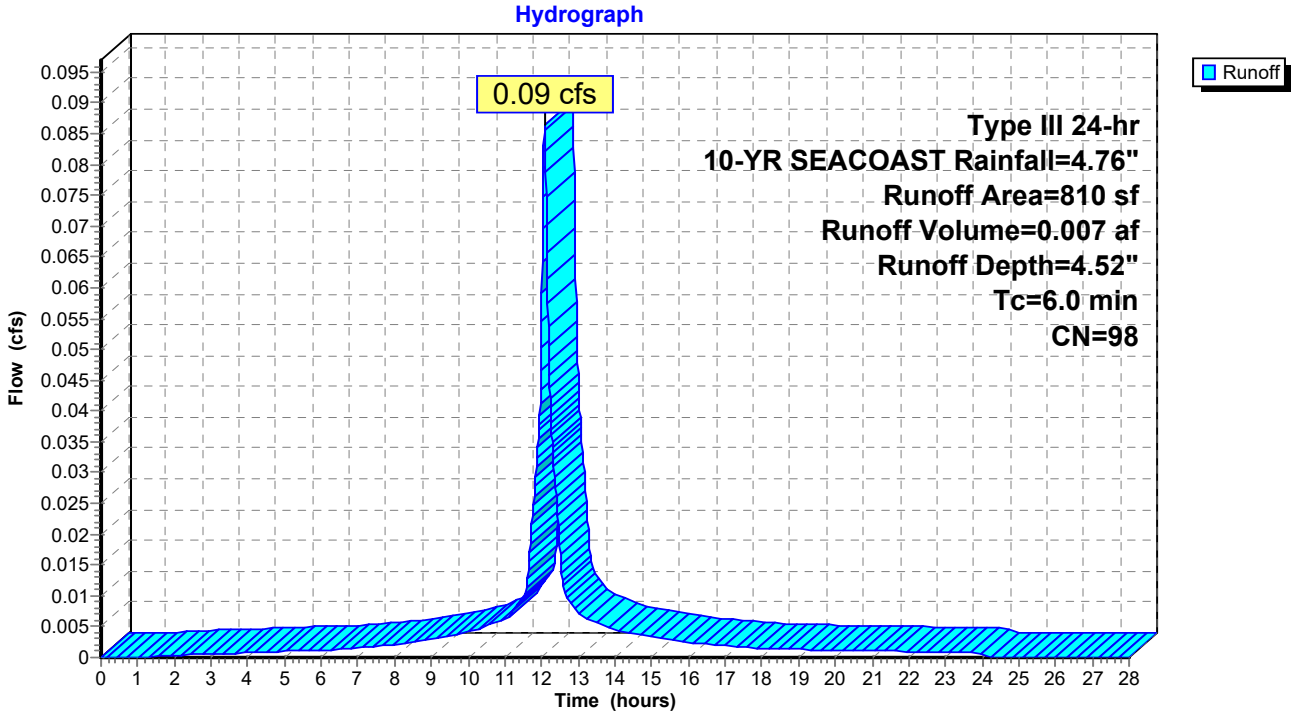
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.52"
Routed to Pond DE-#1 : Cottage #1 Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
810	98	Roofs, HSG C
810		100.00% Impervious Area

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

Subcatchment R-#1: Cottage #1 Roof



Summary for Subcatchment R-#2: Cottage #2 Roof

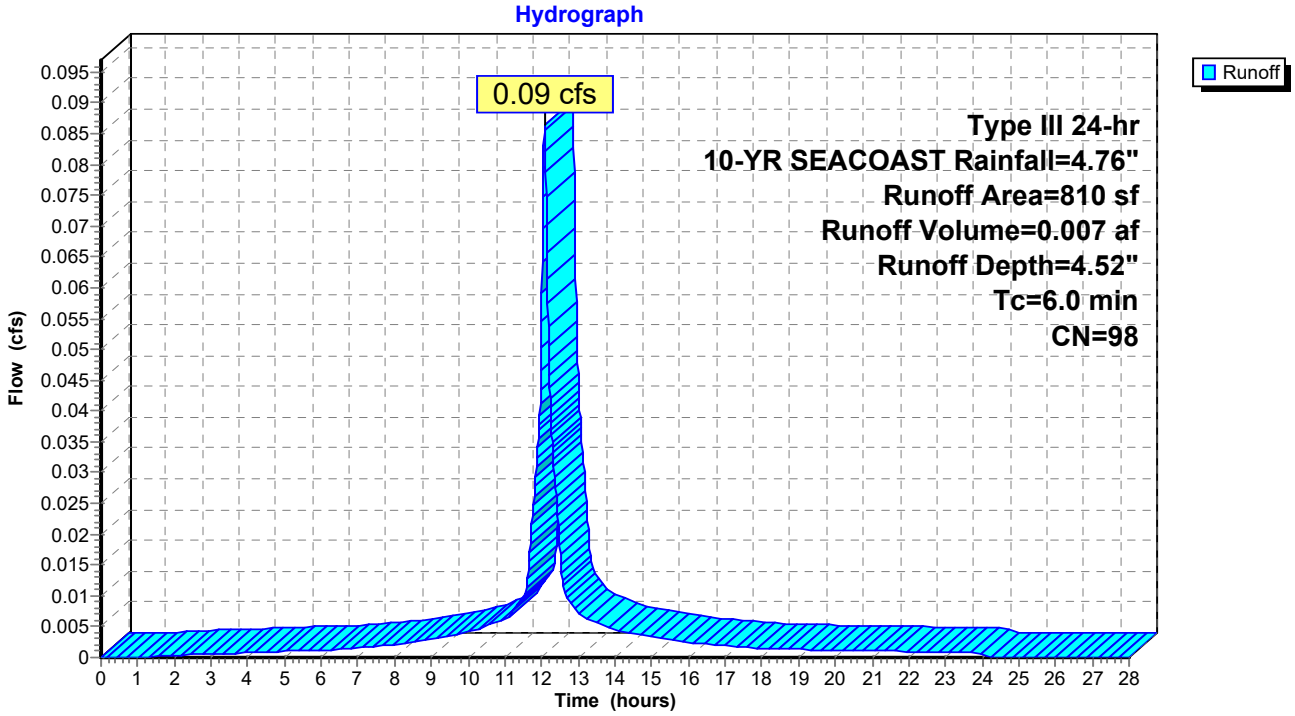
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.52"
Routed to Pond DE-#2 : Cottage #2 Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
810	98	Roofs, HSG C
810		100.00% Impervious Area

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

Subcatchment R-#2: Cottage #2 Roof



Summary for Subcatchment R-#3: Cottage #3 Roof

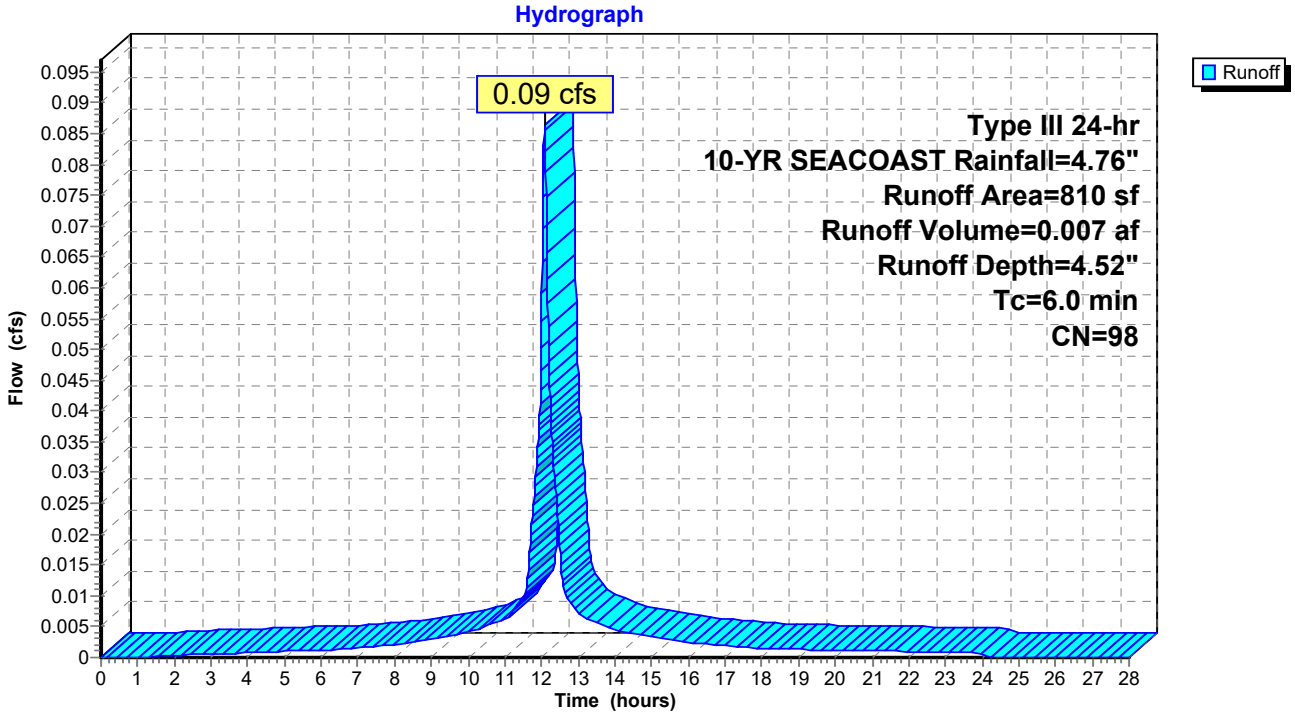
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.52"
Routed to Pond DE-#3 : Cottage #3 Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
810	98	Roofs, HSG C
810		100.00% Impervious Area

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

Subcatchment R-#3: Cottage #3 Roof



Summary for Subcatchment R-#4: Cottage #4 Roof

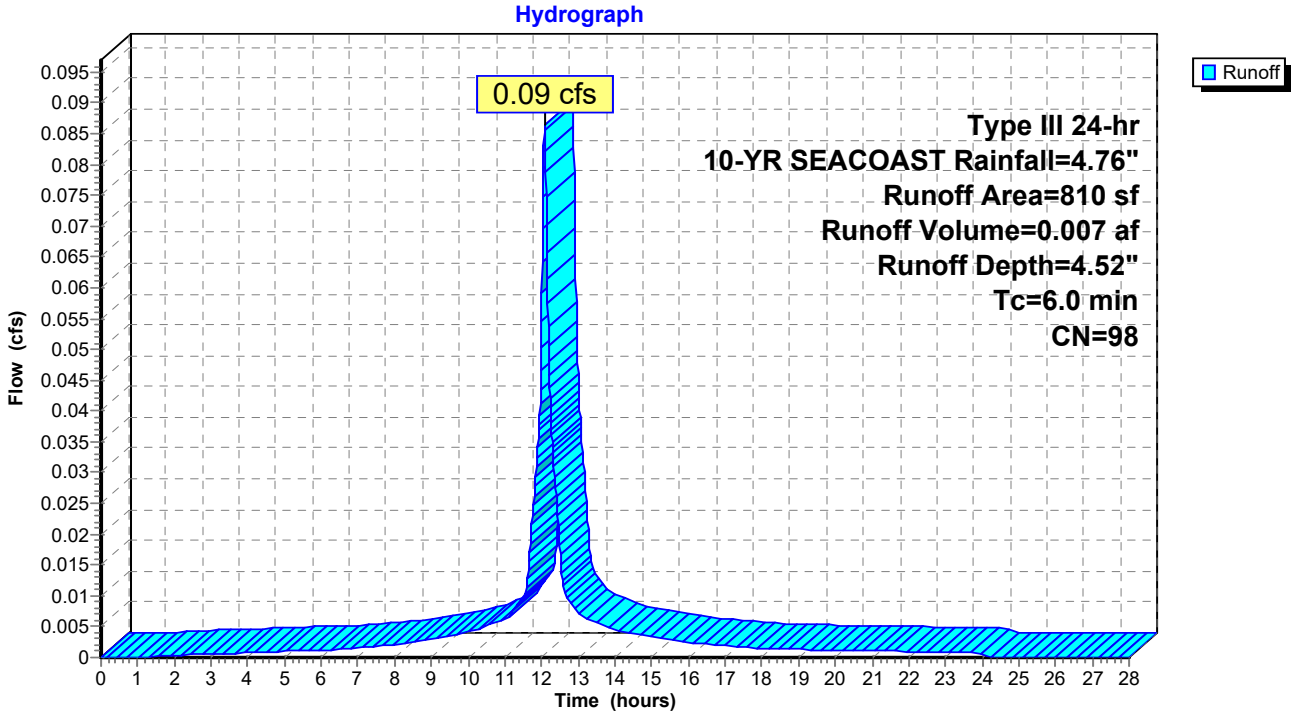
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.52"
Routed to Pond DE-#4 : Cottage #4 Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
810	98	Roofs, HSG C
810		100.00% Impervious Area

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

Subcatchment R-#4: Cottage #4 Roof



Summary for Subcatchment R-#5: Cottage #5 Roof

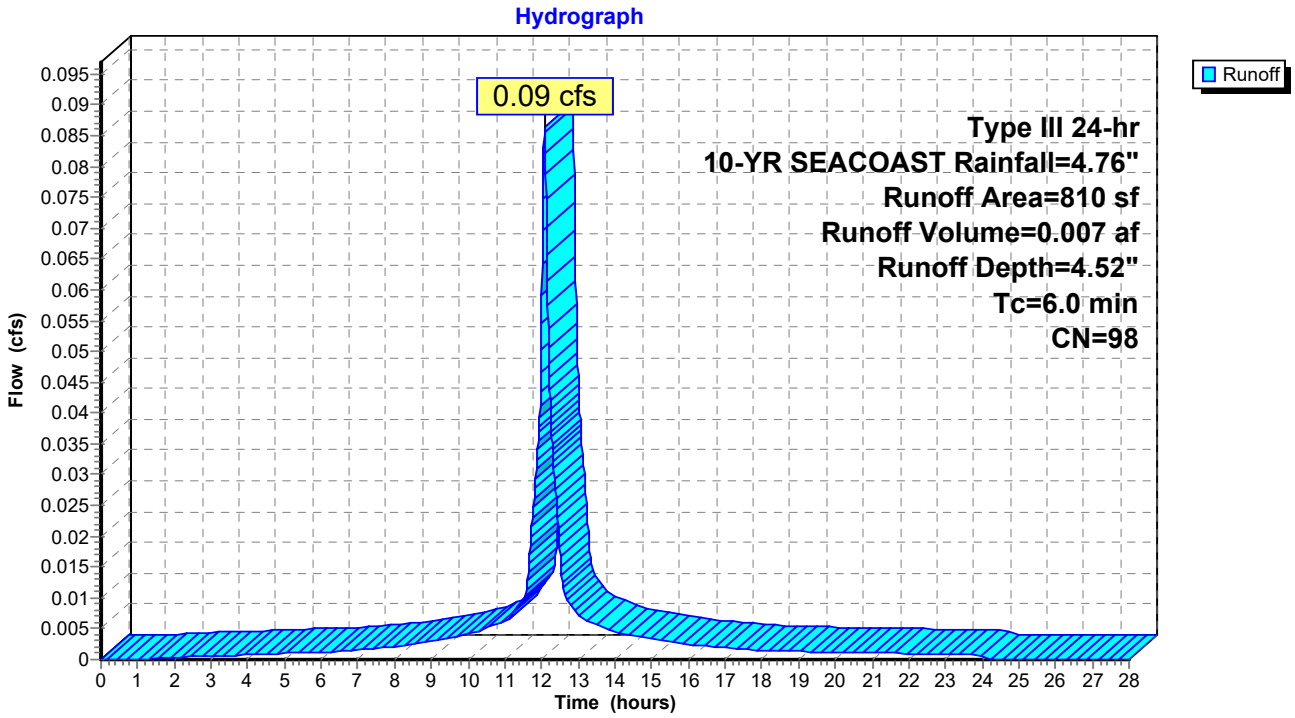
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.52"
Routed to Pond DE-#5 : Cottage #5 Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
460	98	Roofs, HSG A
350	98	Roofs, HSG C
810	98	Weighted Average
810		100.00% Impervious Area

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

Subcatchment R-#5: Cottage #5 Roof



Summary for Subcatchment R-D"A": Converted Duplex - Duplex Bldg "A" Roof

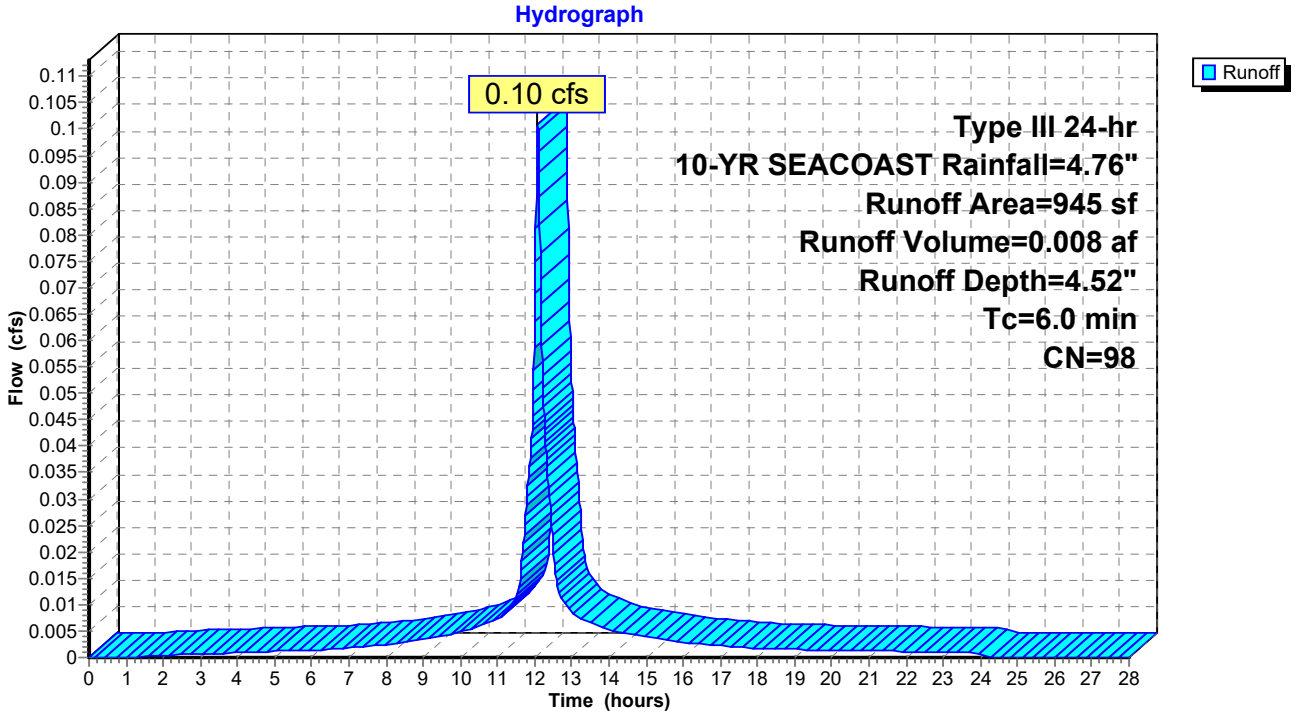
Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 4.52"
Routed to Pond DE-DA : Duplex Bldg "A" Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
945	98	Roofs, HSG C
945		100.00% Impervious Area

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

Subcatchment R-D"A": Converted Duplex - Duplex Bldg "A" Roof



Summary for Subcatchment R-D"B": New Duplex - Duplex Bldg "B" Roof

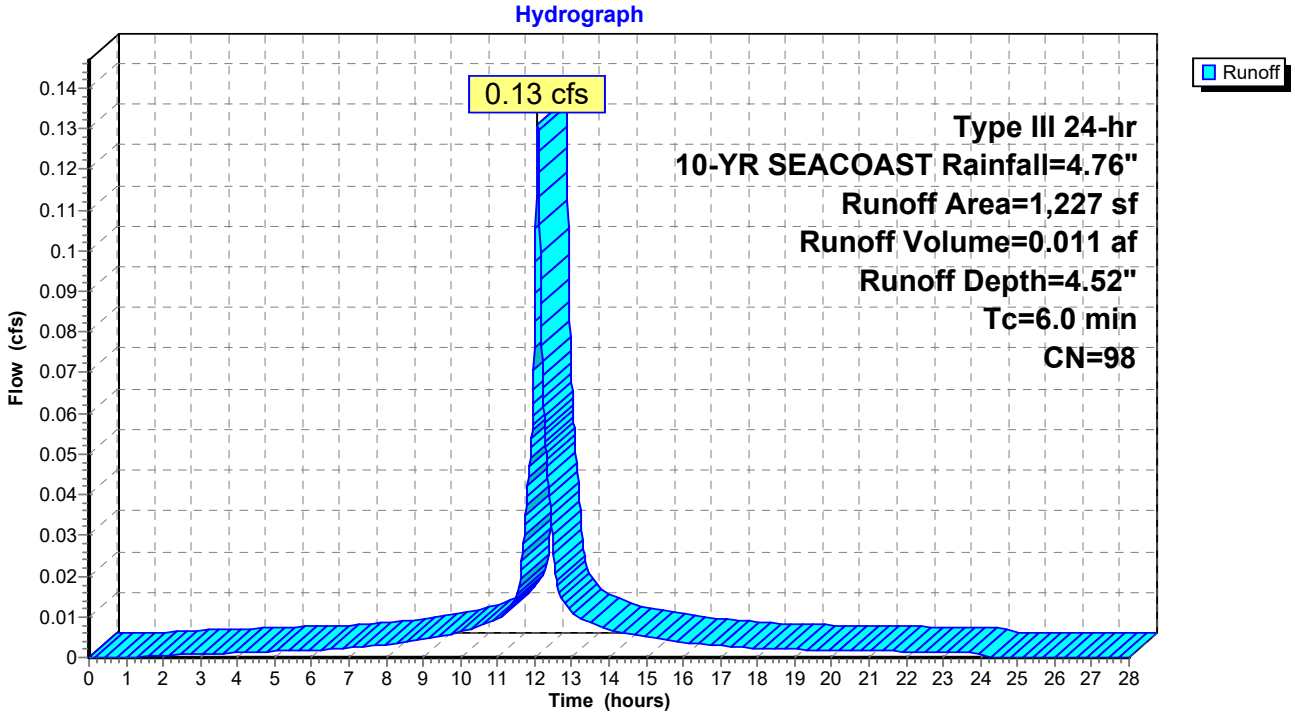
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 4.52"
Routed to Pond DE-DB : Duplex Bldg "B" Stone Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,227	98	Roofs, HSG C
1,227		100.00% Impervious Area

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

Subcatchment R-D"B": New Duplex - Duplex Bldg "B" Roof



Summary for Subcatchment Y-#1: Cottage #1 Back Yard

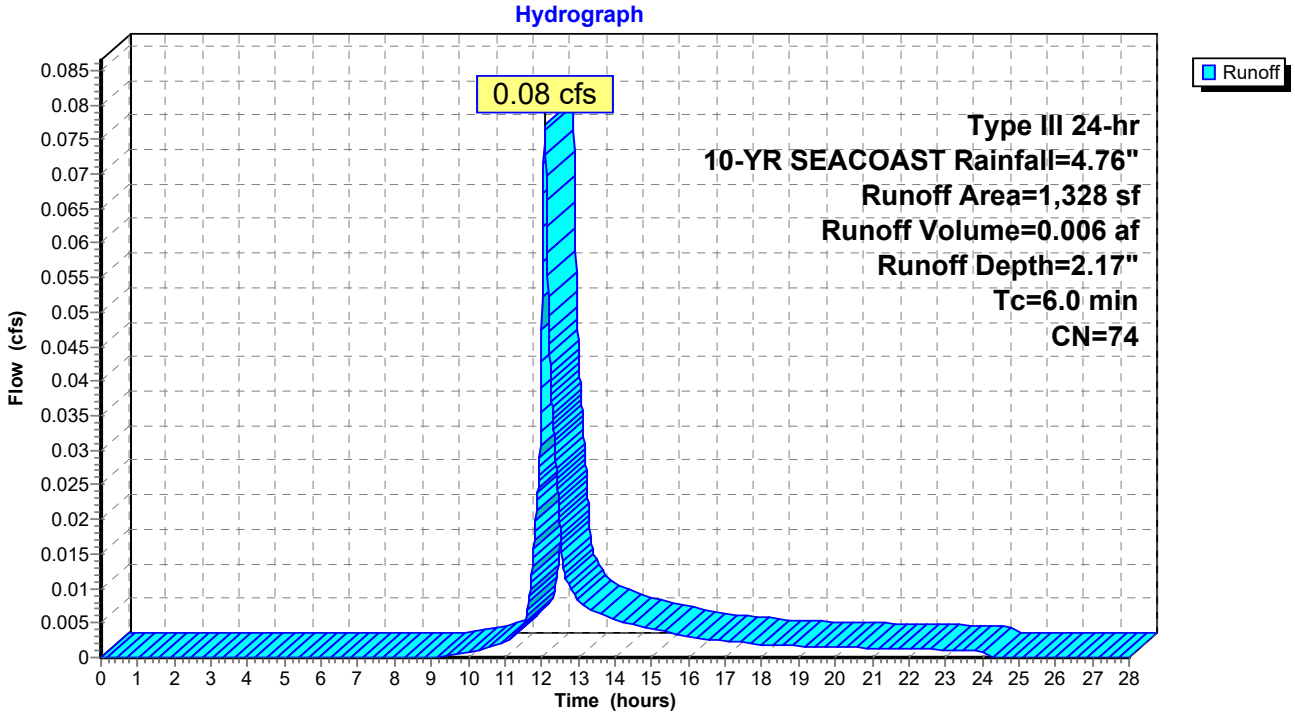
Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 2.17"
Routed to Pond YD-C#1 : Cottage #1 Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,328	74	>75% Grass cover, Good, HSG C
1,328		100.00% Pervious Area

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

Subcatchment Y-#1: Cottage #1 Back Yard



Summary for Subcatchment Y-#2: Cottage #2 Back Yard

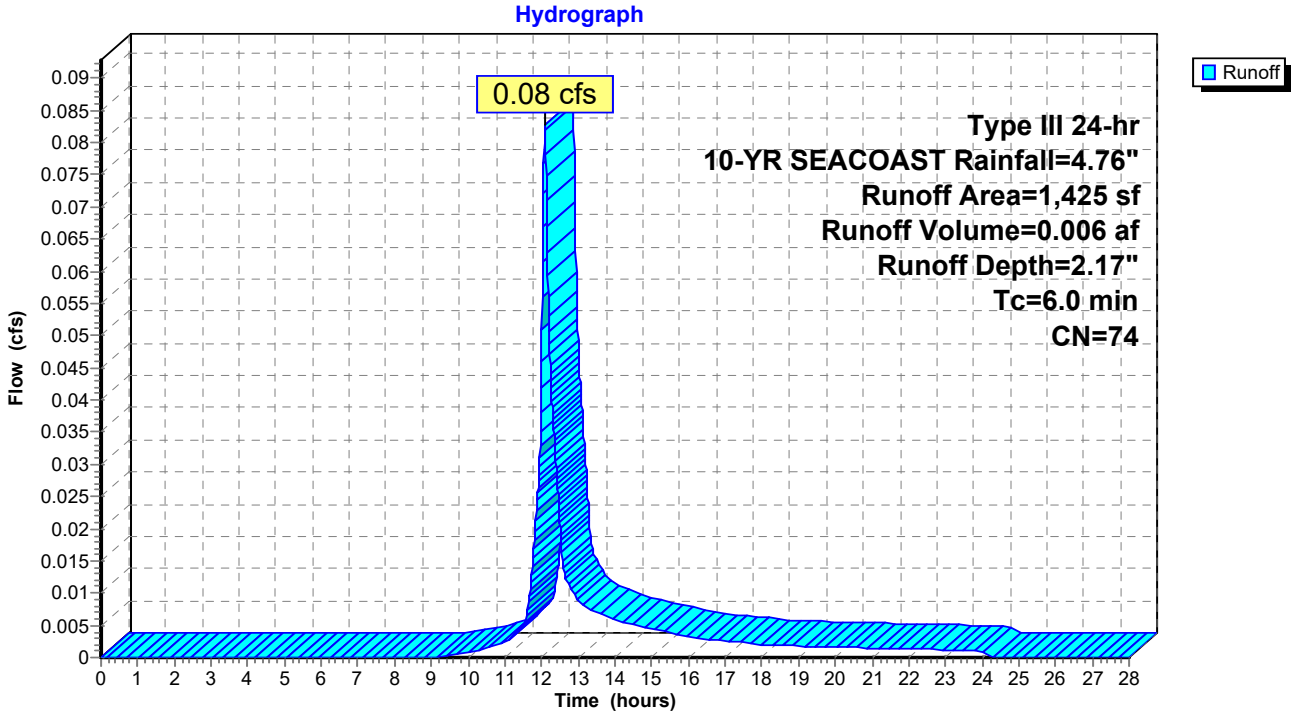
Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 2.17"
Routed to Pond YD-C#2 : Cottage #2 Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,425	74	>75% Grass cover, Good, HSG C
1,425		100.00% Pervious Area

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

Subcatchment Y-#2: Cottage #2 Back Yard



Summary for Subcatchment Y-#3: Cottage #3 Back Yard

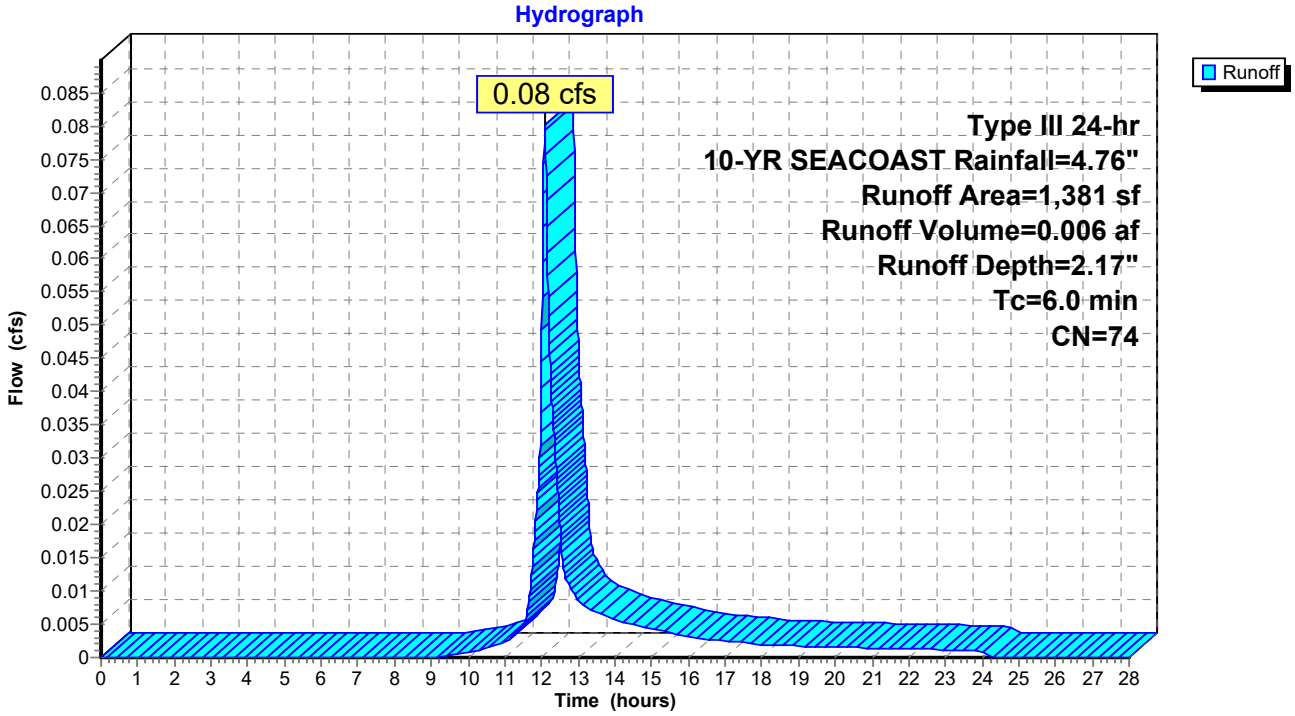
Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 2.17"
Routed to Pond YD-C#3 : Cottage #3 Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,381	74	>75% Grass cover, Good, HSG C
1,381		100.00% Pervious Area

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

Subcatchment Y-#3: Cottage #3 Back Yard



Summary for Subcatchment Y-#4: Cottage #4 Back Yard

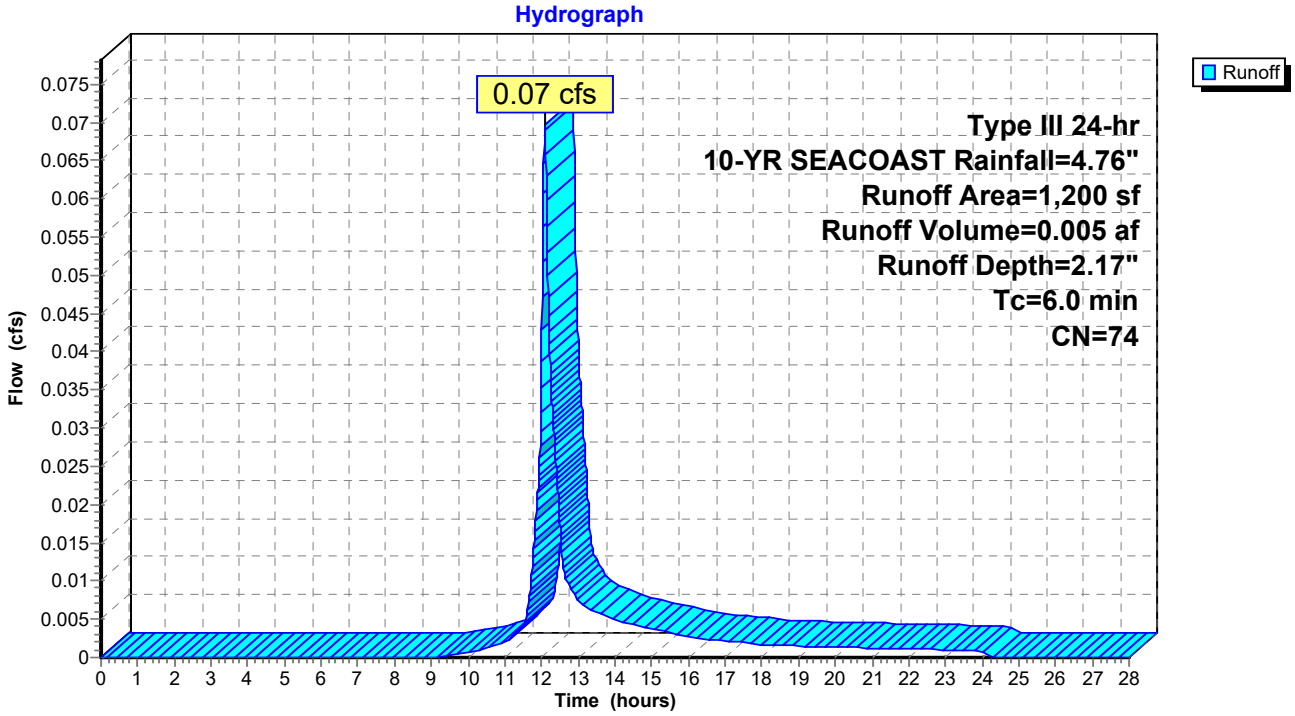
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 2.17"
Routed to Pond YD-C#4 : Cottage #4 Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
1,200	74	>75% Grass cover, Good, HSG C
1,200		100.00% Pervious Area

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

Subcatchment Y-#4: Cottage #4 Back Yard



Summary for Subcatchment Y-#5: Cottage #5 Back Yard

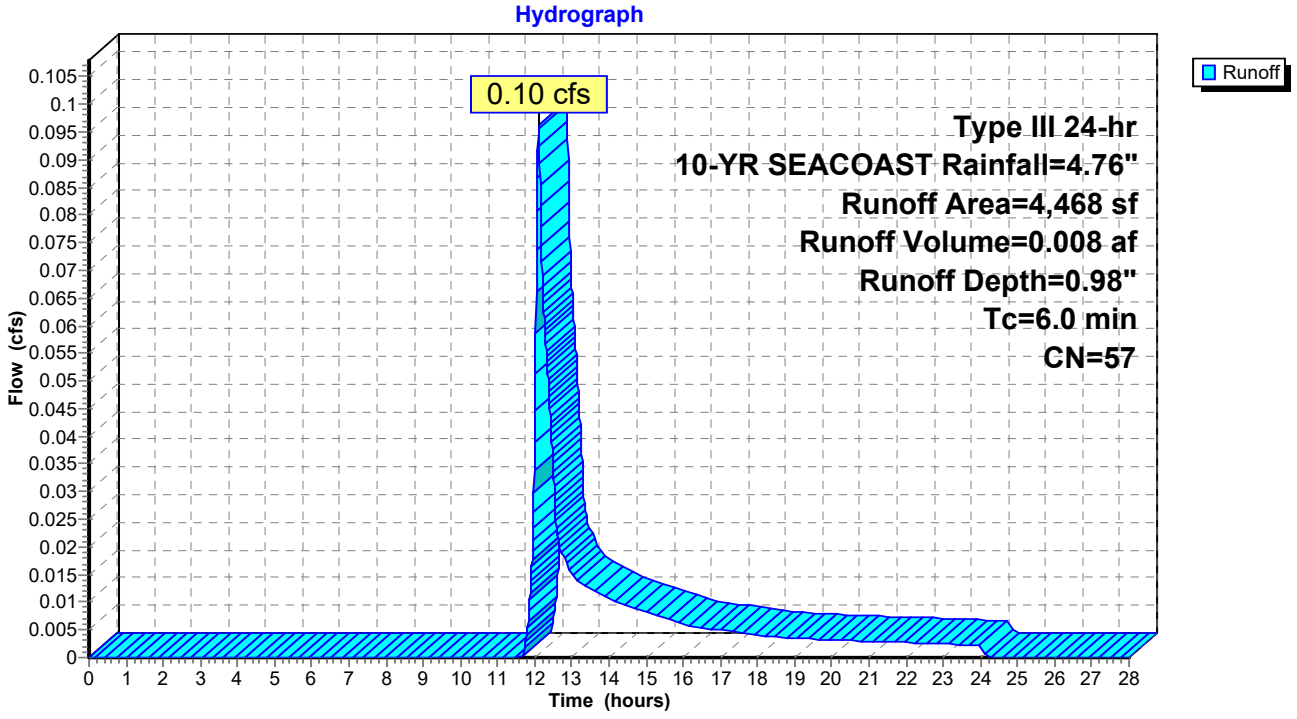
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.008 af, Depth= 0.98"
Routed to Pond YD-C#5 : Cottage #5 Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
2,658	39	>75% Grass cover, Good, HSG A
660	98	Paved parking, HSG A
1,150	74	>75% Grass cover, Good, HSG C
4,468	57	Weighted Average
3,808		85.23% Pervious Area
660		14.77% Impervious Area

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

Subcatchment Y-#5: Cottage #5 Back Yard



Summary for Subcatchment Y-D"A": Duplex Bldg "A" Side Yard

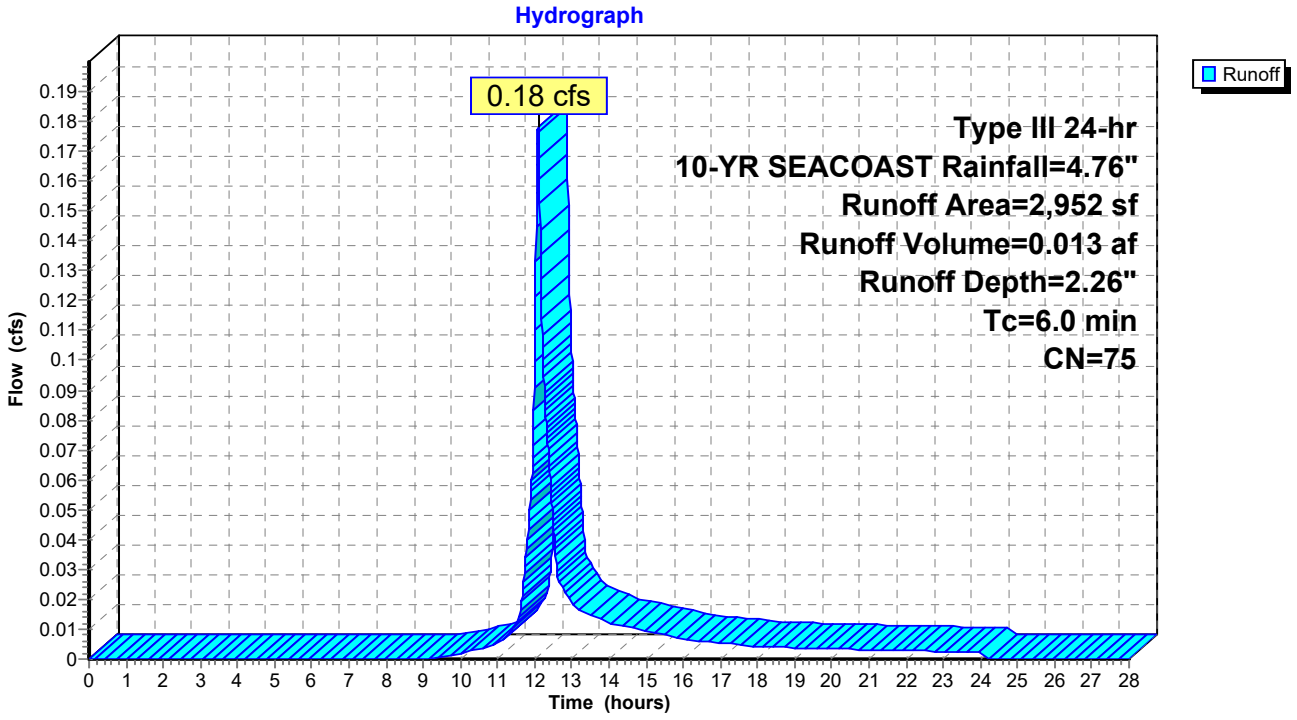
Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.26"
Routed to Pond YD-DA : Duplex Bldg "A" Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
2,882	74	>75% Grass cover, Good, HSG C
70	98	Paved parking, HSG C
2,952	75	Weighted Average
2,882		97.63% Pervious Area
70		2.37% Impervious Area

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

Subcatchment Y-D"A": Duplex Bldg "A" Side Yard



Summary for Subcatchment Y-D"B": Duplex Bldg "B" Back Yard

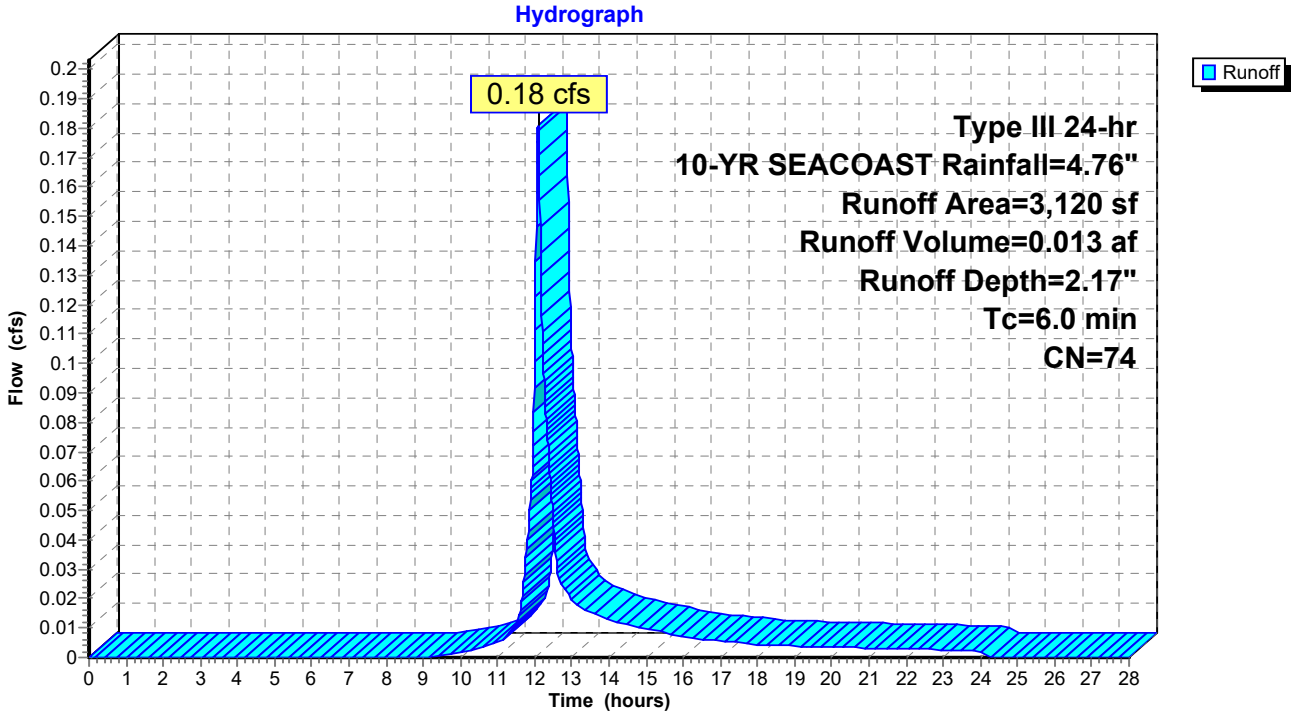
Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.17"
Routed to Pond YD-DB : Duplex Bldg "B" Yard Drain

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR SEACOAST Rainfall=4.76"

Area (sf)	CN	Description
3,120	74	>75% Grass cover, Good, HSG C
3,120		100.00% Pervious Area

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

Subcatchment Y-D"B": Duplex Bldg "B" Back Yard



Summary for Pond BIO-1: BIO-1

Inflow Area = 1.126 ac, 43.74% Impervious, Inflow Depth = 2.78" for 10-YR SEACOAST event
Inflow = 2.84 cfs @ 12.10 hrs, Volume= 0.261 af
Outflow = 1.63 cfs @ 12.32 hrs, Volume= 0.261 af, Atten= 42%, Lag= 13.2 min
Primary = 1.63 cfs @ 12.32 hrs, Volume= 0.261 af
Routed to Pond DMH-103 : DMH-103

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.03' @ 12.32 hrs Surf.Area= 782 sf Storage= 2,564 cf
Flood Elev= 104.00' Surf.Area= 1,400 sf Storage= 4,687 cf

Plug-Flow detention time= 41.4 min calculated for 0.261 af (100% of inflow)
Center-of-Mass det. time= 41.4 min (842.8 - 801.5)

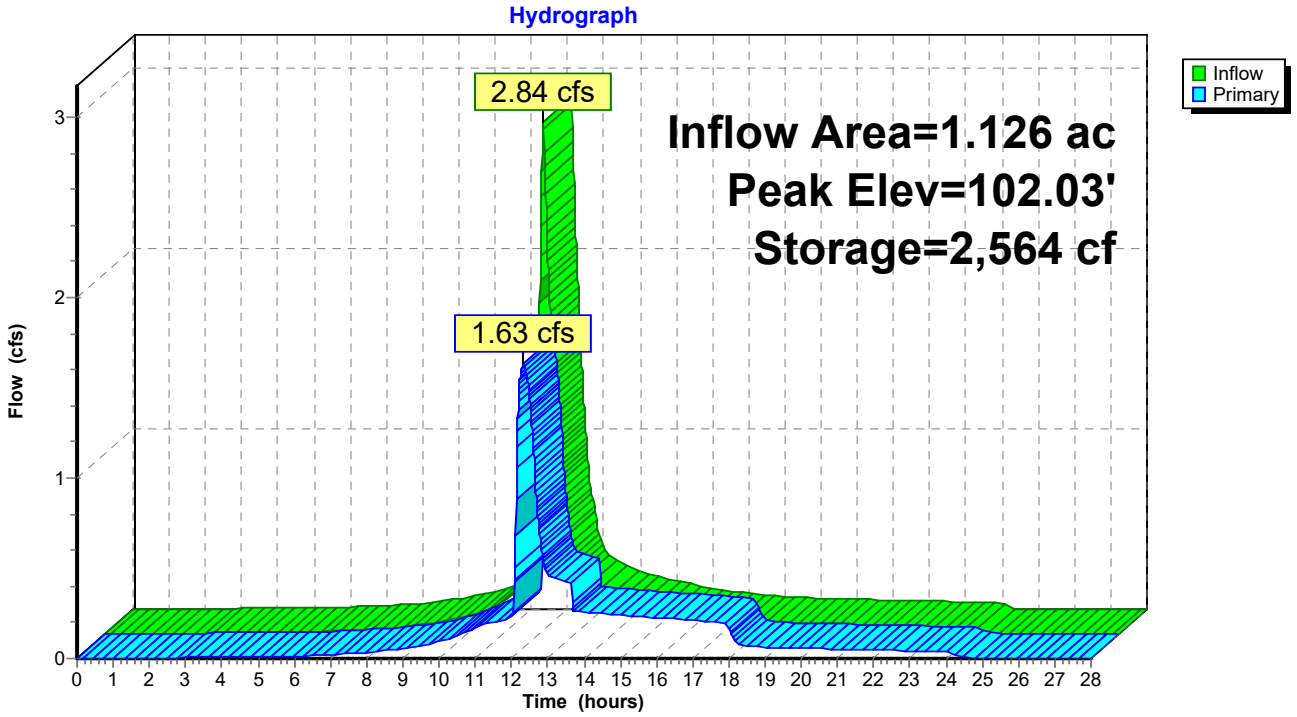
Volume	Invert	Avail.Storage	Storage Description
#1	96.49'	4,687 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.49	1,400	0.0	0	0	1,400
96.50	1,400	40.0	6	6	1,401
98.49	1,400	40.0	1,114	1,120	1,665
98.50	1,400	20.0	3	1,123	1,667
99.99	1,400	20.0	417	1,540	1,864
100.00	265	100.0	8	1,548	2,999
102.00	775	100.0	995	2,543	3,533
104.00	1,400	100.0	2,144	4,687	4,199

Device	Routing	Invert	Outlet Devices
#1	Device 3	96.49'	**6.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.10'
#2	Device 3	103.65'	**0.5" x 4.5" Horiz. OverFlow X 14.00 columns** X 4 rows C= 0.600 in 24.0" x 24.0" Grate (22% open area) Limited to weir flow at low heads
#3	Primary	96.40'	**12.0" Round 12" HDPE (P-7)** L= 24.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 96.40' / 95.90' S= 0.0208 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	100.95'	**7.0" Vert. 7" Orifice in the Side OS #1** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.63 cfs @ 12.32 hrs HW=102.03' TW=91.54' (Dynamic Tailwater)
↑└─**3=12" HDPE (P-7)** (Passes 1.63 cfs of 8.56 cfs potential flow)
↑ ├─**1=Exfiltration to Underdrain** (Exfiltration Controls 0.49 cfs)
├─**2=OverFlow** (Controls 0.00 cfs)
└─**4=7" Orifice in the Side OS #1** (Orifice Controls 1.14 cfs @ 4.27 fps)

Pond BIO-1: BIO-1



Summary for Pond CB-101: CB-101

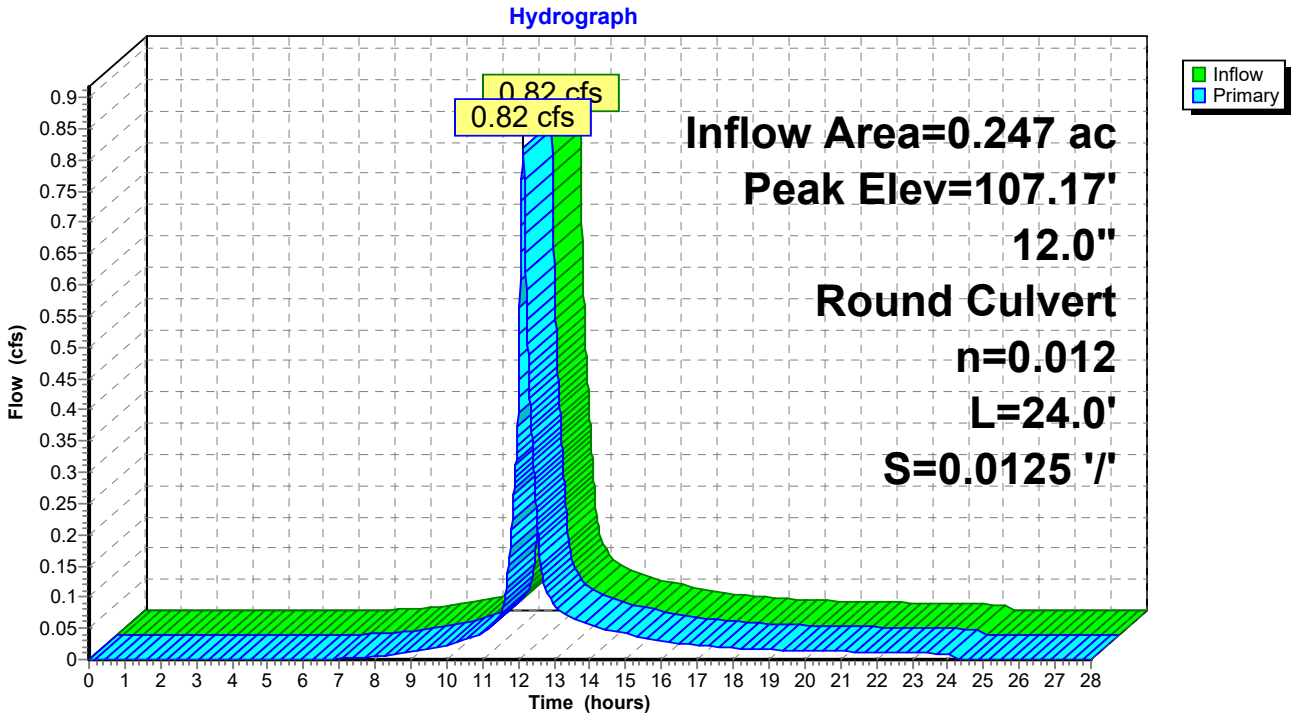
Inflow Area = 0.247 ac, 46.30% Impervious, Inflow Depth = 3.15" for 10-YR SEACOAST event
Inflow = 0.82 cfs @ 12.12 hrs, Volume= 0.065 af
Outflow = 0.82 cfs @ 12.12 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.12 hrs, Volume= 0.065 af
Routed to Pond ST-1 : Stormtech - 1- SC-310

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 107.17' @ 12.12 hrs
Flood Elev= 110.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	**12.0" Round 12" HDPE (P-1)** L= 24.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 106.40' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.12 hrs HW=107.17' TW=105.47' (Dynamic Tailwater)
↑**1=12" HDPE (P-1)** (Barrel Controls 0.82 cfs @ 3.34 fps)

Pond CB-101: CB-101



Summary for Pond CB-102: CB-102

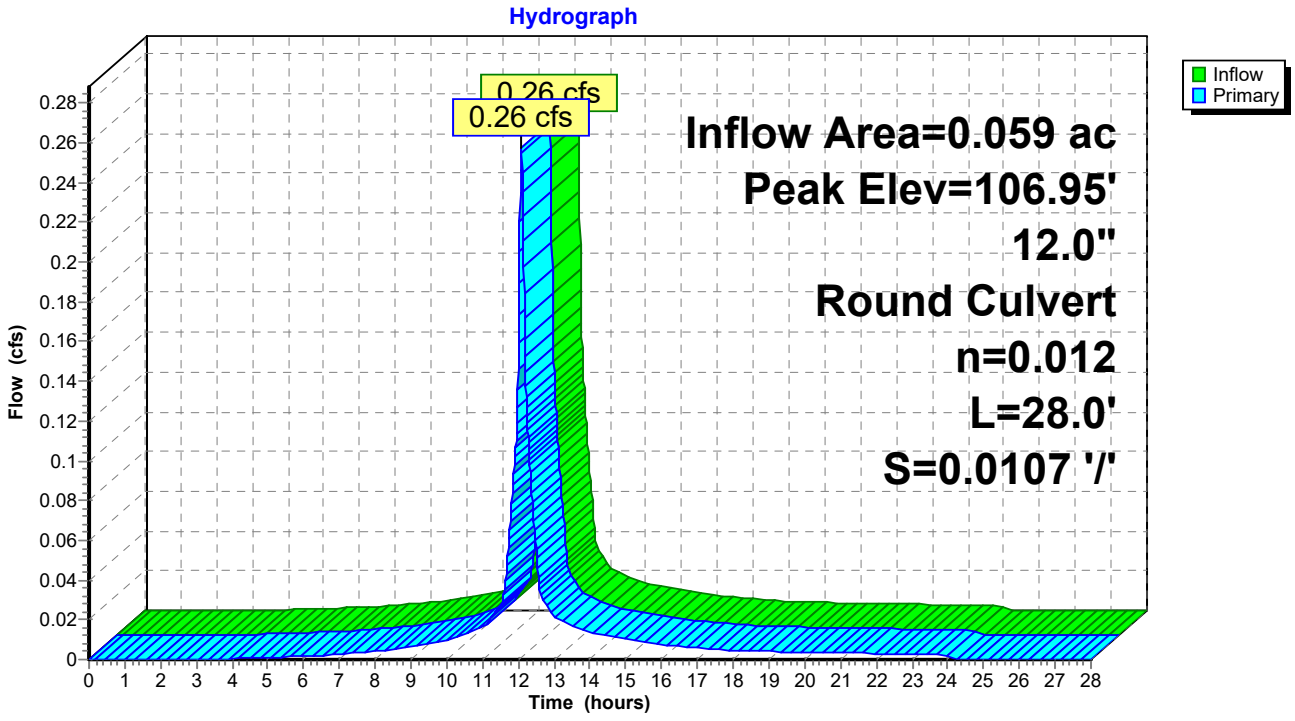
Inflow Area = 0.059 ac, 79.67% Impervious, Inflow Depth = 3.96" for 10-YR SEACOAST event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.26 cfs @ 12.08 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.08 hrs, Volume= 0.019 af
Routed to Pond ST-1 : Stormtech - 1- SC-310

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.95' @ 12.08 hrs
Flood Elev= 109.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	**12.0" Round 12" HDPE (P-2)** L= 28.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 106.40' S= 0.0107 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.08 hrs HW=106.95' TW=105.32' (Dynamic Tailwater)
1=12" HDPE (P-2) (Barrel Controls 0.26 cfs @ 2.53 fps)

Pond CB-102: CB-102



Summary for Pond CB-103: CB-103

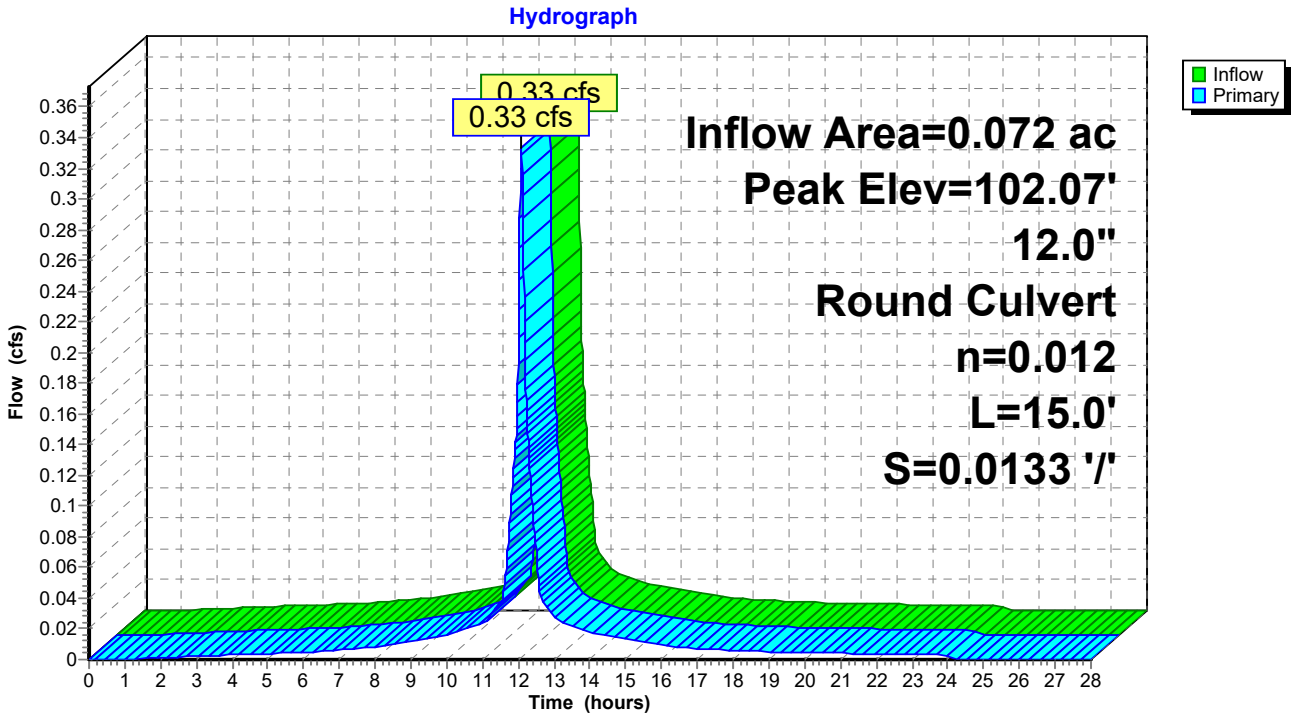
Inflow Area = 0.072 ac, 99.52% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af
Outflow = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af
Routed to Pond DMH-102 : DMH-102

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.07' @ 12.31 hrs
Flood Elev= 104.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.20'	**12.0" Round 12" HDPE (P-4)** L= 15.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 101.20' / 101.00' S= 0.0133 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=101.66' TW=101.59' (Dynamic Tailwater)
1=12" HDPE (P-4) (Outlet Controls 0.33 cfs @ 1.40 fps)

Pond CB-103: CB-103



Summary for Pond CB-104: CB-104

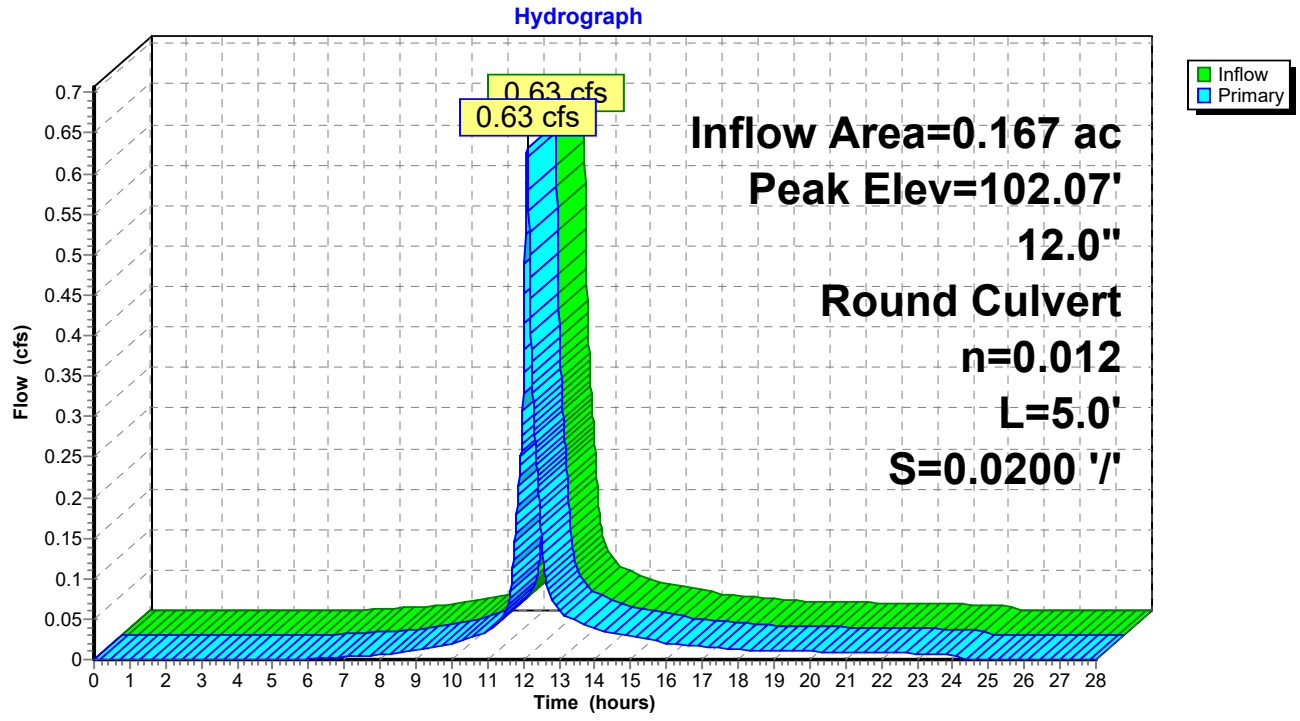
Inflow Area = 0.167 ac, 57.76% Impervious, Inflow Depth = 3.44" for 10-YR SEACOAST event
Inflow = 0.63 cfs @ 12.10 hrs, Volume= 0.048 af
Outflow = 0.63 cfs @ 12.10 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 0.63 cfs @ 12.10 hrs, Volume= 0.048 af
Routed to Pond DMH-102 : DMH-102

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.07' @ 12.31 hrs
Flood Elev= 103.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.10'	**12.0" Round 12" HDPE (P-5)** L= 5.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 101.10' / 101.00' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.10 hrs HW=101.69' TW=101.61' (Dynamic Tailwater)
1=12" HDPE (P-5) (Outlet Controls 0.63 cfs @ 1.86 fps)

Pond CB-104: CB-104



Summary for Pond DE-#1: Cottage #1 Stone Drip Edge

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.27 hrs, Volume= 0.007 af, Atten= 57%, Lag= 10.9 min
Primary = 0.04 cfs @ 12.27 hrs, Volume= 0.007 af
Routed to Pond YD-C#1 : Cottage #1 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 111.16' @ 12.27 hrs Surf.Area= 135 sf Storage= 36 cf
Flood Elev= 112.51' Surf.Area= 135 sf Storage= 110 cf

Plug-Flow detention time= 12.1 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 10.7 min (759.6 - 748.8)

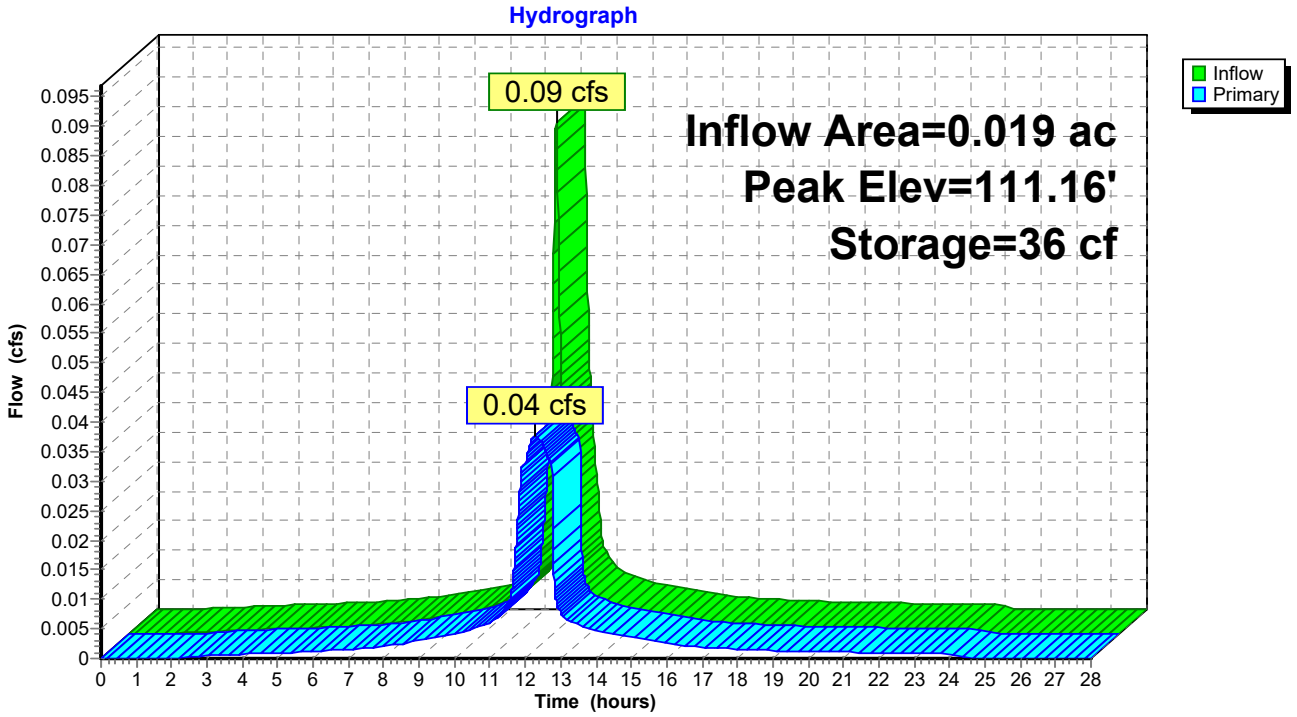
Volume	Invert	Avail.Storage	Storage Description
#1	110.49'	110 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
110.49	135	0.0	0	0	135
110.50	135	40.0	1	1	135
112.50	135	40.0	108	109	218
112.51	135	100.0	1	110	218

Device	Routing	Invert	Outlet Devices
#1	Device 2	110.49'	**10.000 in/hr Exfiltration ro Underdrain over Wetted area** Phase-In= 0.01'
#2	Primary	110.50'	**6.0" Round 6" HDPE (P-21)** L= 5.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 108.00' S= 0.5000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=111.16' TW=108.19' (Dynamic Tailwater)
↑**2=6" HDPE (P-21)** (Passes 0.04 cfs of 0.60 cfs potential flow)
↑**1=Exfiltration ro Underdrain** (Exfiltration Controls 0.04 cfs)

Pond DE-#1: Cottage #1 Stone Drip Edge



Summary for Pond DE-#2: Cottage #2 Stone Drip Edge

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.27 hrs, Volume= 0.007 af, Atten= 57%, Lag= 10.9 min
Primary = 0.04 cfs @ 12.27 hrs, Volume= 0.007 af
Routed to Pond YD-C#2 : Cottage #2 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 113.16' @ 12.27 hrs Surf.Area= 135 sf Storage= 36 cf
Flood Elev= 114.51' Surf.Area= 135 sf Storage= 110 cf

Plug-Flow detention time= 12.1 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 10.7 min (759.6 - 748.8)

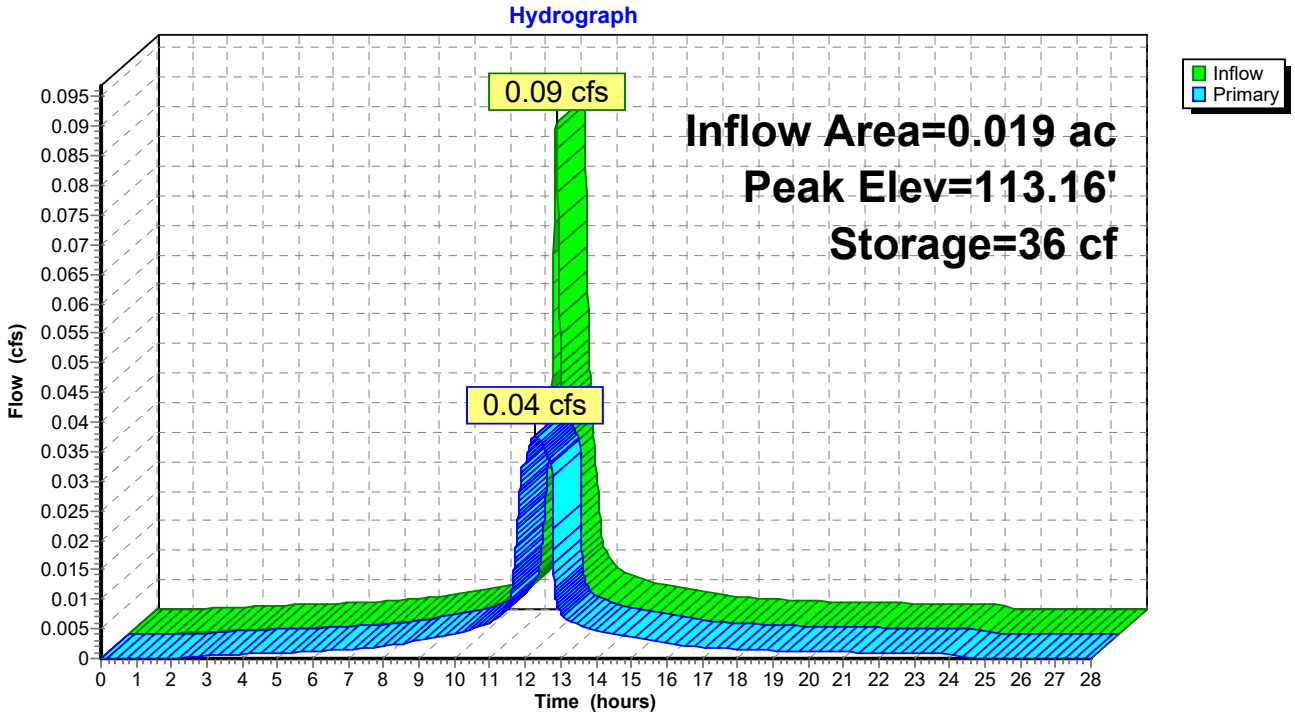
Volume	Invert	Avail.Storage	Storage Description
#1	112.49'	110 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
112.49	135	0.0	0	0	135
112.50	135	40.0	1	1	135
114.50	135	40.0	108	109	218
114.51	135	100.0	1	110	218

Device	Routing	Invert	Outlet Devices
#1	Device 2	112.49'	**10.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.01'
#2	Primary	112.50'	**6.0" Round 6" HDPE (P-19)** L= 5.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 112.50' / 110.00' S= 0.5000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=113.16' TW=110.14' (Dynamic Tailwater)
↑└**2=6" HDPE (P-19)** (Passes 0.04 cfs of 0.60 cfs potential flow)
↑└**1=Exfiltration to Underdrain** (Exfiltration Controls 0.04 cfs)

Pond DE-#2: Cottage #2 Stone Drip Edge



Summary for Pond DE-#3: Cottage #3 Stone Drip Edge

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.26 hrs, Volume= 0.007 af, Atten= 57%, Lag= 10.9 min
Primary = 0.04 cfs @ 12.26 hrs, Volume= 0.007 af
Routed to Pond YD-C#3 : Cottage #3 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.66' @ 12.26 hrs Surf.Area= 135 sf Storage= 36 cf
Flood Elev= 117.01' Surf.Area= 135 sf Storage= 122 cf

Plug-Flow detention time= 13.3 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (760.6 - 748.8)

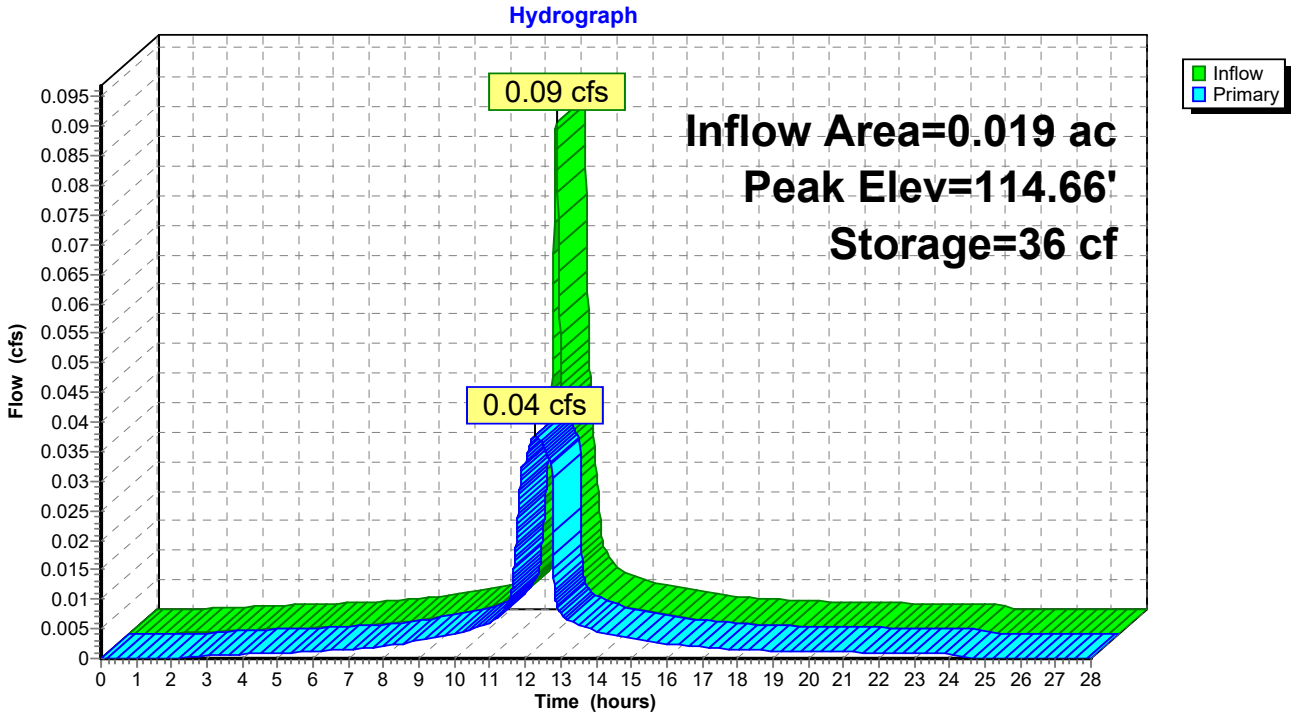
Volume	Invert	Avail.Storage	Storage Description
#1	113.99'	122 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
113.99	135	0.0	0	0	135
114.00	135	40.0	1	1	135
116.00	135	40.0	108	109	218
116.10	135	100.0	14	122	222

Device	Routing	Invert	Outlet Devices
#1	Device 2	114.00'	**6.0" Round 6" HDPE (P-17)** L= 5.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 112.00' S= 0.4000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Primary	113.99'	**10.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.01'

Primary OutFlow Max=0.04 cfs @ 12.26 hrs HW=114.66' TW=112.08' (Dynamic Tailwater)
↑**2=Exfiltration to Underdrain** (Exfiltration Controls 0.04 cfs)
↑**1=6" HDPE (P-17)** (Passes 0.04 cfs of 0.60 cfs potential flow)

Pond DE-#3: Cottage #3 Stone Drip Edge



Summary for Pond DE-#4: Cottage #4 Stone Drip Edge

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.26 hrs, Volume= 0.007 af, Atten= 56%, Lag= 10.8 min
Primary = 0.04 cfs @ 12.26 hrs, Volume= 0.007 af
Routed to Pond YD-C#5 : Cottage #5 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 115.67' @ 12.26 hrs Surf.Area= 135 sf Storage= 37 cf
Flood Elev= 117.01' Surf.Area= 135 sf Storage= 110 cf

Plug-Flow detention time= 13.7 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (761.1 - 748.8)

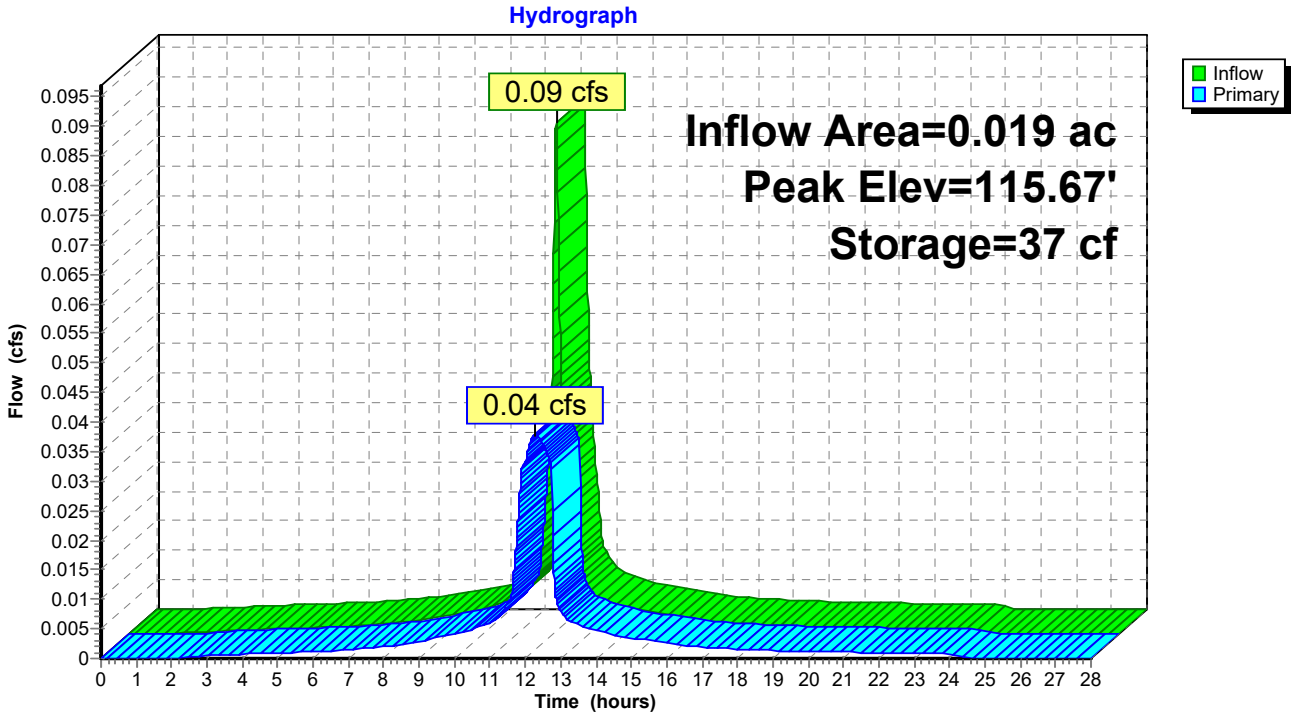
Volume	Invert	Avail.Storage	Storage Description
#1	114.99'	110 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
114.99	135	0.0	0	0	135
115.00	135	40.0	1	1	135
117.00	135	40.0	108	109	218
117.01	135	100.0	1	110	218

Device	Routing	Invert	Outlet Devices
#1	Device 2	114.99'	**10.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.01'
#2	Primary	115.00'	**6.0" Round 6" HDPE (P-13)** L= 18.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 115.00' / 114.90' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.04 cfs @ 12.26 hrs HW=115.67' TW=114.81' (Dynamic Tailwater)
↑**2=6" HDPE (P-13)** (Passes 0.04 cfs of 0.50 cfs potential flow)
↑**1=Exfiltration to Underdrain** (Exfiltration Controls 0.04 cfs)

Pond DE-#4: Cottage #4 Stone Drip Edge



Summary for Pond DE-#5: Cottage #5 Stone Drip Edge

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.24 hrs, Volume= 0.007 af, Atten= 53%, Lag= 9.3 min
Discarded = 0.04 cfs @ 12.24 hrs, Volume= 0.007 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond ST-2 : Stormtech - 2 - SC-310

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 116.34' @ 12.24 hrs Surf.Area= 180 sf Storage= 25 cf
Flood Elev= 118.01' Surf.Area= 180 sf Storage= 147 cf

Plug-Flow detention time= 2.3 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 2.3 min (751.1 - 748.8)

Volume	Invert	Avail.Storage	Storage Description
#1	115.99'	147 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

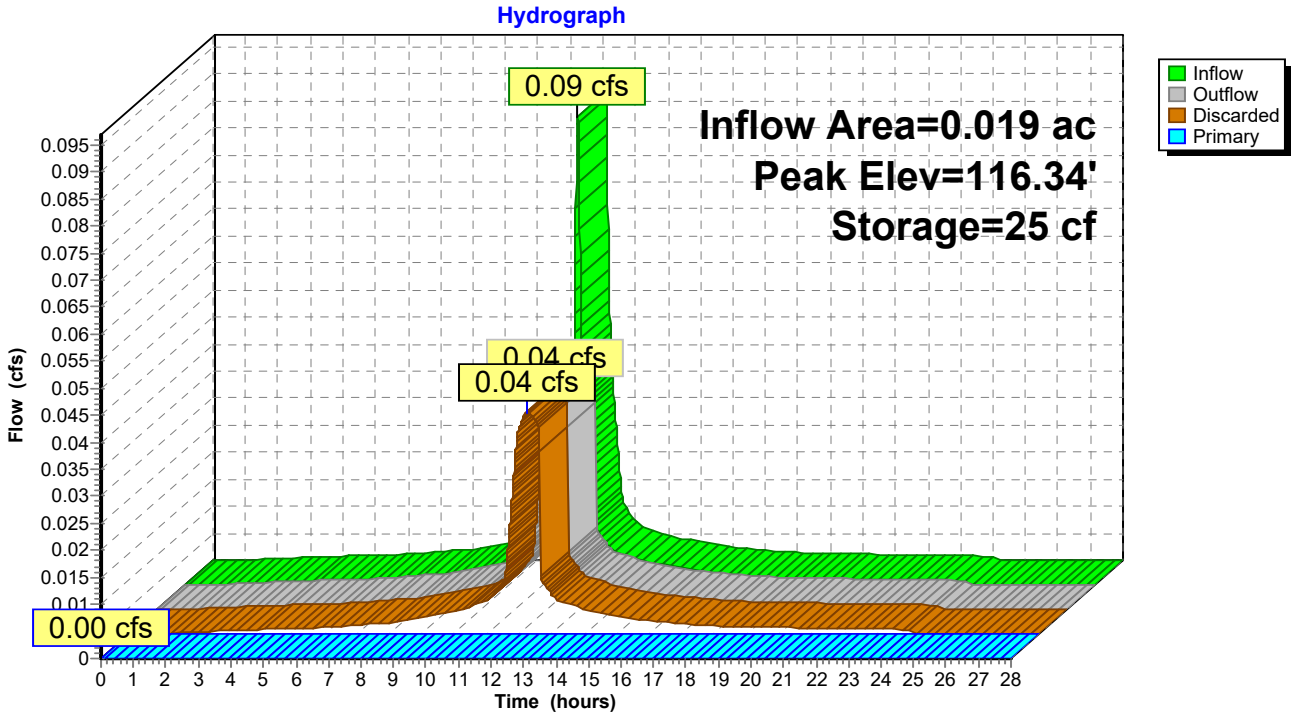
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
115.99	180	0.0	0	0	180
116.00	180	40.0	1	1	180
118.00	180	40.0	144	145	276
118.01	180	100.0	2	147	276

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.99'	**9.000 in/hr Exfiltration over Wetted area** Phase-In= 0.01'
#2	Primary	116.75'	**6.0" Round 6" HDPE (P-12)** L= 10.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 116.75' / 114.50' S= 0.2250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.24 hrs HW=116.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=113.50' (Dynamic Tailwater)
↑—**2=6" HDPE (P-12)** (Controls 0.00 cfs)

Pond DE-#5: Cottage #5 Stone Drip Edge



Summary for Pond DE-DA: Duplex Bldg "A" Stone Drip Edge

Inflow Area = 0.022 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af
Outflow = 0.04 cfs @ 12.30 hrs, Volume= 0.008 af, Atten= 61%, Lag= 13.0 min
Primary = 0.04 cfs @ 12.30 hrs, Volume= 0.008 af
Routed to Pond YD-DA : Duplex Bldg "A" Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.38' @ 12.30 hrs Surf.Area= 135 sf Storage= 48 cf
Flood Elev= 107.50' Surf.Area= 135 sf Storage= 109 cf

Plug-Flow detention time= 12.5 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 11.4 min (760.3 - 748.8)

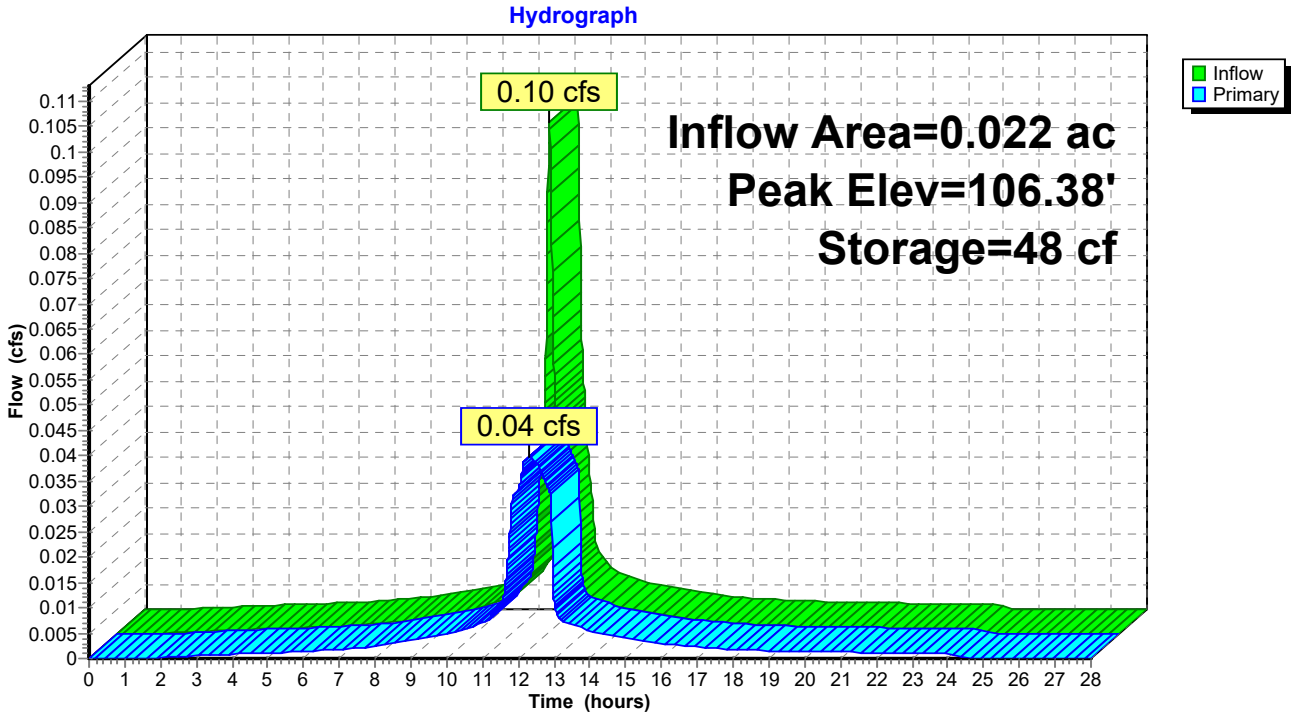
Volume	Invert	Avail.Storage	Storage Description
#1	105.49'	110 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
105.49	135	0.0	0	0	135
105.50	135	40.0	1	1	135
107.50	135	40.0	108	109	218
107.51	135	100.0	1	110	218

Device	Routing	Invert	Outlet Devices
#1	Device 2	105.49'	**10.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.01'
#2	Primary	105.50'	**6.0" Round 6" HDPE (P-25)** L= 20.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 105.50' / 102.10' S= 0.1700 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.04 cfs @ 12.30 hrs HW=106.38' TW=102.38' (Dynamic Tailwater)
↑**2=6" HDPE (P-25)** (Passes 0.04 cfs of 0.75 cfs potential flow)
↑**1=Exfiltration to Underdrain** (Exfiltration Controls 0.04 cfs)

Pond DE-DA: Duplex Bldg "A" Stone Drip Edge



Summary for Pond DE-DB: Duplex Bldg "B" Stone Drip Edge

Inflow Area = 0.028 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-YR SEACOAST event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.05 cfs @ 12.28 hrs, Volume= 0.011 af, Atten= 58%, Lag= 11.7 min
Primary = 0.05 cfs @ 12.28 hrs, Volume= 0.011 af
Routed to Pond YD-DB : Duplex Bldg "B" Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.72' @ 12.28 hrs Surf.Area= 200 sf Storage= 58 cf
Flood Elev= 108.01' Surf.Area= 200 sf Storage= 163 cf

Plug-Flow detention time= 13.7 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (761.2 - 748.8)

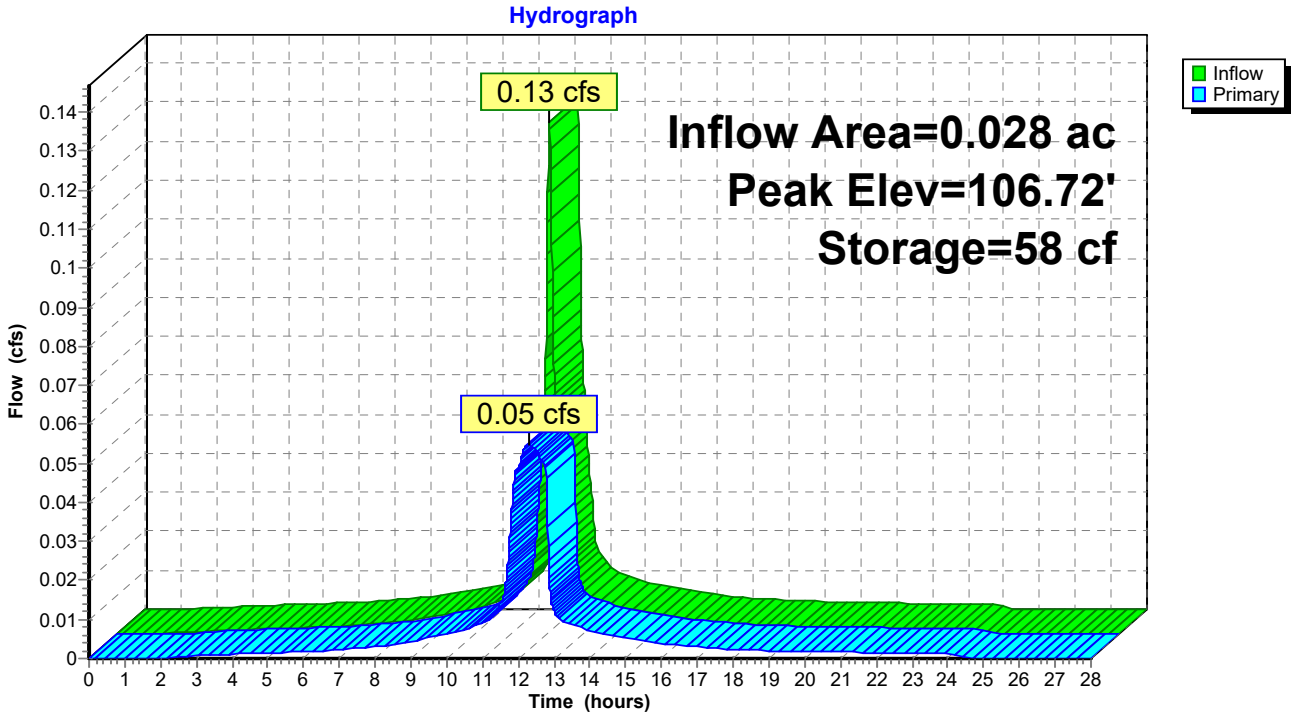
Volume	Invert	Avail.Storage	Storage Description
#1	105.99'	163 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
105.99	200	0.0	0	0	200
106.00	200	40.0	1	1	201
108.00	200	40.0	160	161	301
108.01	200	100.0	2	163	301

Device	Routing	Invert	Outlet Devices
#1	Device 2	105.99'	**10.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.01'
#2	Primary	106.00'	**6.0" Round 6" HDPE (P-23)** L= 22.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.05 cfs @ 12.28 hrs HW=106.72' TW=105.76' (Dynamic Tailwater)
↑**2=6" HDPE (P-23)** (Passes 0.05 cfs of 0.65 cfs potential flow)
↑**1=Exfiltration to Underdrain** (Exfiltration Controls 0.05 cfs)

Pond DE-DB: Duplex Bldg "B" Stone Drip Edge



Summary for Pond DMH-101: DMH-101

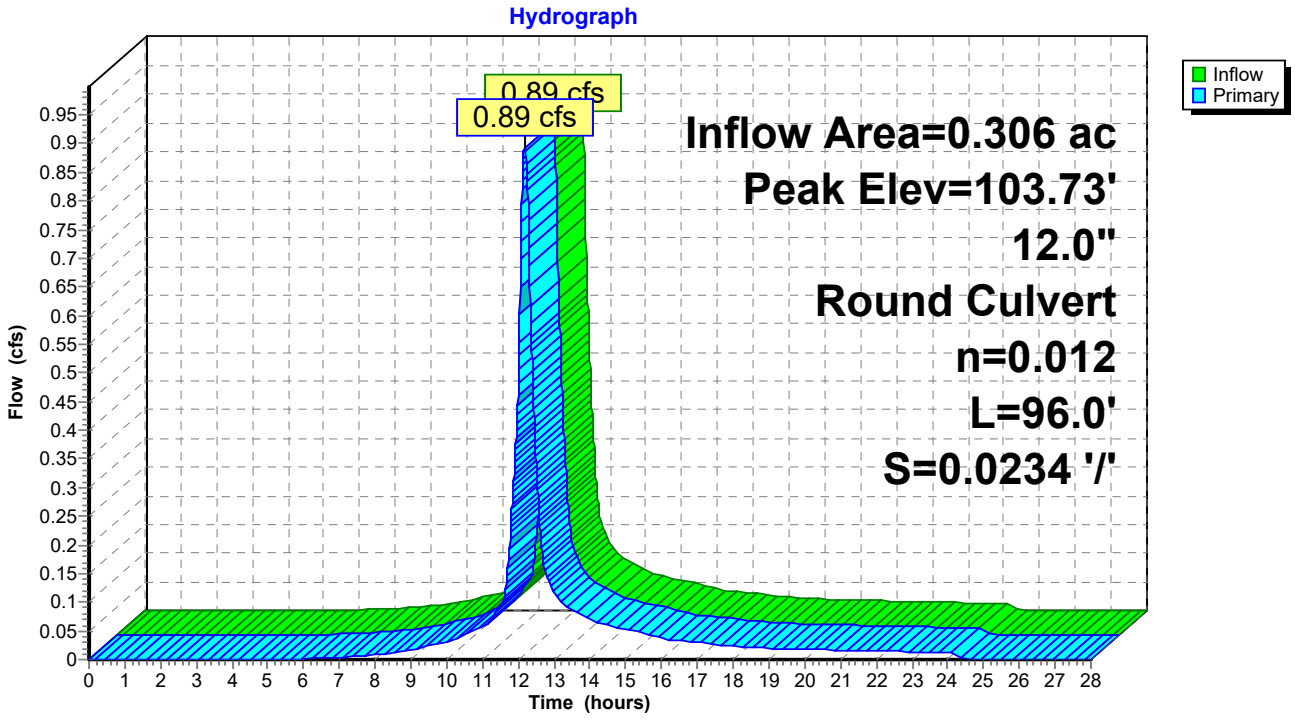
Inflow Area = 0.306 ac, 52.72% Impervious, Inflow Depth = 3.30" for 10-YR SEACOAST event
Inflow = 0.89 cfs @ 12.18 hrs, Volume= 0.084 af
Outflow = 0.89 cfs @ 12.18 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.18 hrs, Volume= 0.084 af
Routed to Pond DMH-102 : DMH-102

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.73' @ 12.18 hrs
Flood Elev= 109.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round 12" HDPE (P-3)** L= 96.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 101.00' S= 0.0234 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.18 hrs HW=103.73' TW=101.85' (Dynamic Tailwater)
1=12" HDPE (P-3) (Inlet Controls 0.89 cfs @ 2.37 fps)

Pond DMH-101: DMH-101



Summary for Pond DMH-102: DMH-102

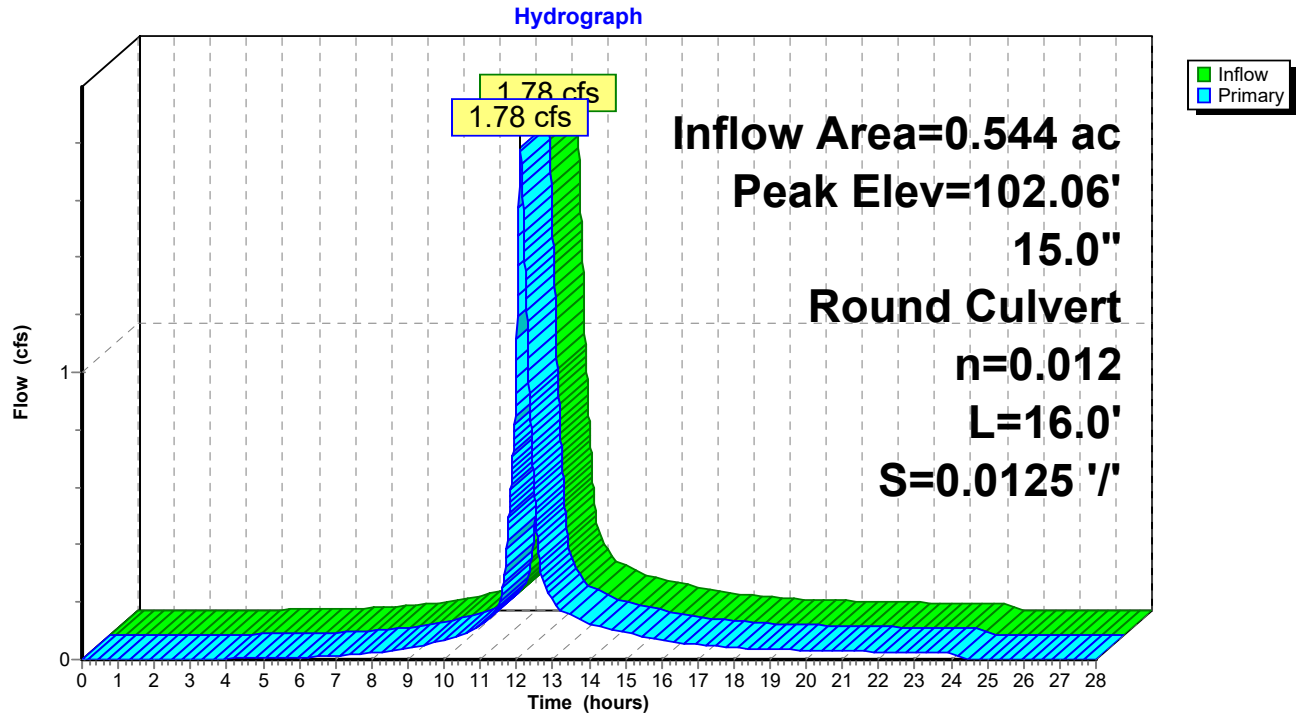
Inflow Area = 0.544 ac, 60.42% Impervious, Inflow Depth = 3.51" for 10-YR SEACOAST event
Inflow = 1.78 cfs @ 12.11 hrs, Volume= 0.159 af
Outflow = 1.78 cfs @ 12.11 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.11 hrs, Volume= 0.159 af
Routed to Pond BIO-1 : BIO-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.06' @ 12.31 hrs
Flood Elev= 104.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.90'	**15.0" Round 15" HDPE (P-6)** L= 16.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 100.90' / 100.70' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.78 cfs @ 12.11 hrs HW=101.61' TW=101.04' (Dynamic Tailwater)
1=15" HDPE (P-6) (Barrel Controls 1.78 cfs @ 3.60 fps)

Pond DMH-102: DMH-102



Summary for Pond DMH-103: DMH-103

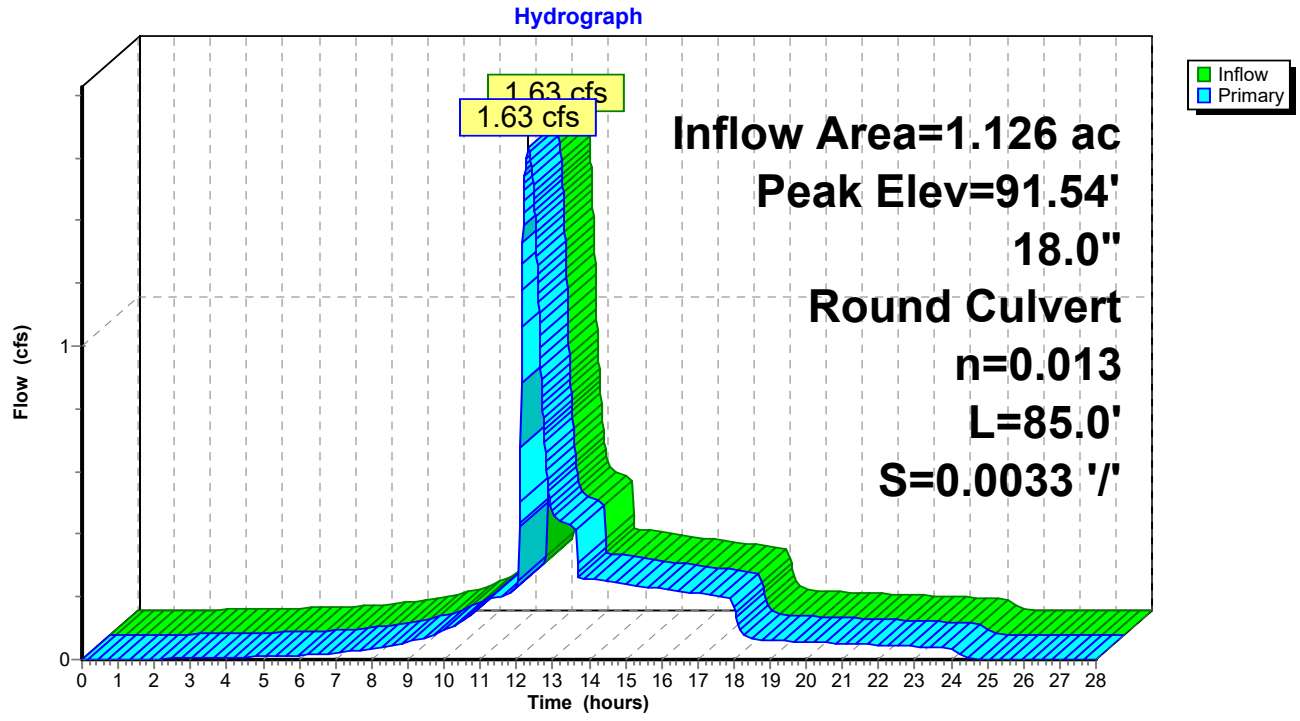
Inflow Area = 1.126 ac, 43.74% Impervious, Inflow Depth = 2.78" for 10-YR SEACOAST event
Inflow = 1.63 cfs @ 12.32 hrs, Volume= 0.261 af
Outflow = 1.63 cfs @ 12.32 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min
Primary = 1.63 cfs @ 12.32 hrs, Volume= 0.261 af
Routed to Link AP-T : AP-Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 91.54' @ 12.32 hrs
Flood Elev= 102.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.80'	**18.0" Round Existing 18" Pipe** L= 85.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 90.80' / 90.52' S= 0.0033 '/' Cc= 0.900 n= 0.013 Clay tile, Flow Area= 1.77 sf

Primary OutFlow Max=1.63 cfs @ 12.32 hrs HW=91.54' TW=0.00' (Dynamic Tailwater)
1=Existing 18" Pipe (Barrel Controls 1.63 cfs @ 2.75 fps)

Pond DMH-103: DMH-103



Summary for Pond ST-1: Stormtech - 1- SC-310

Inflow Area = 0.306 ac, 52.72% Impervious, Inflow Depth = 3.30" for 10-YR SEACOAST event
Inflow = 1.06 cfs @ 12.11 hrs, Volume= 0.084 af
Outflow = 0.89 cfs @ 12.18 hrs, Volume= 0.084 af, Atten= 16%, Lag= 3.7 min
Primary = 0.89 cfs @ 12.18 hrs, Volume= 0.084 af
Routed to Pond DMH-101 : DMH-101

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.54' @ 12.18 hrs Surf.Area= 380 sf Storage= 191 cf
Flood Elev= 107.25' Surf.Area= 380 sf Storage= 537 cf

Plug-Flow detention time= 6.1 min calculated for 0.084 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (810.7 - 804.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.40'	360 cf	**12.00'W x 31.68'L x 2.83'H Field A** 1,077 cf Overall - 177 cf Embedded = 900 cf x 40.0% Voids
#2A	105.40'	177 cf	**ADS_StormTech RC-310 +Cap** x 12 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		537 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	104.40'	**6.0" Round Underdrain Outlet** L= 4.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 104.40' / 104.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.89 cfs @ 12.18 hrs HW=105.54' TW=103.73' (Dynamic Tailwater)
↑**1=Underdrain Outlet** (Inlet Controls 0.89 cfs @ 4.54 fps)

Pond ST-1: Stormtech - 1- SC-310 - Chamber Wizard Field A

Chamber Model = ADS_StormTech RC-310 +Cap (ADS StormTech® RC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 9.0" Spacing = 43.0" C-C Row Spacing

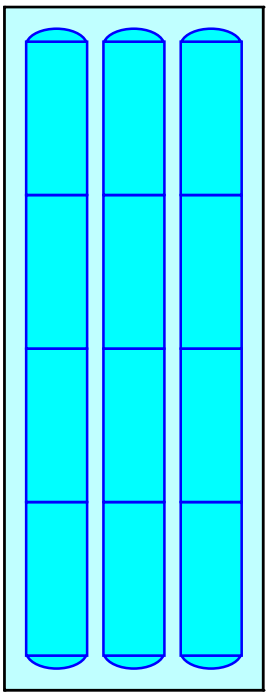
4 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 29.68' Row Length +12.0" End Stone x 2 = 31.68' Base Length
3 Rows x 34.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 12.00' Base Width
12.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.83' Field Height

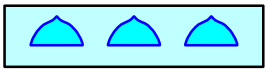
12 Chambers x 14.7 cf = 176.9 cf Chamber Storage

1,077.1 cf Field - 176.9 cf Chambers = 900.2 cf Stone x 40.0% Voids = 360.1 cf Stone Storage

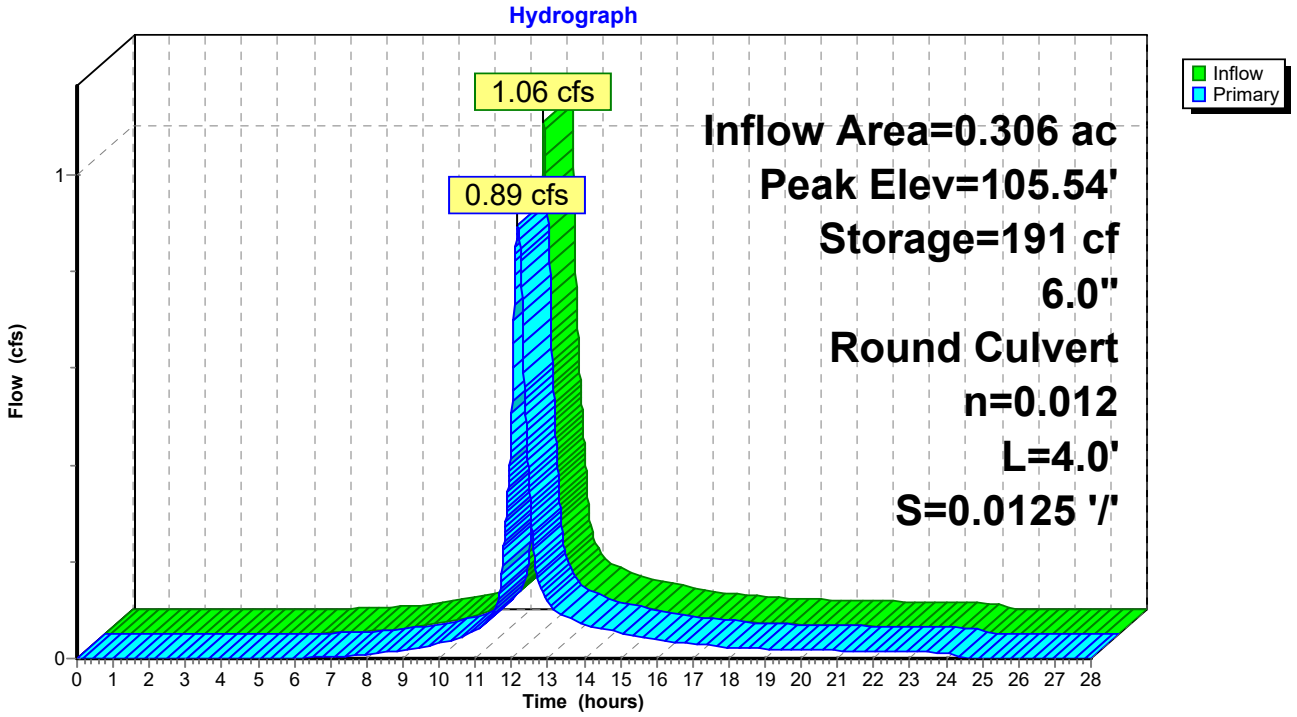
Chamber Storage + Stone Storage = 537.0 cf = 0.012 af
Overall Storage Efficiency = 49.9%
Overall System Size = 31.68' x 12.00' x 2.83'

12 Chambers
39.9 cy Field
33.3 cy Stone





Pond ST-1: Stormtech - 1- SC-310



Summary for Pond ST-2: Stormtech - 2 - SC-310

Inflow Area = 0.140 ac, 37.45% Impervious, Inflow Depth = 1.32" for 10-YR SEACOAST event
Inflow = 0.13 cfs @ 12.11 hrs, Volume= 0.015 af
Outflow = 0.07 cfs @ 12.50 hrs, Volume= 0.015 af, Atten= 47%, Lag= 23.7 min
Discarded = 0.07 cfs @ 12.50 hrs, Volume= 0.015 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond YD-#1 : Yard Drain #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.04' @ 12.50 hrs Surf.Area= 295 sf Storage= 67 cf
Flood Elev= 115.85' Surf.Area= 295 sf Storage= 355 cf

Plug-Flow detention time= 6.5 min calculated for 0.015 af (100% of inflow)
Center-of-Mass det. time= 6.5 min (837.6 - 831.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	113.50'	222 cf	**12.00'W x 24.56'L x 2.33'H Field A** 688 cf Overall - 133 cf Embedded = 555 cf x 40.0% Voids
#2A	114.00'	133 cf	**ADS_StormTech SC-310 +Cap** x 9 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 9 Chambers in 3 Rows
		355 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	113.50'	**9.000 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	114.50'	**6.0" Round 6" HDPE (P-14)** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 114.50' / 114.00' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.07 cfs @ 12.50 hrs HW=114.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.50' TW=113.90' (Dynamic Tailwater)
↑—**2=6" HDPE (P-14)** (Controls 0.00 cfs)

Pond ST-2: Stormtech - 2 - SC-310 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 9.0" Spacing = 43.0" C-C Row Spacing

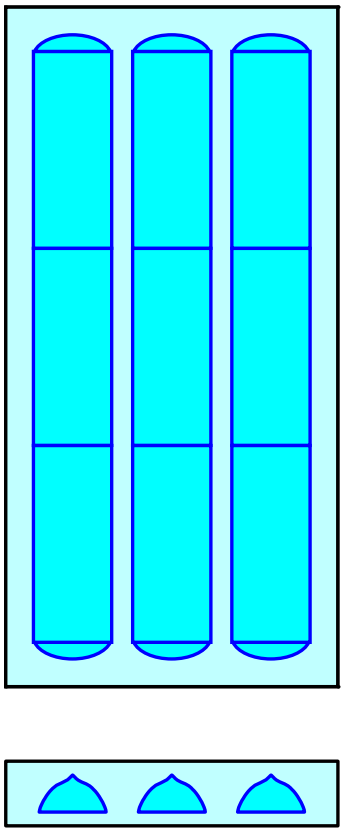
3 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 22.56' Row Length +12.0" End Stone x 2 = 24.56' Base Length
3 Rows x 34.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 12.00' Base Width
6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

9 Chambers x 14.7 cf = 132.7 cf Chamber Storage

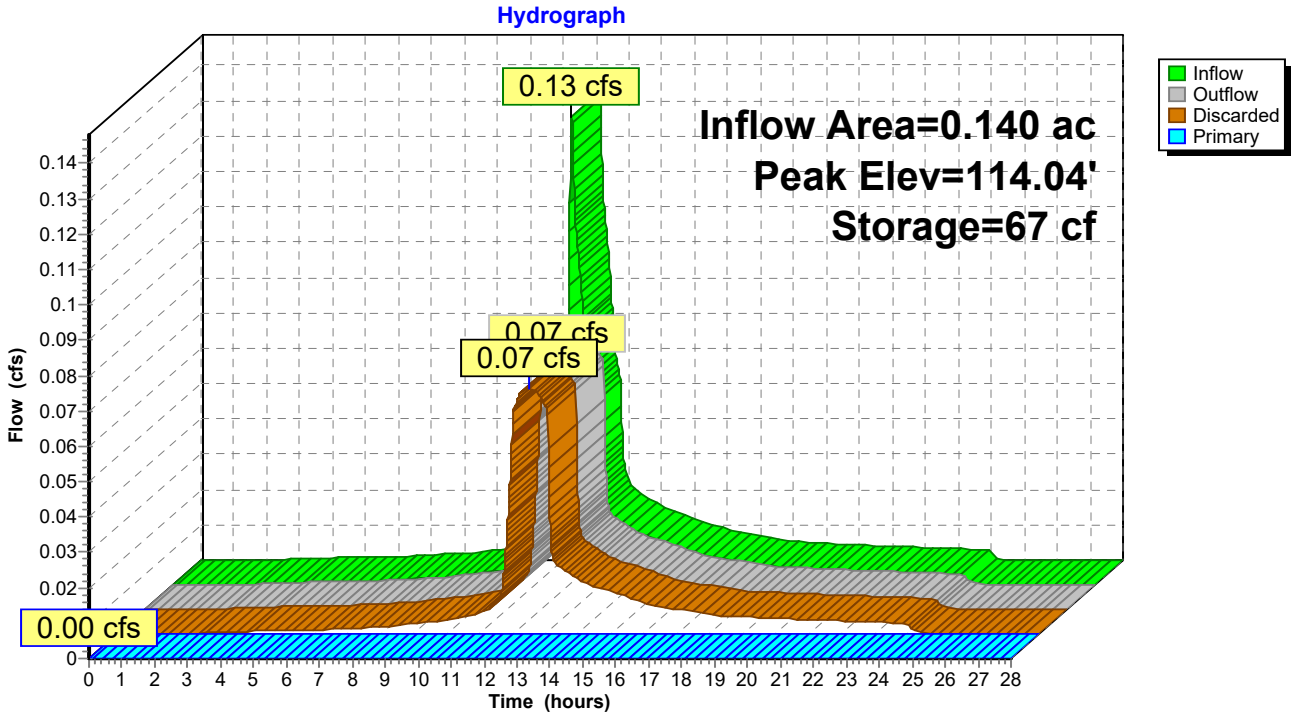
687.7 cf Field - 132.7 cf Chambers = 555.0 cf Stone x 40.0% Voids = 222.0 cf Stone Storage

Chamber Storage + Stone Storage = 354.7 cf = 0.008 af
Overall Storage Efficiency = 51.6%
Overall System Size = 24.56' x 12.00' x 2.33'

9 Chambers
25.5 cy Field
20.6 cy Stone



Pond ST-2: Stormtech - 2 - SC-310



Summary for Pond YD-#1: Yard Drain #1

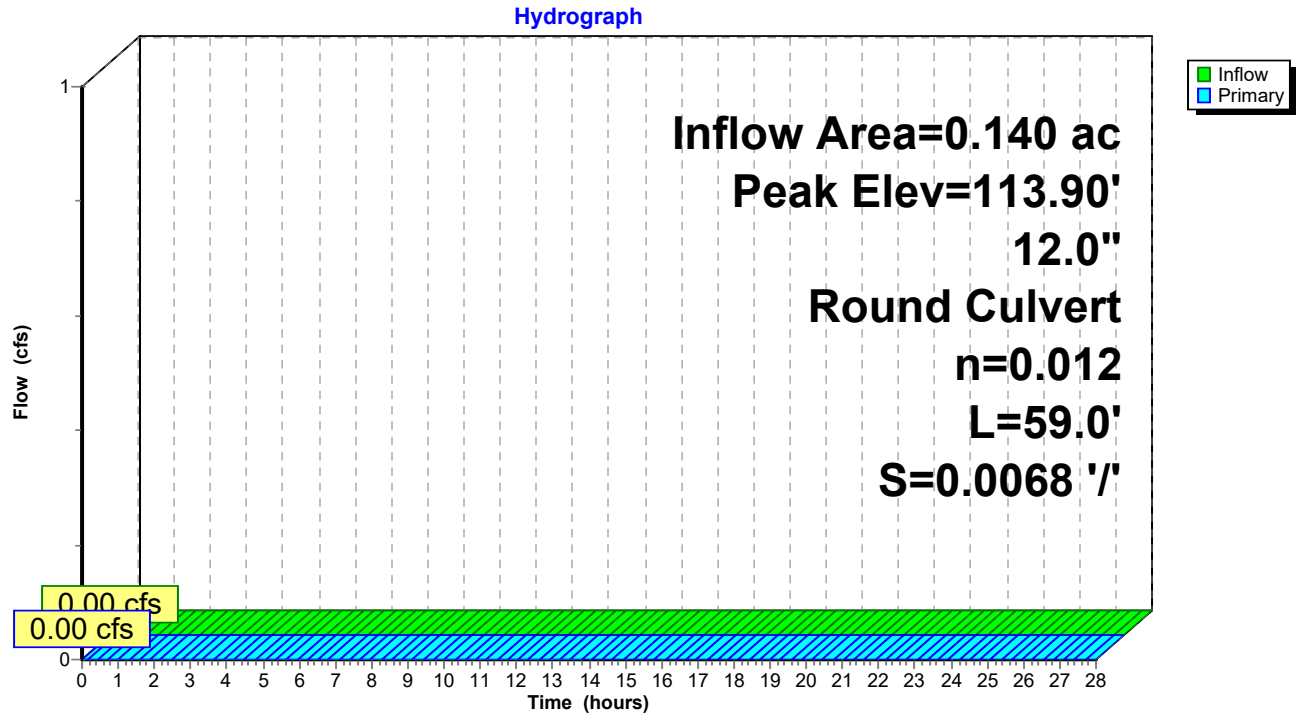
Inflow Area = 0.140 ac, 37.45% Impervious, Inflow Depth = 0.00" for 10-YR SEACOAST event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond YD-C#4 : Cottage #4 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 113.90' @ 0.00 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.90'	**12.0" Round 12" HDPE (P-15)** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.90' / 113.50' S= 0.0068 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.90' TW=113.40' (Dynamic Tailwater)
↑**1=12" HDPE (P-15)** (Controls 0.00 cfs)

Pond YD-#1: Yard Drain #1



Summary for Pond YD-C#1: Cottage #1 Yard Drain

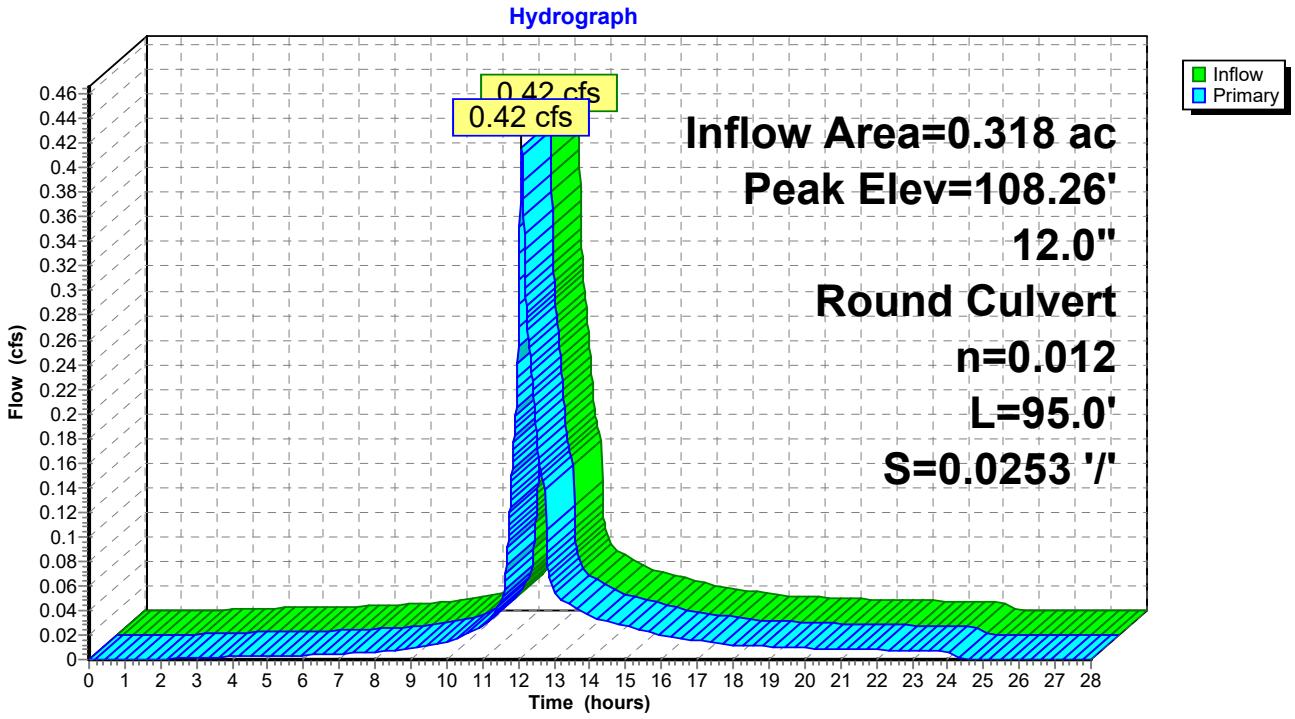
Inflow Area = 0.318 ac, 34.00% Impervious, Inflow Depth = 1.63" for 10-YR SEACOAST event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 0.043 af
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 0.043 af
Routed to Pond YD-DB : Duplex Bldg "B" Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 108.26' @ 12.09 hrs
Flood Elev= 111.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.90'	**12.0" Round 12" HDPE (P-22)** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 107.90' / 105.50' S= 0.0253 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=108.26' TW=105.86' (Dynamic Tailwater)
1=12" HDPE (P-22) (Inlet Controls 0.42 cfs @ 1.62 fps)

Pond YD-C#1: Cottage #1 Yard Drain



Summary for Pond YD-C#2: Cottage #2 Yard Drain

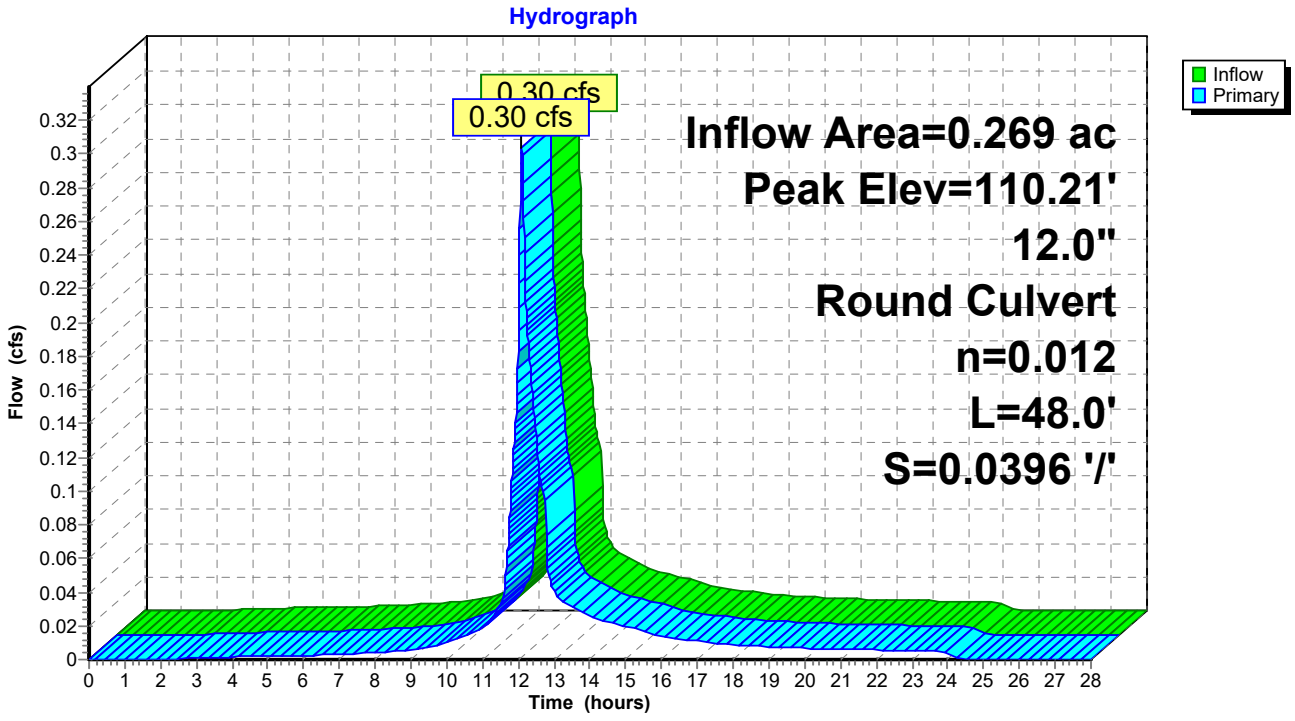
Inflow Area = 0.269 ac, 33.29% Impervious, Inflow Depth = 1.37" for 10-YR SEACOAST event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.031 af
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 0.031 af
Routed to Pond YD-C#1 : Cottage #1 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 110.21' @ 12.09 hrs
Flood Elev= 113.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	109.90'	**12.0" Round 12" HDPE (P-20)** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 109.90' / 108.00' S= 0.0396 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=110.21' TW=108.26' (Dynamic Tailwater)
↑**1=12" HDPE (P-20)** (Inlet Controls 0.30 cfs @ 1.49 fps)

Pond YD-C#2: Cottage #2 Yard Drain



Summary for Pond YD-C#3: Cottage #3 Yard Drain

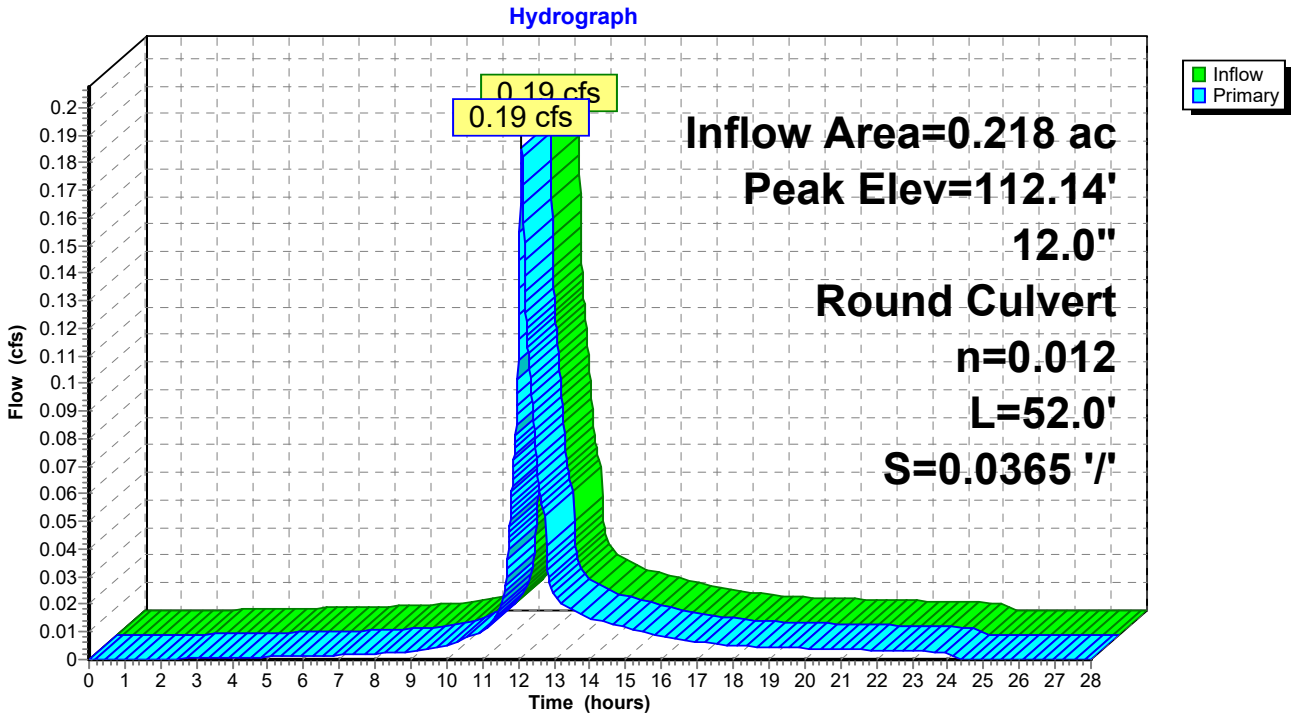
Inflow Area = 0.218 ac, 32.60% Impervious, Inflow Depth = 0.98" for 10-YR SEACOAST event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.19 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond YD-C#2 : Cottage #2 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 112.14' @ 12.09 hrs
Flood Elev= 115.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	111.90'	**12.0" Round 12" HDPE (P-18)** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 111.90' / 110.00' S= 0.0365 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.09 hrs HW=112.14' TW=110.21' (Dynamic Tailwater)
1=12" HDPE (P-18) (Inlet Controls 0.19 cfs @ 1.31 fps)

Pond YD-C#3: Cottage #3 Yard Drain



Summary for Pond YD-C#4: Cottage #4 Yard Drain

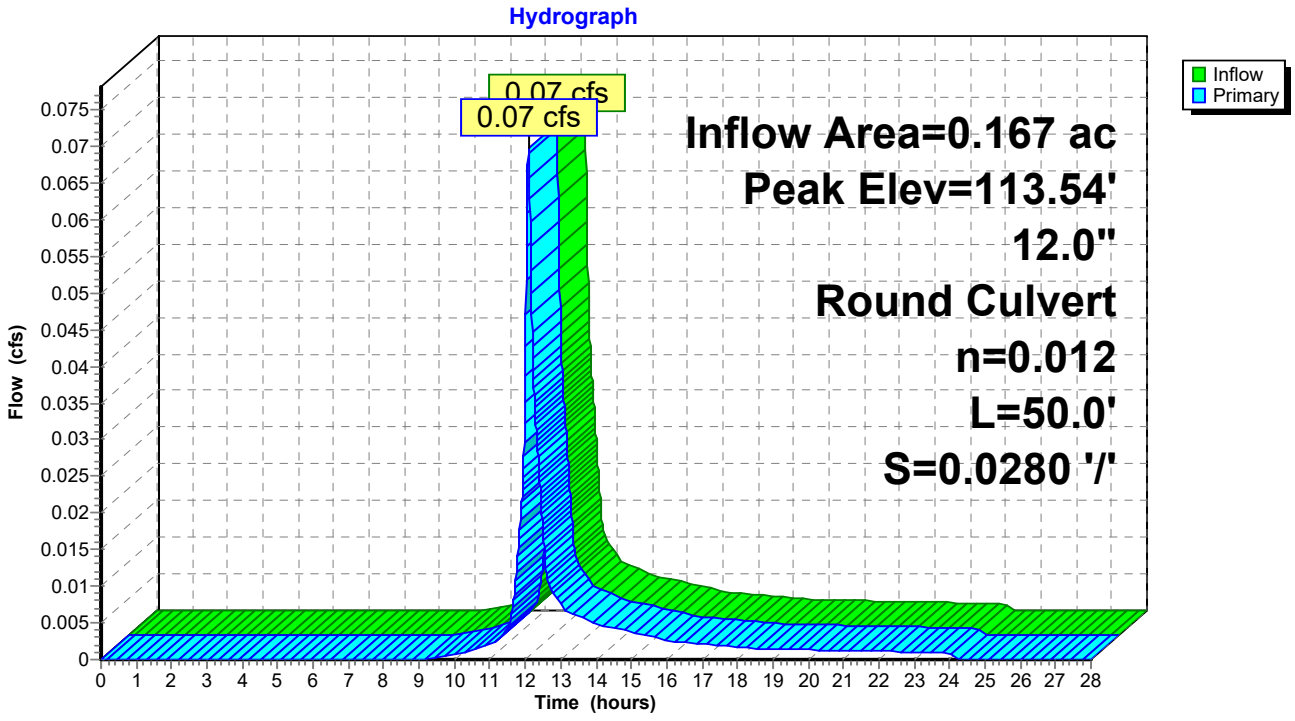
Inflow Area = 0.167 ac, 31.28% Impervious, Inflow Depth = 0.36" for 10-YR SEACOAST event
Inflow = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af
Routed to Pond YD-C#3 : Cottage #3 Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 113.54' @ 12.09 hrs
Flood Elev= 116.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.40'	**12.0" Round 12" HDPE (P-16)** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.40' / 112.00' S= 0.0280 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.09 hrs HW=113.54' TW=112.14' (Dynamic Tailwater)
1=12" HDPE (P-16) (Inlet Controls 0.07 cfs @ 1.02 fps)

Pond YD-C#4: Cottage #4 Yard Drain



Summary for Pond YD-C#5: Cottage #5 Yard Drain

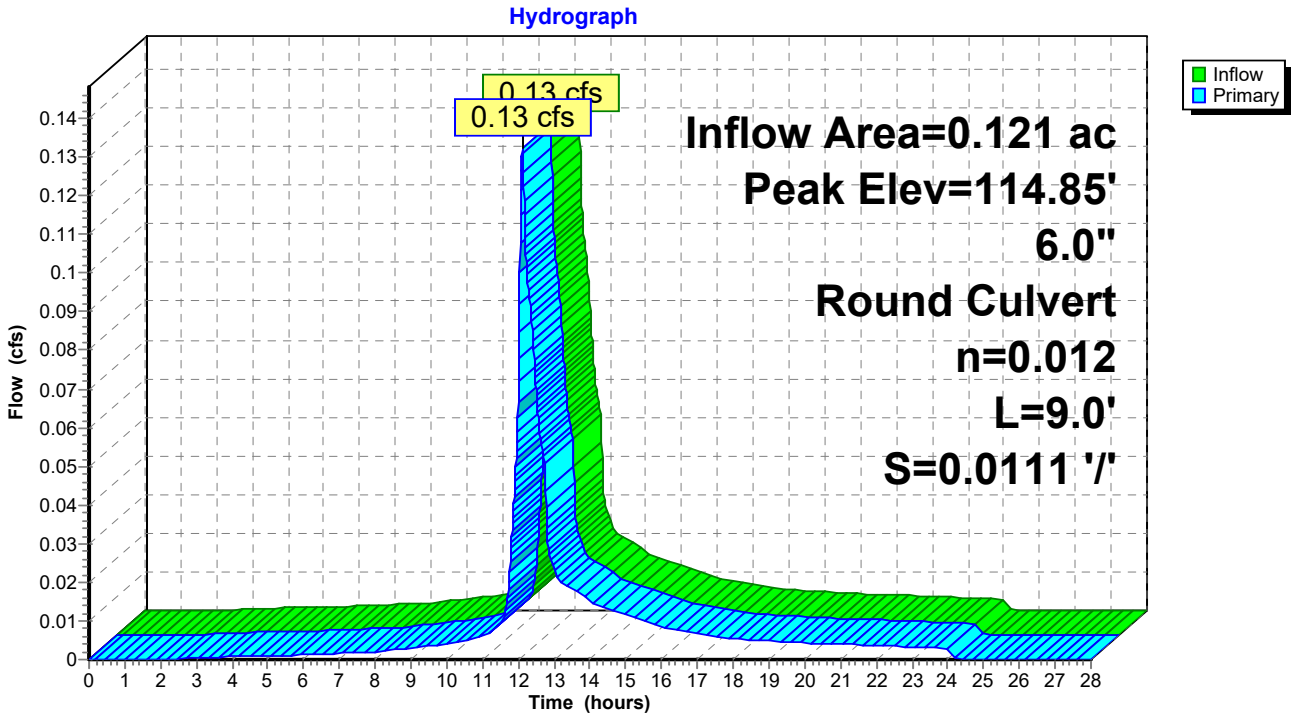
Inflow Area = 0.121 ac, 27.85% Impervious, Inflow Depth = 1.52" for 10-YR SEACOAST event
Inflow = 0.13 cfs @ 12.11 hrs, Volume= 0.015 af
Outflow = 0.13 cfs @ 12.11 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.11 hrs, Volume= 0.015 af
Routed to Pond ST-2 : Stormtech - 2 - SC-310

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.85' @ 12.11 hrs
Flood Elev= 116.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.60'	**6.0" Round 6" HDPE (P-11)** L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 114.60' / 114.50' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.13 cfs @ 12.11 hrs HW=114.85' TW=113.74' (Dynamic Tailwater)
↑**1=6" HDPE (P-11)** (Inlet Controls 0.13 cfs @ 1.34 fps)

Pond YD-C#5: Cottage #5 Yard Drain



Summary for Pond YD-DA: Duplex Bldg "A" Yard Drain

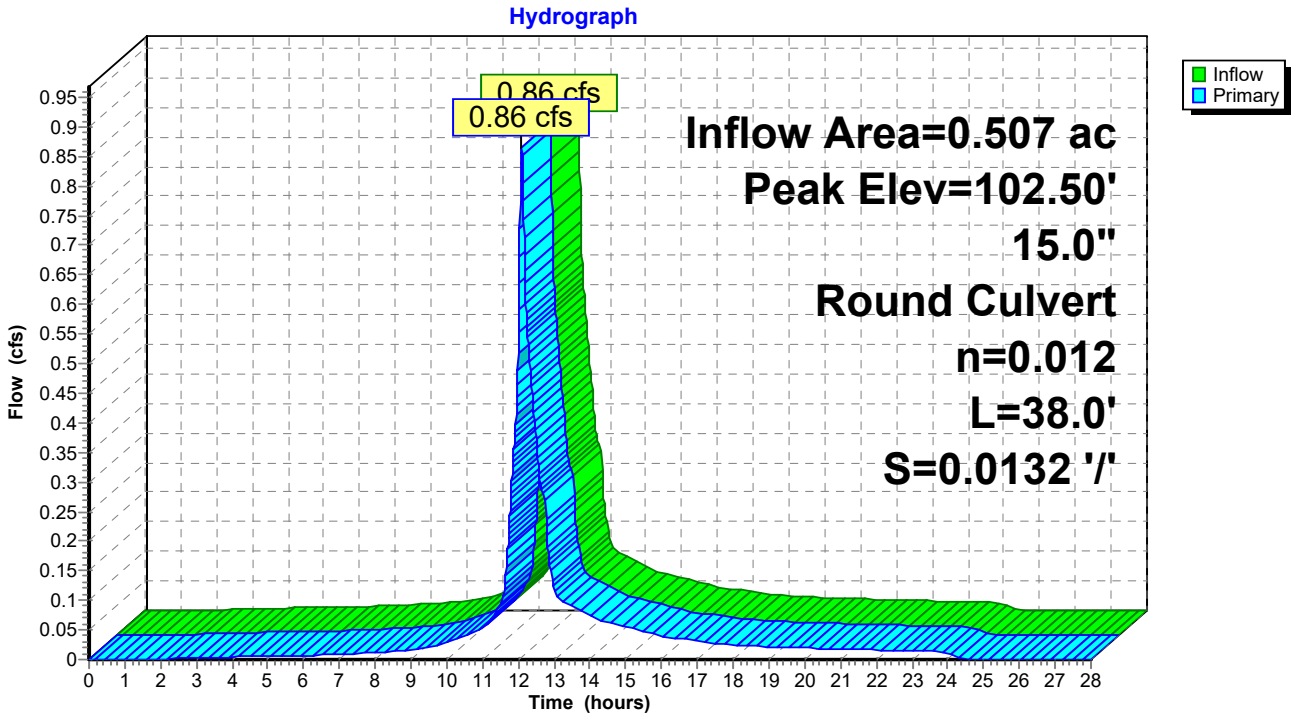
Inflow Area = 0.507 ac, 31.46% Impervious, Inflow Depth = 2.07" for 10-YR SEACOAST event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 0.088 af
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 0.088 af
Routed to Pond BIO-1 : BIO-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.50' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**15.0" Round 15" HDPE (P-26)** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 102.00' / 101.50' S= 0.0132 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.86 cfs @ 12.09 hrs HW=102.50' TW=100.75' (Dynamic Tailwater)
1=15" HDPE (P-26) (Inlet Controls 0.86 cfs @ 1.90 fps)

Pond YD-DA: Duplex Bldg "A" Yard Drain



Summary for Pond YD-DB: Duplex Bldg "B" Yard Drain

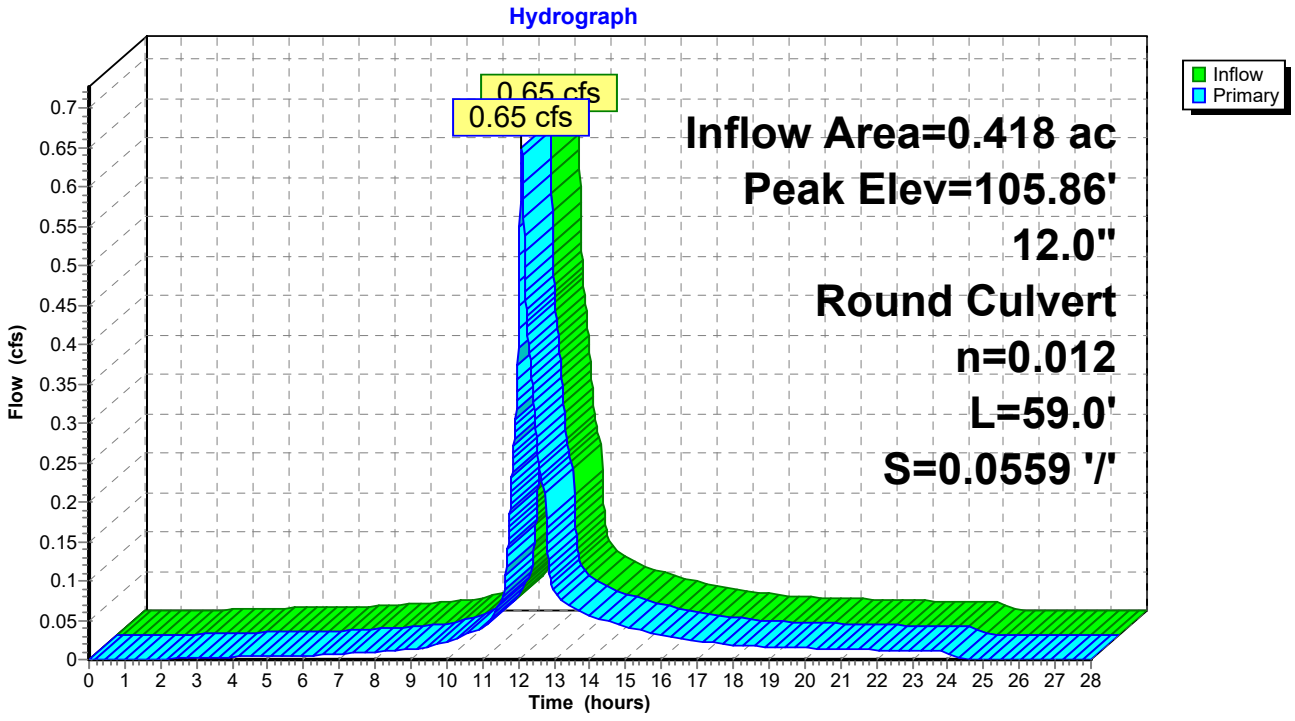
Inflow Area = 0.418 ac, 32.62% Impervious, Inflow Depth = 1.92" for 10-YR SEACOAST event
Inflow = 0.65 cfs @ 12.09 hrs, Volume= 0.067 af
Outflow = 0.65 cfs @ 12.09 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.65 cfs @ 12.09 hrs, Volume= 0.067 af
Routed to Pond YD-DA : Duplex Bldg "A" Yard Drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.86' @ 12.09 hrs
Flood Elev= 109.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	105.40'	**12.0" Round 12" HDPE (P-24)** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 105.40' / 102.10' S= 0.0559 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.09 hrs HW=105.86' TW=102.50' (Dynamic Tailwater)
1=12" HDPE (P-24) (Inlet Controls 0.65 cfs @ 1.83 fps)

Pond YD-DB: Duplex Bldg "B" Yard Drain

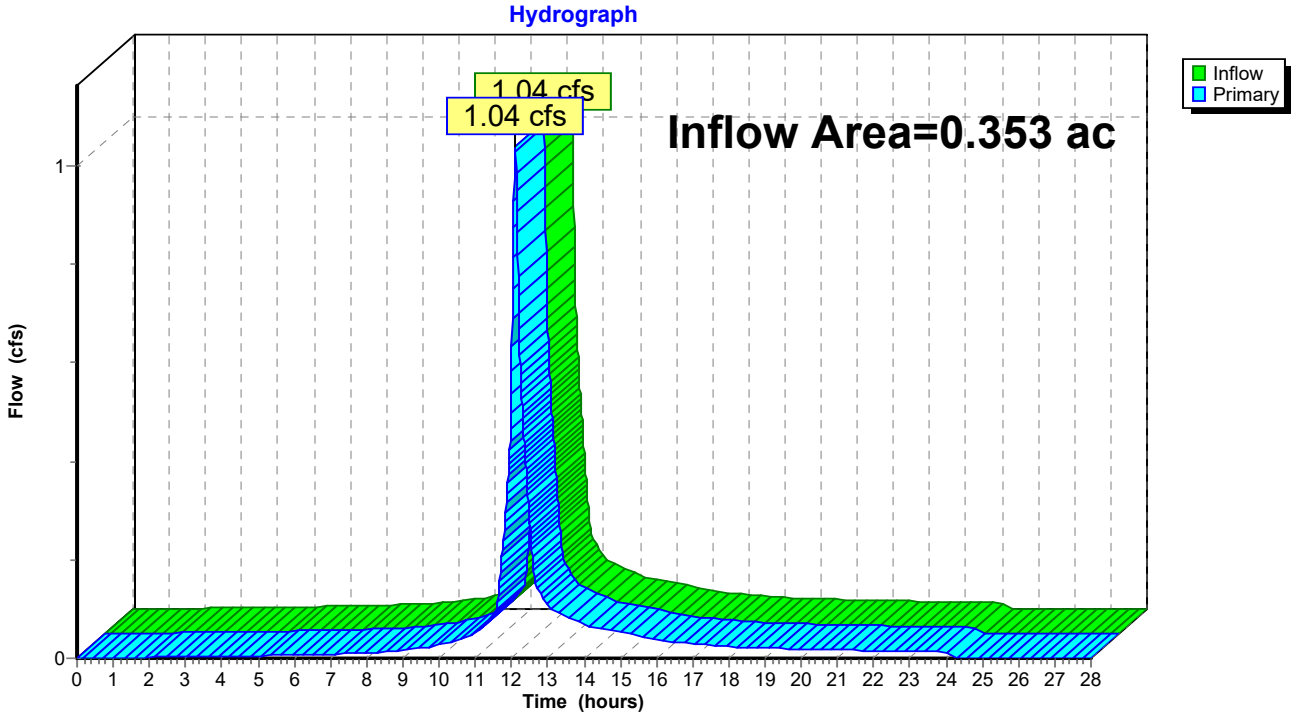


Summary for Link AP-1: Existing CB 5944

Inflow Area = 0.353 ac, 31.05% Impervious, Inflow Depth = 2.82" for 10-YR SEACOAST event
Inflow = 1.04 cfs @ 12.10 hrs, Volume= 0.083 af
Primary = 1.04 cfs @ 12.10 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min
Routed to Link AP-T : AP-Total

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs

Link AP-1: Existing CB 5944

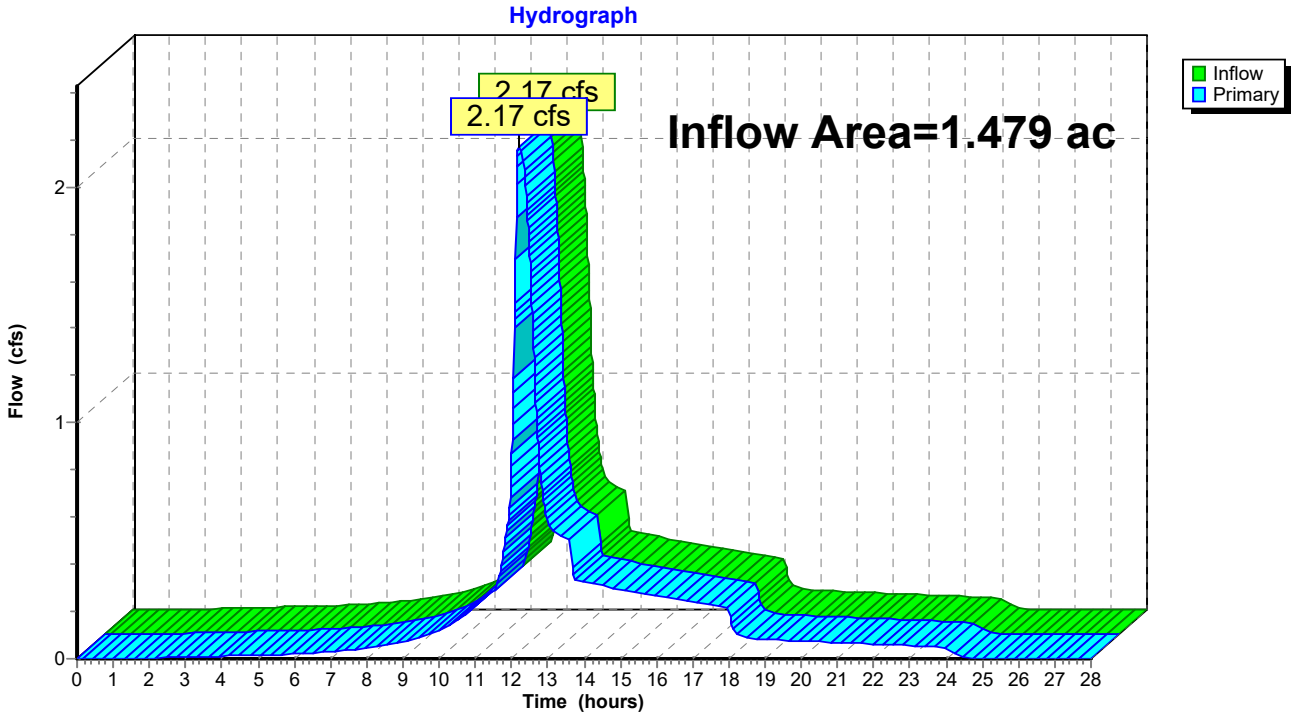


Summary for Link AP-T: AP-Total

Inflow Area = 1.479 ac, 40.71% Impervious, Inflow Depth = 2.79" for 10-YR SEACOAST event
Inflow = 2.17 cfs @ 12.20 hrs, Volume= 0.344 af
Primary = 2.17 cfs @ 12.20 hrs, Volume= 0.344 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs

Link AP-T: AP-Total



STORMWATER ANALYSIS

and

Erosion & Sediment Control Plan

NARRATIVE

for

103 COURT STREET

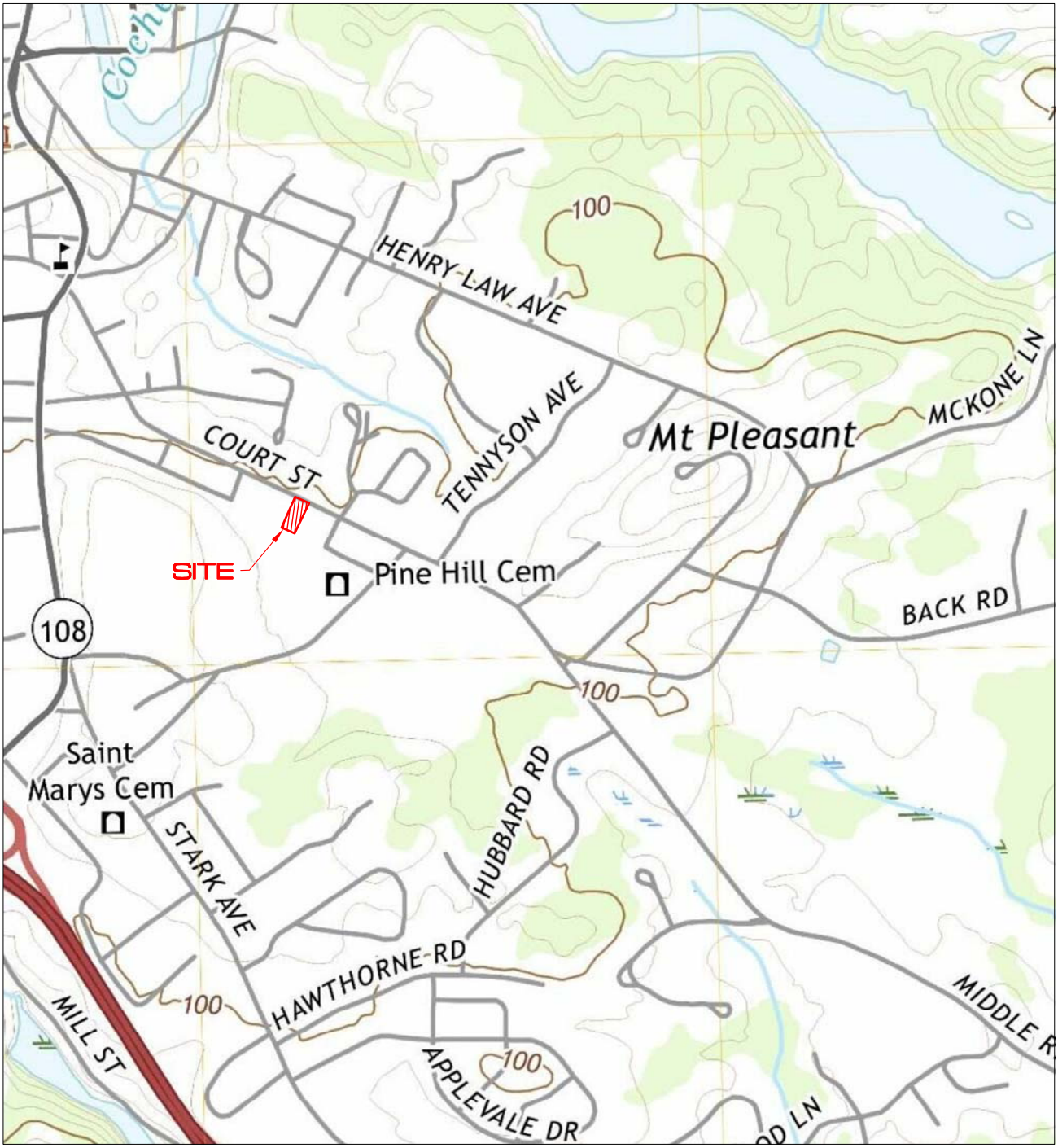
103 Court Street
Dover, New Hampshire
August 2024

SECTION III

EXHIBITS

NOTE:

THIS PLAN SHOWS PORTIONS OF THE U.S.G.S.: DOVER QUADRANGLE, NEW HAMPSHIRE 7.5 MINUTE SERIES 2021 MAP. SITE LOCATION IS APPROXIMATE.



SHEET NO.

LOCUS-1

USGS PLAN

5 SHERMAN STREET, LLC

103 COURT STREET

TAX MAP 18, LOT 9

DOVER, NEW HAMPSHIRE

APRIL 15, 2024 JOB No. 24101

SCALE: 1" : 1,000'

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3330

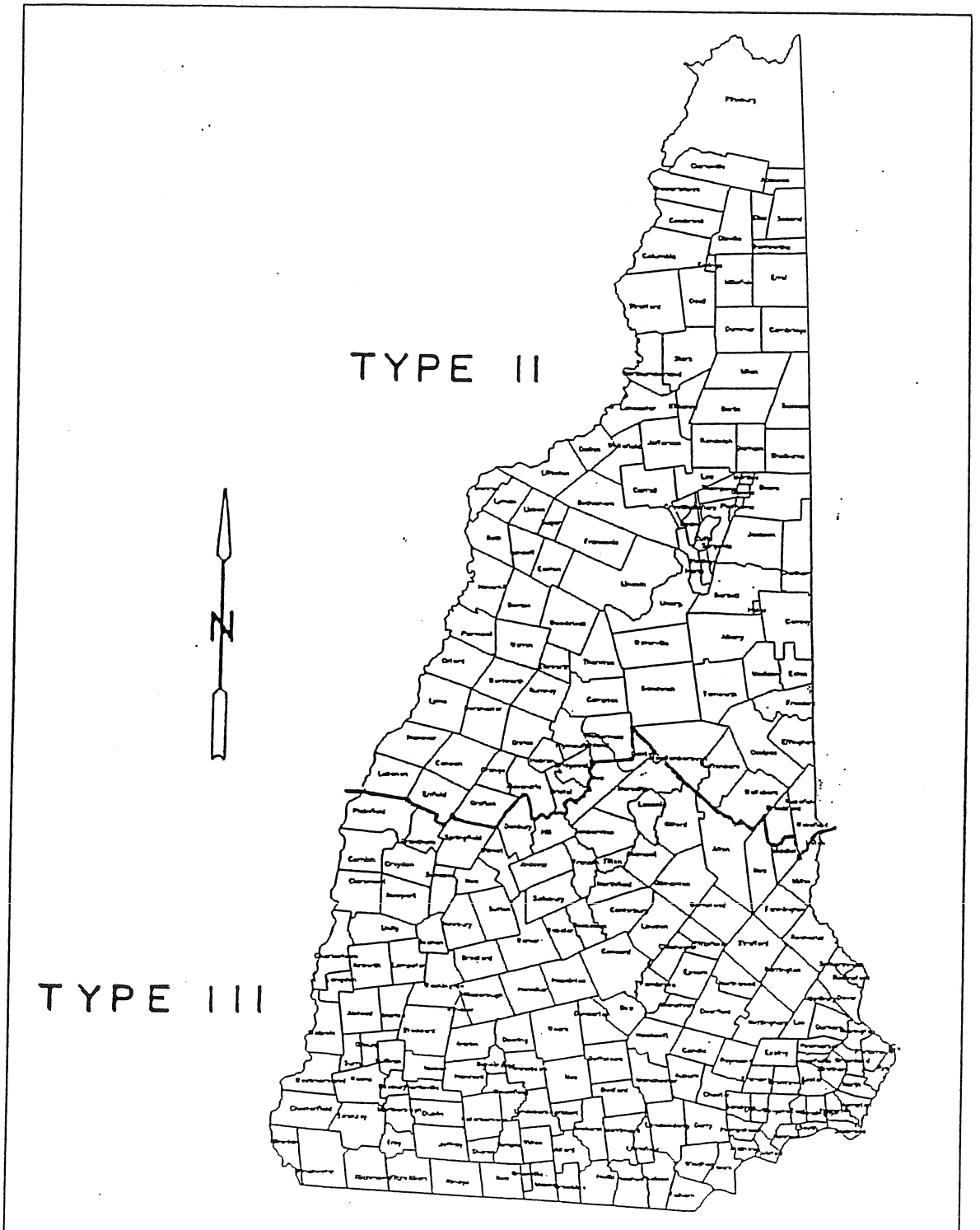


FIGURE 6-5 -- BOUNDARY FOR SCS RAINFALL DISTRIBUTION

Source: USDA Soil Conservation Service

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point

Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.187 degrees North
Longitude	70.868 degrees West
Elevation	30 feet
Date/Time	Thu Mar 07 2024 13:19:59 GMT-0500 (Eastern Standard Time)

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	1.03	**1yr**	0.70	0.98	1.20	1.55	2.00	2.61	2.87	**1yr**	2.31	2.76	3.16	3.89	4.45	**1yr**
2yr	0.32	0.49	0.61	0.81	1.01	1.29	**2yr**	0.88	1.17	1.50	1.91	2.45	3.15	3.51	**2yr**	2.79	3.37	3.87	4.60	5.24	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.39	3.08	3.98	4.50	**5yr**	3.53	4.32	4.94	5.81	6.57	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.83	3.67	4.76	5.43	**10yr**	4.21	5.22	5.96	6.94	7.81	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.70	3.53	4.61	6.01	6.96	**25yr**	5.32	6.69	7.62	8.78	9.81	**25yr**
50yr	0.52	0.83	1.06	1.49	2.00	2.67	**50yr**	1.73	2.46	3.19	4.19	5.50	7.19	8.41	**50yr**	6.36	8.08	9.19	10.49	11.66	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.13	**100yr**	2.01	2.89	3.75	4.97	6.54	8.59	10.16	**100yr**	7.60	9.77	11.09	12.55	13.87	**100yr**
200yr	0.64	1.05	1.36	1.96	2.70	3.68	**200yr**	2.33	3.40	4.43	5.90	7.80	10.27	12.28	**200yr**	9.09	11.81	13.37	15.00	16.51	**200yr**
500yr	0.76	1.25	1.62	2.36	3.31	4.54	**500yr**	2.85	4.22	5.51	7.38	9.83	13.02	15.78	**500yr**	11.52	15.17	17.15	19.02	20.79	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.89	**1yr**	0.64	0.87	0.92	1.26	1.58	2.14	2.45	**1yr**	1.90	2.36	2.87	3.34	4.02	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.36	3.04	3.40	**2yr**	2.69	3.27	3.75	4.47	5.05	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.77	3.72	4.13	**5yr**	3.29	3.97	4.62	5.41	6.12	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.27	4.78	**10yr**	3.78	4.60	5.32	6.25	7.02	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.64	4.91	5.79	**25yr**	4.35	5.57	6.49	7.55	8.42	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.18	**50yr**	1.52	2.14	2.35	3.19	4.09	5.60	6.67	**50yr**	4.96	6.42	7.53	8.71	9.67	**50yr**
100yr	0.53	0.81	1.01	1.46	2.01	2.50	**100yr**	1.73	2.45	2.63	3.57	4.56	6.37	7.69	**100yr**	5.64	7.39	8.74	10.06	11.07	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.86	**200yr**	1.97	2.80	2.93	3.99	5.08	7.24	8.86	**200yr**	6.41	8.52	10.13	11.61	12.71	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.44	**500yr**	2.36	3.37	3.40	4.62	5.89	8.54	10.67	**500yr**	7.56	10.26	12.31	14.06	15.19	**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	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.24	1.74	2.21	2.88	3.09	**1yr**	2.55	2.97	3.44	4.24	4.83	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.48	1.96	2.51	3.30	3.63	**2yr**	2.92	3.49	4.00	4.75	5.46	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.58	**5yr**	1.13	1.55	1.86	2.50	3.20	4.25	4.86	**5yr**	3.76	4.68	5.28	6.24	7.01	**5yr**
10yr	0.46	0.70	0.87	1.22	1.57	1.92	**10yr**	1.36	1.88	2.24	3.05	3.86	5.22	6.07	**10yr**	4.62	5.84	6.68	7.66	8.55	**10yr**
25yr	0.56	0.85	1.05	1.50	1.98	2.48	**25yr**	1.71	2.43	2.88	3.97	4.97	7.12	8.16	**25yr**	6.30	7.85	8.94	10.09	11.14	**25yr**
50yr	0.64	0.98	1.22	1.75	2.36	3.00	**50yr**	2.04	2.93	3.50	4.84	6.04	8.80	10.23	**50yr**	7.79	9.84	11.18	12.41	13.62	**50yr**
100yr	0.75	1.13	1.42	2.05	2.81	3.63	**100yr**	2.43	3.55	4.25	5.93	7.35	10.88	12.83	**100yr**	9.63	12.33	13.96	15.30	16.67	**100yr**
200yr	0.87	1.31	1.66	2.40	3.35	4.40	**200yr**	2.89	4.30	5.17	7.26	8.94	13.49	16.09	**200yr**	11.94	15.48	17.46	18.83	20.43	**200yr**
500yr	1.06	1.58	2.04	2.96	4.21	5.66	**500yr**	3.63	5.53	6.68	9.50	11.59	17.95	21.73	**500yr**	15.89	20.90	23.49	24.83	26.73	**500yr**

Powered by ACIS
Northeast Regional Climate Center

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **24101 - 103 COURT STREET, DOVER NEW HAMPSHIRE**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.24	ac	A = Area draining to the practice	
0.45	ac	A_I = Impervious area draining to the practice	
0.37	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.38	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.47	ac-in	WQV= 1" x Rv x A	
1,709	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
427	cf	25% x WQV (check calc for sediment forebay volume)	
1,282	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
100.95	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.45	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
2.11	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
98.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
96.50	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
102.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
102.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
2.00	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
(3.50)	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
(3.50)	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
103.58	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
104.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
1,894	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	SP-5	Note what sheet in the plan set contains the filter course specification	
2.0	:1	Pond side slopes	**≥ 3:1**
Sheet	SP-5	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Summary for Pond BIO-1: BIO-1

Inflow Area = 1.126 ac, 43.74% Impervious, Inflow Depth = 4.78" for 50-YR SEACOAST event
Inflow = 4.51 cfs @ 12.10 hrs, Volume= 0.449 af
Outflow = 2.53 cfs @ 12.38 hrs, Volume= 0.449 af, Atten= 44%, Lag= 16.6 min
Primary = 2.53 cfs @ 12.38 hrs, Volume= 0.449 af
Routed to Pond DMH-103 : DMH-103

Routing by Dyn-Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.58' @ 12.38 hrs Surf.Area= 1,252 sf Storage= 4,125 cf
Flood Elev= 104.00' Surf.Area= 1,400 sf Storage= 4,687 cf

Plug-Flow detention time= 39.1 min calculated for 0.449 af (100% of inflow)
Center-of-Mass det. time= 39.1 min (829.2 - 790.1)

Volume	Invert	Avail.Storage	Storage Description
#1	96.49'	4,687 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.49	1,400	0.0	0	0	1,400
96.50	1,400	40.0	6	6	1,401
98.49	1,400	40.0	1,114	1,120	1,665
98.50	1,400	20.0	3	1,123	1,667
99.99	1,400	20.0	417	1,540	1,864
100.00	265	100.0	8	1,548	2,999
102.00	775	100.0	995	2,543	3,533
104.00	1,400	100.0	2,144	4,687	4,199

Device	Routing	Invert	Outlet Devices
#1	Device 3	96.49'	**6.000 in/hr Exfiltration to Underdrain over Wetted area** Phase-In= 0.10'
#2	Device 3	103.65'	**0.5" x 4.5" Horiz. OverFlow X 14.00 columns** X 4 rows C= 0.600 in 24.0" x 24.0" Grate (22% open area) Limited to weir flow at low heads
#3	Primary	96.40'	**12.0" Round 12" HDPE (P-7)** L= 24.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 96.40' / 95.90' S= 0.0208 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	100.95'	**7.0" Vert. 7" Orifice in the Side OS #1** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.53 cfs @ 12.38 hrs HW=103.58' TW=91.75' (Dynamic Tailwater)
└**3=12" HDPE (P-7)** (Passes 2.53 cfs of 9.77 cfs potential flow)
  ├**1=Exfiltration to Underdrain** (Exfiltration Controls 0.56 cfs)
  ├**2=OverFlow** (Controls 0.00 cfs)
  └**4=7" Orifice in the Side OS #1** (Orifice Controls 1.97 cfs @ 7.36 fps)

Stage-Area-Storage for Pond BIO-1: BIO-1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
100.73	420	3,162	1,796
100.75	425	3,167	1,804
100.77	430	3,172	1,813
100.79	435	3,177	1,821
100.81	439	3,182	1,830
100.83	444	3,187	1,839
100.85	449	3,192	1,848
100.87	454	3,197	1,857
100.89	459	3,202	1,866
100.91	464	3,207	1,875
100.93	469	3,213	1,884
100.95	474	3,218	1,894
100.97	479	3,223	1,903
100.99	484	3,228	1,913
101.01	489	3,234	1,923
101.03	494	3,239	1,933
101.05	499	3,244	1,942
101.07	505	3,250	1,952
101.09	510	3,255	1,963
101.11	515	3,261	1,973
101.13	520	3,266	1,983
101.15	526	3,272	1,994
101.17	531	3,277	2,004
101.19	536	3,283	2,015
101.21	542	3,289	2,026
101.23	547	3,294	2,037
101.25	552	3,300	2,048
101.27	558	3,306	2,059
101.29	563	3,311	2,070
101.31	569	3,317	2,081
101.33	574	3,323	2,093
101.35	580	3,329	2,104
101.37	586	3,334	2,116
101.39	591	3,340	2,128
101.41	597	3,346	2,140
101.43	602	3,352	2,152
101.45	608	3,358	2,164
101.47	614	3,364	2,176
101.49	620	3,370	2,188
101.51	625	3,376	2,201
101.53	631	3,382	2,213
101.55	637	3,388	2,226
101.57	643	3,394	2,239
101.59	649	3,401	2,252
101.61	655	3,407	2,265
101.63	661	3,413	2,278
101.65	666	3,419	2,291
101.67	672	3,425	2,304
101.69	678	3,432	2,318
101.71	684	3,438	2,332
101.73	691	3,444	2,345
101.75	697	3,451	2,359
101.77	703	3,457	2,373

Stage-Discharge for Pond BIO-1: BIO-1 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
100.73	0.44	101.26	0.73	101.79	1.43	102.32	1.84
100.74	0.44	101.27	0.75	101.80	1.44	102.33	1.85
100.75	0.44	101.28	0.76	101.81	1.45	102.34	1.85
100.76	0.44	101.29	0.78	101.82	1.46	102.35	1.86
100.77	0.44	101.30	0.80	101.83	1.47	102.36	1.87
100.78	0.44	101.31	0.81	101.84	1.48	102.37	1.87
100.79	0.44	101.32	0.83	101.85	1.49	102.38	1.88
100.80	0.44	101.33	0.85	101.86	1.50	102.39	1.89
100.81	0.44	101.34	0.87	101.87	1.50	102.40	1.89
100.82	0.44	101.35	0.88	101.88	1.51	102.41	1.90
100.83	0.44	101.36	0.90	101.89	1.52	102.42	1.90
100.84	0.44	101.37	0.92	101.90	1.53	102.43	1.91
100.85	0.44	101.38	0.94	101.91	1.54	102.44	1.92
100.86	0.44	101.39	0.95	101.92	1.55	102.45	1.92
100.87	0.44	101.40	0.97	101.93	1.56	102.46	1.93
100.88	0.44	101.41	0.99	101.94	1.56	102.47	1.94
100.89	0.44	101.42	1.00	101.95	1.57	102.48	1.94
100.90	0.45	101.43	1.02	101.96	1.58	102.49	1.95
100.91	0.45	101.44	1.04	101.97	1.59	102.50	1.95
100.92	0.45	101.45	1.05	101.98	1.60	102.51	1.96
100.93	0.45	101.46	1.07	101.99	1.60	102.52	1.97
100.94	0.45	101.47	1.08	102.00	1.61	102.53	1.97
100.95	0.45	101.48	1.10	102.01	1.62	102.54	1.98
100.96	0.45	101.49	1.11	102.02	1.63	102.55	1.99
100.97	0.45	101.50	1.13	102.03	1.63	102.56	1.99
100.98	0.45	101.51	1.14	102.04	1.64	102.57	2.00
100.99	0.45	101.52	1.15	102.05	1.65	102.58	2.00
101.00	0.46	101.53	1.16	102.06	1.66	102.59	2.01
101.01	0.46	101.54	1.17	102.07	1.66	102.60	2.02
101.02	0.47	101.55	1.19	102.08	1.67	102.61	2.02
101.03	0.47	101.56	1.20	102.09	1.68	102.62	2.03
101.04	0.48	101.57	1.21	102.10	1.69	102.63	2.03
101.05	0.48	101.58	1.22	102.11	1.69	102.64	2.04
101.06	0.49	101.59	1.23	102.12	1.70	102.65	2.04
101.07	0.50	101.60	1.24	102.13	1.71	102.66	2.05
101.08	0.51	101.61	1.25	102.14	1.72	102.67	2.06
101.09	0.51	101.62	1.27	102.15	1.72	102.68	2.06
101.10	0.52	101.63	1.28	102.16	1.73	102.69	2.07
101.11	0.53	101.64	1.29	102.17	1.74	102.70	2.07
101.12	0.54	101.65	1.30	102.18	1.74	102.71	2.08
101.13	0.55	101.66	1.31	102.19	1.75	102.72	2.09
101.14	0.57	101.67	1.32	102.20	1.76	102.73	2.09
101.15	0.58	101.68	1.33	102.21	1.77	102.74	2.10
101.16	0.59	101.69	1.34	102.22	1.77	102.75	2.10
101.17	0.60	101.70	1.35	102.23	1.78	102.76	2.11
101.18	0.62	101.71	1.36	102.24	1.79	102.77	2.11
101.19	0.63	101.72	1.37	102.25	1.79	102.78	2.12
101.20	0.64	101.73	1.38	102.26	1.80	102.79	2.13
101.21	0.66	101.74	1.39	102.27	1.81	102.80	2.13
101.22	0.67	101.75	1.40	102.28	1.81	102.81	2.14
101.23	0.69	101.76	1.41	102.29	1.82	102.82	2.14
101.24	0.70	101.77	1.42	102.30	1.83	102.83	2.15
101.25	0.72	101.78	1.42	102.31	1.83	102.84	2.15

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

0.02	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
0.39	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
0.08	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.10	inches	Rd = Weighted groundwater recharge depth	
0.0487	ac-in	GRV = AI * Rd	
177	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

Infiltration from Stone Drip Edge Cottage #5 = 55 Cubic Feet

Infiltration from Stormtech #2 = 161 Cubic Feet

Total GRV = 216 Cubic Feet Provided where 177 Cubic Feet is Required

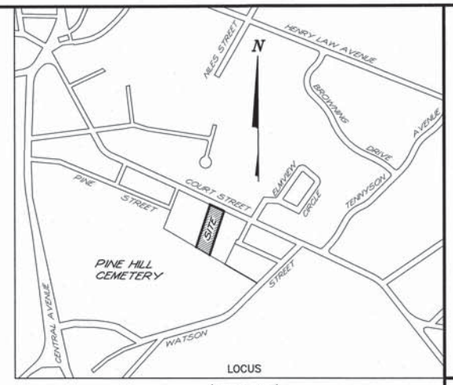
Stage-Area-Storage for Pond ST-2: Stormtech - 2 - SC-310

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
113.50	295	0	114.03	333	65
113.51	295	1	114.04	334	67
113.52	296	2	114.05	335	69
113.53	297	4	114.06	336	72
113.54	298	5	114.07	336	74
113.55	298	6	114.08	337	76
113.56	299	7	114.09	338	78
113.57	300	8	114.10	339	80
113.58	301	9	114.11	339	82
113.59	301	11	114.12	340	84
113.60	302	12	114.13	341	86
113.61	303	13	114.14	342	88
113.62	303	14	114.15	342	90
113.63	304	15	114.16	343	92
113.64	305	17	114.17	344	95
113.65	306	18	114.18	344	97
113.66	306	19	114.19	345	99
113.67	307	20	114.20	346	101
113.68	308	21	114.21	347	103
113.69	309	22	114.22	347	105
113.70	309	24	114.23	348	107
113.71	310	25	114.24	349	109
113.72	311	26	114.25	350	111
113.73	312	27	114.26	350	113
113.74	312	28	114.27	351	115
113.75	313	29	114.28	352	117
113.76	314	31	114.29	352	119
113.77	314	32	114.30	353	121
113.78	315	33	114.31	354	123
113.79	316	34	114.32	355	125
113.80	317	35	114.33	355	127
113.81	317	37	114.34	356	129
113.82	318	38	114.35	357	131
113.83	319	39	114.36	358	133
113.84	320	40	114.37	358	135
113.85	320	41	114.38	359	137
113.86	321	42	114.39	360	139
113.87	322	44	114.40	361	141
113.88	323	45	114.41	361	143
113.89	323	46	114.42	362	145
113.90	324	47	114.43	363	147
113.91	325	48	114.44	363	149
113.92	325	50	114.45	364	151
113.93	326	51	114.46	365	153
113.94	327	52	114.47	366	155
113.95	328	53	114.48	366	157
113.96	328	54	114.49	367	159
113.97	329	55	114.50	368	161
113.98	330	57	114.51	369	163
113.99	331	58	114.52	369	165
114.00	331	59	114.53	370	167
114.01	332	61	114.54	371	169
114.02	333	63	114.55	371	171

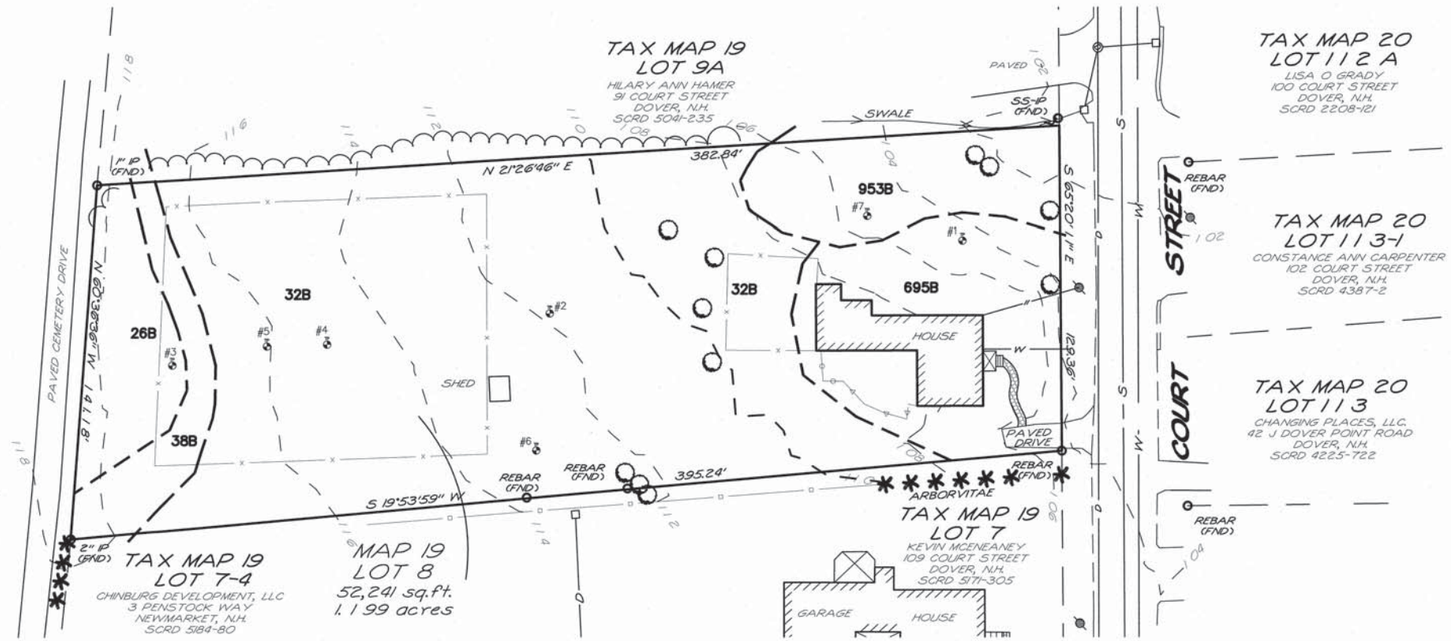
Stage-Area-Storage for Pond DE-#5: Cottage #5 Stone Drip Edge (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
116.52	180	205	38
116.53	180	206	39
116.54	180	206	40
116.55	180	207	40
116.56	180	207	41
116.57	180	208	42
116.58	180	208	42
116.59	180	209	43
116.60	180	209	44
116.61	180	209	45
116.62	180	210	45
116.63	180	210	46
116.64	180	211	47
116.65	180	211	48
116.66	180	212	48
116.67	180	212	49
116.68	180	213	50
116.69	180	213	50
116.70	180	214	51
116.71	180	214	52
116.72	180	215	53
116.73	180	215	53
116.74	180	216	54
116.75	180	216	55
116.76	180	217	55
116.77	180	217	56
116.78	180	218	57
116.79	180	218	58
116.80	180	219	58
116.81	180	219	59
116.82	180	219	60
116.83	180	220	60
116.84	180	220	61
116.85	180	221	62
116.86	180	221	63
116.87	180	222	63
116.88	180	222	64
116.89	180	223	65
116.90	180	223	66
116.91	180	224	66
116.92	180	224	67
116.93	180	225	68
116.94	180	225	68
116.95	180	226	69
116.96	180	226	70
116.97	180	227	71
116.98	180	227	71
116.99	180	228	72
117.00	180	228	73
117.01	180	229	73
117.02	180	229	74
117.03	180	229	75
117.04	180	230	76





LOCUS
(NOT TO SCALE)



30 0 15 30 60 120
1"=30'

SOILS NOTES

1.) SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT. SSSNNE SPECIAL PUBLICATION NO. 3, VERSION 7.0, JULY 2021. THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PRODUCT, INTENDED FOR THE SUBMISSION TO NH DES ALTERATION OF TERRAIN. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCE CONSERVATION SERVICE.

2.) WETLANDS WERE INVESTIGATED IN FEBRUARY 2024 BY MICHAEL MARIANO, NH CERTIFIED WETLAND SCIENTIST #183 IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0. HYDRIC SOILS WERE IDENTIFIED BY FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, MAY 2017. A ROUTINE DETERMINATION, AS DESCRIBED IN THE MANUAL, WAS FOLLOWED. NO WETLAND WERE FOUND.

TEST PITS WERE OBSERVED AND DESCRIBED IN FEBRUARY OF 2024.

LEGEND

26	WINDSOR
32	BOXFORD (MWD)
38	ELDRIDGE
695	BOXFORD (MWD)
	URBAN LAND COMPLEX
953	BOXFORD (SWPD)

SLOPE CLASS

A	0 - 3%
B	3 - 8%
C	8 - 15%

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- SEWER MANHOLE
- DRAIN MANHOLE
- CATCH BASIN
- D — DRAIN LINE
- G — GAS LINE
- W — WATER LINE
- VINYL STOCKADE FENCE
- X — WOOD RAIL FENCE
- CHAIN LINK FENCE
- METAL RAIL FENCE
- SPECIMEN TREE
- ARBORVITAE

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3830

REVISIONS
DATE: DESCRIPTION:

STATE OF NEW HAMPSHIRE · SOIL SCIENTIST · MICHAEL MARIANO No. 76 · CERTIFIED

SITE SPECIFIC SOILS PLAN

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 2410
SCALE: 1" = 30'

SHEET No.
SSS-1

(P24-)

SOIL REPORT

March 19, 2024

Court St
Dover NH
Map 19 Lot 8

Location: 103 Court Street; 1.2 acre lot with southerly property line abutting Pine Hill Cemetery.

Landscape: Very gentle uniform slope from Pine Hill Cemetery to Court Street

Wetlands: There are no wetlands on the property. The area was observed in March 2024 by Michael Mariano, NH Certified Wetland Scientist #183.

Soils: Soils consist almost entirely of moderately well drained silty marine deposits. There is a small area of similar soils that are somewhat poorly drained in the NW corner and some well drained to somewhat excessively drained sandy outwash at the southerly property line. The house sets on a small leveled area of urban land.

Purpose: The site specific soil map was prepared for a proposed residential complex with city water and sewer.

Methodology: The soil map was prepared in accordance with the Site-Specific Soil Mapping Standards For New Hampshire and Vermont, July 2021 by the Society of Soil Scientists of Northern New England and standards established by the National Cooperative Soil Survey. The soil survey was prepared by Michael Mariano, NH Certified Soil Scientist #076.

A plan provided by Tritech Engineering, Dover NH at 1" = 30' with 2' contours was used as a base map. Existing monumentation, survey transects, and topographic features were used as control. Pits were dug by an excavator to classify soils at the series level. Pits were located Highland Soil Services.

Soil boundaries were observed throughout their length and their placement corresponds to changes in soil properties, land forms, and landscape positions. The identification of soils is based on the New Hampshire State-Wide Numerical Soils Legend.

Map Unit Purity:

Consociations: Map units will contain 75 percent or more of pedons that fit within the range of the taxon that provides the name for the map unit or are in a similar taxon. No one similar soil is greater than the named reference taxa. The total amount of dissimilar inclusions will not exceed 25 percent. No single dissimilar soil will make up more than 10 percent of the map unit. Limiting inclusions do not exceed 15 percent of the map unit. More intensive separation of dissimilar inclusions within a map unit can be made at the discretion of the Soil Scientist.

Complexes: Map units consist of areas of two or more kinds of soils that are in a regularly repeating pattern, so intricate that the two components cannot be delineated separately at the scale of mapping. The major components that provide the name for the map unit are sufficiently different in morphology or behavior that the unit cannot be named as a consociation. No single dissimilar soil will make up more than 10 percent of the map unit. Limiting inclusions do not exceed 15 percent of the map unit.

Drainage Classes: Soil series names added for soils on this property.

***Very Poorly Drained*:** There are no very poorly drained soils mapped on this property.

Poorly Drained: There are no poorly drained soils mapped on this property.

Somewhat Poorly Drained: 953 Boxford, SPD. Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. The occurrence of internal free water commonly is shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydrologic conductivity, a high-water table or additional water from seepage.

Interpretive limits: Soils that have common distinct or prominent redoximorphic features, which are not relict features, at a depth less than 15 inches below the soil surface

Moderately Well Drained: 32 Boxford, 38 Eldridge, 695 Boxford-Urban Land Complex. Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence commonly is moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season, but long enough that most mesophytes are affected. They commonly have a moderately low or lower saturated hydrologic conductivity in a layer within the upper 1 meter, periodically receive high rainfall, or both.

Interpretive limits: Soils that have distinct or prominent redoximorphic features, that are not relict features, between a depth of 15 inches and 40 inches below the soil surface.

Well Drained: 26 Windsor. Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season. Wetness does not inhibit growth of roots for significant periods during most growing seasons. The soils are mainly deep to redoximorphic features that are related to wetness.

Interpretive limits: Soils that have textures in any horizon within the particle size control section of loamy very fine sand or finer, and have moderate permeability. Few, fine, distinct redox concentrations confined to ped faces, in a 2-inch zone immediately above the contact with firm or very firm dense basal till, (if occurring within 40 inches) is allowed within the interpretive limits of well drained.

***Excessively Drained*:** There are no excessively drained soils on the property

Soil Map Legend

26	Windsor
32	Boxford, moderately well drained
38	Eldridge
695	Boxford (MWD) – Urban Land Complex
953	Boxford, somewhat poorly drained

Slope Classes

A	0-3%
B	3-8%
C	8-15%

This map product is within the technical standards of the National Cooperative Soil Survey and produced in accordance with the Society of Soil Scientists of Northern New England Publication Site-Specific Soil Mapping Standards For New Hampshire and Vermont, July 2021 It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a map that accompanies this report.



Highland Soil Services
75 Prospect St., Somersworth NH 03878

Boxford

NH Site Specific mapping symbol: 32, moderately well drained
953, somewhat poorly drained
695, in complex with Urban Land

Setting

Parent Material:	Silty marine sediments
Landform:	Convex plains, broad drainageways
Position on Landscape:	Uplands at lower elevations or in drainageways
Slope Range:	3 to 8 percent

Composition and Soil Characteristics

Drainage Class:	Moderately well drained; seasonal high water table at 15 to 40 inches. OR..somewhat poorly drained with seasonal high water table at 7-15”
Hydrologic Group:	C/D
Surface Runoff	Rapid
Permeability	Slow. Very slow in subsoil
Depth to Bedrock	> 40 inches
Hydric conditions	Possible in somewhat poorly drained areas

Inclusions within Mapping Unit

Similar:	Scitico silt loam – poorly drained
Contrasting:	Eldridge – sandy surface over silty subsoil

Use and Management

With improvements and engineering practices, this soil is fairly well suited to development. Slow permeability and a seasonal high water table are the limiting factors. Position on the landscape allows engineering practices to overcome the limitations. Subsurface wastewater disposal is permitted. See test pit 2 (MWD) and test pit 7 (SPD)for a typical descriptions.
Note: Urban land is land that has been altered by human activity (levelling, filling, etc)

Eldridge

NH Numerical Soil Legend: 38

Setting

Parent Material:	Glacial outwash over silty marine sediments
Landform:	Outwash plains
Position on Landscape:	Lower sideslopes
Slope Range:	3-8 percent

Composition and Soil Characteristics

Drainage Class:	Moderately well drained; seasonal high water table at 15 to 40 inches
Hydrologic Group:	C/D
Surface Runoff	Moderate
Permeability	Moderate – slow in silty subsoil
Depth to Bedrock	> 40 inches
Hydric conditions	No

Inclusions Within Mapping Unit

Similar:	Deep phase with silty subsoil at >40” Somewhat poorly drained Eldridge Variant
Contrasting:	Deerfield– sandy throughout

Use and Management

This soil is well suited to development. A seasonal high water table with clayey subsoil is the limiting factors.

Windsor

NH Numerical Soil Legend: 26

Setting

Parent Material:	Glacial outwash
Landform:	Outwash plains
Position on Landscape:	Highest elevations
Slope Range:	3 to 8 percent

Composition and Soil Characteristics

Drainage Class:	Somewhat excessively drained; seasonal high water table at >40 inches
Hydrologic Group:	A
Surface Runoff	Moderate
Permeability	Rapid
Depth to Bedrock	> 40 inches
Hydric conditions	No

Inclusions Within Mapping Unit

Similar:	Deerfield – moderately well drained
Contrasting:	Eldridge – clayey subsoil

Use and Management

This soil is well suited to development. Droughtiness is the limiting factor. See Test Pit 3 for a typical description.

Test Pit Descriptions

103 Court St
Dover NH
Map 18 Lot 8
Described: 03-13-2024

Test Pit 1

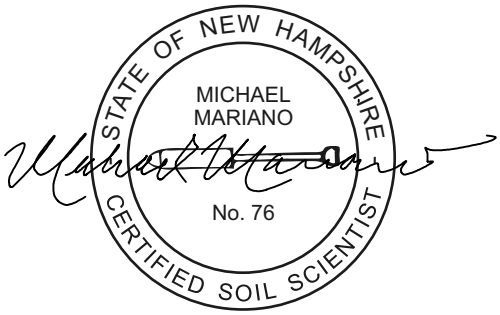
00 - 07”	Dark brown (10YR4/3) fine sandy loam fill; weak fine granular structure: moist, friable
07 - 15”	Yellowish brown (10YR5/6) fine sandy loam fill; weak fine granular structure; moist, friable.
15 - 21”	Dark brown (10YR3/4) fine sandy loam; weak fine granular structure; moist, friable Original A horizon, buried
21 - 25”	Yellowish brown (10YR5/6) silt loam; massive structure; moist, friable.
25 – 28”	Yellowish brown (10YR5/6) silt loam; few redox depletions and concentrations; massive structure; moist, friable.
28 - 37”	Olive gray (2.5Y5/2) silty clay loam; many redox concentrations in 7.5YR 5/6 and 4/6; strong medium blocky structure; moist, firm.
37 – 60”	Olive gray (2.5Y5/2) silty clay; many redox concentrations in 7.5YR 5/6 and 4/6; strong medium blocky structure; moist, very firm.

Series: Boxford
Estimated seasonal high water table: 25”
Observed water: 25”
Restrictive layer: 28”
Soil Hydrologic Group C

Test Pit 2

00 - 10”	Dark brown (10YR4/3) fine sandy loam; weak fine granular structure: moist, friable
10 - 19”	Light olive brown (2.5Y5/4) very fine sandy loam; weak fine granular structure; moist, friable.
19 - 27”	Light olive brown (2.5Y5/4) silt loam; few redox concentrations and depletions; massive structure; moist, friable.
27 - 60”	Olive gray (2.5Y5/2) silty clay; common redox concentrations in 7.5YR and 10YR; few depletions in 10YR6/1; strong medium blocky structure; moist, very firm.

Series: Boxford
Estimated seasonal high water table: 19”
Observed water: 23”
Restrictive layer: 27”
Soil Hydrologic Group C



Test Pit Descriptions

103 Court St
Dover NH
Map 18 Lot 8
Described: 03-13-2024

Test Pit 3

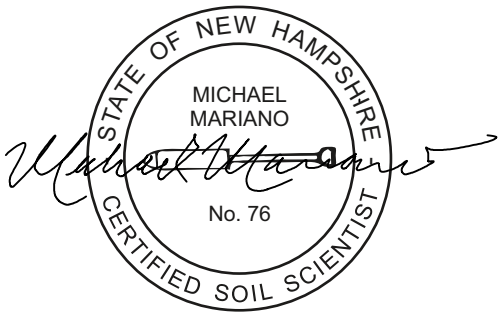
00 - 06”	Dark brown (10YR4/3) loamy sand; weak fine granular structure: moist, friable
06 - 14”	Strong brown (7.5YR5/8) loamy fine sand; weak fine granular structure; moist, friable.
14 - 46”	Yellowish brown (10YR5/6) loamy sand; massive structure; moist, friable.
46 - 52”	Yellowish brown (10YR5/6) loamy fine sand; common redox concentrations in 7.5YR5/8; massive structure; moist, friable.
52” – 66”	Olive gray (2.5Y5/2) loamy fine sand; common redox concentrations in 7.5YR5/8; massive structure; moist, friable.

Series: Windsor
Estimated seasonal 46”
Observed water: none
Restrictive layer: none
Soil Hydrologic Group A

Test Pit 4

00 - 10”	Dark brown (10YR4/3) fine sandy loam; weak fine granular structure: moist, friable
10 - 20”	Light olive brown (2.5Y5/4) silt loam; massive structure; moist, friable.
20 - 34”	Light olive brown (2.5Y5/4) silt loam; few redox concentrations and depletions; massive structure; moist, friable.
34 - 60”	Olive gray (2.5Y5/2) silty clay; common redox concentrations in 7.5YR and 10YR; few depletions in 10YR6/1; strong medium blocky structure; moist, very firm.

Series: Boxford
Estimated seasonal high water table: 20”
Observed water: 24”
Restrictive layer: 34”
Soil Hydrologic Group C



Test Pit Descriptions

103 Court St
Dover NH
Map 18 Lot 8
Described: 03-13-2024

Test Pit 5

00 - 08”	Dark brown (10YR4/3) fine sandy loam; weak fine granular structure: moist, friable
08 - 18”	Light olive brown (2.5Y5/4) very fine sandy loam; weak fine granular structure; moist, friable.
18 - 25”	Light olive brown (2.5Y5/4) silt loam; few redox concentrations and depletions; massive structure; moist, friable.
25 - 60”	Olive gray (2.5Y5/2) silty clay; common redox concentrations in 7.5YR and 10YR; few depletions in 10YR6/1; strong medium blocky structure; moist, very firm.

Series: Boxford
Estimated seasonal high water table: 18”
Observed water: 24”
Restrictive layer: 25”
Soil Hydrologic Group C

Test Pit 6

00 - 20”	Dark brown (10YR4/3) fine sandy loam; weak fine granular structure: moist, friable
20 - 22”	Light olive brown (2.5Y5/4) very fine sandy loam; weak fine granular structure; moist, friable.
22 - 26”	Light olive brown (2.5Y5/4) silt loam; few redox concentrations and depletions; massive structure; moist, friable.
26 - 60”	Olive gray (2.5Y5/2) silty clay; common redox concentrations in 7.5YR and 10YR; few depletions in 10YR6/1; strong medium blocky structure; moist, very firm.

Series: Boxford
Estimated seasonal high water table: 22”
Observed water: 25”
Restrictive layer: 26”
Soil Hydrologic Group C



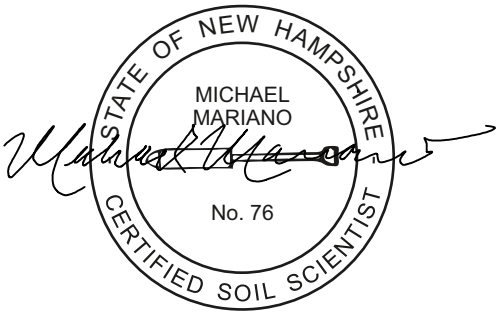
Test Pit Descriptions

103 Court St
Dover NH
Map 18 Lot 8
Described: 03-13-2024

Test Pit 7

00 - 08”	Dark brown (10YR4/3) fine sandy loam; weak fine granular structure: moist, friable
08 - 19”	Light olive brown (2.5Y5/4) silt loam; many redox depletions in 10YR6/1 and common redox concentrations in 7.5YR5/8; massive structure; moist, friable.
19 - 54”	Olive gray (2.5Y5/2) silty clay; common redox concentrations in 7.5YR and 10YR; few depletions in 10YR6/1; strong medium blocky structure; moist, very firm

Series: Boxford, somewhat poorly drained
Estimated seasonal high water table: 08”
Observed water: 08”
Restrictive layer: 19”
Soil Hydrologic Group D



Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Stormwater Ponds	Wet Pond		B, F	70%	35%	45%
	Wet Extended Detention Pond		A, B	80%	55%	68%
	Micropool Extended Detention Pond	TBA				
	Multiple Pond System	TBA				
	Pocket Pond	TBA				
Stormwater Wetlands	Shallow Wetland		A, B, F, I	80%	55%	45%
	Extended Detention Wetland		A, B, F, I	80%	55%	45%
	Pond/Wetland System	TBA				
	Gravel Wetland		H	95%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Dry Wells			90%	55%	60%
	Drip Edges			90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H	85%	10%	45%
	Tree Box Filter	TBA				
	Bioretention System		I, G, H	90%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe	90%	10%	45%

TABLE B

SOIL SERIES

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over silt
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquer	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	oamy over sandy, sandy-skeleta	yes	gravelly loamy sand in C
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Ricker	674	2.0	6.0	2.00	6.0	A	4	rganic over bedrock (up to 4" of minera	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

no longer recognized
organic materials

TABLE 6-4.1 -- RUNOFF CURVE NUMBERS (Average Watershed Condition)

COVER DESCRIPTION Cover type and hydrologic condition	Average percent impervious area[2]	CURVE NUMBERS FOR HYDROLOGIC SOIL GROUP A	B	C	D
FULLY DEVELOPED URBAN AREAS[1] (Vegetation Established)					
Lawns, open spaces, parks, golf courses, cemeteries, etc.					
good condition; grass cover on 75% or more of the area		39	61	74	80
fair condition; grass cover on 50% to 75% of the area		49	69	79	84
poor condition; grass cover on 50% or less of the area		68	79	86	89
Paved parking lots, roofs, driveways, etc.		98	98	98	98
Streets and roads;					
paved with curbs and storm sewers		98	98	98	98
gravel		76	85	89	91
dirt		72	82	87	89
paved with open ditches		83	89	92	93
Commercial and business areas	85	89	92	94	95
Industrial districts	72	81	88	91	93
Row houses, town houses, and residential					
with lot sizes 1/8 acre or less	65	77	85	90	92
Residential					
Average lot size					
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acre	12	46	65	77	82
DEVELOPING URBAN AREAS[3] (No vegetation Established)					
Newly graded area		77	86	91	94

1. For land uses with impervious areas, curve numbers are computed assuming that 100% of runoff from impervious areas is directly connected to the drainage system. Pervious areas (lawn) are considered to be equivalent to lawns in good condition and the impervious areas have an RCN of 98.

2. Includes paved streets.

3. Use for the design of temporary measures during grading and construction. Impervious area percent for urban areas under development vary considerably. The user will determine the percent impervious. Then using the newly graded area RCN and Table 6-4, the composite RCN can be computed for any degree of development.

Source: USDA Soil Conservation Service

TABLE 6-4.2 -- RUNOFF CURVE NUMBERS (Average Watershed Condition)

COVER DESCRIPTION			CURVE NUMBERS FOR HYDROLOGIC SOIL GROUP			
Cover type and hydrologic condition		Hydrologic condition[4]	A	B	C	D
CULTIVATED AGRICULTURAL LAND						
Fallow	Bare soil		77	86	91	94
	Crop residue cover (CR)	poor	76	85	90	93
	CR	good	74	83	88	90
Row crops	Straight row (SR)	poor	72	81	88	91
	SR	good	67	78	85	89
	SR & CR	poor	71	80	87	90
	SR & CR	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	C	good	65	75	82	86
	C & CR	poor	69	78	83	87
	C & CR	good	64	74	81	85
	Contoured & Terraces (C&T)	poor	66	74	80	82
	C&T	good	62	71	78	81
	C&T & CR	poor	65	73	79	81
	C&T & CR	good	61	70	77	80
Small grain	SR	poor	65	76	84	88
	SR	good	63	75	83	87
	SR & CR	poor	64	75	83	86
	SR & CR	good	60	72	80	84
	C	poor	63	74	82	85
	C	good	61	73	81	84
	C & CR	poor	62	73	81	84
	C & CR	good	60	72	80	83
	C&T	poor	61	72	79	82
	C&T	good	59	70	78	81
	C&T & CR	poor	60	71	78	81
	C&T & CR	good	58	69	77	80
Close-seeded Legumes or Rotation Meadow[5]	SR	poor	66	77	85	89
	SR	good	58	72	81	85
	C	poor	64	75	83	85
	C	good	55	69	78	83
	C&T	poor	63	73	80	83
	C&T	good	51	67	76	80

4. For conservation tillage poor hydrologic condition, 5 to 20 percent of the surface is covered with residue (less than 750 #/acre row crops or 300#/acre small grain).
   For conservation tillage good hydrologic condition, more than 20 percent of the surface is covered with residue (greater than 750 #/acre row crops or 300 #/acre small grain).
5. Close-drilled or broadcast.

Source: USDA Soil Conservation Service

TABLE 6-4.3 -- RUNOFF CURVE NUMBERS (Average Watershed Condition)

COVER DESCRIPTION Cover type and hydrologic condition	Hydrologic condition[6]	CURVE NUMBERS FOR HYDROLOGIC SOIL GROUP A	B	C	D
NON-CULTIVATED AGRICULTURAL LAND					
Pasture, grassland, or range - continuous forage for grazing	poor	68	79	86	89
	fair	49	69	79	84
	good	39	61	74	80
Meadow - continuous grass, protected from grazing and generally mowed for hay	---	30	58	71	78
Woods-grass combination (orchard or tree farm)	poor	57	73	82	86
	fair	43	65	76	82
	good	32	58	72	79
Brush - brush-weed-grass mixture with brush the major element	poor	48	67	77	83
	fair	35	56	70	77
	good	30	48	65	73
Woods	poor	45	66	77	83
	fair	36	60	73	79
	good	30	55	70	77
Farmsteads - buildings, lanes, driveways, and surrounding lots	---	59	74	82	86

6. Poor hydrologic condition has less than 50 percent ground cover density.
Fair hydrologic condition has between 50 and 75 percent ground cover density.
Good hydrologic condition has more than 75 percent ground cover density.

Source: USDA Soil Conservation Service

VALUES OF THE ROUGHNESS COEFFICIENT n
(Boldface figures are values generally recommended in design)

Type of channel and description	Minimum	Normal	Maximum
A. CLOSED CONDUITS FLOWING PARTLY FULL			
A-1. Metal			
a. Brass, smooth	0.009	**0.010**	0.013
b. Steel			
1. Lockbar and welded	0.010	0.012	0.014
2. Riveted and spiral	0.013	0.016	0.017
c. Cast iron			
1. Coated	0.010	0.013	0.014
2. Uncoated	0.011	0.014	0.016
d. Wrought iron			
1. Black	0.012	0.014	0.015
2. Galvanized	0.013	0.016	0.017
e. Corrugated metal			
1. Subdrain	0.017	0.019	0.021
2. Storm drain	0.021	**0.024**	0.030
A-2. Nonmetal			
a. Lucite	0.008	0.009	0.010
b. Glass	0.009	**0.010**	0.013
c. Cement			
1. Neat, surface	0.010	0.011	0.013
2. Mortar	0.011	0.013	0.015
d. Concrete			
1. Culvert, straight and free of debris	0.010	0.011	0.013
2. Culvert with bends, connections, and some debris	0.011	**0.013**	0.014
3. Finished	0.011	0.012	0.014
4. Sewer with manholes, inlet, etc., straight	0.013	0.015	0.017
5. Unfinished, steel form	0.012	0.013	0.014
6. Unfinished, smooth wood form	0.012	**0.014**	0.016
7. Unfinished, rough wood form	0.015	0.017	0.020
e. Wood			
1. Stave	0.010	0.012	0.014
2. Laminated, treated	0.015	0.017	0.020
f. Clay			
1. Common drainage tile	0.011	**0.013**	0.017
2. Vitrified sewer	0.011	0.014	0.017
3. Vitrified sewer with manholes, inlet, etc.	0.013	0.015	0.017
4. Vitrified subdrain with open joint	0.014	0.016	**0.018**
g. Brickwork			
1. Glazed	0.011	**0.013**	**0.015**
2. Lined with cement mortar	0.012	0.015	0.017
h. Sanitary sewers coated with sewage slimes, with bends and connections	0.012	0.013	0.016
i. Paved invert, sewer, smooth bottom	0.016	0.019	0.020
j. Rubble masonry, cemented	0.018	0.025	0.030

VALUES OF THE ROUGHNESS COEFFICIENT n (*continued*)

Type of channel and description	Minimum	Normal	Maximum
B. LINED OR BUILT-UP CHANNELS			
B-1. Metal			
a. Smooth steel surface			
1. Unpainted	0.011	**0.012**	0.014
2. Painted	0.012	0.013	0.017
b. Corrugated	0.021	0.025	0.030
B-2. Nonmetal			
a. Cement			
1. Neat, surface	0.010	0.011	0.013
2. Mortar	0.011	0.013	0.015
b. Wood			
1. Planed, untreated	0.010	0.012	0.014
2. Planed, creosoted	0.011	0.012	0.015
3. Unplaned	0.011	0.013	0.015
4. Plank with battens	0.012	0.015	0.018
5. Lined with roofing paper	0.010	0.014	0.017
c. Concrete			
1. Trowel finish	0.011	**0.013**	0.015
2. Float finish	0.013	0.015	0.016
3. Finished, with gravel on bottom	0.015	0.017	0.020
4. Unfinished	0.014	0.017	0.020
5. Gunite, good section	0.016	0.019	0.023
6. Gunite, wavy section	0.018	0.022	0.025
7. On good excavated rock	0.017	0.020	
8. On irregular excavated rock	0.022	0.027	
d. Concrete bottom float finished with sides of			
1. Dressed stone in mortar	0.015	0.017	0.020
2. Random stone in mortar	0.017	0.020	0.024
3. Cement rubble masonry, plastered	0.016	0.020	0.024
4. Cement rubble masonry	0.020	0.025	0.030
5. Dry rubble or riprap	0.020	0.030	0.035
e. Gravel bottom with sides of			
1. Formed concrete	0.017	0.020	0.025
2. Random stone in mortar	0.020	0.023	0.026
3. Dry rubble or riprap	0.023	0.033	0.036
f. Brick			
1. Glazed	0.011	**0.013**	0.015
2. In cement mortar	0.012	**0.015**	0.018
g. Masonry			
1. Cemented rubble	0.017	**0.025**	0.030
2. Dry rubble	0.023	0.032	0.035
h. Dressed ashlar	0.013	0.015	0.017
i. Asphalt			
1. Smooth	0.013	0.013	
2. Rough	0.016	0.016	
j. Vegetal lining	0.030	.....	0.500

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VALUES OF THE ROUGHNESS COEFFICIENT *n* (*continued*)

Type of channel and description	Minimum	Normal	Maximum
C. EXCAVATED OR DREDGED			
a. Earth, straight and uniform			
1. Clean, recently completed	0.016	0.018	0.020
2. Clean, after weathering	0.018	0.022	0.025
3. Gravel, uniform section, clean	0.022	0.025	0.030
4. With short grass, few weeds	0.022	0.027	0.033
b. Earth, winding and sluggish			
1. No vegetation	0.023	0.025	0.030
2. Grass, some weeds	0.025	0.030	0.033
3. Dense weeds or aquatic plants in deep channels	0.030	0.035	0.040
4. Earth bottom and rubble sides	0.028	0.030	0.035
5. Stony bottom and weedy banks	0.025	0.035	0.040
6. Cobble bottom and clean sides	0.030	0.040	0.050
c. Dragline-excavated or dredged			
1. No vegetation	0.025	0.028	0.033
2. Light brush on banks	0.035	0.050	0.060
d. Rock cuts			
1. Smooth and uniform	0.025	0.035	0.040
2. Jagged and irregular	0.035	0.040	0.050
e. Channels not maintained, weeds and brush uncut			
1. Dense weeds, high as flow depth	0.050	0.080	0.120
2. Clean bottom, brush on sides	0.040	0.050	0.080
3. Same, highest stage of flow	0.045	0.070	0.110
4. Dense brush, high stage	0.080	0.100	0.140
D. NATURAL STREAMS			
D-1. Minor streams (top width at flood stage <100 ft)			
a. Streams on plain			
1. Clean, straight, full stage, no rifts or deep pools	0.025	0.030	0.033
2. Same as above, but more stones and weeds	0.030	0.035	0.040
3. Clean, winding, some pools and shoals	0.033	0.040	0.045
4. Same as above, but some weeds and stones	0.035	0.045	0.050
5. Same as above, lower stages, more ineffective slopes and sections	0.040	0.048	0.055
6. Same as 4, but more stones	0.045	0.050	0.060
7. Sluggish reaches, weedy, deep pools	0.050	0.070	0.080
8. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.075	0.100	0.150
b. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages			
1. Bottom: gravels, cobbles, and few boulders	0.030	0.040	0.050
2. Bottom: cobbles with large boulders	0.040	0.050	0.070
D-2. Flood plains			
a. Pasture, no brush			
1. Short grass	0.025	0.030	0.035
2. High grass	0.030	0.035	0.050
b. Cultivated areas			
1. No crop	0.020	0.030	0.040
2. Mature row crops	0.025	0.035	0.045
3. Mature field crops	0.030	0.040	0.050
c. Brush			
1. Scattered brush, heavy weeds	0.035	0.050	0.070
2. Light brush and trees, in winter	0.035	0.050	0.060
3. Light brush and trees, in summer	0.040	0.060	0.080
4. Medium to dense brush, in winter	0.045	0.070	0.110
5. Medium to dense brush, in summer	0.070	0.100	0.160
d. Trees			
1. Dense willows, summer, straight	0.110	0.150	0.200
2. Cleared land with tree stumps, no sprouts	0.030	0.040	0.050
3. Same as above, but with heavy growth of sprouts	0.050	0.060	0.080
4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches	0.080	0.100	0.120
5. Same as above, but with flood stage reaching branches	0.100	0.120	0.160
D-3. Major streams (top width at flood stage >100 ft). The *n* value is less than that for minor streams of similar description, because banks offer less effective resistance.			
a. Regular section with no boulders or brush	0.025	.....	0.060
b. Irregular and rough section	0.035	.....	0.100

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Appendix D1: Broad-Crested Weir Coefficients for Sharp-Edged Crests

The following table lists *English* weir coefficients for broad crested weirs with a sharp-edged crest of various breadths. These coefficients are automatically entered into the lookup table for a broad crested weir whenever a crest breadth is entered as described on page 89. If breadth falls between two listed values, interpolated coefficients are automatically used. Breadths outside the listed range will use the first or last coefficient values without extrapolation. Values are automatically converted to the current input units as described on page 43.

	Weir Breadth--(ft)										
Head	0.50	0.75	1.00	1.50	2.00	2.50	3.00	4.00	5.00	10.0	15.0
0.2	2.80	2.75	2.69	2.62	2.54	2.48	2.44	2.38	2.34	2.49	2.68
0.4	2.92	2.80	2.72	2.64	2.61	2.60	2.58	2.54	2.50	2.56	2.70
0.6	3.08	2.89	2.75	2.64	2.61	2.60	2.68	2.69	2.70	2.70	2.70
0.8	3.30	3.04	2.85	2.68	2.60	2.60	2.67	2.68	2.68	2.69	2.64
1.0	3.32	3.14	2.98	2.75	2.66	2.64	2.65	2.67	2.68	2.68	2.63
1.2	3.32	3.20	3.08	2.86	2.70	2.65	2.64	2.67	2.66	2.69	2.64
1.4	3.32	3.26	3.20	2.92	2.77	2.68	2.64	2.65	2.65	2.67	2.64
1.6	3.32	3.29	3.28	3.07	2.89	2.75	2.68	2.66	2.65	2.64	2.63
1.8	3.32	3.32	3.31	3.07	2.88	2.74	2.68	2.66	2.65	2.64	2.63
2.0	3.32	3.31	3.30	3.03	2.85	2.76	2.72	2.68	2.65	2.64	2.63
2.5	3.32	3.32	3.31	3.28	3.07	2.89	2.81	2.72	2.67	2.64	2.63
3.0	3.32	3.32	3.32	3.32	3.20	3.05	2.92	2.73	2.66	2.64	2.63
3.5	3.32	3.32	3.32	3.32	3.32	3.19	2.97	2.76	2.68	2.64	2.63
4.0	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.70	2.64	2.63
4.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.74	2.64	2.63
5.0	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.64	2.63
5.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.64	2.63

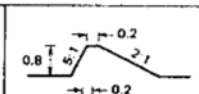
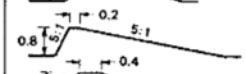
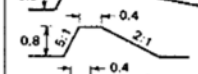
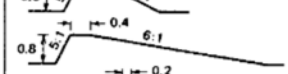
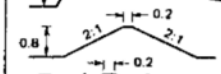
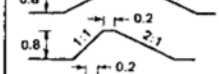
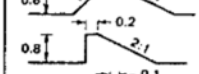
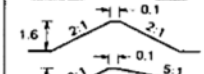
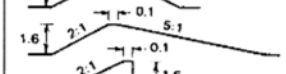
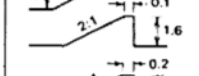
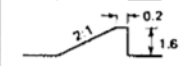
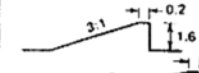
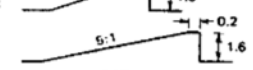
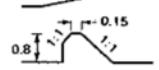
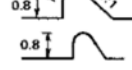
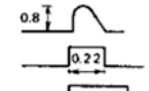
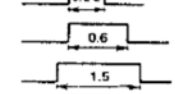
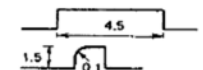
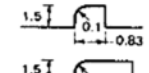
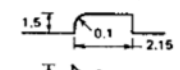
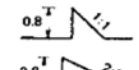
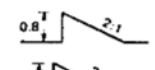
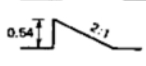
This table was derived from information in HANDBOOK OF HYDRAULICS by Brater and King, 1976.

Appendix D2: Broad-Crested Weir Coefficients for Assorted Profiles

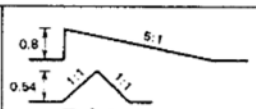
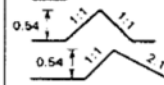
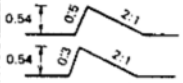
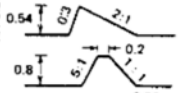
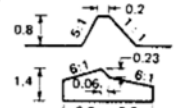
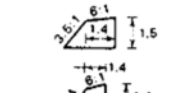
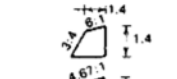
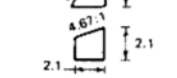
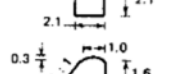
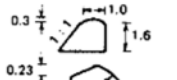
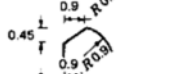
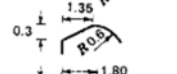
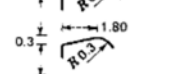
Coefficients for the following weirs may be entered automatically by specifying the appropriate Profile ID number on the HydroCAD weir screen.

Note: This table contains *metric* weir coefficients. To obtain English coefficients **multiply the values in this table by 1.811** as described on page 43.

Discharge Coefficients for Broad-Crested Weirs

	Cross section	Upstream head h [m]							
		0.15	0.30	0.45	0.60	0.75	0.90	1.20	1.50
1		1.61	1.86	1.98					
2		1.60	1.80	1.90					
3		1.58	1.75	1.79					
4		1.53	1.64	1.77					
5		1.54	1.62	1.69					
6		1.72	1.88	1.98					
7		1.65	1.88	2.00					
8		1.53	1.80	1.93					
9					1.96	1.96	1.97	1.99	2.02
10					1.94	1.92	1.89	1.92	1.97
11			2.12	2.10	2.08	2.08	2.06	2.04	2.00
12			1.88	1.96	2.01	2.04	2.05	2.05	2.05
13					1.96	1.96	1.96	1.96	1.96
14					1.86	1.86	1.86	1.86	1.86
15		1.81	2.00						
16		2.10	2.35						
17		1.57	1.73	1.80	1.82	1.83	1.83		
18		1.44	1.46	1.55	1.56	1.69	1.76	1.84	
19		1.43	1.47	1.45	1.46	1.47	1.46	1.48	1.59
20		1.48	1.45	1.44	1.44				
21			1.56	1.60	1.65	1.70	1.74	1.84	1.92
22			1.56	1.56	1.55	1.55	1.55	1.55	1.54
23		2.13	2.13	2.13					
24		1.93	1.94	1.94					
25		1.94	1.98	1.97					

*All dimensions are in meters. Tabulated values represent metric weir coefficients.

	Cross section	Upstream head h [m]							
		0.15	0.30	0.45	0.60	0.75	0.90	1.20	1.50
26		1.69	1.73	1.73					
27		2.28	2.25	2.06					
28		2.08	2.12	2.12					
29		1.92	1.93	1.92					
30		2.10	2.13	2.13					
31		2.03	2.03	2.01					
32		2.03	2.03	2.01					
33		1.65	1.94	2.10					
34			1.72	1.76	1.76	1.76	1.76	1.76	1.76
35				1.87	1.84	1.81	1.82	1.82	1.85
36			1.91	1.90	1.87	1.84	1.83	1.86	1.90
37						1.89	1.87	1.87	1.88
38			1.81	1.81	1.82	1.86	1.90	1.97	2.01
39		1.13	1.82 1.89	1.83 1.90	1.85 1.88	1.87 1.88	1.88 1.90	1.95	2.06
40		1.76	1.86 1.92	1.90 1.98	1.93 2.06	1.96 2.04	1.97 2.04	2.03	2.11
41		1.72	1.90	2.00	2.06	2.10	2.13		
42		1.78	1.84	1.89	1.93	1.97	2.00		
43		1.75	1.81	1.85	1.88	1.90	1.92	1.95	
44		1.80	1.92	1.95	1.94	1.85	1.82		
45		1.94	1.94	1.95	1.92	1.85	1.81	1.79	
46		1.72	1.72	1.70	1.72	1.76	1.79	1.85	
47		1.70	1.71	1.82					
48			2.09						

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Appendix E: Culvert Entrance Loss Coefficients

The following table lists entrance loss coefficients for concrete, corrugated metal, and box culverts. These values are automatically provided by HydroCAD when the corresponding entrance description is selected for a given culvert.

Although comparable data is not available for corrugated plastic pipe, it is believed to be similar to corrugated metal, and the same entries are listed for "CPP" in the internal lookup table.

Entrance Loss Coefficients.

Type of Structure and Design of Entrance	Coefficient, k_e
Pipe, Concrete	
Projecting from fill, groove end	0.2
Projecting from fill, sq. cut end	0.5
Headwall or headwall and wingwalls	
Groove end of pipe	0.2
Square-edge	0.5
Rounded (radius = 1/12D)	0.1
Mitered to conform to fill slope	0.7
End-Section conforming to fill slope*	0.5
Pipe, or Pipe-Arch, Corrugated Metal	
Projecting from fill (no headwall)	0.9
Headwall or headwall end wingwalls	
Square-edge	0.5
Mitered to conform to fill slope	0.7
End-Section conforming to fill slope*	0.5
Box, Reinforced Concrete	
Headwall parallel to embankment (no wingwalls)	
Square-edged on 3 edges	0.5
Rounded on 3 edges to radius of 1/12 barrel dimension	0.2
Wingwalls at 30° to 75° to barrel	
Square-edged at crown	0.4
Crown edge rounded to radius of 1/12 barrel dimension	0.2
Wingwalls at 10° to 30° to barrel	
Square-edged at crown	0.5
Wingwalls parallel (extension of sides)	
Square-edged at crown	0.7

*Note: "End Section conforming to fill slope", made of either metal or concrete, are the sections commonly available from manufacturers. From limited hydraulic tests they are equivalent in operation to a headwall in both inlet and outlet control. Some end sections, incorporating a closed taper have a superior hydraulic performance.

This table reprinted from the CONCRETE PIPE HANDBOOK, Copyright 1981 by the American Concrete Pipe Association, with the permission of the publisher.

Appendix F: Sheet Flow Roughness Coefficients

HydroCAD provides the following table of roughness coefficients for use with the Sheet Flow procedure (see page 54). This information is taken directly from NEH Table 15-1, with slight abbreviation of the descriptions. If you decide to substitute other roughness coefficients, note that these values are specifically for sheet flow, and are generally larger than the regular Manning's numbers for comparable surfaces.

Surface Description	n
Smooth surfaces	.011
Fallow	.05
Cultivated: Residue<=20%	.06
Cultivated: Residue>20%	.17
Grass: Short	.15
Grass: Dense	.24
Grass: Bermuda	.41
Range	.13
Woods: Light underbrush	.40
Woods: Dense underbrush	.80

Note: These coefficients may also be appropriate when using a reach to model artificially created sheet flow (as from a level spreader) as long as the depth of flow is limited to approximately 1/10 foot.

Appendix G: Velocity Factors

The Shallow Concentrated Flow procedure (a.k.a. Upland Method) uses a *velocity factor*, K_V, as listed below. The first two surfaces (paved and unpaved) are the basis for TR-55 Figure 3-1, and the factors were originally obtained from TR-55 Appendix F. The remaining surfaces were taken from NEH-4 Figure 15.2, with the factors derived from that chart. Subsequent revisions to NEH Part 630 provide *numerical* K_V values which are in good agreement with the original chart, except for "Grassed Waterways", which appears to have changed from 15.0 to 16.13, making it the same as the TR-55 "Unpaved" condition. For compatibility with previous calculations, the HydroCAD lookup table continues to supply the original K_V values as listed below. If different values are required for any reason, HydroCAD allows direct K_V entry instead of using the lookup table. See page 55 for further details on Shallow Concentrated Flow.

Surface Description	K_V [ft/sec]	K_V [m/sec]
Paved	20.33	6.2
Unpaved	16.13	4.92
Grassed Waterway	15.0	4.57
Nearly Bare & Untilled	10.0	3.05
Cultivated Straight Rows	9.0	2.74
Short Grass Pasture	7.0	2.13
Woodland	5.0	1.52
Forest w/Heavy Litter	2.5	0.76

Some descriptions have been abbreviated. Velocity factors have the same units as a velocity, and may be converted between English and metric as described on page 43.

H y d r o C A D ®

Stormwater Modeling System

Version 10

Owner's Manual

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6182 rev. 7/27/11

5 SHERMAN STREET, LLC

Stormwater Management, Maintenance & Inspection Plan

103 Court Street
Dover, New Hampshire

August 2024

Prepared for: 5 Sherman Street, LLC
242 Central Ave
Dover, New Hampshire 03820

Contact: Robert Baldwin
robert@centralfallsrealty.com

Prepared by: Tritech Engineering Corporation
755 Central Avenue
Dover, New Hampshire 03820

Introduction

Tritech Engineering Corporation has prepared the following Stormwater Management System Inspection & Maintenance Plan for 103 Court Street, located on southern side of Court Street, Dover, New Hampshire. The intent of this plan is to provide 5 Sherman Street, LLC with a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this development.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. By following the enclosed procedures, 5 Sherman Street LLC, will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

5 Sherman Street LLC, or its successors, heirs and assigns, will be responsible for implementing the required inspections and reporting over the expected life of the system.

Stormwater Management System Components

The 103 Court Street Stormwater Management System is designed to mitigate both the quantity and quality of site-generated stormwater runoff. As a result, its design includes the following elements:

Non-Structural BMP's

Non-Structural best management practices (BMP's) are designed to minimize and/or remove contaminants before they enter the stormwater collection system. Several of these BMP's have been incorporated into the Stormwater Management System including pavement sweeping, reduced use of road salt, and litter/trash removal. These types of BMP's are a highly effective initial treatment measure for reducing stormwater pollutant loading.

Closed Drainage Collection and Piping System

The closed drainage system is designed to collect and convey stormwater runoff from the roofs and paved areas and infiltrate stormwater back into the water table. Stormwater is collected in a catch basins and yard drains before being routed to two stormtech chamber systems. Runoff is then routed to a Bioretention area for treatment and infiltration.

Bioretention Basins

Bioretention Basins collect stormwater from ground runoff, as well as roadway runoff after pretreatment in Forebays, and allow contaminants and sedimentation to be contained. Bio Retention Ponds allow rainwater to be infiltrated and recharge groundwater on the side, and treated excess water is allowed to exit pond through rectangular weir spillway.

Stormtech Chambers

See attached for operation and maintenance for stormtech chambers.

Inspection & Maintenance Plan

By implementing the following procedures, 5 Sherman Street, LLC will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff.

Pavement Sweeping:	Sweep Pavement Area at least three times per year or more as necessary. Spring pavement sweeping shall be performed as early as possible.
Litter/Trash Removal:	Routinely inspect all dumpster locations for spillage and clean as necessary.
Deicing Agents:	It is recommended a certified Winter Operator (Green SnowPro) applies deicing agents. Use sand as the primary agent for parking lot safety during ice and snow conditions. Minimize the use of road salt (sodium chloride) during the winter. Use de-icing or anti-caking agents, added to enhance performance and application characteristics of sand mixtures, only as necessary and at minimum application rates. A deicing log (attached) must be maintained throughout the winter season.
Closed Drainage	Inspect all catch basins monthly for floatable objects and remove as required.
Bioretention Basins	Inspect detention basin twice annually for floatables and remove as required. Inspect detention basin, outlet structure, and outlets twice annually and remove accumulated sand and sediment. At least once annually, the system should be inspected for drawdown time. If the 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, including but not limited to removal of sediments, or reconstruction of the filter media. At least once annually, vegetation should be inspected and maintained in a healthy condition, including pruning, removal and replacement of dead or diseased vegetation, and removal of invasive species.
Stormtech Chambers	At least once annually inspect Stormtech chambers for sediment accumulation. Remove sediment once it reaches a depth of 3 inches or more using jetvac and vacuum as needed,
Invasive Species:	During maintenance and inspection activities, check for the presence of invasive species and dispose of in accordance with the procedures contained herein.

Annual Report: Submit an annual Inspection & Maintenance Report to the City of Dover's Planning Department by December 15th of each year. The report should include a summary of the system's maintenance requirements and repairs, and copies of the Inspection & Maintenance Log Sheets as well as the Deicing Log Sheets.

Each inspection shall include photographs of each the BMP being inspected

Additionally, Inspection and Maintenance Records must be provided to NHDES upon request.

Inspection & Maintenance Checklist/Log

The following pages contain an Inspection & Maintenance Checklist and blank copy of the Stormwater Management System's Inspection & Maintenance Log. These forms are provided to 5 Sherman Street, LLC with the inspection and maintenance of the 103 Court Street Stormwater Management System.

Disposal Methods for Non-Native Invasive Plants

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

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

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

Stormwater Management System

Inspection & Maintenance Checklist

103 Court Street

BMP/System Component	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance/Cleanout Threshold
Pavement Sweeping	1-2 times per year	Sweep or vacuum to prevent sediment tracking.	As required
Litter/Trash Removal	Routinely	Inspect outdoor waste receptacles areas for spillage.	Clean as required.
Deicing Agents	N/A	Contractor certified by "Green SnowPro" program to apply deicing agents. Use deicing log after every application.	Use sand as primary agent for parking lot safety during winter.
Closed Drainage System			
Catch Basins	2 times per year 1 time per month	Check for sediment accumulation in sump and on sock. Check for floatable contaminants.	≥ 2 in. sediment depth. ≥ 3 in. floatable depth.
Drainage Pipes	1 time per year	Check for sediment accumulation/clogging.	≥ 2 in. sediment depth.
Drainage Swales	Per mowing	Maintain grass height of 3-4 inches. Remove sediment accumulation from bottom of swale. Remove accumulated trash and debris as needed.	Sediment accumulation reaches 25% of design volume. Grass height exceeds 4 inches.
Stormtech Chambers	1 time per year	Check for sediment accumulation in chambers.	≥ 3 in. sediment depth.
Bioretention System	2 times per year	Check for sediment accumulation Check for floatables If system does not drain within 72 hours, actions must be taken to restore infiltration capabilities.	≥ 2 in. sediment depth in bioretention. ≥ 3 in. floatable depth in bioretention.
Annual Report	1 time per year	Submit Annual Report, including all Inspection & Maintenance Logs, to the Somersworth Planning Department.	N/A

Stormwater Management System

Inspection & Maintenance Log

103 Court Street

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (*List Items/Comments)*	Date of Cleaning/Repair	Performed By

Stormwater Management System

Deicing Log

5 SHERMAN STREET, LLC

Date	Amount Applied	Performed By	Date	Amount Applied	Performed By

CERTIFICATE OF UNDERSTANDING

Stormwater Management, Maintenance & Inspection Plan

Project: 103 Court Street
Dover, New Hampshire
August 2024

Owner: 5 Sherman Street, LLC
242 Central Ave
Dover, New Hampshire 03820

Engineer: Tritech Engineering Corporation
755 Central Avenue
Dover, New Hampshire 03820

Project Reference Plans:

Site Development Plans for:
103 Court Street
Dover, New Hampshire
Dated August, 15 2024

Specifically:
T-1, T-2, EX-1, SSS-1, SN-1, C-1 through C-3, SP-1 through SP-12, Li-1, LA-1 & TR-1.

Project Drainage Analysis References:

Drainage Analysis, Erosion and Sedimentation Control, & Site Development Plan for:
103 Court Street
Dover, New Hampshire
Dated August 2024

Site Plan Review Approval was granted by the Somersworth Planning Board Pending

I, Robert Baldwin, the property owner, am familiar with the references above and understand this Stormwater Management, Maintenance, and Inspection Plan, and my responsibilities identified herein. If ownership of the property is transferred, the new property owner(s) shall become the responsible party(ies).

_____ _____

Robert Baldwin, Owner Date

















SITE DEVELOPMENT PLANS

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE

LIST OF PLANS

T-1 - TITLE SHEET
T-2 - NEIGHBORHOOD PLAN
EX-1 - EXISTING CONDITIONS PLAN (1"=30')
SSS-1 - SITE SPECIFIC SOILS PLAN (1"=30')
SN-1 - STANDARDS NOTES PLAN
C-1 - ROADWAY PLAN AND PROFILE (1"=20')
C-2 - ROADWAY PLAN AND PROFILE (1"=20')
C-3 - CROSS-COUNTRY UTILITY PLAN AND PROFILE (1"=20')
SP-1 - GENERAL SITE PLAN (1"=30')
SP-2 - SITE CONSTRUCTION PLAN (1"=20')
SP-3 - UTILITY PLAN (1"=20')
SP-4 - GRADING AND DRAINAGE PLAN (1"=20')
SP-5 - BIORETENSION DETAILS
SP-6 - STORMTECH PLAN
SP-7 - DRAINAGE DETAILS
SP-8 - CONSTRUCTION DETAILS
SP-9 - CONSTRUCTION DETAILS
SP-10 - CONSTRUCTION DETAILS
SP-11 - SEWER DETAILS
SP-12 - SEWER DETAILS
Li-1 - LIGHTING PLAN
La-1 - LANDSCAPE PLAN
La-2 - LANDSCAPE DETAILS
TR-1 - FIRE TRUCK TURNING PLAN

PREPARED FOR:
5 SHERMAN STREET, LLC
242 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE

OWNER:
5 SHERMAN STREET, LLC
242 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE

PREPARED BY

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

LICENSED LAND SURVEYOR
STATE OF NEW HAMPSHIRE
No. 9903
ROBERT J. STOWELL

STATE OF NEW HAMPSHIRE - REGISTERED PROFESSIONAL ENGINEER
ROBERT J. STOWELL
No. 9903
LICENSED PROFESSIONAL ENGINEER

TITLE SHEET
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

SHEET No.
T-1

(P24-)



SHEET No.

T-2

NEIGHBORHOOD PLAN

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

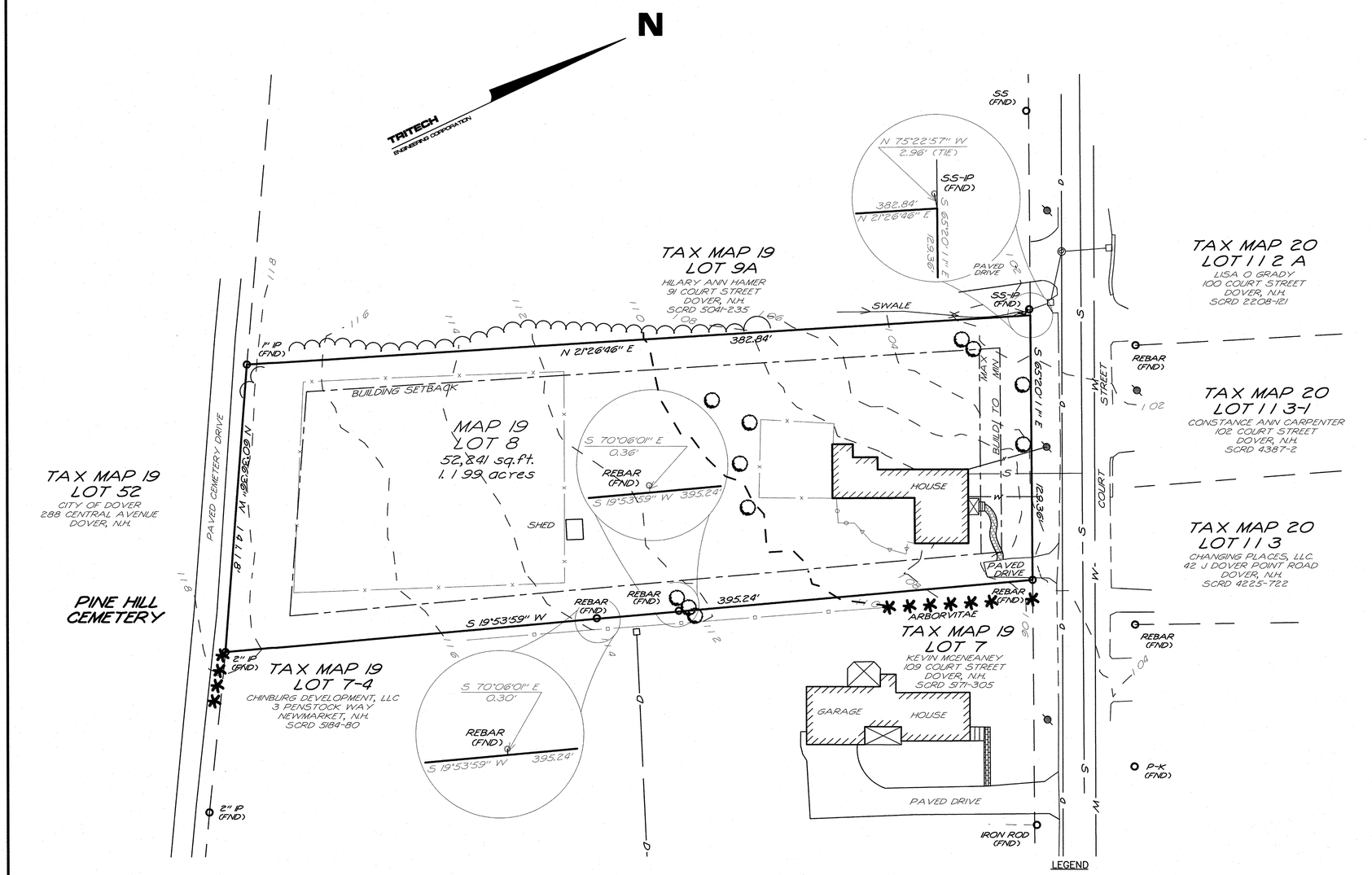
ISSUED FOR TRC REVIEW
August 15, 2024

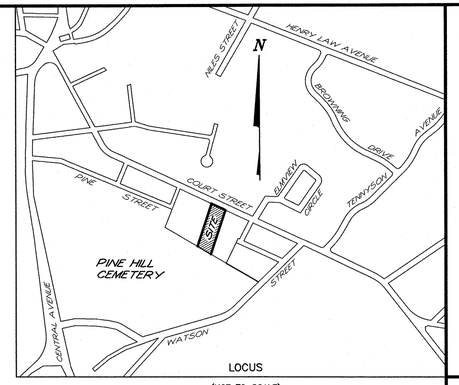
REVISIONS	
DATE:	DESCRIPTION:

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3330





TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8407
FAX 603 742 3630

NOTES

1.) INTENT: TO SHOW THE EXISTING CONDITIONS OF DOVER TAX MAP 19 LOT 8.

2.) CURRENT OWNER: 5 SHERMAN STREET LLC
242 CENTRAL AVENUE
DOVER, N.H.

AUTHORIZED SIGNATURE

3.) TAX MAP 19 LOT 8.

4.) TOTAL LOT AREA: 52,241 SQ.FT. – 1.199 ACRES

5.) PROJECT DEED REFERENCE: BOOK 5172 PAGE 55

6.) PROJECT PLAN REFERENCE: SURVEYED MAY 1935
W.S. WHEELER, CE
DOVER, N.H.
SCRD
POCKET #10, FOLDER #2, PLAN #11 & 12

LIMITED SUBDIVISION
CECIL TAYLOR
DOVER, N.H.
FREDERICK E. DREW ASSOCIATES
JULY 1977 SCRD 17-112

PROPERTY SURVEY
109 COURT STREET, DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE
JOANNE RICHARD LIVING REVOCABLE TRUST
STONEWALL SURVEYING
AUGUST 1, 2023 SCRD #13011

7.) ALL APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL OR OTHER EASEMENTS HAVE BEEN REFERENCED IN A NOTE.

8.) ZONING: R-12
MIN. LOT SIZE: 12,000 SQ.FT.
MIN. FRONTAGE: 100 FT
MIN. SETBACKS:
FRONT: 15 FT TO 25 FT
SIDE: 15 FT
REAR: 30 FT
MAX. COVERAGE: 30 %

9.) VARIANCES, SPECIAL EXCEPTIONS, CONDITIONAL USE PERMITS: NONE

10.) THE RAW UNADJUSTED CLOSURE OF OUR RANDOM POINT TRAVERSE WAS 1 PART IN 60,000, AND WAS ACCOMPLISHED USING A TOPCON GT 503 TOTAL STATION, DURING THE MONTH OF FEBRUARY, 2024.

11.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (FLOOD HAZARD ZONE A – PANEL 0320E, MAP No. 33017C0340E, DATE: 9-30-2015).

12.) DURING THE MONTH OF MARCH, 2024 MICHAEL MARIANO, STATE OF NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #76, NH CERTIFIED WETLAND SCIENTIST #183, CONDUCTED AN ON-SITE WETLANDS DELINEATION OF THE SUBJECT PARCEL. WETLANDS WERE IDENTIFIED BASED ON THE CITY OF DOVER ZONING ORDINANCE (170-27.1) AND ON STATE & FEDERAL CRITERIA OUTLINED IN THE "CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL" (DEPT. OF THE ARMY, 1987) ON THIS SITE. WETLANDS BASED ON LOCAL CRITERIA SHARE THE SAME BOUNDARIES WITH THOSE BASED ON STATE AND FEDERAL CRITERIA. NO WETLANDS WERE FOUND.

13.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 16, 2024 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON FEBRUARY 19, 2024. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (NAVD 88).

13.) LOCKE STREET CREATED BY "LAY OUT", BY THE DOVER CITY COUNSEL ON JULY 9, 1935 AND SHOWN ON SUBDIVISION PLAN BY W.S. WHEELER. THIS PART OF LOCKE STREET WAS NOT BUILT AND ABUTTING OWNERS OWN TO THE CENTER. NO FORMAL DISCONTINUANCE IS NEEDED PER LETTER OF THE CITY OF DOVER, DATED JUNE 12, 2001.

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- SEWER MANHOLE
- DRAIN MANHOLE
- CATCH BASIN
- D — DRAIN LINE
- G — GAS LINE
- W — WATER LINE
- VINYL STOCKADE FENCE
- X — WOOD RAIL FENCE
- CHAIN LINK FENCE
- METAL RAIL FENCE
- SPECIMEN TREE
- ARBORVITAE

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

LICENSED LAND SURVEYOR
No. 811
PROFESSIONAL
STONEWALL SURVEYING
STATE OF NEW HAMPSHIRE

EXISTING CONDITIONS PLAN

5 SHERMAN STREET LLC

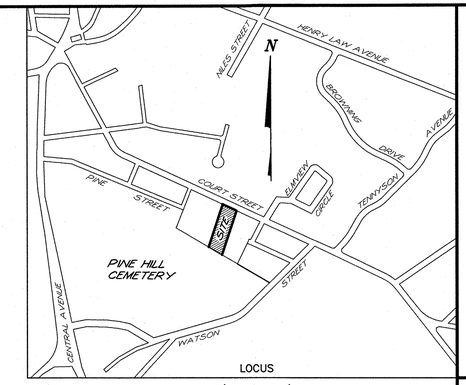
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 2410

SCALE: 1" = 30'

SHEET No. **EX-1**

(P24-)



LOCUS

(NOT TO SCALE)

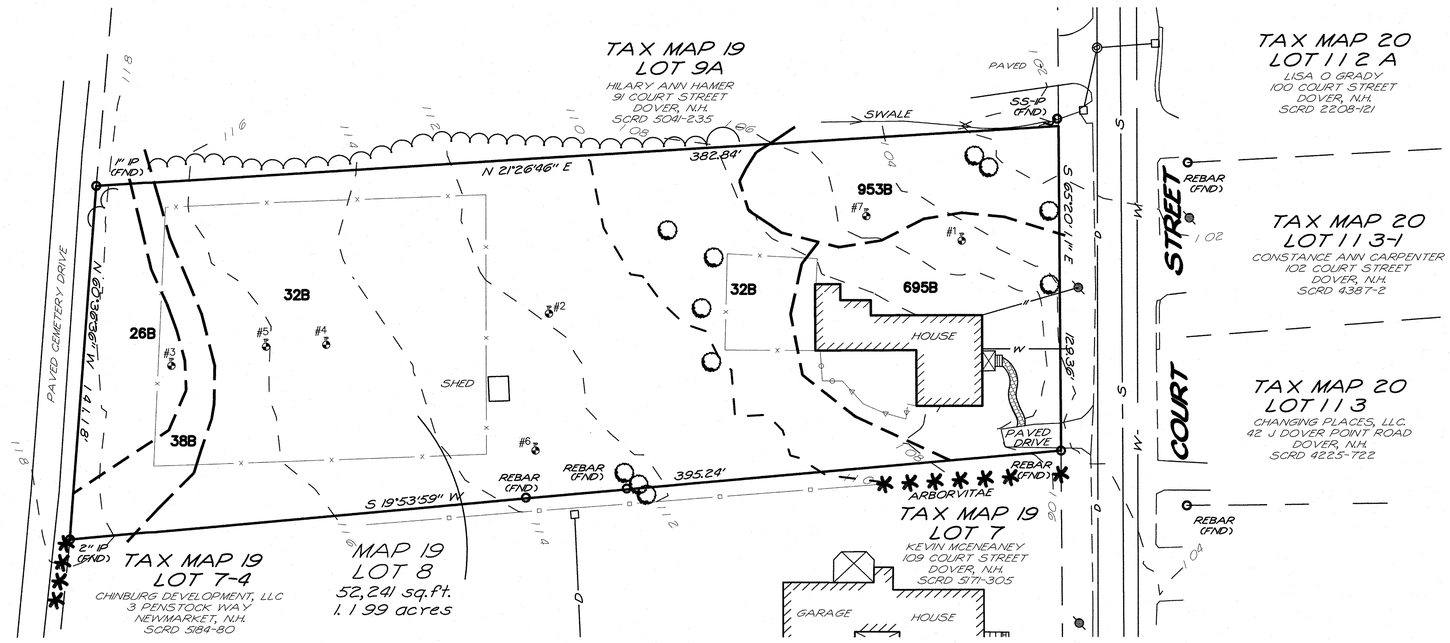
TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3930

N

TRITECH
ENGINEERING CORPORATION



SOILS NOTES

1.) SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT. SSSNNE SPECIAL PUBLICATION NO. 3, VERSION 7.0, JULY 2021. THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PRODUCT, INTENDED FOR THE SUBMISSION TO NH DES ALTERATION OF TERRAIN. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCE CONSERVATION SERVICE.

2.) WETLANDS WERE INVESTIGATED IN FEBRUARY 2024 BY MICHAEL MARIANO, NH CERTIFIED WETLAND SCIENTIST #183 IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0. HYDRIC SOILS WERE IDENTIFIED BY FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, MAY 2017. A ROUTINE DETERMINATION, AS DESCRIBED IN THE MANUAL, WAS FOLLOWED. NO WETLAND WERE FOUND.

TEST PITS WERE OBSERVED AND DESCRIBED IN FEBRUARY OF 2024.

LEGEND

26	WINDSOR
32	BOXFORD (MWD)
38	ELDRIDGE
695	BOXFORD (MWD)
	URBAN LAND COMPLEX
953	BOXFORD (SWPD)

SLOPE CLASS

A	0 - 3%
B	3 - 8%
C	8 - 15%

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- SEWER MANHOLE
- DRAIN MANHOLE
- CATCH BASIN
- D — DRAIN LINE
- G — GAS LINE
- W — WATER LINE
- VINYL STOCKADE FENCE
- X — WOOD RAIL FENCE
- CHAIN LINK FENCE
- METAL RAIL FENCE
- SPECIMEN TREE
- ARBORVITAE

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

STATE OF NEW HAMPSHIRE - SEPTIST - MICHAEL MARIANO No. 76 - CERTIFIED SOIL

SITE SPECIFIC SOILS PLAN

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 2410 1
SCALE: 1" = 30'

SHEET No.

SSS-1

(P24-)

DOVER SITE PLAN REVIEW NOTES:

INTENT: TO FURTHER DEVELOP TAX MAP 19 LOT 8. THIS DEVELOPMENT WILL INCLUDE THE CONVERSION OF THE EXISTING SINGLE FAMILY HOUSE INTO A DUPLEX AS WELL AS THE CONSTRUCTION OF AN ADDITIONAL DUPLEX STRUCTURE. BOTH OF THESE DUPLEXES (4 UNITS) WILL BE HUD RENT RESTRICTED AND WILL BE OBTAINED UNDER THE TRANSFER DEVELOPMENT RIGHTS (TDR) ORDINANCE. THE DEVELOPMENT WILL INCLUDE THE CONSTRUCTION OF 5 SINGLE FAMILY SIZE RESTRICTED HOMES. THESE HOMES WILL BE CONSTRUCTED UNDER THE TDR ORDINANCE. 3 BASE UNIT AND THE PURCHASE OF 2 SIZE RESTRICTED UNITS.

2.OWNERS OF RECORD: 5 SHERMAN STREET, LLC.
242 CENTRAL AVENUE
DOVER, N.H. 03820

3.THE PARCEL(S) IS (ARE) SHOWN AS:
LOT 8, MAP 19 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.

4.THE SUBJECT PARCEL(S) CONTAIN(S) 1.199 ACRES (52,241 SQ. FT.) OF LAND. 0 ACRES ARE CURRENTLY IN CURRENT USE.

5.TITLE REFERENCE FOR THE PROJECT PARCEL(S) IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 5172, PAGE NO. 55.

6.REFERENCE PLANS:
SURVEYED MAY 1935, W.S.WHEELER, CE., DOVER, N.H., SCRD PO #10 FO #2 PLAN 11 & 12
LIMITED SUBDIVISION, CECIL TAYLOR, DOVER, N.H., FREDERICK E. DREW ASSOCIATES, JULY 1977, SCRD 17-112
PROPERTY SURVEY, 109 COURT STREET, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE, JOANNE RICHARD LIVING REVOCABLE TRUST, STONEWALL SURVEYING, AUGUST 1, 2023, SCRD #13011

7.ALL APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL, OR OTHER EASEMENTS SHALL BE REFERENCED IN A NOTE AND SHOWN ON THE PLAN.

8.CURRENT ZONING DIMENSIONAL AND DENSITY REQUIREMENTS:
ZONING DISTRICT: R-12
SUB-DISTRICT: NONE
ZONING OVERLAY DISTRICTS: NONE
DIMENSIONAL REQUIREMENTS:

	REQUIRED:	PROVIDED:
MINIMUM LOT SIZE:	12,000 ACRES (SQ. FT.)	52,241 SQ.FT. 1.199 ACRES (SQ. FT.)
MINIMUM LOT FRONTAGE:	100 FT.	129.36 FT.
MINIMUM YARD SETBACKS/BUILD-TO-LINES:		
FRONT	15 TO 25 FT.	15 TO 25 FT.
SIDE	15 FT.	15 FT.
REAR	30 FT.	30 FT.
ABUT-A-STREET	15 TO 25 FT.	15 TO 25 FT.
MAXIMUM/MINIMUM LOT COVERAGE	30 %	10 %
MINIMUM/MAXIMUM BLDG. HEIGHT	35 FT./STORIES	35 FT./STORIES

9.OFF STREET PARKING REQUIREMENTS:
PARKING DIMENSIONS: MAXIMUM: 9 x18 FT PROVIDED:9x18 FT
AISLE DIMENSIONS: 24 FT 20FT

MAXIMUM PARKING ALLOWED	17	17
ACCESSIBLE PARKING:	1	1

10.SEE SHEET SP-1 FOR TDR BASE DENSITY CALCULATIONS THAT DETERMINE A BASE DENSITY OF 3 UNITS. THE PROJECT CONTAINS A TOTAL OF 9 UNITS. THE 2 DUPLEX STRUCTURES (4 UNITS) WILL BE OBTAINED BY TDR AND WILL BE FMR SET BY HUD. THE 5 SINGLE FAMILY HOMES WILL BE SIZE RESTRICTED TO 1,400 SQ.FT. OF GROSS LIVING AREA PER UNIT. 3 OF THESE UNITS ARE THE BASE UNITS AND 2 UNITS WILL BE OBTAINED BY TDR.

11.VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS ARE AS FOLLOWS: NONE GRANTED

12.CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS ARE AS FOLLOWS: NONE GRANTED

13.PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY TRITECH ENGINEERING CORPORATION ON AUGUST 8, 2024 WITH AN ERROR NOT GREATER THAN 1 IN 10,000 .

14.AS-BUILT PLANS OF THE PROJECT SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT AUTOCAD DWG, AUTOCAD DXF OR ESRI FORMAT TO THE CITY OF DOVER CITY ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.

15.SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA COMMUNITY PANEL 33017C0340E, EFFECTIVE DATE: 9-30-2015.

16.TOPOGRAPHIC SURVEY PERFORMED BY TRITECH ENGINEERING CORPORATION IN FEBRUARY, 2024.

17.ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM.

18.WETLANDS WERE DELINEATED BY MICHAEL MARIANO, CERTIFIED WETLANDS SCIENTIST, CERTIFICATION NUMBER 183, IN ACCORDANCE WITH CHAPTER 170-27.1 OF THE ZONING ORDINANCE, MARCH, 2024. NO WETLANDS WERE OBSERVED.

19.THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.

20.THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND MUNICIPAL SEWER.

21.ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT)STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTIONAND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.

22.CONTRACTOR SHALL FOLLOW TO THE CONSTRUCTION SEQUENCING IDENTIFIED WITHIN THE PLANNING BOARD APPROVED PLAN SET. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.

23.EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE AND BE PROVIDED FOR CONSTRUCTION SEQUENCING INCLUDING TEMPORARY MEASURES.

24.CONTRACTOR SHALL FOLLOW THE PERMANENT STABILIZATION MEASURES SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION AS NOTED WITHIN THE PLANNING BOARD APPROVED PLANS. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.

25.THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR ANY EARTH DISTURBING ACTIVITY OCCURS.

26.ANY PERMANENT TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.

27.A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO COMMENCING EARTH DISTURBANCE.

28.A CITY ENGINEER APPROVED CONSTRUCTION SIGN SHALL BE INSTALLED PRIOR TO COMMENCING EARTH DISTURBANCE. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR PLANNING DIRECTOR.

29.A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

30.HOURS OF SITE WORK MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY 9 AM- 4 PM. NO SITE WORK SHALL BE DONE ON FEDERAL HOLIDAYS.

31.BUILDING ADDRESSES, INCLUDING APT AND UNIT NUMBERS (IF APPLICABLE), SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

32.THE PROPOSED USE FOR THE SITE IS RESIDENTIAL.

33.THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: NONE

34.COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO THE DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR OR THEIR DESIGNEE.

35.ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM THE CITY OF DOVER INSPECTION SERVICES.

36.ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM THE CITY OF DOVER INSPECTION SERVICES.

37.APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PROJECT (PTAP) PORTAL PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. HTTPS://EXTENSION.UNH.EDU/STORMWATER-CENTER/PTAP

38.THE OWNER OF RECORD SHALL RECORD, AT THE REGISTRY OF DEEDS, DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

39.FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED, IN ACCORDANCE WITH ALL APPLICABLE CODES, TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.

40.EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.

41.IF A BUSINESS ESTABLISHMENT OR MULTI-FAMILY DWELLING CONTAINED IN A NEW, ALTERED OR REPAIRED STRUCTURE, A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.

42.APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.

43.THE EXISTING AND PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM, AS REQUIRED, BY CHAPTER 81- 30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NH BUILDING AND FIRE CODES.

44.SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY THE CITY OF DOVER INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.

45.FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.

46.THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. (I.E. IBC, ANSI-117.1) AND NH RSA 155-A:5.

47.APPLICANT SHALL SUBMIT A LETTER CERTIFYING THE TIE IN LOCATIONS OR DISCHARGE POINTS FOR ALL SUMP PUMPS AND ROOF LEADERS FOR EXISTING STRUCTURES ON THE PROPERTY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

48.DESIGN ENGINEER OF RECORD OR SHALL PROVIDE SIGNED LETTER TO CITY ENGINEER CERTIFYING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS.

49.THE APPLICANT SHALL PROVIDE THE CITY OF DOVER AN EASEMENT TO ACCESS WATERLINE AND HYDRANTS TO MAINTAIN WATER QUALITY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

LEGEND

- WETLAND
- WETLAND BOUNDARY
- IRON PIPE
- UTILITY POLE
- TEST PIT
- EXISTING STREET LIGHT
- EXISTING STONE WALL
- EXISTING 2 FOOT CONTOUR (156)
- EXISTING 10 FT CONTOUR (160)
- EXISTING GAS LINE
- EXISTING WATER LINE OR SERVICE (W)
- EXISTING WATER SHUTOFF
- EXISTING WATER GATE VALVE (W)
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED EDGE OF GRAVEL
- PROPOSED CONTOUR (200)
- PROPOSED HYDRANT
- PROPOSED END CAP WITH THRUST BLOCK
- PROPOSED WATER GATE VALVE (W)
- PROPOSED WATER SHUT-OFF
- PROPOSED WATER LINE OR SERVICE (W)
- PROPOSED VINYL STOCKADE FENCE
- PROPOSED UNDERGROUND ELECTRIC & TELEPHONE (UE&T)
- PROPOSED OVERHEAD ELECTRIC & TELEPHONE (OE)
- PROPOSED ELECTRICAL TRANSFORMER
- PROPOSED ELECTRICAL JUNCTION BOX
- PROPOSED STREET LIGHT
- PROPOSED UTILITY POLE
- PROPOSED DRAIN LINE (D)
- PROPOSED CATCH BASIN
- PROPOSED DMH
- PROPOSED UNDERDRAIN LINE (UD)
- PROPOSED FLARED END SECTION
- PROPOSED RIP RAP
- PROPOSED EASEMENT
- PROPOSED GUARDRAIL
- PROPOSED SILT FENCE OR SILT SOCK
- PROPOSED CONSTRUCTION FENCE
- PROPOSED SILT SOCK WITH ORANGE CONSTRUCTION FENCE OR ORANGE SILT FENCE
- PROPOSED STREET SIGN
- PROPOSED STOP SIGN
- PROPOSED STOP BAR
- PROPOSED STREET TREE
- PROPOSED TREELINE

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3830

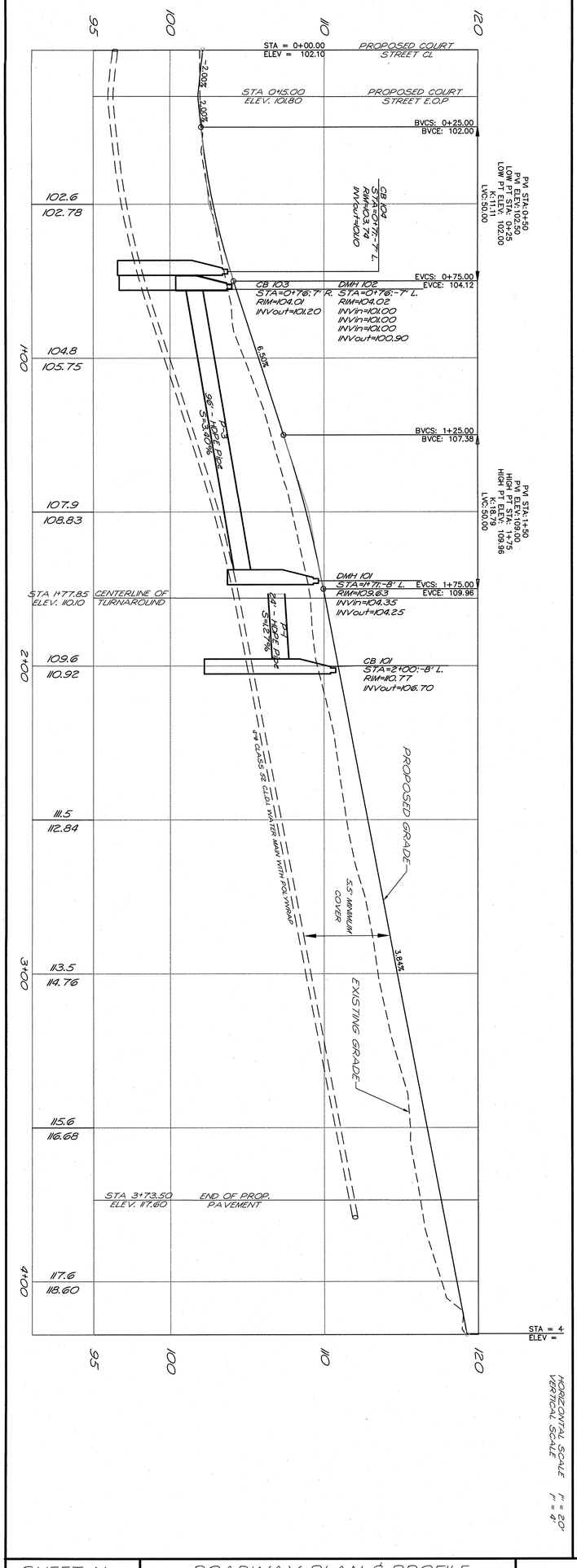
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August 15, 2024

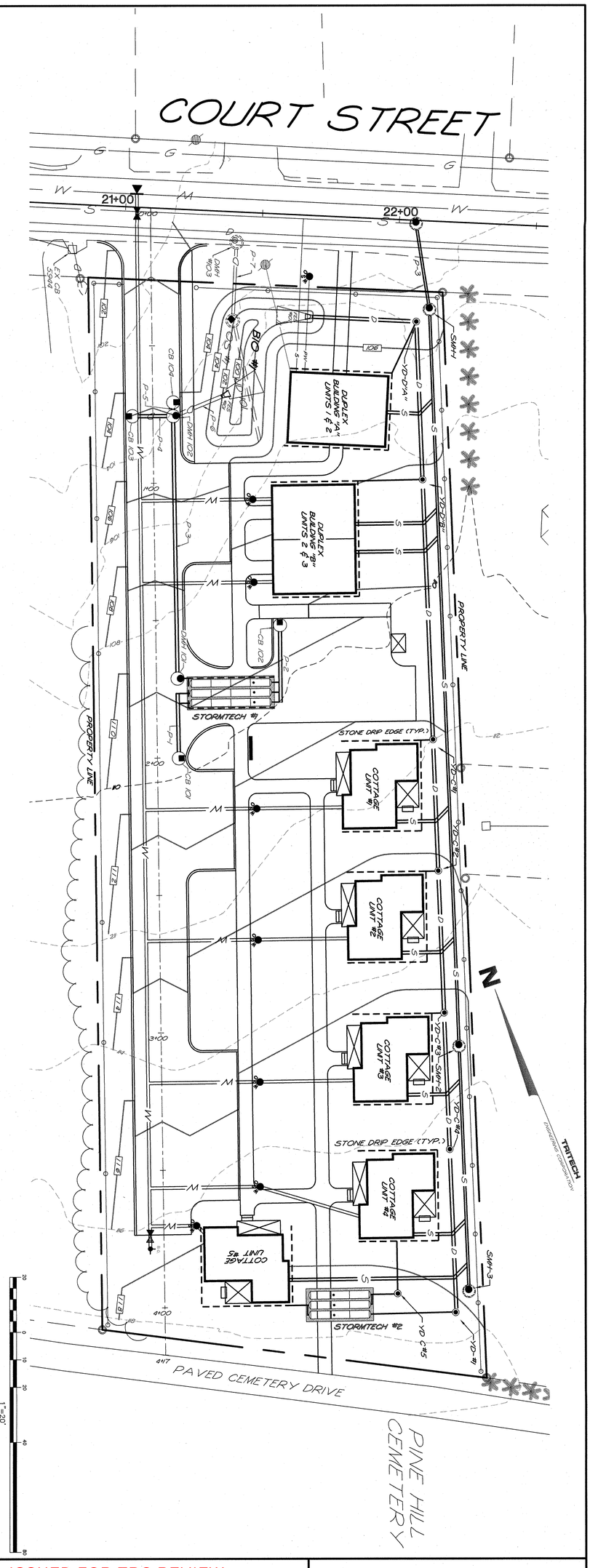
REVISIONS
DATE: DESCRIPTION:

STANDARD NOTES PLAN
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 2410I

SHEET No.
SN-1

(P24-)





SHEET No.

C-1

ROADWAY PLAN & PROFILE

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

ISSUED FOR TRC REVIEW
August 15, 2024

STATE OF NEW HAMPSHIRE
ROBERT J. STOWELL
No. 9903
LICENSED PROFESSIONAL ENGINEER

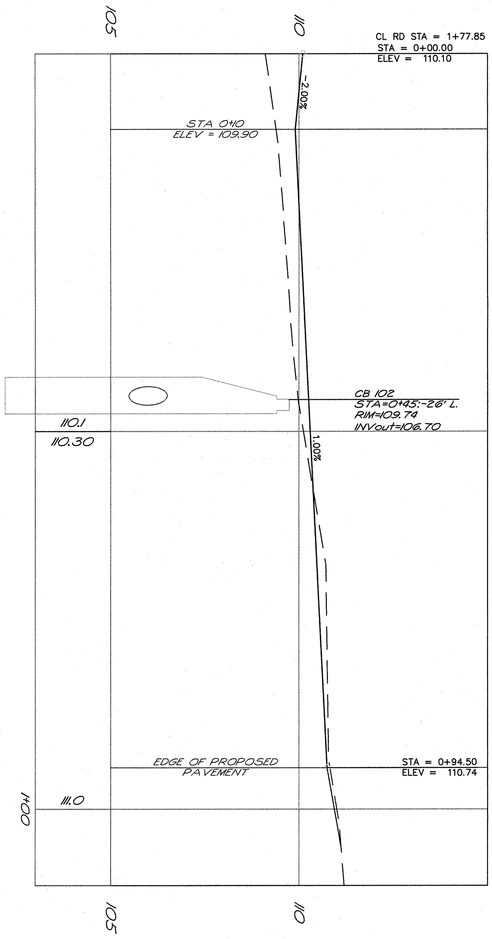
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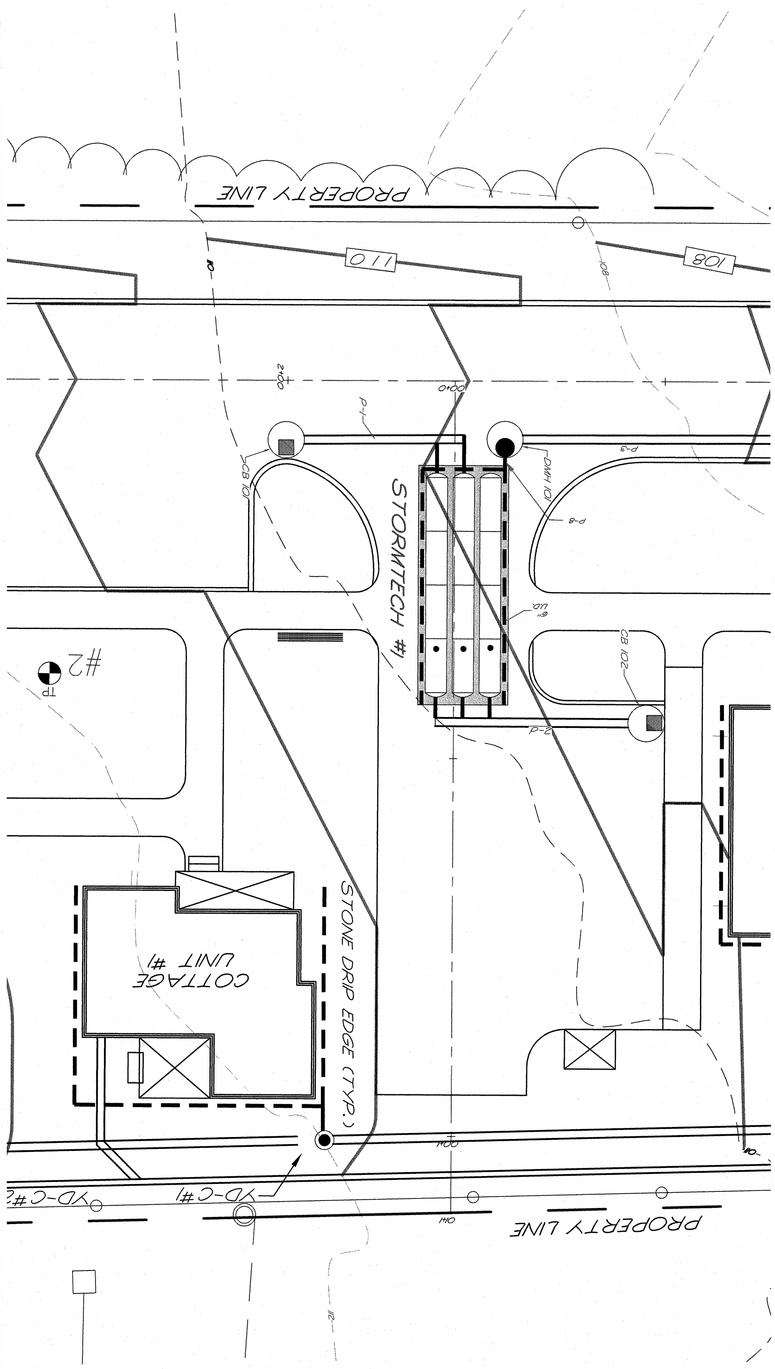
DATE:	DESCRIPTION:

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3830







HORIZONTAL SCALE
VERTICAL SCALE
1" = 10'

N

TRITECH ENGINEERING CORPORATION

SHEET No.

C-2

ROADWAY PLAN & PROFILE

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

ISSUED FOR TRC REVIEW
August 15, 2024

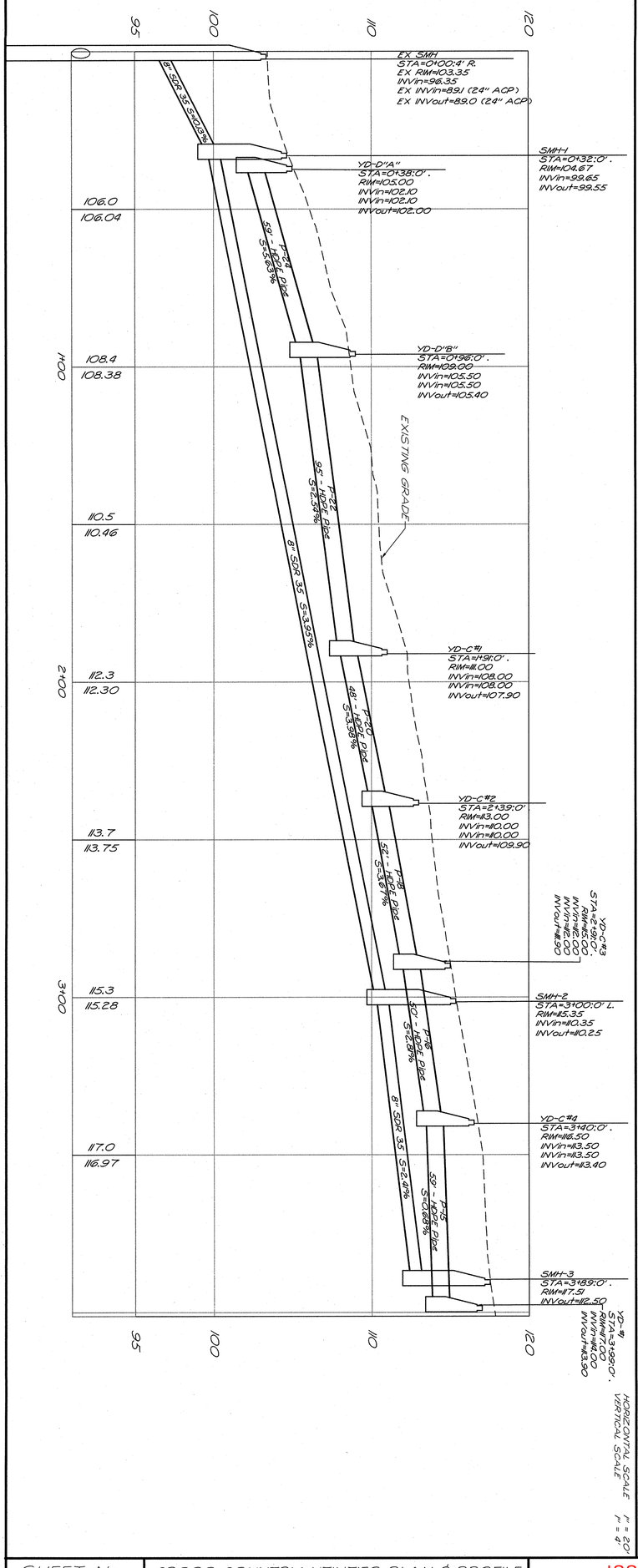
STATE OF NEW HAMPSHIRE
ROBERT J. STOWELL
No. 9903
LICENSED PROFESSIONAL ENGINEER

REVISIONS	
DATE:	DESCRIPTION:

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3830



SHEET No.

C-3

CROSS COUNTRY UTILITIES PLAN & PROFILE

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

ISSUED FOR TRC REVIEW
August 15, 2024

STATE OF NEW HAMPSHIRE
ROBERT J. STOWELL
No. 8903
LICENSED PROFESSIONAL ENGINEER

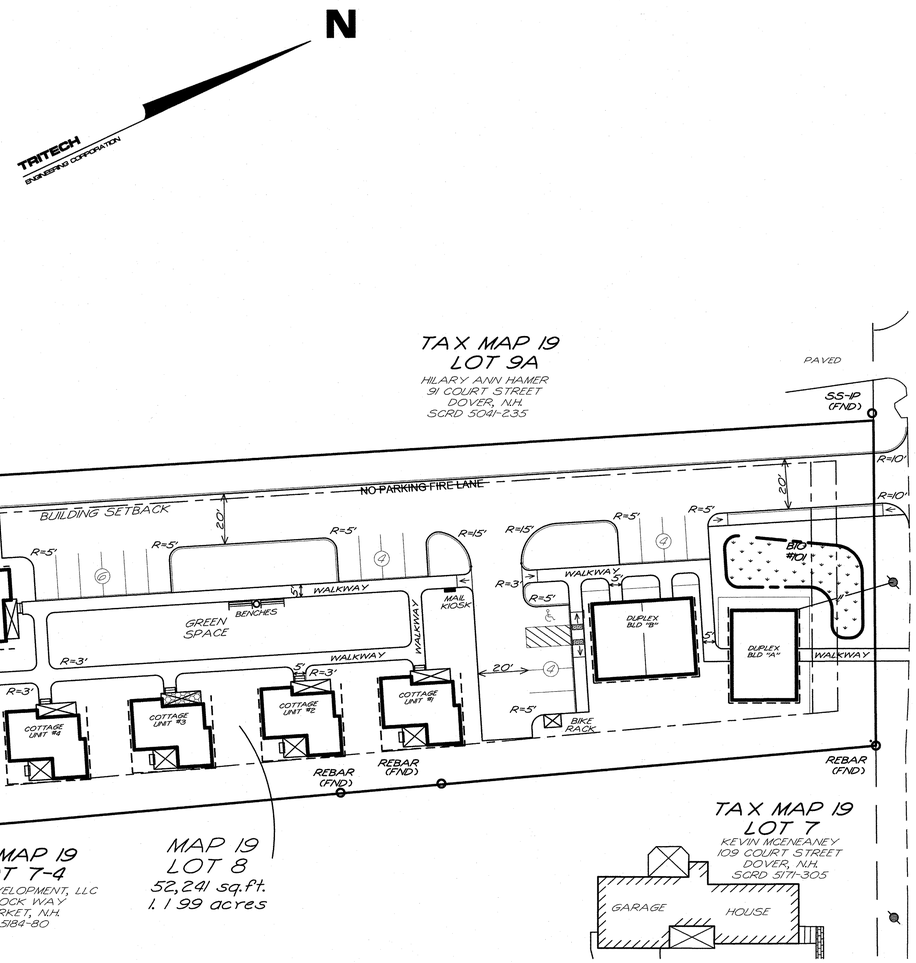
REVISIONS

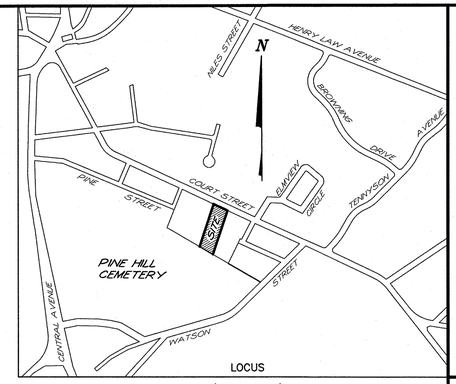
DATE:	DESCRIPTION:

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3830





(NOT TO SCALE)

NOTES

1.) INTENT: TO FURTHER DEVELOP TAX MAP 19 LOT 8. THIS DEVELOPMENT WILL INCLUDE THE CONVERSION OF THE EXISTING SINGLE FAMILY HOUSE INTO A DUPLEX AS WELL AS THE CONSTRUCTION OF AN ADDITIONAL DUPLEX STRUCTURE, BOTH OF THESE DUPLEXES (4 UNITS) WILL BE HUD RENT RESTRICTED AND WILL BE OBTAINED UNDER THE TRANSFER DEVELOPMENT RIGHTS (TDR) ORDINANCE. THE DEVELOPMENT WILL INCLUDE THE CONSTRUCTION OF 5 SINGLE FAMILY SIZE RESTRICTED HOMES. THESE HOMES WILL BE CONSTRUCTED UNDER THE TDR ORDINANCE. 3 BASE UNIT AND THE PURCHASE OF 2 SIZE RESTRICTED UNITS.

2.) CURRENT OWNER: 5 SHERMAN STREET LLC
242 CENTRAL AVENUE
DOVER, N.H.

_____
AUTHORIZED SIGNATURE

3.) TAX MAP 19 LOT 8.

4.) TOTAL LOT AREA: 52,241 SQ.FT. – 1.199 ACRES

5.) PROJECT DEED REFERENCE: BOOK 5172 PAGE 55

6.) PROJECT PLAN REFERENCE: SURVEYED MAY 1935
W.S. WHEELER, CE
DOVER, N.H.
SCRD
POCKET #10, FOLDER #2, PLAN #11 & 12

LIMITED SUBDIVISION
CECIL TAYLOR
DOVER, N.H.
FREDERICK E. DREW ASSOCIATES
JULY 1977 SCRD 17–112

PROPERTY SURVEY
109 COURT STREET, DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE
JOANNE RICHARD LIVING REVOCABLE TRUST
STONEWALL SURVEYING
AUGUST 1, 2023 SCRD #13011

7.) ALL APPLICABLE RIGHT–OF–WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL OR OTHER EASEMENTS HAVE BEEN REFERENCED IN A NOTE.

8.) ZONING: R–12
MIN. LOT SIZE: 12,000 SQ.FT.
MIN. FRONTAGE: 100 FT
MIN. SETBACKS:
FRONT: 15 FT TO 25 FT
SIDE: 15 FT
REAR: 30 FT
MAX. COVERAGE: 30 %

9.) VARIANCES, SPECIAL EXCEPTIONS, CONDITIONAL USE PERMITS: NONE

10.) THE RAW UNADJUSTED CLOSURE OF OUR RANDOM POINT TRAVERSE WAS 1 PART IN 60,000, AND WAS ACCOMPLISHED USING A TOPCON GT 503 TOTAL STATION, DURING THE MONTH OF FEBRUARY, 2024.

11.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (FLOOD HAZARD ZONE A – PANEL 0320E, MAP No. 33017C0340E, DATE: 9–30–2015).

12.) DURING THE MONTH OF MARCH, 2024 MICHAEL MARIANO, STATE OF NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #76, NH CERTIFIED WETLAND SCIENTIST #183, CONDUCTED AN ON–SITE WETLANDS DELINEATION OF THE SUBJECT PARCEL. WETLANDS WERE IDENTIFIED BASED ON THE CITY OF DOVER ZONING ORDINANCE (170–27.1) AND ON STATE & FEDERAL CRITERIA OUTLINED IN THE "CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL" (DEPT. OF THE ARMY, 1987) ON THIS SITE. WETLANDS BASED ON LOCAL CRITERIA SHARE THE SAME BOUNDARIES WITH THOSE BASED ON STATE AND FEDERAL CRITERIA. NO WETLANDS WERE FOUND.

13.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 16, 2024 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON FEBRUARY 19, 2024. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (NAVD 88).

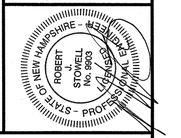
TDR BASE DENSITY CALCULATIONS

TOTAL AREA	=	52,241 SQ.FT.
LESS WETLANDS	=	<0> SQ.FT.
UPLAND AREA	=	52,241 SQ.FT.
LESS ROAD ALLOCATION (15%)	=	<7,836> SQ.FT.
NET AREA	=	44,405 SQ.FT.
LESS WETLAND FACTOR FOR 0% WETLANDS (85%)		<6,661> SQ.FT.
AREA	=	37,744 SQ.FT.
12,000 SQ.FT. PER UNIT REQUIRED IN THE R–12 DISTRICT	÷	12,000
BASE TDR DENSITY	=	3.14 UNITS
ROUNDED DOWN TO	=	3 UNITS

TRITECH
ENGINEERING CORPORATION
795 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3930

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:



GENERAL SITE PLAN

103 COURT STREET

DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 2410 I

SCALE: 1" = 30'

SHEET No.

SP-1

(P24-)

C-1 CONSTRUCTION NOTES:

1. INSTALL EROSION CONTROL MEASURE. "SILT FENCE" PER DETAIL 1, SHEET SP-9 OR "SILT SOXX" PER DETAIL 9, SHEET SP-9 OR "EROSION CONTROL BERM" PER DETAIL 11, SHEET SP-9, MAY BE USED AT THE SITE WORK CONTRACTOR DISCRETION. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
2. INSTALL SLOPED GRANITE CURB PER DETAIL 4, SHEET SP-8.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5, SHEET SP-9.
4. INSTALL BUILDING MOUNTED LIGHT (W2). SEE SHEET Li-1 FOR SPECIFICATIONS.
5. INSTALL CONCRETE POLE BASE AND LIGHTS (P), PER DETAIL 11, SHEET SP-7. SEE SHEET Li-1 FOR SPECIFICATIONS.
6. SAWCUT PAVEMENT, PATCH AND MATCH EXISTING PAVEMENT PER DETAIL 1, SHEET SP-10.
7. INSTALL ASPHALT PAVEMENT PER DETAIL 3, SHEET SP-8.
8. INSTALL 5' WIDE CONCRETE PAVER SIDEWALK PER DETAIL 6, SHEET SP-8.
9. WHITE PAVEMENT MARKINGS, SEE DETAIL 9, SHEET SP-8 FOR HANDICAP SYMBOL.
10. INSTALL HANDICAP PARKING SIGN PER DETAIL 5, SHEET SP-10.
11. INSTALL VERTICAL GRANITE CURB PER DETAIL 3, SHEET SP-9.
12. INSTALL 5.25' x 6.75' CONCRETE PAD PER DETAIL 10, SHEET SP-10, WITH LOCKABLE STORAGE FOR THREE BICYCLES, ALLEN INDUSTRIAL GRADE MODEL 204S, OR APPROVED
13. INSTALL (2) PARK BENCH PER DETAIL 7, SHEET SP-8.
14. INSTALL (1) TRASH BIN PER DETAIL 8, SHEET SP-8.
15. INSTALL MAIL KIOSK.
16. INSTALL HANDICAP ACCESSIBLE REINFORCED CONCRETE RAMP (MAXIMUM SLOPE = 1" IN 12") FROM PAVEMENT GRADE TO SIDEWALK GRADE IN COMPLIANCE WITH ALL A.D.A. STANDARDS, PER DETAIL 11, SHEET SP-8.
17. INSTALL BUILDING MOUNTED LIGHT (W1). SEE SHEET Li-1 FOR SPECIFICATIONS.
18. INSTALL BUILDING MOUNTED LIGHT (C). SEE SHEET Li-1 FOR SPECIFICATIONS.

N

TRITECH ENGINEERING CORPORATION

TAX MAP 19
LOT 9A
HILARY ANN HAMER
91 COURT STREET
DOVER, N.H.
SCRD 5041-235

PAVED

NO PARKING FIRE LANE

PAVED CEMETERY DRIVE

GREEN SPACE

COTTAGE UNIT #5 F.F.=111.90'

COTTAGE UNIT #4 F.F.=118.0'

COTTAGE UNIT #3 F.F.=117.0'

COTTAGE UNIT #2 F.F.=115.50'

COTTAGE UNIT #1 F.F.=113.50'

DUPLEX BLD "B" F.F.=111.0' F.F.=109.0'

DUPLEX BLD "A" F.F.=120.50'

BIO #101

COURT STREET

TAX MAP 19
LOT 7-4
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, N.H.
SCRD 5184-80

TAX MAP 19
LOT 7
KEVIN MCENEANEY
109 COURT STREET
DOVER, N.H.
SCRD 5171-305

GARAGE HOUSE

20 0 10 20 40 80
1"=20'

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3930

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

ROBERT STOWELL No. 9903 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

SITE CONSTRUCTION PLAN
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024 JOB No. 2410
SCALE: 1" = 30'

SHEET No. **SP-2**

(P24-)

W-1 WATER NOTES:

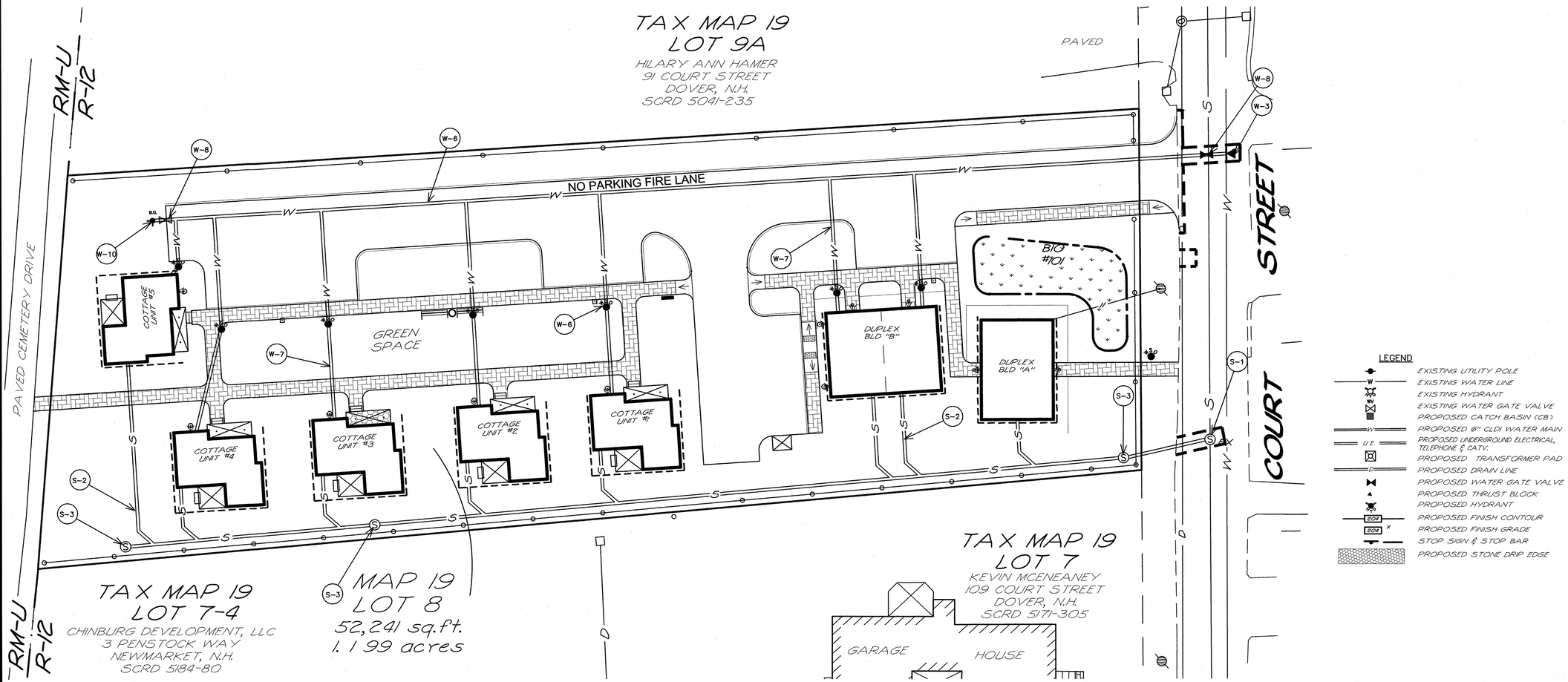
1. WATERLINE AND APPENDITURES, INSTALLATION, AND MATERIALS SHALL CONFORM WITH THE CITY OF DOVER, NH AND AMERICAN WATER WORKS STANDARDS. ALL VALVES SHALL REQUIRE RESTRAINED MECHANICAL JOINTS USING EITHER MEGA-LUG, GRIP RINGS, OR OTHER METHODS OF RESTRAIN ACCEPTABLE TO THE CITY OF DOVER WATER DEPARTMENT, IN ADDITION TO USE OF CONCRETE THRUST BLOCKS.
2. PRESSURE AND LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST STANDARDS OF AAWA. CHLORINATING AND FLUSHING SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS OF AAWA, STATE AND LOCAL REGULATIONS.
3. INSTALL CONCRETE THRUST BLOCKS WHERE SHOWN PER DETAIL 7, SHEET SP-6
4. BACKFLOW PREVENTORS SHALL BE PROVIDED FOR ALL WATER LINES.
5. CONNECT TO EXISTING 6" C.I. WATER MAIN. INSTALL A STAINLESS STEEL TAPPING SLEEVE WITH 4" GATE VALVE AND THRUST BLOCK.
6. INSTALL 385' - 4" CONCRETE LINED DUCTILE IRON CLASS 52 (C.L.D.I.) WATER MAIN WITH POLYWRAP. MINIMUM DEPTH OF COVER OVER PIPE = 5.5'.
7. INSTALL 1" PLASTIC WATER SERVICE FROM WATER MIN TO BUILDING.
8. INSTALL 4" WATER GATE VALVE.
9. DOMESTIC WATER AND LANDSCAPING WATER SHALL BE METERED SEPARATELY.
10. INSTALL 4" BLOW-OFF HYDRANT PER DETAIL 2, SHEET SP-10.

S-1 SEWER NOTES:

1. CONNECT TO EXISTING SMH #1239
   EXISTING RIM EL=103.35'
   INVERT IN EL=89.05' (24" ACP)
   INVERT OUT EL=89.00' (24" ACP)
   NEW INVERT IN EL=96.35' (8" SDR 35)
   INSTALL DROP INLET AS DIRECTED BY THE CITY OF DOVER
2. INSTALL SEWER SERVICE FROM SEWER MAIN TO BUILDING.
3. INSTALL SMH AT LOCATIONS AND ELEVATIONS ON SHEET C-3.
   INSTALLATION TO BE IN ACCORDANCE WITH DETAIL SHEETS SP-11 & SP-12.

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TRITECH ENGINEERING CORPORATION



TRITECH
ENGINEERING CORPORATION
795 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
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FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

STATE OF NEW HAMPSHIRE - ROBERT J. STOWELL No. 9903 - LICENSED PROFESSIONAL ENGINEER

UTILITIES PLAN
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024 JOB No. 2410 1
SCALE: 1" = 20'

SHEET No. SP-3

(P24-)

DRAINAGE STRUCTURE TABLE

STRUCTURE	RIM ELEV.	INVERT IN	INVERT OUT	SUMP	NOTES
CB 101	110.77		106.70	102.70	HOODED, DEEP SUMP, SEE
CB 102	109.74		106.70	102.70	DETAIL 8, SHEET SP-7
CB 103	104.01		101.20	97.20	↓
CB 104	103.74		101.10	97.10	↓
DMH 101	109.63	104.35	104.25		
DMH 102	104.02	101.00 (P-5) 101.00 (P-3) 101.00 (P-4)	100.90		
DMH 103	102.50	95.9 (P-7) 90.85 (EX 18" VCP)	90.80 (EX 18" VCP)		
OS #1	103.65	96.5 (UD)	96.4		
FE-#1			100.70		
FE-#2			101.50		
YD-#1	117.00	114.00 (Pipe - (15))	113.90		NYOPLAST YARD DRAIN
YD-C#1	111.00	108.00 (P-20) 108.00 (Pipe - (P-21))	107.90		STRUCTURE WITH FRAME
YD-C#2	113.00	110.00 (P-18) 110.00 (Pipe - (P-19))	109.90		AND GRATE
YD-C#3	115.00	112.00 (P-16) 112.00 (Pipe - (P-17))	111.90		
YD-C#4	116.50	113.50 (P-15)	113.40		
YD-C#5	116.50	114.90 (P-13)	114.60		
YD-D"A"	105.00	102.10 (P-24) 102.10 (Pipe - (P-25))	102.10		
YD-D"B"	109.00	105.50 (P-22) 105.50 (Pipe - (P-23))	105.40		

DRAIN PIPE TABLE

PIPE	START	INV.	END	INV.	SIZE	L.F.	SLOPE
P-1	CB 101	106.70	ST#1	106.40	12"	24'	1.25%
P-2	CB 102	106.70	ST#1	106.40	12"	28'	1.07%
P-3	DMH 101	104.25	DMH 102	101.00	12"	96'	3.38%
P-4	CB 103	101.20	DMH 102	101.00	12"	15'	1.33%
P-5	CB 104	101.10	DMH 102	101.00	12"	5'	2.00%
P-6	DMH 102	100.90	FES#1	100.70	15"	16'	1.25%
P-7	OS#1	96.40	DMH#103	95.90	12"	24'	2.08%
P-8	ST#1	104.40	DMH 101	104.35	6"	4'	1.25%
P-11	YD-C#5	114.60	ST #2	114.50	6"	9'	1.11%
P-12	De-#5	116.75	ST #2	114.50	6"	10'	22.50%
P-13	De-#4	115.00	YD-C#5	114.90	6"	18'	0.56%
P-14	ST-#2	114.50	YD-#1	114.00	6"	30'	1.67%
P-15	YD-#1	113.90	YD-C#4	113.50	12"	59'	0.68%
P-16	YD-C#4	113.40	YD-C#3	112.00	12"	50'	2.80%
P-17	De #3	114.00	YD-C#3	112.00	6"	5'	40.00%
P-18	YD-C#3	111.90	YD-C#2	110.00	12"	52'	3.65%
P-19	De #2	112.50	YD-C#2	110.00	6"	5'	50.00%
P-20	YD-C#2	109.90	YD-C#1	108.00	12"	48'	3.96%
P-21	De #1	110.50	YD-C#1	108.00	6"	5'	50.00%
P-22	YD-C#1	107.90	YD-D"B"	105.50	12"	95'	2.53%
P-23	De-DB	106.00	YD-D"B"	105.50	6"	22'	2.27%
P-24	YD-D"B"	105.40	YD-D"A"	102.10	12"	59'	5.59%
P-25	De-"D"	105.50	YD-D"A"	102.10	6"	20'	17.00%
P-26	YD-D"A"	102.00	FES #2	101.50	12"	38'	1.32%

D-1 DRAINAGE NOTES

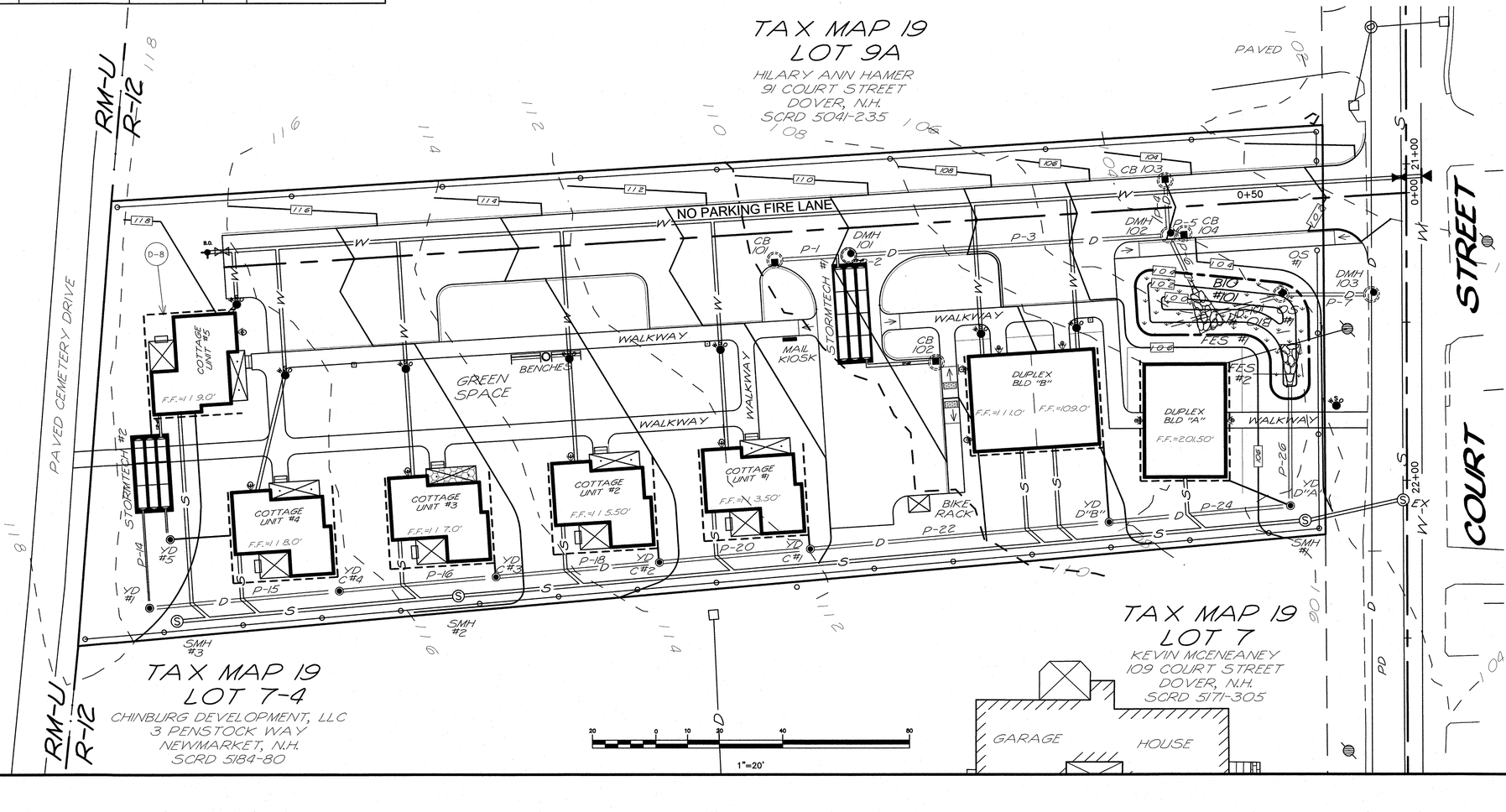
1. INSTALL DMH #103 IN EXISTING DRAIN LINE.
   RIM ELEV = 102.50' (MATCH EXISTING PAVEMENT)
   EXISTING PIPE IN = 90.85' (18" VCP)
   EXISTING PIPE OUT = 90.80' (18" VCP)
   NEW INV IN = 95.90' (12" HDPE)
2. INSTALL HI VIS HI FLOW SILT SACK PER DETAIL 2, SHEET SP-9 AT EXISTING CATCH BASIN #5944 AND ALL PROPOSED CATCH BASINS.
3. INSTALL FLARED END SECTION #1 PER DETAIL 12, SHEET 10.
4. INSTALL FLARED END SECTION #2 PER DETAIL 12, SHEET 10.
5. INSTALL RIP RAP, PER DETAIL 8, SHEET SP-10.
   Wo=3.8', We=8.7', Lo=12.3', D=12", D(50)=6"
6. INSTALL RIP RAP, PER DETAIL 8, SHEET SP-10.
   Wo=3.0', We=6.8', Lo=9.4', D=12", D(50)=6"
7. INSTALL 18" WIDE x 24" DEEP, STONE DRIP EDGE (ALL UNITS).
8. INSTALL 36" WIDE x 24" DEEP, STONE DRIP EDGE (COTTAGE UNIT #5 ONLY).
9. INSTALL EROSION CONTROL MEASURE. "SILT FENCE" PER DETAIL 1, SHEET SP-9 OR "SILT SOXX" PER DETAIL 9, SHEET SP-9 OR "EROSION CONTROL BERM" PER DETAIL 11, SHEET SP-9, MAY BE USED AT THE SITE WORK CONTRACTOR DISCRETION. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.

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TRITECH ENGINEERING CORPORATION

LEGEND

- EXISTING UTILITY POLE
- W — EXISTING WATER LINE
- EXISTING HYDRANT
- EXISTING WATER GATE VALVE
- PROPOSED CATCH BASIN (CB)
- W — PROPOSED 8" CLDI WATER MAIN
- U E — PROPOSED UNDERGROUND ELECTRICAL, TELEPHONE & CATV.
- PROPOSED TRANSFORMER PAD
- D — PROPOSED DRAIN LINE
- PROPOSED WATER GATE VALVE
- PROPOSED THRUST BLOCK
- PROPOSED HYDRANT
- EOW — PROPOSED FINISH CONTOUR
- EOW × — PROPOSED FINISH GRADE
- STOP SIGN & STOP BAR
- PROPOSED STONE DRIP EDGE



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REVISIONS
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GRADING AND DRAINAGE PLAN

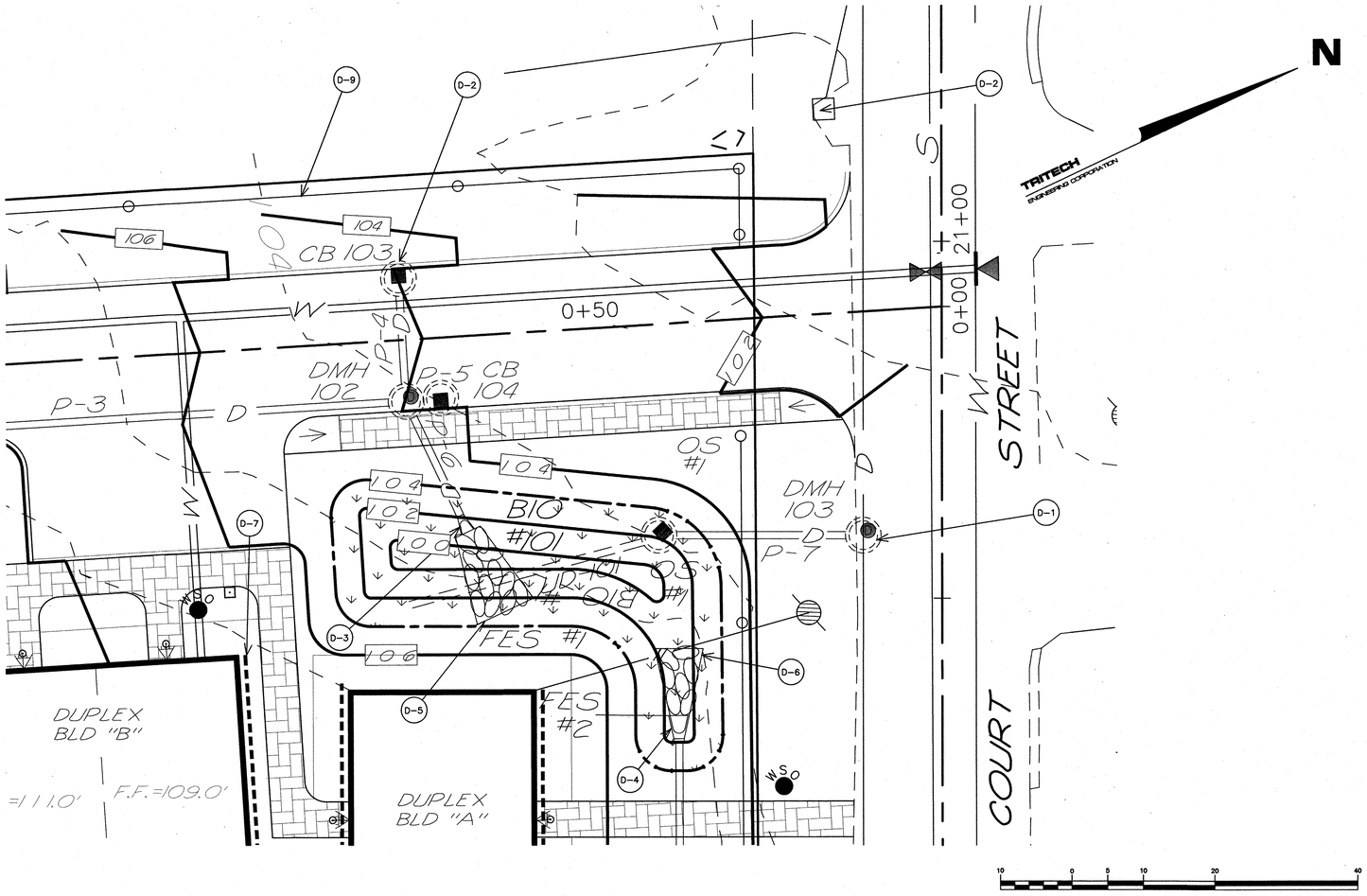
103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024 JOB No. 24101
SCALE: 1" = 20'

ROBERT J. STOWELL No. 9903 - STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER

SHEET No. **SP-4**

(P24-)



1 BIORETENTION BASIN #101
1" = 10'

1. PARTICLE SIZE DISTRIBUTION BY SEPARATES:
   a. EXCLUDE ANY MATERIAL >4.76MM – 0%
   b. VERY COARSE SAND/GRAVEL: GRAVEL (2.0 TO 4.76 mm) 5% MAXIMUM (% BY DRY WEIGHT)
   c. SAND (0.42 TO 2.0 mm) 60% MAX (% BY DRY WEIGHT)
   d. SILT (0.075 TO 0.42 mm) 20% MAXIMUM (% BY DRY WEIGHT)
   e. CLAY (LESS THAN 0.075mm) 5% MAXIMUM (% BY DRY WEIGHT)
   f. BARK MULCH (LESS THAN 5% PASSING #200) 15% MAX (% BY DRY WEIGHT)
   g. LOAM (LESS THAN 5% PASSING #200) 20% TO 40% (% BY DRY WEIGHT)

ACCEPTABLE PARTICLE SIZE DISTRIBUTION OF FINAL BIORETENTION SOIL MIX:

SIEVE	% PASSING
#4	100
#10	95 –
#40	40 – 15
#200	10 – 20
<#200	0 – 5

2. FRAGMENT SIZE DISTRIBUTION:
   a. STICKS AND ROOTS: SHOULD BE MINIMIZED AND PREFERABLY LIMITED TO NOTHING LARGER THAN 4.76mm
   b. DEBRIS AND OTHER FOREIGN MATERIALS: SHOULD BE MINIMIZED
3. PERCENTAGE ORGANIC MATTER: MINIMUM 3% BY VOLUME AND MAXIMUM 8% BY VOLUME
4. SOIL REACTION: pH OF 6 TO 7
5. CEC OF TOTAL SOIL: MINIMUM 10 meq/100mL AT pH OF 7.0
6. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS INDICATED ON DRAWINGS
7. BASIC PROPERTIES: MANUFACTURED SOIL SHALL NOT CONTAIN THE FOLLOWING:
   a. UNACCEPTABLE MATERIALS: CONCRETE SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, BUILDING DEBRIS, ASPHALT, BRICKS, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, ACID, SOLID WASTE, AND OTHER EXTRANEOUS MATERIALS THAT ARE HARMFUL TO PLANT GROWTH.
   b. UNSUITABLE MATERIALS: STONES, ROOTS, PLANTS, SOD, CLAY LUMPS, AND POCKETS OF COARSE SAND THAT EXCEED A COMBINED MAXIMUM OF 5% BY DRY WEIGHT OF THE MANUFACTURED SOIL.
   c. LARGE MATERIALS: STONES, CLODS, ROOTS, CLAY LUMPS, AND POCKETS OF COARSE SAND EXCEEDING 0.187 INCHES (4.76mm) IN ANY DIMENSION

ACCEPTABLE SOIL AMENDMENTS
A. NO COMPOST SHOULD BE USED IN THE PLANTING MIX
B. SPHAGNUM PEAT: PARTIALLY DECOMPOSED SPHAGNUM PEAT MOSS, FINELY DIVIDED OR OF GRANULAR TEXTURE WITH 100% PASSING THROUGH THE 1/2-INCH (13mm) SIEVE, A pH OF 3.4 TO 4.8
C. WOOD DERIVATIVES: SHREDDED WOOD, WOOD CHIPS, GROUND BARK, OR WOOD WASTE; OF UNIFORM TEXTURE AND FREE OF STONES, STICKS, SOIL, OR TOXIC MATERIALS.
D. MEDIA AMENDMENTS SUCH AS ZERO-VALENT IRON AND/OR DRINKING WATER TREATMENT RESIDUALS (ALUM) TO ENHANCE PHOSPHORUS SORPTION AS SPECIFIED BY ENGINEER.

4 BIORETENTION SOIL MIX
NOT TO SCALE

NEW ENGLAND WETLAND PLANTS INC.
NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES

THE MIX MAY BE APPLIED BY HAND, BY MECHANICAL SPREADER, OR BY HYDRO-SEEDER. AFTER SOWING, LIGHTLY RAKE, ROLL, OR CULTIPACK TO INSURE GOOD SEED-TO-SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE FALL AND WINTER DORMANT SEEDING REQUIRES AN INCREASE IN THE APPLICATION RATE. A LIGHT MULCHING OF CLEAN, WEED-FREE STRAW IS RECOMMENDED.

NEW ENGLAND WETLAND PLANTS INC.
NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES MAY BE APPLIED BY HYDRO SEEDING, BY MECHANICAL SPREADER, OR ON SMALL SITES IT CAN BE SPREAD BY HAND. LIGHTLY RAKE, OR ROLL TO ENSURE PROPER SOIL-SEED CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE SPRING THROUGH MID-SUMMER SEEDING WILL BENEFIT FROM A LIGHT MULCHING OF WEED-FREE STRAW TO CONSERVE MOISTURE. IF CONDITIONS ARE DRIER THAN USUAL, WATERING WILL BE REQUIRED. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICULARLY INFERTILE. PREPARATION OF A CLEAN WEED FREE SEED BASE IS NECESSARY FOR OPTIMAL RESULTS.

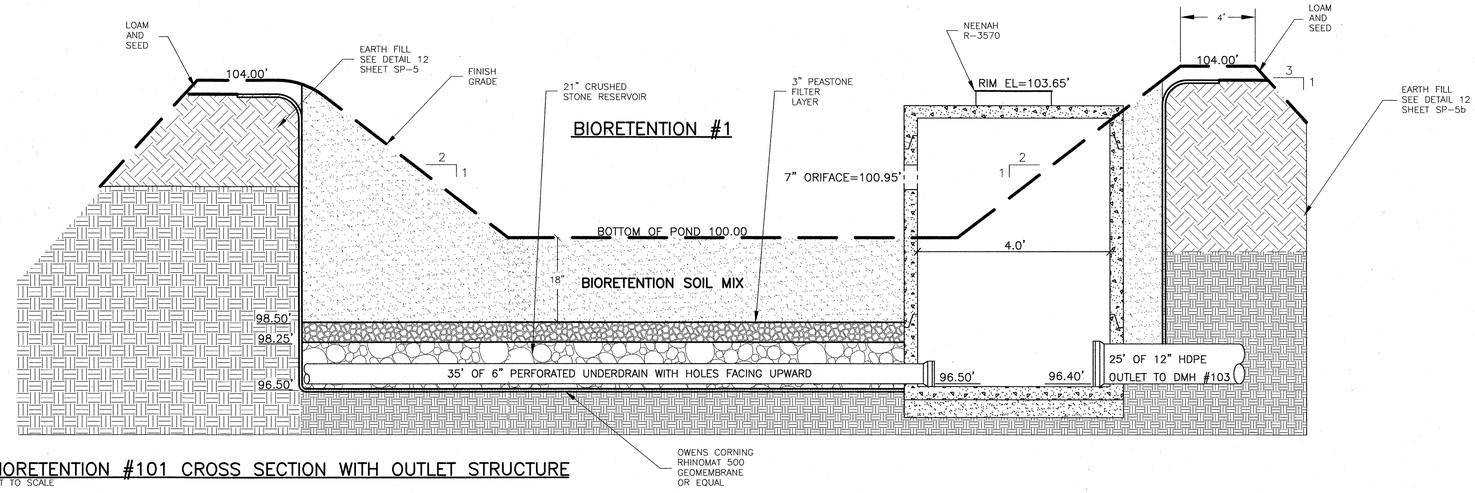
ANYWHERE ON THE SITE THAT EXISTING VEGETATION IS TO BE REMOVED WILL REQUIRE IMMEDIATE EROSION CONTROL TREATMENT. SPECIAL CARE SHOULD BE TAKEN WHERE RUNOFF ENTERS WETLANDS. ALL STORM WATER AREAS SHALL BE STABILIZED PRIOR TO DIRECTING STORM WATER TO THEM; SPECIFICALLY ALL BIORETENTION BASINS AND ALL INFILTRATION AREAS.

SEEDING LEGEND

– 50/50 BLEND OF NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES AND NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES.
BOTH MIXES FROM NEW ENGLAND WETLAND PLANTS INC.
APPLY: 35 LBS/ACRE ; 1250 SQ FT/LB

– LIMITS OF BIORETENTION SOIL MIX

8 BIORETENTION SEEDING
NOT TO SCALE



9 BIORETENTION #101 CROSS SECTION WITH OUTLET STRUCTURE
NOT TO SCALE

FILL MATERIAL SHOULD BE TAKEN FROM AN APPROVED, DESIGNATED BORROW AREA. IT SHOULD BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6 INCHES, AND FROZEN OR OTHER OBJECTIONABLE MATERIALS.

AREAS ON WHICH FILL IS TO BE PLACED SHOULD BE SCARIFIED BEFORE PLACEMENT. FILL MATERIAL SHOULD BE PLACED IN LAYERS A MAXIMUM OF 8 INCHES THICK (BEFORE COMPACTION), WHICH SHOULD BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL.

FILL MATERIAL SHOULD BE COMPACTED WITH APPROPRIATE COMPACTION EQUIPMENT SUCH AS SHEEPSFOOT, RUBBER-TIRED, OR VIBRATORY ROLLER.

A MINIMUM REQUIRED DENSITY IS 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2 % OF THE OPTIMUM. EACH LAYER OF THE FILL SHOULD BE COMPACTED AS NECESSARY TO OBTAIN MINIMUM DENSITY.

12 EARTH FILL
NOT TO SCALE

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
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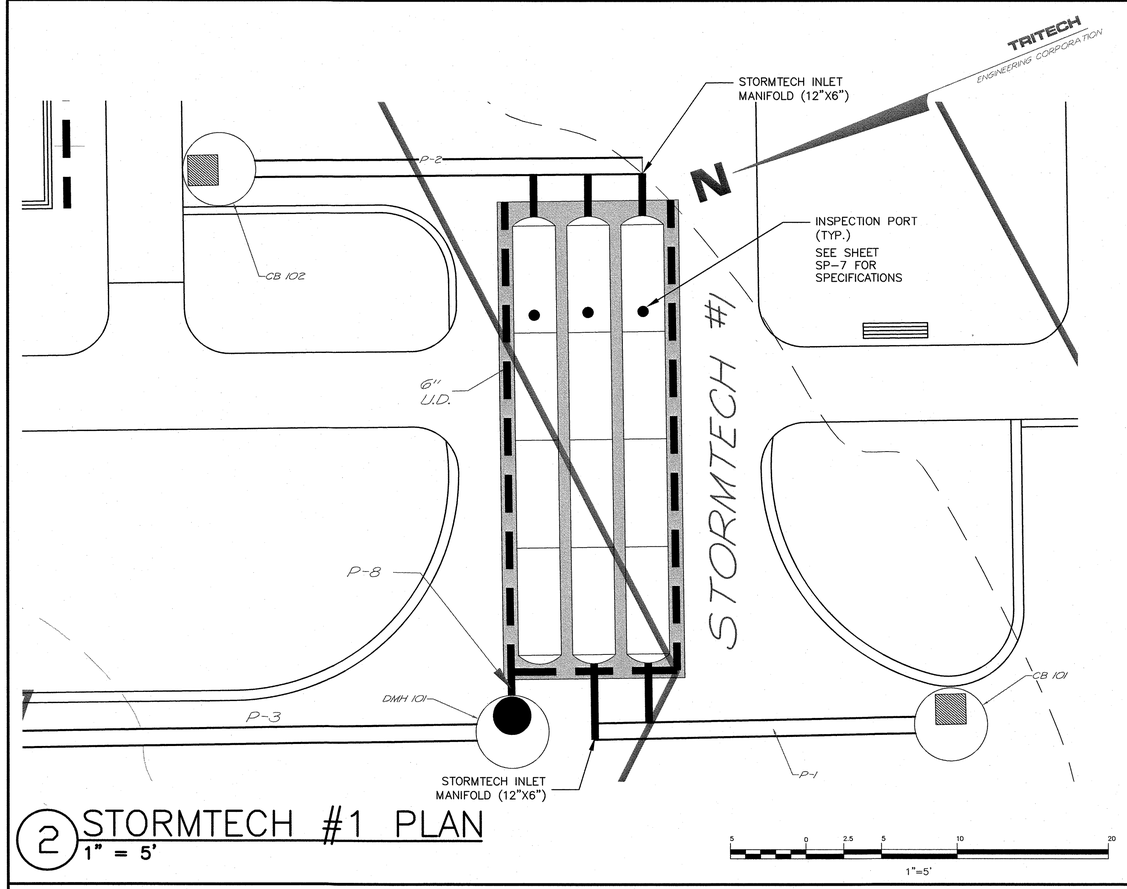
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STATE OF NEW HAMPSHIRE – ROBERT J. STOCKELL No. 9903 – LICENSED PROFESSIONAL ENGINEER

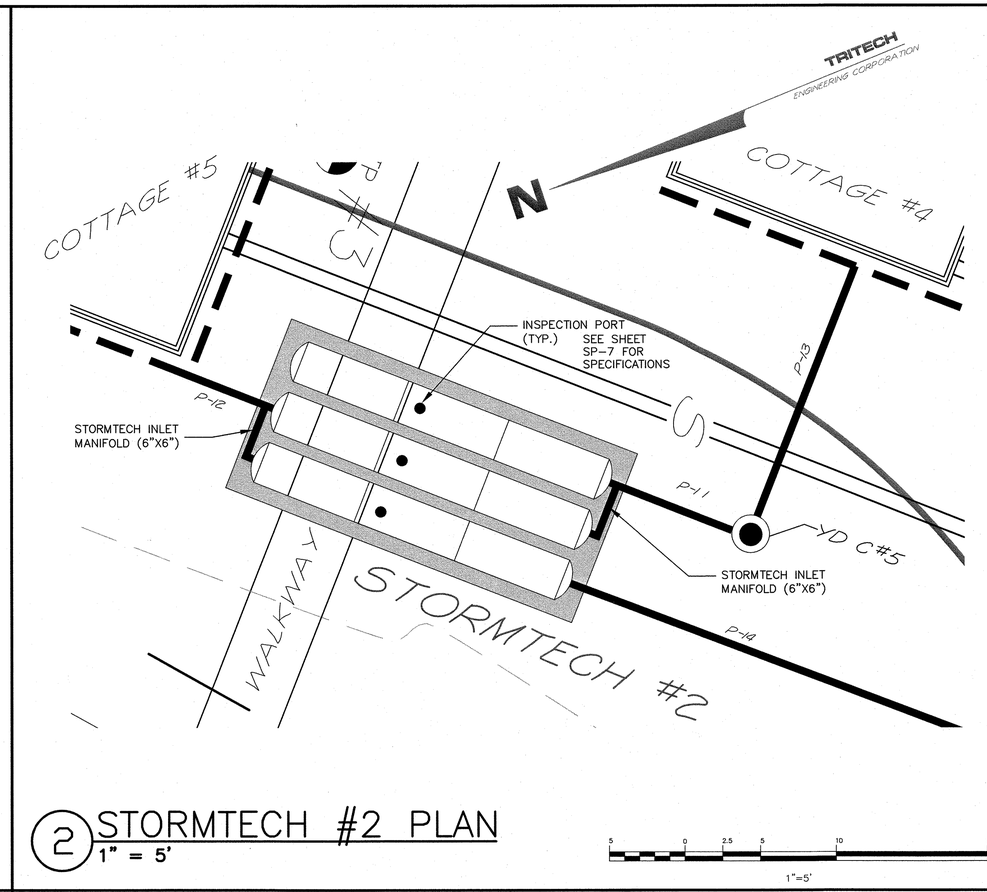
BIORETENSION DETAILS
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101
SCALE: 1" = 10'

SHEET No.
SP-5

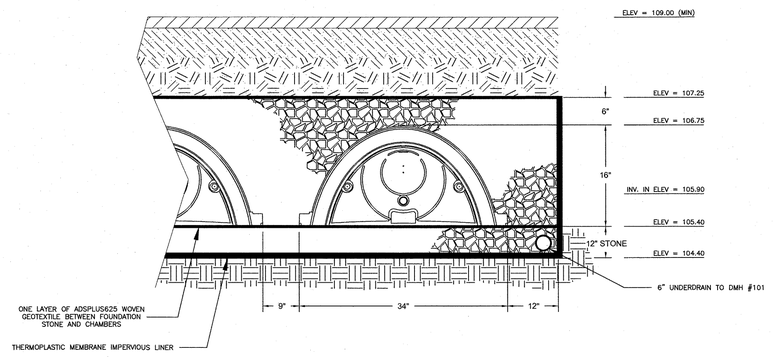
(P24-)



2 STORMTECH #1 PLAN
1" = 5'

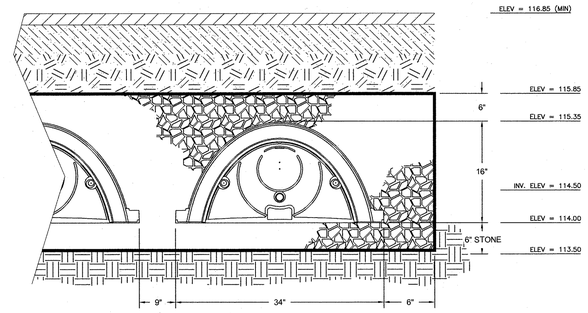


2 STORMTECH #2 PLAN
1" = 5'



SEE SHEET SP-7 FOR STORMTECH STANDARD DETAILS

2 STORMTECH #1 SECTION
NOT TO SCALE



SEE SHEET SP-7 FOR STORMTECH STANDARD DETAILS

2 STORMTECH #2 SECTION
NOT TO SCALE

ISSUED FOR TRC REVIEW
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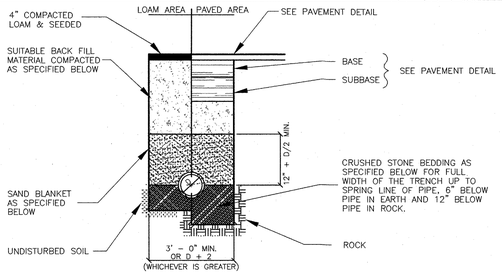
TRITECH
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REVISIONS
DATE: DESCRIPTION:

NEW HAMPSHIRE - STATE OF - ENGINEER
ROBERT J. STOWELL No. 9855 LICENSED PROFESSIONAL

STORMTECH DETAIL SHEET
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

SHEET No.
SP-6



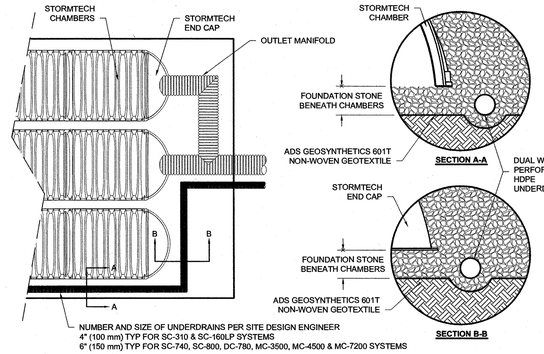
SAND BLANKET	
SIEVE SIZE	%FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

CRUSHED STONE BEDDING	
SIEVE SIZE	%FINER BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
#4	0 – 10
#8	0 – 5

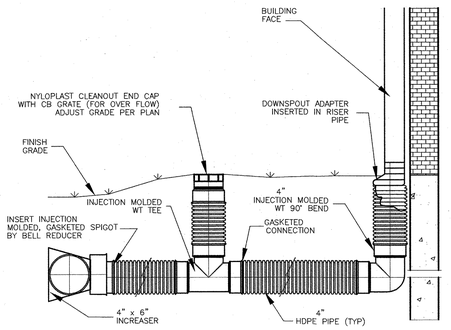
EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

BACK FILL 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 BACK FILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

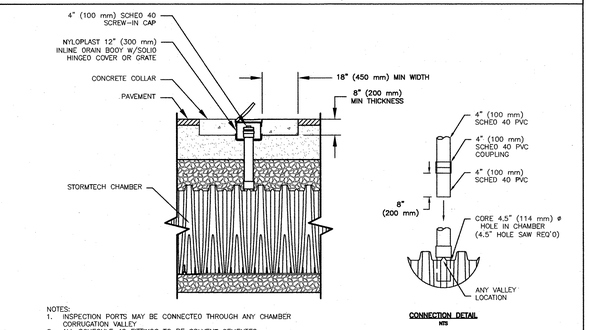
1 STORM DRAINAGE & SEWER PIPE TRENCH
NOT TO SCALE



2 STORMTECH UNDERDRAIN DETAIL
NOT TO SCALE

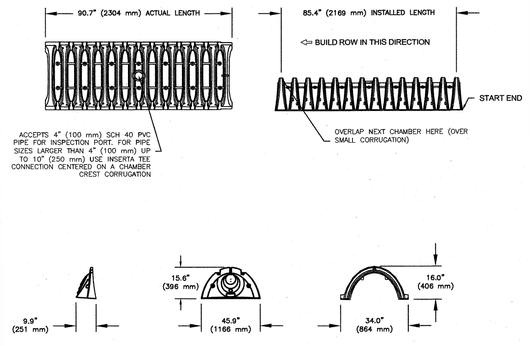


4 ROOF DRAIN W-TEE CLEANOUT
NOT TO SCALE



NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

5 STORMTECH-INSPECTION PORT
NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS
SIZE (W X H X INSTALLED LENGTH) 34.0" X 16.0" X 85.4" (864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE 14.7 CUBIC FEET (0.42 m³)
MINIMUM INSTALLED STORAGE* 31.0 CUBIC FEET (0.88 m³)
WEIGHT 35.0 lbs. (16.8 kg)

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



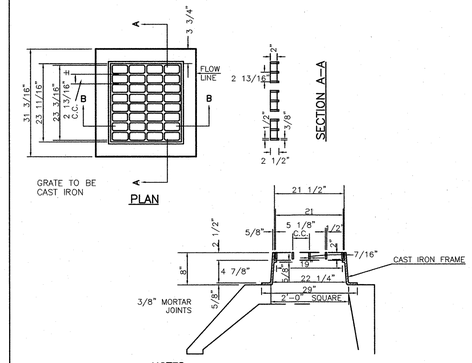
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

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

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

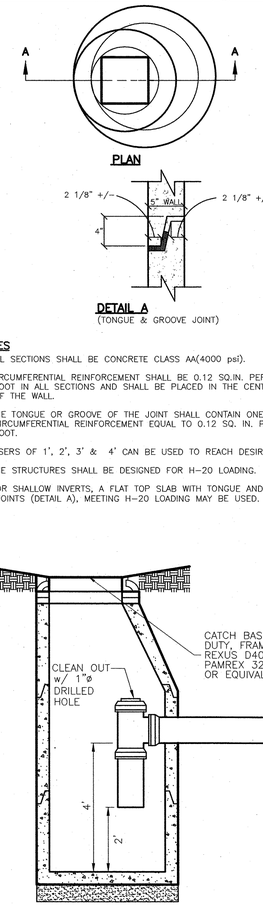
NOTE: ALL DIMENSIONS ARE NOMINAL

6 STORMTECH SC-310
NOT TO SCALE

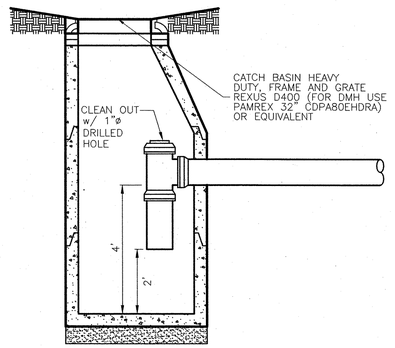


NOTES
1.) USE NEENAH R-3570
2.) FOR SHALLOW INVERTS, USE NEENAH R-3570-A.

3 CATCH BASIN FRAME & GRATE
NOT TO SCALE



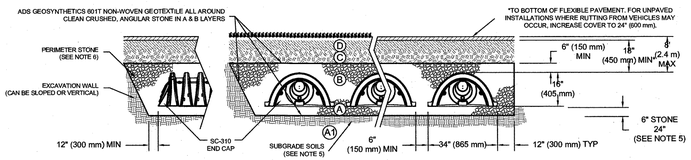
NOTES
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H-20 LOADING.
6. FOR SHALLOW INVERTS, A FLAT TOP SLAB WITH TONGUE AND GROOVE JOINTS (DETAIL A), MEETING H-20 LOADING MAY BE USED.



8 DEEP SUMP HOODED CATCH BASIN
NOT TO SCALE

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' START'S FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2]

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



7 STORMTECH ACCEPTABLE FILL MATERIALS
NOT TO SCALE

FILL SPECIFICATION A1

COMPONENT MATERIAL	PERCENT BY VOLUME	GRADATION OF MATERIAL	
		SIEVE No.	% PASSING BY WEIGHT
ASTM C-33 CONCRETE SAND	50-55%		
LOAMY SAND TOPSOIL	20-30%	200	15-25%
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30%	200	<5%

PROPOSED FILL UNDER INFILTRATION SYSTEM SHALL BE TESTED FOR INFILTRATION RATE PRIOR TO INSTALLATION BY THE LABORATORY METHOD DESCRIBED IN NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES Env-Wq 1504.14 (g). AFTER FILL IS PLACED BUT BEFORE THE PRACTICE IS INSTALLED, FILL SHALL BE TESTED BY FIELD MEASUREMENT METHOD DESCRIBED IN Env-Wq 1504.14 (b). A MINIMUM INFILTRATION RATE OF 4 INCHES PER HOUR MUST BE ACHIEVED IN BOTH TESTS.

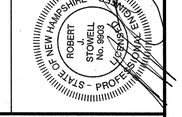
NOTES:

1. SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBODIMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. SUBBASE SOIL SHALL BE AS FOLLOWS: A1 FILL SECTION.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

TRITECH
ENGINEERING CORPORATION
785 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8407
FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

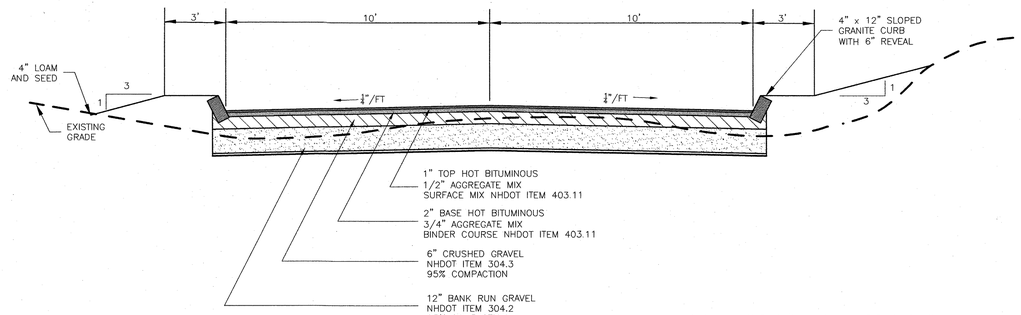
REVISIONS
DATE: DESCRIPTION:



CONSTRUCTION DETAILS
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

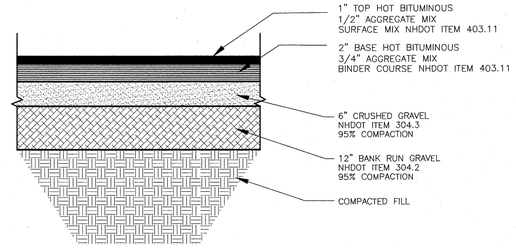
SHEET No.
SP-7

(P24-)



1. TACKIFIER TO BE APPLIED BETWEEN BINDER COURSE AND SURFACE COURSE. (BLACKLIDGE ULTRATACK OR EQUAL)
2. JOINT SEALANT TO BE APPLIED AT LANE JOINTS (SEALANT "C" PAVEMENT JOINT ADHESIVE).

1 TYPICAL DRIVEWAY CROSS SECTION
NOT TO SCALE



GENERAL MATERIALS NOTES – APPLIES TO ALL DETAILS UNLESS NOTED.

1.) MATERIALS & CONSTRUCTION METHODS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.
2.) COMPACTED FILL UNDER PAVEMENT OR CONCRETE AREAS SHALL BE FREE OF ORGANIC MATERIAL & COMPACTED IN 6" LIFTS TO NOT LESS THAN 95% OPTIMUM DENSITY.
3.) BANK RUN GRAVEL SHALL BE:

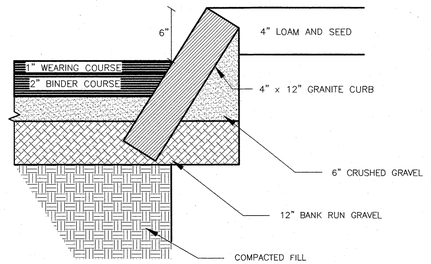
SIEVE	PERCENT PASSING
6"	100%
#4	25 – 70%
#200	≤ 12% OF PASSING #4

4.) CRUSHED GRAVEL SHALL BE:

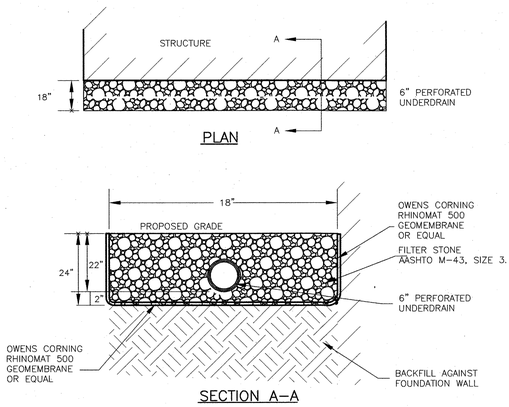
SIEVE	PERCENT PASSING
3"	100%
2"	95 – 100%
1"	55 – 85%
#4	27 –52%
#200	0 – 12%

5.) BASE COURSE OF PAVEMENT SHALL BE 3/4" DIA. TYPE I–1 HOT BITUMINOUS CONCRETE (225 LBS/SQ.YD.)
6.) WEARING COURSE OF PAVEMENT SHALL BE 1/2" DIA. TYPE I–1 HOT BITUMINOUS CONCRETE (115 LBS/SQ.YD.)

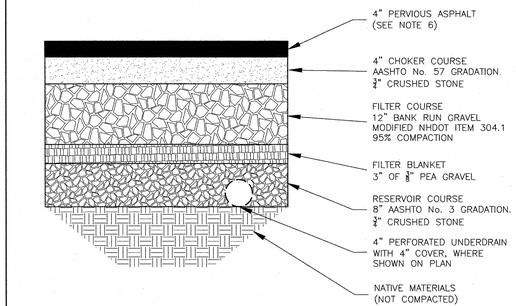
3 TYPICAL PAVEMENT SECTION
NOT TO SCALE



4 SLOPED GRANITE CURB SECTION
NOT TO SCALE



5 BUILDING DRIP EDGE
NOT TO SCALE



GENERAL MATERIALS NOTES – APPLIES TO ALL DETAILS UNLESS NOTED.

1.) MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

2.) UNDERLYING MATERIALS SHALL NOT BE COMPACTED OR SUBJECTED TO EXCESSIVE CONSTRUCTION TRAFFIC PRIOR TO STONE BED PLACEMENT.

3.) CHOKER COURSE SHALL B (AASHTO No. 5

EVEPERCENT	PASSING
1.5"	100%
1"95 – 100%	
.5"25 – 60%	
#40 – 10%	
#80 – 5%	

4.) FILTER COURSE SHALL B (MODIFIED NHDOT 304.

EVEPERCENT	PASSING
6"	100%
#425 – 70%	
#2000 – 6% (PREFERABLY LESS THAN 4" FINES)	

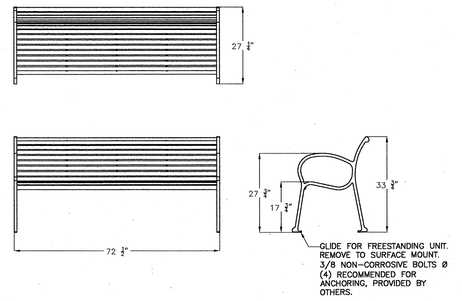
5.) RESERVOIR COURSE SHALL B (AASHTO No.

EVEPERCENT	PASSING
2.5"	100%
2"90 – 100%	
1.5"35 – 70%	
1"0 – 15%	
.5"0 – 5%	

6.) CONTRACTOR SHALL FOLLOW INSTALLATION AND QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES, AND POROUS ASPHALT MIX DESIGN AND PRODUCTION IN "UNHSC DESIG SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AN INFILTRATION BEDS"

6 TYPICAL POROUS WALK SECTION
NOT TO SCALE

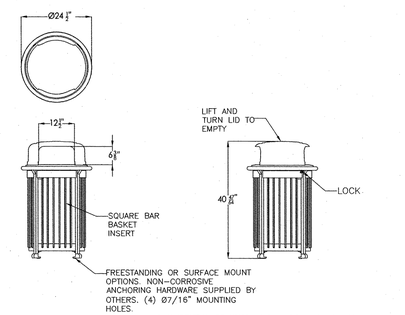
Scarborough Bench, 72" Backed, with Horizontal Strap Seat
Product Drawing — www.landscapeforms.com Ph: 800.521.2546 — Date: 5/19/2010



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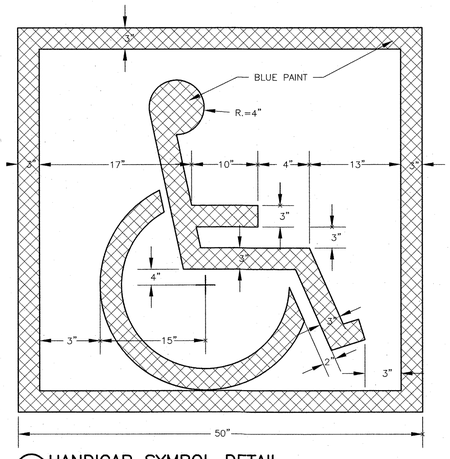
7 PARK BENCH DETAIL
NOT TO SCALE

Scarborough Litter Receptacle, Side Opening, 30 Gallon, Square Bar, with Lock
Product Drawing — www.landscapeforms.com Ph: 800.521.2546 — Date: 5/19/2010

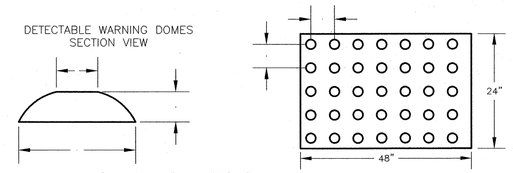


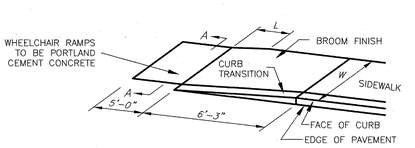
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8 TRASH BIN DETAIL
NOT TO SCALE



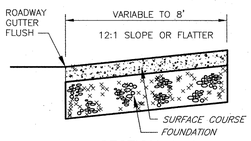
9 HANDICAP SYMBOL DETAIL
NOT TO SCALE





4. INSTALL HANDICAP ACCESSIBLE REINFORCED CONCRETE RAMP (MAXIMUM SLOPE = 1" IN 12") FROM PAVEMENT GRADE TO SIDEWALK GRADE IN COMPLIANCE WITH ALL A.D.A. STANDARDS, PER DETAIL 6, SHEET SP–5.

NOTES:
1. THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
2. RAMP CROSS SECTION TO BE SAME AS ADJACENT SIDEWALK; I.E., DEPTH OF SURFACE AND FOUNDATION.
3. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
4. SIDEWALKS THAT CROSS DRIVEWAYS SHALL BE RAMPED TO MEET THE GRADE OF DRIVEWAY.
5. THESE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE.
6. DETECTABLE WARNINGS TO BE INSTALLED 6" FROM EDGE OF RAMP.
7. DETECTABLE WARNINGS PADS SHALL BE CONSTRUCTED OF CAST IRON OR SIMILAR DURABLE MATERIAL APPROVED BY THE CITY OF SOMERSWORTH.



W	L	S.Y.
5'–0"	2'–9"±	6.3
6'–0"	2'–0"±	7.2
7'–0"	1'–3"±	8.0
8'–0"	0'–0"	8.1

11 WHEEL CHAIR RAMP
NOT TO SCALE

TRITECH
ENGINEERING CORPORATION
795 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3930

REVISIONS
DATE: DESCRIPTION:

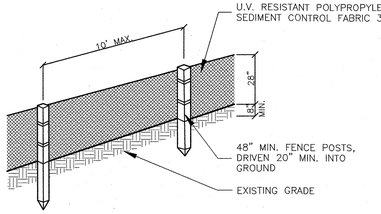
ISSUED FOR TRC REVIEW
August 15, 2024

ROBERT L. STOWELL No. 9803 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

CONSTRUCTION DETAILS
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

SHEET No.
SP-8

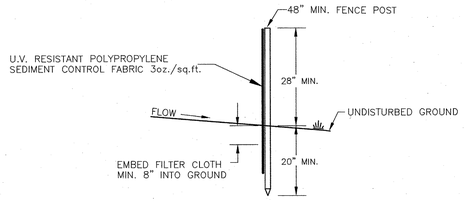
(P24-)



PERSPECTIVE VIEW

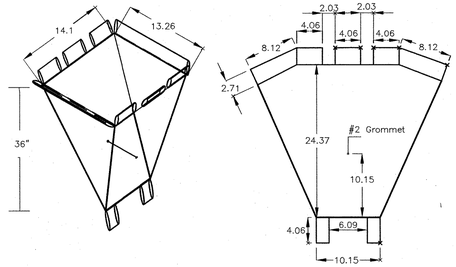
NOTES

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR BEST MANAGEMENT PRACTICE FOR SILT FENCES, OF THE "STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE" PREPARED BY ROCKINGHAM COUNTY CONSERVATION DISTRICT, DATED AUGUST 1992.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
4. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 20 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQ.IN..
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BULGES IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.
6. REMOVE BY HAND AND PROPERLY DISPOSE OF ALL SEDIMENT PRIOR TO REMOVING FENCE.



SECTION

1 SILT FENCE
NOT TO SCALE

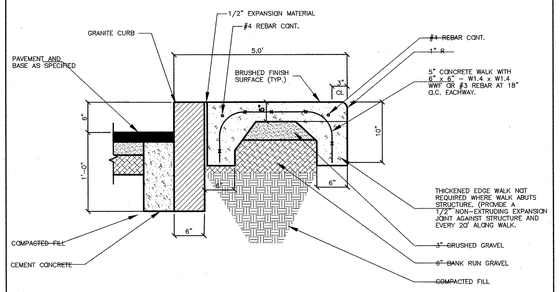


* INSTALL IN CB #101, #102, #103, #104 & EX CB #5944

Specifications:

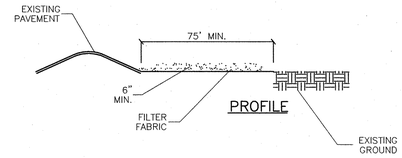
a) Fabric used should not be laminated.
b) Silt sack to have two #2 grommets, one on each of the two sides, 15" from the bottom of the silt sack.
c) Tie 1/4" wide yellow rope 19" long through the grommets on two sides of the silt sack.

2 Hi Vis Hi Flow Silt Sack
NOT TO SCALE

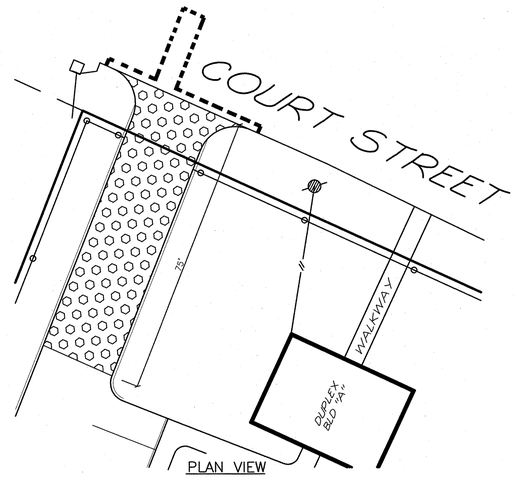


3 CONCRETE WALK W/GRANITE CURB
NOT TO SCALE

1. GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY PLACE FILTER FABRIC (MIRAFI OR EQUAL) AND PLACE 6" OF 1" – 2" STONE TO MATCH SLOPE OF EXISTING ROAD
2. PROVIDE NECESSARY SWALES OR DIVERSIONS TO MINIMIZE DIRECT FLOW OF WATER ONTO STONE AREA.
3. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS NECESSARY TO REMOVE SILT FROM TIRES PRIOR TO ENTERING PUBLIC ROADS. A SMALL SWALE SHALL BE CONSTRUCTED ON THE DOWN GRADIENT SIDE TO TRAP ANY SILT WASHED FROM THE STONE.
4. HAYBALES OR SILT FENCE SHALL BE PLACED ON THE DOWN GRADIENT SIDE AS SHOWN ON THE EROSION CONTROL PLAN.

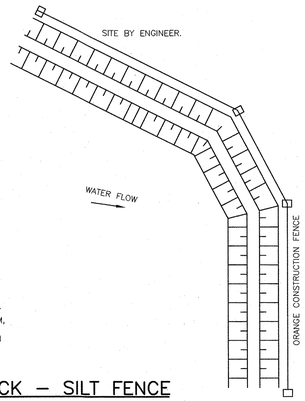


PROFILE



PLAN VIEW

5 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

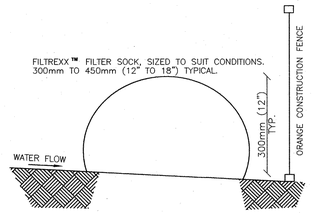


NOTES

1.) ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2.) THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
3.) WHERE IT REQUIRES REPAIR , IT WILL BE ROUTINELY REPAIRED.
4.) THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE ENGINEER.
5.) THE COMPOST FILTER BERM WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

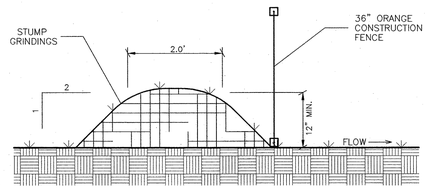
9 FILTREXX SOCK – SILT FENCE
NOT TO SCALE

TYPICAL BERM FOR MINIMAL GRADES SHOWN. FOR STEEPER GRADES, I.E. 2:1 SLOPES INCREASE BERM SIZE AS DETERMINED ON



FILTER COMPOST MATERIAL AS PER SPECIFICATIONS.

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE WILL BE NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSE AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES OF LESS THAN 5%.
4. THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY MASS WEIGHT BASIS, AND BE FIBEROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIALS.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY OR FINE SANDS.
7. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.



11 EROSION CONTROL MULCH BERM
NOT TO SCALE

1. THE PROJECT SHALL BE MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV–A 1000.

CRITICAL AREAS

Anywhere on the site that existing vegetatian is ta be remaved will require immediate erasion contral treatment. Special care shauld be taken where runoff enters wetlands. All starm water practices areas shall be stabilized priar to directing storm water ta them; specifically all biaretntian basins and all infiltration practices.

EROSION AND SEDIMENT CONTROL PRACTICES

Erasian and sediment cantral practices will include the use af rip–rap, and silt fence check dams. All erasian and sediment cantral practices will be constructed and maintained according to the minimum standards and specifications contained in the "New Hampshire Starmwater Manual, Volume 2".

A. Erasion and Sediment Control Measures

1. The erasion cantral procedures shall canfarm ta Sectian 645 af the "Standard Specifications for Raad and Bridge Construction" af the NH DOT, and the "New Hampshire Starmwater Manual."
2. During Canstructian and thereafter, erasian cantral measures are ta be implemented as nated. The smallest practical area af land shauld be exposed at any one time during develapment. The amaunt af exposed areas which are tempararily stabilized withaut permanent stabilizatian shall be limited ta 5 acres.
3. During grading operations, install stane check dams at 50 faat intervals in drainage swales and at drain inlets where shawn. Barriers are ta be maintained and cleaned until disturbed areas are stabilized.
4. Any disturbed areas which are ta be left tempararily, and which will be regraded later during canstructian shall be machine hay mulched and seeded with rye grass ta prevent erasion.
5. Silt fences and ather erasion control measures shall be inspected weekly and after every 0.25" rainfall event during the life af the project. All damaged silt fences shall be repaired. Sediment depasits shall periadically be removed.
6. Avaid the use af future apen spaces (laam and seed areas) wherever passible during the canstructian. Canstructian traffic shall use the roadbeds af future raads and parking areas.
7. Topsail required far the establishment af vegetatian shall be stack piled in amaunts necessary ta complete finished grading af all exposed areas.
8. Areas ta be filled shall be cleared, grubbed, and stripped af tapsail ta remave trees, vegetatian, raats ar ather abjectianable material. Stumps shall be disposed by grinding or fill in an approved facility.
9. All fills shall be placed and campacted to reduce erasion, slippage settlement, subsidence ar ather related prablems.
10. All fill shall be placed and campacted in layers nat to exceed 8 inches in thickness.
11. Frazen material ar saft, mucky ar highly compressible material shall nat be incarparated inta fills.
12. Fill material shall nat be placed an a frazen faundatian subgrade.
13. Disturbed areas shall be seeded immediately fallawing finished grading.
14. Limit af exposed area that is tempararily stabilized withaut permanent stabilizatian is 5 acres or less.
15. All areas nat stabilized by Nav. 1st must be protected by Erasian Cantral Blankets or equivalent and mulched/seeded with winter rye ar aats.
16. All disturbed areas must be seed and mulched within 3 days of final grading, permanently stabilized within 15 days af final grading or tempararily stabilized within 45 days of initial disturbance.
17. All ditches and swales are ta be stabilized priar ta directing runaff ta these features.
18. All cut and fill slapes shall be seeded immediately.
19. An area shall be considered stable if ane af the fallawing has accurred:
    a.) Base caurse gravels are installed in areas ta be paved
    b.) A minimum af 85% vegetated growth has been established
    c.) A minimum af 3" af non–erasive material such as stone or riprap has been installed
    d.) Erasion cantral blankets have been properly installed.

B. Vegetative Practice

All ground areas apened up far canstructian will be regraded, laamed, seeded and mulched in the shartest practical time. All Temparary and Permanent Seeding must be applied priar ta Octaber 1st. Employ temporary erasion and sedimentatian cantral devices as detailed in this plan as necessary until adequate stabilizatian has been assured.

A. Temporary Seeding & Hay Mulching

1. At na time shall any disturbed area remain unstabilized for langer than 30 days. All areas where construction is nat completed within 30 days of the initial disturbance shall receive temparary seeding measures.
2. Fertilizer shall be spread an the tap layer af laam and worked inta the surface. Fertilizer application rate shall be 300 paunds per acre of 10–10–10 fertilizer.
3. Seed shall be Winter Rye, 112 LBS. per acre.
4. Remave stones and trash that will interfere with seeding the area. Where feasible, till the sail ta a depth of abaut 3 inches to prepare a seedbed and mix fertilizer inta the soil. The seedbed should be left in a firm and smooth candition. The last tillage aperatian shauld be performed acrass the slope whenever practical.
5. If seeding between May 15th and August 15th, hay mulch shall be applied immediately after seeding at a rate af 1.5 to 2 tans per acre and shall be held in place using appropriate techniques from the Erasian and Sediment Cantral Handbaak.
6. The surface shall be watered and kept maist with a fine spray as required withaut washing away the sail, until the grass is well established. Any areas which are nat satisfactarily cavered with grass shall be reseeded, and all naxiaus weeds are removed.

B. Permanent Seeding & Hay Mulching

1. All disturbed areas shall be laamed (4") and limed. Lime shall be tharoughly incorparated inta the laam layer at a rate af 2 tons per acre.
2. Fertilizer shall be spread an the tap layer af laam and warked inta then surface. Fertilizer applicatian rate shall be 500 paunds per acre of 10–20–20 fertilizer.
3. Seed shall be 48 lbs. per acre, SCS mixture "c" (20 lbs tall fescue, 20 lbs. creeping red fescue and 8 lbs. birds faat trefail = 48 lbs tatal.) The sail shall be lightly raked immediately befare seeding. One half the seed shall be sawn in ane direction and the other half at right angles ta the original direction. It shall be lightly raked in ta the sail ta a depth nat aver 1/4 inch and ralled with hand raller weighing nat aver 100 paints per linear faat ta width.
4. Hay mulch shall be applied immediately after seeding at a rate af 1.5 ta 2 tans per acre and shall be held in place using appropriate techniques fram the Erasian and Sediment Control Handbaak. The surface shall be watered and kept moist with a fine spray as required, withaut washing away the sail, until the grass is well established. Any areas which are nat satisfactarily cavered with grass shall be reseeded, and all naxiaus weeds remaved.

CONSTRUCTION SEQUENCE

1. Da nat begin canstructian until all local, state and federal permits have been applied far and received.
2. Install silt fences filtrex sack as necessary ta contral erasian and prevent sediment cantamination priar ta any earth maving activities.
3. Cut and remave trees, shrubs, saplings, brush, vines and ather debris and rubbish as specified far canstructian.
4. Care shall be taken ta preserve the infiltratian capacity af the infiltrating sail. See the New Hampshire Starmwater Manual far additianal infarmatian.
5. Canstruct starmwater Filtratian Practice (Bia #1). Da nat direct runaff ta these practices until the practice and contributing areas are fully stabilized.
6. Building canstructian may begin.
7. Canstruct driveways, parking and utilities.
8. Laam and seed disturbed areas in accardance with vegetative practice and general canstructian nates. Cut and fill slapes shall be seeded immediately after their canstructian.
9. All areas receiving runaff, including but not limited ta the starmwater infiltratian shall be stabilized priar ta directing runaff ta them.
10. All sails that are finish graded must be stabilized within 72 hours af disturbance.
11. Maintain disturbed areas as necessary.

MAINTENANCE

During the period of construction and/ar until long term vegetatian is established:
1. Seeded areas will be fertilized and reseeded as necessary ta insure vegetative establishment.
2. The side slapes will be checked after each significant rainfall.
3. The side slapes will be checked weekly and repaired when necessary until adequate vegetatian is established.
4. The silt fence barriers will be checked regularly. Necessary repairs will be made to correct undermining ar deterioratian af the structures.

WINTER CONSTRUCTION NOTES

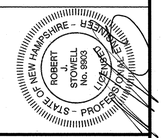
1. All prapased vegetated areas which da nat exhibit a minimum af 85% vegetatian growth by Octaber 15th, ar which are disturbed after Octaber 15th, shall be stabilized by seeding and installing erasian cantral blankets an slapes greater than 3:1, and seeding and placing 3 to 4 tans of mulch per acre, secured with anchared netting, elsewhere. The installatian af erasian cantral blankets ar mulch and netting shall nat accur aver accumulated snaw ar an frazen graund and shall be completed in advance of thaw or spring melts.
2. All ditches ar swales which da nat exhibit a minimum af 85% vegetatian grawth by October 15th, ar which are disturbed after Octaber 15th, shall be stabilized tempararily with stane ar erasian cantral blankets appropriate far the design flaw conditians.
3. After November 15th, incamplete raad ar parking surfaces, where work has stapped far the winter seasan, shall be protected with a minimum af 3 inches af crushed gravel per NHDOT item 304.3.

12 EROSION AND SEDIMENT CONTROL NOTES

TRITECH
ENGINEERING CORPORATION
75 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:



CONSTRUCTION DETAILS

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

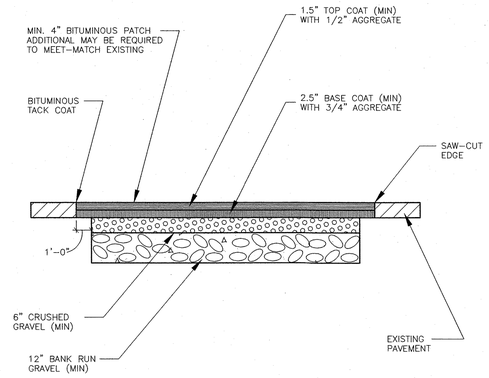
AUGUST 15, 2024

JOB No. 24101

SHEET No.

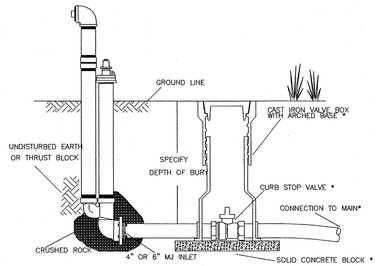
SP-9

(P24-)



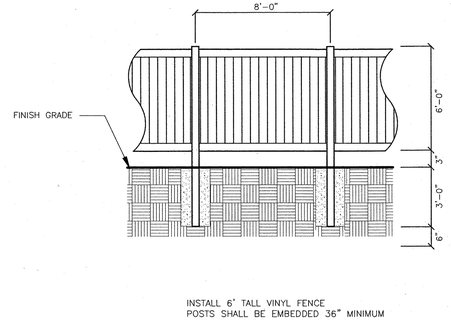
1 ENTRANCE SAW-CUT & TRENCH PATCH DETAIL
NOT TO SCALE

MAINGUARD #7500 4" BLOW-OFF



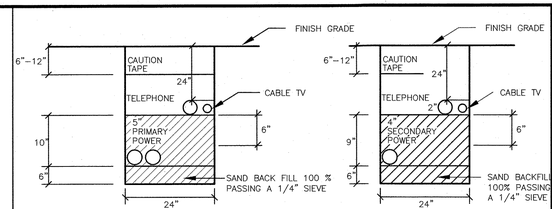
BLOW-OFFS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A * = BY OTHERS
DEPTH OF BURY. BLOW-OFFS WILL BE FURNISHED WITH A 4" OR 6" MJ INLET, A NON-TURNING OPERATING ROD AND SHALL OPEN TO THE LEFT. THE OPERATING DRIVE MECHANISM SHALL BE OF BRONZE-TO-BRONZE DESIGN WITH AN ALUMINUM PLUNGER AND BE SERVICEABLE FROM ABOVE GRADE WITH NO DIGGING. UNITS SHALL OPERATE WITH A STANDARD 2" GATE VALVE WRENCH. WHEN OPEN, VALVE SHALL BE 100% UNOBSTRUCTED AND DRAIN HOLE SHALL BE COVERED. THE OUTLET SHALL BE 4" FIP WITH PLUG AND EXTEND A MINIMUM OF 12" ABOVE THE GROUND, AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO. MODEL #7500, OR APPROVED EQUAL.

2 BLOW-OFF HYDRANT
NOT TO SCALE



INSTALL 6' TALL VINYL FENCE
POSTS SHALL BE EMBEDDED 36" MINIMUM

3 VINYL STOCKADE FENCE DETAIL
NOT TO SCALE



ELECTRICAL TRENCH "A"
NOT TO SCALE

ELECTRICAL TRENCH "B"
NOT TO SCALE

1.) TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.

2.) LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.

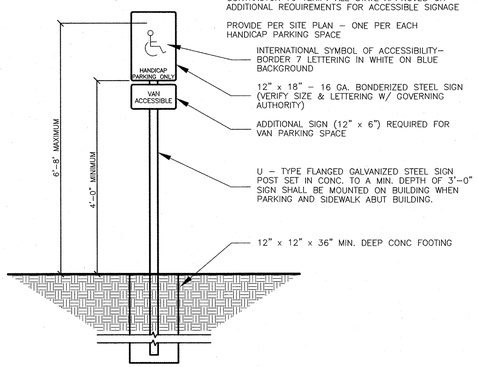
3.) FOR COMPLETE SPECIFICATION SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".

4.) CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

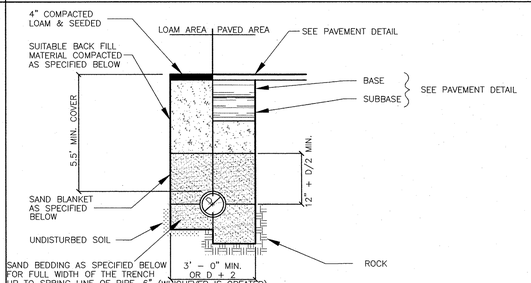
4 ELECTRICAL TRENCH
NOT TO SCALE

NOTE:
CONTRACTOR TO VERIFY ALL STATE APPROVED OR ADDITIONAL REQUIREMENTS FOR ACCESSIBLE SIGNAGE

PROVIDE PER SITE PLAN – ONE PER EACH HANDICAP PARKING SPACE



5 HANDICAP PARKING SIGN
NOT TO SCALE

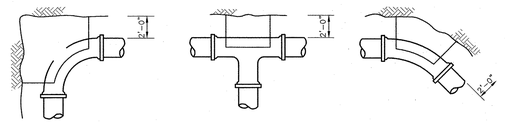


SAND BLANKET & BEDDING

SIEVE SIZE	%FINER BY WEIGHT
1/2	90 – 100
200	0 – 15

BACK FILL 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 BACK FILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

6 WATER LINE TRENCH
NOT TO SCALE

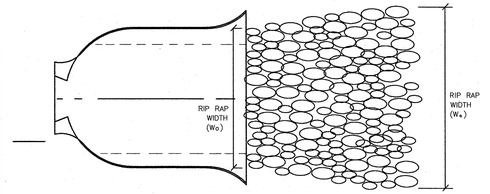


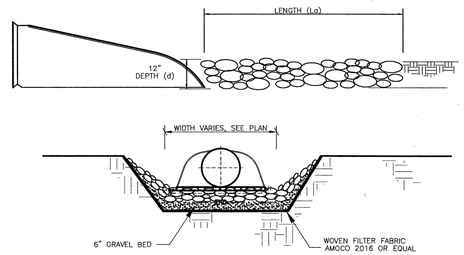
90° BEND TEE 22 1/2° /45° BEND

MINIMUM THRUST BLOCK BEARING AREA REQ'D. AGAINST UNDISTURBED MATERIAL (SQ. FT.)					
PIPE SIZE	90° BEND	TEE	PLUG	45° BEND	22 1/2° & SMALLER
6"	5	4	3	2	2
8"	9	6	5	7	7
12"	11	9	7	7	4

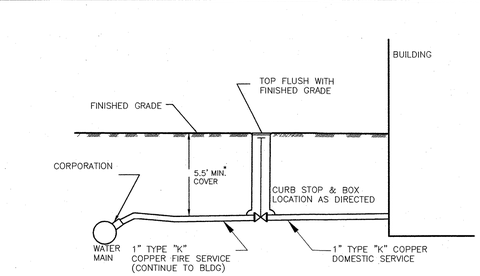
NOTE: SIZE OF THRUST BLOCK MAY BE INCREASED BY THE ENGINEER TO MEET SOIL CONDITIONS FOUND DURING CONSTRUCTION

7 WATER MAIN THRUST BLOCK DETAILS
NOT TO SCALE





8 RIPRAP DETAIL
NOT TO SCALE



* USE 2" x 2' RIGID BOARD INSULATION OVER PIPE WHEN COVER REQUIREMENT CANNOT BE SATISFIED.

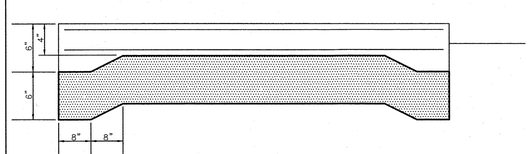
NOTES:

1.) SERVICE TO BE TYPE "K" COPPER OR EQUAL, APPROVED BY LOCAL AND STATE SPECIFICATIONS.

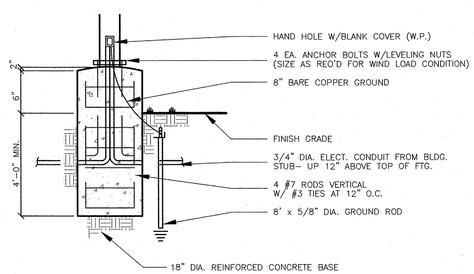
2.) BALL VALVE CURB STOP COMPRESSION (NO DRAIN)

3.) WATER SERVICE SIZE MAY BE MODIFIED AS WARRANTED BY FIRE SUPPRESSION SYSTEM DESIGN.

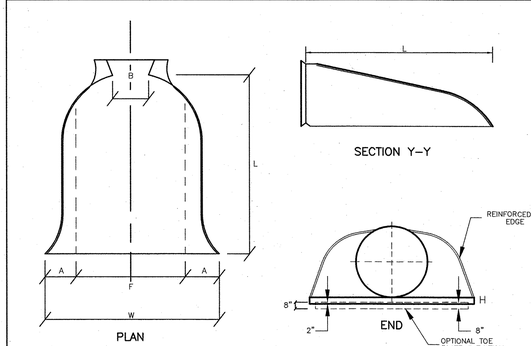
9 BUILDING WATER SERVICE
NOT TO SCALE



10 BICYCLE RACK PAD DETAIL
NOT TO SCALE



11 SITE LIGHTING BASE
NOT TO SCALE



DIA	A	B	H	F	L	W
12"	5"	7"	6"	22"	21"	44"

12 CMP FLARED END SECTION
NOT TO SCALE

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

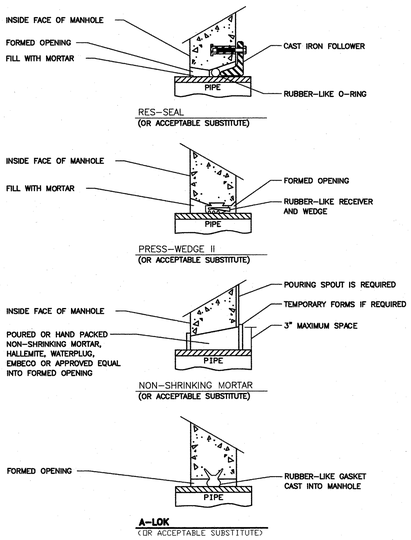
REVISIONS
DATE: DESCRIPTION:

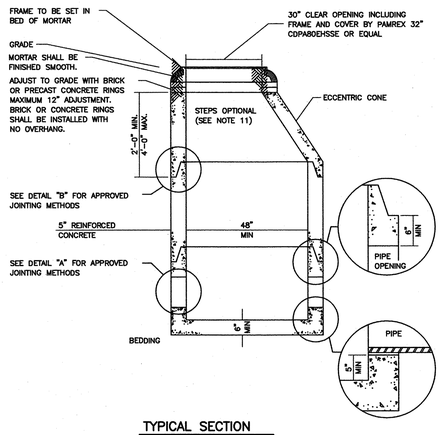
ROBERT STOWELL No. 9895 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

CONSTRUCTION DETAILS
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024 JOB No. 24101

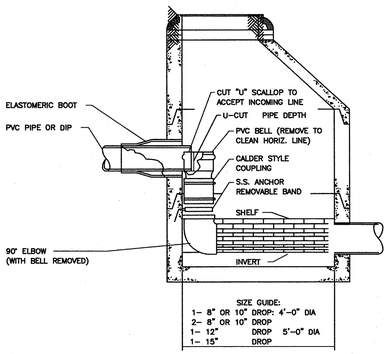
SHEET No. **SP-10**

(P24-)

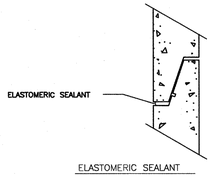




TYPICAL SECTION



DROP INLET
NOT TO SCALE



NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

DETAIL "B" – HORIZONTAL JOINTS

GENERAL NOTES

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS(H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE, A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED CONCRETE.

3) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

4) LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.

5) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED OR PRECAST CONCRETE SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY OR PRECAST CONCRETE.

6) FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS AND "DRAIN" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER

7) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33, SIZE NUMBER 67.
100% PASSING 1 INCH SCREEN 0-10% PASSING #4 SIEVE
90-100% PASSING INCH SCREEN 0-5% PASSING #8 SIEVE
20-55% PASSING INCH SCREEN
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE INCH TO 1 INCH SHALL BE USED.

8) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDE WITHIN THE FOLLOWING DISTANCES: RCP & CI PIPE – ALL SIZES – 48"

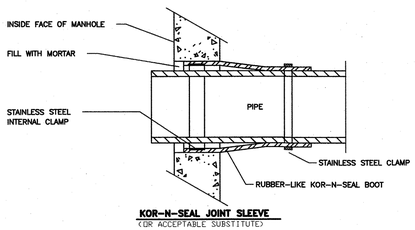
9) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

10) MANHOLE STEPS MAY BE PERMITTED UPON REQUEST BY THE OWNER AS SECONDARY ADDITIONAL SAFETY FEATURE SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY AND WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:

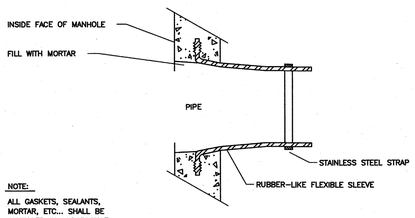
1. THE STEPS SHALL BE MANUFACTURED OF PLASTIC COVERED STEEL. THEY SHALL BE SHAPED SO THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.
2. THE STEPS SHALL BE EMBEDDED IN THE CONCRETE BY THE MANUFACTURER DURING MANUFACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES, WILL NOT BE ACCEPTABLE.
3. THE STEPS SHALL BE OF THE DROP TYPE WITH A DEPRESSED SECTION FOR HANDHOLD. APPROXIMATELY 14"X10" IN DIMENSION.

11) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET. APPROVED ELASTOMERIC SEALANTS ARE: RAM-NEK
KENT SEAL NO.2
EZ

12) PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.

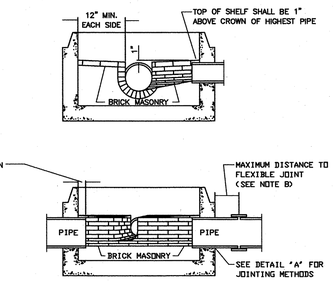


KOR-N-SEAL JOINT SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

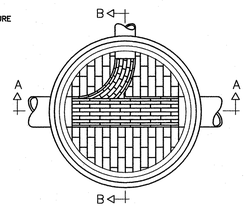


NOTE:
ALL GASKETS, SEALANTS, MORTAR, ETC... SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

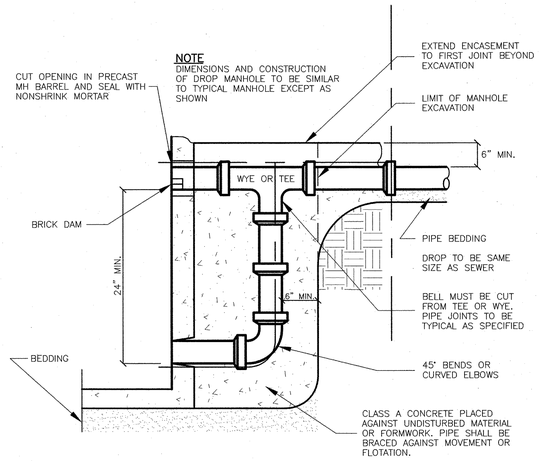
DETAIL "A" – PIPE TO MANHOLE JOINTS



NOTES:
A) INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST
B) CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
C) BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN



INVERT SECTION DETAIL
NOT TO SCALE

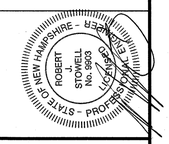


OUTSIDE DROP MANHOLE
NOT TO SCALE

TRITECH
ENGINEERING CORPORATION
735 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
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FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

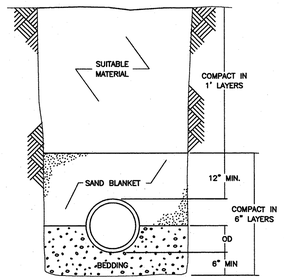
REVISIONS
DATE: DESCRIPTION:



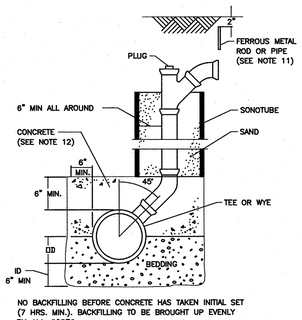
SEWER DETAILS
103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

SHEET No.
SP-11

(P23-)

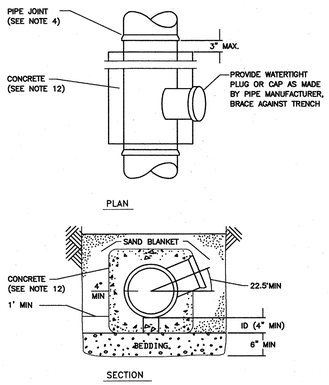


TRENCH CROSS-SECTION
NOT TO SCALE

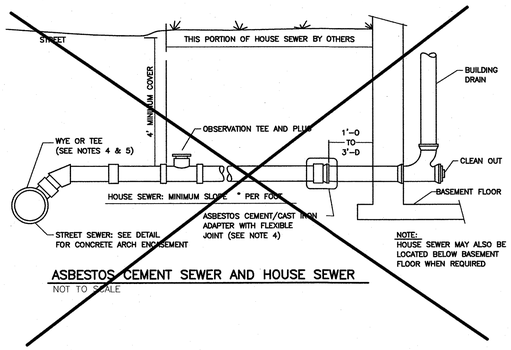


NO BACKFILLING BEFORE CONCRETE HAS TAKEN INITIAL SET (7 HRS. MIN.). BACKFILLING TO BE BROUGHT UP EVENLY ON ALL SIDES.

CHIMNEY (SEE NOTE 13)
NOT TO SCALE

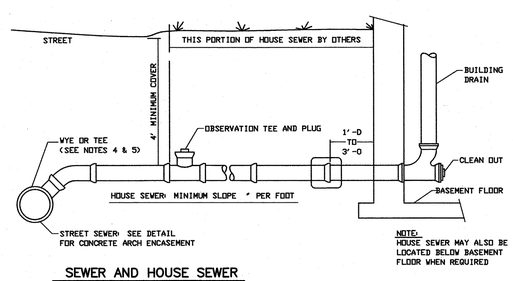


CONCRETE FULL ENCASEMENT
NOT TO SCALE



ASBESTOS CEMENT SEWER AND HOUSE SEWER
NOT TO SCALE

NOT USED



SEWER AND HOUSE SEWER
NOT TO SCALE

GENERAL NOTES

1) MINIMUM SIZE PIPE FOR HOUSE SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:

A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 TO T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
D2680	*ABS (COMPOSITES WALL)	8" THROUGH 15"

*PVC: POLY VINYL CHLORIDE
*ABS: ACRYLONITRILE-BUTADIENE-STYRENE

2. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

ABS TRUSS PIPE AND FITTINGS SHALL CONFORM TO ASTM D-2680, POLYMER COMPOUNDING SHALL BE TO ASTM D-1788 (CLASS 322).

JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICAL WELDED COUPLINGS TYPE SC IN ACCORDANCE WITH ASTM D-2680, FORMING A CHEMICAL WELDED JOINT.

B. DUCTILE-IRON PIPE, FITTINGS AND JOINTS.

1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.

2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING MANUFACTURERS' INSTRUCTIONS USING A BOLTED, CLAMPED OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, STUFFING CLOTH OR OTHER SUCH MATERIAL AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION, AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED AS SHOWN IN THE DETAIL UP TO AND INCLUDING 15" DIAMETER.

6) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)

A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.

B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER, TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

C. DRY FLUORESCENE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWN-STREAM MANHOLE.

LEAKAGE OBSERVED IN ANY ONE OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER TIGHTNESS.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) HOUSE WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33-67.

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

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

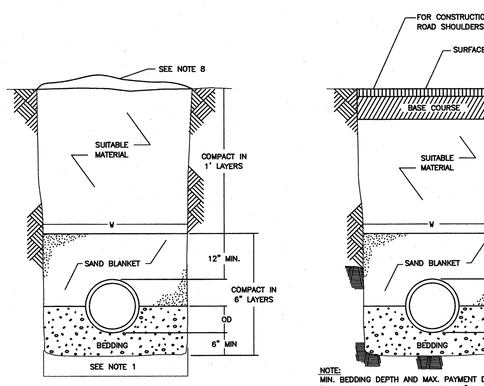
11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.

12) CONCRETE: CONCRETE SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS AS FOLLOWS:

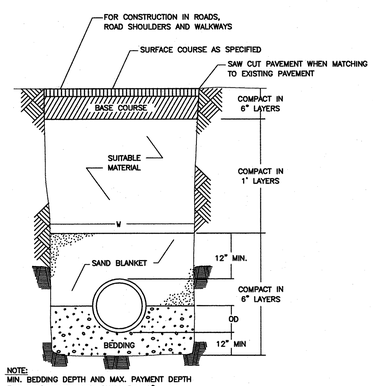
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

13) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

14) MAINTAIN A 10' HORIZONTAL SEPARATION BETWEEN SEWER LINES AND WATER LINES, AND AN 18" VERTICAL SEPARATION AT SEWER AND WATER CROSSINGS, WITH WATER OVER SEWER.

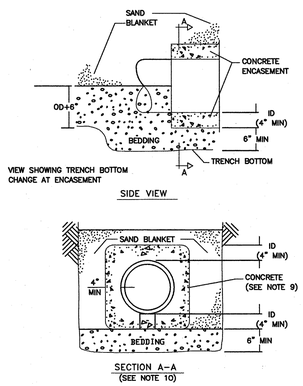


TYPICAL SECTION
NOT TO SCALE



NOTE:
MIN. BEDDING DEPTH AND MAX. PAYMENT DEPTH FOR LEDGE EXCAVATION SHALL BE 12"

LEDGE CONSTRUCTION
NOT TO SCALE



CONCRETE FULL ENCASEMENT
NOT TO SCALE

GENERAL NOTES

1) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE NOTE 7.

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

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

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

3) SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER SO GRADED THAT 90%-100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAT 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

4) SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS 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, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR 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 HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED.

5) BASE COURSE, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

6) WOOD 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 NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE 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.

7) W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES, FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.

8) FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

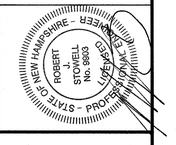
9) CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 LB) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS: CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

10) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

TRITECH
ENGINEERING CORPORATION
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DOVER NEW HAMPSHIRE 03820
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ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

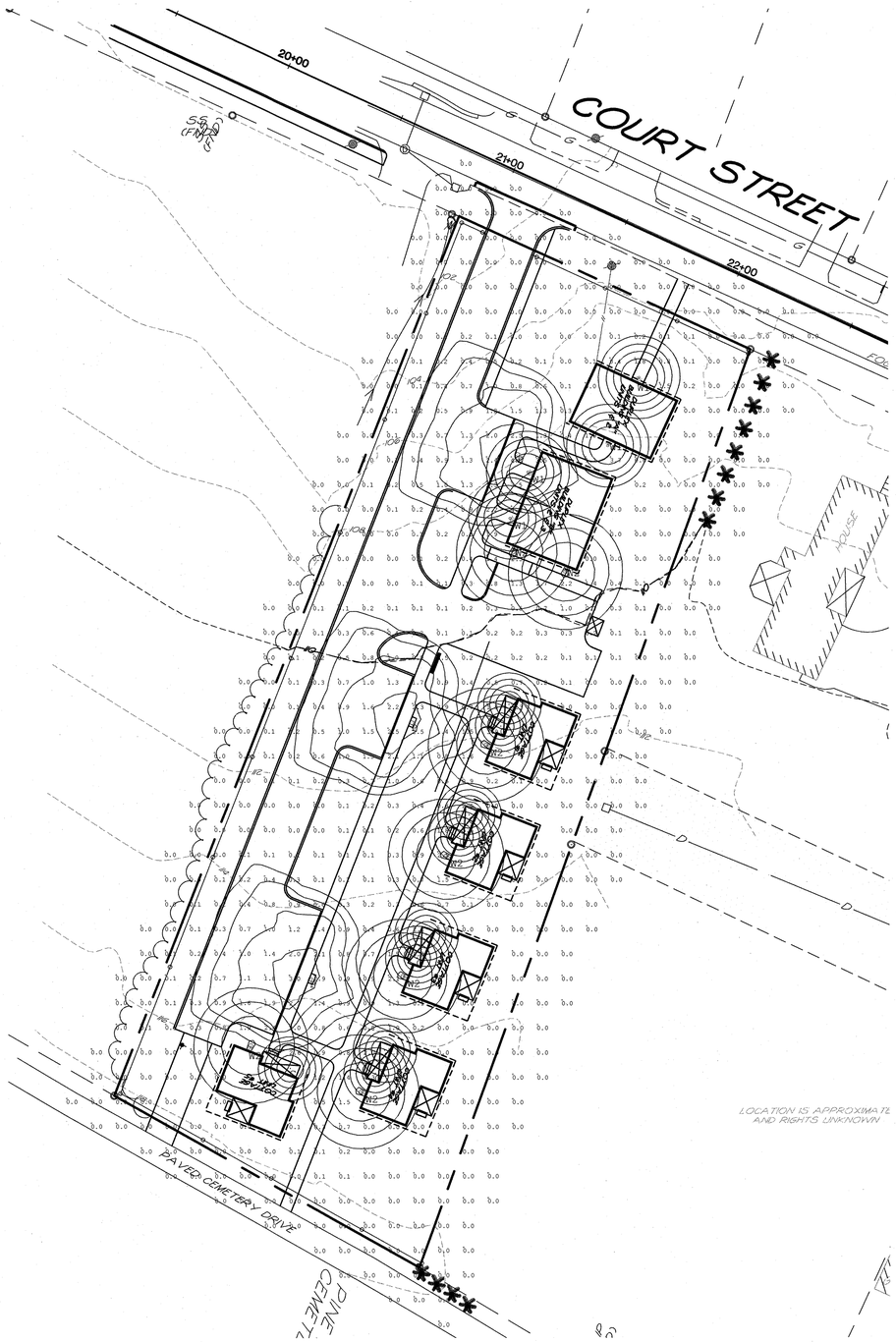


SEWER DETAILS

103 COURT STREET
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024
JOB No. 24101

SHEET No.
SP-12

(P23-)



LIGHTING NOTES

1. EXTERIOR LIGHTING SHALL BE DOWN LIT AND FULLY SHIELDED SO NO DIRECT LIGHT IS VISIBLE FROM ADJACENT PROPERTIES AND ROADWAYS.
2. ALL PARKING AREA LIGHTING SHALL BE EQUIPPED WITH A TIMER AND SHALL SHUT OFF NO LATER THAN 10 PM EACH DAY AND REMAIN OFF UNTIL THE FOLLOWING EVENING. IN THE EVENT THAT THE BUSINESS REMAINS OPEN AFTER 10 PM, THE PARKING LOT LIGHTING SHALL SHUT OFF NO LATER THAN ONE HOUR AFTER CLOSING.
3. PHOTOMETRICS CONTAINED ON THIS PLAN PROVIDED BY EXPOSURE LIGHTING.

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Description	Tag	[MANUFAC]
	10	C	Single	RELA1130RPWL (3000K)	RECESSED PORCH LIGHT	NICOR,Inc.
	3	P	Single	CSL-F-2M-30-T4-TRK / APQ20-12-TBK	12' POLE	Amerlux LLC
	4	W1	Single	RD100-12L-ONV-30-FUG6-CXX-LDS96WL / GB A 3 CXX	WALL MOUNTED 9.5' AFG	LSI INDUSTRIES, INC.
	7	W2	Single	RD200-17L-ONV-30-FUG6-CXX-LDS96WL / GB A 3 CXX	WALL MOUNTED 18' AFG	LSI INDUSTRIES, INC.

ALL DRIVES AND PARKING

Illuminance (Fc)
Average = 0.61
Maximum = 3.0
Minimum = 0.0
Avg/Min Ratio = N.A.
Max/Min Ratio = N.A.

PARKING SPACES 1
SPACES IN FRONT OF DUPLEX BUILDIGN "B"
Illuminance (Fc)
Average = 1.75
Maximum = 2.4
Minimum = 1.2
Avg/Min Ratio = 1.46
Max/Min Ratio = 2.00

PARKING SPACES 2
SPACES ON SIDE OF DUPLEX BUILDING "B"
Illuminance (Fc)
Average = 0.74
Maximum = 1.7
Minimum = 0.2
Avg/Min Ratio = 3.70
Max/Min Ratio = 8.50

PARKING SPACES 3
SPACES IN FRONT OF COTTAGE #1
Illuminance (Fc)
Average = 1.82
Maximum = 2.5
Minimum = 1.3
Avg/Min Ratio = 1.40
Max/Min Ratio = 1.92

PARKING SPACES 4
SPACES IN FRONT OF COTTAGES #3,4 & 5
Illuminance (Fc)
Average = 1.76
Maximum = 3.0
Minimum = 0.9
Avg/Min Ratio = 1.96
Max/Min Ratio = 3.33

30 0 15 30 60 120

1"=30'

N

TRITECH
ENGINEERING CORPORATION

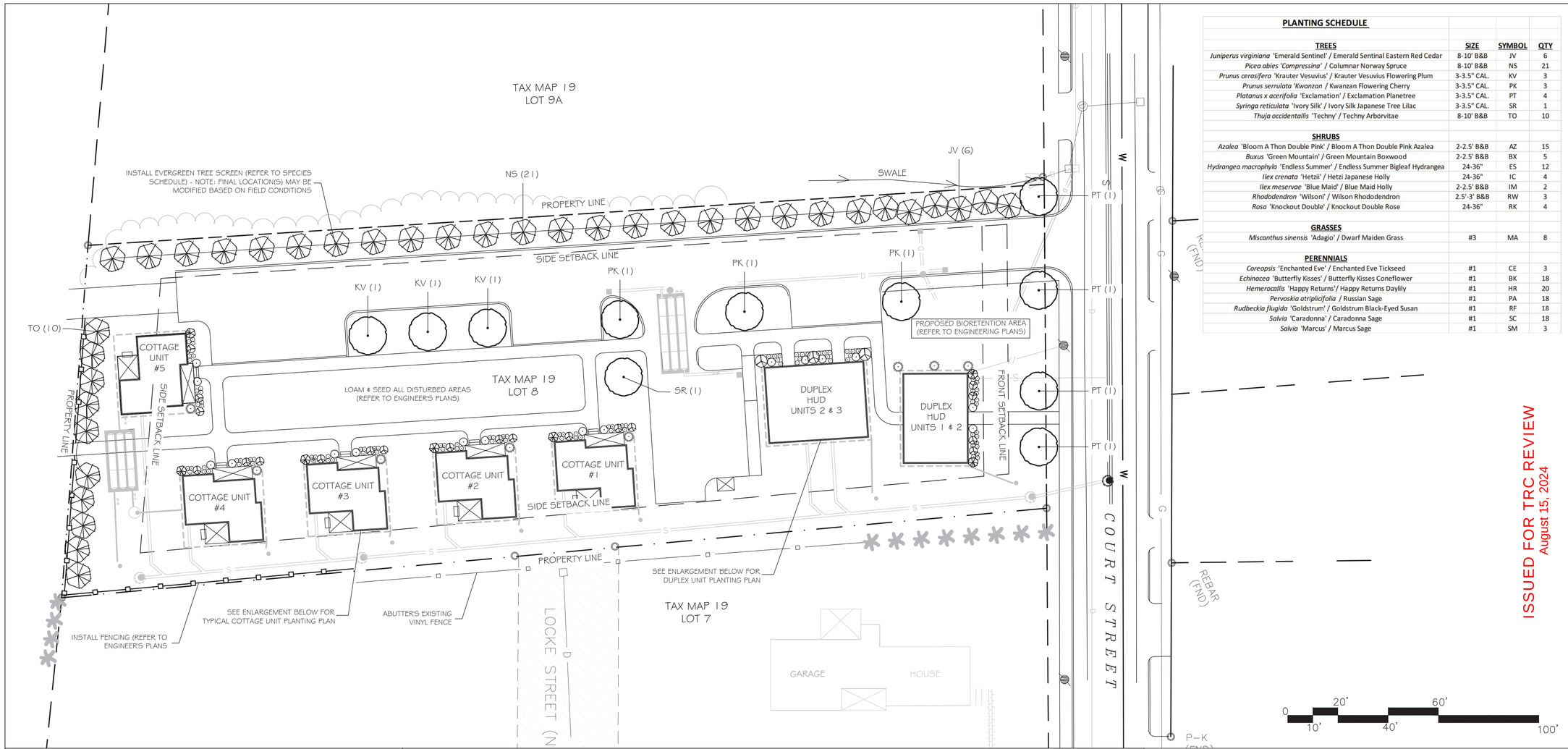
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

ISSUED FOR TRC REVIEW
August 15, 2024

REVISIONS
DATE: DESCRIPTION:

LIGHTING PLAN
103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
AUGUST 15, 2024 JOB No. 24101

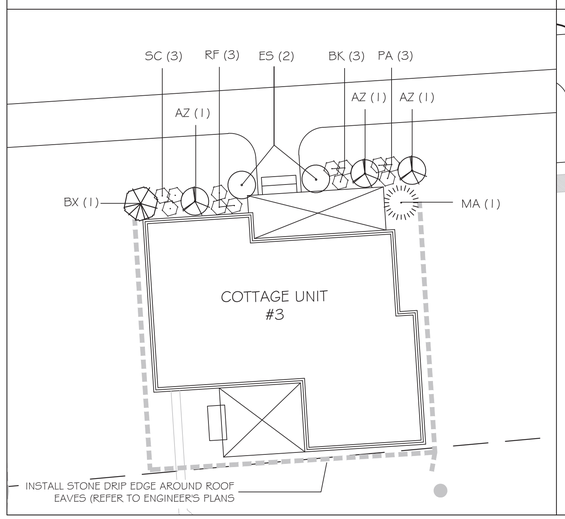
SHEET NO.
LI-1



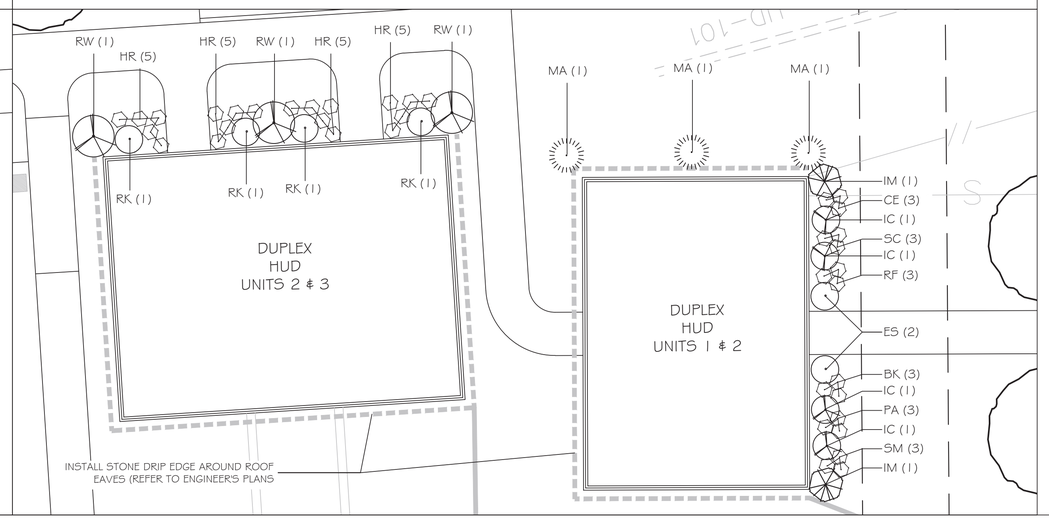
PLANTING SCHEDULE

TREES	SIZE	SYMBOL	QTY
Juniperus virginiana 'Emerald Sentinel' / Emerald Sentinal Eastern Red Cedar	8-10' B&B	JV	6
Picea abies 'Compressina' / Columnar Norway Spruce	8-10' B&B	NS	21
Prunus cerasifera 'Krauter Vesuvius' / Krauter Vesuvius Flowering Plum	3-3.5" CAL.	KV	3
Prunus serrulata 'Kwanzan / Kwanzan Flowering Cherry	3-3.5" CAL.	PK	3
Platanus x acerifolia 'Exclamation' / Exclamation Planetree	3-3.5" CAL.	PT	4
Syringa reticulata 'Ivory Silk' / Ivory Silk Japanese Tree Lilac	3-3.5" CAL.	SR	1
Thuja occidentallis 'Techny' / Techny Arborvitae	8-10' B&B	TO	10
SHRUBS			
Azalea 'Bloom A Thon Double Pink' / Bloom A Thon Double Pink Azalea	2-2.5' B&B	AZ	15
Buxus 'Green Mountain' / Green Mountain Boxwood	2-2.5' B&B	BX	5
Hydrangea macrophyla 'Endless Summer' / Endless Summer Bigleaf Hydrangea	24-36"	ES	12
Ilex crenata 'Hetzii' / Hetzi Japanese Holly	24-36"	IC	4
Ilex meservae 'Blue Maid' / Blue Maid Holly	2-2.5' B&B	IM	2
Rhododendron 'Wilsoni' / Wilson Rhododendron	2.5'-3' B&B	RW	3
Rosa 'Knockout Double' / Knockout Double Rose	24-36"	RK	4
GRASSES			
Miscanthus sinensis 'Adagio' / Dwarf Maiden Grass	#3	MA	8
PERENNIALS			
Coreopsis 'Enchanted Eve' / Enchanted Eve Tickseed	#1	CE	3
Echinacea 'Butterfly Kisses' / Butterfly Kisses Coneflower	#1	BK	18
Hemerocallis 'Happy Returns'/ Happy Returns Daylily	#1	HR	20
Pervoskia atriplicifolia / Russian Sage	#1	PA	18
Rudbeckia flugida 'Goldstrum' / Goldstrum Black-Eyed Susan	#1	RF	18
Salvia 'Caradonna' / Caradonna Sage	#1	SC	18
Salvia 'Marcus' / Marcus Sage	#1	SM	3

TYPICAL COTTAGE UNIT PLANTING PLAN - 1" = 8'



DUPLEX UNIT PLANTING PLAN - 1" = 8'



LANDSCAPE CALCULATIONS:

INTERIOR PARKING LOT LANDSCAPING:
NOT REQUIRED FOR PARKING LOTS WITH 0-20 SPACES

STREETSCAPE LANDSCAPING:
REQUIRED: 1 STREET TREE / 35' LINEAR FEET OF ADJACENT ROADWAY
130 L.F.OF ADJACENT ROADWAY (COURT STREET) / 35 = 3.71 = 4 TREES REQUIRED
PROVIDED: 4 TREES PROPOSED ALONG COURT STREET

PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM LANDSCAPE ARCHITECT PRIOR TO PURCHASING AND/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY LANDSCAPE ARCHITECT. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR TWO (2) YEARS FROM THE DATE OF FINAL INSTALLATION APPROVAL BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE LANDSCAPE ARCHITECT. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY LANDSCAPE ARCHITECT.
6. ALL BEDS TO BE MULCHED WITH 4" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
8. ALL LANDSCAPED AREAS SHALL RECEIVE REGULAR MAINTENANCE AND UPKEEP. SEVERELY INJURED, DISEASED, OR DEAD PLANT MATERIAL SHALL BE REPLACED IN KIND IN PERPETUITY (AVOID REPLACING LANDSCAPE MATERIALS IN THE PERIOD FROM NOVEMBER TO MARCH.)
9. BEST PRACTICES TO MINIMIZE ENVIRONMENTAL IMPACTS SUCH AS THE USE OF LOW PHOSPHOROUS FERTILIZER AND SLOW RELEASE NITROGEN, SHALL BE IMPLEMENTED.
10. IF OWNERSHIP OF A SITE IS CONVEYED TO A NEW PROPERTY OWNER, THE NEW OWNER SHALL BE RESPONSIBLE FOR MAINTAINING ALL LANDSCAPING IN ACCORDANCE WITH THE APPROVED FINAL LANDSCAPING PLAN.

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 491. 2322
terrainplanning.com

103 COURT STREET

Site Location:
103 Court Street
Dover, NH 03820
Tax Map: 19
Lot: 8

Prepared For:
Tritech New England
755 Central Avenue
Dover, NH 03820

LANDSCAPE PLAN

DATE: 08 - 13 - 24

SCALE: AS NOTED

PROJECT #: 24052

Drawn By: ID

Checked By: RM

REVISIONS: DATE:
Issued for Submission 08-15-24

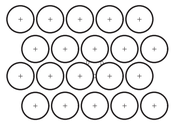
ISSUED FOR TRC REVIEW
August 15, 2024

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TYPICAL BED PLANT SPACING

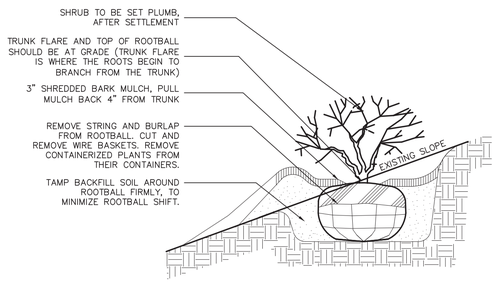
NOTE:
D = DIMENSION OF PLANT SPACING (SHRUB OR GROUNDCOVER AS INDICATED ON PLANS)

12" LOAM BACKFILL (CONTINUOUS THROUGHOUTBED AREA)

3" DEEP SHREDDED BARK MULCH

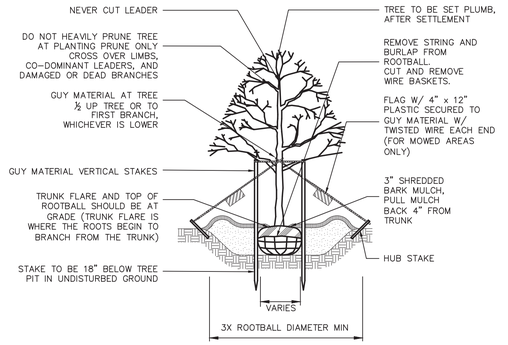


1 TYPICAL PERENNIAL PLANTING
NO SCALE



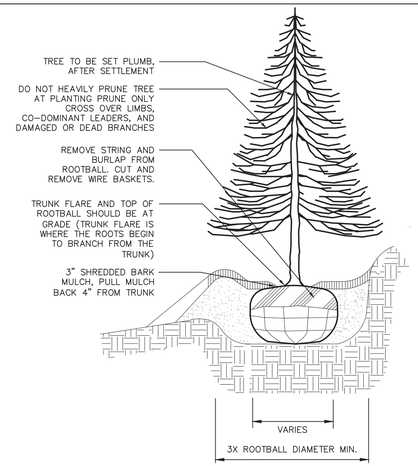
NOTE:
1. DO NOT HEAVILY PRUNE SHRUB AT PLANTING, PRUNE ONLY CROSSOVER LIMBS AND DAMAGED OR DEAD BRANCHES.
2. BACKFILL WITH LOAM, AMEND AS REQUIRED BY LANDSCAPE ARCHITECT.
3. SHRUBS & GROUNDCOVER PLANTED ADJACENT TO CITY SIDEWALKS NEED TO BE PLACED SO THE PLANTS, AT THEIR MATURE HEIGHT & WIDTH, WILL NOT ENCROACH INTO THE CITY'S SIDEWALK.

2 TYPICAL SHRUB PLANTING
NO SCALE



NOTES:
1. GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.
2. TYPICALLY ONLY TREES WITH A 3" OR GREATER CALIPER NEED TO BE STAKED. TREES WITH LESS THAN A 3" CALIPER NEED TO BE STAKED ONLY AS REQUIRED BY LANDSCAPE ARCHITECT.
3. ONLY WRAP TREE TRUNKS AS REQUIRED BY LANDSCAPE ARCHITECT.
4. TREE SHALL BE SET PLUMB, AFTER SETTLEMENT.
5. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
6. CITY TREES PLANTED ON PRIVATE PROPERTY, ADJACENT TO A PUBLIC RIGHT-OF-WAY, NEED TO BE PLANTED A MINIMUM OF 5 FEET FROM THE EDGE OF THE CITY SIDEWALK.

3 DECIDIOUS TREE PLANTING
NO SCALE



NOTES:
1. DO NOT STAKE EVERGREEN TREES.
2. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
3. TAMP BACKFILL SOIL AROUND ROOTBALL FIRMLY TO MINIMIZE ROOTBALL SHIFT.

4 EVERGREEN TREE PLANTING
NO SCALE

ISSUED FOR TRC REVIEW
August 15, 2024

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hopkinton nh 03229
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103 COURT STREET

Site Location:
103 Court Street
Dover, NH 03820
Tax Map: 19
Lot: 8

Prepared For:
Tritech New England
755 Central Avenue
Dover, NH 03820

LANDSCAPE DETAILS

DATE: 08 - 13 - 24

SCALE: AS NOTED

PROJECT #: 24052

Drawn By: ID

Checked By: RM

REVISIONS: DATE:
Issued for Submission 08-15-24

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L - 2



TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

REVISIONS
DATE: DESCRIPTION:

ISSUED FOR TRC REVIEW
August 15, 2024

FIRE TRUCK TURN EXHIBITS

103 COURT STREET

103 COURT STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

AUGUST 15, 2024 JOB No. 24101

SHEET No.

TR-1

PLAN SNAPSHOT REPORT SITE-2024-0006
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	06/20/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	08/24/2024
Status:	Review Expired	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: The project proposes to subdivide the existing lot into two lots that conform to all zoning requirements. The existing single-family home will be converted into a 4 unit, multi-family dwelling on one lot. The second lot proposes a newly constructed 3-story, 4 unit multi-family dwelling. There is 8 parking stalls allocated for each building (2 per unit) that will be connected via a common driveway off of Rutland Street. The existing curb cut along Silver Street is to be closed.

Parcel:	**Address:**	**Zone:**
12148-000000 Main	114 Silver St Dover, NH Main	

Owner	Applicant	Engineer
Thomas Toye IV Home: (603) 413-6175	Jared Grondin 400 Harvey Road, Suite D Manchester, NH 03103 Home: (781) 305-9408 Business: (603) 627-5500 Mobile: (603) 545-1649	Michael Malynowski Home: (603) 627-5500

Plan Custom Fields

Total	0	Total2	0	Total3	2028
Total4	0	Total5	0	Total6	8
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	16	Water Service	Municipal
Recording Number	to be determined	Sewer Service	Municipal	Total Acres (GIS)	0.51
Deed Book	5161	Total SQFT	22215.6	Deed Page	948
Deed Date	1/24/2024	Proposed Property Use	The existing lot is to be subdivided into two conforming lots. The existing home occupying one lot is to be converted to a 4 unit, multi-family building. The second, proposed lot is to be occupied by a newly constructed 3-story, 4 unit, multi-family building.	Area of Parcel to be Developed (SQFT)	17200
Number of Parking Spaces Existing	0	Number of Parking Spaces Proposed	16	Number of Employees Total	0
Number of Employees in Max Shift	0	Distance to City Water	30	Distance to City Sewer	30
Type of Building to be Built	3-story, 4 unit, multi-family building of 1,152+/- sf (36'x32')	Estimated Construction Value	400000.00	Refuse Removal	Public
Is there an existing Conservation Easement?	No	Existing Conservation Easement Details	Not applicable	TotalImpactFeeSDTOD	0.00
TotalImpactFeeTHTOD	0.00	TotalImpactFee23FTOD	0.00	TotalImpactFeeA4TOD	0.00
TotalImpactFeeMHTOD	0.00	TotalImpactFeeADUTOD	0.00	TotalImpactFeeAONRTOD	0.00
TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00	Sub Total Residential	0.00
TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00	TotalImpactFeeITWCTOD	0.00

PLAN SNAPSHOT REPORT (SITE-2024-0006)

TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00	TotalImpactFeeAFAOTOD	0.00
Sub Total Non-Residential	0.00	Total of Impact Fees to be Assessed	0.00		

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Jared_Grondin_6/20/2024.jpg	06/20/2024 13:55	Grondin, Jared		Uploaded via CSS
2024.07.18_PlanningTechnicalReviewCommittee.AgendaRev.pdf	06/28/2024 15:04	Blonigen, Rachel		TRC Agenda
2024.07.18_PlanningTechnicalReviewCommittee.114Silver_SITE-2024-0006.pdf	07/29/2024 16:37	Blonigen, Rachel		Approved TRC Minutes

Note	Created By	Date and Time Created
1. Application appears incomplete for complete review	Jim Maxfield	07/09/2024 8:17
2. Resubmit for second TRC- RLB	Rachel Blonigen	07/19/2024 10:57

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00008370	Planning General Application Fee	$200.00	$200.00
	Total for Invoice INV-00008370	$200.00	$200.00
INV-00008422	Planning Impervious Paved Area Fee	$141.96	$141.96
	Planning Public Notice in Newspaper	$120.00	$120.00
	Planning Residential Fee	$800.00	$800.00
	Planning Certified Mailing to Abutters	$80.00	$80.00
	Total for Invoice INV-00008422	$1,141.96	$1,141.96
	Grand Total for Plan	**$1,341.96**	**$1,341.96**

Meeting Type	Location	Scheduled Date	Subject
Technical Review Committee Meeting v.1	City Hall, Second Floor Conference Room	07/18/2024	Technical Review Committee Meeting

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Approved	06/27/2024	07/25/2024	07/19/2024	No	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	Approved	06/27/2024	07/25/2024	07/19/2024

Comments: From a plan perspective, this project appears to be an appropriate scale and density for the site and comparable to similar developments in the neighborhood. However, missing design documents make it difficult to evaluate overall consistency.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	Approved	06/27/2024	07/25/2024	07/19/2024

Comments: - General Comment:
o Applicant and Contractor shall review the Dover Construction Guidelines prior to scheduling a Preconstruction meeting with City staff. The guidelines can be found on the City of Dover Website on the Engineering page. https://www.dover.nh.gov/Assets/government/city-operations/1form/community-services/engineering/engineering-documents/Construction%20Guidelines.pdf
o Coordinate with Community Services (Engineering Department) for latest City Standard Details.
o Dover Site Notes are from 2022 but have since been updated. Please coordinate with Planning to get the current notes.
o Change references from Town to City of Dover, NH.
o Recommend providing 1 sf of snow storage per 10 sf of pavement to be cleared. Verify snow storage meets or exceeds this recommendation or provide note to remove excess snow when storage areas are filled.
o Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing structures on the property.
o How will trash pickup be handled?
o No comprehensive narrative has been provided. It is strongly recommended Applicant's presentation to the TRC should mimic the presentation to the Planning Board.
o Site lighting plan has not been provided. Please clarify how the parking area will be lit for security purposes.
o Are there plans for electric vehicle charging and accessible charging?
o Clarify why the lot is being subdivided.
- Drainage Analysis:
o There appears to be a conflict between the increase in impervious noted on the Drainage Report and the Application (2028 sf versus 876 sf).
o Storm events that were analyzed should be consistent with 153-14 of the Dover Code which requires 2-, 10-, 25-, and 50-year storm events to be analyzed.
o Clarify why an infiltration rate of 6 inches per hour is appropriate rather than a fraction of that value (1/2).
o Applicant shall review the section 153-14 of the Dover Code and clarify how the design meets the City's requirements.
o Please provide a test pit in the proposed infiltration basin location as the ESHWT various across the proposed project site.
- Sheet 1:
o Provide a benchmark for layout.
o The sewer in Rutland does not connect to the sewer in Silver St.
o The existing building's utilities need to be shown.
o There are existing two gas vaults in Rutland St. where the proposed utilities are shown.
- Sheet C-101:
o Will existing pavement that crosses property line be removed? If so, will there be an easement from the neighbor?
- Sheet C-102:
o There appear to be steps leading to the aisle of the accessible parking making the building non accessible. Please confirm how this works?
o Note that the curbing from the right of way should be salvaged to the City.
- Sheet C-103:
o It is recommended that a precast concrete structure be used for a catch basins in paved surfaces rather than a nyloplast drain. Provide clarification if this structure is rated for vehicle loading.
o Provide deep sump with oil separator hoods in drainage basins.
o Given that drainage from one lot crosses onto another, a drainage easement would appear necessary.
o Add note that Design Engineer shall provide signed letter to City Engineer certifying that the stormwater management system has been installed in accordance with approved plans.
o The driveway should be graded to keep stormwater originating from the site, on site and not directed to the City's ROW.
o The inverts of the roof drain are off by 100.
o The rain garden does not have an emergency overflow. It is recommended to provide one for future heavy events.
o The lengths of pipes is not on the plan but rather a note that says TBD.
o HDPE drainage pipe has less than 3 feet of cover which is the minimum per code.
o Confirm 2% cross slope in all directions for ADA parking space.
o The proposed drainage is shown tying into Rutland but no drainage network exists in this area.
- Sheet C-104
o Cleanouts outside of the building are not permitted.
o Show location of existing utilities in Rutland including water and drainage.
o All valves and hydrants shall open left (counterclockwise)
o Sanitary Sewer shall be PVC pipe SDR35
o Clarify if either building needs to have fire suppression. IS to confirm.
o Coordinate with CS on the configuration of valves for domestic and fire lines.
- Details:
o Utility trench details do not meet city standards.
o Consolidate the utility trenches within City ROW and provide overlay of entire area of disturbance from curb to curb.
o Storm Drain Utility Trench Section – crushed stone shall extend 12" above top of pipe.
o Sewer Utility Trench Section – crushed stone shall extend 12" above top of pipe.
o Water Utility Trench Section – sand shall extend 12" above top of pipe.
o Water Service Connection: curb box shall be Erie-style
o Change "handicap" references to "accessible" where applicable throughout documents.
o Recommend individual water shut offs be located outside of paved surfaces and in grass. All shut offs in City ROWs must be in grass at the edge of the ROW. If shut offs on the private road remain in the paved surface, a road box should be provided.

- L101:
  - o Clarify how the design will mitigate the light from vehicles from crossing the property lines.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Bassegio, Erin	Approved	06/27/2024	07/25/2024	07/19/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning	Crouser, Paul	Approved	06/27/2024	07/25/2024	07/19/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Planning / Inspection Services	Maxfield, Jim	Approved	06/27/2024	07/25/2024	07/19/2024

Comments: 1) Provide location of FDC for each structure
2) Address will have to be assigned for new structure.
3) Provide Architectural plan with elevations.
4)Provide street scape plan
5) Indicate if garden or townhouse style
6)Plans shall indicate accessible route to existing structure
7) Provide a utility plan for each structure, (i.e. indicate if the electrical utility will be underground when electrical service is upgrade for existing structure)
8) Utility plan to show separate water shut off/gates for suppression line to each structure.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Bureau	Police	Speidel, Marn	Approved	06/27/2024	07/25/2024	07/19/2024

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		06/27/2024 10:59	07/19/2024 11:02
Confirm application complete v.1	Generic Action		06/27/2024 11:00
Confirm application complete v.1	Generic Action		07/19/2024 11:05
Technical Review Committee Meeting Agenda v.1	Task		
Technical Review Committee Meeting Agenda v.1	Task	06/27/2024 10:59	06/27/2024 11:00
Land Use Plan Technical Review v.1	Receive Submittal	06/27/2024 0:00	07/19/2024 11:02
Land Use Plan Technical Review v.1	Receive Submittal		
Technical Review Committee Meeting v.1	Hold Meeting		
Technical Review Committee Meeting v.1	Hold Meeting	06/27/2024 11:00	07/19/2024 10:57
Planning Board v.1			
Planning Board Agenda v.1	Task		
Invoice for Notices v.1	Task		
Send Notices v.1	Task		
Planner Creates Staff Recommendations v.1	Plan Activity		
Distribute Planning Board Materials v.1	Task		
Planning Board Hearing v.1	Hold Hearing		
Planning Board Decision v.1	Plan Activity		
NOD Sent to Applicant v.1	Create Report		
Final Plan v.1			
Land Use Plan Stamped and Signed v.1	Generic Action		
Recording v.1	Task		
Document Archival v.1	Generic Action		
Internal Notification of Plan Completion v.1	Generic Action		
Building Official Notifies Address v.1	Generic Action		
Pre-Con Meeting v.1	Hold Meeting		

PLAN SNAPSHOT REPORT (SITE-2024-0006)

Create/Link to Records v.1	
Create / Link to Permit - Building Major v.1	Create Sub Permit
Create / Link to Permit - Site Work, Construction v.1	Create Sub Permit

CHRISTOPHER G. PARKER, AICP
Assistant City Manager
Planning & Strategic Initiatives
c.parker@dover.nh.gov

288 Central Avenue
Dover, New Hampshire 03820-4169
(603) 516-6008
Fax: (603) 516-6049
www.dover.nh.gov

City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

INSTRUCTIONS TO APPLICANTS TO THE DOVER PLANNING BOARD

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE FILLING OUT ATTACHED APPLICATION.
INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED FOR REVIEW.

Dear Applicant:

This will serve to briefly inform you regarding the process to have the Dover Planning Board (the Board) review a land use application. Please refer to the NH Statutes on Land Use and Regulation the Dover Code, and our Developer's Handbook for more specific information.

The Board primarily reviews 5 types of applications:

1. **Site Plans** - A site plan is a professionally rendered drawing which delineates the proposed development of a site. This plan is required for non-residential development, creation of multi-family residential structures, and for extensions of parking lots and alteration of an acre or more of land. These plans require meeting with the Technical Review Committee before Planning Board review.

2. **Subdivisions** - A subdivision is the division of the lot, tract, or parcel of land into two (2) or more lots, plats, sites or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. Major subdivision plans (4+) require meeting with the Technical Review Committee before Planning Board review.

3. **Lot Line Adjustments** - A lot line adjustment alters the size of two (2) or more lots, but does not create a new buildable lot.

4. **Conditional Use Permits** - A conditional use permit is required for any alteration of wetlands, wetland buffers or work within the City's conservation district. Additionally, a conditional use permit could be issued as to offer relief in the Central Business District, for plans in the Residential Mixed Use Overlay District, or parking relief. Environmental Conditional Use Permits are acted on after Conservation Commission review.

5. **Excavation Permits** – NH RSA Chapter 155-E grants municipalities the authority to regulate earth excavations within their borders. This authority rests with the Planning Board.

The Board cannot and will not review applications that do not meet zoning requirements. **Please review the need to apply to the Zoning Board of Adjustment prior to applying to the Board.**

Professional agents will prepare your application; however, you may represent yourself or authorize, in writing, someone else to represent you before the Planning Board.

In most cases, the first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, and a PDF, need to be provided, along with payment of plan review fees. These meetings occur on Thursday, and materials and payment must be submitted three (3) weeks prior to meeting. Meetings are scheduled, upon receipt of completed applications with the full checklist and payment.

The next step would be to provide, two weeks prior to Planning Board, the final plan sets (three (3) full size and twelve (12) half size (11x 17), folded, copies of the plan), and 15 copies, and a PDF, of all supporting materials, including response to TRC comments. Please print all materials on both sides of paper.

For projects not appearing before the Technical Review Committee, Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and 15 copies, plus a PDF, of plans and materials, 3 weeks prior to the Planning Board meeting. Please print all materials on both sides of paper.

Staff will generate an abutter list, and Abutter/Notice Fees will be invoiced. They are due 28 hours prior to Planning Board. If they are not paid, the application will not be heard.

Once an item is placed upon an agenda the following process is used:

- The Board will hold a public hearing on your application at a regularly scheduled meeting
    - Typically the second or fourth Tuesday of the Month.
- Public notice of the hearing will be posted at the City Clerk's office and the Planning Department office and printed in the newspaper.
- Certified letters will be mailed to you and to all abutters at least ten days before the date of the hearing.
- 28 hours prior to the meeting, abutter/notice fees must be paid
- At the meeting
    - Staff will introduce your project
    - You and all other parties will be invited to appear in person or by agent or counsel to present your application.
        - Your project will be pre-loaded onto a laptop for review by the Board and public
    - The Board may ask clarifying questions
    - The Board will vote to accept jurisdiction on the application
    - If accepted:
        - The Board will hold a public hearing
        - The Board may ask additional questions
        - The Board will deliberate on your application
            - Typically decisions are made the night of the presentation, but an application may be tabled
        - After deliberation, a decision will be made.
            - You will be sent a notice of the decision.

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: 114 Silver Street Group, LLC Telephone # (603) 412-6175

Address of Applicant: 10 Durham Road, Dover, NH 03820

E-Mail Address: tom@arthurthomasproperties.com

Name of Property Owner (*if different from applicant*): _____ Telephone #_____

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 114 Silver Street, Dover, NH 03820

Assessor's Map # 12 Lot(s) # 148

Zoning District(s) Heritage Residential Overlay District(s) N/A

Size of Parcel: 22,340 sq. ft. 0.51 ac. Property Deed: Book 5161 Page: 948

Existing Use of Property: Single-Family - Residential

SITE PLAN INFORMATION

Describe Proposed Use: Multi-Family - Residential

Area of Parcel to be Developed: 17,200+/- sf sq. ft.

If Multi-family Residential: Number of Units 8 & Buildings Proposed 1 + existing structure

If lodging: Number of Units N/A & number of Buildings N/A

Number of Parking Spaces: Existing N/A Proposed 16

Highway Access (check where applicable): ✓ City Street ____ State Highway

Number of Employees Total: N/A In Maximum Shift: _____

Disposition of Parcel:

Building Footprint 1,152 sq. ft.

Total Building Area 3,456 sq. ft.

Paved Area 876 (additional) sq. ft.

Building Setbacks:

Front Yard Lot 1=14.8, Lot 2=31.2 ft.

Rear Yard Lot 1=73.3, Lot 2=77.0 ft.

Side Yard: Right____ ft. Left_____ ft.
Lot 1=15.1 Lot 1=18.4
Lot 2=24.4 Lot 2=15.2

City Water? ✓ Yes ___ No How far is city water from the property? 30+/- ft

City Sewer? ✓ Yes ___ No How far is city sewer from the property? 30+/- ft

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

Type of TRANSFER OF DEVELOPMENT RIGHT REQUEST (Check All That Apply):

□ Residential □ Residential (reduced size) □ Industrial | □ Purchase □ Land Preservation

Relief sought (Check All That Apply):

□ Lot Size □ Frontage □ Setback □ 30' Buffer □ Increase by _____ units

Describe Proposed Use or Activity that requires TDR; describe any impacts and document mitigation:

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: 3-story, multi-family apartment

Height of Building: <40 ft Finished Floor Elevation: 17.5

Number of Seats (where applicable) N/A

Estimated value of construction: TBD Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: N/A

Justification for waiver request(s) (*attach additional sheets as needed*):

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) James P. Smith (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 00908 E-mail address: jsmith@allenmajor.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Michael A. Malynowski, PE (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 12205 E-mail address: mmalynowski@allenmajor.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) TBD

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Bethany C. Dermody (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 00006 E-mail address: bdermody@allenmajor.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 6.18.2024

Signature of Applicant (*if different from owner*): _____ Date: _____

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 6.18.2024

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 6.18.2024

Signature of Applicant (*if different from owner*): _____ Date: _____

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: 6.18.2024

Signature of Applicant (*if different from owner*): _____ Date: _____

CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
12	128	114 Silver Street Group, LLC	10 Durham Road, Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
James P. Smith	Allen & Major Associates, inc.	400 Harvey Road, Manchester, NH 03103
Michael A Malynowski, PE	Allen & Major Associates, inc.	400 Harvey Road, Manchester, NH 03103

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 153-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

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: _____ File Number: _____

PROJECT TITLE: _____

PROPERTY LOCATION: _____ Tax Map: ____ Lot: ____

	Where/How Provided	Reviewed
1. Completed and signed Application form	attached	
2. Plan Review Fees are provided	attached	
3. Electronic copy of the engineered/surveyed plan layout	flash drive attached	
4. Electronic copy of supplementary materials and application	flash drive attached	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	not applicable	
6. Waiver requests to the Site Plan Review Regulations, with written justification	not applicable	
7. Conditional Use Permit applications	attached	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	tbd	
9. A colored architectural plan showing all sides of buildings	tbd	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	attached	
Location map at appropriate scale	Existing Conditions	
Proposed Project name and title and Planning File #	Cover Sheet	
Date, north arrow and scale	Site Development Plans	
Names of all abutting property owners	Existing Conditions	
Name and address of owners and/or applicants	Cover Sheet	
Signature & stamp of NH licensed land surveyor and/or engineer	Site Development Plans	
Zoning District boundaries, including any special or overlay districts	Layout & Materials Plan	
Location of Conservation District areas	not applicable	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Layout & Materials Plan	
Location and widths of existing & proposed easements & right of ways	Layout & Materials Plan	
Location and width of existing and proposed access/egress ways	Layout & Materials Plan	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	Layout & Materials Plan	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Existing Conditions Plan	
Existing and proposed topographic information at two foot intervals	Site Development Plans	
Existing and proposed buildings and structure locations	Layout & Materials Plan	
Minimum building setbacks or build to lines on all lots	Layout & Materials Plan	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Existing Conditions & Utilities Plan	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Existing Conditions & Utilities Plan	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	Utilities Plan	
Existing and proposed stormwater lines and facilities	Grading & Drainage Plan	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Building mounted lighting only	
Location of Flood Hazard Zone	not applicable	
Location of all bodies of water and watercourses	not applicable	
Location of wetlands and buffers	not applicable	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Residential neighborhood w/ residential use exiting & proposed	
Existing natural features and/or significant vegetation on property	Existing Conditions Plan	
Depict existing contours up to 100 ft. beyond project limits	Landscape Plans	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	Landscape Plans	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Layout & Materials Plan	
Location, material and size of existing and proposed pavement area	Layout & Materials Plan	
Location of proposed fire lanes	not applicable	
Specify finished floor elevations of buildings	Grading & Drainage Plan	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	not applicable, roll-out containers to be used	
Depict all service, storage, loading bays and utility areas	not applicable	
All applicable Dover Common Site Plan notes	Site Development Plans	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Drainage Report	
Stormwater Management System Operation and Maintenance Plan	Drainage Report	
Letter to Serve from Public and Private Utilities	tbd	
Erosion and Sedimentation Control Plan	Site Preparation Plan	
Landscape Operation and Maintenance Plan	Landscape Plans	
Proposed restrictive covenants or homeowners association documents	not applicable	
Dates and permit numbers of all required state and federal permits	not applicable	
If wetland buffer, indicate placards locations, as applicable	not applicable	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Drainage Report	
Location of proposed drive-in facilities	not applicable	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	Additional project design information within the Site Development Plans & Drainage Report	

REVIEWED BY: _____ DATE_____ TRC DATE_____

CITY OF DOVER PLANNING DEPARTMENT
Revised November 28, 2022

APPLICANT: _____ FILE NUMBER: _____

List of Common Site Plan Notes

The following list of commonly required notes is intended to be used as a guide to applicants and should not be construed as a comprehensive note requirement list for all projects. A preapplication conference with the Planning Department is suggested to help determine the actual notes that may be required.

1. The intent of this plan is to *(describe the purpose of the plan).*

2. Owners of Record are: Name
   Street address
   Municipality, State, Zip Code
   _____
   Authorized Signature

3. The parcel(*s*) is (*are*) shown as Lot No. _____, Map ____ of the City of Dover Tax Assessor's Maps.

4. The subject parcel(s) contains ____ acres or _____ sq. ft. area of land.

5. Title reference for the project parcel(*s*) is the Strafford County Registry of Deeds, Book No. ___, Page No. ___.

6. Reference Plans: (*List all reference plans and their SCRD #)*

7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note.

8. Current zoning dimensional and density requirements in effect are as follows:

   Required: Provided:

   a. Zoning district _____ sub-district _____
   b. Minimum lot size: _____ acres (sq. ft.)
   c. Minimum lot frontage: _____ ft.
   d. Minimum yard setbacks/build-to-lines:
      Front _____ft.
      Side _____ft.
      Rear _____ft.
      Abut-a-street _____ ft.
   e. Maximum/minimum lot coverage _____ %
   f. Minimum/maximum bldg. height _____ ft./stories

   This property falls within the following zoning overlay districts: *(List districts)*

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the proposed use or structure, including the case number and date of decision and any conditions.

10. Property line information has been obtained from a survey performed by *(surveyor)* on (*date*) with an error not greater than 1 in 10,000 (*or has been obtained from* _____ *Plan, prepared by (surveyor)*).

11. Subject parcel is (*is not*) located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015).

12. Wetlands were delineated by _____, Certified Wetlands Scientist, Certification Number ____, in accordance with Chapter 170-27.1 of the Zoning Ordinance, on _____, 20___.

13. As-built plans of the subdivision shall be submitted on paper and in digital format AutoCAD DWG, AutoCAD DXF or ESRI format to the City of Dover Engineer's Office upon completion of project if a street is proposed for City acceptance. As-built plans shall be prepared and certified correct by a L.L.S. or P.E. Digital files shall be geo-referenced to New Hampshire State Plane Coordinates NAD83 and shall be expressed in feet.

14. The installation of electric power, cable television and telephone lines shall be underground throughout the site for which development is proposed.

15. The subject parcel(s) is (are) served by municipal water and sewer (*or is served by on-site well and septic system*).

16. All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT) "Standard Specifications for Road and Bridge Construction" and with the City of Dover Community Services Regulations and standard specification for construction. The more stringent specification shall apply.

17. All erosion control notes shall include provisions for construction sequencing, temporary erosion control measures, and permanent standards such as loam spread rate for disturbed areas, rates of lime, type and rates for fertilizer, and seed and mulch mixture with rates of application.

18. The limits of construction disturbance that are located in or within the 50 ft. of Conservation and Wetland Districts shall be staked, flagged and clearly identified prior any earth disturbing activity occurs.

19. All treatment swales to be constructed shall have sod bottoms.

20. A letter of credit for the cost of revegetating all disturbed areas on the site shall be submitted, and the approved construction sign installed prior to any earth disturbing activity occurs.

21. A pre-construction conference with the developer, the design engineer, the earthwork contractor and the City Engineer shall occur prior to any earth disturbing activity.

22. Site Construction hours shall be limited to Monday-Friday 7 AM-6 PM, Saturday and Sunday 9 AM-4 PM. Hours of construction must be documented on a site construction sign along with the contact information for the general contractor. Said signage must be located and approved by the City Engineer or Planning Director.

23. Building addresses (including apt/unit numbers if applicable) shall be assigned by the Building Official at the time of issuance of a building permit.

24. The proposed use for the site (structure) is _____. (More specific uses are encouraged, such as single family, duplex, multi-family, restaurant, hotel, doctor's office, etc. Should more than one use be proposed, an indication of the percentage of each use is suggested.)

25. The following federal and state permits have been issued for the subject property: (*List permit type, number and date of issuance.)*

26. Commercial vehicle route during construction shall conform to Dover City Code or be coordinated with the Community Services Director.

27. Any retaining wall taller than four feet (4') requires issuance of a building permit from Inspection Services.

28. Any fence taller than seven feet (7') requires the issuance of a building permit from Inspection Services.

29. Applicant shall complete Land Use Development Tracking Form, most recently revised version, utilizing the online Pollution Tracking and Accounting Pilot Project (PTAPP) portal. https://www.unh.edu/unhsc/ptapp

30. The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons/entities that may acquire any property subject to the requirements and responsibilities described in the approved STORMWATER Management Plan. The notice shall comply with the applicable requirements for recording contained in RSA 477 and 478. The notice need not set forth the requirements at length, so long as it is sufficient to provide notice to prospective purchasers to the requirements for maintenance and reporting.

31. Fire department access road(s) shall be installed and maintained to support the imposed loads of fire apparatus in all weather conditions at all times.

32. The maximum parking space calculation is _____ (broken down) and ____ spaces are provided.

33. Exterior lighting shall be cut-off type fixtures per Chapter 153-14-E and shall provide lighting directed on-site only.

34. Topographic survey performed by _____ on *(dates)*.

35. Elevations are based on U.S.G.S. NVD 1988 datum. (**or** Elevations depicted are based on information obtained from the City Engineer's Office and was derived from coordinates for control stations _____ and _____. These coordinates have not been adjusted to 1983 datum).

36. A security system shall be installed as required by Chapter 45, Article I, section 45-2 of the Code of the City of Dover. (*If a business establishment or multi-family dwelling contained in a new, altered or repaired structure*)

37. Approved backflow preventers shall be provided for both fire and domestic water lines.

38. The (*existing or proposed*) structure shall be served by a sprinkler system as required by Chapter 81- 30 of the Code of the City of Dover and the adopted State of NH Building and Fire Codes.

39. Sprinkler connections must be flushed in accordance with NFPA 24 and a Contractor's Material and Test Certificate for Underground Piping form must be completed and approved by Inspection Services prior to connection of the backflow device.

40. Fire department connection(s) shall be located on the street side of the building per NFPA 13. Access to the FDC shall maintain a clear and unobstructed path at all times.

41. The site layout is designed in compliance with applicable accessibility regulations. The proposed structure will be also be designed in accordance with applicable accessibility regulations. (i.e. IBC, ANSI-117.1) and NH RSA 155-A:5.

REMARKS:

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – SITE-2024-0006

Application Type:	Site Review
Applicant(s):	Allen Majors Associates, Inc.
Owner(s):	114 Silver Street Group, LLC
Location:	114 Silver St. (Assessor's Map 12, Lot 148)
Date:	July 18, 2024

INTENT: Following subdivision of the subject parcel into two lots, the proposal is to convert the existing single-family home into a 4-unit multi-family dwelling on one lot and construct a 3-story, 4-unit multi-family dwelling on the other lot with eight associated parking stalls for each building.

UNITS PROPOSED: Two (2) lots, eight (8) units

AGENDA ITEM #: 1

ACREAGE: Existing Acreage: 22,340 sq. ft./0.52± ac.
Proposed Lot 1: 11,650± sq. ft.
Proposed Lot 2: 10,690± sq. ft.

ZONING DISTRICT: HR

EXISTING LAND USE: Residential

PROPOSED LAND USE: Residential

SURROUNDING LAND USE: Residential, School

ZBA ACTION: None.

PERMITS REQUIRED:
- COND-2024-0011, CUP to convert single-family dwelling to 4-unit dwelling
- COND-2024-0012, CUP to construct a new, 4-unit dwelling

WAIVERS REQUESTED: None.

ATTENDANCE:
Donna Benton, Planning
Paul Crouser, Zoning
Jim Maxfield, Inspection Services
Marn Speidel, Police Department
Ken Mavrogeorge, Engineering
Craig Chabot, Fire Department
James Burdin, Business Development

Others:
Erin Bassegio, Assistant City Planner
Tom Toye, Applicant/Owner
Michael Malynowski, Allen & Major

Approval of minutes from June 20, 2024:
J. Burdin moved to approve the June 20, 2024 minutes. Seconded by K. Mavrogeorge. Vote: U/A.

PLAN REVIEW:
Planning:
- Full review could not occur due to lack of information. Second full TRC needed with complete application.
- Reminder: Impact fees, Water and sewer investment fees
- Provide Traffic impact memo that meets minimum standards.
- Architectural plans and streetscape are needed for review. The applicant will need to follow the HR architectural guidelines and create buildings that fit in with HR district and appear to be single family.
- Consider saving the barn? Creating a condominium rather than subdividing could be an option.
- Letters to serve needed.
- For rent or sale? HOA or COA documents would be needed.
- No open space calculation shown for new lots as part of the CUP.
- Revise plans to:
  - Include neighborhood plan with aerial underlay
  - Include current City of Dover common notes.
  - Show open space calculation
  - Indicate snow storage
  - Indicate trash/recycling plan
  - New utilities should be underground
  - Add lighting plan
  - Add more screening to shield headlights

Engineering:
- General Comment:
  - Applicant and Contractor shall review the Dover Construction Guidelines prior to scheduling a Preconstruction meeting with City staff. The guidelines can be found on the City of Dover Website on the Engineering page. https://www.dover.nh.gov/Assets/government/city-operations/1form/community-services/engineering/engineering-documents/Construction%20Guidelines.pdf

- Coordinate with Community Services (Engineering Department) for latest City Standard Details.
- Dover Site Notes are from 2022 but have since been updated. Please coordinate with Planning to get the current notes.
- Change references from Town to City of Dover, NH.
- Recommend providing 1 sf of snow storage per 10 sf of pavement to be cleared. Verify snow storage meets or exceeds this recommendation or provide note to remove excess snow when storage areas are filled.
- ***Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing structures on the property.***
- How will trash pickup be handled?
- No comprehensive narrative has been provided. It is strongly recommended Applicant's presentation to the TRC should mimic the presentation to the Planning Board.
- Site lighting plan has not been provided. Please clarify how the parking area will be lit for security purposes.
- Are there plans for electric vehicle charging and accessible charging?
- Clarify why the lot is being subdivided.

- Drainage Analysis:
  - There appears to be a conflict between the increase in impervious noted on the Drainage Report and the Application (2028 sf versus 876 sf).
  - Storm events that were analyzed should be consistent with 153-14 of the Dover Code which requires 2-, 10-, 25-, and 50-year storm events to be analyzed.
  - Clarify why an infiltration rate of 6 inches per hour is appropriate rather than a fraction of that value (1/2).
  - Applicant shall review the section 153-14 of the Dover Code and clarify how the design meets the City's requirements.
  - Please provide a test pit in the proposed infiltration basin location as the ESHWT various across the proposed project site.
- Sheet 1:
  - Provide a benchmark for layout.
  - The sewer in Rutland does not connect to the sewer in Silver St.
  - The existing building's utilities need to be shown.
  - There are existing two gas vaults in Rutland St. where the proposed utilities are shown.
- Sheet C-101:
  - Will existing pavement that crosses property line be removed? If so, will there be an easement from the neighbor?
- Sheet C-102:
  - There appear to be steps leading to the aisle of the accessible parking making the building non accessible. Please confirm how this works?
  - Note that the curbing from the right of way should be salvaged to the City.
- Sheet C-103:
  - It is recommended that a precast concrete structure be used for a catch basins in paved surfaces rather than a nyloplast drain. Provide clarification if this structure is rated for vehicle loading.
  - Provide deep sump with oil separator hoods in drainage basins.
  - Given that drainage from one lot crosses onto another, a drainage easement would appear necessary.
  - Add note that Design Engineer shall provide signed letter to City Engineer certifying that the stormwater management system has been installed in accordance with approved plans.

- The driveway should be graded to keep stormwater originating from the site, on site and not directed to the City's ROW.
- The inverts of the roof drain are off by 100.
- The rain garden does not have an emergency overflow. It is recommended to provide one for future heavy events.
- The lengths of pipes is not on the plan but rather a note that says TBD.
- HDPE drainage pipe has less than 3 feet of cover which is the minimum per code.
- Confirm 2% cross slope in all directions for ADA parking space.
- The proposed drainage is shown tying into Rutland but no drainage network exists in this area.

- Sheet C-104
  - Cleanouts outside of the building are not permitted.
  - Show location of existing utilities in Rutland including water and drainage.
  - All valves and hydrants shall open left (counterclockwise)
  - Sanitary Sewer shall be PVC pipe SDR35
  - Clarify if either building needs to have fire suppression. IS to confirm.
  - Coordinate with CS on the configuration of valves for domestic and fire lines.
- Details:
  - Utility trench details do not meet city standards.
  - Consolidate the utility trenches within City ROW and provide overlay of entire area of disturbance from curb to curb.
  - Storm Drain Utility Trench Section – crushed stone shall extend 12" above top of pipe.
  - Sewer Utility Trench Section – crushed stone shall extend 12" above top of pipe.
  - Water Utility Trench Section – sand shall extend 12" above top of pipe.
  - Water Service Connection: curb box shall be Erie-style
  - Change "handicap" references to "accessible" where applicable throughout documents.
  - Recommend individual water shut offs be located outside of paved surfaces and in grass. All shut offs in City ROWs must be in grass at the edge of the ROW. If shut offs on the private road remain in the paved surface, a road box should be provided.
- L101:
  - Clarify how the design will mitigate the light from vehicles from crossing the property lines.

Police:

- Traffic Impact Assessment: remove reference to childcare, review charts/tables.
- Based on the scope of the overall project, doesn't Dover Code 153-14 B(3) require utilities for the renovated multi-family structure to be converted from overhead to underground?
- Why can't the parking lot be configured to meet side setbacks? The Conditional Use Permit doesn't elaborate on this. If it has anything to do with preservation of trees on site, this may be worth elaborating on.
- Provide contribution toward installation of an RRFB system at the nearby Silver/Belknap crosswalk. This project adds new residents to the area who will likely walk downtown via this route.

Inspection Services:

- Provide location of FDC for each structure
- Address will have to be assigned for new structure.
- Provide Architectural plan with elevations.
- Provide streetscape plan
- Indicate if garden or townhouse style
- Plans shall indicate accessible route to existing structure

- Provide a utility plan for each structure, (i.e. indicate if the electrical utility will be underground when electrical service is upgrade for existing structure)
- Utility plan to show separate water shut off/gates for suppression line to each structure.

Fire Department:

- No comments.

Business Development:

- From a plan perspective, this project appears to be an appropriate scale and density for the site and comparable to similar developments in the neighborhood. However, missing design documents make it difficult to evaluate overall consistency.

Planning Board:

- N/A

Next Steps: Revise plans and submit complete application package per comments above for a second TRC.

Pause TRC at: 11:07 a.m.

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allenmajor.com

ALLEN & MAJOR ASSOCIATES, INC.

August 6, 2024

Donna Benton, Donna Benton, AICP
Director of Planning and Community Development
City of Dover
288 Central Avenue
Dover, NH 03820

A&M Project #: 3347-01
Re: Technical Review Committee Review Comments
114 Silver Street
(Assessor's Map 12, Lot 148)

Dear Ms. Benton,

Allen & Major Associates, Inc. (A&M), on behalf of our client, 114 Silver Street Group, LLC, is providing the following responses to the comments received during the July 18, 2024 Technical Review Committee meeting. For ease of review, the original comments are provided below, along with A&M's responses in **bold**. We thank you in advance for your consideration.

Planning Comments:

1. Full review could not occur due to lack of information. Second full TRC needed with complete application.

A&M Response: The information requested below is provided herewith and it is our intention that the attached documents represent a complete application.

2. Reminder: Impact fees, Water and sewer investment fees

A&M Response: Development impacts fees and water & sewer fees are included in the attached narrative.

3. Provide Traffic impact memo that meets minimum standards.

A&M Response: The traffic impact memo has been updated to reflect the minimum standards as outlined by the City.

4. Architectural plans and streetscape are needed for review. The applicant will need to follow the HR architectural guidelines and create buildings that fit in with HR district and appear to be single family.

A&M Response: Architectural plans and streetscape are provided herewith.

5. Consider saving the barn? Creating a condominium rather than subdividing could be an option.

A&M Response: It would not be possible to provide the necessary parking and preserve the barn.

6. Letters to serve needed.

A&M Response: We have reached out to Eversource and are awaiting a response.

7. For rent or sale? HOA or COA documents would be needed.

A&M Response: Both projects will be under common ownership and the dwelling units will be for rent, therefore an HOA or COA is not applicable.

8. No open space calculation shown for new lots as part of the CUP.

A&M Response: The open space calculation is provided on the Sheet C-102 and further described in the narrative.

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9. Revise plans to:
    a. Include neighborhood plan with aerial underlay

A&M Response: A neighborhood plan has been provided as requested, see sheet C-105.

    b. Include current City of Dover common notes.

A&M Response: The city common notes have been added to sheet C-102 as requested.

    c. Show open space calculation

A&M Response: Results of the open space calculation are shown on sheet C-102 and detailed in the narrative.

    d. Indicate snow storage

A&M Response: Snow storage has been added to the Layout & Materials Plan, sheet C-102.

    e. Indicate trash/recycling plan

A&M Response: Trash/recycling will be handled by a private contractor.

    f. New utilities should be underground

A&M Response: New utilities are proposed to be underground, as requested.

    g. Add lighting plan

A&M Response: A site lighting plan has been added to the plan set as requested, see sheet C-105.

    h. Add more screening to shield headlights

A&M Response: An eight-foot heigh wood fence is proposed along the southern property line to prevent headlights from shining onto the abutting parcel.

Engineering:

10. General Comment:
    a. Applicant and Contractor shall review the Dover Construction Guidelines prior to scheduling a Preconstruction meeting with City staff. The guidelines can be found on the City of Dover Website on the Engineering page. https://www.dover.nh.gov/Assets/government/cit y-operations/1form/community- services/engineering/engineering-documents/Construction%20Guidelines.pdf

A&M Response: The applicant and contractor will be responsible for reviewing the guidelines and scheduling the preconstruction meeting.

    b. Coordinate with Community Services (Engineering Department) for latest City Standard Details.

A&M Response: Standard city details have been added to the plan set.

    c. Dover Site Notes are from 2022 but have since been updated. Please coordinate with Planning to get the current notes.

A&M Response: The standard city notes have been added to sheet C-102 as requested.

    d. Change references from Town to City of Dover, NH.

A&M Response: The plans have been revised to reference "City" rather than "Town".

    e. Recommend providing 1 sf of snow storage per 10 sf of pavement to be cleared. Verify snow storage meets or exceeds this recommendation or provide note to remove excess snow when storage areas are filled.

A&M Response: The plan shows approximately 3 square feet of snow storage per 10 square feet of pavement. A note has also been added stating that snow shall be removed from the site once storage areas become inadequate. See sheet C-102.

f. Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing structures on the property.

A&M Response: A letter has been provided.

g. How will trash pickup be handled?

A&M Response: Trash/recycling will be handled by a private contractor and will utilize moveable totes eliminating the need for a dumpster.

h. No comprehensive narrative has been provided. It is strongly recommended Applicant's presentation to the TRC should mimic the presentation to the Planning Board.

A&M Response: A comprehensive narrative has been provided as part of the re-submittal materials.

i. Site lighting plan has not been provided. Please clarify how the parking area will be lit for security purposes.

A&M Response: A site lighting plan has been added to the plan set as requested, see sheet C-105.

j. Are there plans for electric vehicle charging and accessible charging?

A&M Response: There are no plans for electric vehicle charging stations as part of this project.

k. Clarify why the lot is being subdivided.

A&M Response: The lot is being subdivided to meet the density requirements which allow four multi-family dwelling units per lot, by Conditional Use Permit.

11. Drainage Analysis:
    a. There appears to be a conflict between the increase in impervious noted on the Drainage Report and the Application (2028 sf versus 876 sf).

A&M Response: The drainage report has been updated.

b. Storm events that were analyzed should be consistent with 153-14 of the Dover Code which requires 2-, 10, 25-, and 50-year storm events to be analyzed.

A&M Response: The storms events that were analyzed are consistent with the requirements listed above.

c. Clarify why an infiltration rate of 6 inches per hour is appropriate rather than a fraction of that value (1/2).

A&M Response: The infiltration rate has been adjusted to show a factor of safety and the calculations have been updated.

d. Applicant shall review the section 153-14 of the Dover Code and clarify how the design meets the City's requirements.

A&M Response: The project disturbs less than 20,000 square feet of land area and creates less than 4,000 new impervious area and therefore the minimum protections and management standards apply. Language has been added to the Drainage Report documenting compliance with these standards.

e. Please provide a test pit in the proposed infiltration basin location as the ESHWT various across the proposed project site.

A&M Response: Test pits have been conducted and information is shown on the plans. No ESHWT was observed and the proposed designs maintains proper separation.

12. Sheet 1:
    a. Provide a benchmark for layout.

A&M Response: A benchmark has been added to the Existing Conditions, as requested.

b. The sewer in Rutland does not connect to the sewer in Silver St.

A&M Response: The sewer has been revised accordingly.

c. The existing building's utilities need to be shown.

A&M Response: The existing utilities have been added to the plan as requested.

d. There are existing two gas vaults in Rutland St. where the proposed utilities are shown.

A&M Response: The two gas vaults are shown on the plan and the proposed utilities have been revised.

13. Sheet C-101:
    a. Will existing pavement that crosses property line be removed? If so, will there be an easement from the neighbor?

A&M Response: It is not the intention to remove pavement on the abutting property.

14. Sheet C-102:
    a. There appear to be steps leading to the aisle of the accessible parking making the building non accessible. Please confirm how this works?

A&M Response: The plan has been revised to show a ramp with handrails up to the covered landing.

b. Note that the curbing from the right of way should be salvaged to the City.

A&M Response: A note has been added to the Site Preparation Plan, sheet C-101.

15. Sheet C-103:
    a. It is recommended that a precast concrete structure be used for a catch basins in paved surfaces rather than a nyloplast drain. Provide clarification if this structure is rated for vehicle loading.

A&M Response: While Nyloplast drain structure are rated for vehicle loading, we have revised the plan to call for precast concrete structures in the paved areas.

b. Provide deep sump with oil separator hoods in drainage basins.

A&M Response: The catch basins will be installed with deep sumps and hoods as requested. This is noted on the plan (C-103) and shown on the standard catch basin detail.

c. Given that drainage from one lot crosses onto another, a drainage easement would appear necessary.

A&M Response: Multiple easements will be necessary for this project, including access, drainage, and utilities. An easement plan will be provided upon final approval of the plan.

d. Add note that Design Engineer shall provide signed letter to City Engineer certifying that the stormwater management system has been installed in accordance with approved plans.

A&M Response: The note requested above has been added to sheet C-103.

e. The driveway should be graded to keep stormwater originating from the site, on site and not directed to the City's ROW.

A&M Response: The driveway has been re-graded as requested.

f. The inverts of the roof drain are off by 100.

A&M Response: The roof drain inverts have been corrected.

g. The rain garden does not have an emergency overflow. It is recommended to provide one for future heavy events.

A&M Response: An overflow has been added to the plan which ultimately connects to the existing catch basin on the west side of Rutland Street.

h. The lengths of pipes is not on the plan but rather a note that says TBD.

A&M Response: The pipe length has been added as requested.

i. HDPE drainage pipe has less than 3 feet of cover which is the minimum per code.

A&M Response: The design has bee revised to provide a minimum of 3 feet of cover over the HDPE pipes in paved areas.

j. Confirm 2% cross slope in all directions for ADA parking space.

A&M Response: The slope within accessible parking spaces has been confirmed to be less than 2% in all directions.

k. The proposed drainage is shown tying into Rutland but no drainage network exists in this area.

A&M Response: As mentioned above, the drainage overflow will connect to the existing catch basin on the west side of Rutland Street.

16. Sheet C-104

a. Cleanouts outside of the building are not permitted.

A&M Response: The sewer has been revised and the cleanout has been removed from the plan.

b. Show location of existing utilities in Rutland including water and drainage.

A&M Response: The location of existing utilities in Rutland Street have been added to the plan as requested.

c. All valves and hydrants shall open left (counterclockwise)

A&M Response: This has been noted on sheet C-104, as requested.

d. Sanitary Sewer shall be PVC pipe SDR35

A&M Response: This has been noted on sheet C-104, as requested.

e. Clarify if either building needs to have fire suppression. IS to confirm.

A&M Response: The buildings will have fire suppression and water connections are shown on sheet C-104.

f. Coordinate with CS on the configuration of valves for domestic and fire lines.

A&M Response: The alignment of the fire service and domestic lines have been updated on the plans.

17. Details:

a. Utility trench details do not meet city standards.

A&M Response: City standard details have been added to the plan set.

b. Consolidate the utility trenches within City ROW and provide overlay of entire area of disturbance from curb to curb.

A&M Response: The utilities have been revised and the above has been notes, see sheet C-104.

c. Storm Drain Utility Trench Section – crushed stone shall extend 12″ above top of pipe.

A&M Response: City standard details have been added to the plan set.

d. Sewer Utility Trench Section – crushed stone shall extend 12″ above top of pipe.

A&M Response: City standard details have been added to the plan set.

e. Water Utility Trench Section – sand shall extend 12″ above top of pipe.

A&M Response: City standard details have been added to the plan set.

f. Water Service Connection: curb box shall be Erie- style

A&M Response: The style of curb box has been noted on the detail.

g. Change "handicap" references to "accessible" where applicable throughout documents.

A&M Response: References to "handicap" have been changed to "accessible" as requested.

h. Recommend individual water shut offs be located outside of paved surfaces and in grass. All shut offs in City ROWs must be in grass at the edge of the ROW. If shut offs on the private road remain in the paved surface, a road box should be provided.

A&M Response: Water shut offs are shown in grassed areas, as requested.

18. L101:
    a. Clarify how the design will mitigate the light from vehicles from crossing the property lines.

A&M Response: An eight-foot heigh wood fence is proposed along the southern property line to prevent headlights from shining onto the abutting parcel.

Police:

19. Traffic Impact Assessment: remove reference to childcare, review charts/tables.

A&M Response: The traffic impact assessment has been updated.

20. Based on the scope of the overall project, doesn't Dover Code 153-14 B(3) require utilities for the renovated multi- family structure to be converted from overhead to underground?

A&M Response: The existing overhead services will be converted to underground as part of the project and illustrated as such on the updated plans.

21. Why can't the parking lot be configured to meet side setbacks? The Conditional Use Permit doesn't elaborate on this. If it has anything to do with preservation of trees on site, this may be worth elaborating on.

A&M Response: Parking is not required to meet side yard setbacks. A landscape perimeter is required, which has been provided, and the parking must be outside of the landscape perimeter.

22. Provide contribution toward installation of an RRFB system at the nearby Silver/Belknap crosswalk. This project adds new residents to the area who will likely walk downtown via this route.

A&M Response: The proponent has requested a cost breakdown for the RRFB system from the city to evaluate their fair share of a potential contribution.

Inspection Services:

23. Provide location of FDC for each structure

A&M Response: FDC locations have been added to the Utilities Plan, as requested.

24. Address will have to be assigned for new structure.

A&M Response: Understood

25. Provide Architectural plan with elevations.

A&M Response: Architectural plans and elevations have been provided as requested.

26. Provide streetscape plan

A&M Response: A streetscape plan has been provided as requested.

27. Indicate if garden or townhouse style

A&M Response: The proposed dwelling units are proposed to be townhouse style units.

28. Plans shall indicate accessible route to existing structure

A&M Response: The plans show an accessible concrete ramp to both the existing and the proposed buildings.

29. Provide a utility plan for each structure, (i.e. indicate if the electrical utility will be underground when electrical service is upgrade for existing structure)

A&M Response: A site utility plans has been provided.

30. Utility plan to show separate water shut off/gates for suppression line to each structure.

A&M Response: Separate water shut off/gates are shown to each structure.

Fire Department:

31. No comments.

Business Development:

32. From a plan perspective, this project appears to be an appropriate scale and density for the site and comparable to similar developments in the neighborhood. However, missing design documents make it difficult to evaluate overall consistency.

Very Truly Yours,

ALLEN & MAJOR ASSOCIATES, INC.



Michael A. Malynowski, P.E.
Senior Project Manager

Enclosure

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allenmajor.com

ALLEN & MAJOR ASSOCIATES, INC.

July 9, 2024 *(revised 08-07-24)*

To: Donna Benton, AICP
Director of Planning and Community Development
City of Dover, NH
288 Central Avenue
Dover, NH 03820-4169

A&M Project #: 3188-01

Re: Traffic Memorandum
Office Conversion & Residential Construction
114 Silver Street
Dover, NH

Copy:

Dear Ms. Benton,

Allen & Major Associates, Inc. has prepared this memorandum to outline the anticipated traffic impacts generated by the proposed development consisting of subdividing the existing lot into two conforming lots. One of the subdivided lots will construct a new 3-story, multi-family residence with four (4) dwelling units. The other lot will be composed of the existing chiropractic office which will be converted into a multi-family residence with four (4) dwelling units. The new development will contain two buildings; the existing building footprint is 1,648± sf and the proposed building footprint is 1,152± sf. Each building will contain four (4) dwelling units, totaling 8 units for the development; 16 surface parking spaces will be provided.

Description of Site:
The overall project site is comprised of one lot totaling approximately 0.51 acres. The parcel is listed on the City of Dover Assessors Map 12, as Lot 148, and has the address of 114 Silver Street. The project proposes to subdivide the existing lot into two, converting the existing single-family residence to multi-family on one lot, and constructing a new multi-family building on the other. The site is located to the east of NH Route 16, accessed from Exit 8E. Currently, the existing parcel is a single-family residential home with barn and the land is relatively flat. Vehicular access to the lot will be shifted from Silver Street to Rutland Street as part of the proposal.

Description of Roadways:
The project is situated at the intersection of Silver Street and Rutland Street. Silver Street is a two-lane bituminous paved road consisting of 11ft +/- travel lanes, with 5ft wide designated bike lanes in each direction with appropriate painted lane markers. Pedestrian sidewalks (5 ft +/- wide) are present along both sides of Silver Street buffered from vehicular traffic by vertical granite curbing and an approximately 5ft +/- wide grass strip. Appropriate accessible ramps and painted crosswalks were observed in the vicinity of the project.

Rutland Street is a rural two-lane bituminous paved road consisting of 12ft +/- travel lanes with no painted lane markers which is typical for this type of roadway. Pedestrian sidewalks (5 ft +/- wide) are present along both sides of Rutland Street buffered from vehicular traffic by vertical granite curbing for approximately 175 ft +/-, then no curbing is present for the remainder of the street. An approximately 5ft +/- wide grass buffer strip between the travel way and pedestrian sidewalk is present for most of the roadway, except for the first 175 ft+/- where the sidewalk along the west side of the roadway is only buffered by vertical curbing due to utility cabinet situate behind the sidewalk.

The posted speed limit on both Silver Street and Rutland Street is 30 mph.

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SIGHT DISTANCE

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the existing site driveway locations to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the New Hampshire Department of Transportation (NHDOT) and the American Association of State Highway and Transportation Officials (AASHTO). AASHTO is the national standard by which vehicle sight distance is calculated, measured, and reported.

The NHDOT requires that any driveway onto a state highway provide at least 400 feet of all-season sight distance in both directions. All-season sight distance is measured from the driveway using an eye height of 3.75 feet to the center of the approaching travel lanes on the adjacent street using an object height of 3.75 feet above street level. The NHDOT requirements were evaluated at the proposed site driveway for consistency with state standards.

Sight Distance (feet)

Location/Direction	Measured	NHDOT Requirement [a]	AASHTO Minimum (SSD)[b]	AASHTO Desirable (ISD)[c]
Rutland Street at Site Drive:				
North of intersection	145[d]	400	80[e]	145[e]
South of intersection	524[f]	400	200	290

[a] Values based on NHDOT all-season sight distance requirement.
[b] Values based on AASHTO Stopping Sight Distance (SSD) requirements for the posted speed limit of 30 mph
[c] Values based on AASHTO Intersection Stopping Distance (ISD) requirements for posted speed limit of 30 mph
[d] Sightline visible to intersection of Silver Street and Rutland Street
[e] Values for both SSD and ISD reduced to ½ posted speed limit to account for turning movements onto Rutland Street from Silver Street
f Sightline visible to intersection of Clifford Street and Rutland Street

As shown in the table, both the minimum required, and desirable sight distances to the south are exceeded at the proposed driveway on Rutland Street and safe operation of these driveways can therefore be expected. Sightlines at the intersection of Rutland Street and the site driveway also exceed NHDOT requirements. Looking north from the site driveway, sightlines are visible through the intersection of Rutland Street and Silver Street. While this sightline does not meet the NHDOT standard, the 400 feet of all-season sight distance does not take vehicle speeds into account. Based on the AASHTO requirements which do take vehicle speeds into account, safe operation is expected at this site driveway. To ensure that maximum sight distances are maintained, it is recommended that any proposed landscaping be kept low (maximum two feet in height from street level), or set back sufficiently so as not to impede the available sight distances.

Trip Generation

In order to determine the traffic characteristics of the proposed Project, the trip-generation methodologies established by the ITE were used for the proposed uses at the site. ITE Land Use Code (LUC) 220, Multifamily Housing (Low-Rise) [1], was used to develop the traffic characteristics of the proposed Project, the results of which are summarized in Table 1.

[1] *Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse. A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit*

The estimated proposed vehicle trips are shown in the following Table 1:

Time Period	Total	Incoming	Outgoing
Average Weekday:	54	27	27
Weekday Morning Peak-Hour:	4	1	3
Weekday Evening Peak-Hour:	5	3	2

The proposed residential development is expected to generate approximately 54 vehicle trips on an average weekday with 4 vehicle trips (1 entering and 3 exiting) expected during the weekday morning peak-hour and, 5 vehicle trips (3 entering and 2 exiting) expected during the weekday evening peak-hour.

To provide a comparison, the proposed residential development was compared to the existing chiropractic office on the property to aid in the evaluation of the potential impacts of the project on the existing network.

A summary of the data is in the Table 2 below.

Existing Chiropractic Office			
	Weekday		
	Total	IN	OUT
Daily	65	32	33
AM Peak	9	5	4
PM Peak	9	3	6

Proposed Residential			
	Weekday		
	Total	IN	OUT
Daily	54	27	27
AM Peak	4	1	3
PM Peak	5	3	2

Net Difference			
	Weekday		
	Total	IN	OUT
Daily	-11	-5	-6
AM Peak	-5	-4	-1
PM Peak	-4	0	-4

The proposed re-development will have a net decrease in vehicle trips for all data points and would not result in an increase in motorist delays to the surrounding network.

Public Transit

In the City of Dover, bus service is provided by either The Cooperative Alliance for Seacoast Transportation, more commonly known as COAST or Wildcat Transit operated by the University of NH. Both services have routes along Silver Street with dedicated stops in the westbound and eastbound direction and is close proximity to the project site. The eastbound stop is approximately 30 feet west of the project parcel and the westbound stop is approximately 200 feet west of the project site. Both existing bus stops have accessible access, bench, and pullout to accommodate safe movements.

We trust that this explanation illustrates that the proposed use changes are minor in nature as related to traffic impacts and do not require any additional mitigation.

Very Truly Yours,
ALLEN & MAJOR ASSOCIATES, INC.

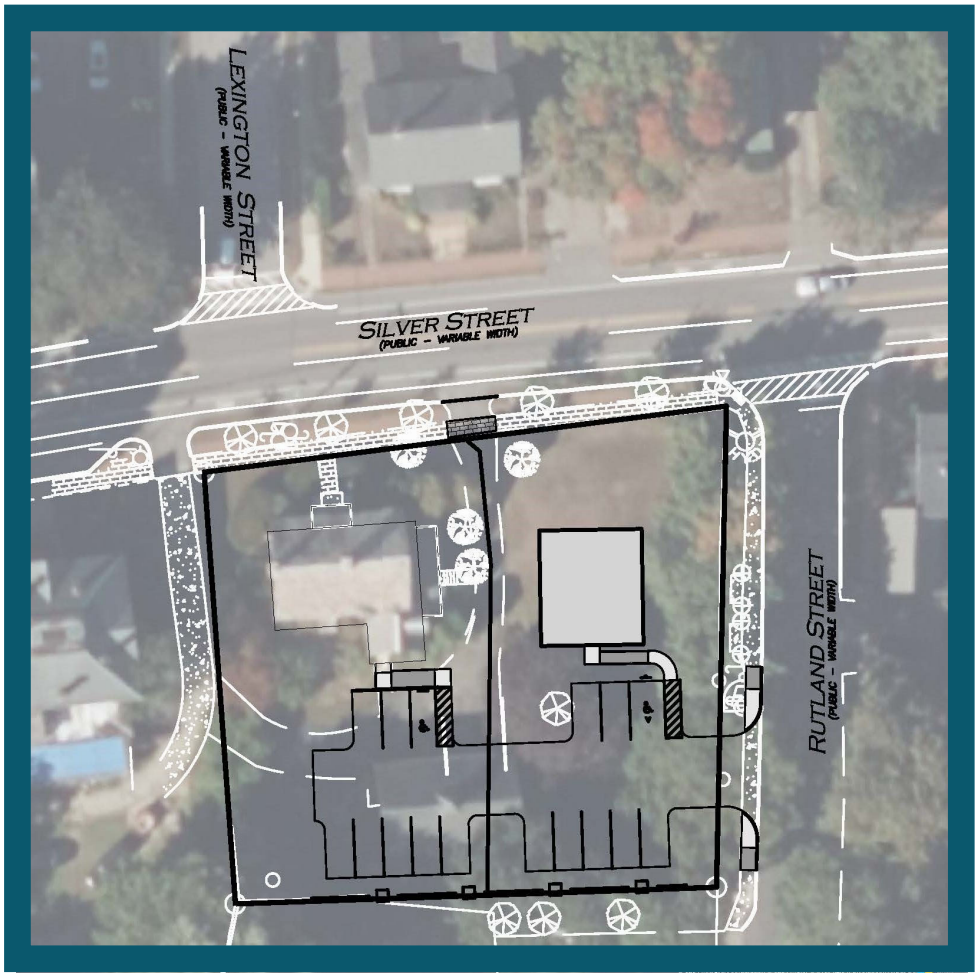
Michael A. Malynowski, PE
Senior Project Manager

STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI
No. 12205
LICENSED PROFESSIONAL ENGINEER

DRAINAGE REPORT

ALLEN & MAJOR ASSOCIATES, INC.

114 Silver Street – Residential Development
Dover, New Hampshire



APPLICANT:
114 Silver Street Group, LLC
10 Durham Road
Dover, NH 03820

PREPARED BY:
Allen & Major Associates, Inc.
400 Harvey Road
Manchester, NH 03103

DRAINAGE REPORT

114 Silver Street – Residential Development
Dover, NH

APPLICANT:
114 Silver Street Group, LLC
10 Durham Road
Dover, NH 03820



PREPARED BY:
Allen & Major Associates, Inc.
400 Harvey Road, Suite D
Manchester, NH 03103

ISSUED:
June 20, 2024

REVISED:
August 6, 2024

A&M PROJECT NO.:
3347-01

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SECTION 1.0 -
OVERVIEW

Executive Summary

The purpose of this drainage report is to provide a detailed review of the stormwater runoff, both quality and quantity, as it pertains to the existing and proposed developed conditions. This report will show by means of narrative, calculations and exhibits that appropriate best management practices have been implemented into the design to mitigate the impacts from the proposed development. The following table demonstrates that there is no increase in total peak rate of runoff and discharge volume from the site for all design storm events.

STUDY POINT #1 (Municipal Drainage System)				
	2-Year	10-Year	25-Year	100-Year
Existing Flow (CFS)	0.07	0.63	1.24	1.89
Proposed Flow (CFS)	0.00	0.63	1.07	1.59
Decrease (CFS)	**0.07**	**0.00**	**0.17**	**0.30**
Existing Volume (CF)	487	1,769	3,141	4,616
Proposed Volume (CF)	6	525	1,317	2,208
Decrease (CF)	**481**	**1,244**	**1,824**	**2,408**

Site Location and Description

The overall project site is comprised of one lot totaling approximately 0.51 acres. The parcel is listed on the City of Dover Assessors Map 12, as Lot 148, and has the address of 114 Silver Street. The project proposes to subdivide the existing lot into two, converting the existing single-family residence to multi-family on one lot, and constructing a new multi-family building on the other.

The site is located to the east of NH Route 16, accessed from Exit 8E. Currently, the existing parcel is a single-family residential home with barn. The existing tract of land is relatively flat with elevations ranging from 119 around the existing house to 116 along Rutland Street.

The proposed development consists of subdividing the existing lot into two conforming lots. One of the subdivided lots will construct a new 3-story, multi-family residence. The other lot will be composed of the existing residential home that will be converted into a multi-family dwelling. The new development will contain two buildings; the existing building footprint is 1,648± sf and the proposed building footprint is 1,152± sf. Each building will contain four (4) dwelling units, totaling 8 units for the development; 16 surface parking spaces will be provided.

The underlying soils were identified using the USDA Natural Resources Conservation Service (NRCS) soil survey for Strafford County. The site is shown to have a soil type of Windsor loamy fine sand which is classified as Hydrologic Soil Group "A". A copy of the NRCS Soil Report is included in the Appendix of this report.

WfB	Windsor loamy fine sand	0-8% slopes

The saturated hydraulic conductivity (Ksat) rate of the Windsor soil was used to establish the infiltration rate on-site. The Ksat value of the Windsor soil is 6.0 inches per hour. A safety factor of 2 was applied and a design infiltration rate of 3.0 inches per hour was used. This Ksat value is referenced from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September 2009.

A stormwater analysis has been performed for two project site situations. The first analysis consists of the existing site conditions and the second consists of the proposed site conditions. There is one study point located at the municipal drainage system where the stormwater flows were analyzed. The study points and contributing watersheds are further outlined in the accompanying text and calculations.

Site Data for Stormwater Modeling

The proposed project will disturb approximately 17,200± sf of land area. This disturbance includes: site grading & drainage installation, paving, and building construction with associated utility connections.

The proposed watershed analysis is comprised of approximately **9,054±** square feet of impervious (an increase of **2,204±** square feet from the pre-development conditions), including the new building, parking lot, and sidewalk. Rainfall data used for modeling the stormwater runoff was derived from the "Extreme Precipitation Tables" from the Northeast Regional Climate Center at Cornell University. The storm events were broken down for the 2, 10, 25, and 50-year storms.

Existing Site Conditions

Stormwater runoff exits the site to one study point location. To exhibit no increase in runoff to these points, stormwater runoff flows were analyzed at the study point, being the City's municipal drainage system. The included Pre-Development Watershed Plan (EWS-1) outlines the boundaries and contributing watershed to the study point.

1. Study Point 1: This study point is located at the existing drainage infrastructure within Silver & Rutland Streets. The stormwater flowing from the project site to the

street is captured within the existing catch basins and routed through the City's municipal drainage network.

Proposed Site Conditions

The stormwater management system has been designed to control runoff using a combination of best management practices. The project proposes to construct a rain garden area that will capture lawn and roof runoff. A Stormtech infiltration system with an isolator row will provide treatment for parking lot runoff prior to infiltration.

1. Study Point 1: This study point is located at the existing drainage infrastructure within Silver & Rutland Streets. The stormwater flowing from the project site to the street is captured within the existing catch basins and routed through the City's municipal drainage network.

A hydrologic study of the site was conducted to determine the impact of the proposed development on the existing stormwater runoff. The study determined the rates and volume of runoff at this study point discussed have decreased. The included Proposed Watershed Plan (PWS-1) outlines the boundaries and contributing watershed for the study point.

SECTION 2.0 - DISCUSSION

Methodology

The peak discharge rates were determined using techniques and data found in the following:

1. Urban Hydrology for Small Watersheds – Technical Release 55 by the United States Department of Agriculture Soils Conservation Service, June 1986. Runoff curve numbers and 24-hour precipitation values were obtained from this reference.
2. HydroCAD© Stormwater Modeling System by HydroCAD Software Solutions, LLC, version 10.20-5a. The HydroCAD program was used to generate the runoff hydrographs for the watershed areas, to determine discharge, stage, and storage characteristics for the rain garden and Stormtech infiltration system, to perform drainage routing and to combine the results of the runoff hydrographs.
3. Soil Survey of Strafford County, New Hampshire by the United States Department of Agriculture, Natural Resources Conservation Services (NRCS). Soil types and boundaries were obtained from this reference.

Peak Discharge Rates

The stormwater runoff analysis of the existing and proposed conditions includes an estimation of the peak discharge rate from various rainfall events. Peak discharge rates were developed using TR-55 Urban Hydrology for Small Watersheds, developed by the United States Department of Commerce, Engineering Division and the HydroCAD 10.20-5a computer program. Further, the analysis has been prepared in accordance with the New Hampshire Stormwater Management Manual and standard engineering practices. The peak discharge rate has been estimated for each watershed during the 2, 10, 25, and 50-year storm events.

The stormwater runoff model shows that the proposed site design results in no increase in the total rate of runoff during all storm events. This is accomplished through the construction of the rain garden and Stormtech infiltration system. The table in *Section 1: Overview* provides a summary of the estimated peak discharge rates for each study point during each of the design storm events. The HydroCAD worksheets for the existing and proposed drainage conditions are included within Sections 3 and 4 of this report.

Performance Standards

Stormwater performance standards have been implemented as part of the overall stormwater management plan for the proposed development. The goal of these standards is to improve water quality and protect the waters of New Hampshire from adverse impacts due to development. The performance standards are met by implementing appropriate Best Management Practices (BMPs). BMPs were designed in accordance with the NH Stormwater Management Manual and Env.Wq. 1500.

BMPs implemented in the design include:

1. Rain garden
2. Stormtech infiltration system

Groundwater Recharge Volume (GRV)

The purpose of the groundwater recharge volume criterion is to protect groundwater resources by minimizing the loss of annual pre-development groundwater recharge as a result of the proposed development.
The required Groundwater Recharge Volume (GRV) should be based on the site soils and the following equation:

GRV = (AI)(Rd)

Where:
AI = the total effective area of impervious surfaces that will exist on the site after development
Rd = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group, as follows:

0.05	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.4	inches	Rd = weighted groundwater recharge depth	
0.0186	ac-in	GRV = AI * Rd	
73	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Recharge required = 73 cf

Provided – 1,289 cubic feet

- Recharge provided = 330 cf within Stormtech infiltration system
- Recharge provided = 959 cf within rain garden

See the stage storage table within the calculation pages in the appendix of this report.

Explanation of Drainage System

References:

1. **New Hampshire Stormwater Management Manual, Volumes 2 & 3, December 2008 and Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas In New Hampshire**
2. **SCS - TR55** *(Second Ed., 1986) - for runoff curve numbers.*

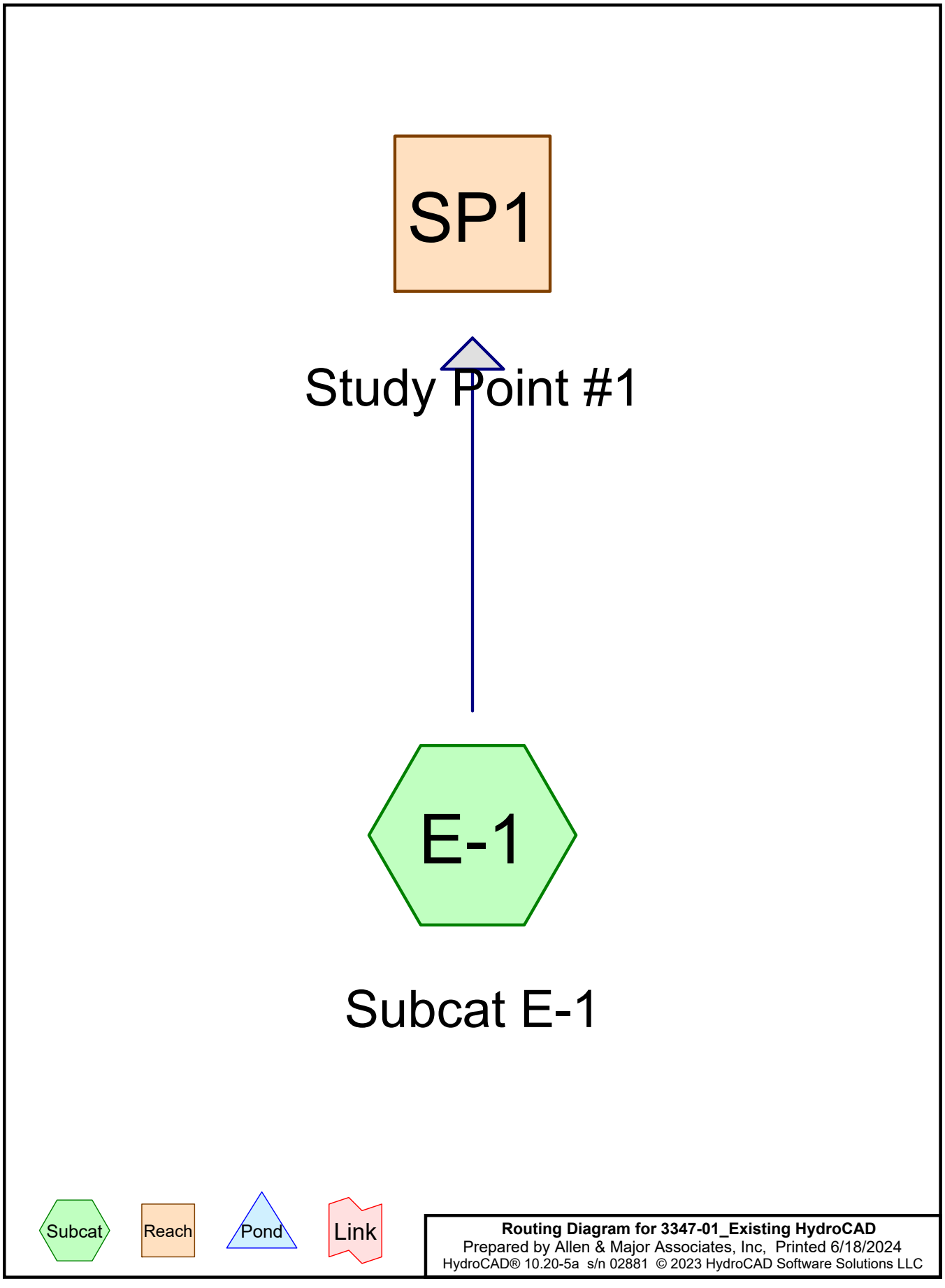
Pavement runoff is collected utilizing deep sump catch basins which route the stormwater to the Stormtech infiltration system. Runoff generated from the building roofs and landscaped areas will be routed to a rain garden and infiltrated.

The 2, 10, 25, & 50-year storm events were analyzed for pre versus post development conditions (see Drainage Summary).

See complete results in the Appendix.

SECTION 3.0 -
EXISTING DRAINAGE ANALYSIS

Existing HydroCAD



Routing Diagram for 3347-01_Existing HydroCAD
Prepared by Allen & Major Associates, Inc, Printed 6/18/2024
HydroCAD® 10.20-5a s/n 02881 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NRCC 24-hr	A	Default	24.00	1	3.15	2
2	10-year	NRCC 24-hr	A	Default	24.00	1	4.75	2
3	25-year	NRCC 24-hr	A	Default	24.00	1	6.01	2
4	50-year	NRCC 24-hr	A	Default	24.00	1	7.18	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
17,888	39	>75% Grass cover, Good, HSG A (E-1)
3,893	98	Paved parking, HSG A (E-1)
2,957	98	Roofs, HSG A (E-1)
24,739	**55**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
17,888	0	0	0	0	17,888	>75% Grass cover, Good	
3,893	0	0	0	0	3,893	Paved parking	
2,957	0	0	0	0	2,957	Roofs	
24,739	**0**	**0**	**0**	**0**	**24,739**	**TOTAL AREA**	

Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.07 cfs @ 12.22 hrs, Volume= 487 cf, Depth= 0.24"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 0.24" for 2-year event
Inflow = 0.07 cfs @ 12.22 hrs, Volume= 487 cf
Outflow = 0.07 cfs @ 12.22 hrs, Volume= 487 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf, Depth= 0.86"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 0.86" for 10-year event
Inflow = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf
Outflow = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf, Depth= 1.52"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 1.52" for 25-year event
Inflow = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf
Outflow = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf, Depth= 2.24"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

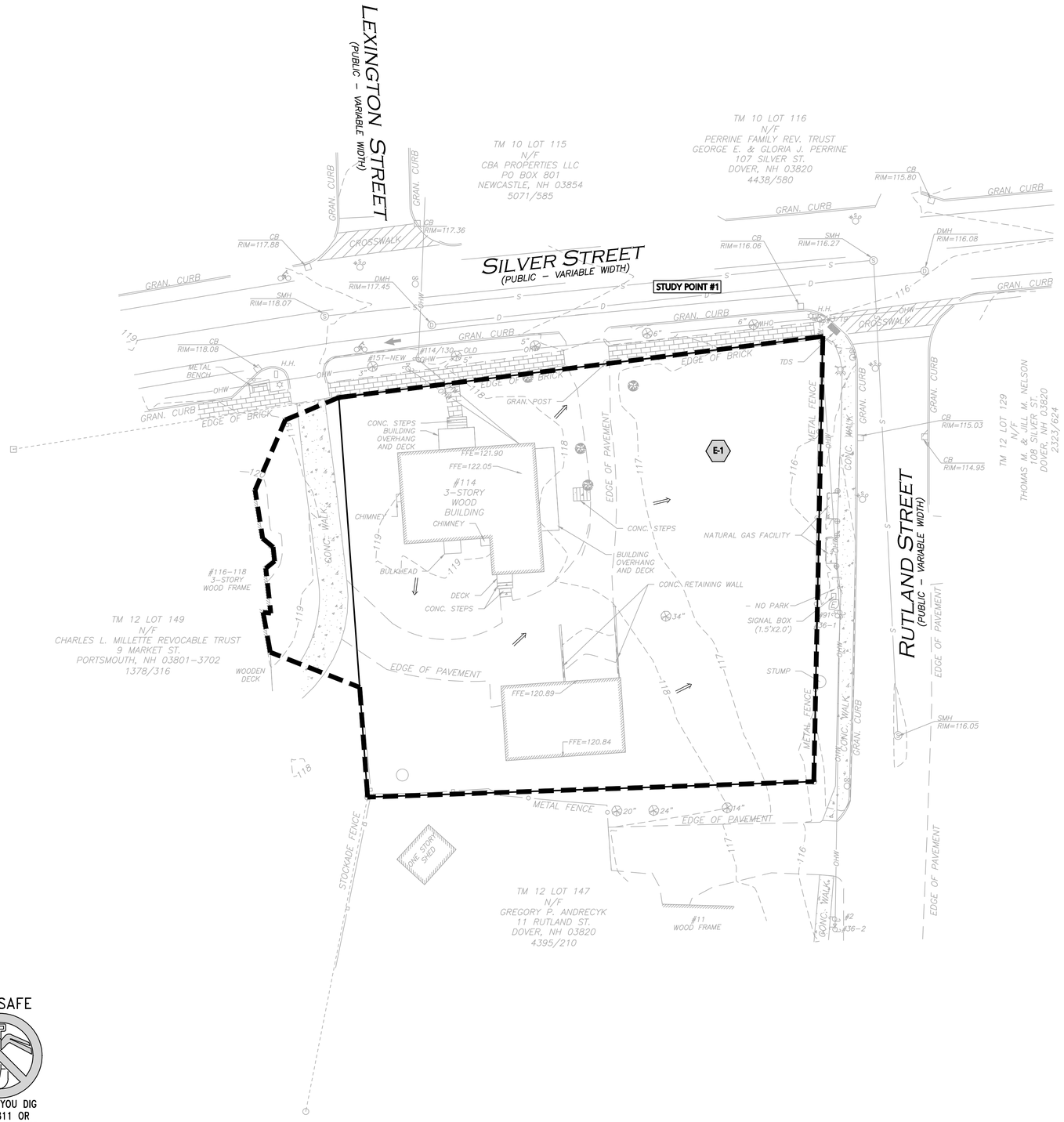
Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 2.24" for 50-year event
Inflow = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf
Outflow = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Existing Watershed Plan



LEGEND

SUBCATCHMENT LABEL	E-1
SUBCATCHMENT BOUNDARY	
FLOW DIRECTION	

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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R: \PROJECTS \3347–01 \CIVIL \DRAWINGS \CURRENT \C–3347–01_WATERSHED–EXISTING.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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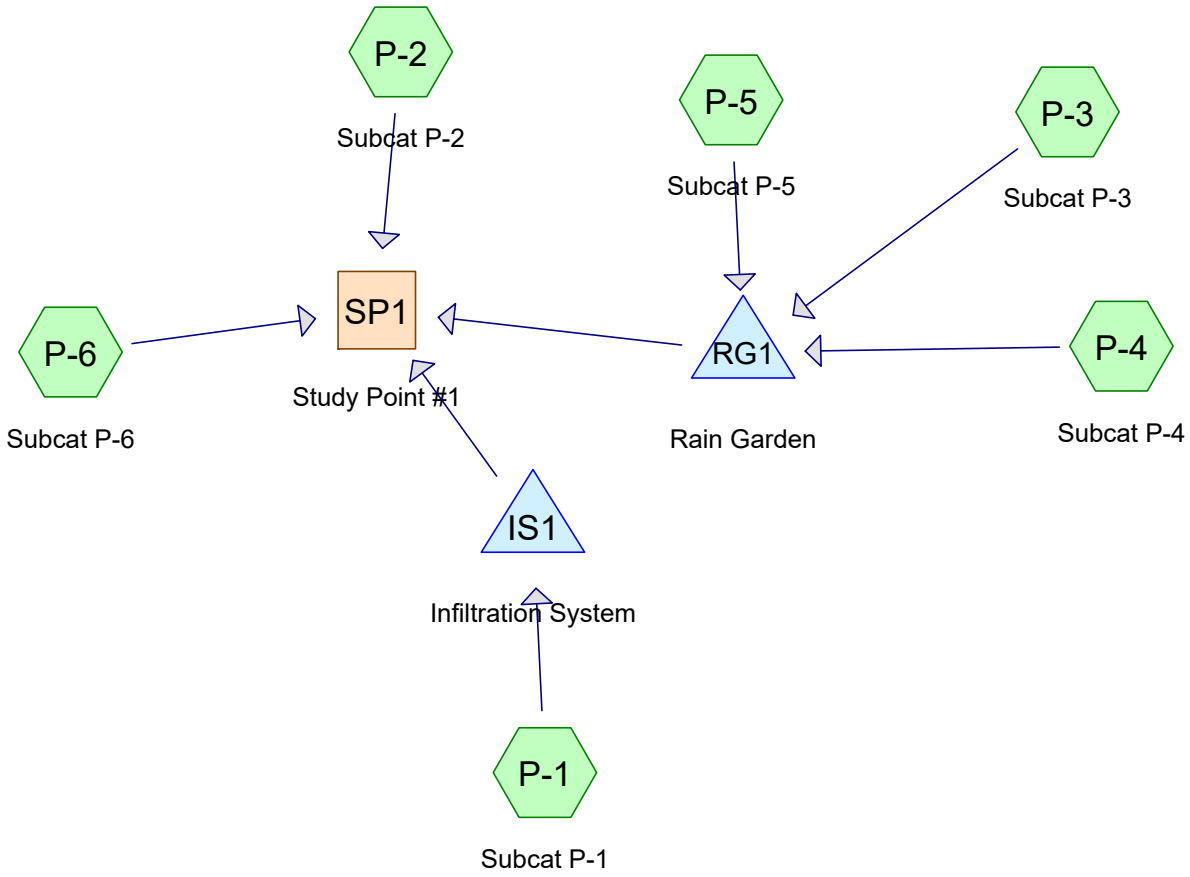
SHEET No.

EWS-1

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SECTION 4.0 -
PROPOSED DRAINAGE ANALYSIS

Proposed HydroCAD



Subcat Reach Pond Link

Routing Diagram for 3347-01_Proposed HydroCAD
Prepared by Allen & Major Associates, Inc, Printed 8/7/2024
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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NRCC 24-hr	A	Default	24.00	1	3.15	2
2	10-year	NRCC 24-hr	A	Default	24.00	1	4.75	2
3	25-year	NRCC 24-hr	A	Default	24.00	1	6.01	2
4	50-year	NRCC 24-hr	A	Default	24.00	1	7.18	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,685	39	>75% Grass cover, Good, HSG A (P-1, P-2, P-4, P-6)
5,962	98	Paved parking, HSG A (P-1, P-2, P-6)
3,092	98	Roofs, HSG A (P-3, P-5)
24,739	**61**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
24,739	HSG A	P-1, P-2, P-3, P-4, P-5, P-6
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
24,739		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
15,685	0	0	0	0	15,685	>75% Grass cover, Good	
5,962	0	0	0	0	5,962	Paved parking	
3,092	0	0	0	0	3,092	Roofs	
24,739	**0**	**0**	**0**	**0**	**24,739**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	IS1	112.70	111.91	79.0	0.0100	0.013	0.0	12.0	0.0	
2	RG1	112.83	112.74	3.0	0.0300	0.013	0.0	8.0	0.0	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 P-1: Subcat P-1 Runoff Area=12,277 sf 46.59% Impervious Runoff Depth=0.62"
Tc=6.0 min CN=66 Runoff=0.23 cfs 632 cf

Subcatchment P-2: Subcat P-2 Runoff Area=1,610 sf 10.07% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=45 Runoff=0.00 cfs 5 cf

Subcatchment P-3: Subcat P-3 Runoff Area=1,152 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.10 cfs 280 cf

Subcatchment P-4: Subcat P-4 Runoff Area=4,181 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment P-5: Subcat P-5 Runoff Area=1,940 sf 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.17 cfs 472 cf

Subcatchment P-6: Subcat P-6 Runoff Area=3,579 sf 2.23% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=40 Runoff=0.00 cfs 0 cf

Reach SP1: Study Point #1 Inflow=0.00 cfs 6 cf
Outflow=0.00 cfs 6 cf

Pond IS1: Infiltration System Peak Elev=113.35' Storage=188 cf Inflow=0.23 cfs 632 cf
Discarded=0.04 cfs 632 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 632 cf

Pond RG1: Rain Garden Peak Elev=114.54' Storage=250 cf Inflow=0.27 cfs 752 cf
Discarded=0.04 cfs 752 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 752 cf

Total Runoff Area = 24,739 sf Runoff Volume = 1,390 cf Average Runoff Depth = 0.67"
63.40% Pervious = 15,685 sf 36.60% Impervious = 9,054 sf

Summary for Subcatchment P-1: Subcat P-1

Runoff = 0.23 cfs @ 12.15 hrs, Volume= 632 cf, Depth= 0.62"
Routed to Pond IS1 : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
6,557	39	>75% Grass cover, Good, HSG A
5,720	98	Paved parking, HSG A
12,277	66	Weighted Average
6,557		53.41% Pervious Area
5,720		46.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.00 cfs @ 14.45 hrs, Volume= 5 cf, Depth= 0.04"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.10 cfs @ 12.13 hrs, Volume= 280 cf, Depth= 2.92"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.17 cfs @ 12.13 hrs, Volume= 472 cf, Depth= 2.92"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 36.60% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 14.45 hrs, Volume= 6 cf
Outflow = 0.00 cfs @ 14.45 hrs, Volume= 6 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond IS1: Infiltration System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

Inflow Area = 12,277 sf, 46.59% Impervious, Inflow Depth = 0.62" for 2-year event
Inflow = 0.23 cfs @ 12.15 hrs, Volume= 632 cf
Outflow = 0.04 cfs @ 12.92 hrs, Volume= 632 cf, Atten= 85%, Lag= 46.4 min
Discarded = 0.04 cfs @ 12.92 hrs, Volume= 632 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 113.35' @ 12.92 hrs Surf.Area= 373 sf Storage= 188 cf
Flood Elev= 114.40' Surf.Area= 373 sf Storage= 372 cf

Plug-Flow detention time= 43.4 min calculated for 632 cf (100% of inflow)
Center-of-Mass det. time= 43.4 min (916.6 - 873.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.40'	249 cf	**8.25'W x 45.19'L x 2.00'H Field A** 746 cf Overall - 123 cf Embedded = 623 cf x 40.0% Voids
#2A	112.90'	123 cf	**ADS_StormTech SC-160LP +Cap** x 18 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 18 Chambers in 3 Rows
		372 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#2	Primary	112.70'	**12.0" Round Culvert** L= 79.0' Ke= 0.500 Inlet / Outlet Invert= 112.70' / 111.91' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	114.12'	**12.0" Horiz. outlet control orifice** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.92 hrs HW=113.35' (Free Discharge)
└**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=112.40' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=outlet control orifice** (Controls 0.00 cfs)

Summary for Pond RG1: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 1.24" for 2-year event
Inflow = 0.27 cfs @ 12.13 hrs, Volume= 752 cf
Outflow = 0.04 cfs @ 12.57 hrs, Volume= 752 cf, Atten= 84%, Lag= 26.4 min
Discarded = 0.04 cfs @ 12.57 hrs, Volume= 752 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.54' @ 12.57 hrs Surf.Area= 557 sf Storage= 250 cf
Flood Elev= 116.00' Surf.Area= 1,166 sf Storage= 1,486 cf

Plug-Flow detention time= 43.0 min calculated for 751 cf (100% of inflow)
Center-of-Mass det. time= 43.0 min (798.5 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

#2	Discarded	114.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#3	Device 4	115.50'	**15.0" Horiz. beehive** C= 0.600 Limited to weir flow at low heads
#4	Primary	112.83'	**8.0" Round Culvert** L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 112.83' / 112.74' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 12.57 hrs HW=114.54' (Free Discharge)
└**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
└**3=beehive** (Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 P-1: Subcat P-1 Runoff Area=12,277 sf 46.59% Impervious Runoff Depth=1.56"
Tc=6.0 min CN=66 Runoff=0.66 cfs 1,596 cf

Subcatchment P-2: Subcat P-2 Runoff Area=1,610 sf 10.07% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=45 Runoff=0.01 cfs 49 cf

Subcatchment P-3: Subcat P-3 Runoff Area=1,152 sf 100.00% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=98 Runoff=0.15 cfs 433 cf

Subcatchment P-4: Subcat P-4 Runoff Area=4,181 sf 0.00% Impervious Runoff Depth=0.15"
Tc=6.0 min CN=39 Runoff=0.00 cfs 53 cf

Subcatchment P-5: Subcat P-5 Runoff Area=1,940 sf 100.00% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=98 Runoff=0.26 cfs 730 cf

Subcatchment P-6: Subcat P-6 Runoff Area=3,579 sf 2.23% Impervious Runoff Depth=0.18"
Tc=6.0 min CN=40 Runoff=0.00 cfs 55 cf

Reach SP1: Study Point #1 Inflow=0.63 cfs 525 cf
Outflow=0.63 cfs 525 cf

Pond IS1: Infiltration System Peak Elev=114.28' Storage=355 cf Inflow=0.66 cfs 1,596 cf
Discarded=0.05 cfs 1,175 cf Primary=0.62 cfs 421 cf Outflow=0.67 cfs 1,596 cf

Pond RG1: Rain Garden Peak Elev=114.85' Storage=440 cf Inflow=0.41 cfs 1,216 cf
Discarded=0.05 cfs 1,216 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,216 cf

Total Runoff Area = 24,739 sf Runoff Volume = 2,915 cf Average Runoff Depth = 1.41"
63.40% Pervious = 15,685 sf 36.60% Impervious = 9,054 sf

Summary for Subcatchment P-1: Subcat P-1

Runoff = 0.66 cfs @ 12.14 hrs, Volume= 1,596 cf, Depth= 1.56"
Routed to Pond IS1 : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
6,557	39	>75% Grass cover, Good, HSG A
5,720	98	Paved parking, HSG A
12,277	66	Weighted Average
6,557		53.41% Pervious Area
5,720		46.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.01 cfs @ 12.21 hrs, Volume= 49 cf, Depth= 0.37"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.15 cfs @ 12.13 hrs, Volume= 433 cf, Depth= 4.51"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.00 cfs @ 12.55 hrs, Volume= 53 cf, Depth= 0.15"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.26 cfs @ 12.13 hrs, Volume= 730 cf, Depth= 4.51"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.00 cfs @ 12.54 hrs, Volume= 55 cf, Depth= 0.18"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 36.60% Impervious, Inflow Depth = 0.25" for 10-year event
Inflow = 0.63 cfs @ 12.21 hrs, Volume= 525 cf
Outflow = 0.63 cfs @ 12.21 hrs, Volume= 525 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond IS1: Infiltration System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 12,277 sf, 46.59% Impervious, Inflow Depth = 1.56" for 10-year event
Inflow = 0.66 cfs @ 12.14 hrs, Volume= 1,596 cf
Outflow = 0.67 cfs @ 12.21 hrs, Volume= 1,596 cf, Atten= 0%, Lag= 4.0 min
Discarded = 0.05 cfs @ 12.21 hrs, Volume= 1,175 cf
Primary = 0.62 cfs @ 12.21 hrs, Volume= 421 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.28' @ 12.21 hrs Surf.Area= 373 sf Storage= 355 cf
Flood Elev= 114.40' Surf.Area= 373 sf Storage= 372 cf

Plug-Flow detention time= 56.4 min calculated for 1,595 cf (100% of inflow)
Center-of-Mass det. time= 56.3 min (901.8 - 845.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.40'	249 cf	**8.25'W x 45.19'L x 2.00'H Field A** 746 cf Overall - 123 cf Embedded = 623 cf x 40.0% Voids
#2A	112.90'	123 cf	**ADS_StormTech SC-160LP +Cap** x 18 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 18 Chambers in 3 Rows
		372 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#2	Primary	112.70'	**12.0" Round Culvert** L= 79.0' Ke= 0.500 Inlet / Outlet Invert= 112.70' / 111.91' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	114.12'	**12.0" Horiz. outlet control orifice** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.21 hrs HW=114.25' (Free Discharge)
└**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.57 cfs @ 12.21 hrs HW=114.27' (Free Discharge)
└**2=Culvert** (Passes 0.57 cfs of 3.68 cfs potential flow)
└**3=outlet control orifice** (Weir Controls 0.57 cfs @ 1.25 fps)

Summary for Pond RG1: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 2.01" for 10-year event
Inflow = 0.41 cfs @ 12.13 hrs, Volume= 1,216 cf
Outflow = 0.05 cfs @ 12.65 hrs, Volume= 1,216 cf, Atten= 87%, Lag= 31.2 min
Discarded = 0.05 cfs @ 12.65 hrs, Volume= 1,216 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.85' @ 12.65 hrs Surf.Area= 664 sf Storage= 440 cf
Flood Elev= 116.00' Surf.Area= 1,166 sf Storage= 1,486 cf

Plug-Flow detention time= 66.4 min calculated for 1,215 cf (100% of inflow)
Center-of-Mass det. time= 66.4 min (825.7 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	114.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#3	Device 4	115.50'	**15.0" Horiz. beehive** C= 0.600 Limited to weir flow at low heads
#4	Primary	112.83'	**8.0" Round Culvert** L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 112.83' / 112.74' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.65 hrs HW=114.85' (Free Discharge)
└**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
└**3=beehive** (Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 P-1: Subcat P-1 Runoff Area=12,277 sf 46.59% Impervious Runoff Depth=2.45"
Tc=6.0 min CN=66 Runoff=1.05 cfs 2,504 cf

Subcatchment P-2: Subcat P-2 Runoff Area=1,610 sf 10.07% Impervious Runoff Depth=0.81"
Tc=6.0 min CN=45 Runoff=0.03 cfs 108 cf

Subcatchment P-3: Subcat P-3 Runoff Area=1,152 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.19 cfs 554 cf

Subcatchment P-4: Subcat P-4 Runoff Area=4,181 sf 0.00% Impervious Runoff Depth=0.45"
Tc=6.0 min CN=39 Runoff=0.02 cfs 156 cf

Subcatchment P-5: Subcat P-5 Runoff Area=1,940 sf 100.00% Impervious Runoff Depth=5.77"
Tc=6.0 min CN=98 Runoff=0.33 cfs 933 cf

Subcatchment P-6: Subcat P-6 Runoff Area=3,579 sf 2.23% Impervious Runoff Depth=0.50"
Tc=6.0 min CN=40 Runoff=0.03 cfs 150 cf

Reach SP1: Study Point #1 Inflow=1.07 cfs 1,317 cf
Outflow=1.07 cfs 1,317 cf

Pond IS1: Infiltration System Peak Elev=114.33' Storage=362 cf Inflow=1.05 cfs 2,504 cf
Discarded=0.05 cfs 1,445 cf Primary=1.01 cfs 1,059 cf Outflow=1.06 cfs 2,504 cf

Pond RG1: Rain Garden Peak Elev=115.11' Storage=628 cf Inflow=0.54 cfs 1,643 cf
Discarded=0.06 cfs 1,643 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,643 cf

Total Runoff Area = 24,739 sf Runoff Volume = 4,406 cf Average Runoff Depth = 2.14"
63.40% Pervious = 15,685 sf 36.60% Impervious = 9,054 sf

Summary for Subcatchment P-1: Subcat P-1

Runoff = 1.05 cfs @ 12.14 hrs, Volume= 2,504 cf, Depth= 2.45"
Routed to Pond IS1 : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
6,557	39	>75% Grass cover, Good, HSG A
5,720	98	Paved parking, HSG A
12,277	66	Weighted Average
6,557		53.41% Pervious Area
5,720		46.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 108 cf, Depth= 0.81"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.19 cfs @ 12.13 hrs, Volume= 554 cf, Depth= 5.77"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.02 cfs @ 12.22 hrs, Volume= 156 cf, Depth= 0.45"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.33 cfs @ 12.13 hrs, Volume= 933 cf, Depth= 5.77"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.03 cfs @ 12.19 hrs, Volume= 150 cf, Depth= 0.50"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 36.60% Impervious, Inflow Depth = 0.64" for 25-year event
Inflow = 1.07 cfs @ 12.15 hrs, Volume= 1,317 cf
Outflow = 1.07 cfs @ 12.15 hrs, Volume= 1,317 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond IS1: Infiltration System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 12,277 sf, 46.59% Impervious, Inflow Depth = 2.45" for 25-year event
Inflow = 1.05 cfs @ 12.14 hrs, Volume= 2,504 cf
Outflow = 1.06 cfs @ 12.14 hrs, Volume= 2,504 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.05 cfs @ 12.14 hrs, Volume= 1,445 cf
Primary = 1.01 cfs @ 12.14 hrs, Volume= 1,059 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.33' @ 12.14 hrs Surf.Area= 373 sf Storage= 362 cf
Flood Elev= 114.40' Surf.Area= 373 sf Storage= 372 cf

Plug-Flow detention time= 47.0 min calculated for 2,502 cf (100% of inflow)
Center-of-Mass det. time= 47.0 min (880.7 - 833.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.40'	249 cf	**8.25'W x 45.19'L x 2.00'H Field A** 746 cf Overall - 123 cf Embedded = 623 cf x 40.0% Voids
#2A	112.90'	123 cf	**ADS_StormTech SC-160LP +Cap** x 18 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 18 Chambers in 3 Rows
		372 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#2	Primary	112.70'	**12.0" Round Culvert** L= 79.0' Ke= 0.500 Inlet / Outlet Invert= 112.70' / 111.91' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	114.12'	**12.0" Horiz. outlet control orifice** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.14 hrs HW=114.33' (Free Discharge)
└**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.99 cfs @ 12.14 hrs HW=114.33' (Free Discharge)
└**2=Culvert** (Passes 0.99 cfs of 3.76 cfs potential flow)
└**3=outlet control orifice** (Weir Controls 0.99 cfs @ 1.50 fps)

Summary for Pond RG1: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 2.71" for 25-year event
Inflow = 0.54 cfs @ 12.13 hrs, Volume= 1,643 cf
Outflow = 0.06 cfs @ 12.79 hrs, Volume= 1,643 cf, Atten= 88%, Lag= 39.4 min
Discarded = 0.06 cfs @ 12.79 hrs, Volume= 1,643 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.11' @ 12.79 hrs Surf.Area= 766 sf Storage= 628 cf
Flood Elev= 116.00' Surf.Area= 1,166 sf Storage= 1,486 cf

Plug-Flow detention time= 86.5 min calculated for 1,643 cf (100% of inflow)
Center-of-Mass det. time= 86.5 min (849.2 - 762.7)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	114.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#3	Device 4	115.50'	**15.0" Horiz. beehive** C= 0.600 Limited to weir flow at low heads
#4	Primary	112.83'	**8.0" Round Culvert** L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 112.83' / 112.74' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.06 cfs @ 12.79 hrs HW=115.11' (Free Discharge)
└**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
└**3=beehive** (Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 P-1: Subcat P-1 Runoff Area=12,277 sf 46.59% Impervious Runoff Depth=3.35"
Tc=6.0 min CN=66 Runoff=1.43 cfs 3,424 cf

Subcatchment P-2: Subcat P-2 Runoff Area=1,610 sf 10.07% Impervious Runoff Depth=1.32"
Tc=6.0 min CN=45 Runoff=0.06 cfs 177 cf

Subcatchment P-3: Subcat P-3 Runoff Area=1,152 sf 100.00% Impervious Runoff Depth=6.94"
Tc=6.0 min CN=98 Runoff=0.23 cfs 666 cf

Subcatchment P-4: Subcat P-4 Runoff Area=4,181 sf 0.00% Impervious Runoff Depth=0.83"
Tc=6.0 min CN=39 Runoff=0.08 cfs 290 cf

Subcatchment P-5: Subcat P-5 Runoff Area=1,940 sf 100.00% Impervious Runoff Depth=6.94"
Tc=6.0 min CN=98 Runoff=0.39 cfs 1,122 cf

Subcatchment P-6: Subcat P-6 Runoff Area=3,579 sf 2.23% Impervious Runoff Depth=0.91"
Tc=6.0 min CN=40 Runoff=0.08 cfs 272 cf

Reach SP1: Study Point #1 Inflow=1.59 cfs 2,208 cf
Outflow=1.59 cfs 2,208 cf

Pond IS1: Infiltration System Peak Elev=114.39' Storage=371 cf Inflow=1.43 cfs 3,424 cf
Discarded=0.05 cfs 1,665 cf Primary=1.45 cfs 1,759 cf Outflow=1.50 cfs 3,424 cf

Pond RG1: Rain Garden Peak Elev=115.36' Storage=834 cf Inflow=0.69 cfs 2,079 cf
Discarded=0.07 cfs 2,079 cf Primary=0.00 cfs 0 cf Outflow=0.07 cfs 2,079 cf

Total Runoff Area = 24,739 sf Runoff Volume = 5,952 cf Average Runoff Depth = 2.89"
63.40% Pervious = 15,685 sf 36.60% Impervious = 9,054 sf

Summary for Subcatchment P-1: Subcat P-1

Runoff = 1.43 cfs @ 12.13 hrs, Volume= 3,424 cf, Depth= 3.35"
Routed to Pond IS1 : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
6,557	39	>75% Grass cover, Good, HSG A
5,720	98	Paved parking, HSG A
12,277	66	Weighted Average
6,557		53.41% Pervious Area
5,720		46.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 177 cf, Depth= 1.32"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.23 cfs @ 12.13 hrs, Volume= 666 cf, Depth= 6.94"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 290 cf, Depth= 0.83"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.39 cfs @ 12.13 hrs, Volume= 1,122 cf, Depth= 6.94"
Routed to Pond RG1 : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 272 cf, Depth= 0.91"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,739 sf, 36.60% Impervious, Inflow Depth = 1.07" for 50-year event
Inflow = 1.59 cfs @ 12.15 hrs, Volume= 2,208 cf
Outflow = 1.59 cfs @ 12.15 hrs, Volume= 2,208 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond IS1: Infiltration System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 12,277 sf, 46.59% Impervious, Inflow Depth = 3.35" for 50-year event
Inflow = 1.43 cfs @ 12.13 hrs, Volume= 3,424 cf
Outflow = 1.50 cfs @ 12.15 hrs, Volume= 3,424 cf, Atten= 0%, Lag= 0.7 min
Discarded = 0.05 cfs @ 12.15 hrs, Volume= 1,665 cf
Primary = 1.45 cfs @ 12.15 hrs, Volume= 1,759 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.39' @ 12.15 hrs Surf.Area= 373 sf Storage= 371 cf
Flood Elev= 114.40' Surf.Area= 373 sf Storage= 372 cf

Plug-Flow detention time= 41.9 min calculated for 3,421 cf (100% of inflow)
Center-of-Mass det. time= 41.9 min (867.8 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.40'	249 cf	**8.25'W x 45.19'L x 2.00'H Field A** 746 cf Overall - 123 cf Embedded = 623 cf x 40.0% Voids
#2A	112.90'	123 cf	**ADS_StormTech SC-160LP +Cap** x 18 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 18 Chambers in 3 Rows
		372 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.40'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#2	Primary	112.70'	**12.0" Round Culvert** L= 79.0' Ke= 0.500 Inlet / Outlet Invert= 112.70' / 111.91' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	114.12'	**12.0" Horiz. outlet control orifice** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.15 hrs HW=114.39' (Free Discharge)
└**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=1.41 cfs @ 12.15 hrs HW=114.39' (Free Discharge)
└**2=Culvert** (Passes 1.41 cfs of 3.84 cfs potential flow)
└**3=outlet control orifice** (Weir Controls 1.41 cfs @ 1.69 fps)

Summary for Pond RG1: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009. The Ksat value for Windsor soil is 6 inches per hour. A 2x safety factor was applied and an exfiltration rate of 3 inches per hour was used.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 3.43" for 50-year event
Inflow = 0.69 cfs @ 12.13 hrs, Volume= 2,079 cf
Outflow = 0.07 cfs @ 12.89 hrs, Volume= 2,079 cf, Atten= 89%, Lag= 45.5 min
Discarded = 0.07 cfs @ 12.89 hrs, Volume= 2,079 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.36' @ 12.89 hrs Surf.Area= 879 sf Storage= 834 cf
Flood Elev= 116.00' Surf.Area= 1,166 sf Storage= 1,486 cf

Plug-Flow detention time= 104.4 min calculated for 2,079 cf (100% of inflow)
Center-of-Mass det. time= 104.4 min (869.3 - 765.0)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

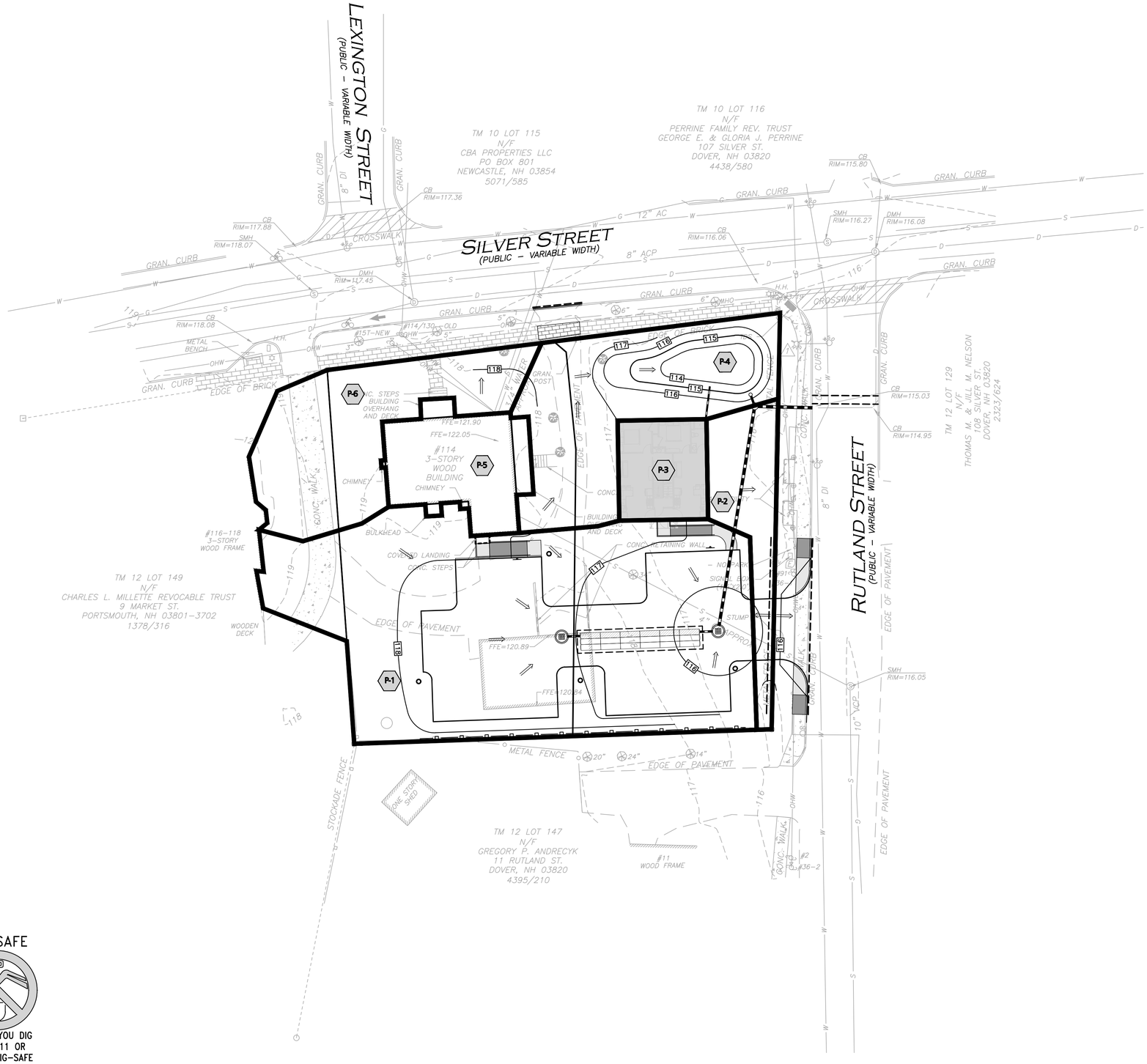
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	114.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.01'
#3	Device 4	115.50'	**15.0" Horiz. beehive** C= 0.600 Limited to weir flow at low heads
#4	Primary	112.83'	**8.0" Round Culvert** L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 112.83' / 112.74' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.07 cfs @ 12.89 hrs HW=115.36' (Free Discharge)
└─**2=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
├─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
└─**3=beehive** (Controls 0.00 cfs)

Proposed Watershed Plan



LEGEND

SUBCATCHMENT LABEL	P-1
SUBCATCHMENT BOUNDARY	
FLOW DIRECTION	⟹

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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R: \PROJECTS \3347–01 \CIVIL \DRAWINGS \CURRENT \C–3347–01_WATERSHED–PROPOSED.DWG

REV	DATE	DESCRIPTION
1	08-06-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

PROPOSED WATERSHED PLAN

SHEET No.

PWS-1

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SECTION 5.0 -
APPENDIX

Extreme Precipitation Tables

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.191 degrees North
Longitude	70.882 degrees West
Elevation	30 feet
Date/Time	Mon Jun 10 2024 13:34:38 GMT-0400 (Eastern Daylight Time)

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	1.03	**1yr**	0.70	0.98	1.20	1.54	2.00	2.60	2.87	**1yr**	2.31	2.76	3.15	3.88	4.45	**1yr**
2yr	0.32	0.49	0.61	0.81	1.01	1.29	**2yr**	0.88	1.17	1.50	1.91	2.45	3.15	3.50	**2yr**	2.79	3.37	3.86	4.60	5.23	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.39	3.08	3.98	4.49	**5yr**	3.52	4.32	4.94	5.81	6.57	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.83	3.66	4.75	5.42	**10yr**	4.20	5.21	5.95	6.93	7.80	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.70	3.53	4.61	6.01	6.95	**25yr**	5.32	6.68	7.61	8.77	9.80	**25yr**
50yr	0.52	0.83	1.06	1.48	2.00	2.67	**50yr**	1.73	2.46	3.18	4.19	5.49	7.18	8.39	**50yr**	6.35	8.07	9.17	10.48	11.65	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.00	2.89	3.75	4.96	6.53	8.58	10.14	**100yr**	7.60	9.75	11.06	12.53	13.86	**100yr**
200yr	0.64	1.05	1.36	1.95	2.70	3.67	**200yr**	2.33	3.40	4.43	5.89	7.79	10.26	12.26	**200yr**	9.08	11.79	13.34	14.98	16.49	**200yr**
500yr	0.76	1.24	1.62	2.36	3.30	4.54	**500yr**	2.85	4.22	5.50	7.37	9.82	13.01	15.75	**500yr**	11.51	15.15	17.10	18.99	20.77	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.26	1.57	2.12	2.46	**1yr**	1.88	2.36	2.88	3.35	4.03	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.36	3.04	3.40	**2yr**	2.69	3.27	3.75	4.47	5.05	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.78	3.71	4.12	**5yr**	3.28	3.97	4.61	5.41	6.11	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.13	4.27	4.78	**10yr**	3.78	4.60	5.32	6.24	7.01	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.65	4.94	5.79	**25yr**	4.37	5.57	6.48	7.55	8.42	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.19	**50yr**	1.52	2.14	2.35	3.19	4.09	5.64	6.68	**50yr**	4.99	6.42	7.53	8.71	9.66	**50yr**
100yr	0.54	0.81	1.01	1.46	2.01	2.51	**100yr**	1.73	2.45	2.63	3.57	4.57	6.42	7.69	**100yr**	5.68	7.40	8.74	10.06	11.07	**100yr**
200yr	0.59	0.89	1.13	1.64	2.29	2.87	**200yr**	1.97	2.80	2.93	4.00	5.10	7.31	8.87	**200yr**	6.47	8.53	10.14	11.61	12.70	**200yr**
500yr	0.69	1.03	1.33	1.93	2.74	3.45	**500yr**	2.36	3.37	3.40	4.63	5.92	8.64	10.68	**500yr**	7.65	10.27	12.33	14.06	15.18	**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	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.74	2.21	2.87	3.08	**1yr**	2.54	2.97	3.43	4.22	4.81	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.48	1.95	2.51	3.29	3.62	**2yr**	2.91	3.49	4.00	4.75	5.45	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.58	**5yr**	1.13	1.55	1.86	2.50	3.20	4.24	4.85	**5yr**	3.75	4.67	5.28	6.23	7.00	**5yr**
10yr	0.46	0.70	0.87	1.22	1.57	1.92	**10yr**	1.36	1.88	2.23	3.05	3.86	5.21	6.06	**10yr**	4.62	5.83	6.65	7.65	8.53	**10yr**
25yr	0.56	0.84	1.05	1.50	1.97	2.48	**25yr**	1.70	2.42	2.88	3.97	4.96	7.07	8.14	**25yr**	6.26	7.82	8.90	10.07	11.12	**25yr**
50yr	0.64	0.98	1.22	1.75	2.35	2.99	**50yr**	2.03	2.93	3.49	4.83	6.03	8.74	10.20	**50yr**	7.74	9.80	11.12	12.38	13.59	**50yr**
100yr	0.75	1.13	1.42	2.04	2.80	3.62	**100yr**	2.42	3.54	4.24	5.92	7.33	10.81	12.78	**100yr**	9.56	12.28	13.88	15.25	16.63	**100yr**
200yr	0.87	1.30	1.65	2.39	3.34	4.39	**200yr**	2.88	4.29	5.16	7.24	8.90	13.39	16.03	**200yr**	11.85	15.41	17.35	18.78	20.38	**200yr**
500yr	1.06	1.58	2.03	2.95	4.19	5.64	**500yr**	3.62	5.51	6.66	9.47	11.54	17.81	21.63	**500yr**	15.76	20.80	23.31	24.76	26.67	**500yr**

Powered by ACIS
Northeast Regional Climate Center

NRCS Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Strafford County, New Hampshire



June 10, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:553 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Strafford County, New Hampshire
Survey Area Data: Version 24, Aug 22, 2023

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
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 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.

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.

Strafford County, New Hampshire

WfB—Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9d9b
Elevation: 0 to 280 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Windsor variant and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor Variant

Typical profile

H1 - 0 to 26 inches: loamy fine sand
H2 - 26 to 30 inches: loamy sand
H3 - 30 to 42 inches: silt loam

Properties and qualities

Slope: 0 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): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

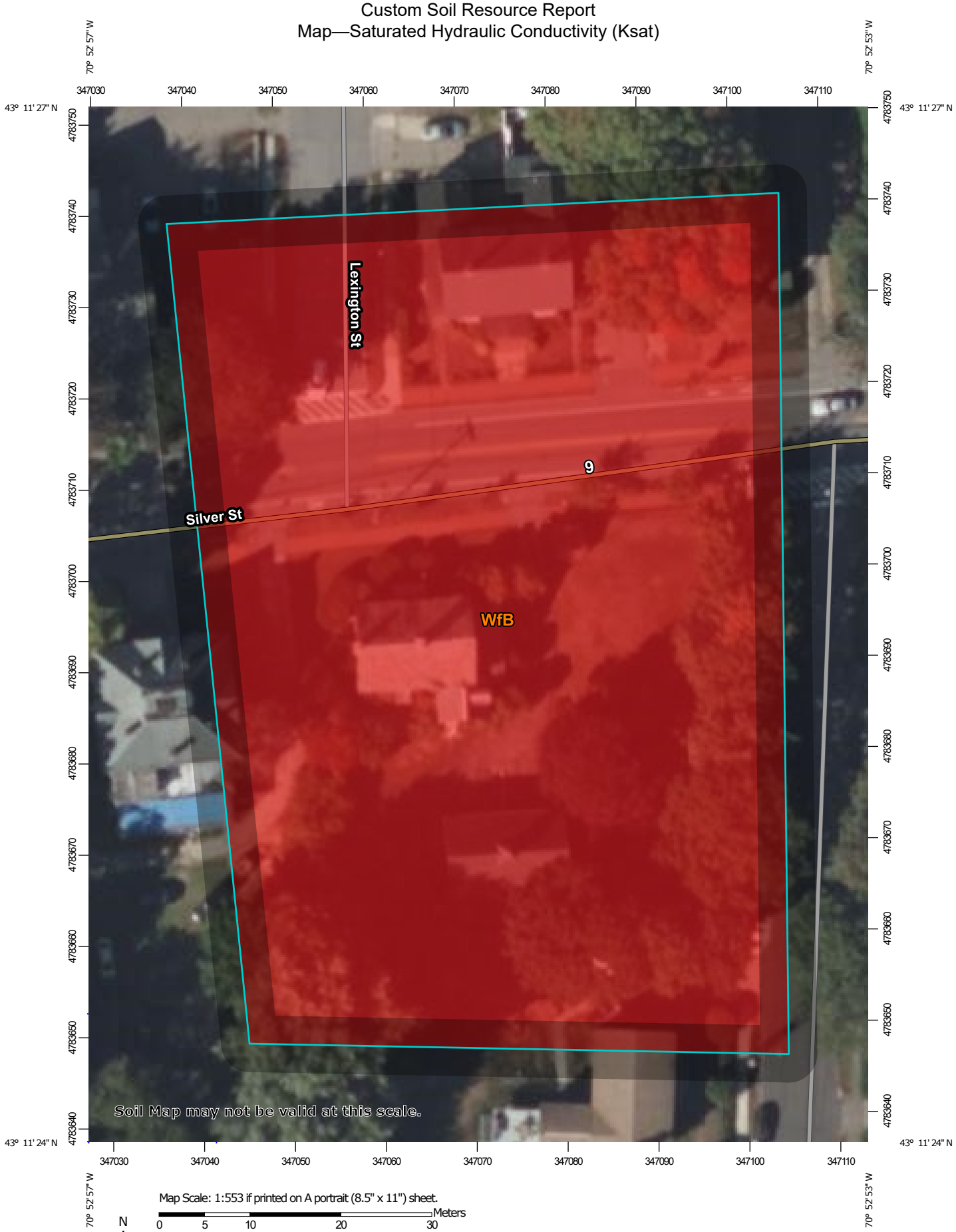
Saturated Hydraulic Conductivity (Ksat)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat)



Map Scale: 1:553 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 70.3862

Not rated or not available

Soil Rating Lines

= 70.3862

Not rated or not available

Soil Rating Points

= 70.3862

Not rated or not available

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 1:20,000.

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: Strafford County, New Hampshire
Survey Area Data: Version 24, Aug 22, 2023

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.

Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	70.3862	1.4	100.0%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 100

Units of Measure: Centimeters

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Map Scale: 1:553 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

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 1:20,000.

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: Strafford County, New Hampshire
Survey Area Data: Version 24, Aug 22, 2023

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	A	1.4	100.0%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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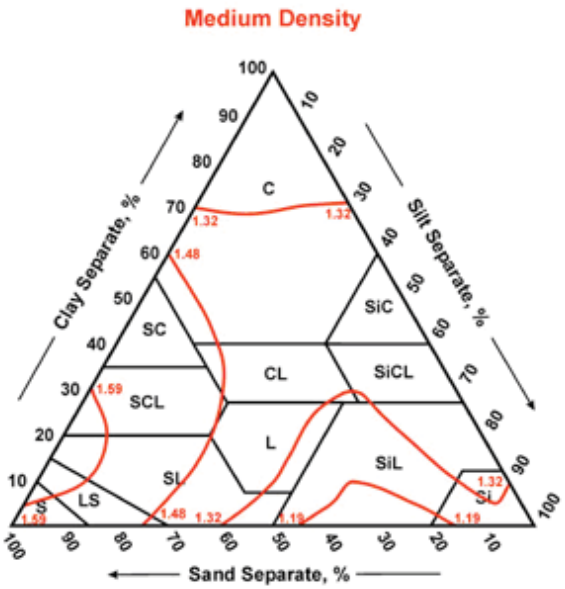
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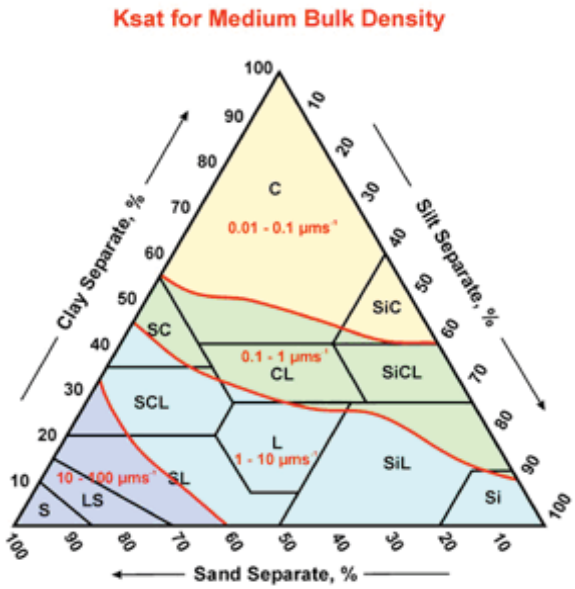
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Ksat Value, SSSNNE

K_{sat} VALUES
FOR
NEW HAMPSHIRE SOILS
(Including Hydrologic and DES Soil Lot Sizing Groups)





From: **Guide for Estimating Ksat from Soil Properties** (**Exhibit 618-9**). (http://soils.usda.gov/technical/handbook/contents/part618ex.html)

Sponsored by the Society of Soil Scientists of Northern New England
SSSNNE Special Publication No. 5
September, 2009

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

no longer recognized organic materials

NHDES Groundwater Recharge Calculation

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

0.05	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.40	inches	Rd = Weighted groundwater recharge depth	
0.0202	ac-in	GRV = AI * Rd	
73	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

A total of 1,289 CF of recharge volume is provided.

330 CF of recharge volume is provided in the infiltation system, below the overflow. See HydroCAD Stor. Table.

959 CF of recharge is provided in the rain garden, below the overflow. See attached HydroCAD Storage Table.

Stage-Area-Storage for Pond IS1: Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
112.40	**373**	0	112.93	373	82
112.41	373	1	112.94	373	85
112.42	373	3	112.95	373	88
112.43	373	4	112.96	373	90
112.44	373	6	112.97	373	93
112.45	373	7	112.98	373	96
112.46	373	9	112.99	373	98
112.47	373	10	113.00	373	101
112.48	373	12	113.01	373	104
112.49	373	13	113.02	373	106
112.50	373	15	113.03	373	109
112.51	373	16	113.04	373	111
112.52	373	18	113.05	373	114
112.53	373	19	113.06	373	117
112.54	373	21	113.07	373	119
112.55	373	22	113.08	373	122
112.56	373	24	113.09	373	124
112.57	373	25	113.10	373	127
112.58	373	27	113.11	373	129
112.59	373	28	113.12	373	132
112.60	373	30	113.13	373	135
112.61	373	31	113.14	373	137
112.62	373	33	113.15	373	140
112.63	373	34	113.16	373	142
112.64	373	36	113.17	373	145
112.65	373	37	113.18	373	147
112.66	373	39	113.19	373	150
112.67	373	40	113.20	373	152
112.68	373	42	113.21	373	155
112.69	373	43	113.22	373	157
112.70	373	45	113.23	373	160
112.71	373	46	113.24	373	162
112.72	373	48	113.25	373	165
112.73	373	49	113.26	373	167
112.74	373	51	113.27	373	169
112.75	373	52	113.28	373	172
112.76	373	54	113.29	373	174
112.77	373	55	113.30	373	177
112.78	373	57	113.31	373	179
112.79	373	58	113.32	373	182
112.80	373	60	113.33	373	184
112.81	373	61	113.34	373	186
112.82	373	63	113.35	373	189
112.83	373	64	113.36	373	191
112.84	373	66	113.37	373	194
112.85	373	67	113.38	373	196
112.86	373	69	113.39	373	198
112.87	373	70	113.40	373	201
112.88	373	72	113.41	373	203
112.89	373	73	113.42	373	205
112.90	373	75	113.43	373	208
112.91	373	77	113.44	373	210
112.92	373	80	113.45	373	212

Stage-Area-Storage for Pond IS1: Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
113.46	373	214
113.47	373	217
113.48	373	219
113.49	373	221
113.50	373	223
113.51	373	226
113.52	373	228
113.53	373	230
113.54	373	232
113.55	373	234
113.56	373	236
113.57	373	239
113.58	373	241
113.59	373	243
113.60	373	245
113.61	373	247
113.62	373	249
113.63	373	251
113.64	373	253
113.65	373	255
113.66	373	257
113.67	373	259
113.68	373	261
113.69	373	263
113.70	373	264
113.71	373	266
113.72	373	268
113.73	373	270
113.74	373	272
113.75	373	273
113.76	373	275
113.77	373	277
113.78	373	279
113.79	373	280
113.80	373	282
113.81	373	283
113.82	373	285
113.83	373	287
113.84	373	288
113.85	373	290
113.86	373	291
113.87	373	293
113.88	373	294
113.89	373	296
113.90	373	298
113.91	373	299
113.92	373	300
113.93	373	302
113.94	373	303
113.95	373	305
113.96	373	306
113.97	373	308
113.98	373	309
113.99	373	311
114.00	373	312
114.01	373	314
114.02	373	315
114.03	373	317
114.04	373	318
114.05	373	320
114.06	373	321
114.07	373	323
114.08	373	324
114.09	373	326
114.10	373	327
114.11	373	329
114.12	373	330
114.13	373	332
114.14	373	333
114.15	373	335
114.16	373	336
114.17	373	338
114.18	373	339
114.19	373	341
114.20	373	342
114.21	373	344
114.22	373	345
114.23	373	347
114.24	373	348
114.25	373	350
114.26	373	351
114.27	373	353
114.28	373	354
114.29	373	356
114.30	373	357
114.31	373	359
114.32	373	360
114.33	373	362
114.34	373	363
114.35	373	365
114.36	373	366
114.37	373	368
114.38	373	369
114.39	373	371
114.40	373	**372**

Stage-Area-Storage for Pond RG1: Rain Garden

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
114.00	374	0
114.02	381	8
114.04	388	15
114.06	395	23
114.08	401	31
114.10	408	39
114.12	415	47
114.14	422	56
114.16	429	64
114.18	436	73
114.20	442	82
114.22	449	91
114.24	456	100
114.26	463	109
114.28	470	118
114.30	477	128
114.32	483	137
114.34	490	147
114.36	497	157
114.38	504	167
114.40	511	177
114.42	518	187
114.44	524	198
114.46	531	208
114.48	538	219
114.50	545	230
114.52	552	241
114.54	559	252
114.56	566	263
114.58	572	274
114.60	579	286
114.62	586	298
114.64	593	309
114.66	600	321
114.68	607	333
114.70	613	346
114.72	620	358
114.74	627	370
114.76	634	383
114.78	641	396
114.80	648	409
114.82	654	422
114.84	661	435
114.86	668	448
114.88	675	462
114.90	682	475
114.92	689	489
114.94	695	503
114.96	702	517
114.98	709	531
115.00	716	545
115.02	725	559
115.04	734	574
115.06	743	589
115.08	752	604
115.10	761	619
115.12	770	634
115.14	779	650
115.16	788	665
115.18	797	681
115.20	806	697
115.22	815	713
115.24	824	730
115.26	833	746
115.28	842	763
115.30	851	780
115.32	860	797
115.34	869	814
115.36	878	832
115.38	887	850
115.40	896	867
115.42	905	885
115.44	914	904
115.46	923	922
115.48	932	941
115.50	941	959
115.52	950	978
115.54	959	997
115.56	968	1,017
115.58	977	1,036
115.60	986	1,056
115.62	995	1,075
115.64	1,004	1,095
115.66	1,013	1,116
115.68	1,022	1,136
115.70	1,031	1,156
115.72	1,040	1,177
115.74	1,049	1,198
115.76	1,058	1,219
115.78	1,067	1,240
115.80	1,076	1,262
115.82	1,085	1,283
115.84	1,094	1,305
115.86	1,103	1,327
115.88	1,112	1,349
115.90	1,121	1,372
115.92	1,130	1,394
115.94	1,139	1,417
115.96	1,148	1,440
115.98	1,157	1,463
116.00	**1,166**	**1,486**

Operation & Maintenance Procedure/Log Form

OPERATION AND MAINTENANCE PLAN SCHEDULE

ALLEN & MAJOR ASSOCIATES, INC.

Project: Residential Development
Project Address: 114 Silver Street, Dover, NH

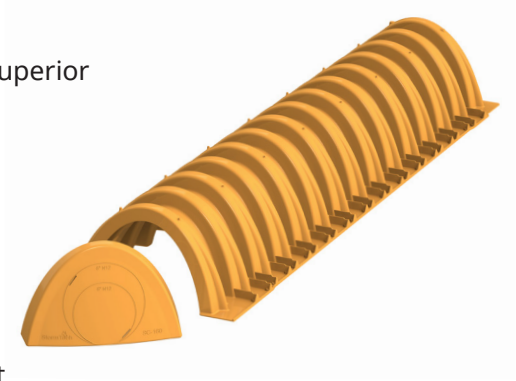
Responsible for O&M Plan: 114 Silver Street Group, LLC
Address: 10 Durham Road, Dover, NH 03820
Phone: (603) 412-6175

All information within table is derived from New Hampshire Stormwater Manual: Chapter 4, Sections 3 and 4

BMP CATEGORY	BMP OR MAINTENANCE ACTIVITY	SCHEDULE/ FREQUENCY	NOTES	INSPECTION PERFORMED	
				DATE:	BY:
PRETREATMENT PRACTICES	DEEP SUMP CATCH BASIN	May require frequent maintenance. It is recommended that catch basins be inspected at least twice annually.	Sediment should be removed when it approaches half the sump depth. If floating hydrocarbons are observed the material should be removed immediately. Damaged hoods should be replaced when noted by inspection.		
TREATMENT PRACTICES	UNDERGROUND INFILTRATION SYSTEM	Inspect at least twice annually and with any rainfall event exceeding 2.5 inches in a 24-hour period.	Removal of debris from inlet and outlet structures. Removal of accumulated sediment. Inspection and repair of outlet structures and appurtenances. If system does not drain within a 72-hour period following a rainfall event, a professional should assess the facility's condition.		
	RAIN GARDEN	Inspect at least twice annually and with any rainfall event exceeding 2.5 inches in a 24-hour period.	Annually the system should be inspected for drawdown time. Trash and debris should be removed at each inspection.		
OTHER MAINTENANCE	SNOW STORAGE	Clear and remove snow to approved storage locations as necessary to ensure systems are working properly and are protected from meltwater pollutants.	Carefully select snow disposal sites before winter. Avoid dumping removed snow over catch basins, or in detention ponds, sediment forebays, rivers, wetlands, and flood plains. It is also prohibited to dump snow in the bioretention basins or gravel swales.		
	STREET SWEEPING	Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.	Sweep, power broom or vacuum paved areas. Submit information that confirms that all street sweepings have been completed in accordance with state and local requirements		

ADS Stormtech Technical Specifications

StormTech® SC-160LP Chamber



Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for commercial and municipal applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

The SC-160LP chamber was developed for infiltration and detention in shallow cover applications

- Only 14” (350 mm) required from top of chamber to bottom of pavement
- Only 12” (300 mm) tall

Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
85.4” x 25” x 12”
2170 mm x 635 mm x 305 mm

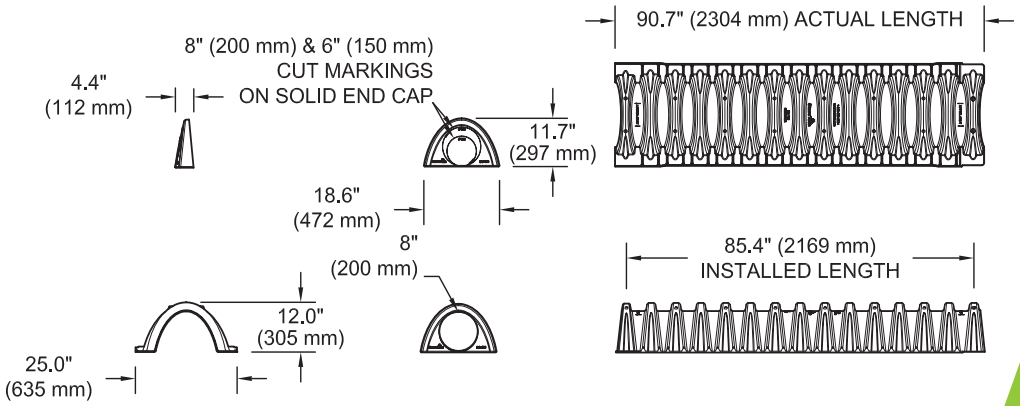
Chamber Storage
6.85 ft³ (0.19 m³)

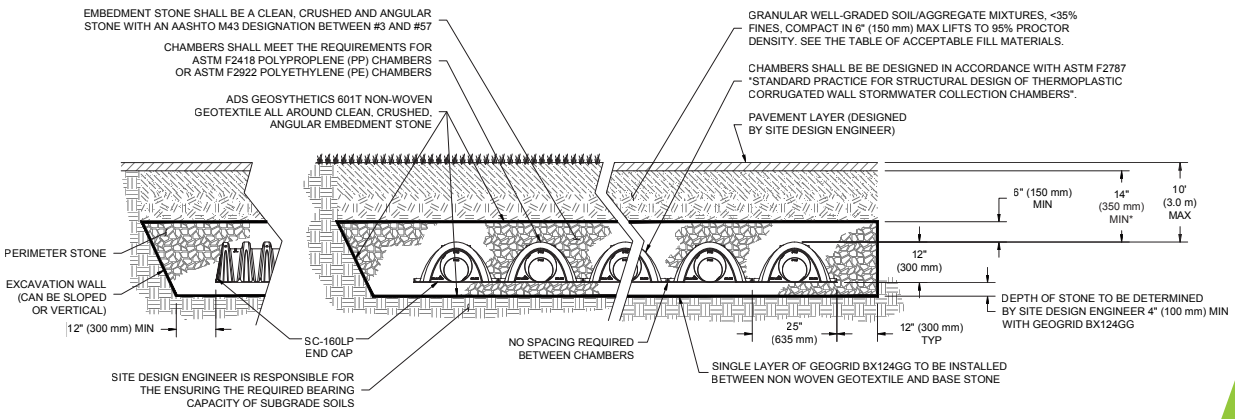
Min. Installed Storage*
15.0 ft³ (0.42 m³)

Weight
24.0 lbs (10.9 kg)

Shipping
132 chambers/pallet
144 end caps/pallet
12 pallets/truck

*Assumes 6” (150 mm) stone above, 4” (100 mm) below and stone between chambers with 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 20" (510 mm).

ADS StormTech™

StormTech SC-160LP Specifications

Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 4" (100 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)		Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
22 (559)	↑	6.85 (0.194)	14.98 (0.424)
21 (533)		6.85 (0.194)	14.49 (0.410)
20 (508)	Stone	6.85 (0.194)	14.00 (0.396)
19 (483)	Cover	6.85 (0.194)	13.50 (0.382)
18 (457)		6.85 (0.194)	13.01 (0.368)
17 (432)	↓	6.85 (0.194)	12.51 (0.354)
16 (406)		6.85 (0.194)	12.02 (0.340)
15 (381)		6.80 (0.193)	11.49 (0.325)
14 (356)		6.67 (0.189)	10.92 (0.309)
13 (330)		6.38 (0.181)	10.25 (0.290)
12 (305)		5.94 (0.168)	9.49 (0.269)
11 (279)		5.40 (0.153)	8.67 (0.246)
10 (254)		4.78 (0.135)	7.81 (0.221)
9 (229)		4.10 (0.116)	6.91 (0.196)
8 (203)		3.36 (0.095)	5.97 (0.169)
7 (178)		2.58 (0.073)	5.01 (0.142)
6 (152)		1.76 (0.050)	4.02 (0.114)
5 (127)		0.89 (0.025)	3.01 (0.085)
4 (102)	↑	0 (0)	1.98 (0.056)
3 (76)	Stone	0 (0)	1.48 (0.042)
2 (51)	Foundation	0 (0)	0.99 (0.028)
1 (25)	↓	0 (0)	0.49 (0.014)

Note: Add 0.49 ft³ (0.014 m³) of storage for each additional inch (25 mm) of stone foundation.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth		
	4"	6"	8"
SC-160LP	1.1 (0.8)	1.2 (0.9)	1.3 (0.9)
Metric Kilograms (m³)	**100 mm**	**150 mm**	**200 mm**
SC-160LP	652 (0.7)	1074 (0.8)	1197 (0.8)

Note: Assumes 6" (150 mm) of stone above and only embedment stone between chambers.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth		
	4 (100)	8 (200)	12 (300)
SC-160LP	1.4 (1.1)	1.6 (1.2)	1.8 (1.3)

Note: Assumes no row separation and 14" (350 mm) of cover. The volume of excavation will vary as depth of cover increases.

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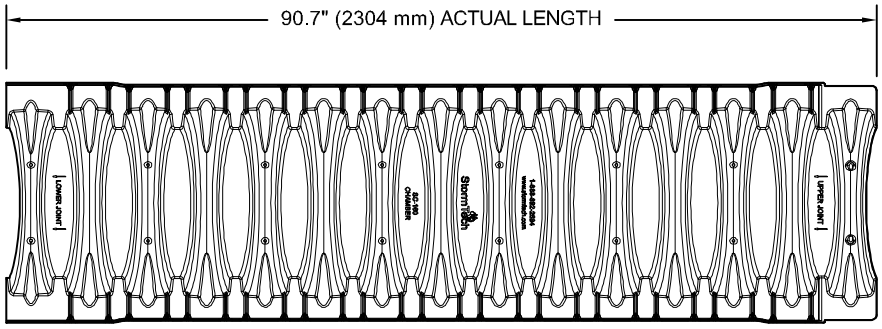
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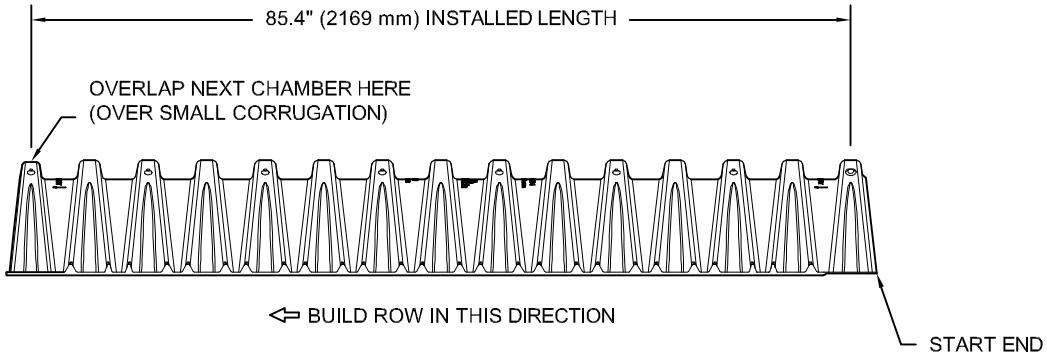
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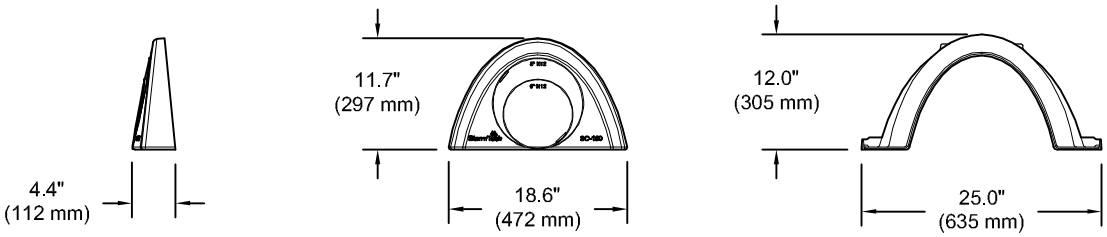
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SC-160LP TECHNICAL SPECIFICATION

NTS





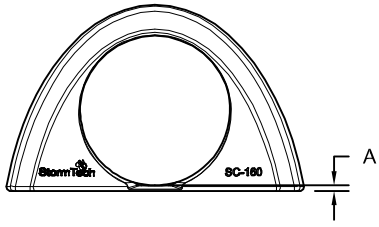


NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	25.0" X 12.0" X 85.4"	(635 mm X 305 mm X 2169 mm)
CHAMBER STORAGE	6.85 CUBIC FEET	(0.19 m³)
MINIMUM INSTALLED STORAGE*	16.0 CUBIC FEET	(0.45 m³)
WEIGHT	24.0 lbs.	(10.9 kg)

*ASSUMES 6" (152 mm) ABOVE, 6" (152 mm) BELOW, AND STONE BETWEEN CHAMBERS WITH 40% STONE POROSITY.

PART #	STUB	A
SC160IEPP	6" (150 mm)	0.66" (16 mm)
	8" (200 mm)	0.80" (20 mm)
SC160IEPP08	8" (200 mm)	0.96" (24 mm)



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

NOTE: ALL DIMENSIONS ARE NOMINAL

Isolator® Row Plus
O&M Manual



ADS StormTech™

The Isolator® Row Plus

Introduction

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

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

The Isolator Row Plus is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row FLAMP™ (patent pending) is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

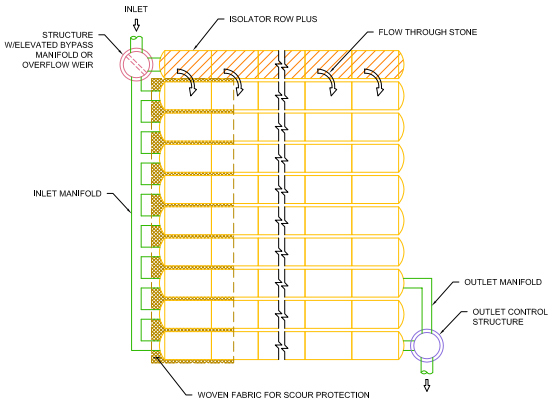
Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.*



Looking down the Isolator Row PLUS from the manhole opening, ADS PLUS Fabric is shown between the chamber and stone base.



StormTech Isolator Row PLUS with Overflow Spillway (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

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

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

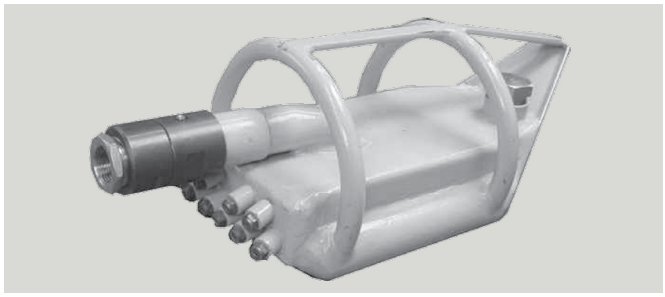
The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

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

Maintenance

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

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**

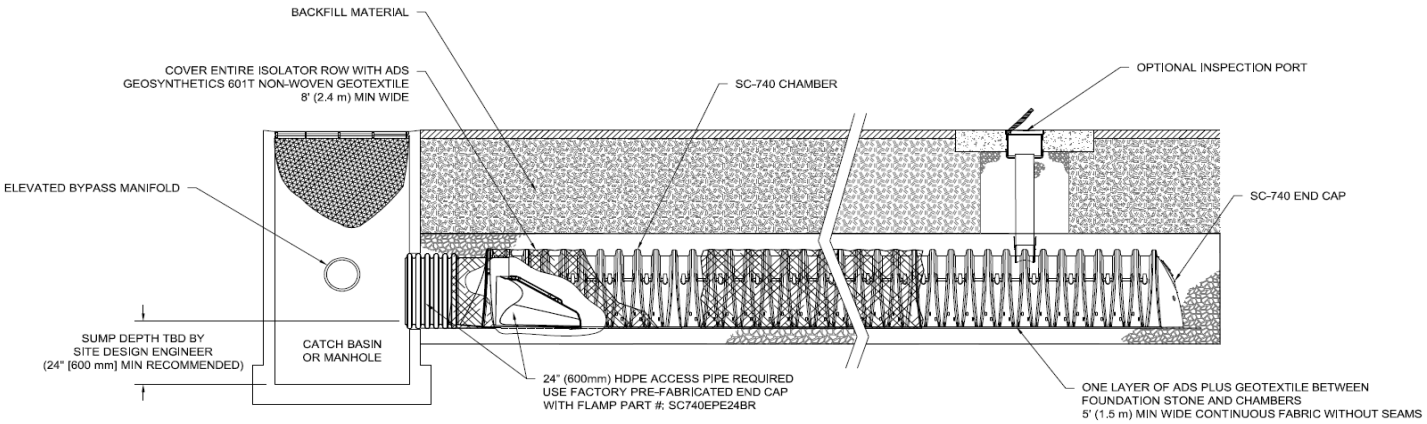






StormTech Isolator Row PLUS (*not to scale*)

Note: *Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row PLUS.*



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

A) Inspection ports (if present)
- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
- iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row Plus
- i. Remove cover from manhole at upstream end of Isolator Row Plus
- ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
  1. Mirrors on poles or cameras may be used to avoid a confined space entry
  2. Follow OSHA regulations for confined space entry if entering manhole
- iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
  If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

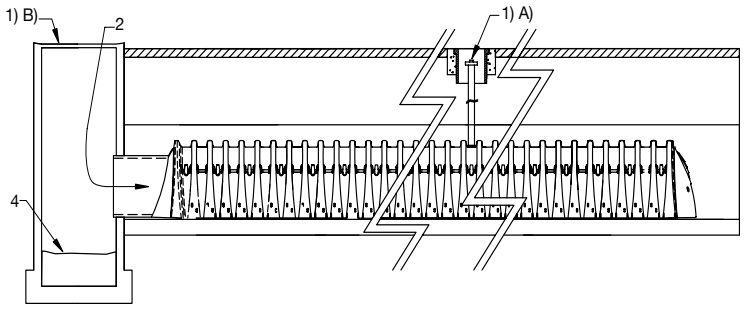
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

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

Step 4

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



Sample Maintenance Log

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

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ADS StormTech® Installation Guide

SC-160LP

StormTech
Installation Video

Required Materials and Equipment List

- Acceptable fill materials per Table 1
- ADS Plus and non-woven geotextile fabrics
- StormTech solid end caps and pre-cored end caps
- StormTech chambers
- StormTech manifolds and fittings

Important Notes:

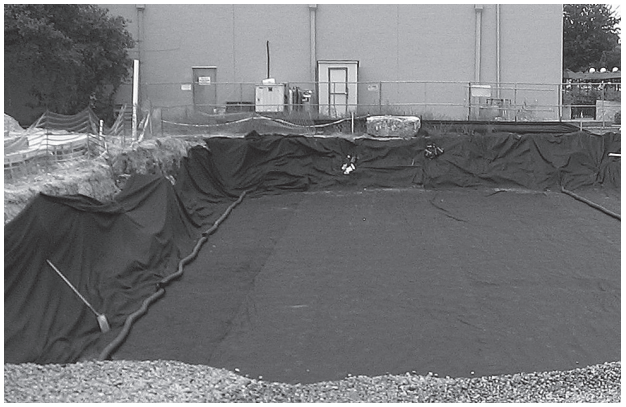
A. This installation guide provides the minimum requirements for proper installation of chambers. Non-adherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.

B. Care should be taken in the handling of chambers and end caps. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

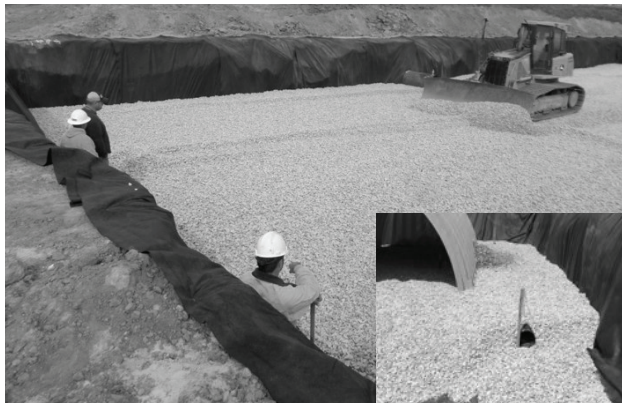
Requirements for System Installation



Excavate bed and prepare subgrade per engineer's plans.

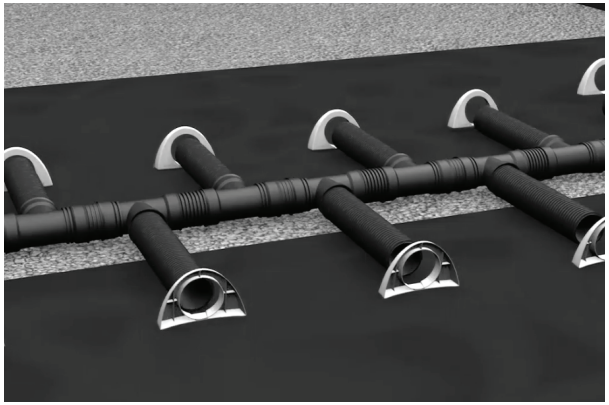


Place non-woven geotextile over prepared soils and up excavation walls. Install underdrains if required.



Place clean, crushed, angular stone foundation 6" (150 mm) or 4" (100 mm) with a single layer of Geogrid BX124GG. See plans for foundation stone design.Compact to achieve a flat surface.

Manifold, Scour Fabric and Chamber Assembly



Install manifolds and lay out ADS Plus fabric at inlet rows [min. 12.5 ft (3.8 m)] at each inlet end cap. Place a continuous piece (no seams, single layer) along entire length of Isolator® Plus Row(s).



Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.



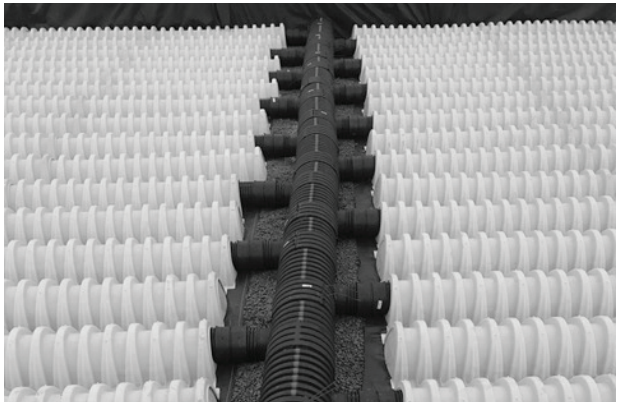
Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled “Lower Joint – Overlap Here” and “Build this direction – Upper Joint” Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. No spacing is required between chambers.

Attaching the End Caps



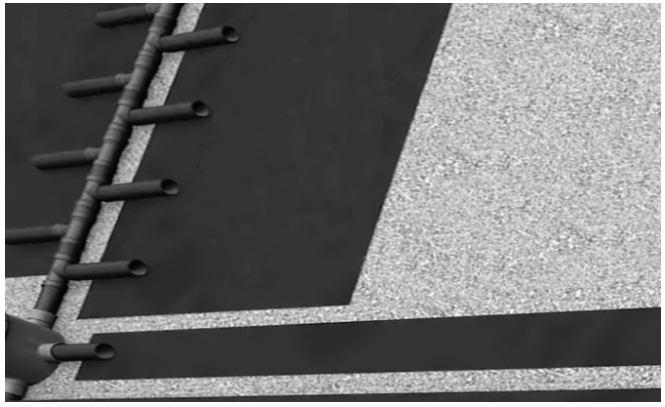
Lift the end of the chamber a few inches off the ground. With the curved face of the end cap facing outward, place the end cap into the chamber’s end corrugation.

Prefabricated End Caps



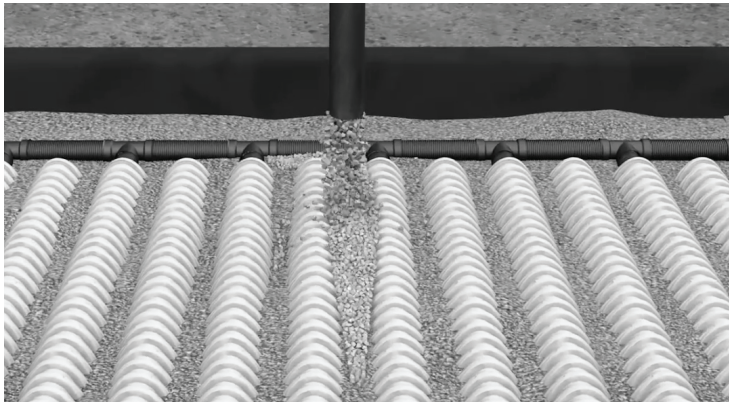
SC-160LP end caps can accept 8” (200mm) or 6” (150mm) manifold inlets. End caps can be ordered as an 8” (200mm) open hole or can be cored in the field.

Isolator Row Plus



Place one continuous layers of ADS Plus fabric between the foundation stone and the Isolator Row Plus chambers, making sure the fabric lays flat and extends the entire width of the chamber feet.

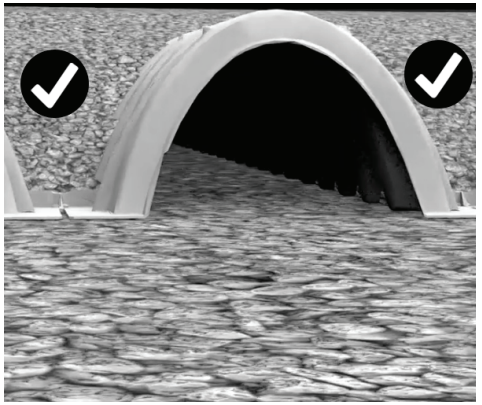
Initial Anchoring of Chambers – Embedment Stone





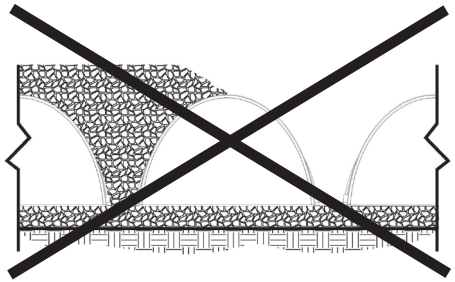
Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.



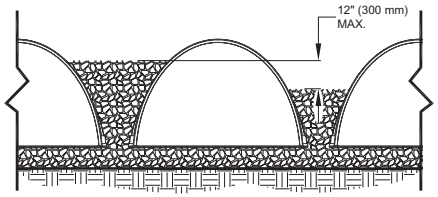


Care should be taken when backfilling not to damage the chambers. Please refer to the allowable construction vehicle loads on page 6.

Backfill of Chambers – Embedment Stone

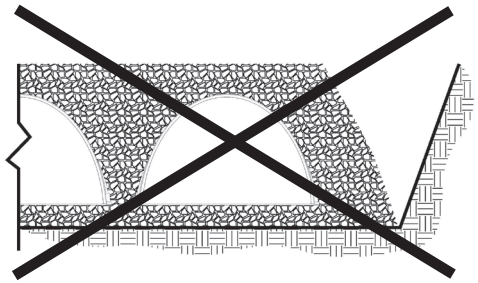


Uneven Backfill

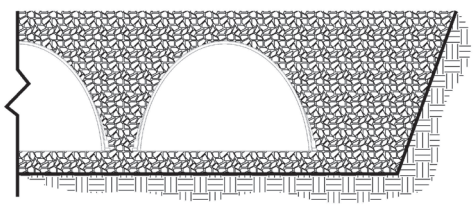


Even Backfill

Backfill chambers evenly. Stone column height should never differ by more than 12” (300 mm) between adjacent chamber rows or between chamber rows and perimeter.



Perimeter Not Backfilled



Perimeter Fully Backfilled

Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

Backfill - Embedment Stone & Cover Stone





Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls.

Final Backfill of Chambers – Fill Material





Small dozers and skid loaders may be used to finish grading stone backfill in accordance with ground pressure limits in Table 2. They must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends that the contractor inspect chambers before placing final backfill. Any chambers damaged by construction shall be removed and replaced.

Final Backfill of Chambers – Fill Material





Install non-woven geotextile over stone. Geotextile must overlap 24” (600 mm) min. where edges meet. Compact each lift of backfill as specified in the site design engineer’s drawings. Roller to travel parallel with rows.

StormTech Isolator Row Plus Detail

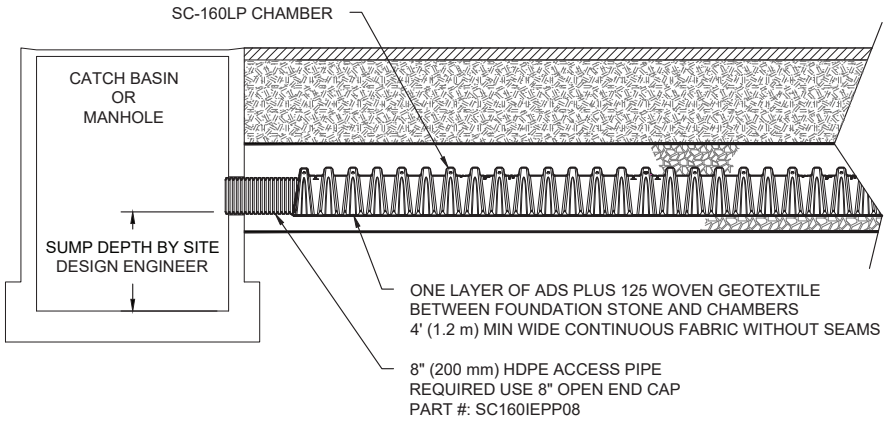


Table 1- Acceptable Fill Materials

Material Location	Description	AASHTO M43 Designation[1]	Compaction/Density Requirement
(D) **Final Fill:** Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that the pavement subbase may be part of the 'D' layer.	Any soil/rock materials, native soils or per engineer's plans. Check plans for pavement subgrade requirements.	N/A	Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.
(C) **Initial Fill:** Fill Material for layer 'C' starts from the top of the embedment stone ('B' layer) to 18" (450 mm) above the top of the chamber. Note that pavement subbase may be part of the 'C' layer.	Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. Most pavement subbase materials can be used in lieu of this layer.	AASHTO M45 A-1, A-2-4, A-3 or AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	Begin compaction after min. 12" (300 mm) of material over the chambers is reached. Compact additional layers in 6" (150 mm) max. lifts to a min. 95% Proctor density for well-graded material and 95% relative density for processed aggregate materials. Roller gross vehicle weight not to exceed 12,000 lbs (53 kN). Dynamic force not to exceed 20,000 lbs (89 kN)
(B) **Embedment Stone:** Embedment Stone surrounding chambers from the foundation stone to the 'C' layer above.	Clean, crushed, angular stone	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	No compaction required.
(A) **Foundation Stone:** Foundation Stone below the chambers from the subgrade up to the foot (bottom) of the chamber.	Clean, crushed, angular stone,	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	Place and compact in 6" (150 mm) lifts using two full coverages with a vibratory compactor.[2, 3]

Please Note:

1. The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular no. 4 (AASHTO M43) stone".
2. StormTech compaction requirements are met for 'A' location materials when placed and compacted in 6" (150 mm) (max) lifts using two full coverages with a vibratory compactor.
3. Where infiltration surfaces may be comprised by compaction, for standard installations and standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact StormTech for compaction requirements.

Figure 1- Inspection Port Detail

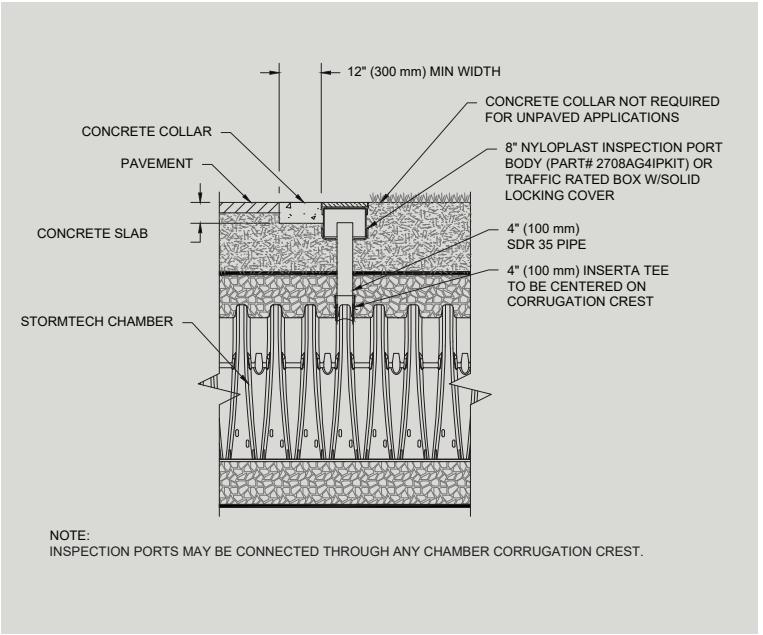
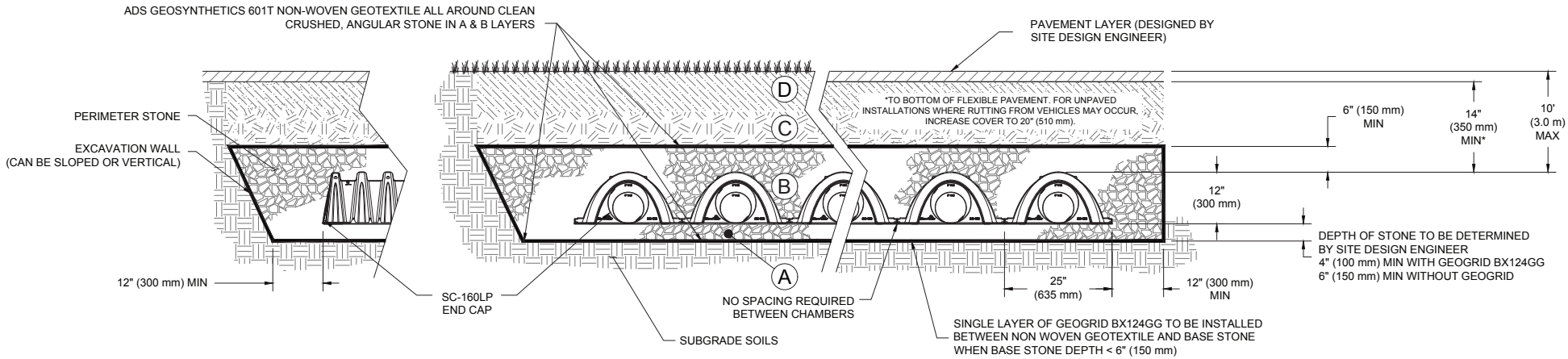


Figure 2 - Fill Material Locations



Notes:

1. 36” (900 mm) of stabilized cover materials over the chambers is recommended during the construction phase if general construction activities, such as full dump truck travel and dumping, are to occur over the bed.
2. During paving operations, dump truck axle loads on 14” (350 mm) of cover may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 14” (350 mm) of cover exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.
3. Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.
4. Mini-excavators (< 8,000lbs/3,628 kg) can be used with at least 12” (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.
5. Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.
6. Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.

Table 2 - Maximum Allowable Construction Vehicle Loads[6]

Material Location	Fill Depth over Chambers in. (mm)	Maximum Allowable Wheel Loads		Maximum Allowable Track Loads[6]		Maximum Allowable Roller Loads
		Max Axle Load for Trucks lbs (kN)	Max Wheel Load for Loaders lbs (kN)	Track Width in. (mm)	Max Ground Pressure psf (kPa)	Max Drum Weight or Dynamic Force lbs (kN)
Ⓓ Final Fill Material	36” (900) Compacted	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	3880 (186) 2640 (126) 2040 (97) 1690 (81) 1470 (70)	38,000 (169)
Ⓒ Initial Fill Material	24” (600) Compacted	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2690 (128) 1880 (90) 1490 (71) 1280 (61) 1150 (55)	20,000 (89)
	24” (600) Loose/ Dumped	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2390 (114) 1700 (81) 1370 (65) 1190 (57) 1080 (51)	20,000 (89) Roller gross vehicle weight not toexceed 12,000 lbs. (53 kN)
	18” (450)	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2110 (101) 1510 (72) 1250 (59) 1100 (52) 1020 (48)	20,000 (89) Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN)
Ⓑ Embedment Stone	12” (300)	16,000 (71)	NOT ALLOWED	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	1540 (74) 1190 (57) 1010 (48) 910 (43) 840 (40)	20,000 (89) Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN)
	6” (150)	8,000 (35)	NOT ALLOWED	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	1070 (51) 900 (43) 800 (38) 760 (36) 720 (34)	NOT ALLOWED

Table 3 - Placement Methods and Descriptions

Material Location	Placement Methods/ Restrictions	Wheel Load Restrictions	Track Load Restrictions	Roller Load Restrictions
		See Table 2 for Maximum Construction Loads		
Ⓓ Final Fill Material	A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.	36” (900 mm) minimum cover required for dump trucks to dump over chambers.	Dozers to push parallel to rows until 36” (900mm) compaced cover is reached.[4]	Roller travel parallel to rows only until 36” (900 mm) compacted cover is reached.
Ⓒ Initial Fill Material	Excavator positioned off bed recommended. Small excavator allowed over chambers. Small dozer allowed.	Asphalt can be dumped into paver when compacted pavement subbase reaches 18” (450 mm) above top of chambers.	Small LGP track dozers & skid loaders allowed to grade cover stone with at least 6” (150 mm) stone under tracks at all times. Equipment must push parallel to rows at all times.	Use dynamic force of roller only after compacted fill depth reaches 12” (300 mm) over chambers. Roller travel parallel to chamber rows only.
Ⓑ Embedment Stone	No equipment allowed on bare chambers. Use excavator or stone conveyor positioned off bed or on foundation stone to evenly fill around all chambers to at least the top of chambers.	No wheel loads allowed. Material must be placed outside the limits of the chamber bed.	No tracked equipment is allowed on chambers until a min. 6” (150 mm) cover stone is in place.	No rollers allowed.
Ⓐ Foundation Stone	No StormTech restrictions. Contractor responsible for any conditions or requirements by others relative to subgrade bearing capacity, dewatering or protection of subgrade.			

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StormTech® Standard Limited Warranty

STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

(A) This Limited Warranty applies solely to the StormTech chambers and end plates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and end plates are collectively referred to as the "Products."

(B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.

(C) THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

(D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.

(E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

(F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.

(G) THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. A PRODUCT ALSO IS EXCLUDED FROM LIMITED WARRANTY COVERAGE IF SUCH PRODUCT IS USED IN A PROJECT OR SYSTEM IN WHICH ANY GEOTEXTILE PRODUCTS OTHER THAN THOSE PROVIDED BY ADVANCED DRAINAGE SYSTEMS ARE USED. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.

ADS StormTech™

adspipe.com
800-821-6710

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ADS 0601T/O NONWOVEN GEOTEXTILE SPECIFICATION

Scope

This specification describes ADS 0601T/O nonwoven geotextile.

Filter Fabric Requirements

ADS 0601T/O is an orange nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. ADS 0601T/O is inert to biological degradation and resists naturally encountered chemicals, alkali and acids. ADS 0601T/O conforms to the physical property values listed below:

Filter Fabric Properties

Property	Test Method	Unit	Typical Value[1] MD	Typical Value[1] CD
Grab Tensile Strength	ASTM D4632	lbs (N)	175 (779)	175 (779)
Grab Tensile Elongation	ASTM D4632	%	75	75
Trapezoid Tear Strength	ASTM D4533	lbs (N)	85 (378)	85 (378)
CBR Puncture Strength	ASTM D6241	lbs (N)	480 (2136)	480 (2136)
Permittivity	ASTM D4491	sec^{-1}	1.5	1.5
Flow Rate	ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	105 (4278)	105 (4278)
UV Resistance (at 500 hours)[1]	ASTM D4355	% strength retained	80	80

Physical Properties

Property	Test Method	Unit	Typical Value[2]
Weight	ASTM D5161	oz/yd^2 (g/m^2)	6.5 (220)
Thickness	ASTM D5199	mils (mm)	65 (1.7)
Roll Dimensions (W x L)	-	ft (m)	15 x 300 (4.5 x 91)
Roll Area	-	yd^2 (m^2)	500 (418)
Estimated Roll Weight	-	lb (kg)	220 (100)

1 Modified, Minimum Test Value
2 ASTM D4439 Standard Terminology for Geosynthetics: typical value, n-*for geosynthetics*, the mean value calculated from documented manufacturing quality control test results for a defined population obtained from one test method associated with on specific property.

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Separation

ADS 315W WOVEN GEOTEXTILE SPECIFICATION

Scope

This specification describes ADS 315W woven geotextile.

Filter Fabric Requirements

ADS 315W is manufactured using high-tenacity polypropylene yarns that are woven to form a dimensionally stable network, which allows the yarns to maintain their relative position. ADS 315W resists ultraviolet deterioration, rotting and biological degradation and is inert to commonly encountered soil chemicals. ADS 315W conforms to the physical property values listed below:

Filter Fabric Properties

Property	Test Method	Unit	M.A.R.V. (Minimum Average Roll Value)[2]
Tensile Strength (Grab)	ASTM D4632	lbs (N)	315 (1400)
Elongation	ASTM D4632	%	15
CBR Puncture	ASTM D6241	lbs (N)	900 (4005)
Puncture	ASTM D4833	lbs (N)	150 (667)
Mullen Burst	ASTM D3786	psi (kPa)	600 (4134)
Trapezoidal Tear	ASTM D4533	lbs (N)	120 (533)
UV Resistance (at 500 hours)	ASTM D4355	%	70
Apparent Opening Size (AOS)*	ASTM D4751	U.S. Sieve (mm)	40 (.425)
Permittivity	ASTM D4491	sec^{-1}	.05
Water Flow Rate	ASTM D4491	gpm/ft^2 ($l/min/m^2$)	4 (163)

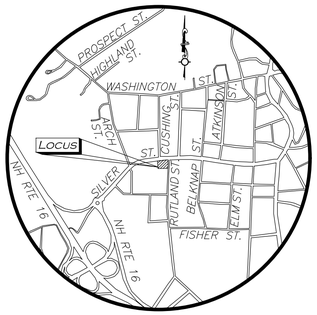
* Maximum average roll value.

Packaging

Roll Dimensions (W x L) - ft. (m)	12.5 x 360/ 15 x 300 / 17.5 x 258 (3.81 x 109.8/ 4.57 x 91.5 / 5.33 x 78.6)

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SITE DEVELOPMENT PLANS FOR
114 SILVER STREET
(MAP 12, LOT 148)
DOVER, NEW HAMPSHIRE 03820

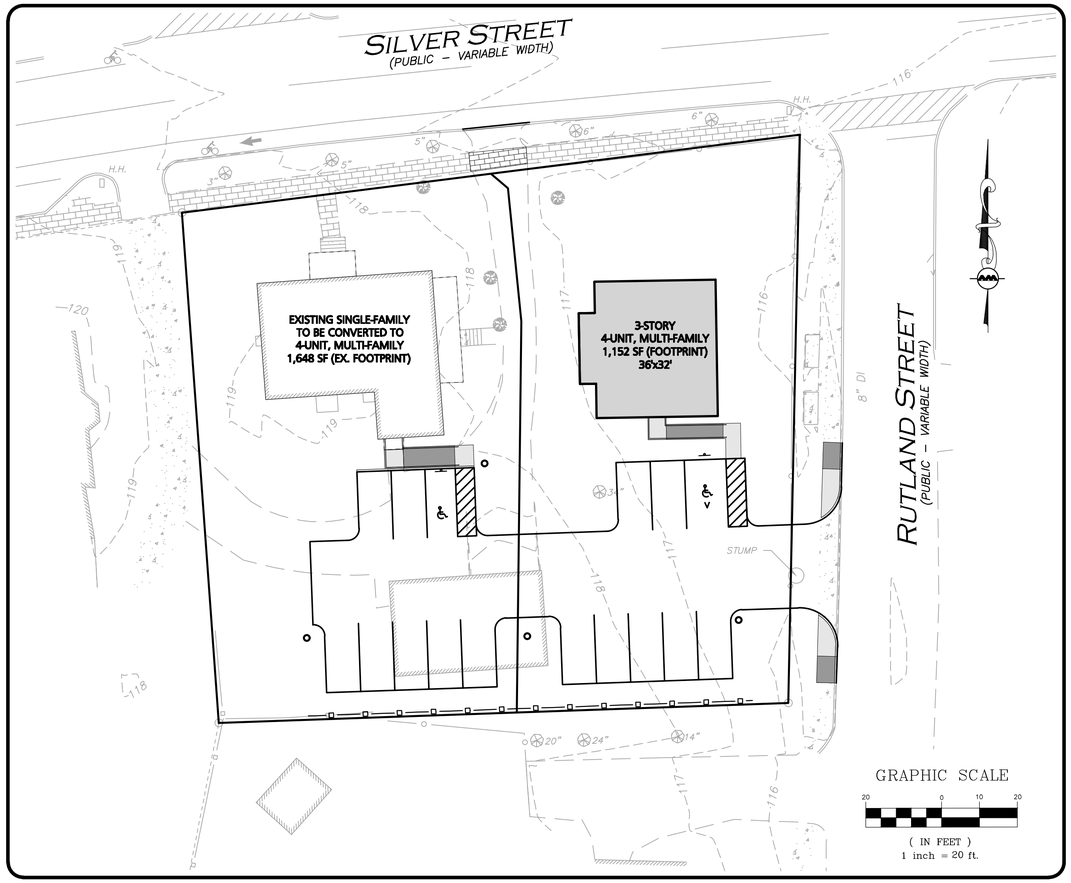


LOCUS MAP
NOT TO SCALE

APPLICANT/OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820
(603) 412-6175

CIVIL ENGINEER / SURVEYOR / LANDSCAPE ARCHITECT:
ALLEN & MAJOR ASSOCIATES, INC.
400 HARVEY ROAD
MANCHESTER, NH 03103
(603) 627-5500

ARCHITECT:
ART FORM ARCHITECTURE, INC.
PO BOX 535
NORTH HAMPTON, NH 03862



LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	REV
EXISTING CONDITIONS	1	06/20/24	08/20/24
SITE PREPARATION PLAN	C-101	06/20/24	08/20/24
LAYOUT & MATERIALS PLAN	C-102	06/20/24	08/20/24
GRADING & DRAINAGE PLAN	C-103	06/20/24	08/20/24
UTILITIES PLAN	C-104	06/20/24	08/20/24
SITE LIGHTING PLAN	C-105	08/20/24	-
NEIGHBORHOOD PLAN	C-106	08/20/24	-
DETAILS	C-501	06/20/24	08/20/24
DETAILS	C-502	06/20/24	08/20/24
DETAILS	C-503	06/20/24	08/20/24
DETAILS	C-504	08/20/24	-
LANDSCAPE PLAN	L-101	06/20/24	08/20/24
LANDSCAPE NOTES	L-102	06/20/24	08/20/24
LANDSCAPE NOTES & DETAILS	L-501	06/20/24	08/20/24

ISSUED FOR T.R.C. REVIEW: JUNE 20, 2024
REISSUED FOR T.R.C. REVIEW: AUGUST 20, 2024

R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_COVER.DWG

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER
08-21-2024
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

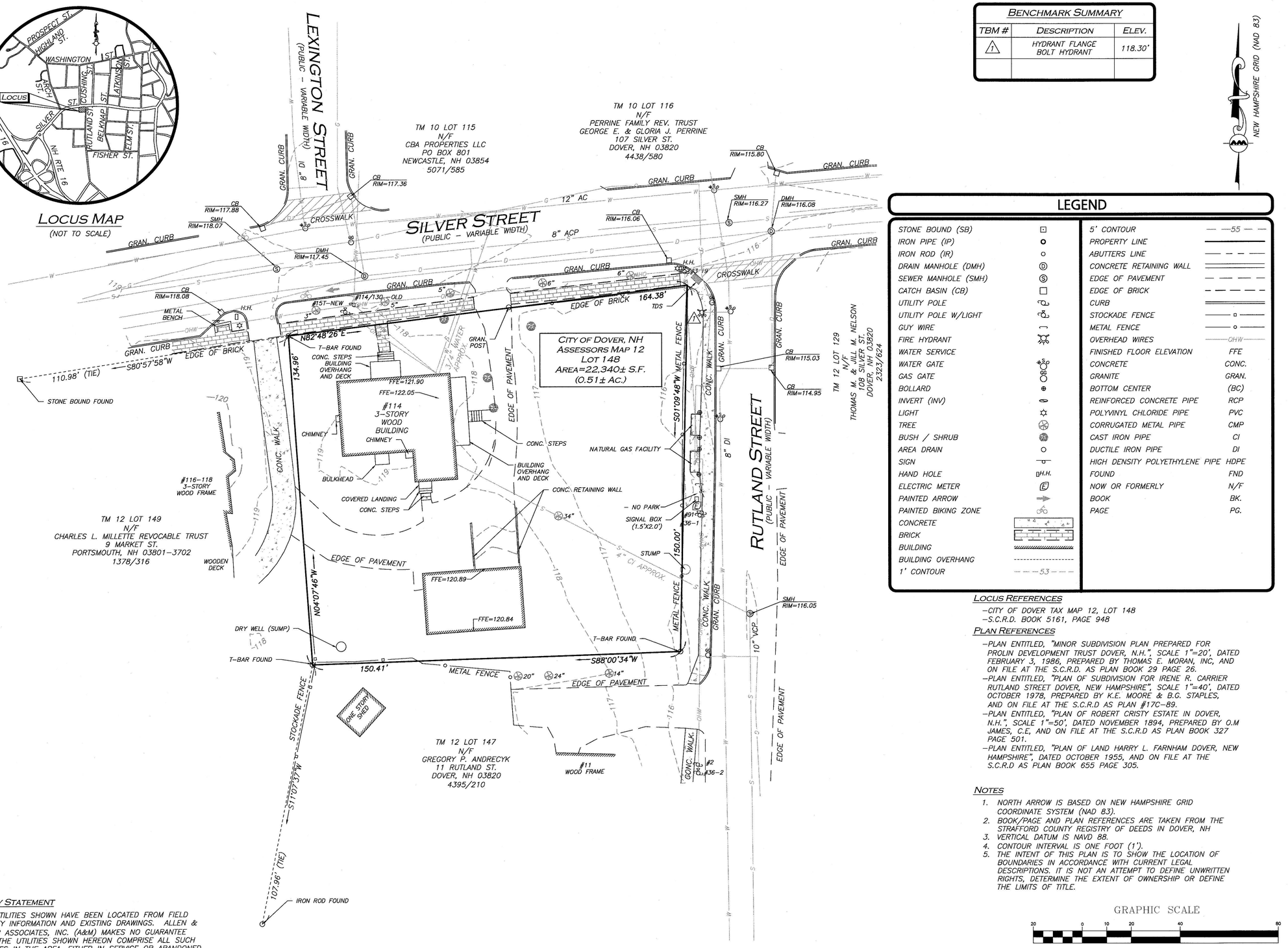
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DRAWING TITLE: COVER
SHEET No.: C

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LOCUS MAP
(NOT TO SCALE)



BENCHMARK SUMMARY

TBM #	DESCRIPTION	ELEV.
1	HYDRANT FLANGE BOLT HYDRANT	118.30'

NEW HAMPSHIRE GRID (NAD 83)

LEGEND

STONE BOUND (SB)	⊡	5' CONTOUR	—55—
IRON PIPE (IP)	o	PROPERTY LINE	
IRON ROD (IR)	○	ABUTTERS LINE	
DRAIN MANHOLE (DMH)	Ⓓ	CONCRETE RETAINING WALL	
SEWER MANHOLE (SMH)	Ⓢ	EDGE OF PAVEMENT	
CATCH BASIN (CB)	□	EDGE OF BRICK	
UTILITY POLE		CURB	
UTILITY POLE W/LIGHT		STOCKADE FENCE	
GUY WIRE		METAL FENCE	
FIRE HYDRANT		OVERHEAD WIRES	OHW
WATER SERVICE		FINISHED FLOOR ELEVATION	FFE
WATER GATE		CONCRETE	CONC.
GAS GATE	G	GRANITE	GRAN.
BOLLARD		BOTTOM CENTER	(BC)
INVERT (INV)		REINFORCED CONCRETE PIPE	RCP
LIGHT		POLYVINYL CHLORIDE PIPE	PVC
TREE		CORRUGATED METAL PIPE	CMP
BUSH / SHRUB		CAST IRON PIPE	CI
AREA DRAIN	○	DUCTILE IRON PIPE	DI
SIGN		HIGH DENSITY POLYETHYLENE PIPE	HDPE
HAND HOLE	H.H.	FOUND	FND
ELECTRIC METER	E	NOW OR FORMERLY	N/F
PAINTED ARROW		BOOK	BK.
PAINTED BIKING ZONE		PAGE	PG.
CONCRETE			
BRICK			
BUILDING			
BUILDING OVERHANG			
1' CONTOUR	—53—		

LOCUS REFERENCES
–CITY OF DOVER TAX MAP 12, LOT 148
–S.C.R.D. BOOK 5161, PAGE 948

PLAN REFERENCES
–PLAN ENTITLED, "MINOR SUBDIVISION PLAN PREPARED FOR PROLIN DEVELOPMENT TRUST DOVER, N.H.", SCALE 1"=20', DATED FEBRUARY 3, 1986, PREPARED BY THOMAS E. MORAN, INC, AND ON FILE AT THE S.C.R.D. AS PLAN BOOK 29 PAGE 26.
–PLAN ENTITLED, "PLAN OF SUBDIVISION FOR IRENE R. CARRIER RUTLAND STREET DOVER, NEW HAMPSHIRE", SCALE 1"=40', DATED OCTOBER 1978, PREPARED BY K.E. MOORE & B.G. STAPLES, AND ON FILE AT THE S.C.R.D AS PLAN #17C–89.
–PLAN ENTITLED, "PLAN OF ROBERT CRISTY ESTATE IN DOVER, N.H.", SCALE 1"=50', DATED NOVEMBER 1894, PREPARED BY O.M JAMES, C.E, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 327 PAGE 501.
–PLAN ENTITLED, "PLAN OF LAND HARRY L. FARNHAM DOVER, NEW HAMPSHIRE", DATED OCTOBER 1955, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 655 PAGE 305.

NOTES
1. NORTH ARROW IS BASED ON NEW HAMPSHIRE GRID COORDINATE SYSTEM (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM THE STRAFFORD COUNTY REGISTRY OF DEEDS IN DOVER, NH
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

UTILITY STATEMENT
THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

R:\PROJECTS\3347-01\SURVEY\DRAWINGS\CURRENT\S-3347-01-EC.DWG

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN APRIL 17, 2024 AND APRIL 18, 2024 AND HAD AN ERROR OF CLOSURE OF NO GREATER THAN 1/10,000.

ALLEN & MAJOR ASSOCIATES, INC.

STATE OF NEW HAMPSHIRE · LICENSED LAND SURVEYOR · NO. 908 JAMES P SMITH

JAMES P. SMITH NH LLS #908 — DATE 6.6.24

REV	DATE	DESCRIPTION
1	08/06/24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
TAX MAP 12 LOT 148
114 SILVER STREET
DOVER, NH

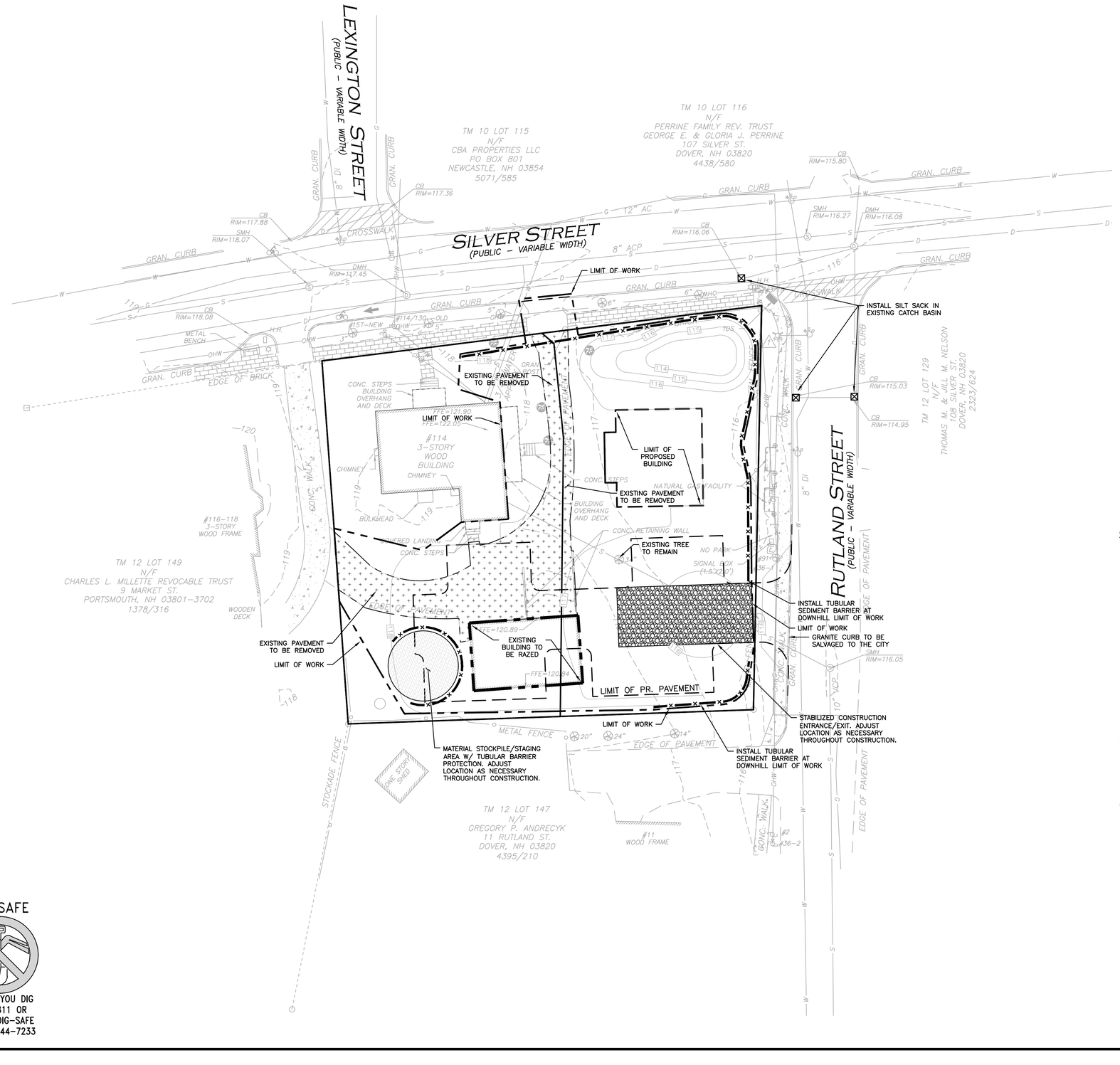
PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	S-3347-01-EC
DRAFTED BY:	KMT	CHECKED BY:	JPS

PREPARED BY:
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environmental consulting ◆ landscape architecture
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DRAWING TITLE: RESIDENTIAL SITE PLAN
SHEET No. 1

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LEGEND

- LIMIT OF DISTURBANCE
- TUBULAR BARRIER
- CATCH BASIN FILTER
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED
- STABILIZED ENTRANCE
- TEMPORARY FENCE
- STOCKPILE/STAGING AREA

GENERAL NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
2. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
4. GRADING / DEMOLITION OUTSIDE OF THE PROJECT BOUNDARIES (IF ANY) REQUIRES A TEMPORARY CONSTRUCTION/GRADING EASEMENT FROM THE LANDOWNER (BY OTHERS).
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS OR CONDITIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
7. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = ft. 20

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R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_SITE-PREP.DWG

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER
MICHAEL A. MALYNOWSKI No. 12205 LICENSED
08-21-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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DRAWING TITLE:

SITE PREPARATION PLAN

SHEET No.

C-101

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CITY OF DOVER HERITAGE RESIDENTIAL (HR) DISTRICT ZONING SUMMARY TABLE

ITEM	REQUIRED/ALLOWED	LOT 1	LOT 2
LOT			
LOT SIZE (MIN)	10,000 SF	11,650 SF	10,690 SF
LOT COVERAGE	40% MAX, *SEE NOTE 2	*SEE NOTE 2	*SEE NOTE 2
OPEN SPACE	57.9% MAX, *SEE NOTE 2	59.5%	59.1%
FRONTAGE	80 FT MIN.	82.2 FT	82.2 FT
PRINCIPAL BUILDING			
FRONT, BUILD TO LINE	*SEE NOTE 1	14.8 FT (EX.)	31.7 FT
ABUT A STREET, BUILD TO LINE	*SEE NOTE 1	N/A	20.1 FT
SIDE, SETBACK	15 FT	15.1 FT	15.2 FT
REAR, SETBACK	30 FT	73.3 FT	76.9 FT
HEIGHT OF BUILDING			
PRINCIPAL BUILDING	24 FT MIN, 40 FT MAX	EXISTING	39.9 FT
OUTBUILDING	40 FT MAX	N/A	N/A

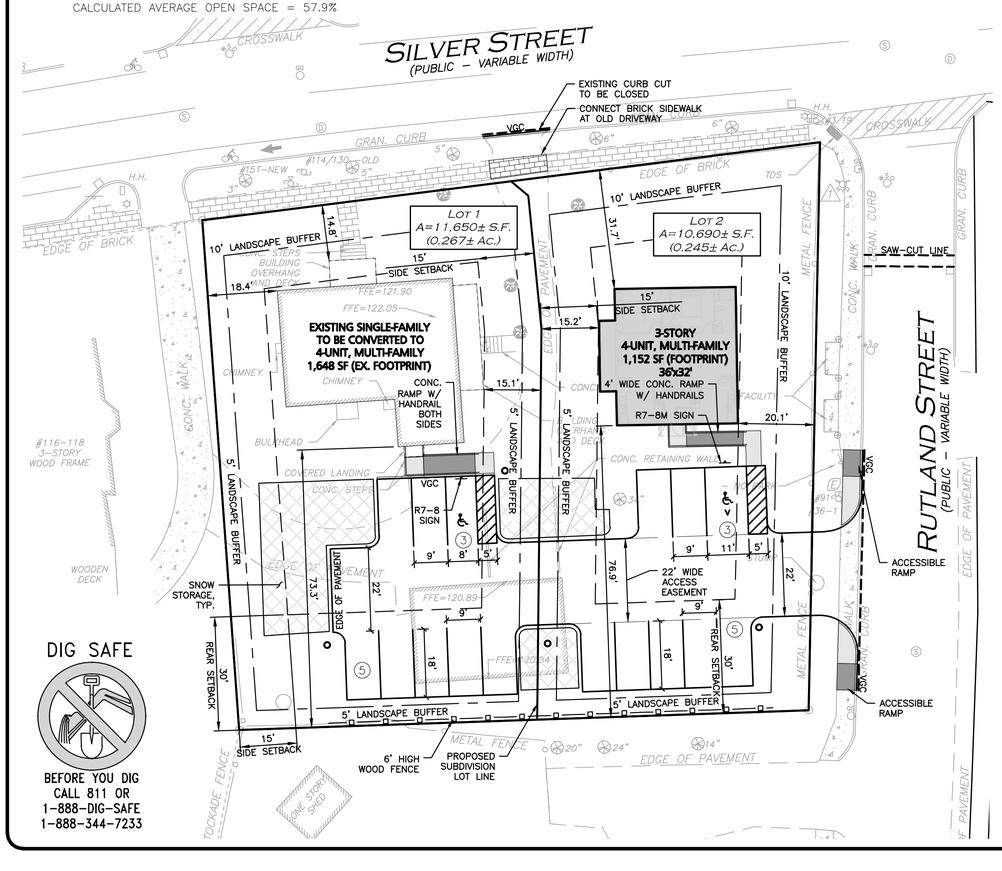
NOTES:

1. THE PROPERTY OWNER SHALL CALCULATE THE AVERAGE FRONT SETBACKS OF ALL LOTS WITHIN THE SAME ZONE LOCATED ON THE SAME SIDE OF THE STREET, 250 FT IN EACH DIRECTION FROM THE CENTER OF THE FRONT LOT LINE. THIS FRONT SETBACK DIMENSION SHALL BE CONSIDERED TO BE A BUILD TO LINE. STRUCTURES MAY BE CONSTRUCTED WITHIN FIVE (5) FT PLUS OR MINUS OF THE AVERAGE. PORCHES OR STEPS MAY BE LOCATED AN ADDITIONAL FIVE (5) FT BEYOND THE FRONT FAÇADE OF THE STRUCTURE. EXPANSIONS TO EXISTING STRUCTURES SHALL BE SUBJECT TO A MINIMUM SETBACK EQUAL TO THE CALCULATED AVERAGE SETBACK MINUS FIVE (5) FEET.

   CALCULATED AVERAGE FRONT SETBACK FROM SILVER STREET = 13.97 FT
   CALCULATED AVERAGE FRONT SETBACK FROM RUTLAND STREET = 21.51 FT

2. THE SPECIFIC SITE MUST HAVE AN AMOUNT OF OPEN SPACE, EITHER LANDSCAPED OR LEFT NATURAL, AT LEAST EQUAL TO THE AVERAGE AMOUNT OF OPEN SPACE ON ALL DEVELOPED LOTS IN THE HR DISTRICT THAT ARE WHOLLY OR PARTLY WITHIN TWO HUNDRED (200) FEET OF THE SUBJECT PARCEL. EXISTING PARKING AREAS, EITHER GRAVEL, PAVED OR UNPAVED, SHALL NOT BE CONSIDERED TO BE OPEN SPACE.

   CALCULATED AVERAGE OPEN SPACE = 57.9%



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CITY OF DOVER SITE PLAN COMMON NOTES:

1. THE INTENT OF THIS PLAN IS TO GAIN SITE PLAN REVIEW APPROVAL.
2. OWNERS OF RECORD ARE:
   114 SILVER STREET GROUP, LLC
   10 DURHAM ROAD
   DOVER, NH 03820

   AUTHORIZED SIGNATURE
3. THE PARCEL IS SHOWN AS LOT NO. 148, MAP 12 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
4. THE SUBJECT PARCEL(S) CONTAINS 0.51 ACRES OR 22,340 SQ. FT. AREA OF LAND.
5. TITLE REFERENCE FOR THE PROJECT PARCEL(S) IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 5161, PAGE NO. 948.
6. REFERENCE PLANS:
   - PLAN ENTITLED, "MINOR SUBDIVISION PLAN PREPARED FOR PROLIN DEVELOPMENT TRUST DOVER, N.H.", SCALE 1"=20', DATED FEBRUARY 3, 1986, PREPARED BY THOMAS E. MORAN, INC, AND ON FILE AT THE S.C.R.D. AS PLAN BOOK 29 PAGE 26.
   - PLAN ENTITLED, "PLAN OF SUBDIVISION FOR IRENE R. CARRIER RUTLAND STREET DOVER, NEW HAMPSHIRE", SCALE 1"=40', DATED OCTOBER 1978, PREPARED BY K.E. MOORE & B.G. STAPLES, AND ON FILE AT THE S.C.R.D AS PLAN #170-89.
   - PLAN ENTITLED, "PLAN OF ROBERT CRISTY ESTATE IN DOVER, N.H.", SCALE 1"=50', DATED NOVEMBER 1894, PREPARED BY O.M JAMES, C.E, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 327 PAGE 501.
   - PLAN ENTITLED, "PLAN OF LAND HARRY L. FARNHAM DOVER, NEW HAMPSHIRE", DATED OCTOBER 1955, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 655 PAGE 305.
7. THE PROJECT WILL REQUIRE CROSS EASEMENTS FOR ACCESS, DRAINAGE, AND UTILITIES.
8. SEE ZONING SUMMARY TABLE HEREON FOR THE CURRENT ZONING DIMENSIONAL AND DENSITY REQUIREMENTS. THIS PROPERTY FALLS WITHIN THE HERITAGE RESIDENTIAL ZONING DISTRICT.
9. SEE PARKING SUMMARY TABLE HEREON FOR THE PARKING REQUIREMENTS.
10. THE PROJECT DOES NOT INCLUDE RESTRICTED UNITS OR WAIVERS GRANTED BY THE BOARD.
11. THE PROJECT DOES NOT REQUIRE VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT.
12. THIS PROJECT REQUIRES A CONDITIONAL USE PERMIT TO:
    C.U.P. CONDITIONS: ALLOW UP TO FOUR MULTIFAMILY DWELLING UNITS
    CASE NUMBER: NONE ASSIGNED
    DATE OF DECISION: PENDING
13. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES, INC. ON OR BETWEEN APRIL 17, 2024 AND APRIL 18, 2024.
14. AS-BUILT PLANS OF THE PROJECT SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT AUTOCAD DWG, AUTOCAD DXF OR ESRI FORMAT TO THE CITY OF DOVER CITY ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
15. SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA (COMMUNITY PANEL NUMBER 33017C0310E, EFFECTIVE DATE: SEPTEMBER 30, 2015).
16. TOPOGRAPHIC SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES, INC. ON OR BETWEEN APRIL 17, 2024 AND APRIL 18, 2024.
17. ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM.
18. THE SITE DOES NOT CONTAIN WETLANDS.
19. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
20. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
21. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
22. CONTRACTOR SHALL FOLLOW TO THE CONSTRUCTION SEQUENCING IDENTIFIED WITHIN THE PLANNING BOARD APPROVED PLAN SET. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.
23. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE AND BE PROVIDED FOR CONSTRUCTION SEQUENCING INCLUDING TEMPORARY MEASURES.
24. CONTRACTOR SHALL FOLLOW THE PERMANENT STABILIZATION MEASURES SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION AS NOTED WITHIN THE PLANNING BOARD APPROVED PLANS. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.
25. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR ANY EARTH DISTURBING ACTIVITY OCCURS.
26. ANY PERMANENT TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
27. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO COMMENCING EARTH DISTURBANCE.
28. A CITY ENGINEER APPROVED CONSTRUCTION SIGN SHALL BE INSTALLED PRIOR TO COMMENCING EARTH DISTURBANCE. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR PLANNING DIRECTOR.
29. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.
30. HOURS OF SITE WORK MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6PM, SATURDAY 9AM- 4PM. NO SITE WORK SHALL BE DONE ON FEDERAL HOLIDAYS.
31. BUILDING ADDRESSES, INCLUDING APT AND UNIT NUMBERS, SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
32. THE PROPOSED USE FOR THE SITE IS MULTI-FAMILY RESIDENTIAL.
33. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:

PERMIT	PERMIT NUMBER	DATE OF ISSUANCE

34. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO THE DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR OR THEIR DESIGNEE.
35. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM THE CITY OF DOVER INSPECTION SERVICES.
36. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM THE CITY OF DOVER INSPECTION SERVICES.
37. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PROJECT (PTAP) PORTAL PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. HTTPS://EXTENSION.UNH.EDU/STORMWATER-CENTER/PTAP
38. THE OWNER OF RECORD SHALL RECORD, AT THE REGISTRY OF DEEDS, DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
39. FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED, IN ACCORDANCE WITH ALL APPLICABLE CODES, TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
40. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
41. IF A BUSINESS ESTABLISHMENT OR MULTI-FAMILY DWELLING CONTAINED IN A NEW, ALTERED OR REPAIRED STRUCTURE, A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
42. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
43. THE EXISTING AND PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM, AS REQUIRED, BY CHAPTER 81- 30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NH BUILDING AND FIRE CODES.
44. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY THE CITY OF DOVER INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
45. FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.
46. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. (I.E. IBC, ANSI-117.1) AND NH RSA 155-A:5.
47. APPLICANT SHALL SUBMIT A LETTER CERTIFYING THE TIE IN LOCATIONS OR DISCHARGE POINTS FOR ALL SUMP PUMPS AND ROOF LEADERS FOR EXISTING STRUCTURES ON THE PROPERTY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
48. DESIGN ENGINEER OF RECORD OR SHALL PROVIDE SIGNED LETTER TO CITY ENGINEER CERTIFYING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS.
49. THE APPLICANT SHALL PROVIDE THE CITY OF DOVER AN EASEMENT TO ACCESS WATERLINE AND HYDRANTS TO MAINTAIN WATER QUALITY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

PARKING SUMMARY TABLE

CITY OF DOVER: CHAPTER 153, SITE REVIEW, OFF-STREET PARKING	REQUIRED PARKING	PROPOSED PARKING
LOT 1: MULTI-FAMILY DWELLING, 4 UNITS	8	8
2 SPACES PER UNIT → (2 SPACES/UNIT X 4 UNITS) = 8 SPACES		
LOT 2: MULTI-FAMILY DWELLING, 4 UNITS	8	8
2 SPACES PER UNIT → (2 SPACES/UNIT X 4 UNITS) = 8 SPACES		
TOTAL PROVIDED		16



LEGEND

- PROP. PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- BUILDING ARCHITECTURE
- CURB
- PARKING STRIPING
- HEAVY DUTY CONCRETE
- SIDEWALK
- PERMEABLE BRICK SIDEWALK
- ADA ACCESSIBLE RAMP
- ADA DET. WARNING SURFACE
- SNOW STORAGE
- GRAVEL ACCESS
- SETBACK LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- WOOD GUARDRAIL
- CHAIN LINK FENCE
- WOOD FENCE
- DECORATIVE FENCE
- TREE LINE
- TRANSFORMER (T)

PLAN NOTES:

1. EXISTING CONDITIONS WERE COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES AS WELL AS AVAILABLE RECORD PLANS OBTAINED FROM THE CITY OF DOVER AND OTHER SOURCES.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
4. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. SNOW SHALL BE TAKEN OFF-SITE ONCE SNOW STORAGE AREAS ON SITE BECOME INADEQUATE, AND BEGINS TO BLOCK ACCESS TO AND FROM THE SITE OR BLOCKS THE USE OF ON-SITE PARKING. ANY EXCESS WILL BE BE TRUCKED OFF-SITE & DISPOSED OF IN ACCORDANCE WITH CITY OF DOVER AND NHDES GUIDELINES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = ft. 20

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 – LICENSED PROFESSIONAL ENGINEER
08-21-2024

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
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DRAWING TITLE: LAYOUT & MATERIALS PLAN

SHEET No. C-102

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TP-1
EXISTING GROUND ELEVATION: 117.6±
PERFORMED BY A&M: MICHAEL MALYNOWSKI, PE
DATE: 08-15-24

DEPTH	CLASS	NOTES
0-14"	–	TOP SOIL 10TR 3/3
14-31"	CLAYEY LOAM	10YR 5/4 MANY ROOTS
31-88"	FINE LOAMY SAND	10YR 6/4 MANY ROOTS

ESHWT: NONE
WEEP: NONE
BEDROCK/REFUSAL: NONE, TERMINATED @ 88" BELOW GRADE

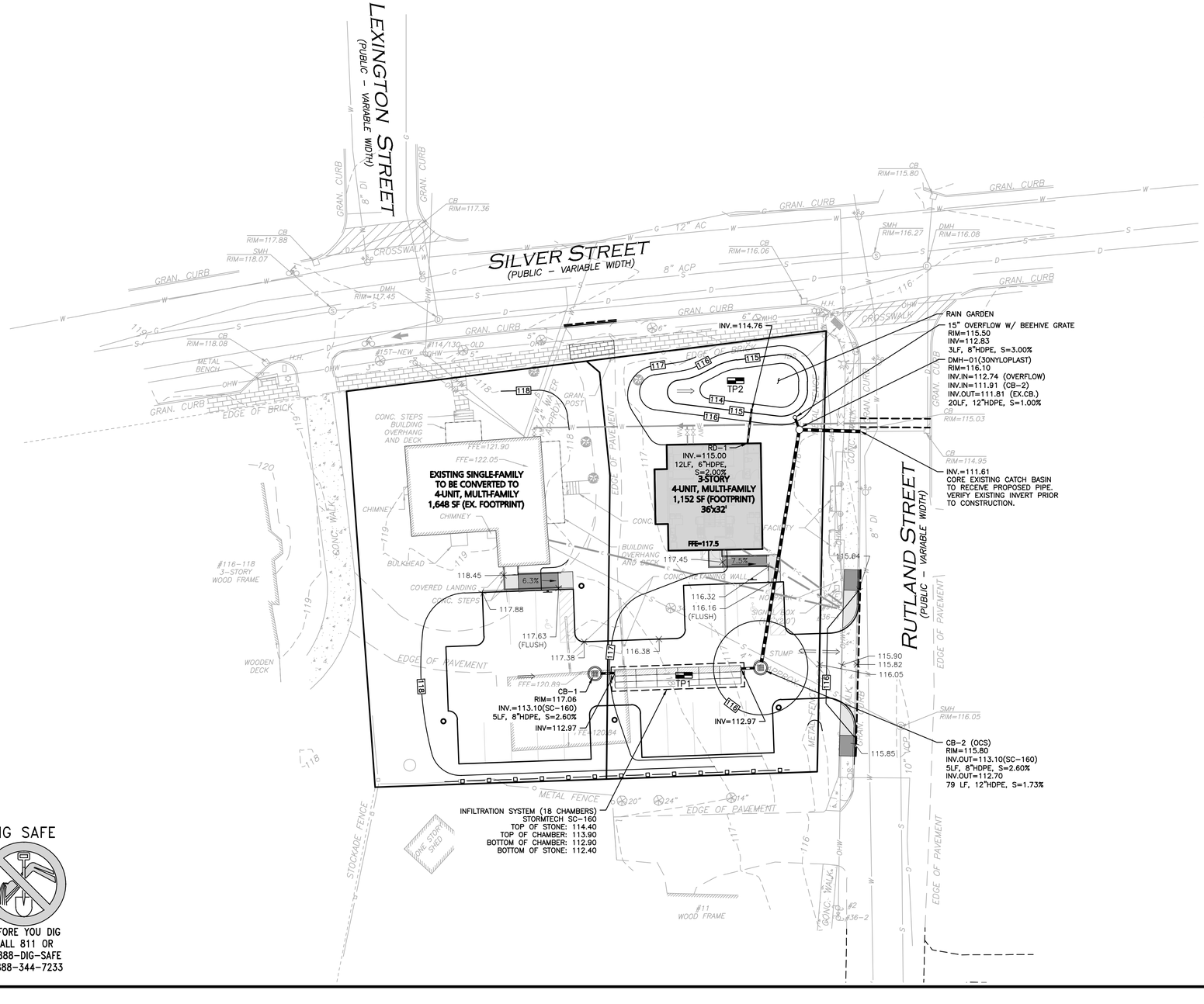
TP-2
EXISTING GROUND ELEVATION: 116.5±
PERFORMED BY A&M: MICHAEL MALYNOWSKI, PE
DATE: 08-15-24

DEPTH	CLASS	NOTES
0-9"	–	TOP SOIL 10TR 3/3
9-19"	FINE SANDY LOAM	10YR 5/6 MANY ROOTS
19-24"	TOP SOIL	10YR 3/3
24-84"	FINE LOAMY SAND	10YR 6/4 MANY ROOTS

ESHWT: NONE
WEEP: NONE
BEDROCK/REFUSAL: NONE, TERMINATED @ 84" BELOW GRADE

LEGEND

- DRAIN MANHOLE (DMH)
- CATCH BASIN (CB)
- CATCH BASIN – NYLOPLAST
- DRAIN LINE
- RIPRAP OUTFALL
- 5' CONTOUR (115)
- 1' CONTOUR (117)
- SPOT GRADE (115.55)
- INFILTRATION SYSTEM
- ISOLATOR ROW
- INFILTRATION CHAMBER
- FLOW DIRECTION



GRADING & DRAINAGE NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF DOVER, NHDOT, NHDES, MUTCD, AND AASHTO.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
3. ALL ELEVATIONS REFER TO NAVD 88.
4. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE EDGE OF THE STRUCTURE.
5. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
6. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
7. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
8. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
9. ALL CATCH BASINS ON-SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
10. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
11. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
13. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
14. UPON COMPLETION, THE DESIGN ENGINEER SHALL PROVIDE A LETTER TO THE CITY ENGINEER STATING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN SUBSTANTIAL COMPLIANCE IWTH THE APPROVED PLANS.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = ft. 20

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R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_GRADING & DRAINAGE.DWG

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER
08-21-2024
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

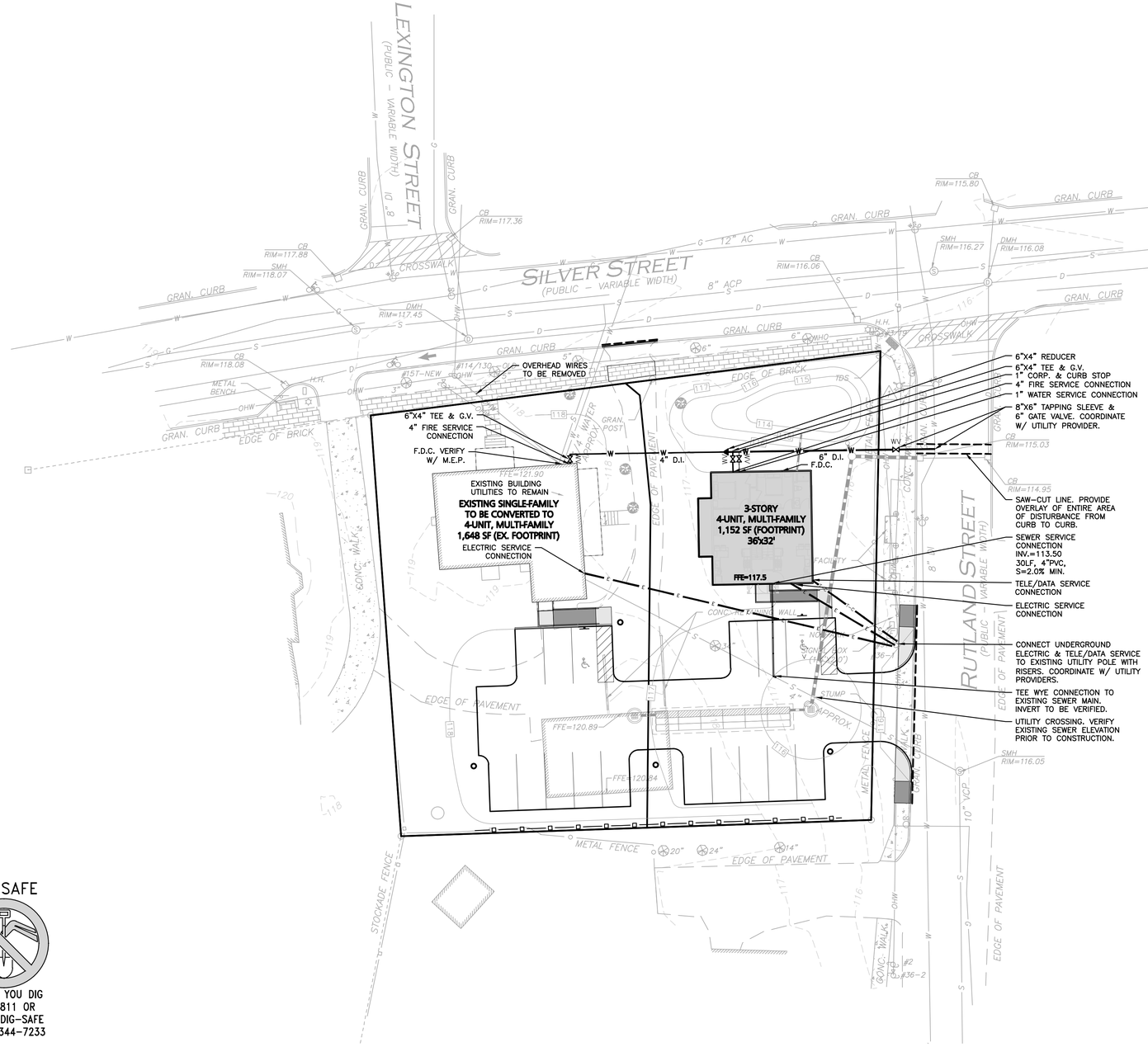
PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:
GRADING & DRAINAGE PLAN

SHEET No.
C-103

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LEGEND

SEWER MANHOLE	S
SEWER LINE	
WATER LINE	W
WATER VALVE	WV
WATER LINE REDUCER	
ELECTRICAL CONDUIT	E
TELE/CABLE CONDUIT	T-C

UTILITY NOTES:

1. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. IN THE CASE THAT WATER MAINS CROSS SANITARY SEWER MAINS AND ARE SEPARATED BY LESS THAT 18" OF VERTICAL CLEARANCE, THE SEWER MAIN SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 8 LINEAR FEET CENTERED ON THE CROSSING.
3. THE LATEST STANDARDS OF THE CITY OF DOVER "CHAPTER 147 – SEWERS" SHALL BE FOLLOWED WHEN PERFORMING ANY SANITARY SEWER WORK. SEWER WORK WILL BE INSPECTED BY CITY OF DOVER PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE LATEST STANDARDS OF THE CITY OF DOVER "CHAPTER 148 – WATER SYSTEMS" SHALL BE FOLLOWED WHEN PERFORMING ANY WATER DISTRIBUTION WORK. WATER WORK WILL BE INSPECTED BY CITY OF DOVER PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL REFER TO ARCHITECTS PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.
6. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION. THE ENGINEER WILL THEN PROVIDE RESOLUTION TO UTILITY CONFLICTS WITHOUT DELAY.
7. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF DOVER, NHDOT, NHDES, MUTCD, AND AASHTO.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS OF THE SITE. THESE PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC., DO NOT EXTEND TO, NOR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THE EMPLOYEES, AGENTS OF REPRESENTATIVES IN PERFORMANCE OF THE WORK. THE SEAL OF THE ARCHITECT OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OF OBTAIN THE APPROPRIATE SAFETY SYSTEMS THAT MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEATH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
9. ALL ELEVATIONS REFER TO NAVD 88.
10. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE FACE OF THE STRUCTURE.
11. SANITARY SEWER PIPE SHALL BE PVC PIPE SDR35.
12. ALL VALVES AND HYDRANTS SHALL BE OPEN LEFT (COUNTERCLOCKWISE).
13. SIZE OF DOMESTIC AND FIRE SERVICE WATER LINES SHALL BE VERIFIED BY THE M.E.P. ENGINEER.
14. LOCATION OF PROPOSED ELECTRICAL/COMMUNICATION SERVICE IS SCHEMATIC IN NATURE AND FOR COORDINATION PURPOSES ONLY. SPECIFIC ALIGNMENTS ARE TO BE DESIGNED BY OTHERS AND REVIEWED BY THE UTILITY PROVIDING SERVICE. PROPOSED ELECTRICAL SERVICE TO BE BURIED IN ACCORDANCE WITH THE CITY OF DOVER REGULATIONS AND ELECTRIC COMPANY.
15. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
16. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = ft. 20

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STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 – LICENSED PROFESSIONAL ENGINEER

08-21-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:

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civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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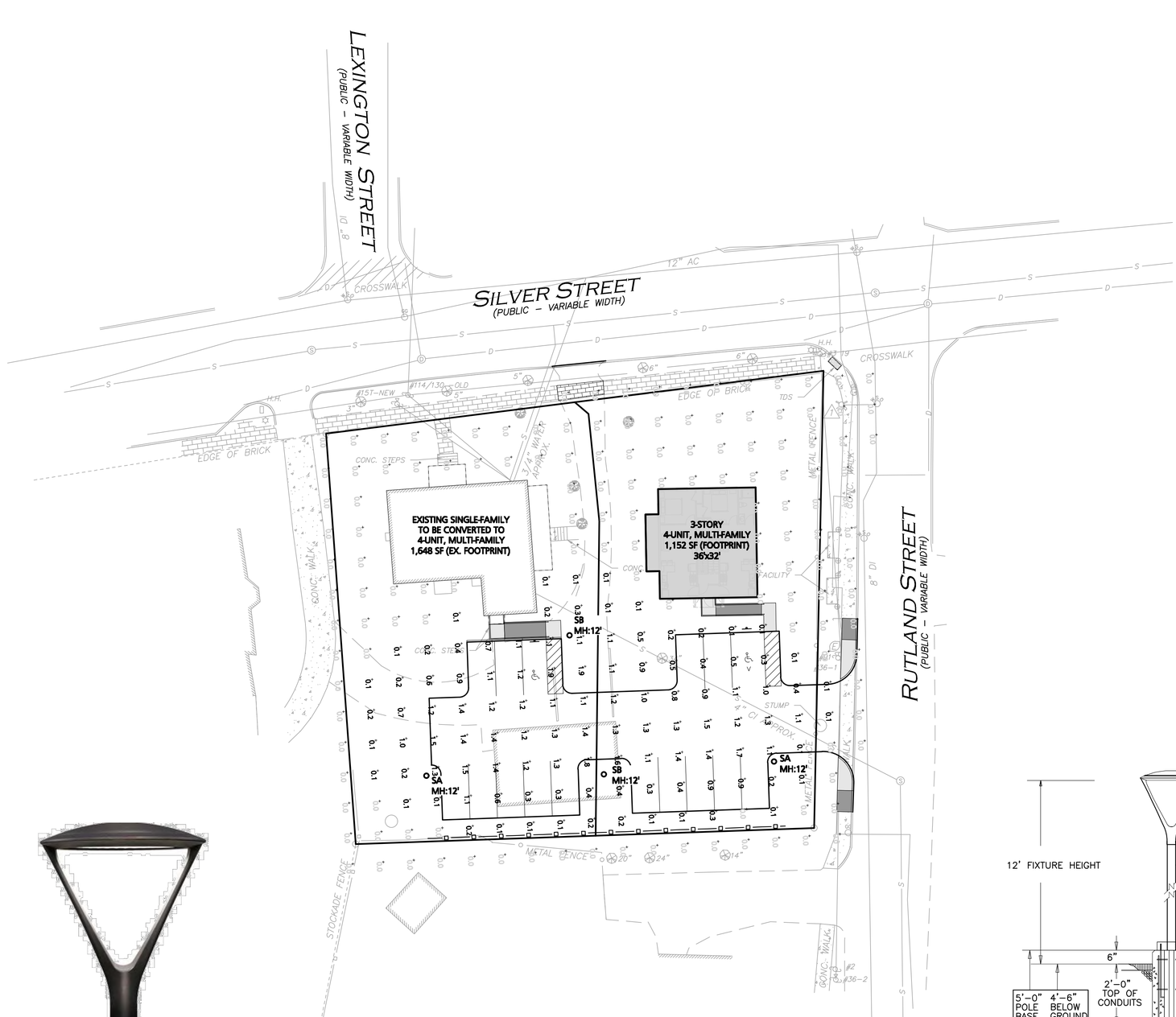
DRAWING TITLE:

UTILITIES PLAN

SHEET No.

C-104

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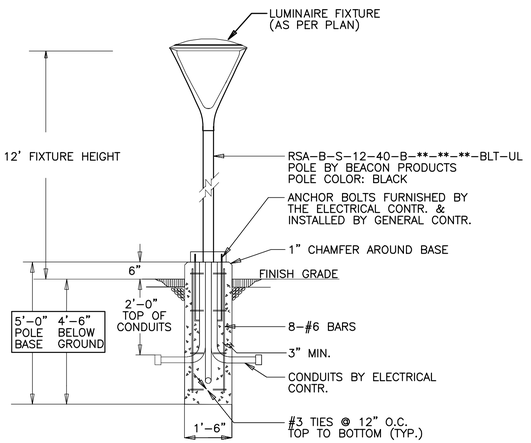
LEGEND

SINGLE POLE LIGHT	○
LIGHTING LEVELS GIVEN IN FOOT–CANDLES	0.0 0.1 0.2 0.4 0.6

NOTES:

1. LIGHTING VENDOR INFORMATION:
   SWANEY LIGHTING ASSOCIATES
   CONTACT: CHRIS PECHALK
   OFFICE: 207–883–7100
   CELL: 603–380–3400
2. LIGHTS WITHIN THE PARKING AREAS AND ACCESS DRIVES SHALL OPERATE ON A PHOTO–CELL & PROGRAMABLE TIMER.
3. SITE LIGHTING SHALL BE EQUIPPED WITH "wiScape" CONNECTIVITY THROUGHOUT.
4. CONTROLS FOR ALL EXTERIOR LIGHTING BY BUILDING CONTRACTOR.
5. WIRING OF BUILDING MOUNTED FIXTURES BY BUILDING CONTRACTOR.
6. SIZING AND LAYOUT OF THE WIRING OF THE SITE LIGHTING FIXTURES SHALL BE BY THE SITE ELECTRICAL CONTRACTOR.
7. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
8. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

KIM LIGHTING: "UR20 - POST TOP" FM33
LED POLE LIGHT



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1–888–DIG–SAFE
1–888–344–7233

KIM LIGHTING, UR20 - POST TOP

SYMBOL	QTY	LABEL	ARRANGEMENT	MOUNT HEIGHT	MODEL	–LED ENGINE	–CCT/CRI	–DIST.	–OPT.	–VOLT.	–FINISH	–CONTROLS
○	2	SA	POLE MOUNT	12'–0"	UR20	24L–25	3K8	4	BC–CLR–PT	UNV	BLT	WIR–RME–L
○	2	SB	POLE MOUNT	12'–0"	UR20	24L–25	3K8	3	CLR–PT	UNV	BLT	WIR–RME–L

LIGHTING LEVEL SUMMARY

AREA	UNITS	AVERAGE	MAX	MIN	UNIFORMITY RATIO AVG/MIN	UNIFORMITY RATIO MAX/MIN
SITE	Fc	0.31	1.9	0.0	N/A	N/A
PARKING	Fc	1.12	1.9	0.3	3.73	6.33

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = ft. 20

SWANEY LIGHTING ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	08/06/24
SCALE:	1" = ##'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:
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civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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DRAWING TITLE:
SITE LIGHTING PLAN

SHEET No.
C-105

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TAX MAP 12 LOT 129
THOMAS M. & JILL M. NELSON
108 SILVER ST.
DOVER, NH 03820
2323/624

TAX MAP 12 LOT 130
CHILD THOMAS L & DEBORAH M
TRUSTEES, THOMAS L CHILD REVOCABLE
TRUST &
8 RUTLAND ST.
DOVER, NH 03820
2135/319

TAX MAP 12 LOT 147
GREGORY P. ANDRECYK
11 RUTLAND ST.
DOVER, NH 03820
4395/210

TAX MAP 12 LOT 149
CHARLES L. MILLETTE REVOCABLE TRUST
9 MARKET ST.
PORTSMOUTH, NH 03801-3702
1378/316

TAX MAP 10 LOT 115
CBA PROPERTIES LLC
PO BOX 801
NEWCASTLE, NH 03854
5071/585

TAX MAP 10 LOT 116
PERRINE FAMILY REV. TRUST
GEORGE E. & GLORIA J. PERRINE
107 SILVER ST.
DOVER, NH 03820
4438/580

TAX MAP 10 LOT 169
SESSLER GREGG F & LAWRENCE
CHRISTINA L T, LAWRENCE-SESSLER
FAMILY REVOCABLE TRUST
117 SILVER ST.
DOVER, NH 03820
4533/206



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1-888-344-7233

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = ft. 100

STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI
No. 12205
LICENSED PROFESSIONAL ENGINEER
08-21-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	08/06/24
SCALE:	1" = 100'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:

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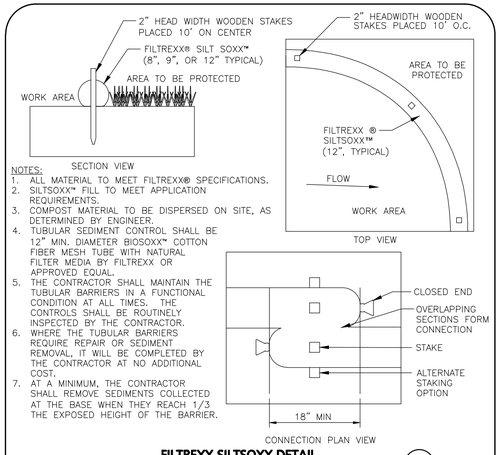
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DRAWING TITLE:
NEIGHBORHOOD PLAN

SHEET No.
C-106

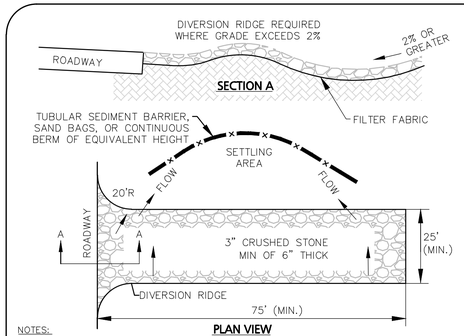
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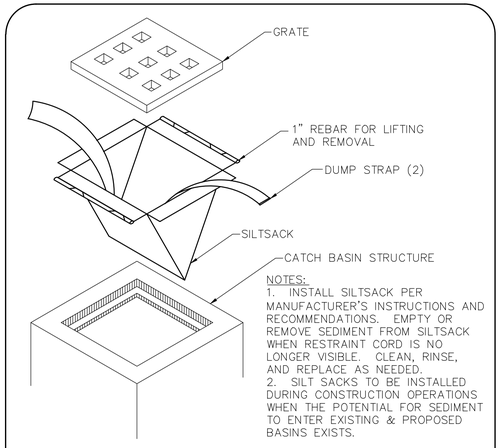
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. TUBULAR SEDIMENT CONTROL SHALL BE 12" MIN. DIAMETER BIOSOXX™ COTTON FIBER MESH TUBE WITH NATURAL FILTER MEDIA BY FILTREXX OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL MAINTAIN THE TUBULAR BARRIERS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE CONTROLS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
6. WHERE THE TUBULAR BARRIERS REQUIRE REPAIR OR SEDIMENT REMOVAL, IT WILL BE COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
7. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE BARRIER.

FILTREXX SILTSOXX DETAIL — NOT TO SCALE — 1



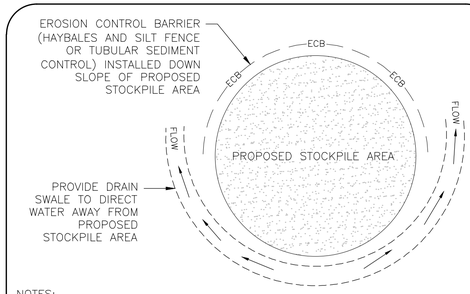
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE — NOT TO SCALE — 2



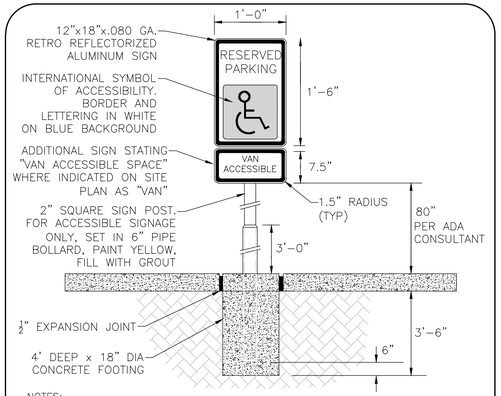
NOTES:
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

CATCH BASIN INLET PROTECTION — NOT TO SCALE — 3



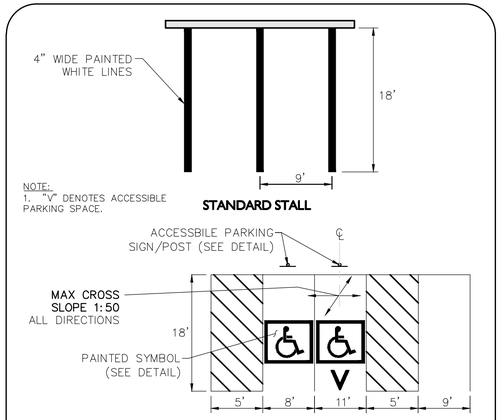
NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH HAY AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 3LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

STOCKPILE PROTECTION — NOT TO SCALE — 4



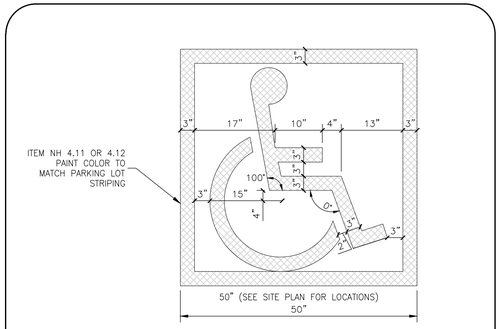
NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER ACCESSIBLE SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

ACCESSIBLE PARKING SIGN POST — NOT TO SCALE — 5



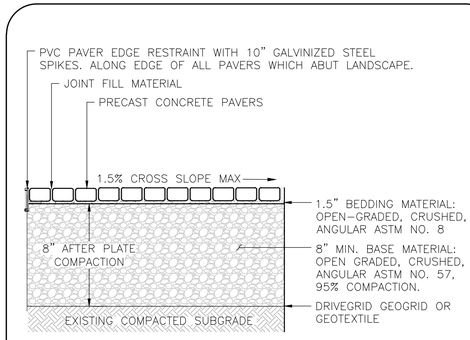
NOTE:
1. "V" DENOTES ACCESSIBLE PARKING SPACE.

ACCESSIBLE & STANDARD PARKING STRIPING — NOT TO SCALE — 6



SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING — NOT TO SCALE — 7



NOTES:
1. PAVERS TO BE UNILOCK TOWN HALL RANDOM BUNDLE OR EQUAL.
2. SUBMIT SAMPLES & SHOP DRAWING OF PAVERS AND COLOR CHART FOR APPROVAL PRIOR TO ORDERING.
3. SUBMIT SHOP DRAWING FOR APPROVAL OF BEDDING & BASE MATERIAL SIEVE ANALYSIS PRIOR TO ORDERING.

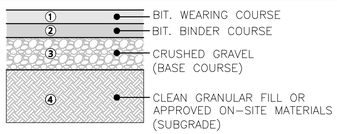
PERMEABLE PAVER SIDEWALK DETAIL — NOT TO SCALE — 8

STANDARD DUTY FLEXIBLE PAVEMENT DESIGN SECTION

LAYER NUMBER	LAYER DESCRIPTION	LAYER THICKNESS (INCHES)
1	BITUMINOUS WEARING COURSE (3/4" AGGREGATE – NHDOT PRE-APPROVED MIX DESIGN)	1"
2	BITUMINOUS BINDER COURSE (3/4" AGGREGATE – NHDOT PRE-APPROVED MIX DESIGN)	2"
3	CRUSHED GRAVEL (BASE COURSE) (NHDOT ITEM 304.3)	12"
4	CLEAN GRANULAR FILL MATERIAL OR APPROVED ON-SITE MATERIALS (SUBGRADE)	AS NECESSARY

NHDOT GRADATION SPECIFICATION

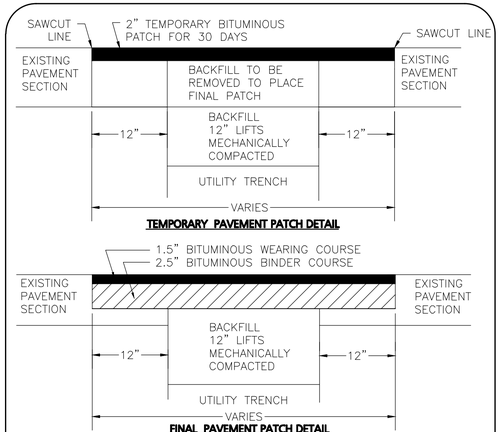
SIEVE SIZE	PERCENT PASSING BY WEIGHT		
	CLEAN GRANULAR FILL	BASE COURSE	SELECT GRANULAR FILL
8"	100	100	100
3"	70–100	100	70–100
1/2"	40–100	40–80	40–90
No. 4	25–100	30–70	25–80
No. 10	15–95	20–60	15–70
No. 40	10–70	10–30	5–40
No. 200	0–15	3–10	0–12



NOTES:
IF A GEOTECHNICAL REPORT IS PREPARED THE RECOMMENDATIONS WITHIN THAT REPORT SHALL SUPERCEDE RECOMMENDATIONS HEREIN. THE CONTRACTOR SHALL HAVE AND REVIEW A COPY OF THE GEOTECHNICAL REPORT AND COMPLY WITH THE RECOMMENDATIONS THEREIN.

1. TOPSOIL SHALL BE REMOVED BENEATH ALL PAVEMENT AREAS TO EXPOSE THE NATURALLY-OCCURRING SOILS OR ACCEPTABLE ON-SITE FILL MATERIALS.
2. THE SUBGRADE SHOULD BE PROOFROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER USING AT LEAST 4 PASSES OF A 10-TON VIBRATORY ROLLER. AREAS OF THE SUBGRADE THAT "WEAVE" OR "ROLL" EXCESSIVELY SHOULD BE OVEREXCAVATED AND REPLACED WITH DRIER CLEAN GRANULAR FILL MATERIAL.
3. THE PAVEMENT SUBGRADE CONSISTING OF THE SPECIFIED CLEAN GRANULAR FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM DESIGNATION D-1557.

PAVEMENT SECTIONS — NOT TO SCALE — 9



PAVEMENT TRENCH PATCH — NOT TO SCALE — 10

NOT USED — NOT TO SCALE — 11

STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER
08-21-2024
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
www.allenmajor.com
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FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

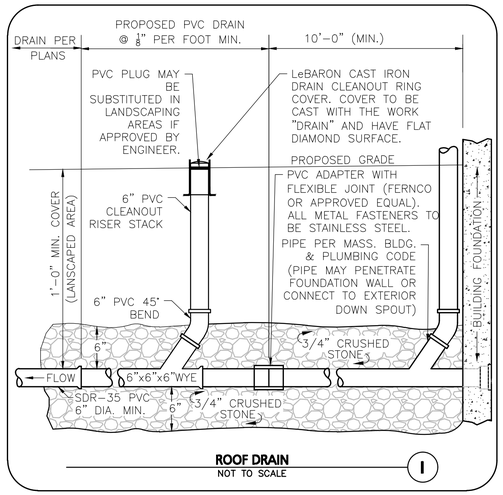
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DRAWING TITLE: DETAILS

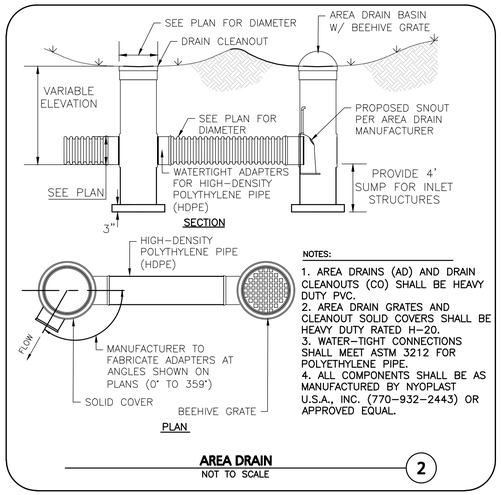
SHEET No. C-501

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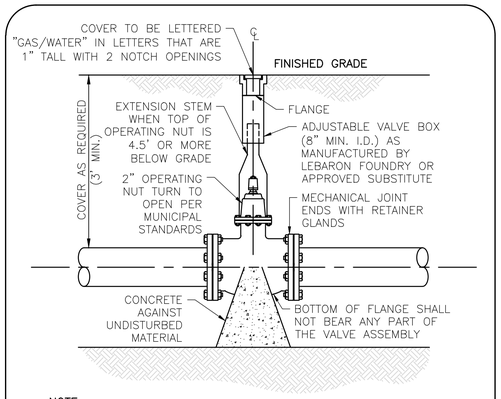


ROOF DRAIN ①
NOT TO SCALE



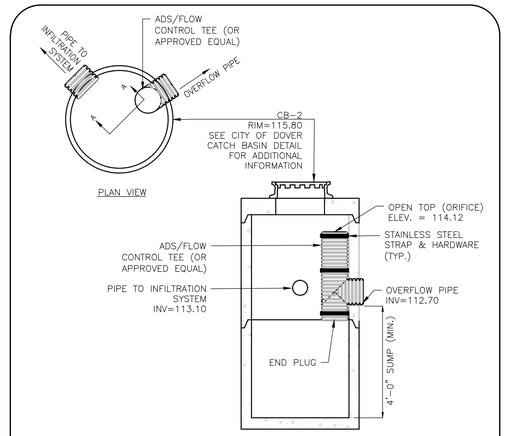
NOTES:
1. AREA DRAINS (AD) AND DRAIN CLEANOUTS (CO) SHALL BE HEAVY DUTY PVC.
2. AREA DRAIN GRATES AND CLEANOUT SOLID COVERS SHALL BE HEAVY DUTY RATED H-20.
3. WATER-TIGHT CONNECTIONS SHALL MEET ASTM 3212 FOR POLYETHYLENE PIPE.
4. ALL COMPONENTS SHALL BE AS MANUFACTURED BY NYOPLAST U.S.A., INC. (770-932-2443) OR APPROVED EQUAL.

AREA DRAIN ②
NOT TO SCALE



NOTE:
1. CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2. HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

GATE VALVE ③
NOT TO SCALE

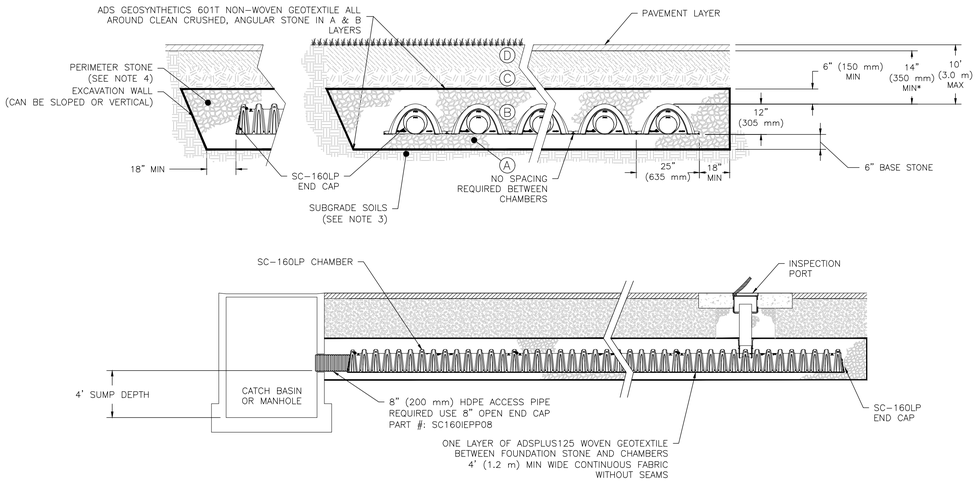


CB-2 OUTLET CONTROL STRUCTURE (OCS) ④
NOT TO SCALE

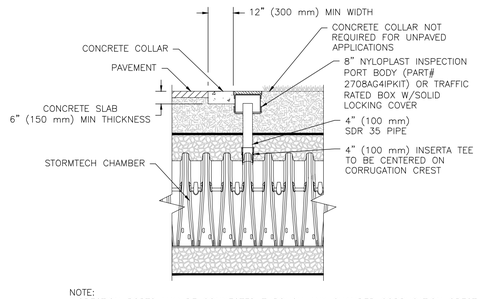
ACCEPTABLE FILL MATERIALS: STORMTECH SC-160LP CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	GENERAL BACKFILL. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	SEE FULL DEPTH PAVEMENT SECTION DETAIL
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 14" (355 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



SC-160LP ISOLATOR ROW PLUS DETAIL
NOT TO SCALE



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

INSPECTION PORT DETAIL
NOT TO SCALE

SC-160LP STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-160LP.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 1.5".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/% THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

INSPECTION & MAINTENANCE

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

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

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

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

STORMTECH SC-160LP DETENTION SYSTEM ⑤
NOT TO SCALE

R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_DETAILS.DWG

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER – 08-21-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
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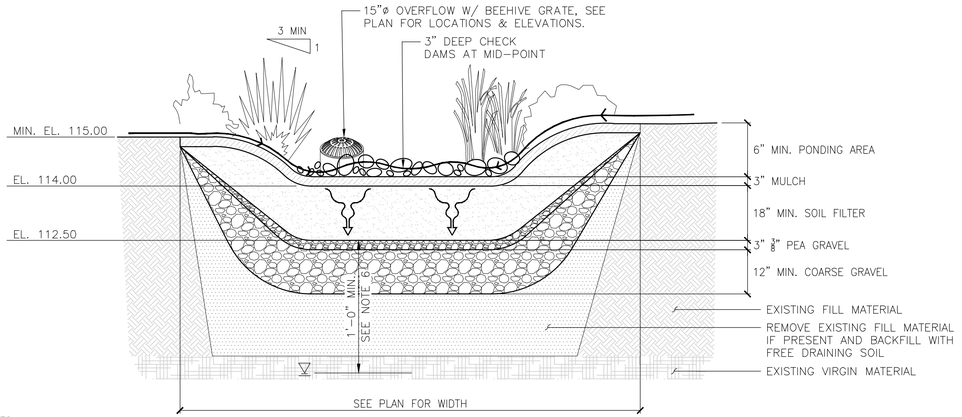
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DRAWING TITLE:
DETAILS

SHEET No.
C-502

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BIORETENTION FILTER MEDIA			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-22 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15

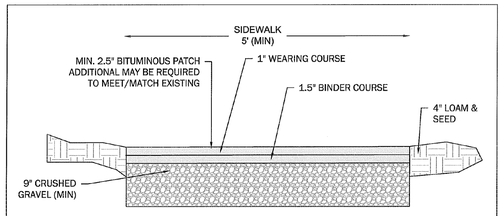


NOTES:

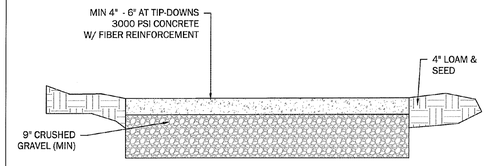
1. SEE LANDSCAPE PLAN FOR PLANT TYPES.
2. GRADING, AND PLANTING OF BIORETENTION SHALL BE COMPLETED IN EARLY PHASES OF CONSTRUCTION. PLANTS AND SEED ON SLOPES AND BOTTOM OF BASIN MUST BE ESTABLISHED PRIOR TO CONNECTING STORM DRAINAGE SYSTEM OUTLETS TO BIORETENTION AREA. PLANTS AND SEED MIX SHALL HAVE A MINIMUM OF 6 MONTHS GROWING, BE ESTABLISHED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO CONNECTING STORM DRAINAGE SYSTEM OUTLETS TO BIORETENTION AREA.
3. EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN, SHALL BE IN PLACE PRIOR TO ANY REGRADING ACTIVITY.
4. EXCAVATION, FILLING AND PLANTING SHALL OCCUR IN THE DRY. WATER LEVELS MUST BE LOWERED IN THE BIORETENTION AREA BY RELYING ON DRY SEASON AND OR DRY SPELLS; OR MAY BE ACCOMPLISHED THROUGH THE USE OF DEWATERING METHODS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ANY DEWATERING METHODS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
5. WATER FROM ANY DEWATERING OPERATION SHALL BE TREATED TO REDUCE TOTAL SUSPENDED SOLIDS AND BE IN COMPLIANCE WITH STATE AND FEDERAL STANDARDS. BEFORE ANY DEWATERING IS PERFORMED, THE CONTRACTOR SHALL FILE AND OBTAIN A TEMPORARY GROUNDWATER DISCHARGE PERMIT FROM NHDES. COORDINATION BETWEEN THE APPLICANT, PDA, NHDES AND THE AIR FORCE IS NECESSARY PRIOR TO FILING THIS APPLICATION.
6. A MINIMUM OF 1 FOOT SEPARATION BETWEEN THE BOTTOM OF THE PRACTICE AND SEASONAL HIGH WATER TABLE SHALL BE PROVIDED. IF SEPARATION CAN NOT BE ACHIEVED, SET UNDERDRAIN AT BOTTOM OF COARSE GRAVEL LAYER AND PROVIDE IMPERMEABLE LINER AT BOTTOM OF PRACTICE.

CONSTRUCTION NOTES:
1. DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

RAIN GARDEN / BIORETENTION SYSTEM DETAIL (1)
NOT TO SCALE



BITUMINOUS SIDEWALK

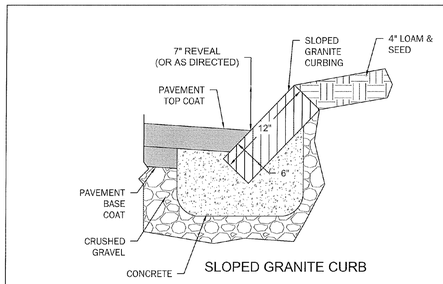


CONCRETE SIDEWALK

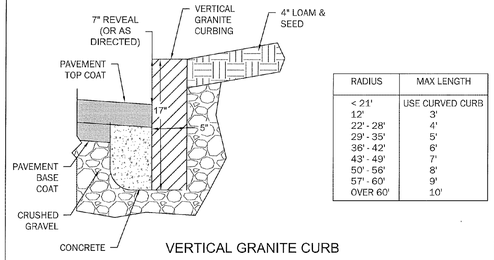
NOTES:

1. MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS SPECIFICATIONS.
2. SIDEWALK AND DRIVEWAY WIDTHS SHALL BE EQUAL TO EXISTING WIDTHS OR AS APPROVED AND SHALL SLOPE TO MATCH EXISTING ELEVATIONS.
3. BASE FOR THE SIDEWALKS AND DRIVEWAYS SHALL BE 9-INCHES OF CRUSHED GRAVEL.
4. DETECTABLE WARNING STRIPS SHALL BE CAST IRON.

CITY OF DOVER - STANDARD SIDEWALK DETAILS
NOT TO SCALE



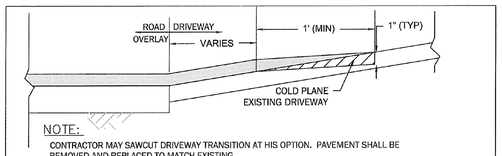
SLOPED GRANITE CURB



RADIUS	MAX LENGTH
< 21'	USE CURVED CURB
12'	3'
22' - 28'	4'
29' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
OVER 60'	10'

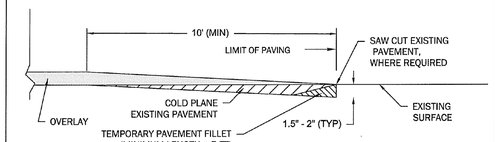
VERTICAL GRANITE CURB

CITY OF DOVER - STANDARD CURBING DETAILS
NOT TO SCALE

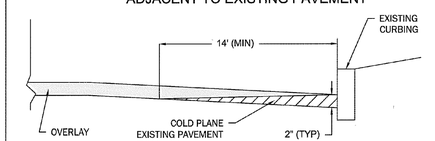


NOTE:
CONTRACTOR MAY SAWCUT DRIVEWAY TRANSITION AT HIS OPTION. PAVEMENT SHALL BE REMOVED AND REPLACED TO MATCH EXISTING.

ADJACENT TO EXISTING DRIVEWAY



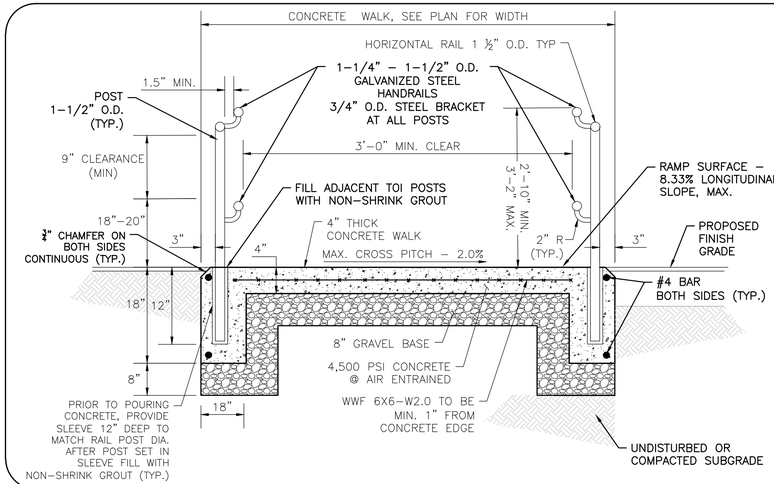
ADJACENT TO EXISTING PAVEMENT



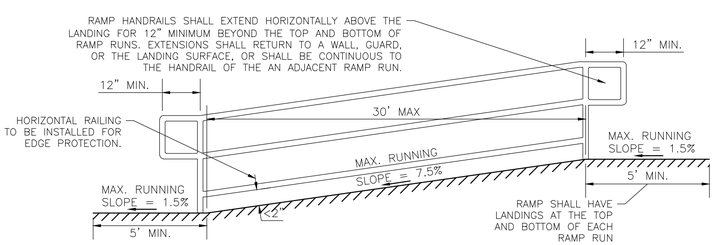
ADJACENT TO EXISTING CURB

NOTE:
THE LENGTH OF THE TAPER MAY BE ADJUSTED AS ORDERED TO PROVIDE FOR VARYING FIELD CONDITIONS OR CHANGES IN SINGLE COURSE DEPTH.

CITY OF DOVER - STANDARD PAVEMENT OVERLAY DETAILS
NOT TO SCALE



NOTES:
1. HANDRAILS SHALL BE AT A CONSISTENT HEIGHT ABOVE WALKING SURFACES, STAIR NOSINGS AND RAMP SURFACES.
2. HANDRAIL SURFACES SHALL BE CONTINUOUS ALONG THEIR LENGTH AND SHALL NOT BE OBSTRUCTED ALONG THEIR TOPS OR SIDES. THE BOTTOMS OF HANDRAIL GRIPPING SURFACES SHALL NOT BE OBSTRUCTED FOR MORE THAN 20% OF THEIR LENGTH.
3. UPPER AND LOWER HANDRAIL ENDS TO JOIN SMOOTHLY AT ENDS WITH 6" RADII & EXTEND 12" BEYOND TOP AND BOTTOM OF EACH RAMP SECTION.
4. MAINTAIN 7.5% MAX RUNNING SLOPE ON RAMP SEGMENTS AND 1.5% MAX. RUNNING SLOPE IN ALL DIRECTIONS ON LEVEL LANDINGS. MAINTAIN 1.5% MAX CROSS SLOPE ON ALL RAMPING SECTIONS.
5. ALL RAILINGS, HANDRAILS, POSTS, HANDRAILS TO BE PAINTED METAL.
6. SIDEWALK TO HAVE TOOLED JOINTS EVENLY SPACED NO MORE THAN 5' APART WITH EXPANSION JOINTS NO MORE THAN 15' ON APART AND PREMOLDED FILLER.



CONCRETE ADA RAMP WITH HANDRAILS (2)
NOT TO SCALE

R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_DETAILS.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

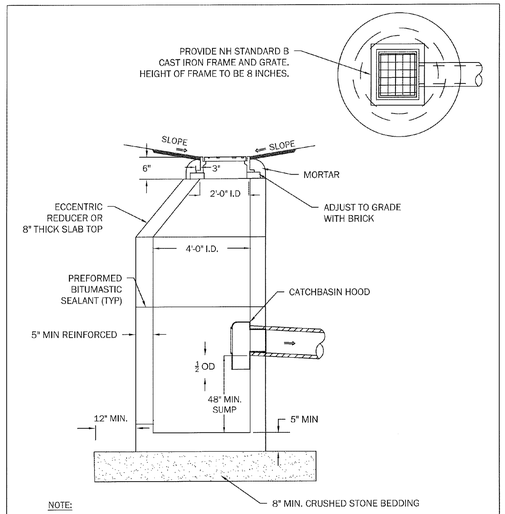
PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
www.allenmajor.com
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DRAWING TITLE: DETAILS

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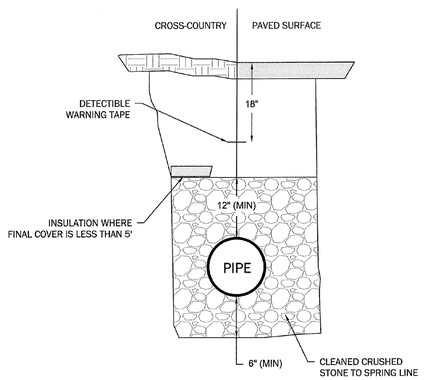


NOTE:

ENTIRE STRUCTURE SHALL BE CAPABLE OF WITHSTANDING AN H - 20 LOAD DETAILS OF REINFORCEMENT TO BE FURNISHED BY MANUFACTURER

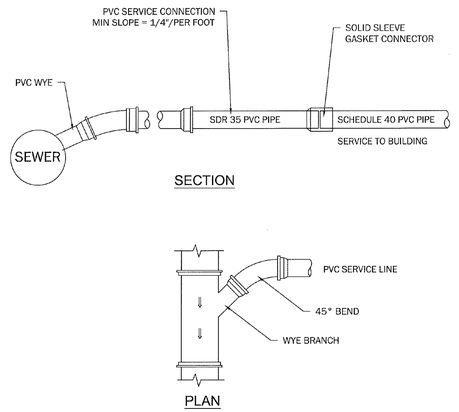
CITY OF DOVER - CATCHBASIN

NOT TO SCALE



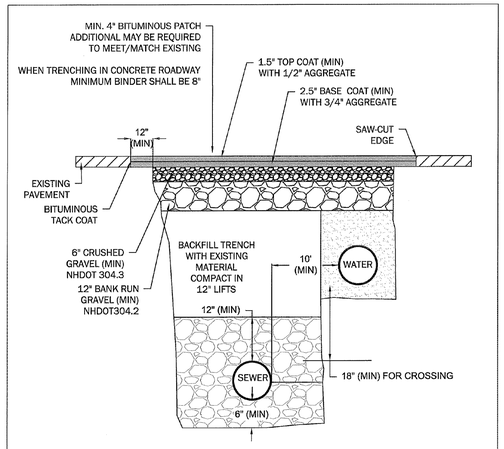
CITY OF DOVER- TYPICAL SEWER/DRAINLINE TRENCH

NOT TO SCALE



CITY OF DOVER - SEWER SERVICE

NOT TO SCALE

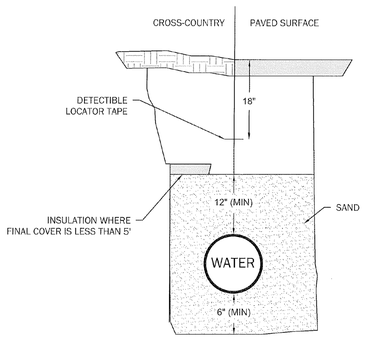


NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY.
2. ALL WORK SHALL COMPLY WITH THE CITY OF DOVER CONSTRUCTION GUIDELINES AND PROCEDURES

CITY OF DOVER - TYPICAL TRENCH DETAIL

NOT TO SCALE

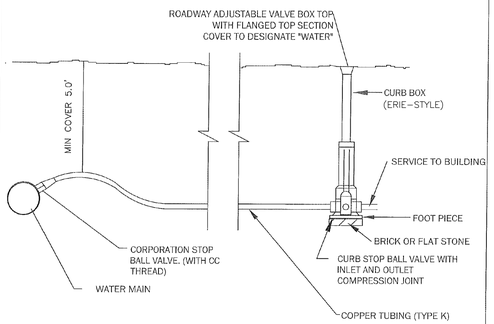


NOTE:

1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP. CONTRACTOR MAY FORGO WRAPPING PIPE IF THE DUCTILE IRON PIPE IS ZINC-COATED, TEES AND OTHER CONNECTIONS WILL STILL NEED TO BE WRAPPED.

CITY OF DOVER - WATERLINE TRENCH

NOT TO SCALE

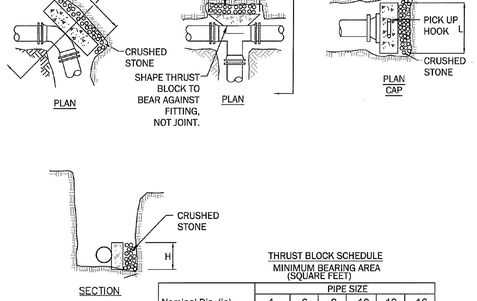


NOTE:

1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP. CONTRACTOR MAY FORGO WRAPPING PIPE IF THE DUCTILE IRON PIPE IS ZINC-COATED, TEES AND OTHER CONNECTIONS WILL STILL NEED TO BE WRAPPED.
2. WATER SERVICE LINES SHALL BE COPPER TUBING (TYPE K) BETWEEN MAIN AND CURB STOP.
3. SERVICE BETWEEN CURB STOP AND BUILDING MAY BE SDR 9 CTS (BLUE) PLASTIC POLYETHYLENE RATED FOR 250 psi.

CITY OF DOVER - WATER SERVICE CONNECTION

NOT TO SCALE



THRUST BLOCK SCHEDULE

MINIMUM BEARING AREA (SQUARE FEET)

	PIPE SIZE					
Nominal Dia. (in)	4	6	8	10	12	16
Tees, Caps, Plugs, & Tapping Sleeves	1.05	2.32	4.15	6.37	9.15	16.23
90 Degree Bends	1.48	3.29	5.86	9.01	12.93	22.96
45 Degree Bends	0.80	1.78	3.17	4.88	7.00	12.42
22-1/2 Degree Bends	0.41	0.91	1.62	2.49	3.57	6.33
11-1/4 Degree Bends	0.21	0.46	0.81	1.25	1.79	3.18
	System Pressure: 100 psi Safety Factor: 1.5 Soil Bearing Capacity: 2,000 psf					

THE MINIMUM BEARING AREAS SHOWN IN THE THRUST BLOCK SCHEDULE ARE BASED ON A SYSTEM PRESSURE OF 100 PSI. IF THE SYSTEM PRESSURE IS ABOVE 100 PSI, INCREASE THE NOTED AREAS PROPORTIONAL TO THE ACTUAL SYSTEM PRESSURE. FOR EXAMPLE, IF THE ACTUAL SYSTEM PRESSURE IS 160 PSI, MULTIPLY THE ABOVE VALUES BY 160%.

CITY OF DOVER - PRECAST CONCRETE THRUST BLOCK & ANCHOR

NOT TO SCALE

STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI
No. 12209
LICENSED PROFESSIONAL ENGINEER
08-21-2024
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	08/06/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG/SM	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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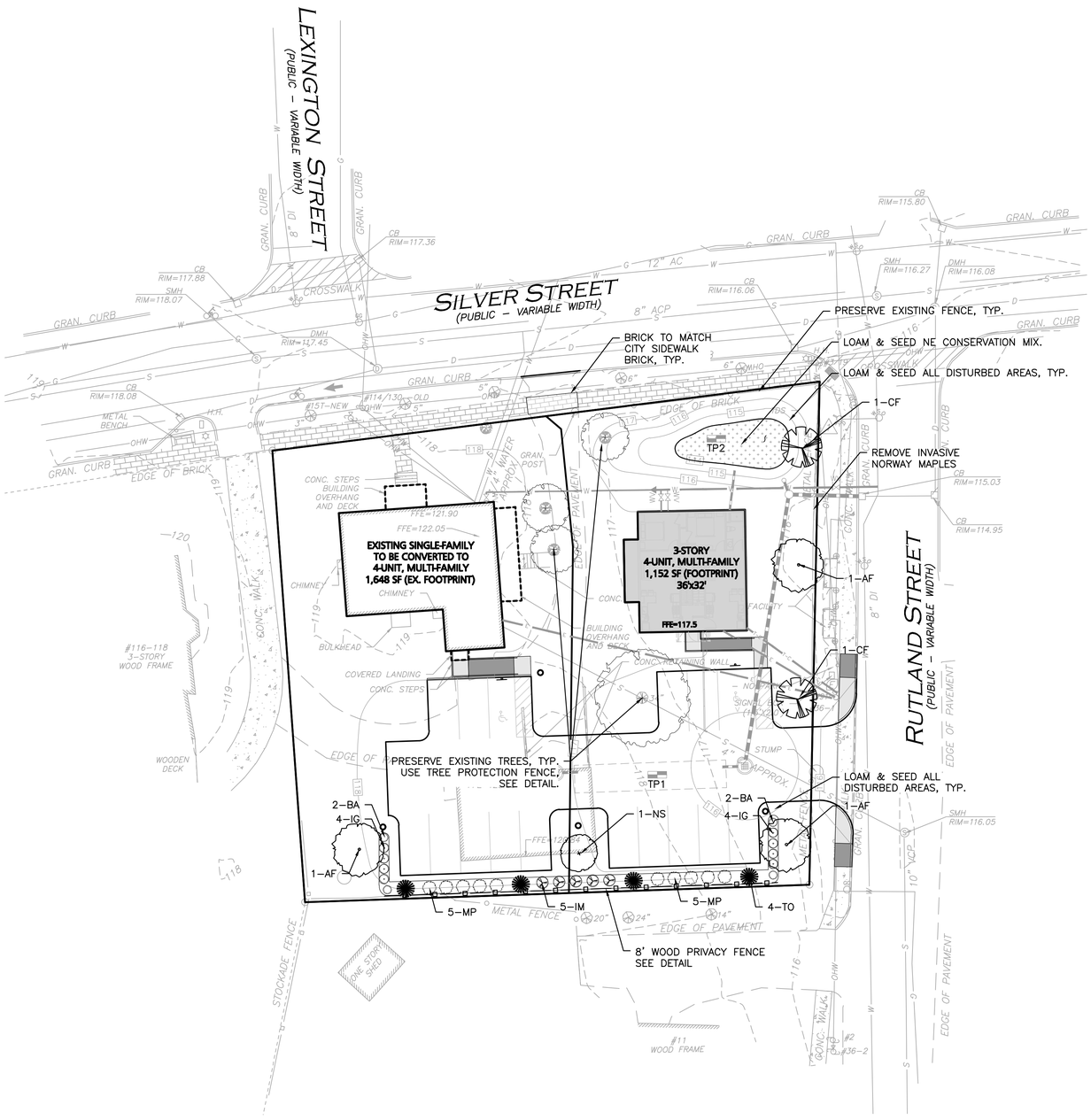
DETAILS

SHEET No.

C-504

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PLAN NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
- MULCH BED
- PERENNIALS/GROUNDCOVER
- WILDFLOWER SEED MIX
- EROSION CONTROL SEED MIX
- STONE EDGE

PLANTING SCHEDULE-TREES, SHRUBS, GROUNDCOVERS & PERENNIALS

KEY	QTY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	COMMENTS
DECIDUOUS/EVERGREEN TREES						
AF	3	ACER FREEMANII "ARMSTRONG"	ARMSTRONG MAPLE	3" CAL.	AS SHOWN	B&B
CF	2	CORNUS FLORIDA 'CHEROKEE PRINCESS'	CHEROKEE PRINCESS DOGWOOD	2.5–3" CAL.	AS SHOWN	B&B
NS	1	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE TUPELO	3" CAL.	AS SHOWN	B&B
TO	1	THUJA O. 'NORTH POLE'	NORTH POLE ARBORVITAE	5–6' HT.	AS SHOWN	B&B
SHRUBS						
IG	8	ILEX GLABRA COMPACTA	COMPACT INKBERRY	#7	AS SHOWN	POT – 2' HT.
IM	5	ILEX MESERVE 'BLUE PRINCESS'	BLUE PRINCESS HOLLY	#7	AS SHOWN	POT – 2' HT.
MP	10	MYRICA PENNSYLVANICA	BAYBERRY	2'–2.5' HT.	AS SHOWN	B&B
GRASSES/PERENNIALS						
BA	4	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	#3	24" O.C.	STAGGERED

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ROBERT P. CLARKE
LICENSED LANDSCAPE ARCHITECT
STATE OF NEW HAMPSHIRE
030
8-21-24

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 HARVEY ROAD
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TEL: (603) 627-5500
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DRAWING TITLE: LANDSCAPE PLAN

SHEET No. L-101

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CONSERVATION WILDLIFE SEED MIX:

NEW ENGLAND CONSERVATION / WILDLIFE MIX
(BY NEW ENGLAND WETLAND PLANTS INC. – NEWP.COM)
APPLICATION RATE: 25 LBS/ACRE | 1750 SQ FT/LB

ITEM	BOTANICAL NAME	COMMON NAME	INDICATOR
1.	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW
2.	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
3.	FESTUCA RUBRA	RED FESCUE	FACU
4.	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
5.	ANDROPOGON GERARDII	BIG BLUESTEM	FACU
6.	PANICUM VIRGATUM	SWITCH GRASS	FAC
7.	DESMODIUM PANICULATUM	PANICLEDLEAF TICK TREFOIL	FACU
8.	SORGHASTRUM NUTANS	INDIAN GRASS	FACU
9.	VERBENA HASTATA	BLUE VERVAIN	FACW
10.	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	
11.	RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU
12.	HELENIUM AUTUMNALE	FALL SNEEZEWEED	FACW
13.	ASTERPILOSUS/SYMPHYOTRICHUM PILOSUM	HEATH ASTER	FACU
14.	SOLIDAGO JUNCEA	EARLY GOLDENROD	
15.	AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU

THE NEW ENGLAND CONSERVATION/WILDLIFE MIX PROVIDES A PERMANENT COVER OF GRASSES, WILDFLOWERS, AND LEGUMES. FOR BOTH GOOD EROSION CONTROL AND WILDLIFE HABITAT VALUE. THE MIX IS DESIGNED TO BE A NO MAINTENANCE SEEDING, AND IS APPROPRIATE FOR CUT AND FILL SLOPES, DETENTION BASIN SIDE SLOPES, AND DISTURBED AREAS ADJACENT TO COMMERCIAL AND RESIDENTIAL PROJECTS.

LOAM AND SEED NOTES:

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	40%	85%	90%
LOLIUM PERENNE "PALMER"	PALMER PERENNIAL RYEGRASS	15%	95%	90%
FESTUCA RUBRA COMMUTATA WILMA	WILMA CHEWINGS	8%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLEXTERRA HP–FGM" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE). CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE–GRADING AND RE–SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. LAWN AREAS TO BE SEEDED BY SOWING EVENLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF TEN POUNDS PER 1000 SQUARE FEET.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

PLAN NOTES:

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LANDSCAPE (HR)
§ 153-14 SITE DEVELOPMENT DESIGN CRITERIA.

G. LANDSCAPING	REQUIRED	PROVIDE	NOTES
1.a. EXISTING TREES AND STANDS OF TREES TO BE PROTECTED WITH CONSTRUCTION FENCING.	AS NOTED	PROTECT EXISTING TREES	
1.b. INVASIVE PLANT MATERIAL IS PROHIBITED	AS NOTED	REMOVE INVASIVES	
1.c. SHRUBS AND HEDGES TO BE A MIN. OF 24" IN HEIGHT WHEN PLANTED	AS NOTED	AS NOTED	
1.f. 1 TREE PER 35' NEXT TO ROADWAYS	AS NOTED	1 TREE PER 35 LINEAR FEET NEXT TO ROADWAYS	
1.g. TREES UNDER POWER LINES TO BE LOW GROWING.	AS NOTED	AS NOTED	
1.h. LANDSCAPE MAINTENANCE AND MANAGEMENT PLAN TO BE PROVIDED. REGULAR LS MAINTENANCE REQUIRED.	AS NOTED	AS NOTED	
1.i. SNOW STORAGE ON GRASSED OR NON LIVING AREAS.	AS NOTED	AS NOTED	
3. PARKING PERIMETER LANDSCAPE SHALL HAVE TREES PLANTED 35' ON CENTER 3" CALIPER MIN. SHRUBS BETWEEN THE TREES SHALL BE 5' ON CENTER AND 24" HIGH MIN.	AS NOTED	AS NOTED	

LANDSCAPE MANAGEMENT NOTES:

LANDSCAPE MANAGEMENT PLAN
IT SHOULD BE RECOGNIZED THAT THIS IS A GENERAL GUIDELINE TOWARDS ACHIEVING HIGH QUALITY AND WELL GROOMED LANDSCAPED AREAS. THE GROUNDS STAFF / LANDSCAPE CONTRACTOR MUST RECOGNIZE THE SHORTCOMINGS OF A GENERAL MAINTENANCE PROGRAM SUCH AS THIS, AND MODIFY AND/OR AUGMENT IT BASED ON WEEKLY, MONTHLY, AND YEARLY OBSERVATIONS. IN ORDER TO ASSURE THE HIGHEST QUALITY CONDITIONS, THE STAFF MUST ALSO RECOGNIZE AND APPRECIATE THE NEED TO BE AWARE OF THE CONSTANTLY CHANGING CONDITIONS OF THE LANDSCAPING AND BE ABLE TO RESPOND TO THEM ON A PROACTIVE BASIS.

FERTILIZER
- MAINTENANCE PRACTICES SHOULD BE AIMED AT REDUCING ENVIRONMENTAL, MECHANICAL AND PEST STRESSES TO PROMOTE HEALTHY AND VIGOROUS GROWTH. WHEN NECESSARY, PEST OUTBREAKS SHOULD BE TREATED WITH THE MOST SENSITIVE CONTROL MEASURE AVAILABLE. SYNTHETIC CHEMICAL CONTROLS SHOULD BE USED ONLY AS A LAST RESORT TO ORGANIC AND BIOLOGICAL CONTROL METHODS. FERTILIZER, SYNTHETIC CHEMICAL CONTROLS AND PEST MANAGEMENT APPLICATIONS (WHEN NECESSARY) SHOULD BE PERFORMED ONLY BY LICENSED APPLICATORS IN ACCORDANCE WITH THE MANUFACTURER'S LABEL INSTRUCTIONS WHEN ENVIRONMENTAL CONDITIONS ARE CONDUCIVE TO CONTROLLED PRODUCT APPLICATION.

- ONLY SLOW–RELEASE ORGANIC FERTILIZERS SHOULD BE USED IN THE LANDSCAPED AREAS TO LIMIT THE AMOUNT OF NUTRIENTS THAT COULD ENTER DOWNSTREAM RESOURCE AREAS. FERTILIZATION OF DEVELOPED AREAS ON SITE WILL BE PERFORMED WITHIN MANUFACTURERS LABELING INSTRUCTIONS AND SHALL NOT EXCEED AN NPK RATIO OF 1:1:1 (I.E. TRIPLE 10 FERTILIZER MIX), CONSIDERED A LOW NITROGEN MIXTURE. ADDITIONALLY, THE FERTILIZER WILL INCLUDE A SLOW RELEASE ELEMENT.

SUGGESTED AERATION
- PROGRAM IN–SEASON AERATION OF LAWN AREAS IS GOOD CULTURAL PRACTICE, AND IS RECOMMENDED WHENEVER FEASIBLE. IT SHOULD BE ACCOMPLISHED WITH A SOLID THIN TINE AERATION METHOD TO REDUCE DISRUPTION TO THE USE OF THE AREA. THE DEPTH OF SOLID TINE AERATION IS SIMILAR TO CORE TYPE, BUT SHOULD BE PERFORMED WHEN THE SOIL IS SOMEWHAT DRIER FOR A GREATER OVERALL EFFECT.

- DEPENDING ON THE INTENSITY OF USE, IT CAN BE EXPECTED THAT ALL LANDSCAPED LAWN AREAS WILL NEED AERATION TO REDUCE COMPACTION AT LEAST ONCE PER YEAR. THE FIRST OPERATION SHOULD OCCUR IN LATE MAY FOLLOWING THE SPRING SEASON. METHODS OF REDUCING COMPACTION WILL VARY BASED ON THE NATURE OF THE COMPACTION. COMPACTION ON NEWLY ESTABLISHED LANDSCAPED AREAS IS GENERALLY LIMITED TO THE TOP 2–3" AND CAN BE ALLEVIATED USING HOLLOW CORE OR THIN TINE AERATION METHODS.

- THE SPRING AERATION SHOULD CONSIST OF TWO PASSES AT OPPOSITE DIRECTIONS WITH 1/4" HOLLOW CORE TINES PENETRATING 3–5" INTO THE SOIL PROFILE. AERATION SHOULD OCCUR WHEN THE SOIL IS MOIST BUT NOT SATURATED. THE CORES SHOULD BE SHATTERED IN PLACE AND DRAGGED OR SWEPT BACK INTO THE TURF TO CONTROL THATCH. IF DESIRED THE CORES MAY ALSO BE REMOVED AND THE AREA TOP–DRESSED WITH SAND OR SANDY LOAM. IF THE AREA DRAINS ON AVERAGE TOO SLOWLY, THE TOPDRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SAND. IF IT IS DRAINING ON AVERAGE TOO QUICKLY, THE TOP DRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SOIL AND ORGANIC MATTER.

LANDSCAPE MAINTENANCE PROGRAM PRACTICES:

LAWN
- MOW A MINIMUM OF ONCE A WEEK IN SPRING, TO A HEIGHT OF 2" TO 2 1/2" HIGH. MOWING SHOULD BE FREQUENT ENOUGH SO THAT NO MORE THAN 1/3 OF GRASS BLADE IS REMOVED AT EACH MOWING. THE TOP GROWTH SUPPORTS THE ROOTS; THE SHORTER THE GRASS IS CUT, THE LESS THE ROOTS WILL GROW. SHORT CUTTING ALSO DRIES OUT THE SOIL AND ENCOURAGES WEEDS TO GERMINATE.
- MOW APPROXIMATELY ONCE EVERY TWO WEEKS FROM JULY 1ST TO AUGUST 15TH DEPENDING ON LAWN GROWTH.
- MOW ON A TEN–DAY CYCLE IN FALL, WHEN GROWTH IS STIMULATED BY COOLER NIGHTS AND INCREASED MOISTURE.
- DO NOT REMOVE GRASS CLIPPINGS AFTER MOWING.
- KEEP MOWER BLADES SHARP TO PREVENT RAGGED CUTS ON GRASS LEAVES, WHICH CAUSE A BROWNISH APPEARANCE AND INCREASE THE CHANCE FOR DISEASE TO ENTER A LEAF.

SHRUBS
- MULCH NOT MORE THAN 3" DEPTH WITH SHREDDED PINE OR FIR BARK.
- HAND PRUNE ANNUALLY, IMMEDIATELY AFTER BLOOMING, TO REMOVE 1/3 OF THE ABOVE–GROUND BIOMASS (OLDER STEMS). STEM REMOVALS TO OCCUR WITHIN 6" OF THE GROUND TO OPEN UP SHRUB AND MAINTAIN TWO–YEAR WOOD (THE BLOOMING WOOD).
- FERTILIZE WITH ½ LB. SLOW–RELEASE FERTILIZER (SEE ABOVE SECTION ON FERTILIZER) EVERY SECOND YEAR.
- HAND PRUNE EVERGREEN SHRUBS ONLY AS NEEDED TO REMOVE DEAD AND DAMAGED WOOD AND TO MAINTAIN THE NATURALISTIC FORM OF THE SHRUB. NEVER MECHANICALLY SHEAR EVERGREEN SHRUBS.

TREES
- PROVIDE AFTERCARE FOR NEW TREE PLANTINGS FOR THE FIRST THREE YEARS.
- DO NOT FERTILIZE TREES, IT ARTIFICIALLY STIMULATES THEM (UNLESS TREE HEALTH WARRANTS).
- WATER ONCE A WEEK FOR THE FIRST YEAR; TWICE A MONTH THE SECOND, ONCE A MONTH THE THIRD YEAR.
- PRUNE TREES ON A FOUR–YEAR CYCLE.

ORNAMENTAL GRASSES/PERENNIALS
- APPLY LOW– NITROGEN 10–10–10 FERTILIZER AS GROWTH RESUMES IN THE SPRING.
- WATER THOROUGHLY.
- GRASSES/PERENNIALS DO NOT NEED TO BE CUT DOWN BEFORE WINTER. IN FACT, THEY ARE ATTRACTIVE WHEN LEFT STANDING AND THE FOLIAGE HELPS TO INSULATE THE CROWN OF THE PLANT.
- CUT BACK THE FOLIAGE TO ABOUT 4–6 INCHES IN THE SPRING BEFORE GROWTH RESUMES. WHEN FOLIAGE IS REMOVED, SPRING GROWTH WILL BEGIN EARLIER. OLD FOLIAGE LEFT ON THE PLANT CAN DELAY THE CROWN'S WARMING AND SUBSEQUENT GROWTH BY AS MUCH AS 3 WEEKS.

WATERING
- WATERING TREES, SHRUBS AND PERENNIALS SHOULD BE DONE WEEKLY UPON ESTABLISHMENT FOR 6 MONTHS.

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BEFORE YOU DIG
CALL 811 OR
1–888–DIG–SAFE
1–888–344–7233

LICENSED LANDSCAPE ARCHITECT
ROBERT P. CLARKE
030
STATE OF NEW HAMPSHIRE
8-21-24
PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

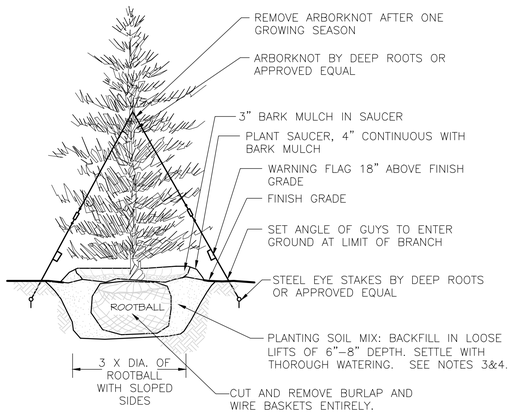
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DRAWING TITLE: LANDSCAPE NOTES
SHEET No. L-102

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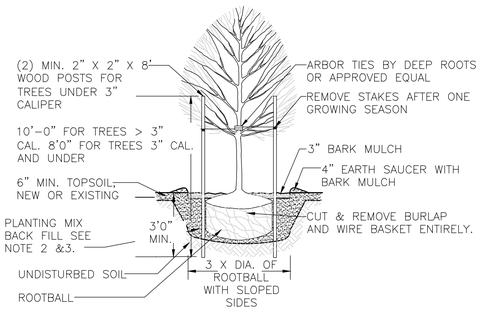
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NOTES

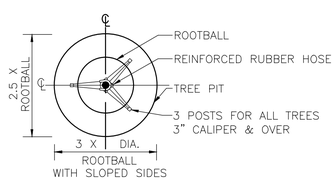
1. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO NURSERY OR FIELD GRADE. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL TOP OF ROOTBALL AREA.
2. INSTALL THREE GUYS PER TREE; EQUALLY SPACED AROUND BALL.
3. ATTACH GUYS AT 2/3 HEIGHT OF TREE.
4. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
5. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

EVERGREEN TREE DETAIL — NOT TO SCALE — 1

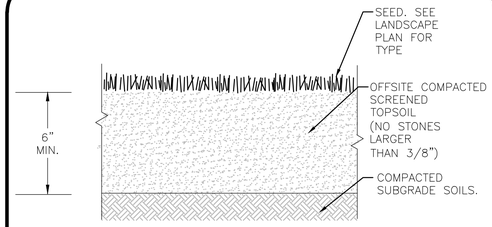


NOTES:

1. ALL TREES SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.



DECIDUOUS TREE PLANTING DETAIL — NOT TO SCALE — 2



TEXTURE CLASS	% OF TOTAL WEIGHT
SAND	45% – 65%
SILT	15% – 35%
CLAY	5% – 20%

SIEVE	% PASSING
3/8"	100
NO. 4	85–100
NO. 40	60–85
NO. 100	38–60
NO. 200	10–35
20 um	LESS THAN 5%

NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISH GRADE.
2. ALL TOPSOIL (BOTH ONSITE AND OFFSITE SOURCES) SHALL BE COMPOSED OF A NATURAL, FERTILE, FRIABLE SOIL TYPICAL OF CULTIVATED TOPSOILS OF THE LOCALITY. OFFSITE SOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND SUPPORT OF VEGETATIVE GROWTH, WITH ADDITIVES, IF REQUIRED, TO ACHIEVE PARTICLE DISTRIBUTION AND ORGANIC CONTENT BELOW. TOPSOIL SHALL BE TAKEN FROM A WELL–DRAINED, ARIABLE SITE, FREE OF SUBSOIL, LARGE STONES, EARTH CLODS, STICKS, STUMPS, CLAY LUMPS, ROOTS, OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS NOR CONTAIN TOXIC SUBSTANCES.
3. THE CONTRACTOR SHALL PROVIDE THE OWNER / LANDSCAPE ARCHITECT WITH TOPSOIL TEST RESULTS (RECOMMEND UMASS AMHERST SOIL TESTING LAB) FOR APPROVAL PRIOR TO OBTAINING AND PLACING THE SOIL. IF ANY TOPSOIL IS PURCHASED OR PLACED PRIOR TO APPROVAL BY OWNER / LANDSCAPE ARCHITECT, IT IS AT CONTRACTORS RISK, AND IT CAN BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. IF THE PLANTING SOIL (BOTH ONSITE AND OFFSITE SOURCES) DOES NOT FALL WITHIN THE REQUIRED SIEVE ANALYSIS, TEXTURAL CLASS, ORGANIC CONTENT, OR PH RANGE, IT SHALL BE ADJUSTED TO MEET THE SPECIFICATIONS THROUGH THE ADDITION OF SAND, COMPOST, LIMESTONE, OR ALUMINUM SULFATE TO BRING IT WITHIN THE SPECIFIED LIMITS AT NO ADDITIONAL COST TO THE OWNER.
4. TOPSOIL SHALL HAVE A PH VALUE BETWEEN 5.5 AND 6.5. TOPSOIL SHALL CONTAIN BETWEEN 4% AND 8% ORGANIC MATTER OF TOTAL DRY WEIGHT AND SHALL CONFORM TO THE FOLLOWING GRADATION AND TEXTURE CLASS ABOVE.

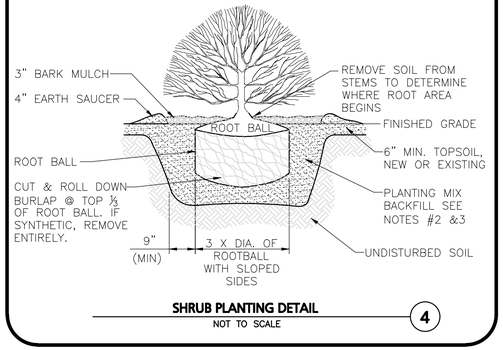
TOPSOIL FOR LAWN, TREES, SHRUBS, & PERENNIALS — NOT TO SCALE — 3

LANDSCAPE NOTES

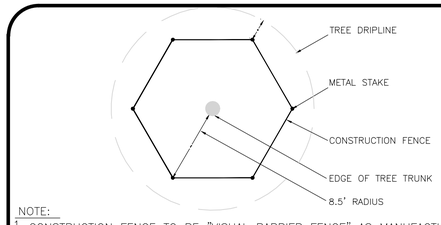
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF DOVER, NH.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG–SAFE" (1–888–344–7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF NAY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY AMERICANHORT (LATEST EDITION).
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.
10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
11. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
17. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 24" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: USE OF DRIP IRRIGATION FOR SHRUBS AND PERENNIALS, IRRIGATION SYSTEM WITH HEAD–TO–HEAD COVERAGE, A CENTRAL SHUT–OFF VALVE, SEPARATE ZONES FOR EACH TYPE OF BEDDING AREA BASED ON WATERING NEEDS, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.
19. ALL PROPOSED LANDSCAPE AREAS THAT ARE NOT IRRIGATED SHALL BE PROVIDED WITH TEMPORARY WATER EFFICIENT IRRIGATION. TEMPORARY IRRIGATION TO BE PROVIDED FOR AN ESTABLISHMENT PERIOD OF 3 MONTHS. THIS CAN INCLUDE BUT IS NOT LIMITED TO: GATOR BAGS, PORTABLE IRRIGATION AND WEEKLY WATERING OF ALL LANDSCAPE AREAS.

NOTES:

1. ALL SHRUBS SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. SET SHRUB 1"–2" ABOVE FINISH GRADE.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.
4. SHRUB BEDS TO HAVE 24" MIN. OF CONTINUOUS PLANTING SOIL.

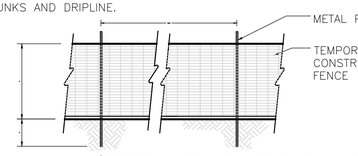


SHRUB PLANTING DETAIL — NOT TO SCALE — 4

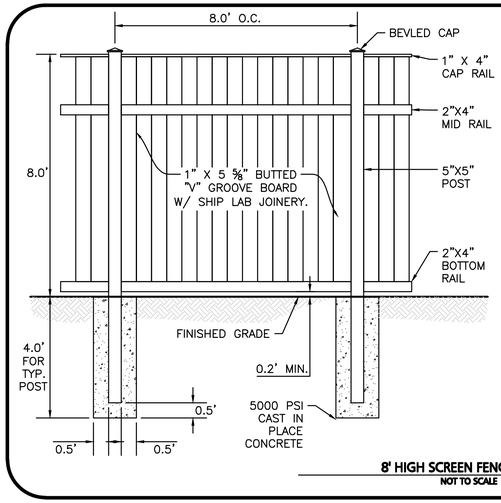


NOTE:

1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY EXXON CHEMICAL COMPANY ATLANTA, GA; "KONTROL SAFETY FENCE" AS MANUFACTURED BY MIRAFI, CHARLOTTE, N.C. OR APPROVED EQUAL.
2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



TEMP. CONST. FENCE / TREE PROTECTION — NOT TO SCALE — 5



NOTES:

1. CEDAR FENCE WOOD FENCE WITH SEALANT
2. SEALER: THOMPSON'S WATERSEAL TRANSPARENT WATERPROOFING SEALANT IN CHESTNUT BROWN OR APPROVED EQUAL.
3. PROVIDE SHOP DRAWING FOR APPROVAL PRIOR TO PURCHASE.
4. CONTRACTOR TO PROVIDE 4'–0" SECTION MOCK–UP ON SITE FOR APPROVAL.

8' HIGH SCREEN FENCE DETAIL — NOT TO SCALE — 6

R:\PROJECTS\3347–01\CIVIL\DRAWINGS\CURRENT\L–3347–01_LANDSCAPE.DWG

LICENSED LANDSCAPE ARCHITECT · ROBERT P. CLARKE · 030 · STATE OF NEW HAMPSHIRE

8-21-24

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	08-20-24	MISC. REVS. PER T.R.C. COMMENTS

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

LANDSCAPE NOTES & DETAILS

SHEET No.

L-501

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Facade Changes:
• To maintain design integrity, we pay particular attention to features on the front facade, including but not limited to door surrounds, window casings, finished porch column sizes, and roof friezes. While we may allow builders to add their own flare to aesthetic elements, we don't allow our designs to be stripped of critical details. Any such alterations require the express written consent of Art Form.
• Increasing ceiling heights usually requires adjustments to window sizes and other exterior elements.
Floor plan layout and/or Structural Changes:
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• If you wish to move or remove walls or structural elements (such as removal of posts, increases in house size, ceiling height changes, addition of dormers, etc), please do not assume it can be done without other additional changes (even if the builder or lumber yard says you can).

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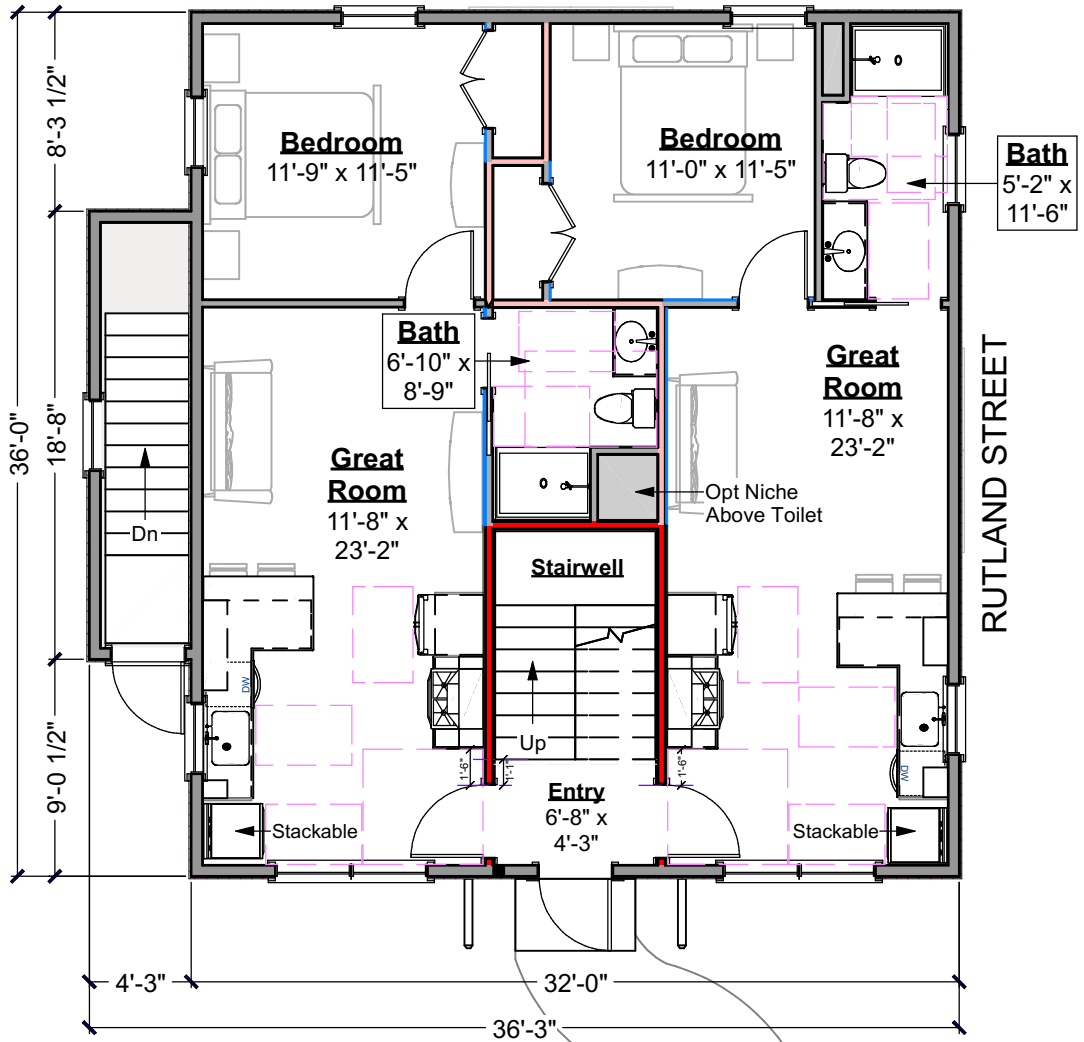
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603-431-9559

SILVER STREET



Total Living Area this Floor: 1152 sq ft

8 ft Ceilings

Left Unit: 531 sq ft

Right Unit: 521 sq ft

PARKING LOT

First Floor Plan

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

8/14/2024

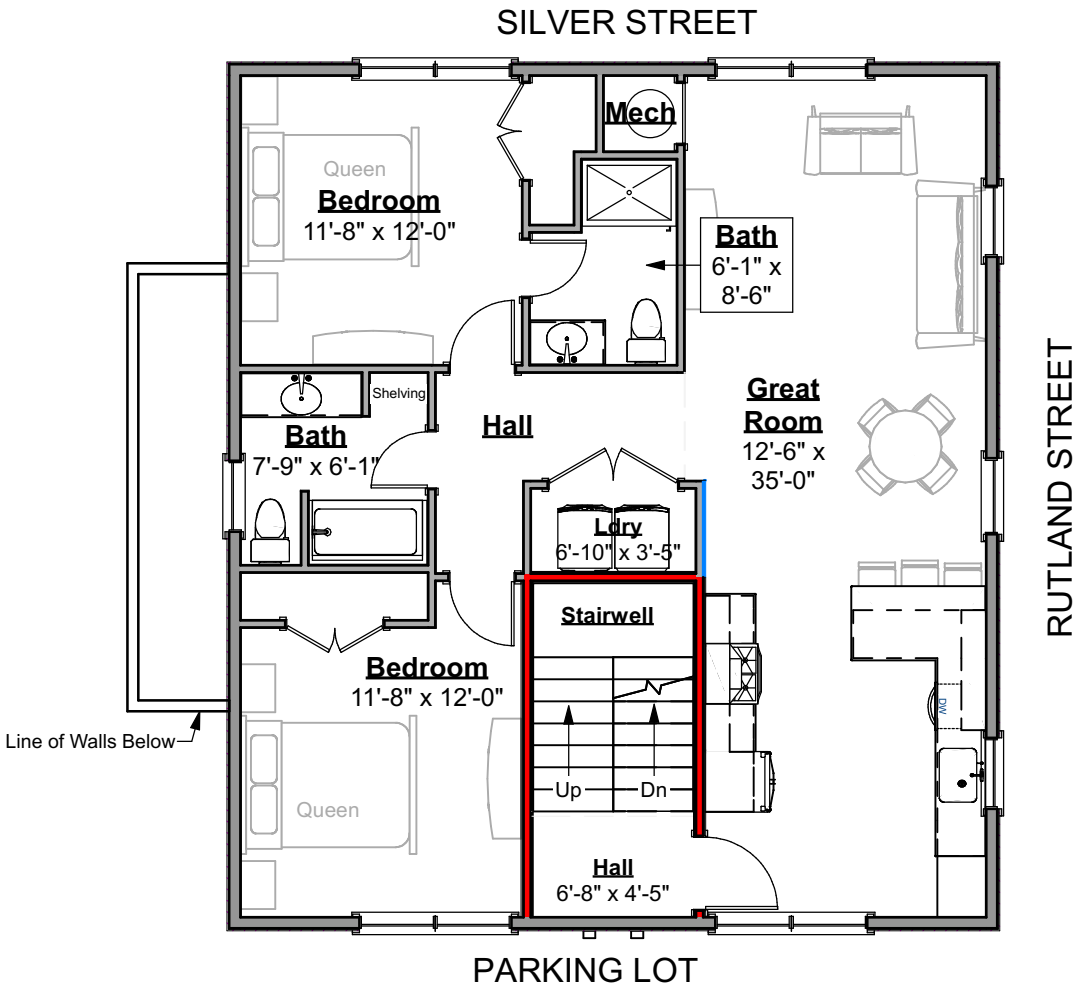
Prudence

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Total Living Area this Floor: 1152 sq ft
Unit Living Area (excluding stair & landing): 1052 sq ft
8 ft Ceilings

Second Floor Plan

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

8/14/2024

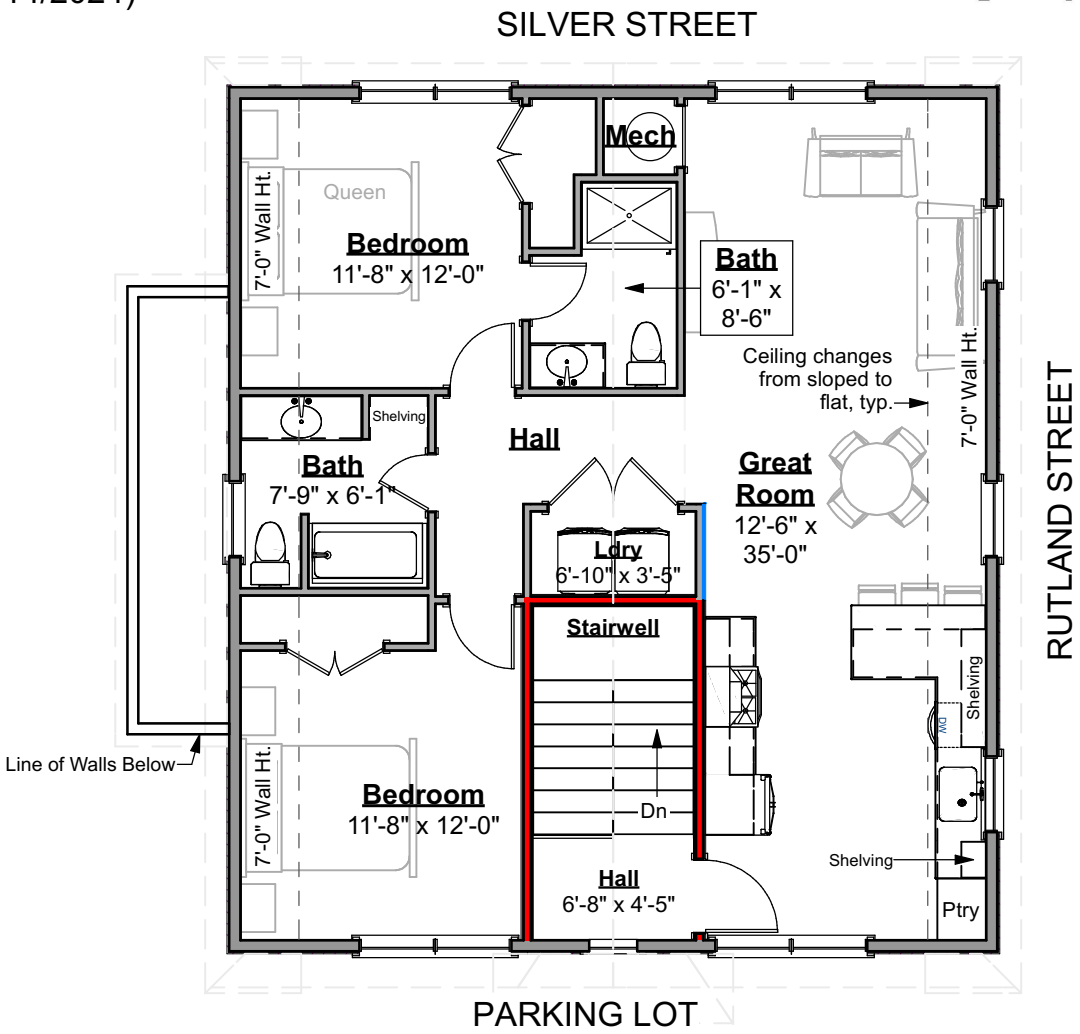
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Total Living Area this Floor: 1152 sq ft
Unit Living Area (excluding stair & landing): 1052 sq ft
9 ft Ceilings

Third Floor Plan

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

8/14/2024

Prudence

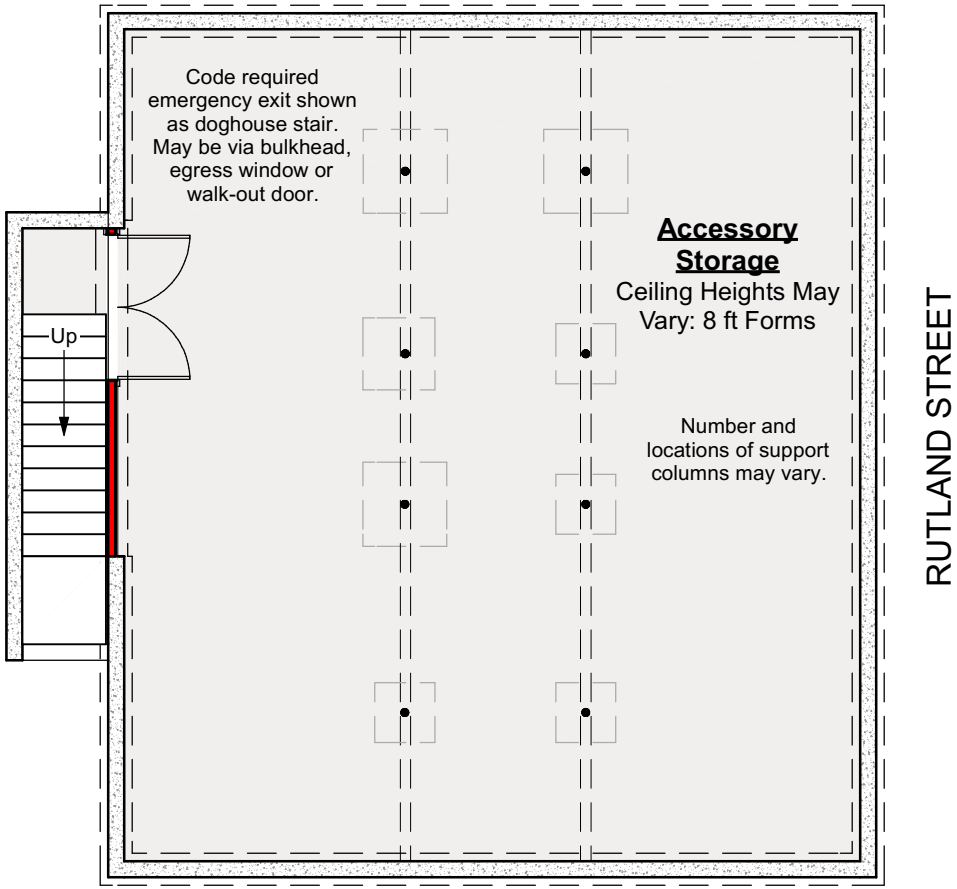
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SILVER STREET



RUTLAND STREET

PARKING LOT

Foundation Plan

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

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Front Elevation

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

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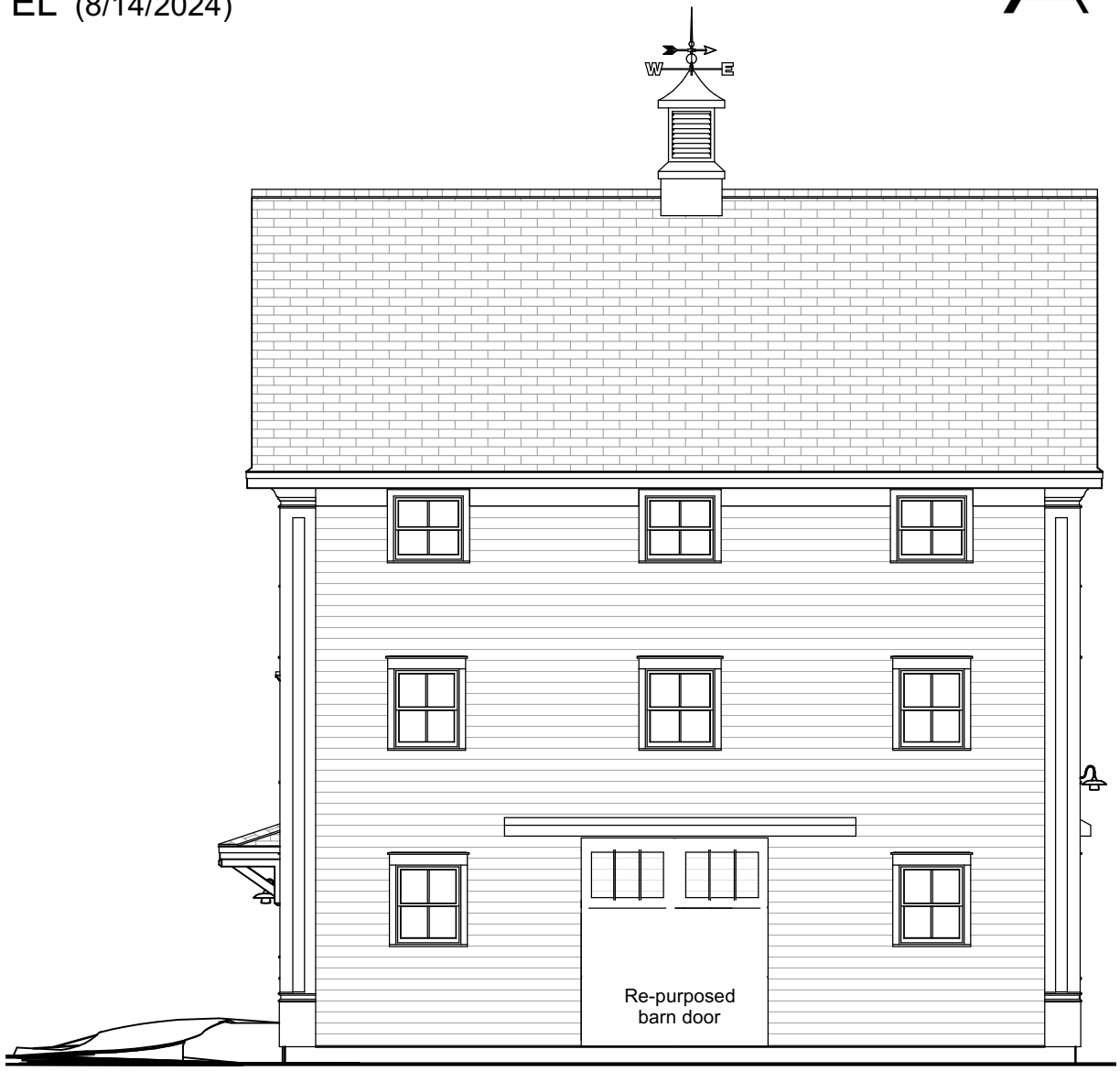
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Right Elevation

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

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Rear Elevation

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

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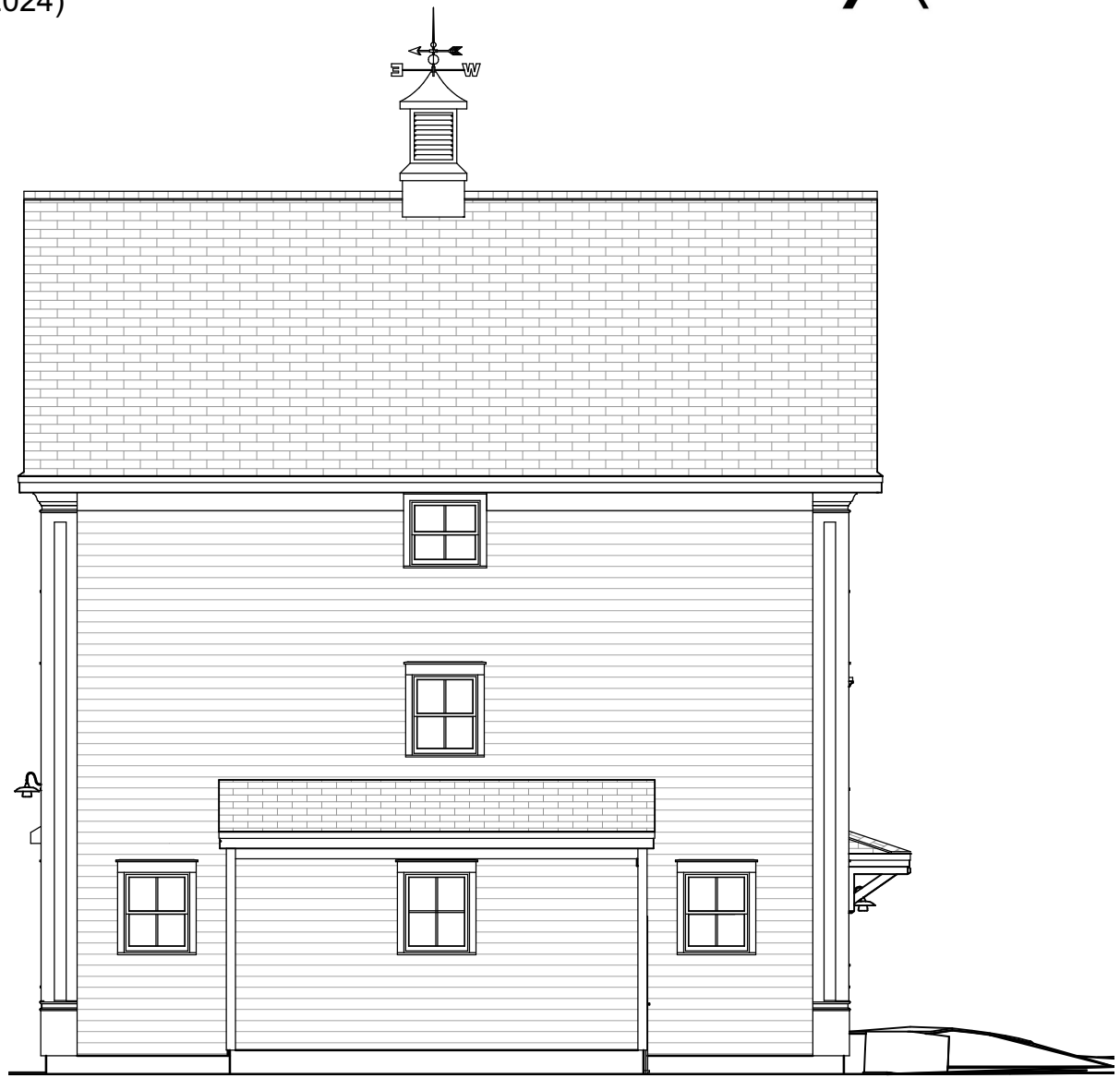
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Left Elevation

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