

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, December 19, 2024**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Plan for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. (Proposal is to build five (5) single-family dwellings that includes three (3) units previously approved through TDR.) (SITE-2024-0018)

(Related application regarding wetland buffer impacts, see: COND-2024-0034)



PLAN SNAPSHOT REPORT SITE-2024-0018 FOR CITY OF DOVER, N.H.

Plan Type: Site Plan - Major	Project:	App Date: 11/21/2024
Work Class: New Construction	District: None	Exp Date: 01/25/2025
Status: Submitted - Online	Square Feet: 0.00	Completed: NOT COMPLETED
Valuation: \$0.00	Assigned To: Blonigen, Rachel	Approval
Description: TDR 5-Unit Residential Development		Expire Date:

Parcel: B0002-000000	Main	Address: 512 Sixth St Dover, NH	Main	Zone:
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Applicant McEaney Survey Associates P.O. Box 1166 DOVER, NH 03821 Business: (603) 742-0911	Engineer Civilworks New England Steve Haight 181 Watson Road PO Box 1166 Dover, NH 03820 Business: (603) 749-0443 Mobile: (603) 817-6651	Owner David B Sullivan 71 Danielle Lane Dover, NH 03820 Business: (603) 817-1511	Surveyor McEaney Survey Associates P.O. Box 1166 DOVER, NH 03821 Business: (603) 742-0911
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Plan Custom Fields

Total	0	Total2	0	Total3	0
Total4	0	Total5	0	Total6	5
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	10	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Total Acres (GIS)	1.87
Deed Book	5155	Total SQFT	81457.2	Deed Page	367
Deed Date		Proposed Property Use	Residential Single Family	Area of Parcel to be Developed (SQFT)	42000
Number of Parking Spaces Existing	0	Number of Parking Spaces Proposed	10	Distance to City Water	50
Distance to City Sewer	50	Type of Building to be Built	Wood Frame Residential Homes with Attached Garages	Estimated Construction Value	0.00
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	TotalImpactFeeADUTO	0.00
TotalImpactFeeAONRT	0.00	TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00
OD		TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00
Sub Total Residential	0.00	TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00
TotalImpactFeeITWCTOD	0.00	Sub Total	0.00	Total of Impact Fees to be Assessed	0.00
OD		Non-Residential			

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Kevin_McEaney_11/21/2024.jpg	11/21/2024 12:03	McEaney, Kevin		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00010076	Planning General Application Fee	\$200.00	\$0.00
		Total for Invoice INV-00010076	\$200.00
INV-00010081	Planning Residential Fee	\$500.00	\$0.00

PLAN SNAPSHOT REPORT (SITE-2024-0018)

Total for Invoice INV-00010081

\$500.00

\$0.00

Grand Total for Plan

\$700.00

\$0.00

Workflow Step / Action Name

Action Type

Start Date

End Date

Review v.1

Confirm application complete v.1

Generic Action

Technical Review Committee Meeting Agenda v.1

Task

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: DBS Holdings, LLC Telephone # 603-817-1206

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 512 Sixth Street

Assessor's Map # B Lot(s) # 2

Zoning District(s) R-40 Overlay District(s) N/A

Size of Parcel: 81,270 sq. ft. 1.87 ac. Property Deed: Book 5155 Page: 367

Existing Use of Property: Single Family Residential

SITE PLAN INFORMATION

Describe Proposed Use: TDR Residential - 5 Single Family Units

Area of Parcel to be Developed: 42,000± sq. ft.

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

If lodging: Number of Units N/A & number of Buildings N/A

Number of Parking Spaces: Existing 0 Proposed 10

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 Setbacks:

Building Footprint 1290 (x4) sq. ft.

Front Yard 40 ft.

Total Building Area 6450 sq. ft.

Rear Yard 30 ft.

Paved Area 7738 sq. ft.

Side Yard: Right 25 ft. Left 25 ft.

City Water? ☒ Yes ___ No How far is city water from the property? _____

City Sewer? ☒ Yes ___ No How far is city sewer from the 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 3 units

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

To increase number of units allowed by 3 (2 units by rights, 3 units to purchase)

See attached TDR Notice of Decision.

BUILDING INFORMATION

Type of Building to be Built: Typical wood frame construction.

Height of Building: 30± Finished Floor Elevation: 185'±

Number of Seats (where applicable) N/A

Estimated value of construction: _____ Refuse removal: Public ☒ Private ☐ (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: Article IV, Section 153-13.A (12) - Landscape Plan

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

The proposed project is designed with a 30 -foot no cut perimeter buffer, and will maintain existing vegetation within this area.

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin McEneaney -
McEneaney Survey Associates

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-742-0911

Professional License #: NH LLS #661 E-mail address: kevin@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Stephen J. Haight, PE - Civilworks New England

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-749-0443

Professional License #: NH PE #7978 E-mail address: shaight@civilworksne.com

ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Damon E. Burt, CWS

Address 38 Garland Road Strafford, NH 03884 Telephone #: 603-969-5574

Professional License #: NH CWS#163 E-mail address: frenvironmental@gmail.com

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: 11/21/2024

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: 11/21/2024

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: 11/21/2024

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: 11/21/2024

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
B	2	DBS Holdings, LLC	71 Danielle Lane Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Kevin McEneaney, LLS	McEneaney Survey Associates	P.O. Box 1166 Dover, NH 03821
Stephen J. Haight, PE	Civilworks New England	P.O. Box 1166 Dover, NH 03821

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: DBS Holdings, LLC File Number: _____

PROJECT TITLE: TDR 5-Unit Residential Development

PROPERTY LOCATION: 512 Sixth Street Tax Map: B Lot: 2

	Where/How Provided	Reviewed
1. Completed and signed Application form	X	
2. Plan Review Fees are provided	X	
3. Electronic copy of the engineered/surveyed plan layout	X	
4. Electronic copy of supplementary materials and application	X	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	X	
6. Waiver requests to the Site Plan Review Regulations, with written justification	X	
7. Conditional Use Permit applications	X	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	N/A	
9. A colored architectural plan showing all sides of buildings	X	
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:	X	
Location map at appropriate scale	X	
Proposed Project name and title and Planning File #	X	
Date, north arrow and scale	X	
Names of all abutting property owners	X	
Name and address of owners and/or applicants	X	
Signature & stamp of NH licensed land surveyor and/or engineer	X	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	N/A	
Location and widths of existing & proposed easements & right of ways	N/A	
Location and width of existing and proposed access/egress ways	X	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	N/A	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	X	
Existing and proposed topographic information at two foot intervals	X	
Existing and proposed buildings and structure locations	X	
Minimum building setbacks or build to lines on all lots	X	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	X	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	X	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	X	
Existing and proposed stormwater lines and facilities	X	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	N/A	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	X	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	X	
Existing natural features and/or significant vegetation on property	X	
Depict existing contours up to 100 ft. beyond project limits	X	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	see waiver request	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	X	
Location, material and size of existing and proposed pavement area	X	
Location of proposed fire lanes	X	
Specify finished floor elevations of buildings	X	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	N/A	
Depict all service, storage, loading bays and utility areas	N/A	
All applicable Dover Common Site Plan notes	X	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	X	
Stormwater Management System Operation and Maintenance Plan	X	
Letter to Serve from Public and Private Utilities	X	
Erosion and Sedimentation Control Plan	X	
Landscape Operation and Maintenance Plan	N/A	
Proposed restrictive covenants or homeowners association documents	TBD	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	X	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	X	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	TBD	

REVIEWED BY: _____ DATE _____ TRC DATE _____



City of Dover, New Hampshire CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: DBS Holdings, LLC Telephone # 603-817-1206

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # B Lot(s) # 2

Address of Property: 512 Sixth Street

Zoning District(s) R-40 Overlay District(s) N/A

Existing Use of Property: Residential - Single Family

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

- | | | |
|---|---|--|
| ☐ Conservation District | ☐ RCM Use Overlay District | ☐ Gateway District |
| ☐ Groundwater Protection | ☐ Off-Street Parking and Loading | ☐ Alternative Treatment Center |
| ☒ Wetland Protection District | ☐ Central Business District | ☐ Heritage Residential District |

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

For 6,231.8 s.f. of impact to the wetland buffers for the grading associated with the construction of 5 single family units. There are no impacts to the wetlands and there is pavement or structures proposed within these impact areas.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: _____

N/A

Name of Professional That Prepared Plans: Stephen J. Haight, PE - Civilworks New England

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-749-0443

Professional License #: NH PE #7978 E-mail address: shaight@civilworksne.com

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. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

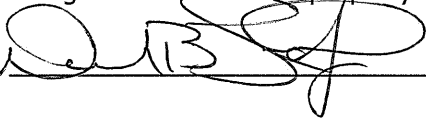
Signature of Property Owner:  Date: 11/21/2024

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: 11/21/2024

CITY OF DOVER CONDITIONAL USE 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	<u>MAILING ADDRESS</u>
B	2	DBS Holdings, LLC	71 Danielle Lane Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	<u>MAILING ADDRESS</u>

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	<u>MAILING ADDRESS</u>
Stephen J. Haight, PE	Civilworks New England	P.O. Box 1166 Dover, NH 03821
Kevin McEneaney, LLS	McEneaney Survey Associates	P.O. Box 1166 Dover, NH 03821

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	<u>MAILING ADDRESS</u>

PROJECT NARRATIVE

for
DBS Holdings, LLC
TDR Site Plan Review
5-Unit Residential Development
Tax Map B, Lot 2

PROJECT OVERVIEW & SITE CHARACTERISTICS

The proposed project is for a TDR 5-unit residential development on a 1.87-acre parcel located at 512 Sixth Street in the Low Density Residential (R-40) District. The parcel abuts Alden Woods, a residential subdivision to the rear, and has 250 feet of frontage along Sixth Street. The parcel is currently developed as residential with two existing single-family homes, detached garage, shed, landscaped and lawn areas, with each unit having its own driveway. The proposed site design includes the removal of all existing structures for the construction of five (5) detached single family residential buildings, with one shared driveway access, grading and drainage, and public utilities improvements.

This development is approved per Transfer of Development Rights granted on June 11, 2024. Zoning for this parcel allows for two residential unit by rights and the TDR approval granted approval for an increase of three additional residential units.

The project site consists of the following general improvements:

- Clear the site, as necessary, for construction.
- Demolition of existing structures.
- Construction of on-site stormwater detention and treatment system, grading, and other drainage requirements.
- Construction of five (5) residential buildings, associated parking, and landscaping.
- Site utility construction & installation.
- Stabilize remaining areas with loam and seed.

DRIVEWAY AND PARKING LOT

The proposed development is designed to eliminate the two existing driveways in favor of one 20-foot-wide shared driveway. Two parking spaces per unit are provided in front of each attached two car garages.

CONSERVATION AND WETLAND SETBACK IMPACT TYPE

The proposed site has been designed to avoid impacts to the wetlands, however there will be a total of 6231.80 s.f. of impact to the wetland buffer (see Conditional Use Permit application). The wetland buffer impacts will be utilized for grading only. No structures or paving is proposed within the wetland buffers.

DRAINAGE

The project proposes the construction of a 5-unit residential development, with associated shared access driveways, grading and drainage, and utility improvements. The proposed drainage system incorporates three (3) infiltration basins and a total of four (4) stone drip edges around two of the buildings to treat and mitigate stormwater. The proposed stormwater system captures, treats, and stores the stormwater runoff from the site and redirects it to the existing discharge points. The proposed stormwater drainage structures will be maintained by the project proponent as outlined within the Stormwater Management document.

TRAFFIC

A traffic assessment was completed for the project and is attached as a report to this submittal. Overall, and as expected, there is a minimal increase in traffic as a result of the proposed development.

UTILITIES

The proposed project will connect to the existing City of Dover water and sewer lines located in Sixth Street. Existing electric, gas, and communication services are also located along Sixth Street. Building and utility connections will be made per the City's Community Services Utility Division and Fire Department requirements and standards.

CONDITIONAL USE NARRATIVE
§170-27.1
WETLAND PROTECTION DISTRICT
for
DBS Holdings, LLC
512 Sixth Street
Tax Map B, Lot 2

F. Conditional use approval.

(1) Conditional use approval may be granted by the PLANNING BOARD (RSA 674:21II) after proper public notice and public hearing, for construction within the Wetland Protection District or buffer. Said construction may include but is not limited to a road or other accessway, utility right-of-way, communication lines, power lines and pipelines, STRUCTURES, and parking LOTs provided that the proposed construction complies with the following standards:

- (a) Practicable Alternative: There is no practicable alternative that would have a less adverse impact on the area.

There are no impacts or disturbances proposed to the wetlands. However, the necessary grading for the project design will impact the wetland buffer, with layout of the buildings and paved areas to be outside of the wetland buffers.

- (b) Avoidance: The potential impacts have been avoided to the maximum extent practicable. The APPLICANT will demonstrate by plan and example that the proposed construction represents the least impacting alternative.

The layout of this residential development takes full advantage of the buildable area without impacting wetlands directly and has designed the layout to keep all buildings and paved areas out of the wetland buffer. The buffer impacts are necessary to allow for the appropriate grading immediately adjacent to the proposed buildings.

- (c) Minimization: Any unavoidable impacts have been minimized. No reasonable Alternative to the proposed construction exists which does not impact a wetland, or which has less detrimental impact on a wetland. Design, construction, and maintenance methods will be prepared by a registered engineer to minimize detrimental impacts to the wetlands and will include restoration of the site as nearly as possible to its original grade.

There are no impact or disturbance proposed to the wetlands. This proposal is for 6231.80 s.f. of impact to the wetland buffer. The impact of this design of this project has been minimized to the greatest extent possible, with no building or pavement located within them the buffers, impacting them only for grading purposes. During and following construction activity, care will be taken to restore any disturbed grading as much as practicable to its original state within the buffer.

- (d) Mitigation: If the APPLICANT is required by State rules to prepare a compensatory mitigation plan, the APPLICANT shall provide the Conservation Commission and PLANNING BOARD with one copy each of said plan for their review.

Mitigation is not required for this project.

- (e) Approval for the wetlands impact has been received from the NHDES Wetlands Bureau pursuant to Section G (3), below.

Wetlands will not be impacted by this project.

- (f) To assess and summarize the wetland's functions and values as denoted in the NH Method and Section 170.27.1 (B)(2).

This wetland is associated with an isolated tree wetland that borders Alden Woods, a residential subdivision. The proposed project does not pose any destruction, or cause any significant changes, to the natural filtration and flow towards the existing treed wetlands. It is our opinion that this project complies with Section 170.27.1(B)(2)

SITE DEVELOPMENT DESIGN CRITERIA NARRATIVE

§153-14

STORMWATER MANAGEMENT

for
512 Sixth Street
Tax Map B, Lot 2

A. Stormwater management, erosion control and flood hazards.

(1) Purpose and objective. These regulations establish standards to manage the discharge of runoff to the City of Dover's municipal storm sewer system and water bodies, in a manner compliant with the requirements of state and federal law, including provisions of the federal stormwater management legislation for municipal separate storm sewer systems (MS4), as amended. These provisions and standards are implemented for the purpose of:

(a) Managing stormwater runoff to protect water quality and quantity. **The proposed development has been designed in accordance with City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing infiltration basins and stone drip edges.**

(b) Minimizing the contribution of a pollutant for which a water body is impaired to the maximum extent practicable (MEP). **The proposed development has been designed in accordance with City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing, infiltration basins and stone drip edges.**

(c) Causing no discharge of runoff to an adjacent property in excess of runoff discharge in the existing developed or undeveloped condition. **The proposed development mitigates the runoff from the 2, 10, 25, & 50 year storm events.**

(d) Encouraging the use of low-impact development (LID) strategies. **The project proposes the use of a three (3) infiltration basins and four (4) stone drip edges around two (2) of the proposed buildings for stormwater treatment.**

(2) Applicability of the stormwater standards.

(a) All projects requiring site plan or major subdivision approval shall be subject to the following set of stormwater standards according to the amount and type of disturbance. Applicability is as follows: **The project does not qualify for the redevelopment standards and will create greater than 4,000 square feet of impervious, as such, the stormwater standards apply.**

[1] The minimum protections and management standards shall apply to all projects. **The design incorporates these standards.**

[2] The stormwater management for new development standards shall apply to any project that results in a contiguous land disturbance of more than 20,000 square feet or creates more than 4,000 square feet of new impervious area. **The design incorporates these standards.**

[3] The stormwater management for redevelopment standards shall apply to any project that results in a contiguous land disturbance of more than 20,000 square feet or creates

more than 4,000 square feet of new impervious area where the existing land use has been previously developed as commercial, industrial, institutional, governmental, recreational, or multifamily. **The redevelopment standards are not applicable to this project.**

(b) All projects of such magnitude as to require a permit from the National Pollutant Discharge Elimination System (NPDES) Program or the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain (AoT) Program shall also comply with the standards of the Environmental Protection Agency (EPA) and/or NHDES permits and this section, whereas the stricter standards shall apply. **The project does not require NH DES AoT permitting or a NPDES CGP through the EPA.**

(3) Design standards.

(a) Minimum protections and management standards.

[1] Where applicable, all development must comply with the EPA Phase II Stormwater Rules and the City's MS4 permit, as amended. **The project complies with the City's design and stormwater requirements.**

[2] Existing surface waters, including ponds, rivers, perennial and intermittent streams (natural or channelized), and wetlands (including vernal pools), shall be protected by the minimum buffer setback as specified in Chapter 170, Zoning, § 170-27.1. Stormwater and erosion and sediment control best management practices (BMPs) shall be located outside the specified buffer zone unless otherwise approved by the Planning Board. **The project is requesting a Conditional Use Permit for proposed disturbances within the wetland buffer setbacks.**

[3] Low-impact development (LID) site planning and design strategies shall be used to the MEP in order to reduce the generation of the stormwater runoff Volume for both new and redevelopment projects. An owner/applicant must document why LID strategies are not appropriate if not used to manage stormwater. **LID strategies were implemented to the maximum extent practicable.**

[4] All proposed stormwater practices and measures shall be installed and maintained in accordance with manufacturers' specifications and performance specifications outlined in the New Hampshire Stormwater Management Manual Volume 2 (December 2008 or current revision) a copy of which can be found on The NHDES website. **The project incorporates stormwater BMPs designed in accordance with NH DES requirements. A stormwater I&M is also provided.**

[5] All storage facilities for fuel, chemicals, chemical or industrial wastes, and biodegradable raw materials shall meet the regulations of the NHDES, including but not limited to those involving underground storage tanks, aboveground storage tanks, hazardous waste, and best management practices for groundwater protection (Part Env Wq 401). **The project is residential and does not propose the storage of the referenced materials onsite.**

[6] Salt and other deicing materials shall be stored under cover or located such that no direct discharges to receiving waters are possible. Snow storage areas shall be located such that no direct discharges to receiving waters are possible. See the NHDES guidance fact sheet on road salt and snow disposal. **The project does not propose the storage of deicing materials onsite.**

[7] The use of sodium-chloride-based materials for winter maintenance shall be the minimum necessary for safety. The use of sodium-chloride-based materials is discouraged within the groundwater protection districts. **The project I&M manual directs the owner/operator to produce a salt minimization plan as part of the winter maintenance of the site.**

[8] Impervious surfaces for parking areas and roads shall be minimized to the extent possible. **The project design incorporated the minimization of impervious areas to the maximum extent possible. All aspects of the design including the required number of parking spaces, drive aisle width, and turning areas were evaluated.**

[9] Stormwater runoff from new impervious surfaces shall be directed to a best management practice for flow mitigation, treatment and/or infiltration. **The proposed development has been designed in accordance with City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing infiltration basins and stone drip edges.**

(b) Stormwater management for new development.

[1] Runoff of impervious surfaces shall be treated to provide 80% removal of total suspended solids (TSS) and 50% removal of both total nitrogen and phosphorus. Removal rates shall be determined using approved manufacturer's pollutant removal efficiency analysis or the pollutant removal efficiencies outlined in the New Hampshire Stormwater Management Manual Volume 1, Appendix E (December 2008 or current revision), a copy of which is available from the NHDES website. **The project utilizes three (3) infiltration basins and four (4) stone drip edges for treatment of impervious areas on site. The proposed stormwater management system provides 80% removal of TSS and 50% removal of both total nitrogen and phosphorous per the NH Stormwater Manual and the City of Dover's stormwater regulations.**

[2] Rainfall amount shall be based on current extreme precipitation estimates obtained from the Northeast Regional Climate Center. **The design incorporates NRCC precipitation amounts and the associated storm distribution data.**

[3] Measures shall be taken to control the post-development peak rate runoff so that it does not exceed predevelopment runoff for the two-, ten-, twenty-five- and fifty-year, twenty-four-hour storm events. **The proposed design mitigates post-development peak rate runoff of the 2, 10, 25, & 50-year storm events.**

[4] Measures shall be taken to control the post-development surface water runoff volume so that it does not exceed predevelopment runoff for the two-, ten-, twenty-five- and fifty-year, twenty-four-hour storm events. For sites where infiltration/recharge is limited or not practicable, the owner/applicant must demonstrate that the project will not cause or contribute to flooding or functional impairments to streets, adjacent properties, and downstream properties. **The proposed stormwater measures are designed to infiltrate stormwater runoff. The drainage analysis indicates that stormwater runoff does not exceed the predevelopment runoff volume.**

[5] Infiltration rates for designing groundwater recharge practices shall be determined in accordance with Section Env-Wq 1504.14. **Infiltration test logs are provided, see drainage report.**

[6] Stormwater conveyance practices shall be sized appropriately to convey the ten-year, twenty-four-hour storm event without overtopping or causing flooding on the property. **Stormwater conveyance practices are designed to ensure they pass the 50-yr, 24-hour storm events without overtopping.**

[7] For large projects adding greater than or equal to 10 acres of impervious cover, or projects located in known areas of flooding concern, or specifically within areas with a 1% chance of being inundated by water in any given year, the owner/applicant shall submit a supplementary report that describes how the project will not increase the future flooding potential and complies with the AoT requirements pertaining to floodplain impacts as described in Section Env-Wq 1503.09, regardless of whether an AoT permit is required. **The project is located outside of the 0.2 percent annual chance floodplain. The project does not propose permanent or temporary disturbance or alteration of terrain within the flood plain.**

[8] The design of the stormwater management systems shall take into account upstream and upgradient runoff that flows onto, over, or through the site to be developed or redeveloped and provide for this contribution of runoff. **The project has incorporated offsite and upgradient stormwater runoff in support of the design for the stormwater management system.**

[9] Seasonal high-water table elevations must be accounted for in all BMP design criteria. **Test pit information logs are provided, see drainage report.**

[10] Access for maintenance of stormwater facilities must be included as part of the design, where necessary. Access easements may be required. **Stormwater facilities are included on site and the site will be maintained by the association. Stormwater access easements are not required for this project.**

[11] Plantings in treatment areas shall be native grasses, shrubs and/or other native plants in sufficient numbers and density to prevent soil erosion and to achieve water-quality treatment. **The project maintains a 30' no cut buffer along the property line. Internal areas shall be loamed and seeded and must meet 85% vegetative growth in accordance with NH DES AoT requirements as identified in the erosion control notes sheet.**

(c) Stormwater management for redevelopment. In order to determine the stormwater requirements for redevelopment projects, the percentage of the site covered by existing impervious areas must be calculated. Stormwater requirements for redevelopment will vary based upon the amount of site surface area that is covered by existing impervious surfaces. **The project does not meet redevelopment requirements and this section is Not Applicable (N/A).**

[1] For sites meeting the definition of a redevelopment project and having less than 40% existing impervious surface coverage, the stormwater management requirements will be the same as new development projects, with the important distinction that the applicant can meet those requirements either on site or at an approved off-site location (i.e., off-site mitigation). The applicant must satisfactorily demonstrate that impervious area reduction, LID strategies and BMPs have been implemented on site to the MEP. **N/A**

[2] For sites meeting the definition of a redevelopment project and having more than 40% existing impervious surface coverage, stormwater shall be managed in accordance with one or more of the following techniques, listed in order of preference: **N/A**

[a] Implement measures on site that result in mitigation and treatment of at least 30% of the existing impervious cover as well as 50% of the additional proposed impervious surfaces and pavement areas through the application of LID; or

[b] Implement other LID techniques on site to the MEP to provide mitigation and treatment for at least 50% of the entire site area.

[3] The owner/applicant may utilize off-site mitigation to meet the redevelopment requirements when the following standards have been met. **N/A**

[a] The owner/applicant shall demonstrate, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the MEP.

[b] The owner/applicant shall find an approved, off-site location within the same watershed as the project site or within the drainage area of the same receiving water body.

[c] Off-site mitigation shall be equivalent to no less than the total area of pervious cover not treated on site.

[d] The owner/applicant shall submit a full design of the proposed off-site measures for review and approval.

[e] The owner/applicant must also demonstrate that there is no downstream drainage or flooding impact as a result of not providing on-site management.

(d) Erosion control standards during construction. The following standards shall be applied in project planning and shall be implemented prior to and during construction activity: **The plan set includes temporary and permanent sediment and erosion control practice notes and details in support of meeting the erosion control standards.**

[1] All proposed measures shall meet, at a minimum, the design standards for best management practices set forth in the New Hampshire Stormwater Management Manual Volume 3 (December 2008 or current revision), a copy of which is available from the NHDES website. **The sediment and erosion control details provided in the plan set are all designed in accordance with the NH Stormwater Manual.**

[2] When a project requires a stormwater permit from the EPA Construction General Permit (CGP) Program, copies of the stormwater pollution prevention plan (SWPPP) inspections shall be provided to the Community Services Department. **A SWPPP will not be required as the project will not meet the area of disturbance criteria.**

[3] Stripping of vegetation shall be done in a manner that minimizes soil erosion. Whenever practical, natural vegetation shall be retained, protected, or supplemented. **The Erosion Control Notes in the provided plan set indicate that the smallest practical area shall be disturbed during construction.**

[4] The area of land disturbance shall be kept to a minimum and be limited to an area only large enough to accommodate construction activities for a particular construction phase. **The Erosion Control Notes in the provided plan set indicate that the smallest practical area shall be disturbed during construction.**

[5] Off-site surface water and runoff from undisturbed areas shall be diverted away from disturbed areas where feasible, or measures to convey stormwater through the project

area without causing erosion of sediment must be included. The integrity of downstream drainage systems shall be maintained. **Direction to ensure that stormwater conveyance practices shall be stabilized prior to receiving stormwater runoff is included on the Erosion Control Notes sheet provided as part of this submittal.**

[6] Appropriate erosion and sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the Community Services Department. **Construction scheduling and inspections will be discussed with Community Services at the required pre-construction meeting.**

[7] Perimeter site controls shall not be placed within wetland areas, stream channels or wetland buffers. **A Conditional Use Permit has been requested and the perimeter site controls in wetland buffer setbacks are placed at the limits of the proposed work in the buffer disturbed areas.**

[8] Disturbed soil areas shall be either temporarily or permanently stabilized. In areas where final grading has not occurred, temporary stabilization measures should be in place within seven calendar days for exposed soil areas that are within 100 feet of a surface water body or a wetland and no more than 14 calendar days for all other areas. Permanent stabilization should be in place within three calendar days following completion of final grading of exposed soil areas. **The definitions of, and direction for, stabilization of the site is provided on the Erosion Control Notes sheet provided as part of this submittal.**

[9] All temporary erosion and sediment control measures shall be maintained in functioning condition until final site stabilization is accomplished. A proposed BMP inspection schedule shall be included in the submittal. **The erosion control inspection scheduling requirements are identified on the Erosion Control Notes sheet provided as part of this submittal.**

[10] Additional temporary stabilization for the winter season consistent with NHDES guidelines shall be in place for disturbed areas that are not permanently stabilized by October 1, or at the discretion of the Community Services Department. **The NH DES AoT winter construction notes are identified on the Erosion Control Notes sheet provided as part of this submittal.**

[11] Special stabilization details shall be provided with the submission for any land disturbance on slopes equal to or steeper than 3:1. **Slopes greater than 3:1 require erosion control matting and/or armoring and those details are provided in the plan set.**

[12] All temporary erosion and sediment control measures shall be removed after final site stabilization. Trapped sediment and other disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized within 30 calendar days unless conditions dictate otherwise. **Temporary practice details identify the need to remove sediment and/or stabilize the area once the practices have been removed.**

[13] For projects proposing to disturb and expose soils in areas of 10 acres or more at one time, a temporary (or permanent) sediment basin must be provided with storage for a calculated volume of runoff from a drainage area from a two-year, twenty-four-hour storm, or equivalent control measures, where attainable, until final stabilization of the site. Alternatively, the sediment of storage per acre of drainage area until final stabilization of the site. In determining appropriate locations and number of sediment basins needed, the operators may consider such factors as erodibility of site soils, slope

lengths, available area on site, construction period and other unique site considerations. **The project does not propose the disturbance of greater than 10 acres of area. A temporary sediment trap detail, designed with a maximum contributing area of 5 acres, has been provided in accordance with NH DES AoT design requirements.**

[14] Use of temporary sediment basins should avoid any additional vegetation clearing or site land disturbance not otherwise needed for post-construction. Sediment basin locations must be reviewed by the Community Services Department prior to construction and must consider the potential for off-site impacts, including public safety, especially as it relates to sediment movement and/or sediment basin failure, and alternative sediment controls must be used where site limitations preclude a safe design. **Temporary sediment basin locations, if constructed, will be discussed with Community Services prior to the construction of the practices.**

(e) Installation and construction inspections. The owner/applicant shall be responsible for inspection requirements as follow:

[1] The Community Services Department or its designated agent shall have access to the site to complete routine inspections. **Community Services access and inspection requirements will be discussed at the pre-construction meeting.**

[2] The Community Services Department shall be notified 24 hours prior to installation of a stormwater BMP in order to schedule an inspection. These inspections shall be completed during normal working hours. **The project notes provide direction for the contractor to notify the design engineer and the Community Services Department as required.**

[3] The Planning Board or Community Services Department may require the design engineer and/or an independent third party to provide inspection and oversight of the construction of the stormwater management facilities and erosion and sediment control measures at its discretion. Such oversight may be especially important for implementing techniques such as porous pavement or subsurface stormwater infiltration systems. The owner/applicant shall be responsible for all fees associated with third-party inspections. **A letter can be provided if requested. This letter, if required, will be discussed at the pre-construction meeting.**

[4] All SWPPP inspections must be conducted by a qualified professional such as a professional engineer (PE), a certified professional in erosion and sediment control (CPESC), a certified erosion sediment and stormwater inspector (CESSWI), or a certified professional in stormwater quality (CPSWQ). Inspection reports shall be submitted to the Community Services Department. **The project notes provide direction for the inspector to be qualified and for all reports to be submitted to the Community Services Department.**

[5] The owner is ultimately responsible for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures required by the provisions of these regulations. **The project notes identify the owner as having the responsibility for ensuring the stormwater management and erosion control measures are installed as approved.**

(f) Stormwater management plan (SWMP) submittal requirements. At the discretion of the Planning Board or Community Services Department, a technical review by an independent third party may be required of any SWMP prepared under these regulations. Such a review shall be performed by a qualified professional consultant and the expense of which shall be the full

responsibility of the owner/applicant. **The SWMP is a comprehensive set of documents that include, at a minimum, a drainage report, plan set, and Stormwater I&M Manual. These documents each serve a role in presenting the necessary information to the appropriate audience. The information required in this section is provided within the SWMP documents.**

[1] For projects requiring minimum protection standards, a plan including the following information shall be submitted:

[a] Description of erosion and sediment control measures as well as sequence for final stabilization of the project site. **This information is provided within the Erosion Control Notes within the plan set.**

[b] Proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns. **This information is provided within the drainage report and the Pre/Post Development Watershed Plans.**

[c] Description of LID proposed measures. **This information is provided in the drainage report and throughout the plan set and details.**

[2] For projects requiring new development or redevelopment standards, a drainage report that contains the following items shall be submitted: **This information is provided in the drainage report and throughout the plan set and details.**

[a] Description of construction period and earth movement schedule, including anticipated project start and completion dates, sequence and duration of grading and construction activities, sequence, and timing of installation and/or application of soil erosion and sediment control measures as well as sequence for final stabilization of the project site. **This information is provided in the drainage report and throughout the plan set and details.**

[b] Description of the on-site and adjacent wetlands, streams and other water resources, including methods used to identify these resources, and a description of any buffer setbacks that may apply, steep slopes, critical habitat, existing vegetation, areas with a 1% chance of being inundated by water in any given year, and whether any downstream water bodies are listed as impaired according to NHDES's most recent 303(d) list. **This information is provided in the drainage report and throughout the plan set and details.**

[c] Soils information for proposed disturbed areas shall be delineated by a certified soil scientist. For all other areas that contribute runoff to the project site, soil types may be identified in accordance with Natural Resources Conservation Service (NRCS) countywide soil survey. **This information is provided in the drainage report and throughout the plan set and details.**

[d] Description of existing drainage patterns, receiving water bodies or drainage infrastructure and soil types for recharge potential. **This information is provided in the drainage report and throughout the plan set and details.**

[e] Watershed area limits, including any off-site and upstream areas contributing flow to shared drainage channels and/or infrastructure. **This information is provided in the drainage report and throughout the plan set and details.**

[f] Description of proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns. **This information is provided in the drainage report and throughout the plan set and details.**

[g] Methods and assumptions used to calculate pre- and post-development runoff volume, peak discharge, and discharge velocity for the specified design storm events. **This information is provided in the drainage report and throughout the plan set and details.**

[h] Methods and assumptions used to calculate the pollutant load removal. **This information is provided in the drainage report and throughout the plan set and details.**

[i] Description of LID measures that are proposed to limit the development footprint, preserve existing vegetation and mimic existing hydrology to the extent feasible. **This information is provided in the drainage report and throughout the plan set and details.**

[j] If not used, provide rationale why LID measures are not practical for the site.
N/A

[k] Describe measures and calculations for proposed practices used to achieve no net increase in runoff volumes leaving the site. **This information is provided in the drainage report and throughout the plan set and details.**

[l] Provide calculations for the infiltration or exfiltration system. **This information is provided in the drainage report and throughout the plan set and details.**

[m] If an increase in post-development runoff volume is anticipated due to limited applicability for LID measures and site constraints, provide an assessment and supporting calculations to demonstrate no adverse impacts to downstream infrastructure, adjacent properties, or aquatic habitat. **No increase in post-development runoff volume is anticipated. This information is provided in the drainage report and throughout the plan set and details.**

[n] Descriptions, details, and design criteria and calculations for all structural, nonstructural, permanent, and temporary erosion and sedimentation control measures and BMPs. This information should include seeding mixtures and rates, types of sod, methods of seedbed preparation, expected seeding dates (or limitations on seeding time frames), type and rate of lime and fertilizer application, and type and quantity of mulching for temporary and permanent control facilities. **This information is provided in the drainage report and throughout the plan set and details.**

[o] Where proposed changes are anticipated within mapped limits of the areas with a 1% chance of being inundated by water in any given year, provide hydrologic and hydraulic analysis to show no net increase in flood elevations.
N/A

[p] Proposed schedule for the inspection and maintenance of all erosion control measures on site prior to achieving final site stabilization. **This information is provided in the drainage report and throughout the plan set and details.**

[q] Describe procedures for removing temporary erosion control measures and removal of accumulated sediment captured by such measures. **This information is provided in the drainage report and throughout the plan set and details.**

[r] Any other specific study, calculation, or investigation as requested by the City. **Additional information is provided as requested and may include traffic studies, structural designs, septic/sewer designs, geotechnical reports, etc. These documents are provided on a case-by-case basis and as requested by the City.**

[s] Describe procedures to limit and/or optimize the use of deicing materials and minimize off-site increases in chloride levels in adjacent surface water and groundwater. **The Stormwater I&M Manual includes the implementation of a salt minimization plan.**

[t] Provide a maintenance and inspection plan for post-construction monitoring of stormwater BMPs to ensure long-term performance and functionality, including details of who will be responsible for inspections and maintenance, proposed schedule, documentation, submittal procedures and contingency plans if future maintenance is required. **A Stormwater I&M Manual is provided as part of the submission.**

[u] Provide copies of pertinent state and federal permits. **Copies of permits will be provided to the City, as applicable.**

(g) Long-term operation and maintenance. The owner shall be responsible for continued inspection and maintenance requirements. **An I&M Manual that identifies the owner's responsibilities has been provided as a part of the submission.**

[1] An operation and maintenance manual shall be created with the following information:

[a] The names of the responsible qualified professionals who will implement the required reporting, inspections, and maintenance activities. **The Owner, Responsible Party, and the Management Company are identified in the I&M Manual.**

[b] An inspection checklist, identifying item or BMP, inspection frequency, and components to be inspected. The list shall clearly outline performance thresholds and triggers for maintenance. **Inspection requirements and maintenance thresholds are identified in the I&M Manual.**

[c] Snow and ice removal shall be performed by a contractor certified by the "Green SnoPro" Program, or approved equivalent, following best management practices for the application of deicing materials. **The I&M Manual requires the use of a Green SnowPro contractor.**

[d] Deicing log to track amount and type of deicing material applied. **The I&M Manual requires the implementation of a salt minimization plan that also requires the owner or operator to track salt usage onsite through a quantity usage log.**

[e] A site plan clearly identifying the locations of all stormwater practices to be inspected and maintained. **The approved Grading and Drainage Plan accompanies the I&M Manual.**

[f] Inspection and maintenance log to be submitted to the City of Dover Community Services Department on an annual basis. Documents shall be submitted no later than December 15 of each year. **The I&M Manual identifies this requirement.**

[2] The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons 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 of the requirements for maintenance and reporting. **Not Applicable.**

9/25/2024

Ben Bradley Classic, 36x40

990.124.v5 GR (9/25/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559



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Dear Builders and Home Buyers,

In addition to our Terms and Conditions (the "Terms"), please be aware of the following:

This design may not yet have Construction Drawings (as defined in the Terms), and is, therefore, only available as a Design Drawing (as defined in the Terms and together with Construction Drawings, "Drawings"). It is possible that during the conversion of a Design Drawing to a final Construction Drawing, changes may be necessary including, but not limited to, dimensional changes. Please see Plan Data Explained on www.artform.us to understand room sizes, dimensions and other data provided. We are not responsible for typographical errors.

Art Form Architecture ("Art Form") requires that our home designs be built substantially as designed. Art Form will not be obligated by or liable for use of this design with markups as part of any builder agreement. While we attempt to accommodate where possible and reasonable, and where the changes do not denigrate our design, any and all changes to Drawings must be approved in writing by Art Form. It is recommended that you have your Drawing updated by Art Form prior to attaching any Drawing to any builder agreement. Art Form shall not be responsible for the misuse of or unauthorized alterations to any of its Drawings.

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:

- Structural changes always require the express written consent of Art Form
- 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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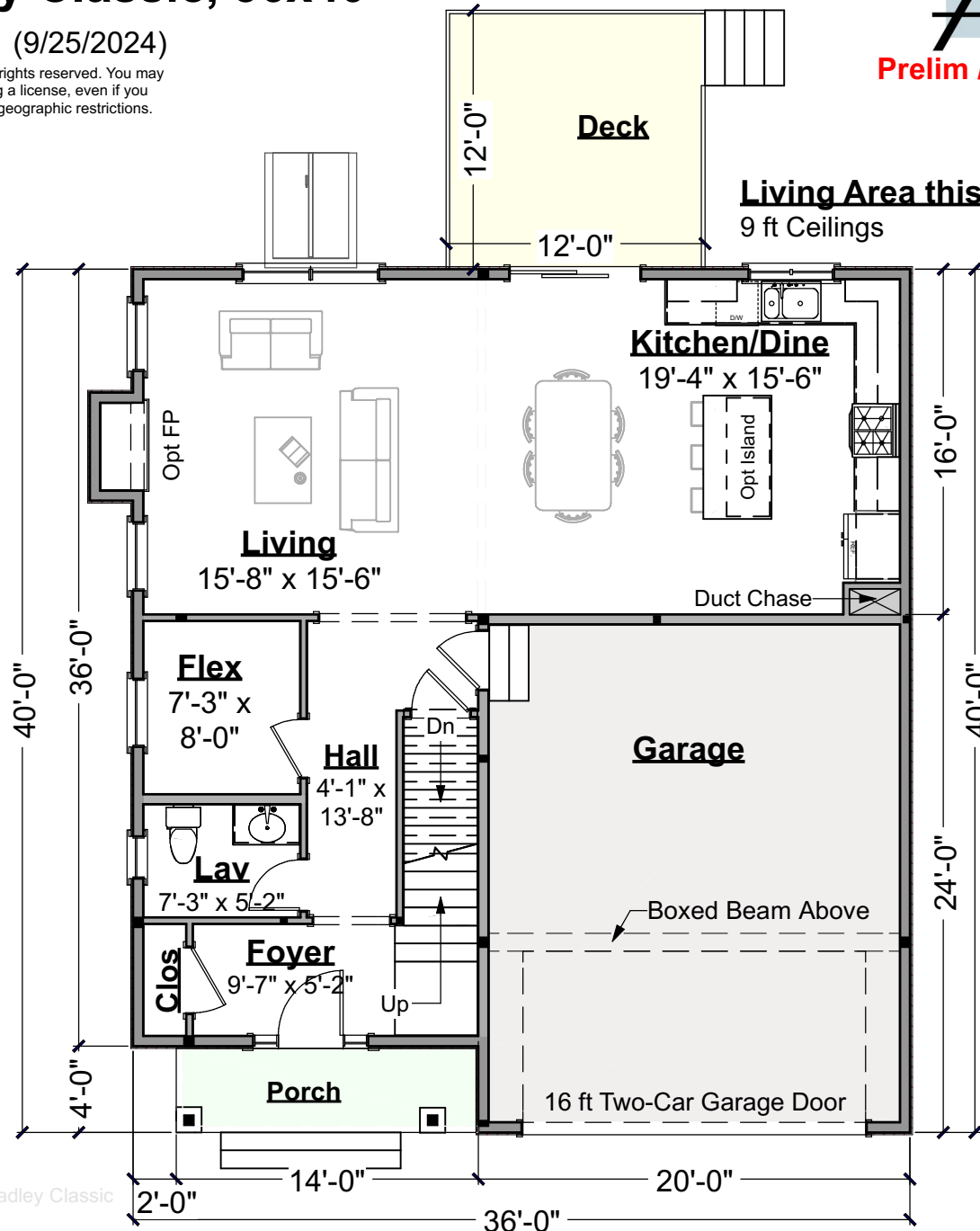
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Living Area this Floor: 924 sq ft

9 ft Ceilings

First Floor Plan

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

9/25/2024

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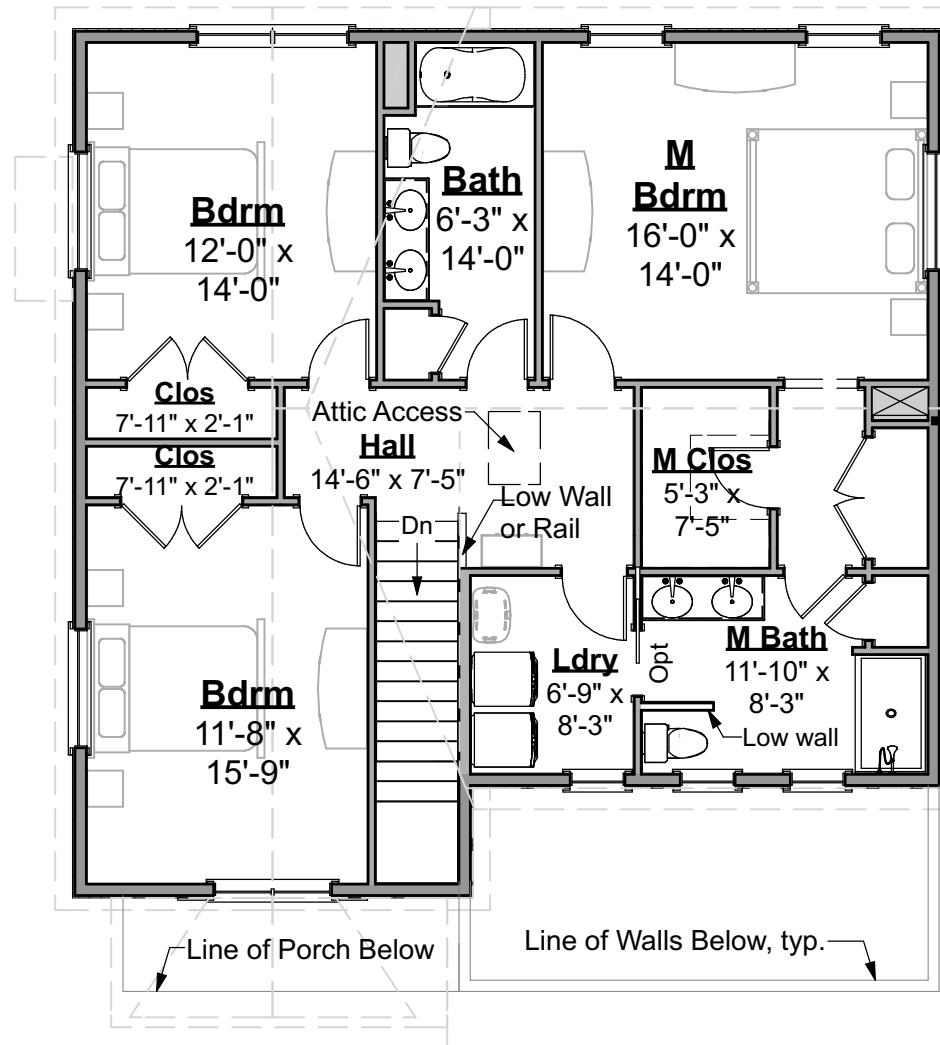


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Living Area this Floor: 1206 sq ft

8 ft Ceilings



Second Floor Plan

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

9/25/2024

Ben Bradley Classic, 36x40

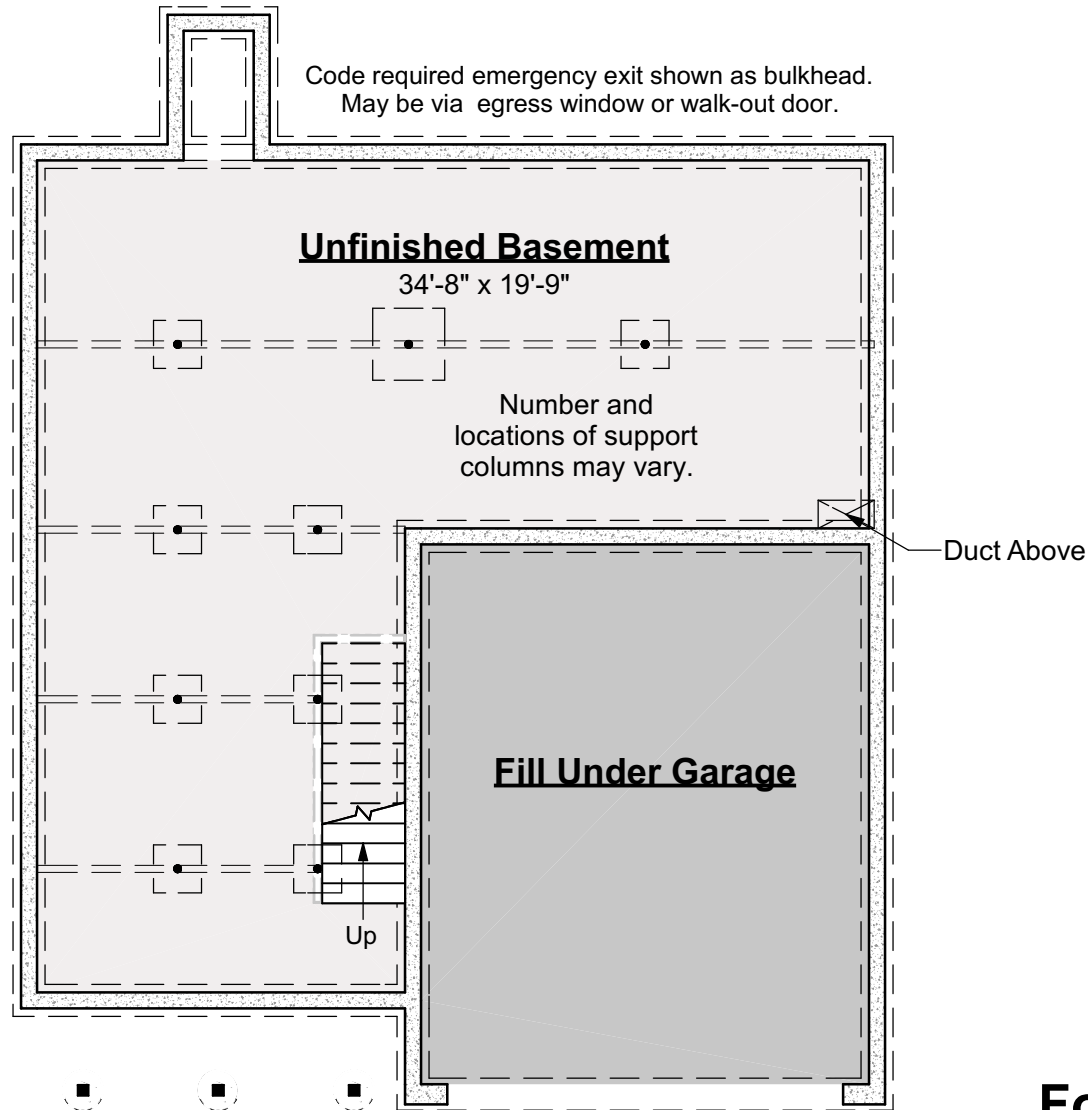
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Form Height Shown: 8 FT (May vary to suit site conditions)

Foundation Plan
Scale: 1/8" = 1'-0"

9/25/2024

Ben Bradley Classic, 36x40

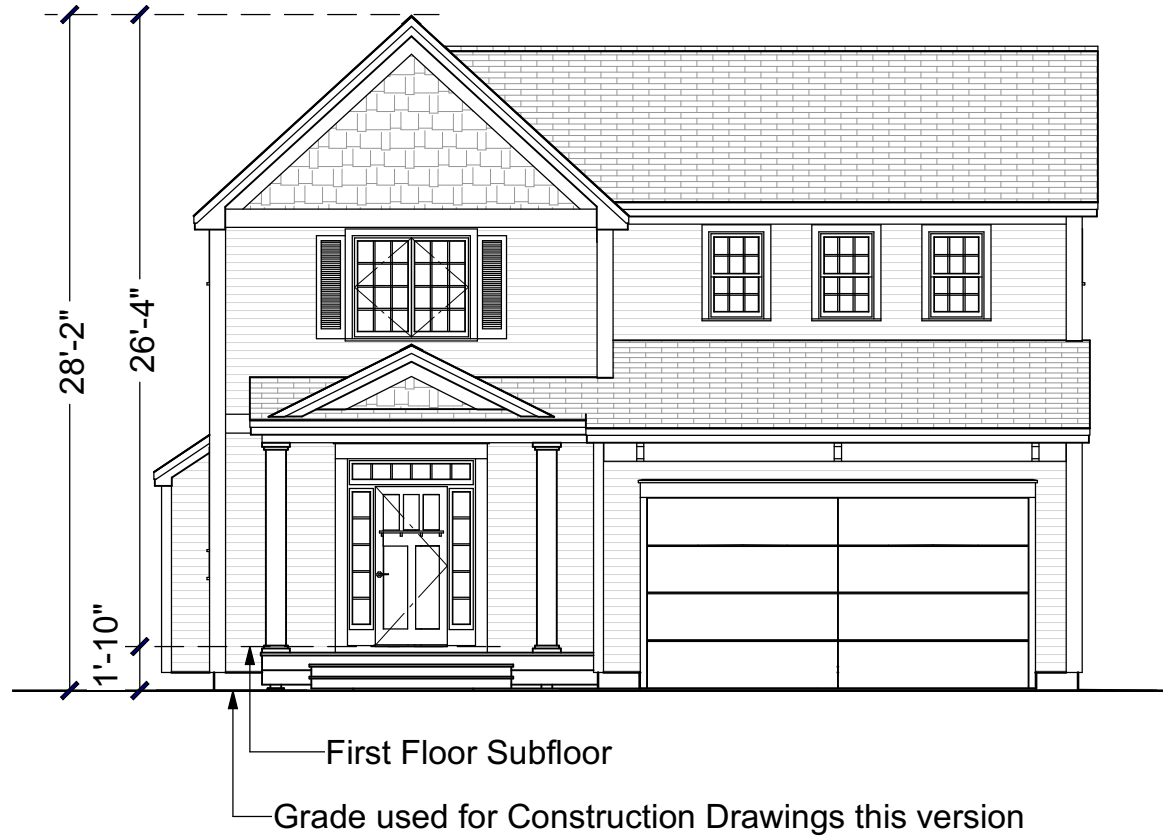
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Front Elevation

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

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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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Prelim / Work in Progress 603-431-9559



Left Elevation

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

DONNA P. BENTON, AICP
Director of Planning and
Community Development
d.benton@dover.nh.gov



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City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

NOTICE OF DECISION

June 12, 2024

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

Re: Transfer of Development Rights Plan for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. (Proposal is to purchase three (3) non-restricted TDR units to allow a total of five (5) on the site.) (TRAN-2024-0006)

Dear Mr. Sullivan:

Please be advised that on Tuesday, June 11, 2024 the Dover Planning Board voted to conditionally approve the request to grant five (5) Transfer of Development Rights (TDR) units using the HUD Fair Market Rent Restriction and found the criteria of 170-27.2-G(8) have been met. **The specific subsequent conditions are included with this letter.**

In addition to the subsequent conditions of approval, please provide the following to the Planning Office:

- ☐ Two (2) full size plans and One (1) 11" x 17" plan (plus any additional plans for the applicant or owner)
- ☐ One (1) PDF digital version of the plat

If you have any questions, please do not hesitate to contact my office.

Sincerely,

Donna Benton, AICP
Director of Planning & Community Development

EC: Inspection Services Office
Engineering Office
Assessing Office
McEneaney Survey Associates

TDR: Conditions to Be Met Prior to Granting of TDR:

Submitted Received

- | | | |
|---|--------------------------|--------------------------|
| 1. Approval of future Site Plan. | ☐ | ☐ |
| 1.1 Indicate size restriction of unit 5 and placement further away from wetland buffer. | | |
| 1.2 Add owner's signature. | | |
| 1.3 Add PE and LLS stamp and signature. | | |
| 1.4 Add note about TDR units and restriction. | | |
| 1.5 Note open space calculations. | ☐ | ☐ |
| 2. Payment of TDR fees. | ☐ | ☐ |
| 3. Site plan reviewed by Planning Board and TRC. | | |

*DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820*

November 19, 2024

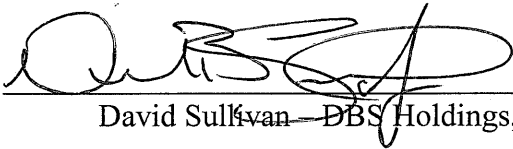
City of Dover
288 Central Avenue
Dover, NH 03820

Attn: Planning Board

Re: LETTER OF OWNER AUTHORIZATION
512 Sixth Street – Tax Map B, Lot 2

I, David Sullivan, Member of DBS Holdings, LLC, authorize Civilworks New England and McEneaney Survey Associates to represent all applications made on my behalf as (OWNER) to the City of Dover Planning Board and any other Dover Board or Committee, as well as any State of NH departments, as necessary, relative to the pursuit of approvals and permits for the development of the subject parcel.

Sincerely,



David Sullivan – DBS Holdings, LLC

Steve Haight

From: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Sent: Thursday, November 21, 2024 10:08 AM
To: Mark Beaudry
Cc: Steve Haight; Joseph Griffin; Cheryl Andreason; Nadeau, Mike; Benton, Donna; Chambers, Jordan; Maxfield, Jim
Subject: RE: CNE#24094 – DBS Holdings LLC – 512 Sixth Street, Dover
Importance: High

Mark,

The city can provide water and sewer in this location. Please note the following comments on this design.

- A sewer connection permit from the NHDES is required as the design is proposing to serve more than one building (Env-Wq 703.07(a)(6)). Please submit digital materials to my attention along with a check for the sewer connection review fee (\$50).
- External sewer cleanouts are not permitted in Dover.
- Any change in direction of an 8 inch main needs to have a sewer manhole.

Construction on this development shall not proceed until the above are addressed.

Please let me know if you have any questions.

Regards,

Ken

Ken Mavrogeorge, PE
City Engineer
City of Dover, NH
271 Mast Rd.
Dover, NH 03820-4169
e: k.mavrogeorge@dover.nh.gov
p: 603.516.6454 | f: 603.516.6463

Dover: First in New Hampshire, First with you!
<http://www.dover.nh.gov>

From: Mark Beaudry <mbeaudry@civilworksne.com>
Sent: Thursday, November 21, 2024 10:00 AM
To: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Cc: Steve Haight <shaight@civilworksne.com>; Joseph Griffin <jgriffin@civilworksne.com>; Cheryl Andreason <cheryl@surveynh.com>
Subject: CNE#24094 – DBS Holdings LLC – 512 Sixth Street, Dover

Security Notice: External sender. Use caution with hyperlinks or attachments.

Hello Ken: As required per the City's site review permit process, we are reaching out as part of the process to provide "will serve" letters stating that utilities are available for our proposed project. Our client is proposing a 5-unit residential development located at 512 Sixth Street (Tax Map B, Lot 2).

The project consists of the construction of five (5) new detached single family residences after demolition of the two existing residential homes on the property resulting in a net gain of three residential dwellings. Each of the five homes are anticipated to have its own water supply and sewer connection off the single water line and sewer pipe connections to and from the sewer and water pipe “stubs” from the mains in the road that were recently constructed to the property. Attached is the utility plan for reference.

The project total design flow is estimated as follows:

- Single family 3 bedroom residence = 300 GPD for 1st 2 bedrooms + 150 GPD for 3rd bedroom = 450 GPD per unit
- 5 residences x 450 GPD/residence = 2,250 GPD = Total estimated design flow

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

As required by the City, could you please provide us with a letter acknowledging that the city can provide water and sewer service to this proposed development.

Thank you for your assistance on this project. If you have any questions or require more information, please do not hesitate to get back to us.

Mark

Mark Beaudry, PE
Senior Associate/Sr. Project Manager
Civilworks New England
C: (413) 325-3384
O: (603) 749-0443 x113

Please consider conserving our natural resources before printing this e-mail and/or any attachments.

This electronic message and any attachments may contain information that is confidential and/or legally privileged in accordance with NH RSA 91-A and other applicable laws or regulations. It is intended only for the use of the person and/or entity identified as recipient(s) in the message. If you are not an intended recipient of this message, please notify the sender immediately and delete the material. Do not print, deliver, distribute or copy this message, and do not disclose its contents or take any action in reliance on the information it contains unless authorized to do so. Thank you.

Steve Haight

From: Mark Beaudry
Sent: Thursday, November 21, 2024 10:05 AM
To: Emmons, Trevor S
Cc: Steve Haight; Joseph Griffin; Cheryl Andreason
Subject: CNE#24094 – DBS Holdings, LLC – 512 Sixth Street, Dover, NH
Attachments: CNE 24094-DSB Holdings LLC-SITE UTILITY (11-21-24).pdf

Hello Trevor:

Per the City of Dover, as part of the site review permit process we are required to provide a “will serve” letter stating that electric utilities are available for our proposed project. The project is located at 512 Sixth Street at Tax Map B, Lot 2.

The project consists of the construction of five (5) new detached single-family residences after demolition of the two existing residential homes on the property resulting in a net gain of three residential dwellings.

We anticipate that each of the five new dwellings will require single phase power with a 200-amp service.

Attached is the utility plan to depict the location, site layout of the residential units and anticipated utility services.

The project proponent will be in contact with you at a later date to set up a work order and provide any additional information.

If you have any questions or require more information do not hesitate to get back to us.

Thank you again for your assistance with these projects.

Mark

Mark Beaudry, PE
Senior Associate/Sr. Project Manager
Civilworks New England
C: (413) 325-3384
O: (603) 749-0443 x113

Steve Haight

From: Mark Beaudry
Sent: Thursday, November 21, 2024 10:11 AM
To: Dave MacLean; macleand@unitil.com
Cc: Steve Haight; Joseph Griffin; Cheryl Andreason
Subject: CNE#24094 – DBS Holdings, LLC – 512 Sixth Street, Dover, NH
Attachments: CNE 24094-DSB Holdings LLC-SITE UTILITY (11-21-24).pdf

Hello David: Per the City of Dover, as part of the site review permit process we are required to provide a “will serve” letter stating that utilities are available for our proposed project. The project is located at 512 Sixth Street at Tax Map B, Lot 2.

The project consists of the construction of five (5) new detached single-family residences after demolition of the two existing residential homes on the property resulting in a net gain of three residential dwellings.

We anticipate that each of the five new dwellings will have its own natural gas service and meter off a single service pipe into the property.

Attached is the utility plan to depict the location, site layout of the residential units and anticipated utility services.

If you have any questions or require more information do not hesitate to get back to us.

Thank you again for your assistance with these projects.

Mark

Mark Beaudry, PE
Senior Associate/Sr. Project Manager
Civilworks New England
C: (413) 325-3384
O: (603) 749-0443 x113

CIVILWORKS NEW ENGLAND

181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: 603.749.0443

November 20, 2024

TRAFFIC ASSESSMENT MEMORANDUM

INTRODUCTION

Civilworks New England has prepared this traffic-assessment memorandum (TAM) regarding the residential development project proposed at Tax Map B, Lot No. 2, which is otherwise known as 512 Sixth Street in Dover, NH.

This TAM includes:

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

This TAM concludes that:

- relevant sight distance at the intersection of the proposed development access driveway with Sixth Street will be adequate.
- The proposed project is not anticipated to add significant new traffic to the area.

EXISTING SITE DESCRIPTION

The project site:

- is along the westerly side of Sixth Street just south of Olive Meadow Lane (on the east side of Sixth Street)
- has a lot size of 1.87 acres.
- contains two residential homes one of which has a detached garage.
- Each home has an existing driveway within the property (with the two driveways being connected near the houses).

PROPOSED PROJECT DESCRIPTION

The project will provide a total of five single family detached residential housing units serviced by a single “dead ended” roadway. The two homes existing on the property will be removed. Therefore, the net increase will be only three homes. The two existing driveways to the houses will be replaced with the project roadway located between the two existing driveways.

ROAD DESCRIPTION

Sixth Street in the vicinity of the project:

- is under the jurisdiction of the City of Dover
- has a posted speed limit of 30 MPH
- is oriented southeast – northwest with a straight/linear horizontal alignment.
- has very limited vertical grade change.
- has bituminous concrete pavement in overall good condition.

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- has marked pavement consisting of double yellow centerline striping and white lane “fog” side lines
- has two travel lanes each 10 feet in width and pavement approximately 18 inches in width beyond the fog line for a total pavement width of approximately 23 feet.
- has no sidewalks on either side.
- Is located in a no-passing zone passing and no streetside parking has been observed although not specifically prohibited by signage).
- has a total average daily traffic (ADT) volume of 9,152 vehicles (total both directions) measured at a point between Indian Brook Drive and Heather Lane as reported by the NHDOT for 2023.
- includes existing utility services.

PUBLIC TRANSIT

Collaborative Alliance for Seacoast Transportation (COAST) Route 33 provides bus service in the area. Service is on Mondays through Saturdays, except holidays. A bus stop is located on Sixth Street between Venture Drive and Production Drive. Route 33 connects with:

- Strafford County Courthouse
- Central Avenue
- Dover Transportation Center / Amtrak

SIGHT DISTANCES

The project site is on a relatively straight section of Sixth Street that has limited elevation change, optimizing sight distance in both directions. Several subdivision roadways and residential driveways exist along this stretch of roadway.

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for appropriate sight distances including stopping sight distance (SSD) for vehicles on the main road reacting to traffic or other obstructions. For a 30 mile per hour roadway, AASHTO has established the SSD to be 200 feet, as referenced in the City’s Subdivision Regulations, and ISD to be 335 feet. The available sight distance to the east and west at the proposed project roadway has been determined to be in excess of 400 feet, which is suitable for SSD at 55 miles per hour and ISD at 45 miles per hour.

Therefore, ample sight distance is provided and is adequate to provide a safe means of egress. Sight distance from the access drive should not be impeded by streetside parking. This in combination with the relatively unobstructed nature of the streetside, will provide the opportunity to maintain these sightlines throughout the year.

CALCULATED TRIP GENERATION

The Institute of Transportation Engineers (ITE) compiles and publishes trip-generation information for a variety of land uses in *Trip Generation Manual*.¹ This authoritative guide for calculating site traffic includes vehicle trip information for a single-family residential development of detached dwelling units in a general urban/suburban area; which is known in the ITE *Trip Generation Manual* as Land Use Code 210 (LUC). For this LUC, trip data is based on the number of dwelling units.

¹ ITE, *Trip Generation Manual*, 11th edition (Washington DC, September 2021)

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The project will provide five total single family detached homes/units. However, as mentioned in the Project Description section above, two single-family detached homes already exist on the property so the *net increase in trips will be that from only three single-family homes.*

Table 1 and Table 2 show calculated vehicle trip ends associated with the proposed development project. Table 1 data applies to the five total single-family detached homes where Table 2 data relates to the two existing single-family detached houses on the property. Then the total net increase in vehicle trips along can be determined by deducting the existing trips from the proposed total.

Table 1: Trip Generation - Single-Family Detached Housing (5 Total Units)

Weekday Period	Vehicle Trips*				
	Avg. Trips	Proposed Units	Total	In	Out
Daily	See Equation	5	64.1	32.0	32.1
AM Peak Hour of Generator	See Equation	5	10.8	2.8	8.0
PM Peak Hour of Generator	See Equation	5	6.4	4.1	2.3
AM Peak Hour of Adjacent Street Traffic	See Equation	5	1.6	0.4	1.2
PM Peak Hour of Adjacent Street Traffic	See Equation	5	5.9	3.7	2.2

* ITE, *Trip Generation Manual*, Single-Family Detached Housing - Land Use Code 210

Weekday Trips = $\ln(T) = 0.92 \ln(\text{Units}) + 2.68$ (50% entering, 50% exiting)
AM Trips - Generator = $T = 0.71(\text{Units}) + 7.23$ (26% entering, 74% exiting)
PM Trips - Generator = $\ln(T) = 0.93 \ln(\text{Units}) + 0.36$ (64% entering, 36% exiting)
AM Trips - A.S.T. = $\ln(T) = 0.91 \ln(\text{Units}) + 0.12$ (26% entering, 74% exiting)
PM Trips - A.S.T. = $\ln(T) = 0.94 \ln(\text{Units}) + 0.27$ (63% entering, 37% exiting)

Table 2: Trip Generation - Single-Family Detached Housing (2 Existing Units)

Weekday Period	Vehicle Trips*				
	Avg. Trips	Proposed Units	Total	In	Out
Daily	See Equation	2	27.6	13.8	13.8
AM Peak Hour of Generator	See Equation	2	8.7	2.2	6.5
PM Peak Hour of Generator	See Equation	2	2.7	1.7	1.0
AM Peak Hour of Adjacent Street Traffic	See Equation	2	2.1	0.5	1.6
PM Peak Hour of Adjacent Street Traffic	See Equation	2	2.5	1.6	0.9

* ITE, *Trip Generation Manual*, Single-Family Detached Housing - Land Use Code 210

Weekday Trips = $\ln(T) = 0.92 \ln(\text{Units}) + 2.68$ (50% entering, 50% exiting)
AM Trips - Generator = $T = 0.71(\text{Units}) + 7.23$ (26% entering, 74% exiting)
PM Trips - Generator = $\ln(T) = 0.93 \ln(\text{Units}) + 0.36$ (64% entering, 36% exiting)
AM Trips - A.S.T. = $\ln(T) = 0.91 \ln(\text{Units}) + 0.12$ (26% entering, 74% exiting)
PM Trips - A.S.T. = $\ln(T) = 0.94 \ln(\text{Units}) + 0.27$ (63% entering, 37% exiting)

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TRIP DISTRIBUTION/ASSIGNMENT

All project-related trips will access the site from Sixth Street. The calculated vehicle trip generation for the development project is so low, especially at peak hours, that area traffic operations are not sensitive to trip distribution/assignment of project vehicle trips.

POTENTIAL TRAFFIC IMPACTS

The AM and PM peak hour vehicle trip calculations show higher numbers based on those of the traffic generator vs. that of the adjacent street traffic. Therefore, the total generation and increase in peak hour vehicle trips to be generated by the project are estimated on that basis.

Accordingly, the calculations show total vehicle trips to be generated by the project, along with the anticipated *increase* in trips to be as follows:

- Daily (weekday) = 64.1 total trips (32.0 in and 32.1 out) [5 total homes]
Less 27.6 existing trips (13.8 in and 13.8 out) [2 existing homes]
Net Increase = 36.5 trips (18.2 in and 18.3 out)
- AM peak hour = 10.8 total trips (2.8 in and 8.0 out)
Less 8.7 existing trips (2.2 in and 6.5 out)
Net Increase = 2.1 trips (0.6 in and 1.5 out)
- PM peak hour = 6.4 total trips (4.1 in and 2.3 out)
Less 2.7 existing trips (1.7 in and 1.0 out)
Net Increase = 3.7 trips (2.4 in and 1.3 out)

The increase in weekday trips represents only 0.7 percent of the current ADT on Sixth Street as measured near Venture Drive. Therefore, the proposed project is not anticipated to add significant new traffic to the surrounding area, nor impact such.

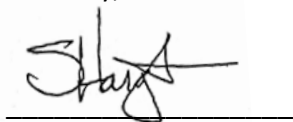
CONCLUSION

In conclusion:

- Stopping sight distances at the Sixth Street/proposed development roadway intersection will be adequate.
- The proposed project is not anticipated to add significant new traffic to the area.

CIVILWORKS NEW ENGLAND

Sincerely,



Stephen J. Haight, PE

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

**TDR SITE PLAN
5 UNIT RESIDENTIAL
Map B, Lot 2**

**512 Sixth Street
Dover, New Hampshire
Strafford County**

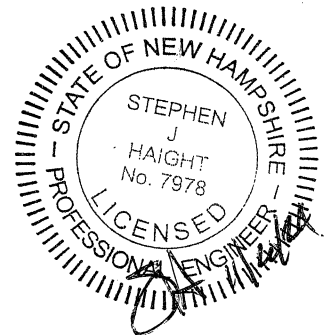
November 2024

Owner of Record:

DBS HOLDINGS, LLC
71 Danielle Lane
Dover, New Hampshire 03820

Prepared By:

CIVILWORKS NEW ENGLAND
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03821



Introduction

Civilworks New England has prepared the following Stormwater Management System Inspection & Maintenance Plan for **DBS Holdings, LLC**. The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The inspection and maintenance requirements outlined in this document are required to be performed in perpetuity. In the event the property is sold, future owners will be responsible for implementing the responsibilities outlined in this document.

The following inspection and maintenance program is necessary to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel 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.

This plan also requires the Owner/Operator to prepare and implement a salt minimization plan to reduce salt usage on-site and ultimately within the watershed. This plan will allow the owner/operator to monitor and modify how much salt is needed, when it should be applied, and where it needs to be applied, with the ultimate goal of reducing salt-use without compromising safety. It is expected that salt-use reduction will lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation (e.g., landscaping) and corrosion of infrastructure.

The salt minimization plan should include the retention of a contractor who has completed the Green SnowPro Training course and obtained NHDES Salt Application Certification.

It is anticipated that this be a living document that will be updated at regular intervals (recommend updating annually in advance of the winter season in order to facilitate adjustments).

Owner:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party.

Contact / Responsible Party:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

**Dave Sullivan
Phone: (603) 743-4284
Email: dbsholdingsllc@gmail.com**

The contact information for the Contact / Responsible Party shall be kept current.

Management Company:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

The contact information for the Management Party shall be kept current.

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NHDES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to the City of Dover Community Services Department annually before Dec 15th.

Stormwater Management System Components

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

- Pipes / Culverts
- Catch Basin
- Grass Lined Conveyance Swales
- Infiltration Basins
- Stone Drip Edges
- Pavement
- Litter / Trash Removal

Design elements are identified in the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. Invasive plants shall be controlled to prevent them from reproducing, spreading, or re-growing. See the University of New Hampshire – Cooperative Extension's "Method for Disposing Non-Native Invasive Plants", included at the end of this manual, for guidance on the removal and disposal of invasive species.

Inspection and Maintenance Plan

By implementing the following procedures, the owners 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.

PIPES/CULVERTS:

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

CATCH BASIN(S):

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 1 foot.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

GRASS LINED CONVEYANCE SWALE:

- Inspect once per year.
- Inspect for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas as needed; remove invasive species and dead vegetation.
- Perform periodic mowing of swale (at least twice annually), maintain a 4" stand of vegetative growth.

INFILTRATION BASIN:

- Inspect and remove any debris from inlet and outlet structures.
- Remove any accumulated sediment.
- Inspect and repair outlet structures and appurtenances.
- Inspection of infiltration components at least twice annually and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Periodic mowing of basin and embankments.
- Removal of woody vegetation from basin and embankments.
- Inspection and repair of embankments and spillways.
- If an infiltration 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 infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration bottom.

STONE DRIP EDGES:

- Inspect twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period.
- If system does not drain within 72-hours following a rainfall event, a qualified engineer should inspect the system and determine measures required to restore the condition of the facility.
- Follow the University of New Hampshire's "Methods for Disposing Non-Native Invasive Plants" for disposing of invasive species (Attached).
- There shall be no use of chemical herbicides or pesticides, except for wildlife habitat management and then only in coordination with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program. Herbicides or pesticides are absolutely prohibited within wetlands or wetland buffer setbacks.

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick-up.

DE-ICING AGENTS:

- To address the concerns associated with the application of chlorides and other deicing materials, NHDES recommends that the Owner/Operator develop a Road Salt and Deicing Minimization Plan for the parking lots and roadways. The plan should develop the policies that the development will keep in place to minimize salt and other deicer use after the project has been completed. The plan should include tracking the use of salt and other deicers for each storm event and compiling salt use data annually. (See Deicing Salt Quantity Use Log).
- Use sand as primary agent for driveway and access way safety during ice and snow conditions.
- Minimize the use of salt 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.
- Recommend using a certified Winter Operator (Green SnowPro Trained) for applying de-icing agents.
- Monitor weather and apply de-icing agents based on weather conditions and temperatures.

ANTI-ICING AND SALT MINIMIZATION:

- Owner to develop a Road Salt and Deicing Minimization Plan.
- Provide a written policy that the "Development" will keep in place to minimize salt and other deicer use after the project has been completed.
- Use the attached form to track the use of salt and other deicers for each storm event and compiling salt use data annually.

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pipes/Culverts	Annually	- Check for clogging - Check for sediment accumulation	Remove when noticed Clean when necessary
Catch Basin	Annually	- Check for sediment accumulation - Check for floatable contaminants - Check for hydrocarbons (oils and grease)	≥ 1 ft. sediment depth Remove all floatables Remove immediately
Grass Lined Conveyance Swale	Annually	- Check for sediment accumulation - Check for erosion - Ensure swale is stabilized - Maintain healthy stand of veg., min 4" - Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Infiltration Basin	Bi-Annually	- Check for sediment accumulation - Check for debris - Inspect for woody vegetation - Maintain healthy stand of veg., 4" minimum - Inspect for invasive species - Check for water draining	Remove any accumulated Sediment Remove from inlet/outlet structures Remove Immediately Mow twice per year (applies to IB1 and IB2) Remove/Dispose of accordingly 72 hours after a 2.5 inch storm event in a 24 hour period
Stone Drip Edges	Bi-Annually	- Check for sediment accumulation - Check for woody vegetation growth - Check for debris	Remove/Dispose of accordingly Remove Immediately Remove/Dispose of accordingly
Pavement: - Sanding - Salt Applications - Sweep/Vacuum - Trash/Debris	Limit use As required 1 - 2 x's Year Periodically	- Minimize use to prevent tracking issues - RECORD APPLICATION RATES - Sweep or vacuum to prevent tracking issues - Check for trash/debris	Sweep to prevent issues Minimize (as required) Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

The following pages contain a blank copy of the Stormwater Management System's Inspection & Maintenance Log and a Deicing Salt Quantity Use Log. These forms are provided to assist the owners with the inspection and maintenance of the aforementioned Stormwater Management System.

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance _____ Inspector: _____

[illegible]

Deicing Salt Quantity Use Log

[illegible]

Methods for Disposing Non-Native Invasive Plants

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



Tatarian honeysuckle

Lonicera tatarica

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

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

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

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

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

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

New Hampshire Regulations

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

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

How and When to Dispose of Invasives?

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

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

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

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

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

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

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

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



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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple <i>(Acer platanoides)</i> European barberry <i>(Berberis vulgaris)</i> Japanese barberry <i>(Berberis thunbergii)</i> autumn olive <i>(Elaeagnus umbellata)</i> burning bush <i>(Euonymus alatus)</i> Morrow's honeysuckle <i>(Lonicera morrowii)</i> Tatarian honeysuckle <i>(Lonicera tatarica)</i> showy bush honeysuckle <i>(Lonicera x bella)</i> common buckthorn <i>(Rhamnus cathartica)</i> glossy buckthorn <i>(Frangula alnus)</i>	Fruit and Seeds 	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.
		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.
oriental bittersweet <i>(Celastrus orbiculatus)</i> multiflora rose <i>(Rosa multiflora)</i>	Fruits, Seeds, Plant Fragments 	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.
		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.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard (<i>Alliaria petiolata</i>) spotted knapweed (<i>Centaurea maculosa</i>) ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort (<i>Cynanchum nigrum</i>) ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort (<i>Cynanchum rossicum</i>) giant hogweed (<i>Heracleum mantegazzianum</i>) ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket (<i>Hesperis matronalis</i>) perennial pepperweed (<i>Lepidium latifolium</i>) purple loosestrife (<i>Lythrum salicaria</i>) Japanese stilt grass (<i>Microstegium vimineum</i>) mile-a-minute weed (<i>Polygonum perfoliatum</i>)	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 (<i>Phragmites australis</i>) Japanese knotweed (<i>Polygonum cuspidatum</i>) Bohemian knotweed (<i>Polygonum x bohemicum</i>)	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.

January 2010

DRAINAGE ANALYSIS

**TDR SITE PLAN
5 UNIT RESIDENTIAL
512 SIXTH STREET
TAX MAP B, LOT 2
DOVER, NH**

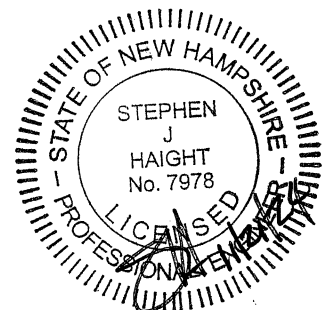
November 2024

Prepared For:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

Prepared By:

**Civilworks NE
PO Box 1166
181 Watson Road
Dover, NH 03821**



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1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel located at 512 Sixth Street, Dover, NH. The 1.87± acre lot is identified as Tax Map B, Lot 2. The site is currently developed as residential with two single-family homes, a detached garage, two detached sheds, an asphalt drive and a gravel drive. The ground cover primarily consists of woods, lawn, pavement, and gravel for driveways. The site is bounded by residential lots to the north, south, and west and Sixth Street to the east.

The project proposes the construction of a 5-unit residential development and consists of the demolition of the two (2) existing structures, site improvements associated with the construction of the 5 residential structures, site access, driveways, grading and drainage, and utilities. The proposed drainage system incorporates three (3) infiltration basins, four (4) stone drip edges, a catch basin, and a roof drain to treat, mitigate, and infiltrate stormwater. The proposed stormwater system captures, treats, and stores the stormwater runoff from the site and redirects it to the existing discharge points. The proposed stormwater drainage structures will be maintained by the project proponent as outlined within the Stormwater Management System Inspection & Maintenance Manual (Stormwater I&M Manual) in Appendix C.

To effectively analyze the pre-development subject parcel, the site was divided into four watersheds, A, B, C, & D. Watershed A drains to a wetland complex to the residential lot to the south of the site, Watersheds B and C drain to wetland complexes on the west of the parcel (B to the southwest and C to the northwest) to the abutting residential lot, while Watershed D drains to wetlands to the north residential lot. Soil characteristics and topography information was obtained utilizing Web Soil Survey, test pits, borehole infiltration tests, and on-site survey.

The post development model analyzes the same four watersheds, A, B, C, & D. Watersheds A, B, & C are further divided into four, three, and five sub-catchments, respectively, to better model the proposed drainage improvements on site. This provides a direct comparison to the pre-development model. This analysis indicates that the proposed stormwater measures and stormwater management plan will treat and mitigate stormwater runoff in general accordance with The City of Dover's stormwater regulations. The proposed development of the site in conjunction with the implementation of the Stormwater I&M Manual will have minimal impact on the watersheds.

2.0 DRAINAGE ANALYSIS

A comprehensive hydrologic study of this site has been performed utilizing nationally recognized runoff estimating techniques developed by the USDA, Soil Conservation Services (SCS). The technique and runoff models are described in various SCS publications and references as follows:

“Stormwater Management and Erosion Sediment Control Handbook for Urban and Developing Areas in New Hampshire”

“New Hampshire Stormwater Manual Volume 2 - Post-Construction Best Management Practices Selection & Design”

“Civil Engineering Reference Manual, Fifth Edition”

“Open-Channel Hydraulics” Chow.

“Stormwater Modeling System” HydroCAD Ver. 10.10

2.1 DRAINAGE DESIGN PARAMETERS

A brief review of the procedures and parameters used in the drainage study follows:

2.1.1 Watersheds

The watersheds were delineated using on site topographic and as built survey data field located by McEneaney Survey Associates of New England.

2.1.2 Soils

Soil types were determined utilizing the NRCS Web Soil Survey (WSS) mapping tool at <http://websoilsurvey.nrcs.usda.gov>. The soil survey area is Strafford County, NH, the soil survey data is Version 25, dated September 3, 2024 and the aerial images are dated June 19th to September 20th, 2020.

Hydrologic Drainage Class A:

Map Unit Symbol	Slopes	Map Unit Name
WfB	0 to 8%	Windsor loamy fine sand, clay subsoil variant

Hydrologic Drainage Class B:

Map Unit Symbol	Slopes	Map Unit Name
CfB	3 to 8%	Charlton fine sandy loam

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center were utilized in this analysis. The analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.13”, 4.71”, 5.95”, and 7.10” rainfall depths respectively.

2.1.4 Runoff Curve Numbers

The SCS runoff curve numbers were used and are summarized within each sub-catchment drainage summary in Appendix A.

2.2 EXISTING CONDITIONS

For the purposes of this analysis, the subject parcel was analyzed as a four watersheds that discharge to abutting properties in the predevelopment condition.

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

Watershed	Pre-Development Volume (af)	Pre Development Peak Flows (cfs)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
A	0.02	0.0	0.3	0.6	1.0
B	0.01	0.0	0.2	0.5	0.7
C	0.02	0.1	0.4	0.7	1.0
D	0.00	0.0	0.0	0.0	0.0

2.3 DEVELOPED CONDITIONS

The post development model analyzes runoff to the post development discharge points.

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

Watershed	Post-Development Volume (af)	Post Development Peak Flows (cfs)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
A	0.00	0.0	0.2	0.5	0.8
B	0.01	0.0	0.2	0.4	0.7
C	0.01	0.0	0.3	0.5	0.8
D	0.00	0.0	0.0	0.0	0.0

2.4 HYDROLOGIC COMPARISON

The analysis indicates that the proposed project will have negligible impact on the watershed.

2.4.1 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)			
Discharge Point	<u>2-yr</u>	<u>2-yr</u>	<u>10-yr</u>	<u>25-yr</u>	<u>50-yr</u>
A	0.02/ 0.00	0.0/ 0.0	0.3/ 0.2	0.6/ 0.5	1.0/ 0.8
B	0.01/ 0.01	0.0/ 0.0	0.2/ 0.2	0.5/ 0.4	0.7/ 0.7
C	0.02/ 0.01	0.1/ 0.0	0.4/ 0.3	0.7/ 0.5	1.0/0.8
D	0.00/ 0.00	0.0/ 0.0	0.0/ 0.0	0.0/ 0.0	0.0/0.0

2.5 STORMWATER DESIGN

The project incorporates best management practices to mitigate runoff as well as treat and convey stormwater.

2.5.1 Stormwater Best Management Practices

This project incorporates three infiltration basins and four stone drip edges (around two of the proposed buildings) to mitigate flow and water quality from the proposed development. See Appendix B-1 for Best Management Practice Design forms.

2.5.2 Pollutant Removal

This project effectively treats 0.339+/- acres of newly developed impervious area. The project incorporates the following practices and associated pollutant removal efficacies as identified in the New Hampshire Stormwater Management Manual Volume 2, Appendix B:

	TSS	TN	TP
Infiltration Basins:	90%	65%	65%
Stone Drip Edge:	90%	55%	65%

The pollutant removal meets or exceeds The City of Dover's, Site Review Regulations.

2.5.3 Groundwater Recharge

Test pits (5 locations) were dug on October 25th, 2024 and borehole infiltration testing (5 locations) was performed on October 31st, 2024. The results from the infiltration tests indicated the soils have high KSAT values, ranging from 28 in/hr to 150 in/hr. The design infiltration rate applied for the infiltration practices is 5 in/hr as the soils in the basins will require 2 feet of soil amendment to meet NH DES infiltration rate requirements. A factor of safety of 2 was applied to the 10 in/hr maximum infiltration rate allowed per NH DES standards. Seasonal high water tables varied between 48 and 59 inches. See Appendix B-2 for GRV calculations, supporting infiltration volume data, test pit, and borehole test information.

APPENDIX A

HYDROLOGIC CALCULATIONS

Extreme Precipitation in New York & New England

An Interactive Web Tool for Extreme Precipitation Analysis

About this Project

Data & Products

Daily Monitoring

Documentation

Select Product ?

Extreme Precipitation
Tables - HTML ?

Extreme Precipitation
Tables - Text/CSV ?

Partial Duration Series -
by Point ?

Partial Duration Series -
by Station ?

Distribution Curves -
Graphical ?

Distribution Curves -
Text/TBL ?

Intensity Frequency
Duration Graphs ?

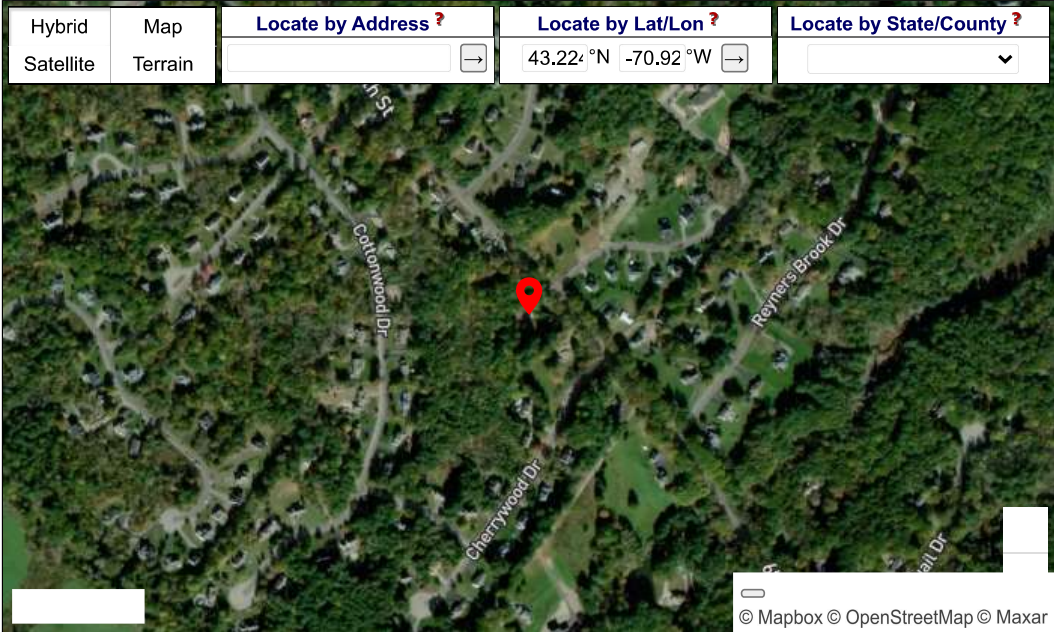
Precipitation Frequency
Duration Graphs ?

GIS Data Files ?

Regional/State Maps ?

Select Location ? Double-click map to place a marker, or enter address or latitude/longitude.

Hybrid	Map	Locate by Address ?	Locate by Lat/Lon ?	Locate by State/County ?
Satellite	Terrain		43.22° N -70.92° W	



© Mapbox © OpenStreetMap © Maxar

Select Options ?

Smoothing ?

Yes ▼

Delivery ?

Popup ▼

Submit ?

Version 2.0

Copyright 2010-2022

This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC)



Powered by
ACIS
Northeast Regional
Climate Center



Cornell University

Natural Resources Conservation Service (NRCS)



Contact: precip@cornell.edu

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	43.224 degrees North
Longitude	70.923 degrees West
Elevation	50 feet
Date/Time	Wed Oct 16 2024 11:12:55 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	1.99	2.59	2.85	1yr	2.29	2.75	3.15	3.87	4.44
2yr	0.32	0.49	0.61	0.81	1.01	1.28	2yr	0.87	1.17	1.50	1.91	2.44	3.13	3.49	2yr	2.77	3.35	3.85	4.58	5.21
5yr	0.37	0.57	0.72	0.96	1.23	1.58	5yr	1.06	1.44	1.85	2.38	3.06	3.95	4.46	5yr	3.49	4.29	4.91	5.77	6.53
10yr	0.40	0.63	0.80	1.09	1.42	1.84	10yr	1.22	1.69	2.17	2.81	3.64	4.71	5.38	10yr	4.17	5.17	5.92	6.89	7.74
25yr	0.46	0.74	0.94	1.30	1.72	2.27	25yr	1.49	2.09	2.69	3.51	4.58	5.95	6.89	25yr	5.26	6.63	7.56	8.70	9.71
50yr	0.52	0.83	1.06	1.48	2.00	2.66	50yr	1.73	2.45	3.17	4.17	5.45	7.10	8.32	50yr	6.28	8.00	9.11	10.38	11.53
100yr	0.58	0.94	1.21	1.71	2.32	3.12	100yr	2.01	2.88	3.74	4.94	6.48	8.48	10.05	100yr	7.51	9.66	10.99	12.39	13.69
200yr	0.64	1.05	1.36	1.95	2.70	3.67	200yr	2.33	3.39	4.42	5.87	7.73	10.13	12.13	200yr	8.97	11.67	13.25	14.81	16.26
500yr	0.76	1.25	1.62	2.36	3.31	4.54	500yr	2.85	4.21	5.49	7.34	9.73	12.83	15.58	500yr	11.36	14.98	16.97	18.74	20.44

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	1.25	1.53	2.04	2.46	1yr	1.81	2.37	2.94	3.40	4.09
2yr	0.31	0.49	0.60	0.81	1.00	1.18	2yr	0.86	1.15	1.36	1.82	2.35	3.04	3.39	2yr	2.69	3.26	3.73	4.45	5.07
5yr	0.35	0.54	0.67	0.91	1.16	1.40	5yr	1.00	1.37	1.61	2.14	2.77	3.68	4.11	5yr	3.26	3.95	4.58	5.38	6.08
10yr	0.38	0.59	0.73	1.02	1.31	1.60	10yr	1.13	1.56	1.81	2.44	3.12	4.23	4.76	10yr	3.74	4.58	5.30	6.21	6.96
25yr	0.44	0.66	0.83	1.18	1.55	1.91	25yr	1.34	1.87	2.11	2.84	3.64	5.07	5.76	25yr	4.49	5.54	6.46	7.49	8.33
50yr	0.48	0.73	0.91	1.31	1.77	2.19	50yr	1.52	2.14	2.36	3.20	4.08	5.82	6.64	50yr	5.15	6.38	7.50	8.63	9.54
100yr	0.54	0.81	1.02	1.47	2.02	2.51	100yr	1.74	2.45	2.65	3.59	4.54	6.66	7.64	100yr	5.90	7.35	8.72	9.94	10.89
200yr	0.60	0.90	1.14	1.65	2.30	2.87	200yr	1.98	2.81	2.96	4.02	5.07	7.63	8.80	200yr	6.76	8.46	10.12	11.45	12.46
500yr	0.70	1.04	1.34	1.94	2.76	3.46	500yr	2.38	3.39	3.45	4.68	5.87	9.09	10.59	500yr	8.05	10.19	12.33	13.82	14.81

Upper Confidence Limits

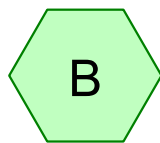
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day
1yr	0.28	0.43	0.53	0.71	0.87	1.08	1yr	0.75	1.05	1.23	1.73	2.20	2.81	3.06	1yr	2.49	2.95	3.37	4.17	4.74
2yr	0.33	0.51	0.62	0.84	1.04	1.24	2yr	0.90	1.22	1.47	1.95	2.51	3.23	3.60	2yr	2.86	3.46	3.97	4.73	5.38
5yr	0.39	0.60	0.75	1.03	1.31	1.58	5yr	1.13	1.54	1.85	2.49	3.19	4.21	4.81	5yr	3.73	4.63	5.26	6.18	6.95
10yr	0.46	0.70	0.87	1.21	1.57	1.91	10yr	1.35	1.87	2.22	3.03	3.84	5.17	6.00	10yr	4.58	5.77	6.60	7.58	8.45
25yr	0.55	0.84	1.05	1.50	1.97	2.46	25yr	1.70	2.40	2.86	3.94	4.93	6.81	8.05	25yr	6.03	7.74	8.82	9.98	11.00
50yr	0.64	0.97	1.21	1.74	2.35	2.96	50yr	2.03	2.90	3.47	4.80	5.98	8.38	10.08	50yr	7.41	9.69	11.01	12.26	13.44
100yr	0.75	1.13	1.41	2.04	2.80	3.58	100yr	2.41	3.50	4.21	5.87	7.27	10.31	12.61	100yr	9.13	12.13	13.72	15.10	16.43
200yr	0.86	1.30	1.65	2.39	3.33	4.33	200yr	2.87	4.23	5.12	7.17	8.83	12.73	15.81	200yr	11.26	15.20	17.12	18.57	20.12
500yr	1.06	1.57	2.03	2.94	4.19	5.55	500yr	3.61	5.42	6.61	9.37	11.43	16.85	21.31	500yr	14.91	20.49	22.96	24.47	26.32

A – 1

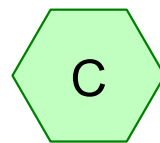
EXISTING WATERSHEDS



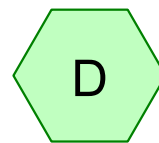
A



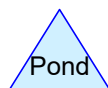
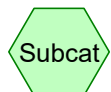
B



C



D



Routing Diagram for 24094 - Pre

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.335	39	>75% Grass cover, Good, HSG A (A, C, D)
0.290	61	>75% Grass cover, Good, HSG B (A, B, C, D)
0.053	96	Gravel surface, HSG A (A)
0.013	96	Gravel surface, HSG B (A)
0.127	98	Paved parking, HSG A (A, C)
0.014	98	Paved parking, HSG B (A, B, C)
0.017	98	Roofs, HSG A (C, D)
0.052	98	Roofs, HSG B (A, B, C)
0.317	30	Woods, Good, HSG A (A, D)
0.834	55	Woods, Good, HSG B (A, B, C, D)
2.052	55	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.850	HSG A	A, C, D
1.202	HSG B	A, B, C, D
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.052		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.335	0.290	0.000	0.000	0.000	0.624	>75% Grass cover, Good	A, B, C, D
0.053	0.013	0.000	0.000	0.000	0.066	Gravel surface	A
0.127	0.014	0.000	0.000	0.000	0.141	Paved parking	A, B, C
0.017	0.052	0.000	0.000	0.000	0.069	Roofs	A, B, C, D
0.317	0.834	0.000	0.000	0.000	1.151	Woods, Good	A, B, C, D
0.850	1.202	0.000	0.000	0.000	2.052	TOTAL AREA	

A – 1

NODE LISTING – 2-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=34,282 sf 17.80% Impervious Runoff Depth=0.23"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.0 cfs 0.02 af

Subcatchment B: B Runoff Area=18,442 sf 5.96% Impervious Runoff Depth=0.32"
Flow Length=190' Tc=13.2 min CN=58 Runoff=0.0 cfs 0.01 af

Subcatchment C: C Runoff Area=29,181 sf 5.21% Impervious Runoff Depth=0.32"
Flow Length=244' Tc=14.7 min CN=58 Runoff=0.1 cfs 0.02 af

Subcatchment D: D Runoff Area=7,472 sf 5.85% Impervious Runoff Depth=0.00"
Flow Length=133' Tc=19.9 min CN=37 Runoff=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.04 af Average Runoff Depth = 0.26"
89.75% Pervious = 1.842 ac 10.25% Impervious = 0.210 ac

A – 1

NODE LISTING – 10-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=34,282 sf 17.80% Impervious Runoff Depth=0.84"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.3 cfs 0.06 af

Subcatchment B: B Runoff Area=18,442 sf 5.96% Impervious Runoff Depth=1.01"
Flow Length=190' Tc=13.2 min CN=58 Runoff=0.2 cfs 0.04 af

Subcatchment C: C Runoff Area=29,181 sf 5.21% Impervious Runoff Depth=1.01"
Flow Length=244' Tc=14.7 min CN=58 Runoff=0.4 cfs 0.06 af

Subcatchment D: D Runoff Area=7,472 sf 5.85% Impervious Runoff Depth=0.09"
Flow Length=133' Tc=19.9 min CN=37 Runoff=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.15 af Average Runoff Depth = 0.87"
89.75% Pervious = 1.842 ac 10.25% Impervious = 0.210 ac

A – 1

10-YR STORM SUMMARY

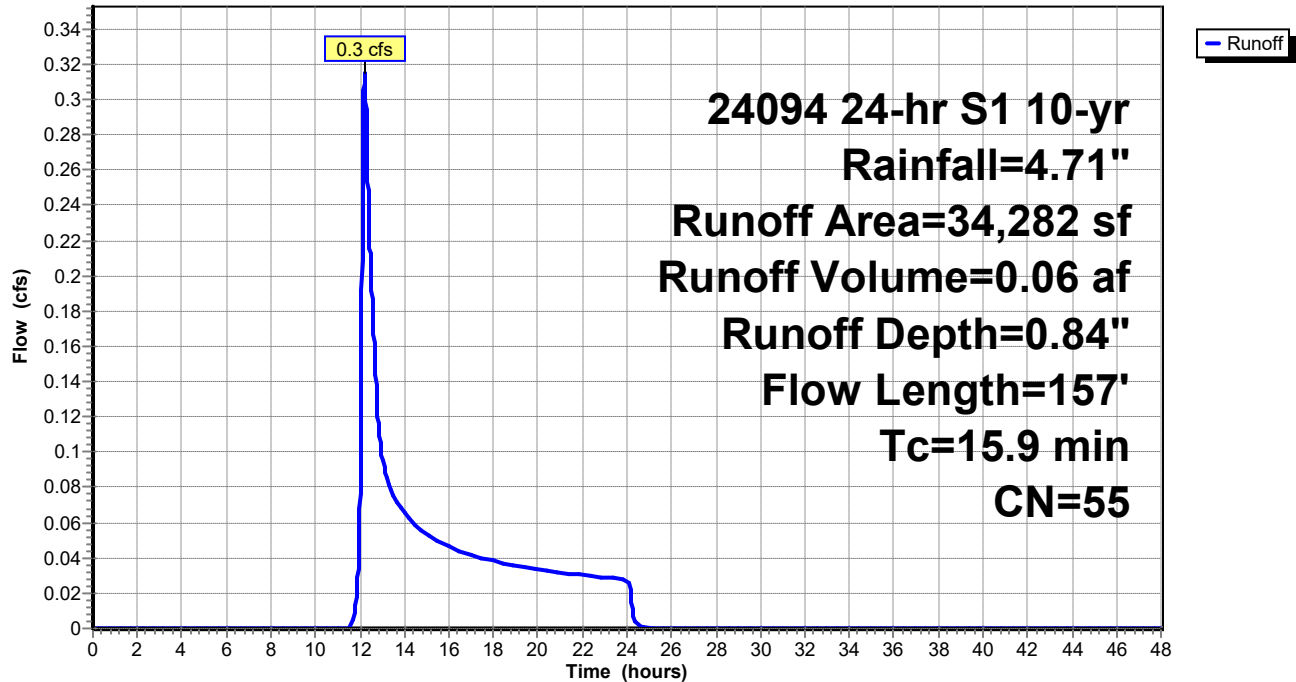
Summary for Subcatchment A: A

Runoff = 0.3 cfs @ 12.21 hrs, Volume= 0.06 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
6,295	30	Woods, Good, HSG A
12,753	39	>75% Grass cover, Good, HSG A
2,323	96	Gravel surface, HSG A
5,418	98	Paved parking, HSG A
800	55	Woods, Good, HSG B
3,302	61	>75% Grass cover, Good, HSG B
563	96	Gravel surface, HSG B
128	98	Paved parking, HSG B
556	98	Roofs, HSG B
2,044	30	Woods, Good, HSG A
100	39	>75% Grass cover, Good, HSG A
34,282	55	Weighted Average
28,180		82.20% Pervious Area
6,102		17.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	20	0.0300	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
4.5	38	0.0530	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
5.4	42	0.1130	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
0.9	57	0.0480	1.10		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.9	157	Total			

Subcatchment A: A**Hydrograph**

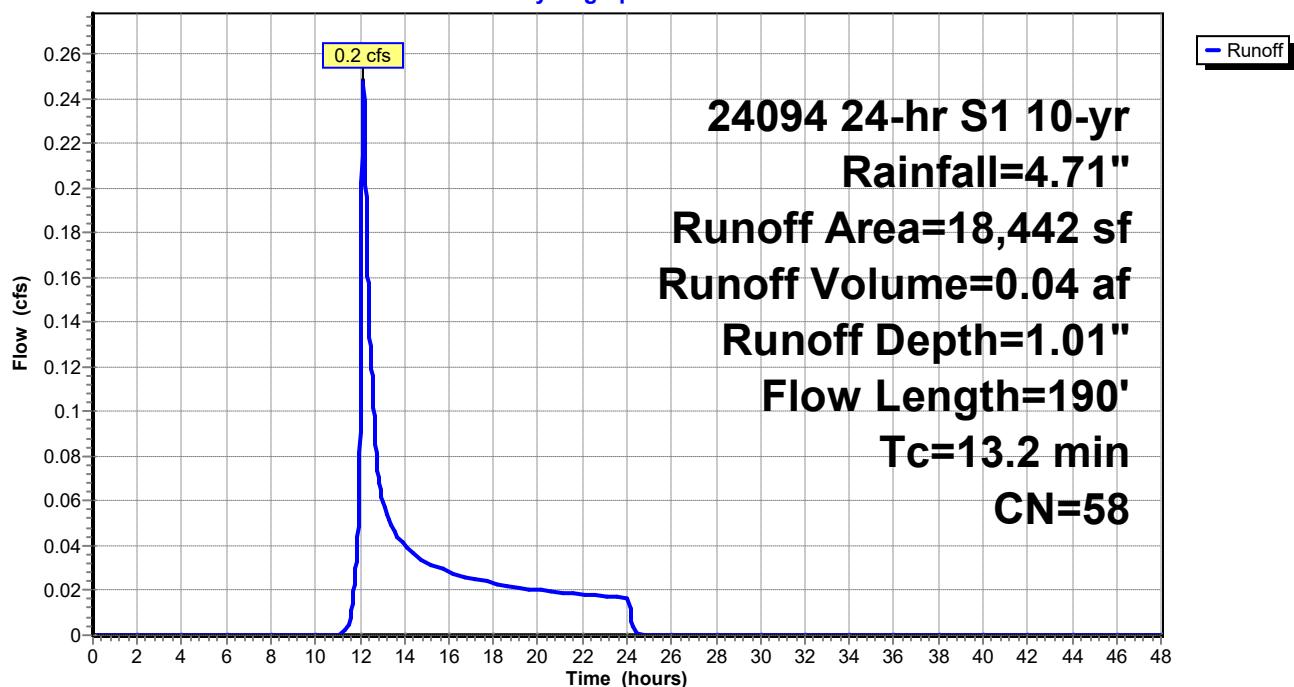
Summary for Subcatchment B: B

Runoff = 0.2 cfs @ 12.15 hrs, Volume= 0.04 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
13,244	55	Woods, Good, HSG B
2,840	61	>75% Grass cover, Good, HSG B
4	98	Paved parking, HSG B
1,096	98	Roofs, HSG B
1,258	55	Woods, Good, HSG B
18,442	58	Weighted Average
17,342		94.04% Pervious Area
1,100		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	100	0.0850	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
1.0	90	0.0900	1.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
13.2	190	Total			

Subcatchment B: B**Hydrograph**

Summary for Subcatchment C: C

Runoff = 0.4 cfs @ 12.17 hrs, Volume= 0.06 af, Depth= 1.01"

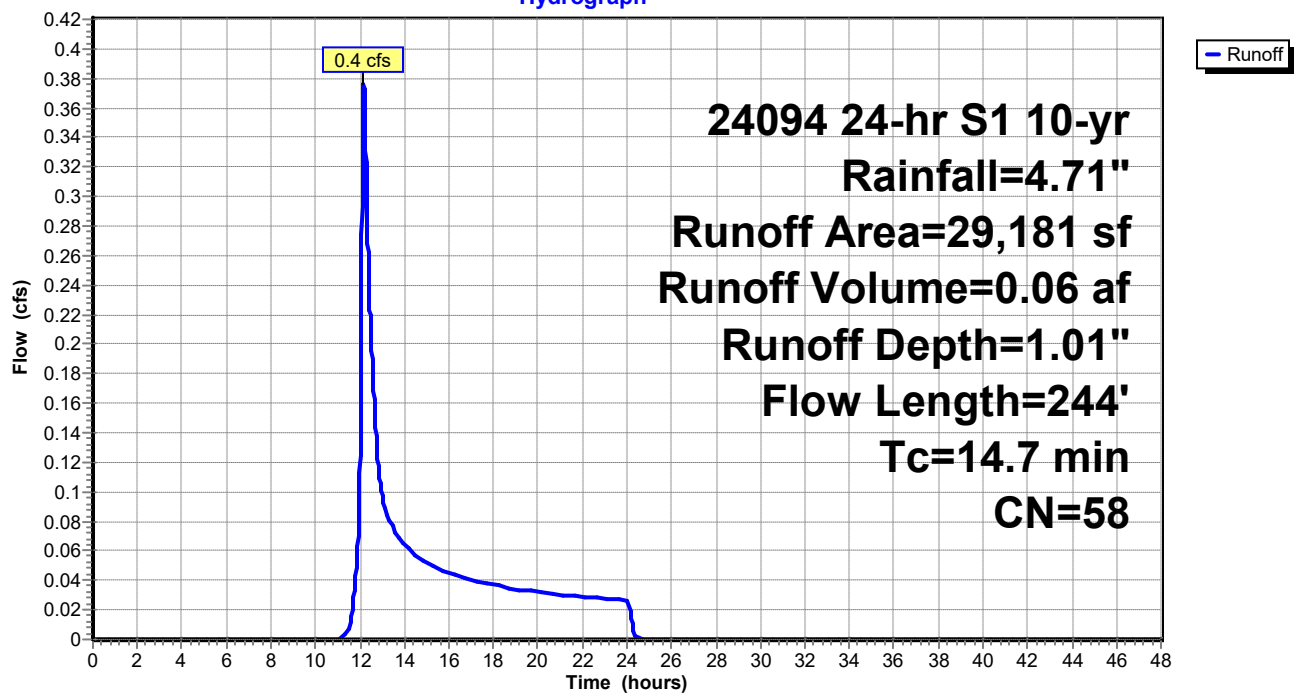
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
483	39	>75% Grass cover, Good, HSG A
133	98	Paved parking, HSG A
297	98	Roofs, HSG A
15,385	55	Woods, Good, HSG B
6,461	61	>75% Grass cover, Good, HSG B
465	98	Paved parking, HSG B
625	98	Roofs, HSG B
5,332	55	Woods, Good, HSG B
29,181	58	Weighted Average
27,661		94.79% Pervious Area
1,520		5.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	72	0.0350	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
3.8	28	0.1250	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
2.0	144	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.7	244	Total			

Subcatchment C: C

Hydrograph



Summary for Subcatchment D: D

Runoff = 0.0 cfs @ 23.77 hrs, Volume= 0.00 af, Depth= 0.09"

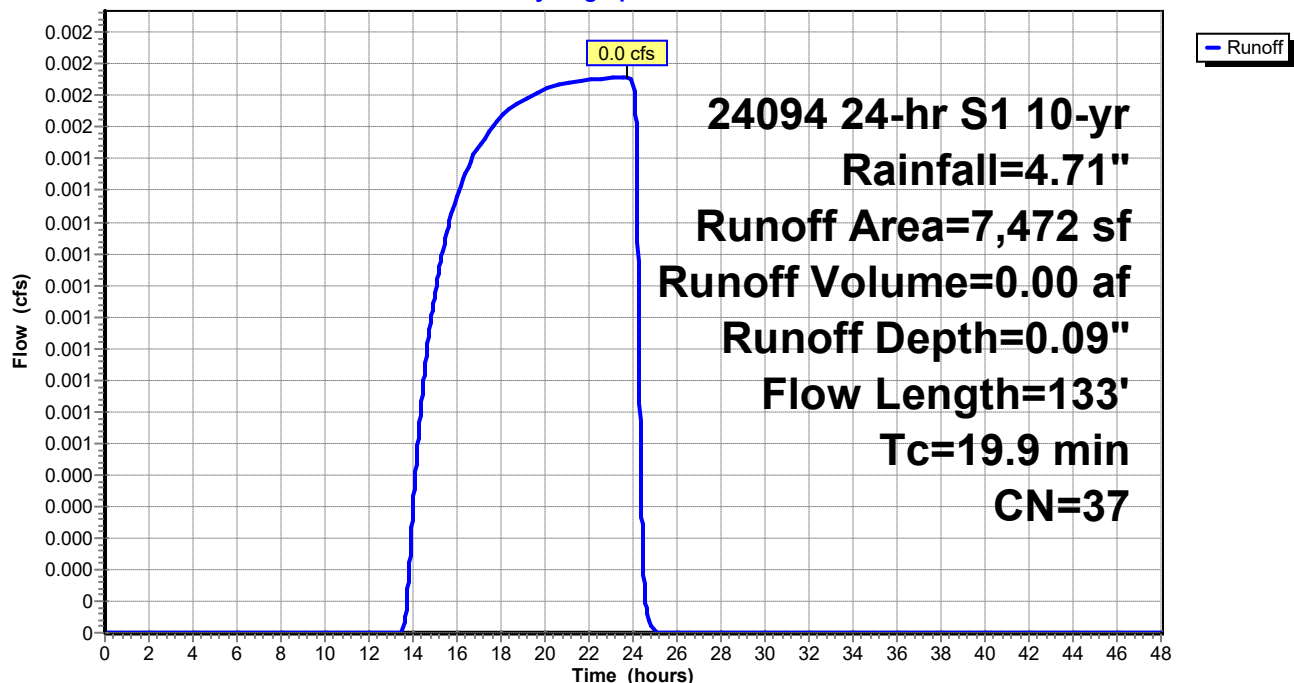
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
5,022	30	Woods, Good, HSG A
1,239	39	>75% Grass cover, Good, HSG A
437	98	Roofs, HSG A
289	55	Woods, Good, HSG B
19	61	>75% Grass cover, Good, HSG B
466	30	Woods, Good, HSG A
7,472	37	Weighted Average
7,035		94.15% Pervious Area
437		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	100	0.0280	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
0.9	33	0.0140	0.59		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
19.9	133	Total			

Subcatchment D: D

Hydrograph



A – 1

NODE LISTING – 25-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=34,282 sf 17.80% Impervious Runoff Depth=1.49"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.6 cfs 0.10 af

Subcatchment B: B Runoff Area=18,442 sf 5.96% Impervious Runoff Depth=1.73"
Flow Length=190' Tc=13.2 min CN=58 Runoff=0.5 cfs 0.06 af

Subcatchment C: C Runoff Area=29,181 sf 5.21% Impervious Runoff Depth=1.73"
Flow Length=244' Tc=14.7 min CN=58 Runoff=0.7 cfs 0.10 af

Subcatchment D: D Runoff Area=7,472 sf 5.85% Impervious Runoff Depth=0.33"
Flow Length=133' Tc=19.9 min CN=37 Runoff=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.26 af Average Runoff Depth = 1.52"
89.75% Pervious = 1.842 ac 10.25% Impervious = 0.210 ac

A – 1

NODE LISTING – 50-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=34,282 sf 17.80% Impervious Runoff Depth=2.19"
Flow Length=157' Tc=15.9 min CN=55 Runoff=1.0 cfs 0.14 af

Subcatchment B: B Runoff Area=18,442 sf 5.96% Impervious Runoff Depth=2.48"
Flow Length=190' Tc=13.2 min CN=58 Runoff=0.7 cfs 0.09 af

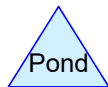
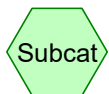
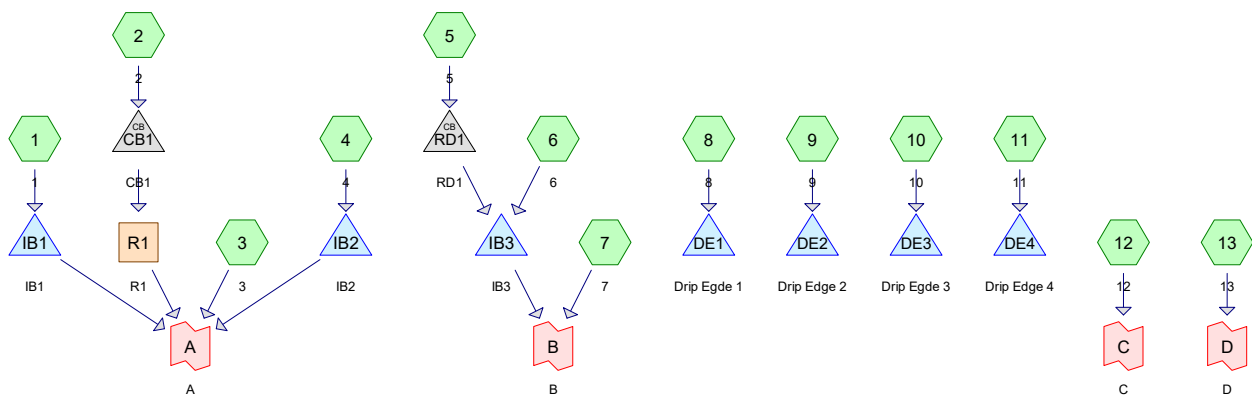
Subcatchment C: C Runoff Area=29,181 sf 5.21% Impervious Runoff Depth=2.48"
Flow Length=244' Tc=14.7 min CN=58 Runoff=1.0 cfs 0.14 af

Subcatchment D: D Runoff Area=7,472 sf 5.85% Impervious Runoff Depth=0.66"
Flow Length=133' Tc=19.9 min CN=37 Runoff=0.0 cfs 0.01 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.38 af Average Runoff Depth = 2.21"
89.75% Pervious = 1.842 ac 10.25% Impervious = 0.210 ac

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DEVELOPED WATERSHEDS



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.396	39	>75% Grass cover, Good, HSG A (1, 2, 3, 12, 13)
0.339	61	>75% Grass cover, Good, HSG B (1, 3, 4, 6, 7, 12, 13)
0.001	98	Bulkhead, HSG A (3, 12)
0.001	98	Bulkhead, HSG B (7, 12)
0.003	96	Deck, HSG A (12)
0.013	96	Deck, HSG B (3, 7, 12)
0.028	96	Gravel surface, HSG A (1, 8, 9)
0.006	96	Gravel surface, HSG B (1, 10, 11)
0.155	98	Paved parking, HSG A (1, 2, 3)
0.082	98	Paved parking, HSG B (1, 4, 6)
0.044	98	Roofs, HSG A (1, 4, 8, 9)
0.111	98	Roofs, HSG B (1, 4, 5, 6, 10, 11, 12)
0.223	30	Woods, Good, HSG A (2, 3, 12, 13)
0.649	55	Woods, Good, HSG B (3, 7, 12, 13)
2.052	59	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.850	HSG A	1, 2, 3, 4, 8, 9, 12, 13
1.202	HSG B	1, 3, 4, 5, 6, 7, 10, 11, 12, 13
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.052		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.396	0.339	0.000	0.000	0.000	0.735	>75% Grass cover, Good	1, 2, 3, 4, 6, 7, 12, 13
0.001	0.001	0.000	0.000	0.000	0.002	Bulkhead	3, 7, 12
0.003	0.013	0.000	0.000	0.000	0.017	Deck	3, 7, 12
0.028	0.006	0.000	0.000	0.000	0.034	Gravel surface	1, 8, 9, 10, 11
0.155	0.082	0.000	0.000	0.000	0.237	Paved parking	1, 2, 3, 4, 6
0.044	0.111	0.000	0.000	0.000	0.155	Roofs	1, 4, 5, 6, 8, 9, 10, 11, 12
0.223	0.649	0.000	0.000	0.000	0.872	Woods, Good	2, 3, 7, 12, 13
0.850	1.202	0.000	0.000	0.000	2.052	TOTAL AREA	

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NODE LISTING – 2-YR

24094 - Post

24094 24-hr S1 2-yr Rainfall=3.13"

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Page 1

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1	Runoff Area=11,794 sf 54.17% Impervious Runoff Depth=1.10" Flow Length=87' Tc=7.0 min CN=76 Runoff=0.3 cfs 0.02 af
Subcatchment 2: 2	Runoff Area=3,867 sf 33.41% Impervious Runoff Depth=0.32" Flow Length=48' Slope=0.0250 '/' Tc=7.3 min CN=58 Runoff=0.0 cfs 0.00 af
Subcatchment 3: 3	Runoff Area=14,810 sf 16.77% Impervious Runoff Depth=0.08" Flow Length=125' Tc=12.3 min CN=48 Runoff=0.0 cfs 0.00 af
Subcatchment 4: 4	Runoff Area=4,836 sf 72.77% Impervious Runoff Depth=1.93" Flow Length=52' Tc=4.1 min CN=88 Runoff=0.3 cfs 0.02 af
Subcatchment 5: 5	Runoff Area=646 sf 100.00% Impervious Runoff Depth=2.90" Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.00 af
Subcatchment 6: 6	Runoff Area=4,003 sf 36.55% Impervious Runoff Depth=1.05" Flow Length=60' Tc=5.9 min CN=75 Runoff=0.1 cfs 0.01 af
Subcatchment 7: 7	Runoff Area=12,864 sf 0.19% Impervious Runoff Depth=0.29" Flow Length=90' Tc=11.3 min CN=57 Runoff=0.0 cfs 0.01 af
Subcatchment 8: 8	Runoff Area=541 sf 74.12% Impervious Runoff Depth=2.79" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 9: 9	Runoff Area=368 sf 66.58% Impervious Runoff Depth=2.79" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 10: 10	Runoff Area=541 sf 74.12% Impervious Runoff Depth=2.79" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 11: 11	Runoff Area=368 sf 66.58% Impervious Runoff Depth=2.79" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 12: 12	Runoff Area=31,054 sf 0.26% Impervious Runoff Depth=0.20" Flow Length=384' Tc=16.0 min CN=54 Runoff=0.0 cfs 0.01 af
Subcatchment 13: 13	Runoff Area=3,688 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=122' Tc=17.4 min CN=33 Runoff=0.0 cfs 0.00 af
Reach R1: R1	Avg. Flow Depth=0.02' Max Vel=0.43 fps Inflow=0.0 cfs 0.00 af n=0.025 L=40.0' S=0.0100 '/' Capacity=15.9 cfs Outflow=0.0 cfs 0.00 af
Pond CB1: CB1	Peak Elev=179.05' Inflow=0.0 cfs 0.00 af 15.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=0.0 cfs 0.00 af
Pond DE1: Drip Egde 1	Peak Elev=181.83' Storage=13 cf Inflow=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

24094 - Post

24094 24-hr S1 2-yr Rainfall=3.13"

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Pond DE2: Drip Edge 2 Peak Elev=181.70' Storage=7 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE3: Drip Edge 3 Peak Elev=181.83' Storage=13 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE4: Drip Edge 4 Peak Elev=181.70' Storage=7 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond IB1: IB1 Peak Elev=179.95' Storage=209 cf Inflow=0.3 cfs 0.02 af
Discarded=0.1 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.02 af

Pond IB2: IB2 Peak Elev=181.72' Storage=204 cf Inflow=0.3 cfs 0.02 af
Discarded=0.0 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.02 af

Pond IB3: IB3 Peak Elev=174.62' Storage=68 cf Inflow=0.1 cfs 0.01 af
Discarded=0.0 cfs 0.01 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.01 af

Pond RD1: RD1 Peak Elev=174.86' Inflow=0.1 cfs 0.00 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.00 af

Link A: A Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af

Link B: B Inflow=0.0 cfs 0.01 af
Primary=0.0 cfs 0.01 af

Link C: C Inflow=0.0 cfs 0.01 af
Primary=0.0 cfs 0.01 af

Link D: D Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.09 af Average Runoff Depth = 0.51"
80.77% Pervious = 1.657 ac 19.23% Impervious = 0.395 ac

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NODE LISTING – 10-YR

24094 - Post

24094 24-hr S1 10-yr Rainfall=4.71"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1	Runoff Area=11,794 sf 54.17% Impervious Runoff Depth=2.30" Flow Length=87' Tc=7.0 min CN=76 Runoff=0.6 cfs 0.05 af
Subcatchment 2: 2	Runoff Area=3,867 sf 33.41% Impervious Runoff Depth=1.01" Flow Length=48' Slope=0.0250 '/' Tc=7.3 min CN=58 Runoff=0.1 cfs 0.01 af
Subcatchment 3: 3	Runoff Area=14,810 sf 16.77% Impervious Runoff Depth=0.48" Flow Length=125' Tc=12.3 min CN=48 Runoff=0.0 cfs 0.01 af
Subcatchment 4: 4	Runoff Area=4,836 sf 72.77% Impervious Runoff Depth=3.39" Flow Length=52' Tc=4.1 min CN=88 Runoff=0.4 cfs 0.03 af
Subcatchment 5: 5	Runoff Area=646 sf 100.00% Impervious Runoff Depth=4.47" Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af
Subcatchment 6: 6	Runoff Area=4,003 sf 36.55% Impervious Runoff Depth=2.22" Flow Length=60' Tc=5.9 min CN=75 Runoff=0.2 cfs 0.02 af
Subcatchment 7: 7	Runoff Area=12,864 sf 0.19% Impervious Runoff Depth=0.95" Flow Length=90' Tc=11.3 min CN=57 Runoff=0.2 cfs 0.02 af
Subcatchment 8: 8	Runoff Area=541 sf 74.12% Impervious Runoff Depth=4.36" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af
Subcatchment 9: 9	Runoff Area=368 sf 66.58% Impervious Runoff Depth=4.36" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 10: 10	Runoff Area=541 sf 74.12% Impervious Runoff Depth=4.36" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af
Subcatchment 11: 11	Runoff Area=368 sf 66.58% Impervious Runoff Depth=4.36" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 12: 12	Runoff Area=31,054 sf 0.26% Impervious Runoff Depth=0.78" Flow Length=384' Tc=16.0 min CN=54 Runoff=0.3 cfs 0.05 af
Subcatchment 13: 13	Runoff Area=3,688 sf 0.00% Impervious Runoff Depth=0.02" Flow Length=122' Tc=17.4 min CN=33 Runoff=0.0 cfs 0.00 af
Reach R1: R1	Avg. Flow Depth=0.06' Max Vel=0.86 fps Inflow=0.1 cfs 0.01 af n=0.025 L=40.0' S=0.0100 '/' Capacity=15.9 cfs Outflow=0.1 cfs 0.01 af
Pond CB1: CB1	Peak Elev=179.12' Inflow=0.1 cfs 0.01 af 15.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=0.1 cfs 0.01 af
Pond DE1: Drip Egde 1	Peak Elev=182.11' Storage=24 cf Inflow=0.1 cfs 0.00 af Outflow=0.0 cfs 0.00 af

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Pond DE2: Drip Edge 2	Peak Elev=181.86' Storage=13 cf Inflow=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond DE3: Drip Edge 3	Peak Elev=182.11' Storage=24 cf Inflow=0.1 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond DE4: Drip Edge 4	Peak Elev=181.86' Storage=13 cf Inflow=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond IB1: IB1	Peak Elev=180.40' Storage=530 cf Inflow=0.6 cfs 0.05 af Discarded=0.1 cfs 0.05 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.05 af
Pond IB2: IB2	Peak Elev=182.03' Storage=328 cf Inflow=0.4 cfs 0.03 af Discarded=0.1 cfs 0.03 af Primary=0.1 cfs 0.00 af Outflow=0.1 cfs 0.03 af
Pond IB3: IB3	Peak Elev=174.96' Storage=192 cf Inflow=0.2 cfs 0.02 af Discarded=0.0 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.02 af
Pond RD1: RD1	Peak Elev=174.96' Inflow=0.1 cfs 0.01 af 6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.01 af
Link A: A	Inflow=0.2 cfs 0.02 af Primary=0.2 cfs 0.02 af
Link B: B	Inflow=0.2 cfs 0.02 af Primary=0.2 cfs 0.02 af
Link C: C	Inflow=0.3 cfs 0.05 af Primary=0.3 cfs 0.05 af
Link D: D	Inflow=0.0 cfs 0.00 af Primary=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.21 af Average Runoff Depth = 1.24"
80.77% Pervious = 1.657 ac 19.23% Impervious = 0.395 ac

A – 2

10-YR STORM SUMMARY

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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 1: 1

Runoff = 0.6 cfs @ 12.05 hrs, Volume= 0.05 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
4,180	39	>75% Grass cover, Good, HSG A
942	96	Gravel surface, HSG A
2,982	98	Paved parking, HSG A
984	98	Roofs, HSG A
282	61	>75% Grass cover, Good, HSG B
1	96	Gravel surface, HSG B
1,747	98	Paved parking, HSG B
676	98	Roofs, HSG B
11,794	76	Weighted Average
5,405		45.83% Pervious Area
6,389		54.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	47	0.0300	0.12		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
0.1	20	0.0220	3.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	20	0.0880	2.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.0	87	Total			

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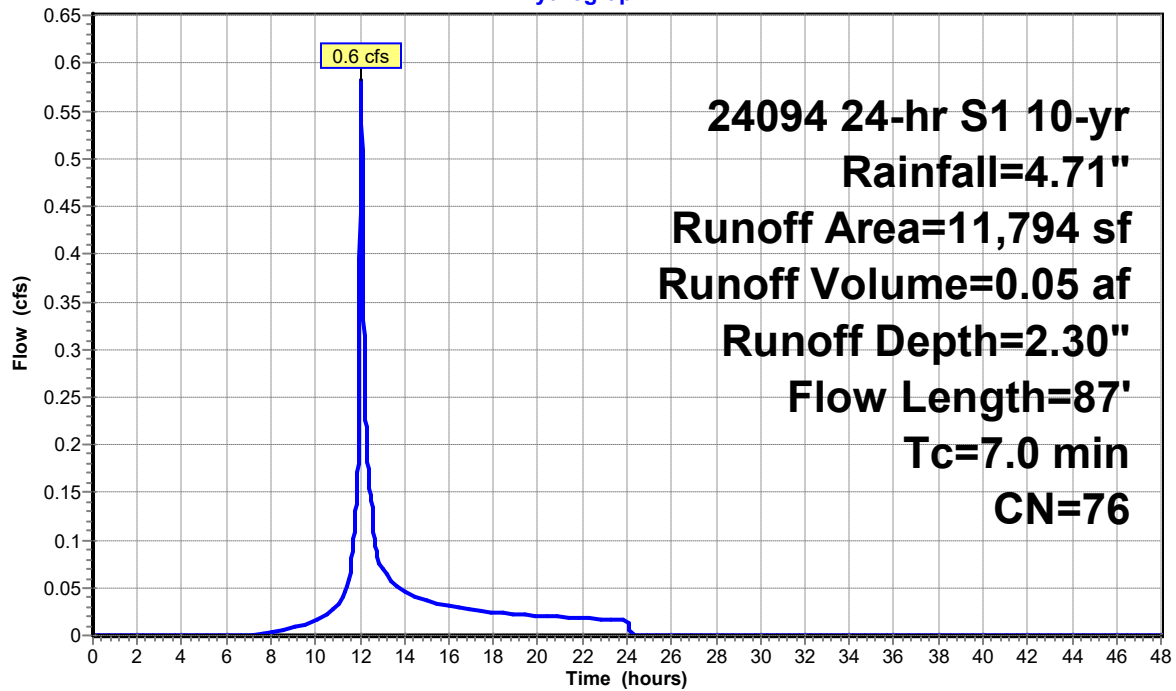
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24094 24-hr S1 10-yr Rainfall=4.71"

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Subcatchment 1: 1

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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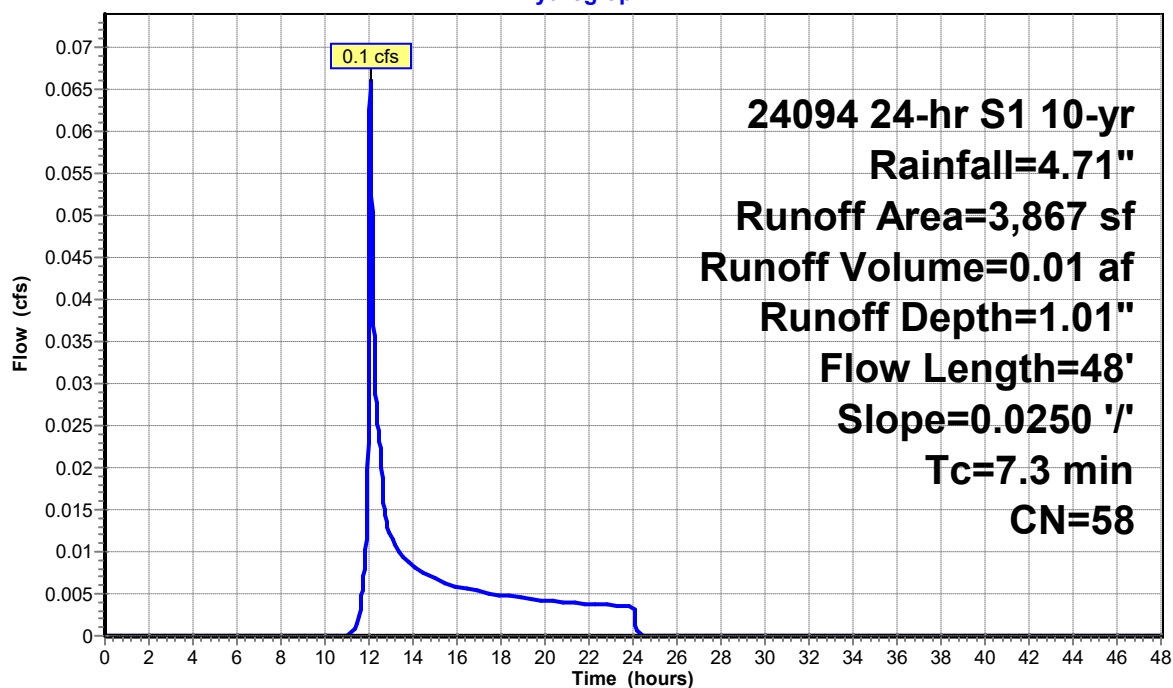
Summary for Subcatchment 2: 2

Runoff = 0.1 cfs @ 12.06 hrs, Volume= 0.01 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
251	30	Woods, Good, HSG A
2,324	39	>75% Grass cover, Good, HSG A
1,292	98	Paved parking, HSG A
3,867	58	Weighted Average
2,575		66.59% Pervious Area
1,292		33.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	48	0.0250	0.11		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"

Subcatchment 2: 2**Hydrograph**

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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 3: 3

Runoff = 0.0 cfs @ 12.26 hrs, Volume= 0.01 af, Depth= 0.48"

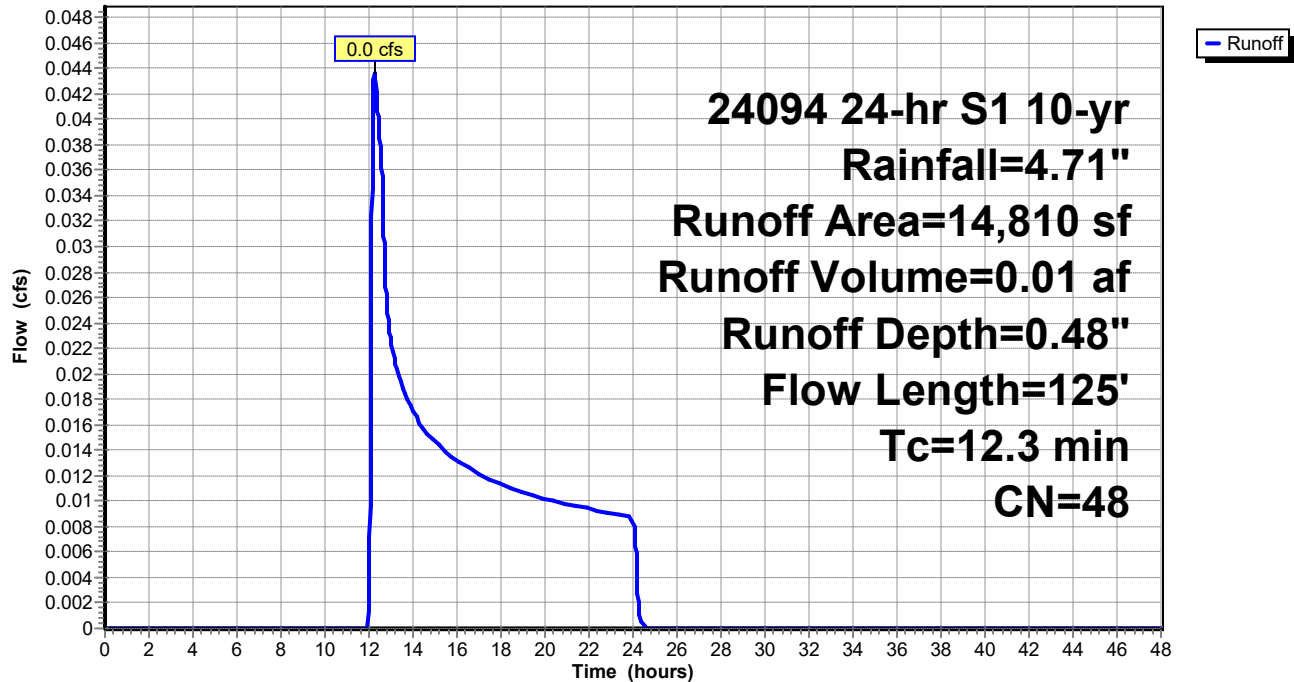
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
3,954	30	Woods, Good, HSG A
4,590	39	>75% Grass cover, Good, HSG A
2,460	98	Paved parking, HSG A
* 24	98	Bulkhead, HSG A
414	55	Woods, Good, HSG B
1,080	61	>75% Grass cover, Good, HSG B
* 144	96	Deck, HSG B
2,044	30	Woods, Good, HSG A
100	39	>75% Grass cover, Good, HSG A
14,810	48	Weighted Average
12,326		83.23% Pervious Area
2,484		16.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	25	0.1400	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
9.8	75	0.0830	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
0.3	25	0.0700	1.32		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.3	125	Total			

Subcatchment 3: 3

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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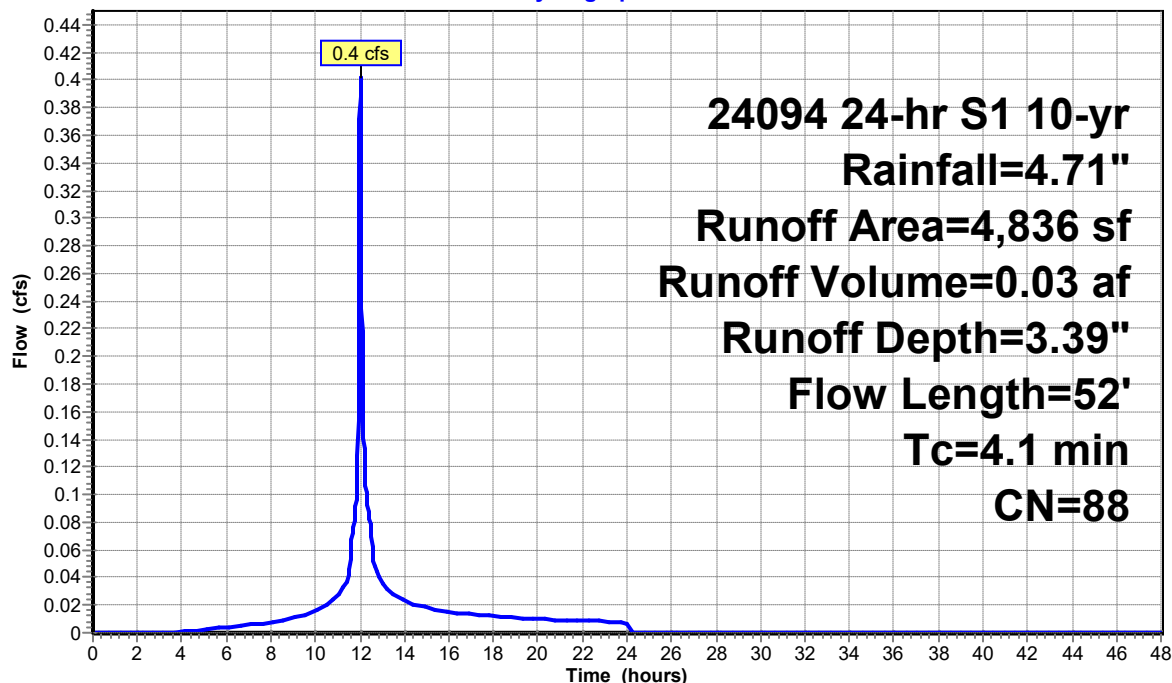
Summary for Subcatchment 4: 4

Runoff = 0.4 cfs @ 12.02 hrs, Volume= 0.03 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
283	98	Roofs, HSG A
1,317	61	>75% Grass cover, Good, HSG B
1,366	98	Paved parking, HSG B
1,870	98	Roofs, HSG B
4,836	88	Weighted Average
1,317		27.23% Pervious Area
3,519		72.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	19	0.0200	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
0.2	28	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	5	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
4.1	52	Total			

Subcatchment 4: 4**Hydrograph**

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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 5: 5

Runoff = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af, Depth= 4.47"

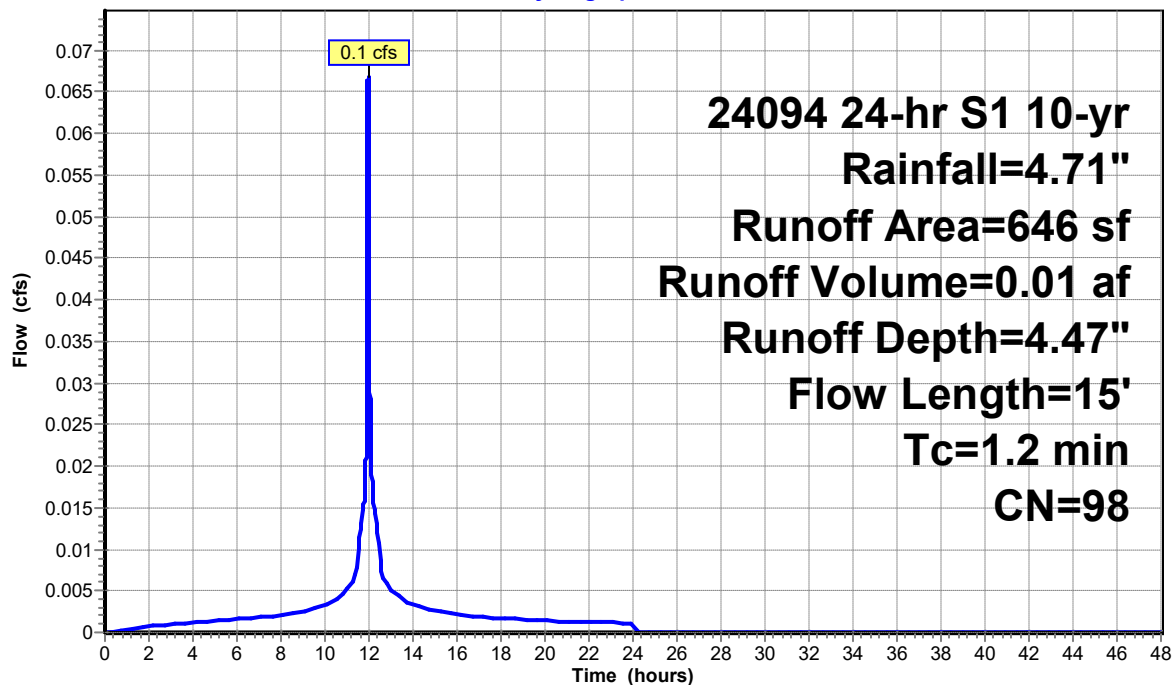
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
646	98	Roofs, HSG B
646		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		Direct Entry, Roof

Subcatchment 5: 5

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 6: 6

Runoff = 0.2 cfs @ 12.04 hrs, Volume= 0.02 af, Depth= 2.22"

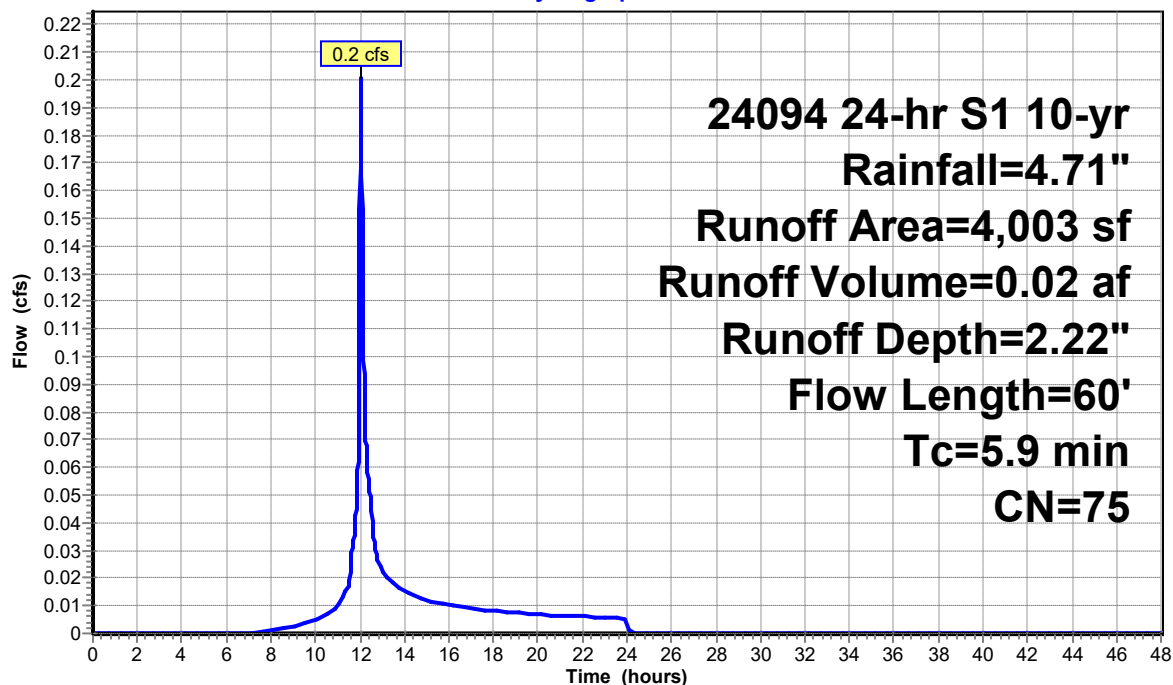
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
2,540	61	>75% Grass cover, Good, HSG B
479	98	Paved parking, HSG B
984	98	Roofs, HSG B
4,003	75	Weighted Average
2,540		63.45% Pervious Area
1,463		36.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	30	0.0470	0.13		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
2.0	30	0.2530	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
5.9	60	Total			

Subcatchment 6: 6

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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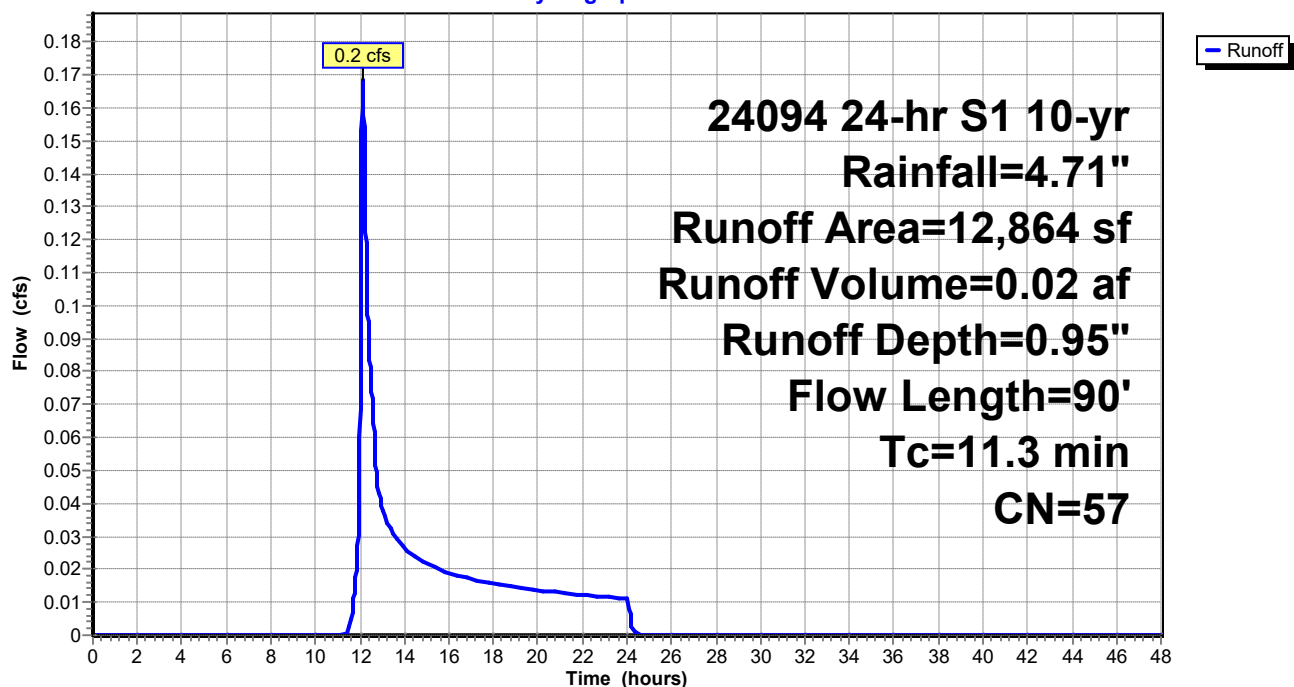
Summary for Subcatchment 7: 7

Runoff = 0.2 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
8,559	55	Woods, Good, HSG B
2,735	61	>75% Grass cover, Good, HSG B
* 288	96	Deck, HSG B
* 24	98	Bulkhead, HSG B
1,258	55	Woods, Good, HSG B
12,864	57	Weighted Average
12,840		99.81% Pervious Area
24		0.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	5	0.0500	0.09		Sheet Flow, Grass: Dense n= 0.240 P2= 3.13"
10.4	85	0.0900	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
11.3	90	Total			

Subcatchment 7: 7**Hydrograph**

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Summary for Subcatchment 8: 8

Runoff = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

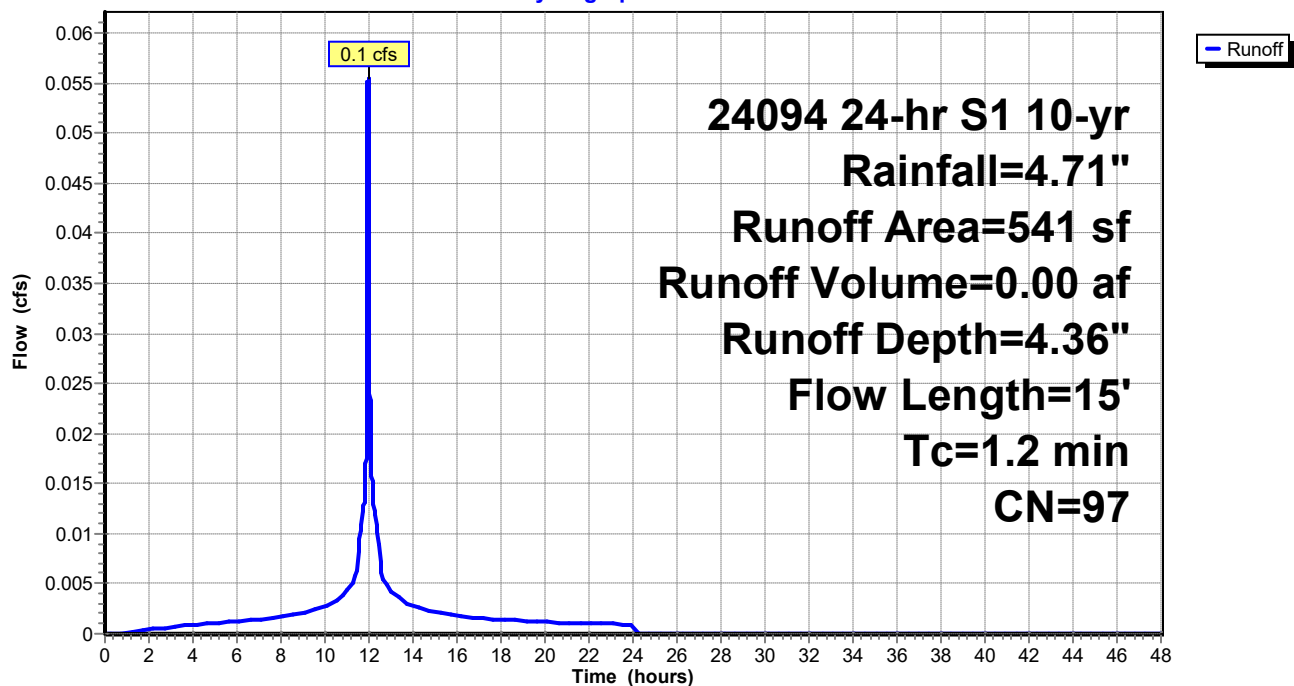
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
140	96	Gravel surface, HSG A
401	98	Roofs, HSG A
541	97	Weighted Average
140		25.88% Pervious Area
401		74.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		Direct Entry, Roof

Subcatchment 8: 8

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 9: 9

Runoff = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

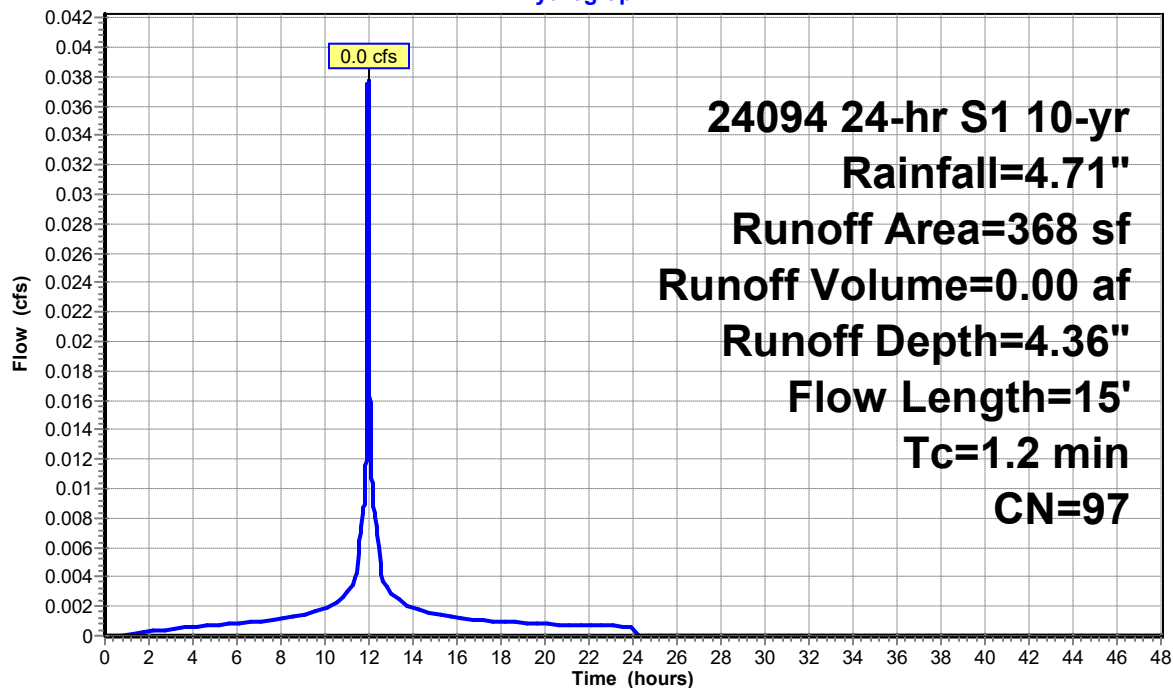
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
123	96	Gravel surface, HSG A
245	98	Roofs, HSG A
368	97	Weighted Average
123		33.42% Pervious Area
245		66.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		Direct Entry, Roof

Subcatchment 9: 9

Hydrograph



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24094 24-hr S1 10-yr Rainfall=4.71"

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Summary for Subcatchment 10: 10

Runoff = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

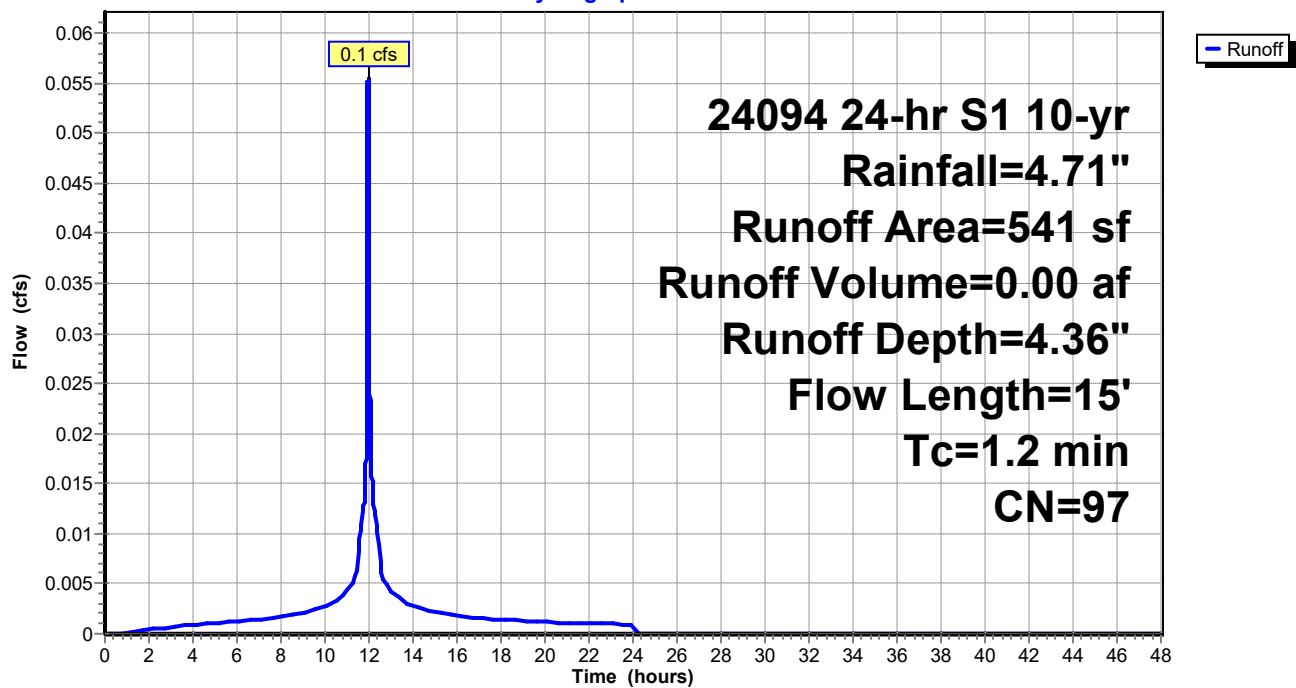
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
140	96	Gravel surface, HSG B
401	98	Roofs, HSG B
541	97	Weighted Average
140		25.88% Pervious Area
401		74.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		Direct Entry, Roof

Subcatchment 10: 10

Hydrograph



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Summary for Subcatchment 11: 11

Runoff = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

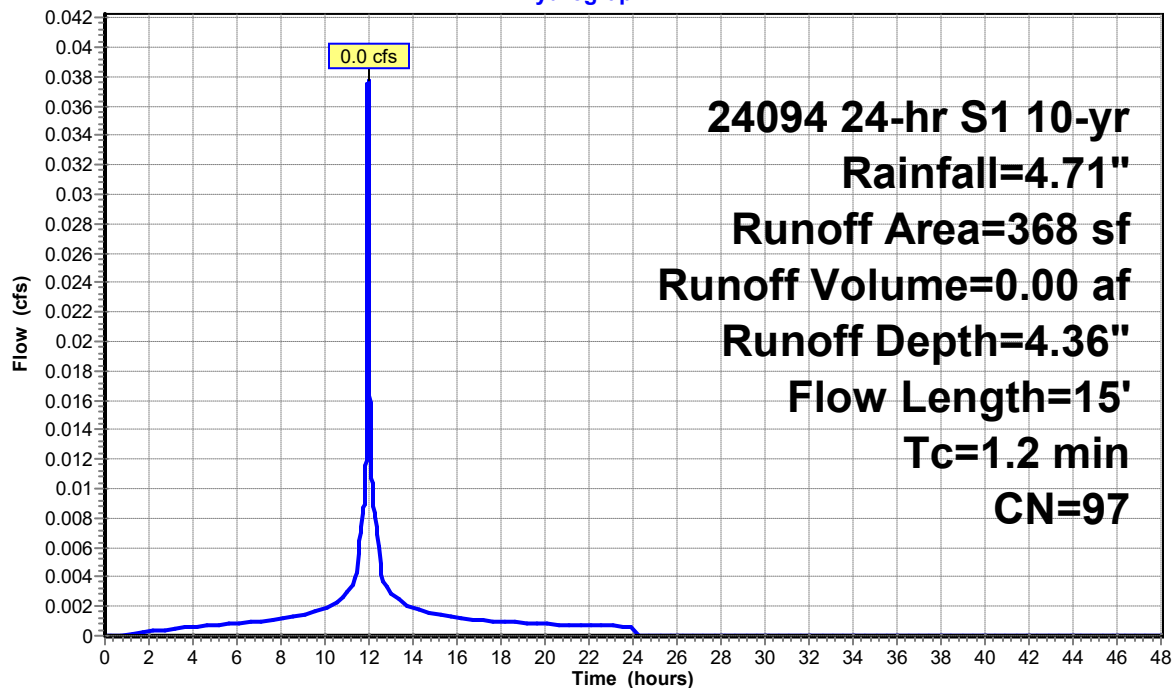
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
123	96	Gravel surface, HSG B
245	98	Roofs, HSG B
368	97	Weighted Average
123		33.42% Pervious Area
245		66.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		Direct Entry, Roof

Subcatchment 11: 11

Hydrograph



Summary for Subcatchment 12: 12

Runoff = 0.3 cfs @ 12.21 hrs, Volume= 0.05 af, Depth= 0.78"

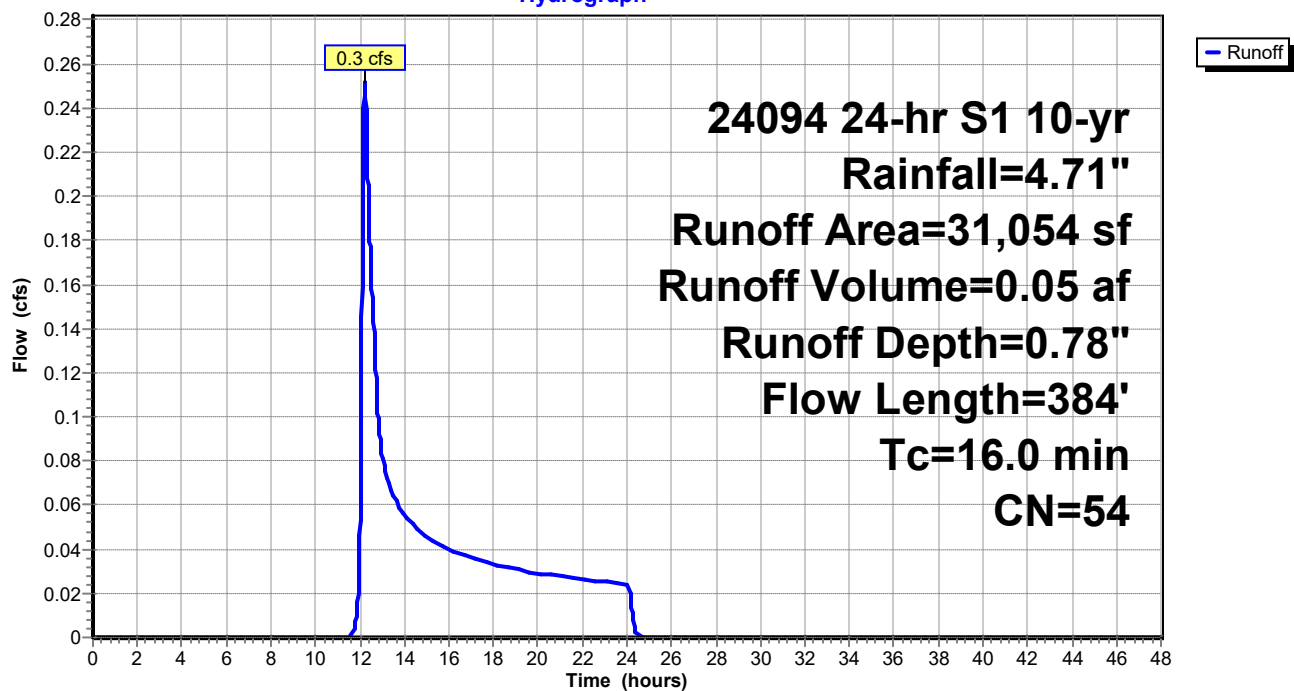
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
234	30	Woods, Good, HSG A
5,934	39	>75% Grass cover, Good, HSG A
* 144	96	Deck, HSG A
* 24	98	Bulkhead, HSG A
12,420	55	Woods, Good, HSG B
6,766	61	>75% Grass cover, Good, HSG B
* 144	96	Deck, HSG B
* 24	98	Bulkhead, HSG B
32	98	Roofs, HSG B
5,332	55	Woods, Good, HSG B
31,054	54	Weighted Average
30,974		99.74% Pervious Area
80		0.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0140	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.13"
2.5	122	0.0140	0.83		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	162	0.0680	1.30		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.0	384	Total			

Subcatchment 12: 12

Hydrograph



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Summary for Subcatchment 13: 13

Runoff = 0.0 cfs @ 24.03 hrs, Volume= 0.00 af, Depth= 0.02"

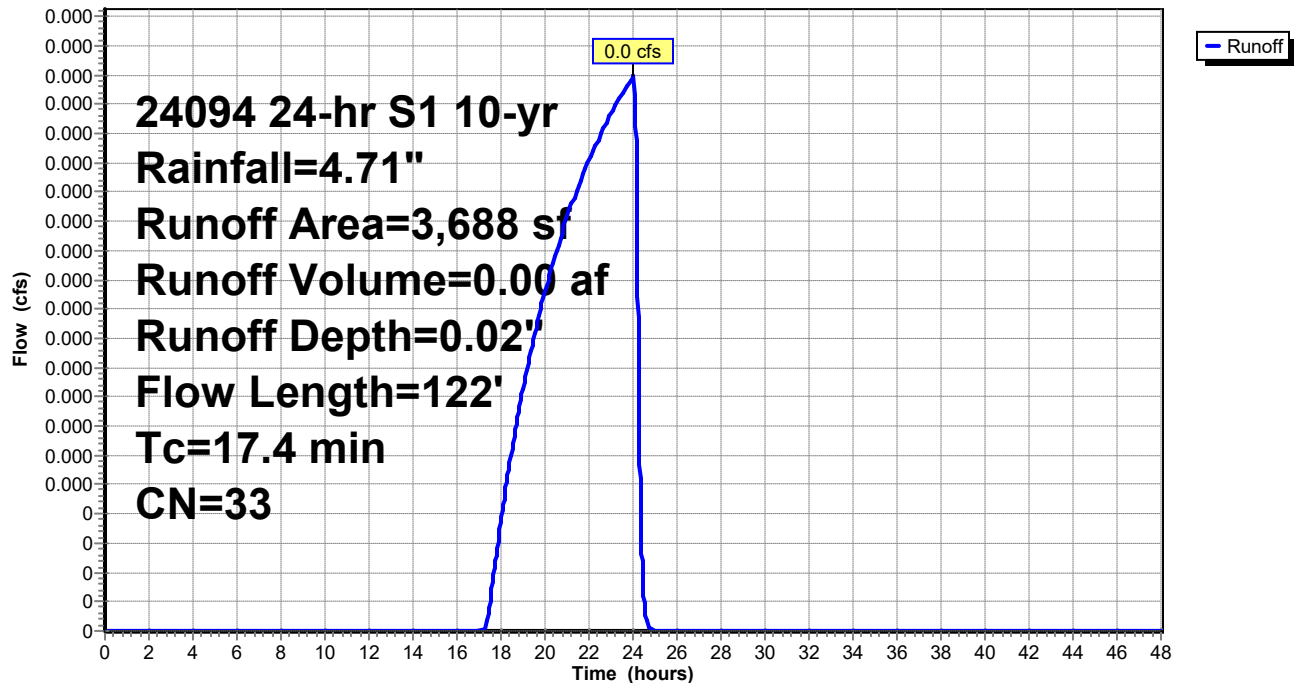
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
2,759	30	Woods, Good, HSG A
132	39	>75% Grass cover, Good, HSG A
289	55	Woods, Good, HSG B
42	61	>75% Grass cover, Good, HSG B
466	30	Woods, Good, HSG A
3,688	33	Weighted Average
3,688		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	100	0.0380	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.13"
0.6	22	0.0140	0.59		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
17.4	122	Total			

Subcatchment 13: 13

Hydrograph



Summary for Reach R1: R1

Inflow Area = 0.089 ac, 33.41% Impervious, Inflow Depth = 1.01" for 10-yr event
Inflow = 0.1 cfs @ 12.06 hrs, Volume= 0.01 af
Outflow = 0.1 cfs @ 12.07 hrs, Volume= 0.01 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 0.86 fps, Min. Travel Time= 0.8 min

Avg. Velocity= 0.37 fps, Avg. Travel Time= 1.8 min

Peak Storage= 3 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.06', Surface Width= 1.38'

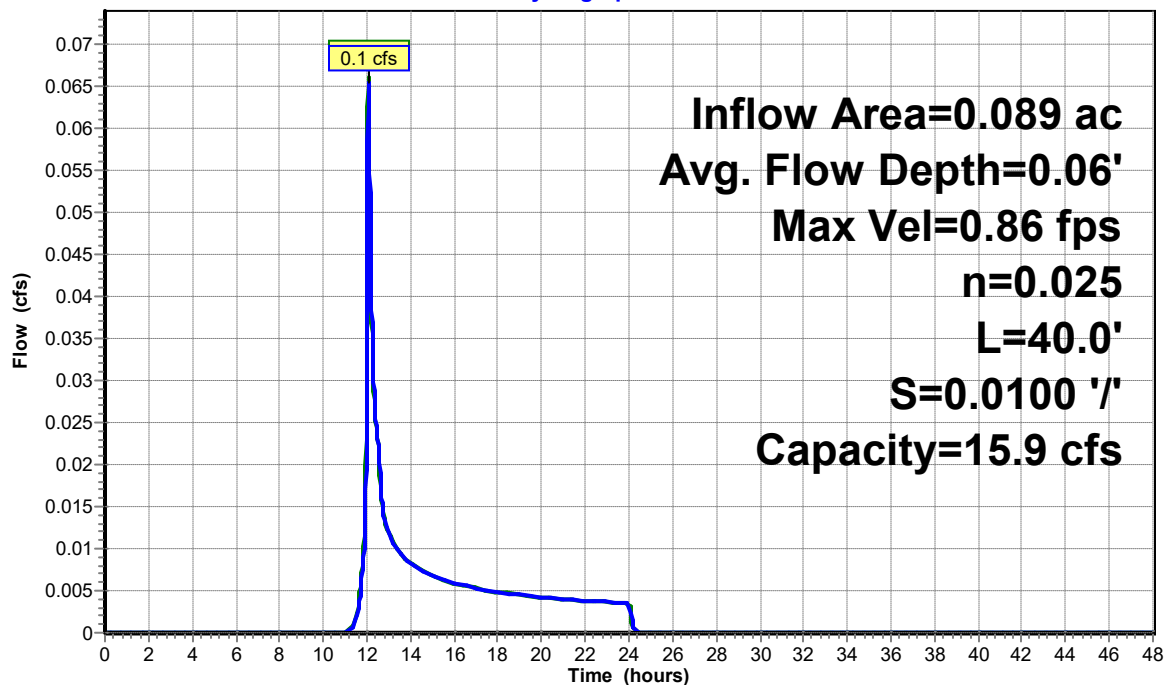
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.9 cfs

1.00' x 1.00' deep channel, n= 0.025 Earth, clean & straight

Side Slope Z-value= 3.0 ' ' Top Width= 7.00'

Length= 40.0' Slope= 0.0100 ' '

Inlet Invert= 178.40', Outlet Invert= 178.00'

**Reach R1: R1****Hydrograph**

Summary for Pond CB1: CB1

Inflow Area = 0.089 ac, 33.41% Impervious, Inflow Depth = 1.01" for 10-yr event
 Inflow = 0.1 cfs @ 12.06 hrs, Volume= 0.01 af
 Outflow = 0.1 cfs @ 12.06 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.1 cfs @ 12.06 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 179.12' @ 12.06 hrs

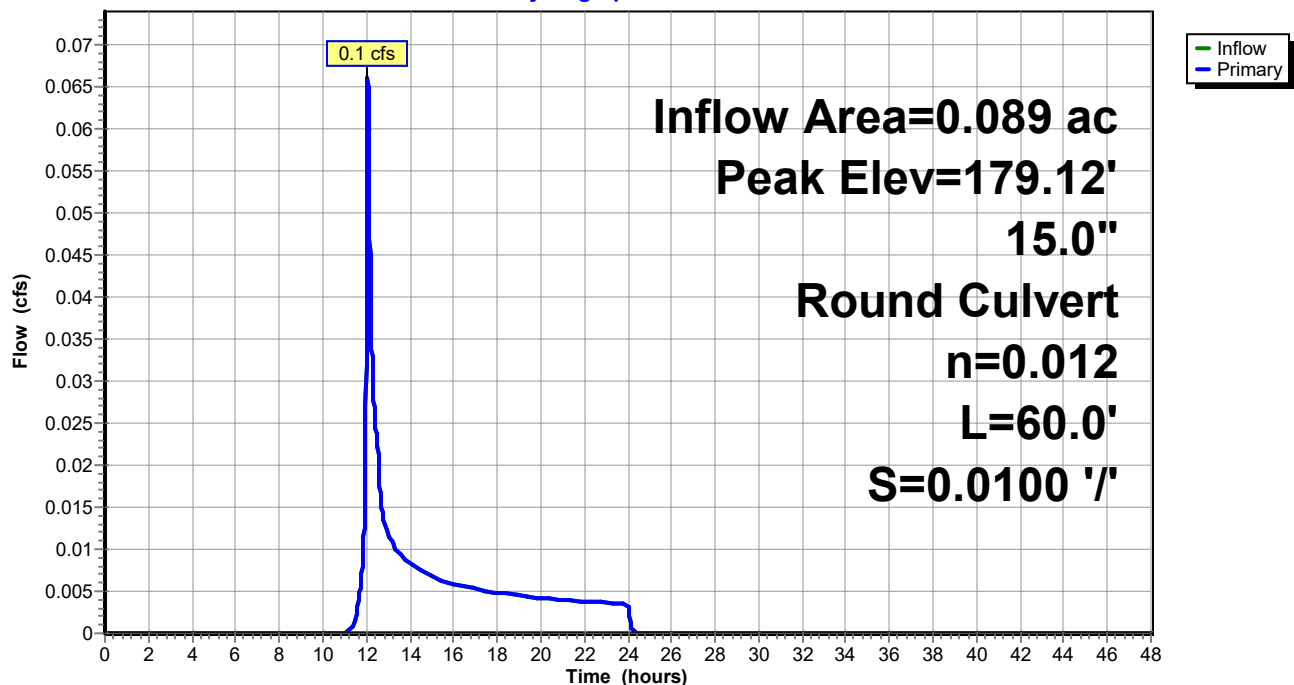
Flood Elev= 181.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	179.00'	15.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 179.00' / 178.40' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.1 cfs @ 12.06 hrs HW=179.12' TW=178.46' (Dynamic Tailwater)
 ↑ **1=Culvert** (Barrel Controls 0.1 cfs @ 1.75 fps)

Pond CB1: CB1

Hydrograph



Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 4.36" for 10-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af, Atten= 79%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af

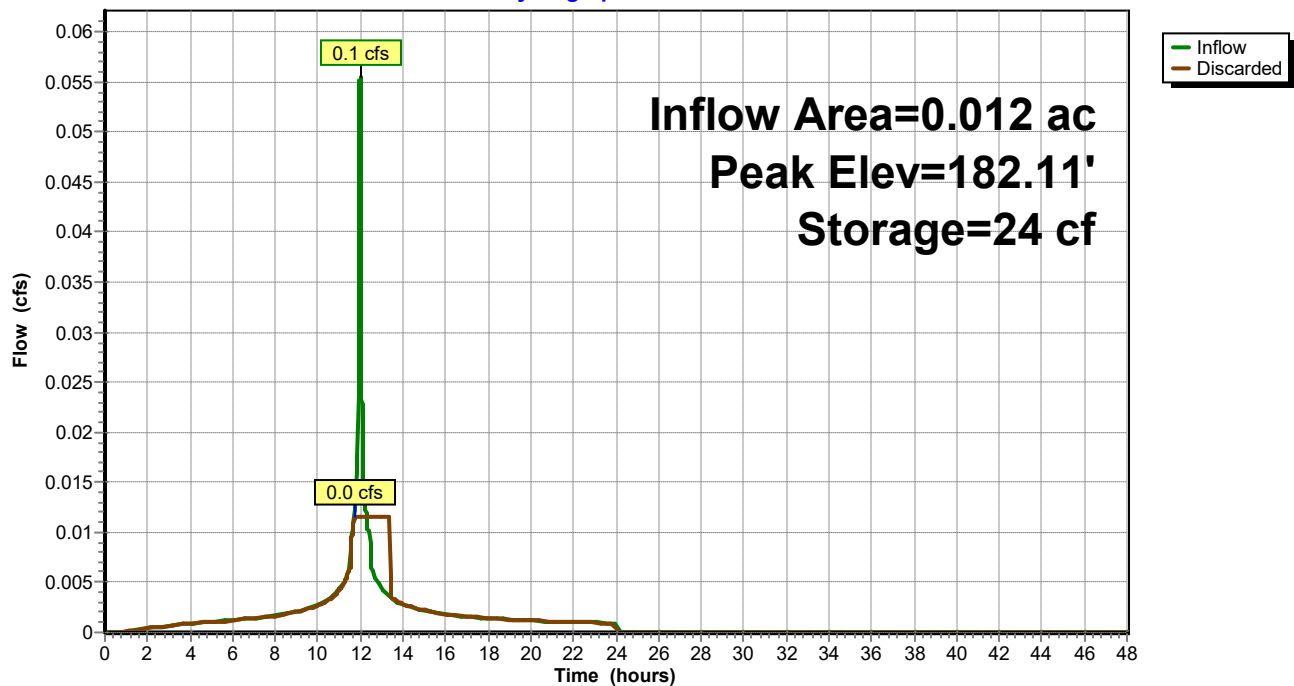
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 182.11' @ 12.31 hrs Surf.Area= 100 sf Storage= 24 cf
 Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 7.7 min calculated for 0.00 af (100% of inflow)
 Center-of-Mass det. time= 7.7 min (764.4 - 756.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices	
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area	Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.77 hrs HW=181.52' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE1: Drip Egde 1**Hydrograph**

Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 4.36" for 10-yr event
 Inflow = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.86 hrs, Volume= 0.00 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.86 hrs, Volume= 0.00 af

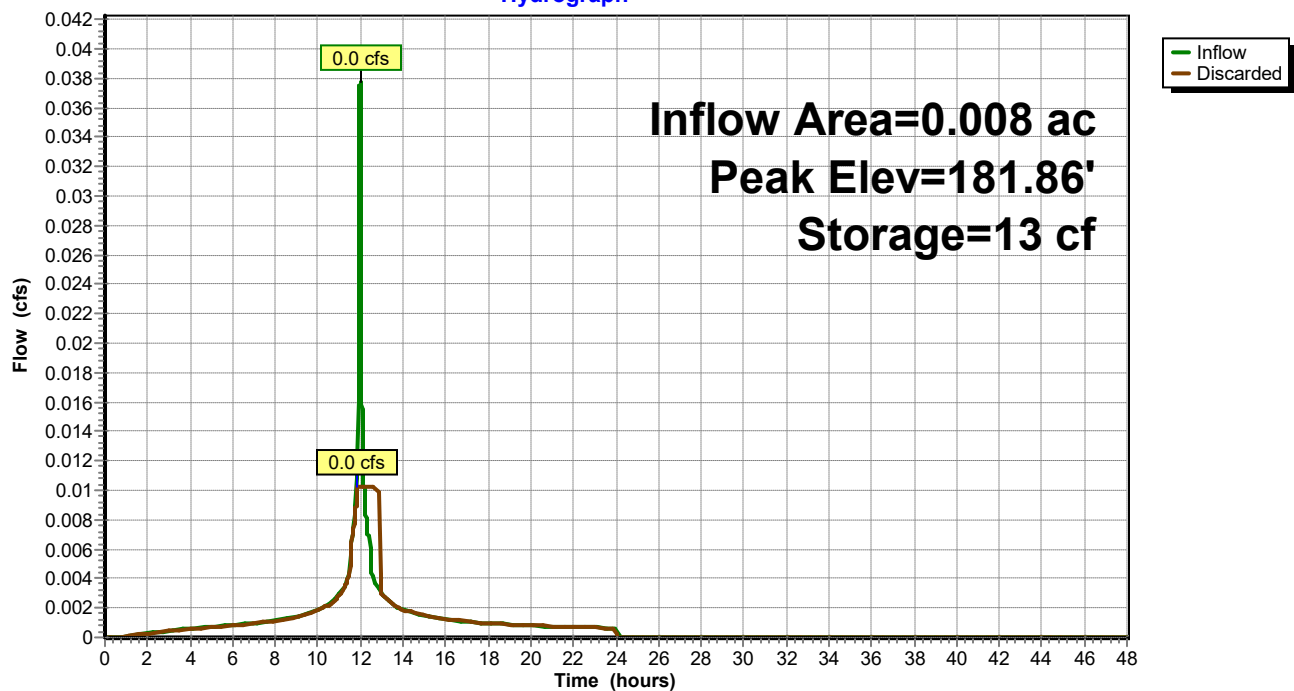
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 181.86' @ 12.15 hrs Surf.Area= 88 sf Storage= 13 cf
 Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 4.2 min calculated for 0.00 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (760.9 - 756.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices	
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area	Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.86 hrs HW=181.52' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE2: Drip Edge 2**Hydrograph**

Summary for Pond DE3: Drip Egde 3

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 4.36" for 10-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af, Atten= 79%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 182.11' @ 12.31 hrs Surf.Area= 100 sf Storage= 24 cf

Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 7.7 min calculated for 0.00 af (100% of inflow)

Center-of-Mass det. time= 7.7 min (764.4 - 756.7)

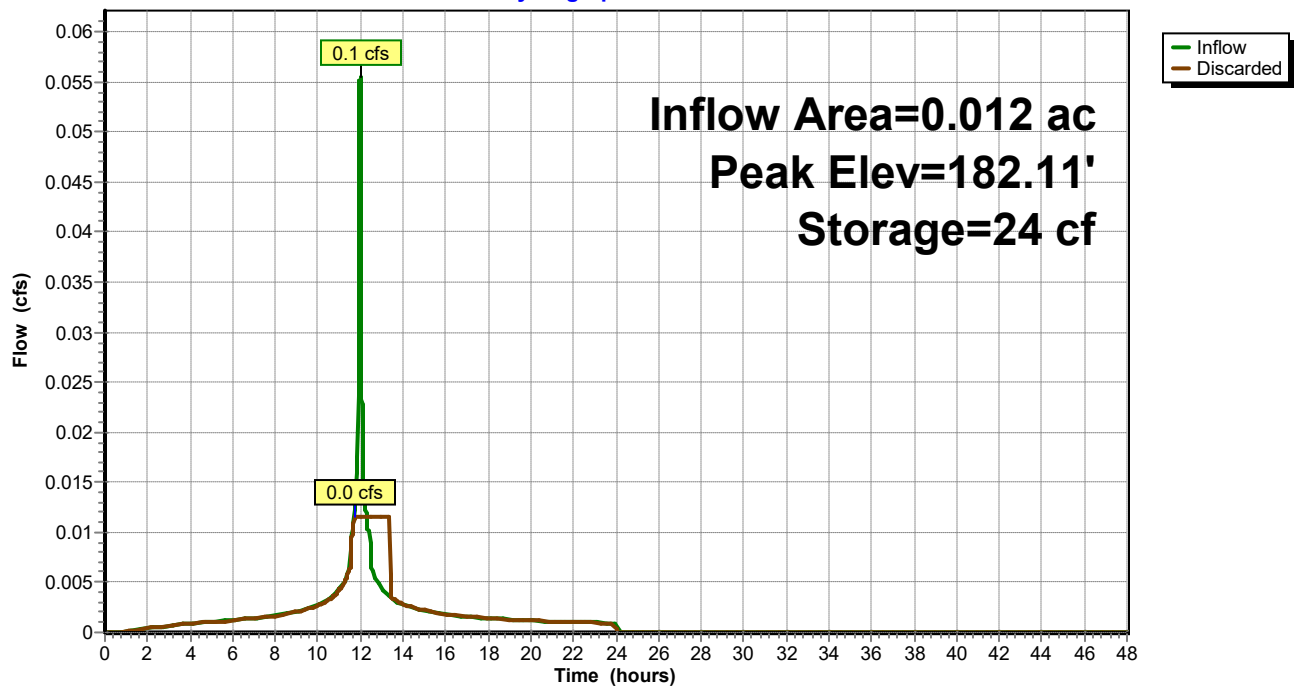
Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.77 hrs HW=181.52' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE3: Drip Egde 3**Hydrograph**

Summary for Pond DE4: Drip Edge 4

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 4.36" for 10-yr event
 Inflow = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.86 hrs, Volume= 0.00 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.86 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 181.86' @ 12.15 hrs Surf.Area= 88 sf Storage= 13 cf
 Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

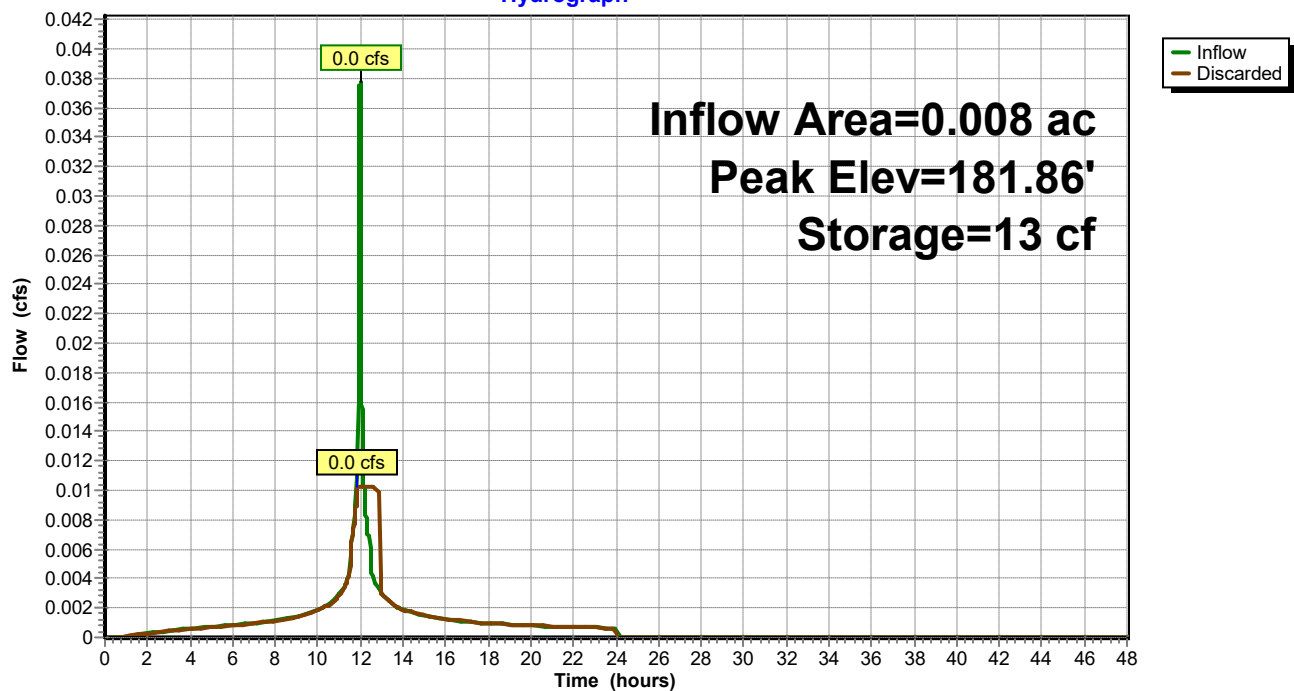
Plug-Flow detention time= 4.2 min calculated for 0.00 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (760.9 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.86 hrs HW=181.52' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE4: Drip Edge 4**Hydrograph**

Summary for Pond IB1: IB1

Inflow Area = 0.271 ac, 54.17% Impervious, Inflow Depth = 2.30" for 10-yr event
 Inflow = 0.6 cfs @ 12.05 hrs, Volume= 0.05 af
 Outflow = 0.1 cfs @ 12.61 hrs, Volume= 0.05 af, Atten= 81%, Lag= 33.8 min
 Discarded = 0.1 cfs @ 12.61 hrs, Volume= 0.05 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 180.40' @ 12.61 hrs Surf.Area= 939 sf Storage= 530 cf

Flood Elev= 181.25' Surf.Area= 2,446 sf Storage= 1,826 cf

Plug-Flow detention time= 41.0 min calculated for 0.05 af (100% of inflow)

Center-of-Mass det. time= 41.0 min (911.8 - 870.8)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,826 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	396	94.0	0	0	396
180.00	544	103.4	234	234	552
181.00	1,715	234.3	1,075	1,309	4,073
181.25	2,446	253.1	517	1,826	4,805

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	180.75'	5.0' long x 8.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
			2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.61 hrs HW=180.40' (Free Discharge)

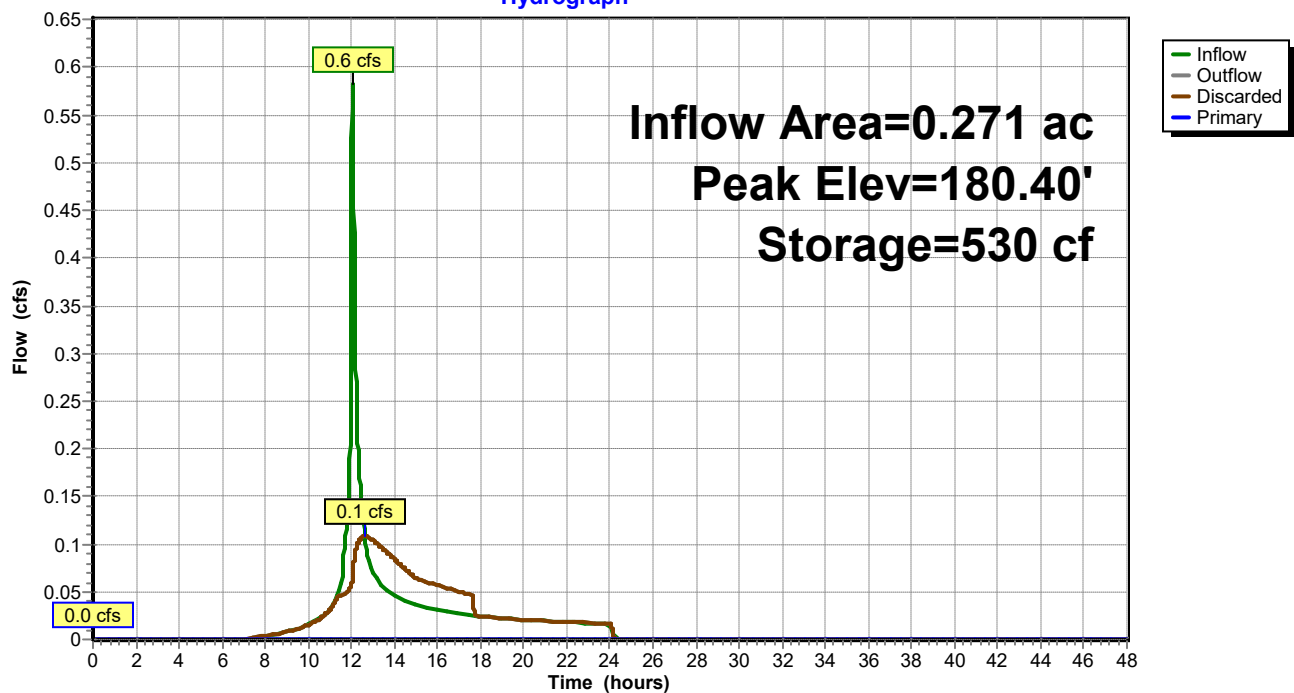
↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond IB1: IB1

Hydrograph



Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 72.77% Impervious, Inflow Depth = 3.39" for 10-yr event
 Inflow = 0.4 cfs @ 12.02 hrs, Volume= 0.03 af
 Outflow = 0.1 cfs @ 12.20 hrs, Volume= 0.03 af, Atten= 69%, Lag= 10.9 min
 Discarded = 0.1 cfs @ 12.20 hrs, Volume= 0.03 af
 Primary = 0.1 cfs @ 12.20 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 182.03' @ 12.20 hrs Surf.Area= 463 sf Storage= 328 cf

Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 52.7 min calculated for 0.03 af (100% of inflow)

Center-of-Mass det. time= 52.7 min (870.5 - 817.8)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	182.00'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.20 hrs HW=182.03' (Free Discharge)

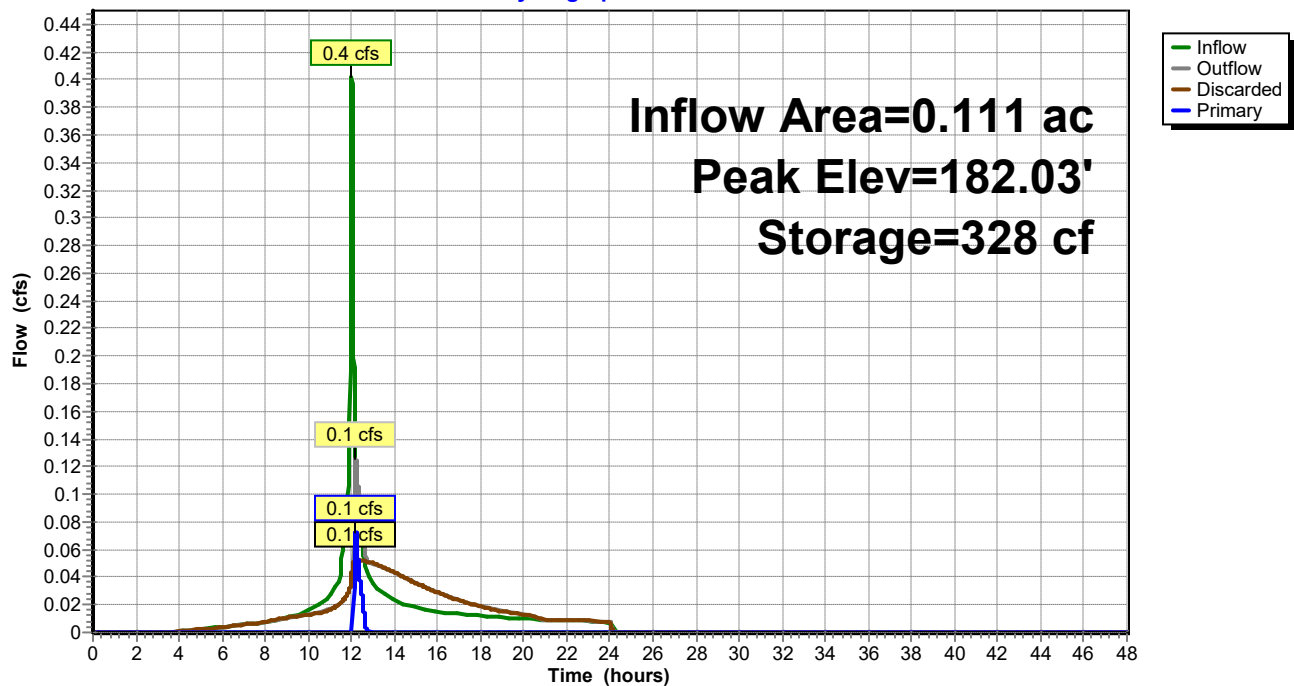
↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.1 cfs @ 12.20 hrs HW=182.03' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.43 fps)

Pond IB2: IB2

Hydrograph



Summary for Pond IB3: IB3

Inflow Area = 0.107 ac, 45.36% Impervious, Inflow Depth = 2.53" for 10-yr event
 Inflow = 0.2 cfs @ 12.01 hrs, Volume= 0.02 af
 Outflow = 0.0 cfs @ 12.57 hrs, Volume= 0.02 af, Atten= 81%, Lag= 33.7 min
 Discarded = 0.0 cfs @ 12.57 hrs, Volume= 0.02 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 174.96' @ 12.57 hrs Surf.Area= 405 sf Storage= 192 cf
 Flood Elev= 175.25' Surf.Area= 539 sf Storage= 327 cf

Plug-Flow detention time= 23.9 min calculated for 0.02 af (100% of inflow)
 Center-of-Mass det. time= 23.8 min (866.2 - 842.4)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	327 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	284	66.8	0	0	284
175.00	415	78.1	208	208	421
175.25	539	87.5	119	327	547

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	175.00'	6.0' long x 5.1' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 12.57 hrs HW=174.96' (Free Discharge)

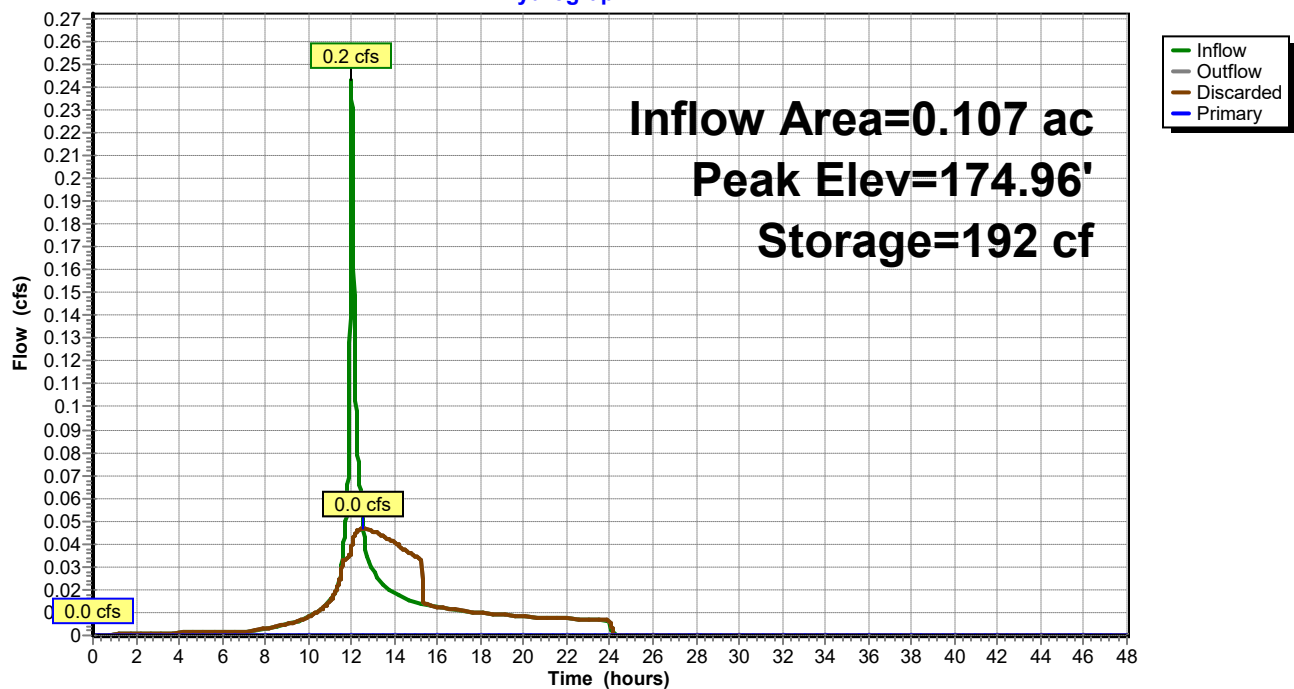
↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond IB3: IB3

Hydrograph



Summary for Pond RD1: RD1

Inflow Area = 0.015 ac, 100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af
 Outflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 174.96' @ 12.58 hrs

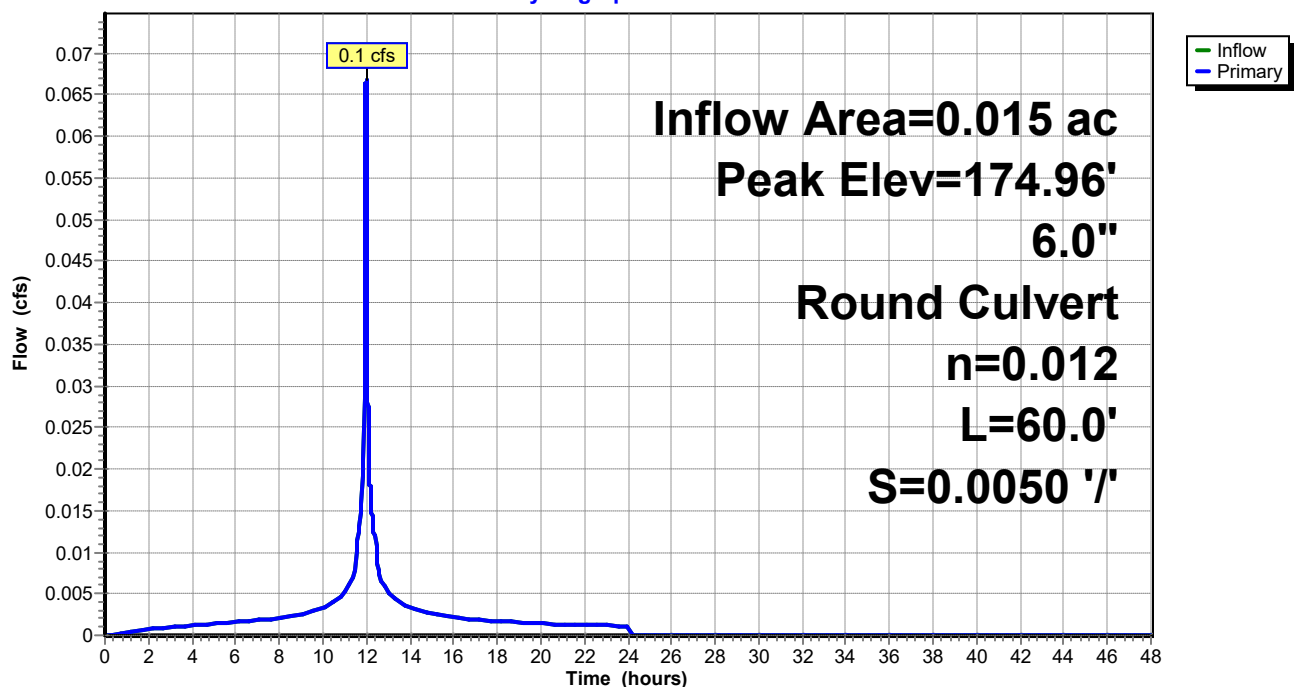
Flood Elev= 176.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.70'	6.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.70' / 174.40' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.1 cfs @ 11.99 hrs HW=174.89' TW=174.60' (Dynamic Tailwater)
 ↑ **1=Culvert** (Outlet Controls 0.1 cfs @ 1.45 fps)

Pond RD1: RD1

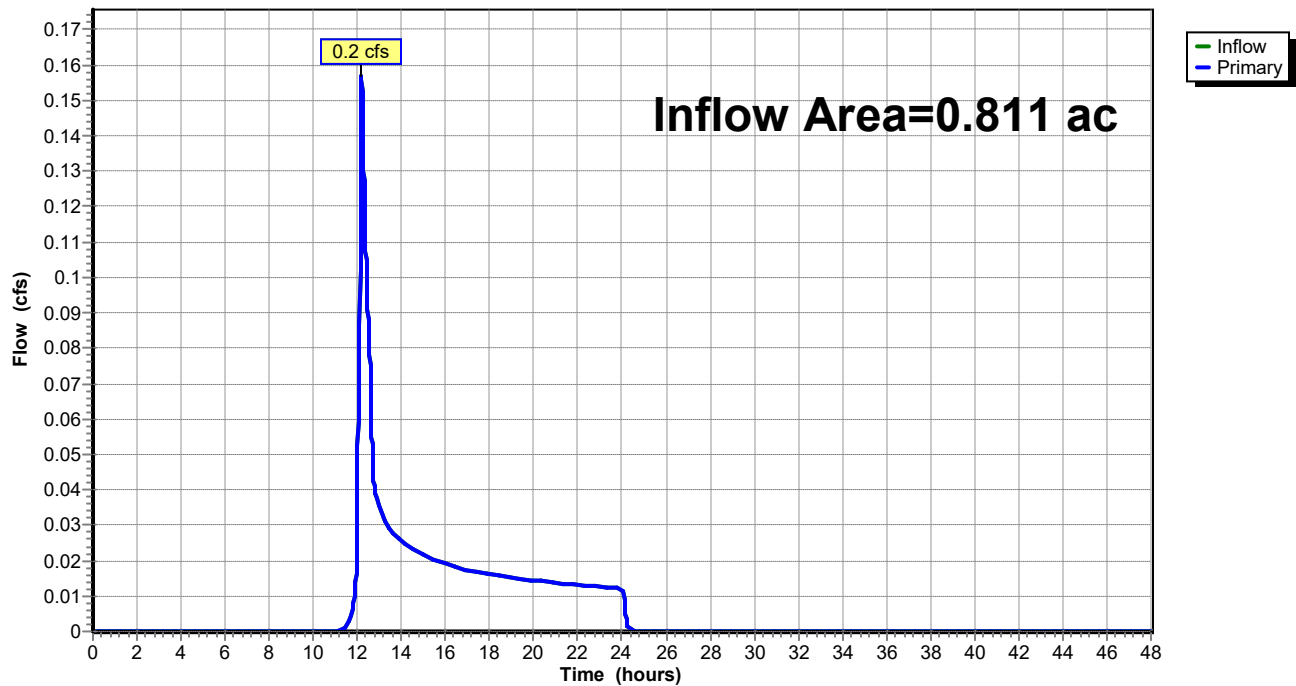
Hydrograph



Summary for Link A: A

Inflow Area = 0.811 ac, 38.76% Impervious, Inflow Depth = 0.34" for 10-yr event
Inflow = 0.2 cfs @ 12.19 hrs, Volume= 0.02 af
Primary = 0.2 cfs @ 12.19 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A: A**Hydrograph**

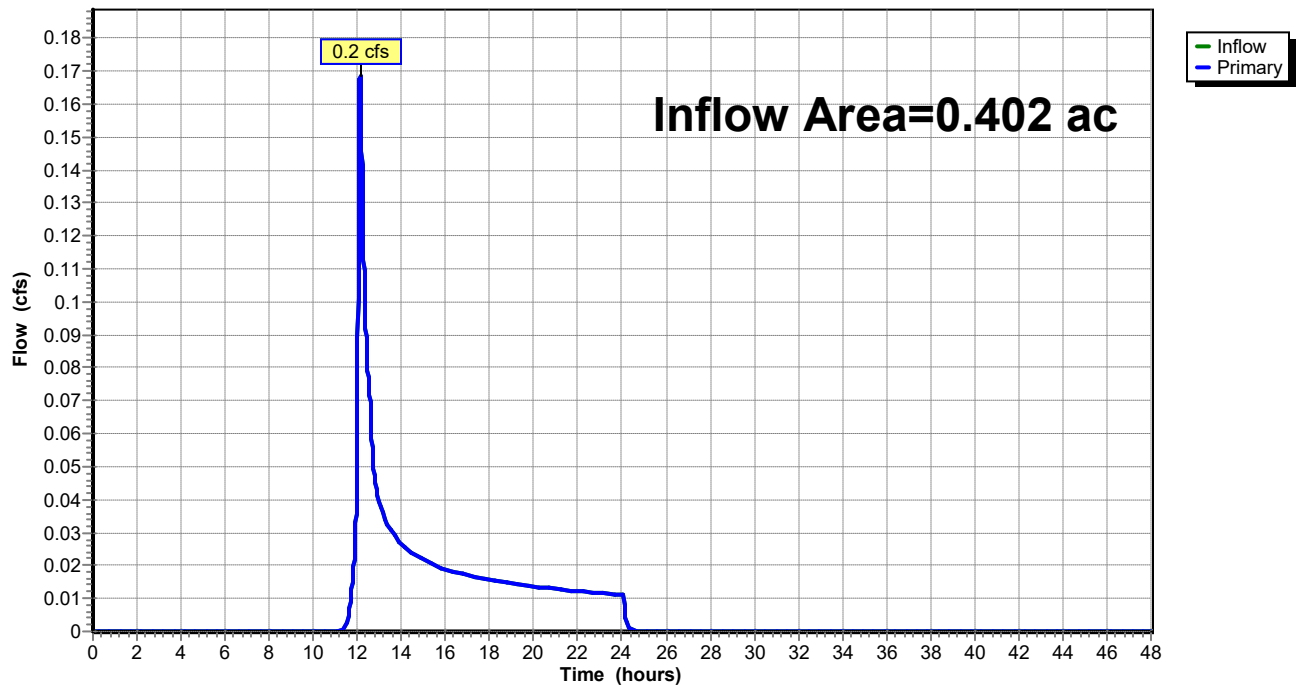
Summary for Link B: B

Inflow Area = 0.402 ac, 12.18% Impervious, Inflow Depth = 0.70" for 10-yr event
Inflow = 0.2 cfs @ 12.12 hrs, Volume= 0.02 af
Primary = 0.2 cfs @ 12.12 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link B: B

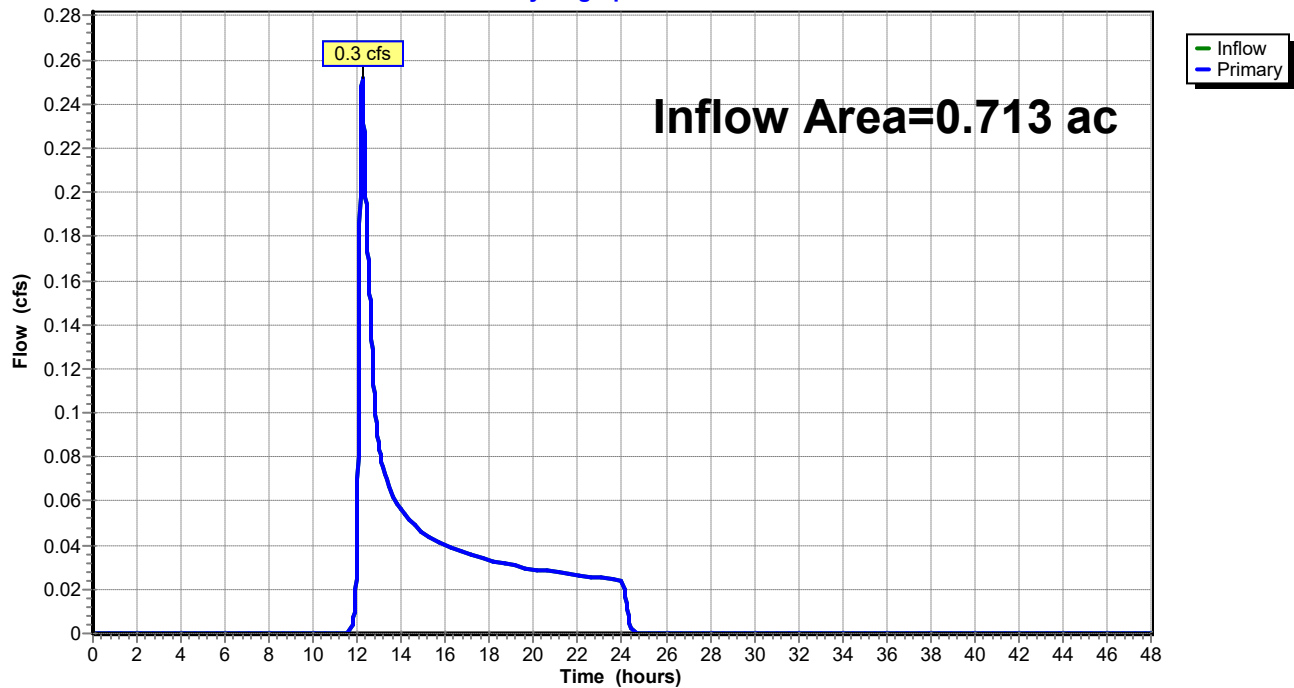
Hydrograph



Summary for Link C: C

Inflow Area = 0.713 ac, 0.26% Impervious, Inflow Depth = 0.78" for 10-yr event
Inflow = 0.3 cfs @ 12.21 hrs, Volume= 0.05 af
Primary = 0.3 cfs @ 12.21 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.0 min

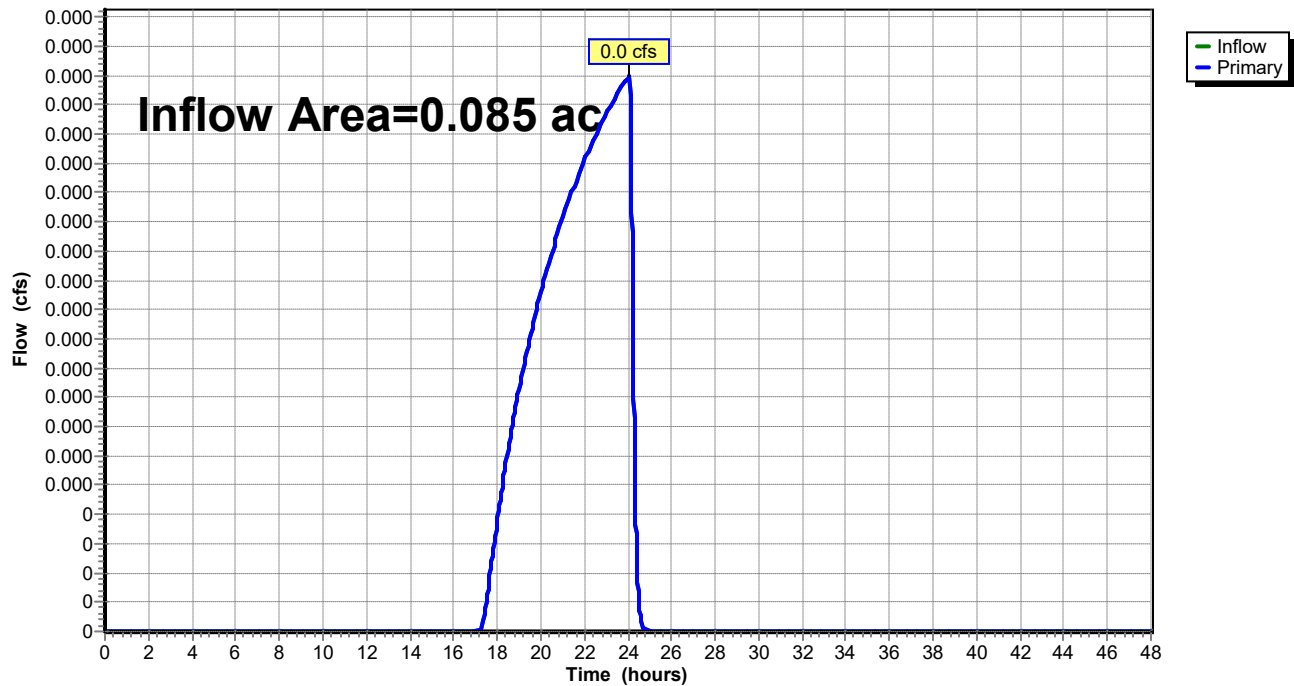
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link C: C**Hydrograph**

Summary for Link D: D

Inflow Area = 0.085 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-yr event
Inflow = 0.0 cfs @ 24.03 hrs, Volume= 0.00 af
Primary = 0.0 cfs @ 24.03 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link D: D**Hydrograph**

A – 2

NODE LISTING – 25-YR

24094 - Post

24094 24-hr S1 25-yr Rainfall=5.95"

Prepared by Civilworks New England

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Page 1

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1	Runoff Area=11,794 sf 54.17% Impervious Runoff Depth=3.34" Flow Length=87' Tc=7.0 min CN=76 Runoff=0.8 cfs 0.08 af
Subcatchment 2: 2	Runoff Area=3,867 sf 33.41% Impervious Runoff Depth=1.73" Flow Length=48' Slope=0.0250 '/' Tc=7.3 min CN=58 Runoff=0.1 cfs 0.01 af
Subcatchment 3: 3	Runoff Area=14,810 sf 16.77% Impervious Runoff Depth=0.98" Flow Length=125' Tc=12.3 min CN=48 Runoff=0.2 cfs 0.03 af
Subcatchment 4: 4	Runoff Area=4,836 sf 72.77% Impervious Runoff Depth=4.58" Flow Length=52' Tc=4.1 min CN=88 Runoff=0.5 cfs 0.04 af
Subcatchment 5: 5	Runoff Area=646 sf 100.00% Impervious Runoff Depth=5.71" Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af
Subcatchment 6: 6	Runoff Area=4,003 sf 36.55% Impervious Runoff Depth=3.24" Flow Length=60' Tc=5.9 min CN=75 Runoff=0.3 cfs 0.02 af
Subcatchment 7: 7	Runoff Area=12,864 sf 0.19% Impervious Runoff Depth=1.65" Flow Length=90' Tc=11.3 min CN=57 Runoff=0.3 cfs 0.04 af
Subcatchment 8: 8	Runoff Area=541 sf 74.12% Impervious Runoff Depth=5.59" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af
Subcatchment 9: 9	Runoff Area=368 sf 66.58% Impervious Runoff Depth=5.59" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 10: 10	Runoff Area=541 sf 74.12% Impervious Runoff Depth=5.59" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af
Subcatchment 11: 11	Runoff Area=368 sf 66.58% Impervious Runoff Depth=5.59" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af
Subcatchment 12: 12	Runoff Area=31,054 sf 0.26% Impervious Runoff Depth=1.41" Flow Length=384' Tc=16.0 min CN=54 Runoff=0.5 cfs 0.08 af
Subcatchment 13: 13	Runoff Area=3,688 sf 0.00% Impervious Runoff Depth=0.16" Flow Length=122' Tc=17.4 min CN=33 Runoff=0.0 cfs 0.00 af
Reach R1: R1	Avg. Flow Depth=0.09' Max Vel=1.04 fps Inflow=0.1 cfs 0.01 af n=0.025 L=40.0' S=0.0100 '/' Capacity=15.9 cfs Outflow=0.1 cfs 0.01 af
Pond CB1: CB1	Peak Elev=179.16' Inflow=0.1 cfs 0.01 af 15.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=0.1 cfs 0.01 af
Pond DE1: Drip Egde 1	Peak Elev=182.39' Storage=36 cf Inflow=0.1 cfs 0.01 af Outflow=0.0 cfs 0.01 af

24094 - Post**24094 24-hr S1 25-yr Rainfall=5.95"**

Prepared by Civilworks New England

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Page 2

Pond DE2: Drip Edge 2	Peak Elev=182.03' Storage=19 cf Inflow=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond DE3: Drip Edge 3	Peak Elev=182.39' Storage=36 cf Inflow=0.1 cfs 0.01 af Outflow=0.0 cfs 0.01 af
Pond DE4: Drip Edge 4	Peak Elev=182.03' Storage=19 cf Inflow=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond IB1: IB1	Peak Elev=180.67' Storage=818 cf Inflow=0.8 cfs 0.08 af Discarded=0.1 cfs 0.08 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.08 af
Pond IB2: IB2	Peak Elev=182.09' Storage=353 cf Inflow=0.5 cfs 0.04 af Discarded=0.1 cfs 0.04 af Primary=0.3 cfs 0.01 af Outflow=0.4 cfs 0.04 af
Pond IB3: IB3	Peak Elev=175.04' Storage=225 cf Inflow=0.3 cfs 0.03 af Discarded=0.1 cfs 0.03 af Primary=0.1 cfs 0.00 af Outflow=0.2 cfs 0.03 af
Pond RD1: RD1	Peak Elev=175.04' Inflow=0.1 cfs 0.01 af 6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.01 af
Link A: A	Inflow=0.5 cfs 0.05 af Primary=0.5 cfs 0.05 af
Link B: B	Inflow=0.4 cfs 0.04 af Primary=0.4 cfs 0.04 af
Link C: C	Inflow=0.5 cfs 0.08 af Primary=0.5 cfs 0.08 af
Link D: D	Inflow=0.0 cfs 0.00 af Primary=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.34 af Average Runoff Depth = 1.96"
80.77% Pervious = 1.657 ac 19.23% Impervious = 0.395 ac

A – 2

NODE LISTING – 50-YR

24094 - Post

24094 24-hr S1 50-yr Rainfall=7.10"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1	Runoff Area=11,794 sf 54.17% Impervious Runoff Depth=4.35" Flow Length=87' Tc=7.0 min CN=76 Runoff=1.0 cfs 0.10 af
Subcatchment 2: 2	Runoff Area=3,867 sf 33.41% Impervious Runoff Depth=2.48" Flow Length=48' Slope=0.0250 '/' Tc=7.3 min CN=58 Runoff=0.2 cfs 0.02 af
Subcatchment 3: 3	Runoff Area=14,810 sf 16.77% Impervious Runoff Depth=1.54" Flow Length=125' Tc=12.3 min CN=48 Runoff=0.3 cfs 0.04 af
Subcatchment 4: 4	Runoff Area=4,836 sf 72.77% Impervious Runoff Depth=5.69" Flow Length=52' Tc=4.1 min CN=88 Runoff=0.6 cfs 0.05 af
Subcatchment 5: 5	Runoff Area=646 sf 100.00% Impervious Runoff Depth=6.86" Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af
Subcatchment 6: 6	Runoff Area=4,003 sf 36.55% Impervious Runoff Depth=4.24" Flow Length=60' Tc=5.9 min CN=75 Runoff=0.3 cfs 0.03 af
Subcatchment 7: 7	Runoff Area=12,864 sf 0.19% Impervious Runoff Depth=2.38" Flow Length=90' Tc=11.3 min CN=57 Runoff=0.5 cfs 0.06 af
Subcatchment 8: 8	Runoff Area=541 sf 74.12% Impervious Runoff Depth=6.74" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af
Subcatchment 9: 9	Runoff Area=368 sf 66.58% Impervious Runoff Depth=6.74" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af
Subcatchment 10: 10	Runoff Area=541 sf 74.12% Impervious Runoff Depth=6.74" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af
Subcatchment 11: 11	Runoff Area=368 sf 66.58% Impervious Runoff Depth=6.74" Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af
Subcatchment 12: 12	Runoff Area=31,054 sf 0.26% Impervious Runoff Depth=2.09" Flow Length=384' Tc=16.0 min CN=54 Runoff=0.8 cfs 0.12 af
Subcatchment 13: 13	Runoff Area=3,688 sf 0.00% Impervious Runoff Depth=0.40" Flow Length=122' Tc=17.4 min CN=33 Runoff=0.0 cfs 0.00 af
Reach R1: R1	Avg. Flow Depth=0.11' Max Vel=1.17 fps Inflow=0.2 cfs 0.02 af n=0.025 L=40.0' S=0.0100 '/' Capacity=15.9 cfs Outflow=0.2 cfs 0.02 af
Pond CB1: CB1	Peak Elev=179.19' Inflow=0.2 cfs 0.02 af 15.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=0.2 cfs 0.02 af
Pond DE1: Drip Egde 1	Peak Elev=182.55' Storage=43 cf Inflow=0.1 cfs 0.01 af Outflow=0.0 cfs 0.01 af

24094 - Post

24094 24-hr S1 50-yr Rainfall=7.10"

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Pond DE2: Drip Edge 2	Peak Elev=182.22' Storage=25 cf Inflow=0.1 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond DE3: Drip Edge 3	Peak Elev=182.55' Storage=43 cf Inflow=0.1 cfs 0.01 af Outflow=0.0 cfs 0.01 af
Pond DE4: Drip Edge 4	Peak Elev=182.22' Storage=25 cf Inflow=0.1 cfs 0.00 af Outflow=0.0 cfs 0.00 af
Pond IB1: IB1	Peak Elev=180.80' Storage=995 cf Inflow=1.0 cfs 0.10 af Discarded=0.2 cfs 0.09 af Primary=0.1 cfs 0.00 af Outflow=0.3 cfs 0.10 af
Pond IB2: IB2	Peak Elev=182.12' Storage=370 cf Inflow=0.6 cfs 0.05 af Discarded=0.1 cfs 0.04 af Primary=0.5 cfs 0.01 af Outflow=0.5 cfs 0.05 af
Pond IB3: IB3	Peak Elev=175.07' Storage=239 cf Inflow=0.4 cfs 0.04 af Discarded=0.1 cfs 0.04 af Primary=0.3 cfs 0.01 af Outflow=0.3 cfs 0.04 af
Pond RD1: RD1	Peak Elev=175.08' Inflow=0.1 cfs 0.01 af 6.0" Round Culvert n=0.012 L=60.0' S=0.0050 ' /' Outflow=0.1 cfs 0.01 af
Link A: A	Inflow=0.8 cfs 0.08 af Primary=0.8 cfs 0.08 af
Link B: B	Inflow=0.7 cfs 0.06 af Primary=0.7 cfs 0.06 af
Link C: C	Inflow=0.8 cfs 0.12 af Primary=0.8 cfs 0.12 af
Link D: D	Inflow=0.0 cfs 0.00 af Primary=0.0 cfs 0.00 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.46 af Average Runoff Depth = 2.71"
80.77% Pervious = 1.657 ac 19.23% Impervious = 0.395 ac

APPENDIX B

DESIGN

B – 1

**STORMWATER BEST MANAGEMENT
PRACTICES**



INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 1 (IB1)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes	Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.27 ac	A = Area draining to the practice	
0.15 ac	A _I = Impervious area draining to the practice	
0.54 decimal	I = Percent impervious area draining to the practice, in decimal form	
0.54 unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.15 ac-in	WQV = 1" x R _v x A	
529 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
132 cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
925 cf	V = Volume ¹ (attach a stage-storage table)	≥ WQV
396 sf	A _{SA} = Surface area of the bottom of the pond	
5.00 iph	K _{sat} _{DESIGN} = Design infiltration rate ²	
3.2 hours	I _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
179.50 feet	E _{BTM} = Elevation of the bottom of the basin	
176.21 feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
174.21 feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.29 feet	D _{SHWT} = Separation from SHWT	≥ *³
5.3 feet	D _{ROCK} = Separation from bedrock	≥ *³
2.0 ft	D _{amend} = Depth of amended soil, if applicable due high infiltration rate	≥ 24"
- ft	D _T = Depth of trench, if trench proposed	4 - 10 ft
N/A Yes/No	If a trench or underground system is proposed, has observation well been provided?	← yes
N/A	If a trench is proposed, does material meet Env-Wq 1508.06(k)(2) requirements. ⁴	← yes
Yes Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
3.0 :1	If a basin is proposed, pond side slopes.	≥ 3:1
180.40 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
180.80 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
181.25 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation ≤ Elevation of the top of the trench? ⁵	← yes
YES	If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. K_{sat}_{DESIGN} includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Summary for Pond IB1: IB1

Inflow Area = 0.271 ac, 54.17% Impervious, Inflow Depth = 2.30" for 10-yr event
 Inflow = 0.6 cfs @ 12.05 hrs, Volume= 0.05 af
 Outflow = 0.1 cfs @ 12.61 hrs, Volume= 0.05 af, Atten= 81%, Lag= 33.8 min
 Discarded = 0.1 cfs @ 12.61 hrs, Volume= 0.05 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 180.40' @ 12.61 hrs Surf.Area= 939 sf Storage= 530 cf

Flood Elev= 181.25' Surf.Area= 2,446 sf Storage= 1,826 cf

Plug-Flow detention time= 41.0 min calculated for 0.05 af (100% of inflow)

Center-of-Mass det. time= 41.0 min (911.8 - 870.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	179.50'	1,826 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	396	94.0	0	0	396
180.00	544	103.4	234	234	552
181.00	1,715	234.3	1,075	1,309	4,073
181.25	2,446	253.1	517	1,826	4,805

Device	Routing	Invert	Outlet Devices													
#1	Discarded	179.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'													
#2	Primary	180.75'	5.0' long x 8.0' breadth Broad-Crested Rectangular Weir													
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00			
				2.50	3.00	3.50	4.00	4.50	5.00	5.50						
			Coef. (English)	2.43	2.54	2.70	2.69	2.68	2.68	2.66	2.64	2.64				
				2.64	2.65	2.65	2.66	2.66	2.68	2.70	2.74					

Discarded OutFlow Max=0.1 cfs @ 12.61 hrs HW=180.40' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Stage-Area-Storage for Pond IB1: IB1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
179.50	396	0	180.54	1,095	668
179.52	401	8	180.56	1,119	690
179.54	407	16	180.58	1,143	713
179.56	413	24	180.60	1,168	736
179.58	418	33	180.62	1,193	759
179.60	424	41	180.64	1,218	784
179.62	429	50	180.66	1,243	808
179.64	435	58	180.68	1,269	833
179.66	441	67	180.70	1,295	859
179.68	447	76	180.72	1,321	885
179.70	452	85	180.74	1,348	912
179.72	458	94	180.76	1,374	939
179.74	464	103	180.78	1,401	967
179.76	470	112	180.80	1,428	995
179.78	476	122	180.82	1,456	1,024
179.80	482	131	180.84	1,484	1,053
179.82	488	141	180.86	1,512	1,083
179.84	494	151	180.88	1,540	1,114
179.86	500	161	180.90	1,568	1,145
179.88	506	171	180.92	1,597	1,177
179.90	513	181	180.94	1,626	1,209
179.92	519	192	180.96	1,656	1,242
179.94	525	202	180.98	1,685	1,275
179.96	531	213	181.00	1,715	1,309
179.98	538	223	181.02	1,769	1,344
180.00	544	234	181.04	1,823	1,380
180.02	561	245	181.06	1,879	1,417
180.04	578	256	181.08	1,935	1,455
180.06	596	268	181.10	1,992	1,494
180.08	614	280	181.12	2,050	1,535
180.10	632	293	181.14	2,108	1,576
180.12	650	306	181.16	2,168	1,619
180.14	669	319	181.18	2,228	1,663
180.16	687	332	181.20	2,289	1,708
180.18	706	346	181.22	2,351	1,754
180.20	726	361	181.24	2,414	1,802
180.22	745	375			
180.24	765	390			
180.26	786	406			
180.28	806	422			
180.30	827	438			
180.32	848	455			
180.34	869	472			
180.36	890	490			
180.38	912	508			
180.40	934	526			
180.42	956	545			
180.44	979	564			
180.46	1,001	584			
180.48	1,024	604			
180.50	1,048	625			
180.52	1,071	646			

Summary for Pond IB1: IB1

Inflow Area = 0.271 ac, 54.17% Impervious, Inflow Depth = 4.35" for 50-yr event
 Inflow = 1.0 cfs @ 12.05 hrs, Volume= 0.10 af
 Outflow = 0.3 cfs @ 12.36 hrs, Volume= 0.10 af, Atten= 70%, Lag= 18.9 min
 Discarded = 0.2 cfs @ 12.36 hrs, Volume= 0.09 af
 Primary = 0.1 cfs @ 12.36 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 180.80' @ 12.36 hrs Surf.Area= 1,429 sf Storage= 995 cf
 Flood Elev= 181.25' Surf.Area= 2,446 sf Storage= 1,826 cf

Plug-Flow detention time= 56.5 min calculated for 0.10 af (100% of inflow)
 Center-of-Mass det. time= 56.5 min (904.6 - 848.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	179.50'	1,826 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	396	94.0	0	0	396
180.00	544	103.4	234	234	552
181.00	1,715	234.3	1,075	1,309	4,073
181.25	2,446	253.1	517	1,826	4,805

Device	Routing	Invert	Outlet Devices													
#1	Discarded	179.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'													
#2	Primary	180.75'	5.0' long x 8.0' breadth Broad-Crested Rectangular Weir													
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00			
				2.50	3.00	3.50	4.00	4.50	5.00	5.50						
			Coef. (English)	2.43	2.54	2.70	2.69	2.68	2.68	2.66	2.64	2.64				
				2.64	2.65	2.65	2.66	2.66	2.68	2.70	2.74					

Discarded OutFlow Max=0.2 cfs @ 12.36 hrs HW=180.80' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.1 cfs @ 12.36 hrs HW=180.80' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.54 fps)



INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 2 (IB2)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes	Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.11 ac	A = Area draining to the practice	
0.08 ac	A _I = Impervious area draining to the practice	
0.73 decimal	I = Percent impervious area draining to the practice, in decimal form	
0.70 unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.08 ac-in	WQV = 1" x R _v x A	
284 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
71 cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale/Roof	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
312 cf	V = Volume ¹ (attach a stage-storage table)	≥ WQV
100 sf	A _{SA} = Surface area of the bottom of the pond	
5.00 iph	K _{sat} _{DESIGN} = Design infiltration rate ²	
6.8 hours	I _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
180.75 feet	E _{BTM} = Elevation of the bottom of the basin	
177.50 feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
175.92 feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.25 feet	D _{SHWT} = Separation from SHWT	≥ *³
4.8 feet	D _{ROCK} = Separation from bedrock	≥ *³
2.0 ft	D _{amend} = Depth of amended soil, if applicable due high infiltration rate	≥ 24"
- ft	D _T = Depth of trench, if trench proposed	4 - 10 ft
N/A Yes/No	If a trench or underground system is proposed, has observation well been provided?	← yes
N/A	If a trench is proposed, does material meet Env-Wq 1508.06(k)(2) requirements. ⁴	← yes
Yes Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
3.0 :1	If a basin is proposed, pond side slopes.	≥ 3:1
182.03 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
182.12 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
182.50 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation ≤ Elevation of the top of the trench? ⁵	← yes
YES	If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. K_{sat}_{DESIGN} includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes: _____

Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 72.77% Impervious, Inflow Depth = 3.39" for 10-yr event
 Inflow = 0.4 cfs @ 12.02 hrs, Volume= 0.03 af
 Outflow = 0.1 cfs @ 12.20 hrs, Volume= 0.03 af, Atten= 69%, Lag= 10.9 min
 Discarded = 0.1 cfs @ 12.20 hrs, Volume= 0.03 af
 Primary = 0.1 cfs @ 12.20 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 182.03' @ 12.20 hrs Surf.Area= 463 sf Storage= 328 cf

Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 52.7 min calculated for 0.03 af (100% of inflow)

Center-of-Mass det. time= 52.7 min (870.5 - 817.8)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	182.00'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.20 hrs HW=182.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.1 cfs @ 12.20 hrs HW=182.03' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.43 fps)

Stage-Area-Storage for Pond IB2: IB2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
180.75	100	0	181.79	366	228
180.77	104	2	181.81	373	235
180.79	107	4	181.83	380	243
180.81	111	6	181.85	386	250
180.83	115	9	181.87	393	258
180.85	118	11	181.89	400	266
180.87	122	13	181.91	407	274
180.89	126	16	181.93	415	282
180.91	130	18	181.95	422	291
180.93	134	21	181.97	429	299
180.95	138	24	181.99	436	308
180.97	142	27	182.01	447	317
180.99	147	29	182.03	460	326
181.01	151	32	182.05	474	335
181.03	155	35	182.07	488	345
181.05	160	39	182.09	502	355
181.07	164	42	182.11	516	365
181.09	169	45	182.13	531	375
181.11	173	49	182.15	546	386
181.13	178	52	182.17	561	397
181.15	183	56	182.19	576	409
181.17	187	59	182.21	591	420
181.19	192	63	182.23	607	432
181.21	197	67	182.25	623	445
181.23	202	71	182.27	639	457
181.25	207	75	182.29	655	470
181.27	212	79	182.31	671	483
181.29	217	84	182.33	688	497
181.31	223	88	182.35	705	511
181.33	228	93	182.37	722	525
181.35	233	97	182.39	739	540
181.37	239	102	182.41	756	555
181.39	244	107	182.43	774	570
181.41	249	112	182.45	792	586
181.43	255	117	182.47	810	602
181.45	261	122	182.49	828	618
181.47	266	127			
181.49	272	132			
181.51	278	138			
181.53	284	144			
181.55	290	149			
181.57	296	155			
181.59	302	161			
181.61	308	167			
181.63	314	174			
181.65	321	180			
181.67	327	186			
181.69	333	193			
181.71	340	200			
181.73	346	207			
181.75	353	214			
181.77	359	221			

Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 72.77% Impervious, Inflow Depth = 5.69" for 50-yr event
 Inflow = 0.6 cfs @ 12.02 hrs, Volume= 0.05 af
 Outflow = 0.5 cfs @ 12.04 hrs, Volume= 0.05 af, Atten= 8%, Lag= 1.3 min
 Discarded = 0.1 cfs @ 12.04 hrs, Volume= 0.04 af
 Primary = 0.5 cfs @ 12.04 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 182.12' @ 12.04 hrs Surf.Area= 523 sf Storage= 370 cf

Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 53.0 min calculated for 0.05 af (100% of inflow)

Center-of-Mass det. time= 53.0 min (852.6 - 799.6)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	182.00'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.04 hrs HW=182.12' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.5 cfs @ 12.04 hrs HW=182.12' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.5 cfs @ 0.81 fps)



INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 3 (IB3)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.11	ac	A = Area draining to the practice	
0.05	ac	A _I = Impervious area draining to the practice	
0.45	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.46	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.05	ac-in	WQV = 1" x R _v x A	
178	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
44	cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
208	cf	V = Volume ¹ (attach a stage-storage table)	≥ WQV
284	sf	A _{SA} = Surface area of the bottom of the pond	
5.00	iph	K _{sat} _{DESIGN} = Design infiltration rate ²	
1.5	hours	I _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
174.40	feet	E _{BTM} = Elevation of the bottom of the basin	
171.37	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
169.12	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.03	feet	D _{SHWT} = Separation from SHWT	≥ *³
5.3	feet	D _{ROCK} = Separation from bedrock	≥ *³
2.0	ft	D _{amend} = Depth of amended soil, if applicable due high infiltration rate	≥ 24"
-	ft	D _T = Depth of trench, if trench proposed	4 - 10 ft
N/A	Yes/No	If a trench or underground system is proposed, has observation well been provided?	← yes
N/A		If a trench is proposed, does material meet Env-Wq 1508.06(k)(2) requirements. ⁴	← yes
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
3.0	:1	If a basin is proposed, pond side slopes.	≥ 3:1
174.96	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
175.04	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
175.25	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench? ⁵	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. K_{sat}_{DESIGN} includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes: _____

Summary for Pond IB3: IB3

Inflow Area = 0.107 ac, 45.36% Impervious, Inflow Depth = 2.53" for 10-yr event
 Inflow = 0.2 cfs @ 12.01 hrs, Volume= 0.02 af
 Outflow = 0.0 cfs @ 12.57 hrs, Volume= 0.02 af, Atten= 81%, Lag= 33.7 min
 Discarded = 0.0 cfs @ 12.57 hrs, Volume= 0.02 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 174.96' @ 12.57 hrs Surf.Area= 405 sf Storage= 192 cf

Flood Elev= 175.25' Surf.Area= 539 sf Storage= 327 cf

Plug-Flow detention time= 23.9 min calculated for 0.02 af (100% of inflow)

Center-of-Mass det. time= 23.8 min (866.2 - 842.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	174.40'	327 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	284	66.8	0	0	284
175.00	415	78.1	208	208	421
175.25	539	87.5	119	327	547

Device	Routing	Invert	Outlet Devices													
#1	Discarded	174.40'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'													
#2	Primary	175.00'	6.0' long x 5.1' breadth Broad-Crested Rectangular Weir													
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00			
				2.50	3.00	3.50	4.00	4.50	5.00	5.50						
			Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.65	2.65	2.65				
				2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88					

Discarded OutFlow Max=0.0 cfs @ 12.57 hrs HW=174.96' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Stage-Area-Storage for Pond IB3: IB3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
174.40	284	0	174.92	396	176
174.41	286	3	174.93	398	180
174.42	288	6	174.94	401	184
174.43	290	9	174.95	403	188
174.44	292	12	174.96	405	192
174.45	294	14	174.97	408	196
174.46	296	17	174.98	410	200
174.47	298	20	174.99	413	204
174.48	300	23	175.00	415	208
174.49	302	26	175.01	420	213
174.50	304	29	175.02	424	217
174.51	306	32	175.03	429	221
174.52	308	36	175.04	434	225
174.53	310	39	175.05	439	230
174.54	312	42	175.06	443	234
174.55	314	45	175.07	448	239
174.56	317	48	175.08	453	243
174.57	319	51	175.09	458	248
174.58	321	54	175.10	463	252
174.59	323	58	175.11	468	257
174.60	325	61	175.12	472	262
174.61	327	64	175.13	477	266
174.62	329	67	175.14	482	271
174.63	331	71	175.15	487	276
174.64	333	74	175.16	492	281
174.65	336	77	175.17	498	286
174.66	338	81	175.18	503	291
174.67	340	84	175.19	508	296
174.68	342	88	175.20	513	301
174.69	344	91	175.21	518	306
174.70	346	94	175.22	523	311
174.71	349	98	175.23	528	317
174.72	351	101	175.24	534	322
174.73	353	105	175.25	539	327
174.74	355	108			
174.75	357	112			
174.76	360	116			
174.77	362	119			
174.78	364	123			
174.79	366	126			
174.80	369	130			
174.81	371	134			
174.82	373	138			
174.83	375	141			
174.84	378	145			
174.85	380	149			
174.86	382	153			
174.87	385	157			
174.88	387	160			
174.89	389	164			
174.90	391	168			
174.91	394	172			

Summary for Pond IB3: IB3

Inflow Area = 0.107 ac, 45.36% Impervious, Inflow Depth = 4.60" for 50-yr event
 Inflow = 0.4 cfs @ 12.01 hrs, Volume= 0.04 af
 Outflow = 0.3 cfs @ 12.09 hrs, Volume= 0.04 af, Atten= 23%, Lag= 4.6 min
 Discarded = 0.1 cfs @ 12.09 hrs, Volume= 0.04 af
 Primary = 0.3 cfs @ 12.09 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 175.07' @ 12.09 hrs Surf.Area= 448 sf Storage= 239 cf
 Flood Elev= 175.25' Surf.Area= 539 sf Storage= 327 cf

Plug-Flow detention time= 25.0 min calculated for 0.04 af (100% of inflow)
 Center-of-Mass det. time= 25.0 min (852.5 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	327 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	284	66.8	0	0	284
175.00	415	78.1	208	208	421
175.25	539	87.5	119	327	547

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	175.00'	6.0' long x 5.1' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.09 hrs HW=175.07' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.3 cfs @ 12.09 hrs HW=175.07' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.3 cfs @ 0.62 fps)

Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 6.74" for 50-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af
 Outflow = 0.0 cfs @ 12.12 hrs, Volume= 0.01 af, Atten= 78%, Lag= 7.8 min
 Discarded = 0.0 cfs @ 12.12 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 182.55' @ 12.32 hrs Surf.Area= 140 sf Storage= 43 cf

Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 13.8 min calculated for 0.01 af (100% of inflow)

Center-of-Mass det. time= 13.8 min (761.0 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 12.12 hrs HW=182.51' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE1: Drip Egde 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	100	0	182.54	140	42
181.52	100	1	182.56	140	43
181.54	100	2	182.58	140	44
181.56	100	2	182.60	140	46
181.58	100	3	182.62	140	47
181.60	100	4	182.64	140	48
181.62	100	5	182.66	140	49
181.64	100	6	182.68	140	50
181.66	100	6	182.70	140	51
181.68	100	7	182.72	140	52
181.70	100	8	182.74	140	53
181.72	100	9	182.76	140	54
181.74	100	10	182.78	140	56
181.76	100	10	182.80	140	57
181.78	100	11	182.82	140	58
181.80	100	12	182.84	140	59
181.82	100	13	182.86	140	60
181.84	100	14	182.88	140	61
181.86	100	14	182.90	140	62
181.88	100	15	182.92	140	63
181.90	100	16	182.94	140	65
181.92	100	17	182.96	140	66
181.94	100	18	182.98	140	67
181.96	100	18	183.00	140	68
181.98	100	19			
182.00	100	20			
182.02	100	21			
182.04	100	22			
182.06	100	22			
182.08	100	23			
182.10	100	24			
182.12	100	25			
182.14	100	26			
182.16	100	26			
182.18	100	27			
182.20	100	28			
182.22	100	29			
182.24	100	30			
182.26	100	30			
182.28	100	31			
182.30	100	32			
182.32	100	33			
182.34	100	34			
182.36	100	34			
182.38	100	35			
182.40	100	36			
182.42	100	37			
182.44	100	38			
182.46	100	38			
182.48	100	39			
182.50	100	40			
182.52	140	41			

Summary for Pond DE3: Drip Egde 3

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 6.74" for 50-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af
 Outflow = 0.0 cfs @ 12.12 hrs, Volume= 0.01 af, Atten= 78%, Lag= 7.8 min
 Discarded = 0.0 cfs @ 12.12 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 182.55' @ 12.32 hrs Surf.Area= 140 sf Storage= 43 cf
 Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 13.8 min calculated for 0.01 af (100% of inflow)
 Center-of-Mass det. time= 13.8 min (761.0 - 747.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices	
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area	Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 12.12 hrs HW=182.51' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE3: Drip Egde 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	100	0	182.54	140	42
181.52	100	1	182.56	140	43
181.54	100	2	182.58	140	44
181.56	100	2	182.60	140	46
181.58	100	3	182.62	140	47
181.60	100	4	182.64	140	48
181.62	100	5	182.66	140	49
181.64	100	6	182.68	140	50
181.66	100	6	182.70	140	51
181.68	100	7	182.72	140	52
181.70	100	8	182.74	140	53
181.72	100	9	182.76	140	54
181.74	100	10	182.78	140	56
181.76	100	10	182.80	140	57
181.78	100	11	182.82	140	58
181.80	100	12	182.84	140	59
181.82	100	13	182.86	140	60
181.84	100	14	182.88	140	61
181.86	100	14	182.90	140	62
181.88	100	15	182.92	140	63
181.90	100	16	182.94	140	65
181.92	100	17	182.96	140	66
181.94	100	18	182.98	140	67
181.96	100	18	183.00	140	68
181.98	100	19			
182.00	100	20			
182.02	100	21			
182.04	100	22			
182.06	100	22			
182.08	100	23			
182.10	100	24			
182.12	100	25			
182.14	100	26			
182.16	100	26			
182.18	100	27			
182.20	100	28			
182.22	100	29			
182.24	100	30			
182.26	100	30			
182.28	100	31			
182.30	100	32			
182.32	100	33			
182.34	100	34			
182.36	100	34			
182.38	100	35			
182.40	100	36			
182.42	100	37			
182.44	100	38			
182.46	100	38			
182.48	100	39			
182.50	100	40			
182.52	140	41			

Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 6.74" for 50-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.71 hrs, Volume= 0.00 af, Atten= 80%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.71 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 182.22' @ 12.34 hrs Surf.Area= 88 sf Storage= 25 cf
 Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 9.0 min calculated for 0.00 af (100% of inflow)
 Center-of-Mass det. time= 9.0 min (756.2 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.71 hrs HW=181.52' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE2: Drip Edge 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	88	0	182.54	123	37
181.52	88	1	182.56	123	38
181.54	88	1	182.58	123	39
181.56	88	2	182.60	123	40
181.58	88	3	182.62	123	41
181.60	88	4	182.64	123	42
181.62	88	4	182.66	123	43
181.64	88	5	182.68	123	44
181.66	88	6	182.70	123	45
181.68	88	6	182.72	123	46
181.70	88	7	182.74	123	47
181.72	88	8	182.76	123	48
181.74	88	8	182.78	123	49
181.76	88	9	182.80	123	50
181.78	88	10	182.82	123	51
181.80	88	11	182.84	123	52
181.82	88	11	182.86	123	53
181.84	88	12	182.88	123	54
181.86	88	13	182.90	123	55
181.88	88	13	182.92	123	56
181.90	88	14	182.94	123	57
181.92	88	15	182.96	123	58
181.94	88	15	182.98	123	59
181.96	88	16	183.00	123	60
181.98	88	17			
182.00	88	18			
182.02	88	18			
182.04	88	19			
182.06	88	20			
182.08	88	20			
182.10	88	21			
182.12	88	22			
182.14	88	23			
182.16	88	23			
182.18	88	24			
182.20	88	25			
182.22	88	25			
182.24	88	26			
182.26	88	27			
182.28	88	27			
182.30	88	28			
182.32	88	29			
182.34	88	30			
182.36	88	30			
182.38	88	31			
182.40	88	32			
182.42	88	32			
182.44	88	33			
182.46	88	34			
182.48	88	34			
182.50	88	35			
182.52	123	36			

Summary for Pond DE4: Drip Edge 4

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 6.74" for 50-yr event
 Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 11.71 hrs, Volume= 0.00 af, Atten= 80%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.71 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 182.22' @ 12.34 hrs Surf.Area= 88 sf Storage= 25 cf
 Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 9.0 min calculated for 0.00 af (100% of inflow)
 Center-of-Mass det. time= 9.0 min (756.2 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.71 hrs HW=181.52' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE4: Drip Edge 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	88	0	182.54	123	37
181.52	88	1	182.56	123	38
181.54	88	1	182.58	123	39
181.56	88	2	182.60	123	40
181.58	88	3	182.62	123	41
181.60	88	4	182.64	123	42
181.62	88	4	182.66	123	43
181.64	88	5	182.68	123	44
181.66	88	6	182.70	123	45
181.68	88	6	182.72	123	46
181.70	88	7	182.74	123	47
181.72	88	8	182.76	123	48
181.74	88	8	182.78	123	49
181.76	88	9	182.80	123	50
181.78	88	10	182.82	123	51
181.80	88	11	182.84	123	52
181.82	88	11	182.86	123	53
181.84	88	12	182.88	123	54
181.86	88	13	182.90	123	55
181.88	88	13	182.92	123	56
181.90	88	14	182.94	123	57
181.92	88	15	182.96	123	58
181.94	88	15	182.98	123	59
181.96	88	16	183.00	123	60
181.98	88	17			
182.00	88	18			
182.02	88	18			
182.04	88	19			
182.06	88	20			
182.08	88	20			
182.10	88	21			
182.12	88	22			
182.14	88	23			
182.16	88	23			
182.18	88	24			
182.20	88	25			
182.22	88	25			
182.24	88	26			
182.26	88	27			
182.28	88	27			
182.30	88	28			
182.32	88	29			
182.34	88	30			
182.36	88	30			
182.38	88	31			
182.40	88	32			
182.42	88	32			
182.44	88	33			
182.46	88	34			
182.48	88	34			
182.50	88	35			
182.52	123	36			

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GROUNDWATER RECHARGE

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

0.14	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.21	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"
0.31 inches		Rd = Weighted groundwater recharge depth	
0.1101 ac-in		GRV = AI * Rd	
399 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):

Calculations exclude offsite impervious areas. Volume infiltrated calculated for 2-yr storm event.

IB1 = 0.025 af, IB2 = 0.018 af, IB3 = 0.012 af, DE1 = 0.003 af, DE2 = 0.002 af, DE3 = 0.003 af, DE4 = 0.002 af

$$\text{Infiltration} = 0.065 \text{ af} = 2,831 \text{ cf}$$

Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 2.79" for 2-yr event
 Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.003 af
 Outflow = 0.0 cfs @ 11.92 hrs, Volume= 0.003 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.92 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 181.83' @ 12.12 hrs Surf.Area= 100 sf Storage= 13 cf
 Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 3.9 min calculated for 0.003 af (100% of inflow)
 Center-of-Mass det. time= 3.9 min (772.0 - 768.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices	
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'	

Discarded OutFlow Max=0.0 cfs @ 11.92 hrs HW=181.53' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.0 cfs)

Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 2.79" for 2-yr event
 Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.002 af
 Outflow = 0.0 cfs @ 11.92 hrs, Volume= 0.002 af, Atten= 65%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.92 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 181.70' @ 12.11 hrs Surf.Area= 88 sf Storage= 7 cf
 Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 2.3 min calculated for 0.002 af (100% of inflow)
 Center-of-Mass det. time= 2.3 min (770.4 - 768.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	

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24094 24-hr S1 2-yr Rainfall=3.13"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.92 hrs HW=181.52' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)**Summary for Pond DE3: Drip Egde 3**

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 2.79" for 2-yr event
 Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.003 af
 Outflow = 0.0 cfs @ 11.92 hrs, Volume= 0.003 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.92 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 181.83' @ 12.12 hrs Surf.Area= 100 sf Storage= 13 cf

Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 3.9 min calculated for 0.003 af (100% of inflow)

Center-of-Mass det. time= 3.9 min (772.0 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.92 hrs HW=181.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)**Summary for Pond DE4: Drip Edge 4**

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 2.79" for 2-yr event
 Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.002 af
 Outflow = 0.0 cfs @ 11.92 hrs, Volume= 0.002 af, Atten= 65%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.92 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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24094 24-hr S1 2-yr Rainfall=3.13"

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Peak Elev= 181.70' @ 12.11 hrs Surf.Area= 88 sf Storage= 7 cf

Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 2.3 min calculated for 0.002 af (100% of inflow)

Center-of-Mass det. time= 2.3 min (770.4 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.92 hrs HW=181.52' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)**Summary for Pond IB1: IB1**

Inflow Area = 0.271 ac, 54.17% Impervious, Inflow Depth = 1.10" for 2-yr event
 Inflow = 0.3 cfs @ 12.05 hrs, Volume= 0.025 af
 Outflow = 0.1 cfs @ 12.59 hrs, Volume= 0.025 af, Atten= 80%, Lag= 32.1 min
 Discarded = 0.1 cfs @ 12.59 hrs, Volume= 0.025 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 179.95' @ 12.59 hrs Surf.Area= 529 sf Storage= 209 cf

Flood Elev= 181.25' Surf.Area= 2,446 sf Storage= 1,826 cf

Plug-Flow detention time= 20.4 min calculated for 0.025 af (100% of inflow)

Center-of-Mass det. time= 20.4 min (915.3 - 894.8)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,826 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	396	94.0	0	0	396
180.00	544	103.4	234	234	552
181.00	1,715	234.3	1,075	1,309	4,073
181.25	2,446	253.1	517	1,826	4,805

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	180.75'	5.0' long x 8.0' 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

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24094 24-hr S1 2-yr Rainfall=3.13"

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2.50 3.00 3.50 4.00 4.50 5.00 5.50
 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.59 hrs HW=179.95' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.1 cfs)**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)**Summary for Pond IB2: IB2**

Inflow Area = 0.111 ac, 72.77% Impervious, Inflow Depth = 1.93" for 2-yr event
 Inflow = 0.3 cfs @ 12.02 hrs, Volume= 0.018 af
 Outflow = 0.0 cfs @ 12.55 hrs, Volume= 0.018 af, Atten= 85%, Lag= 31.6 min
 Discarded = 0.0 cfs @ 12.55 hrs, Volume= 0.018 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 181.72' @ 12.55 hrs Surf.Area= 344 sf Storage= 204 cf

Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 41.4 min calculated for 0.018 af (100% of inflow)

Center-of-Mass det. time= 41.4 min (878.2 - 836.9)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	182.00'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 12.55 hrs HW=181.72' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=180.75' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB3: IB3

Inflow Area = 0.107 ac, 45.36% Impervious, Inflow Depth = 1.30" for 2-yr event
 Inflow = 0.1 cfs @ 12.01 hrs, Volume= 0.012 af
 Outflow = 0.0 cfs @ 12.33 hrs, Volume= 0.012 af, Atten= 72%, Lag= 19.3 min
 Discarded = 0.0 cfs @ 12.33 hrs, Volume= 0.012 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 174.62' @ 12.33 hrs Surf.Area= 329 sf Storage= 68 cf

Flood Elev= 175.25' Surf.Area= 539 sf Storage= 327 cf

Plug-Flow detention time= 8.5 min calculated for 0.012 af (100% of inflow)

Center-of-Mass det. time= 8.5 min (862.7 - 854.2)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	327 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	284	66.8	0	0	284
175.00	415	78.1	208	208	421
175.25	539	87.5	119	327	547

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	5.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	175.00'	6.0' long x 5.1' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 12.33 hrs HW=174.62' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Test Pit: 1**Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-13	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
13-36	10 YR 6/4	Loamy Sand	Massive	Friable		Roots few, fine @ 36"
36-59	10 YR 5/6	Fine Sandy Loam	Massive	Friable		10% Cobbles
59-78	2.5 Y 2/3	Fine Sandy Loam	Blocky		<2% Redox 59"	

Seasonal High Water (in): 59**Soil Series:****Observed Water (in):** None**NHDES Soil Group:****Restrictive Layer (in):** None**Hydrologic Soil Group:****Bedrock/Refusal (in):** None

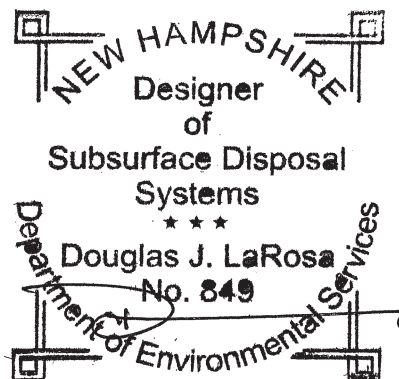
Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849**Test Pit: 2****Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-25	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
25-46	10 YR 6/6	Loamy sand	Massive	Friable		Roots many common @38"
46-72	10 YR 4/3	Fine Sandy Loam	Blocky	Firm	<2% Redox 48"	Roots few, fine @ 48"

Seasonal High Water (in): 48**Soil Series:****Observed Water (in):** None**NHDES Soil Group:****Restrictive Layer (in):** None**Hydrologic Soil Group:****Bedrock/Refusal (in):** None**Percolation Test**

Depth Perc Test Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849**Test Pit: 3****Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-8	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
8-50	2.5 Y 5/4	Loamy Sand	Massive	Friable		10% Cobbles
50-78	2.5 Y 4/3	Fne Sandy Loam	Massive	Firm	Redox > 2%, at 51"	Roots, few fine 50"

Seasonal High Water (in): 51

Soil Series:

Observed Water (in): None

NHDES Soil Group:

Restrictive Layer (in): None

Hydrologic Soil Group:

Bedrock/Refusal (in): None

Percolation Test

Depth Perc Test Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849

Test Pit: 4

Date: 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-1	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
1-59	10 YR 4/6	Loamy Sand	Massive	Loose		Roots 58" few fine
59-78	10 YR 4/4	Fine Sandy Loam	Blocky	Firm	2% Redox+ 59"	

Seasonal High Water (in): 59"

Soil Series:

Observed Water (in): None

NHDES Soil Group:

Restrictive Layer (in): None

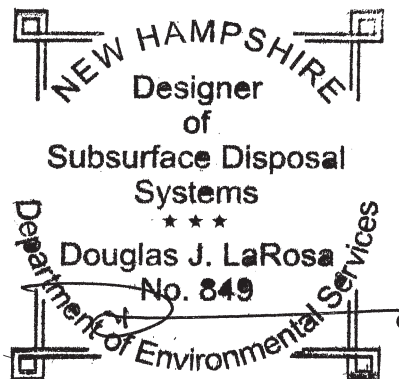
Hydrologic Soil Group:

Bedrock/Refusal (in): None

Percolation Test

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Test Pit: 5

Date: 10/25/2024

Redox

Depth (in)	Color	Texture	Structure	Consistence	Features	Notes
0-3	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
3-48	10 YR 6/4	Loamy Sand	Massive	Friable		5% Gravel
48-56	10 YR3/3	Fine Sandy Loam	Massive	Friable		Roots few, fine @ 48"
56-80	10 YR 5/4	Fine Sandy Loam	Massive		2%+ Redox 5YR 5/4 56"	

Seasonal High Water (in): 56"

Observed Water (in): None

Restrictive Layer (in): None

Bedrock/Refusal (in): None

Soil Series:

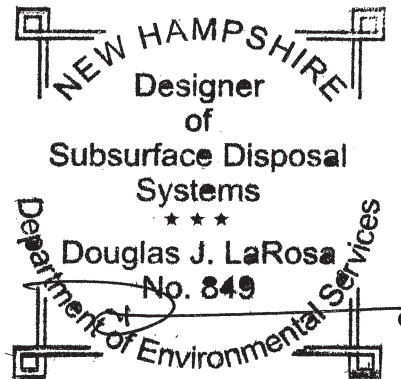
NHDES Soil Group:

Hydrologic Soil Group:

Percolation Test

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>1</u>	Test Pit/Boring Hole Number:	<u>BH-1</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u>2</u>	Surface Elevation (feet):	<u>183.4±</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	6.00		23	230.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				230.00	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>2</u>	Test Pit/Boring Hole Number:	<u>BH-1</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u>2</u>	Surface Elevation (feet):	<u>183.4±</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

presoak

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

76.67

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>3</u>	Test Pit/Boring Hole Number:	<u>BH-1</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u>2</u>	Surface Elevation (feet):	<u>183.4±</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		21	84.00	
15.00		2			
	25.00		23	55.20	Finish
Stabilized Infiltration Testing Rate (inches per hour):				55.20	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>4</u>	Test Pit/Boring Hole Number:	<u>BH-1</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u>2</u>	Surface Elevation (feet):	<u>183.4±</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		20	80.00	
15.00		3			
	23.00		23	60.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				60.00	

Notes:

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com
Test Number:	5	Test Pit/Boring Hole Number:	BH-1
Test Depth (feet):	2	Surface Elevation (feet):	183.4±
		Test Method:	Borehole Infiltration Test
		Instrument Diameter (inches):	4

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

[illegible]

53.08	

Notes:

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com
Test Number:	1	Test Pit/Boring Hole Number:	BH-2
Test Depth (feet):		Surface Elevation (feet):	176
		Instrument Diameter (inches):	4

[illegible]

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		15	0
37.00		0	15

[illegible]

172.50	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>2</u>	Test Pit/Boring Hole Number:	<u>BH-2</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>176</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

[illegible]

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		15	0
37.00		0	15

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

153.33

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>3</u>	Test Pit/Boring Hole Number:	<u>BH-2</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>176</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

[illegible]

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		15	0
37.00		0	15

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

153.33

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>4</u>	Test Pit/Boring Hole Number:	<u>BH-2</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>176</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

[illegible]

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		15	0
37.00		0	15

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	10.00		23	138.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				138.00	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>5</u>	Test Pit/Boring Hole Number:	<u>BH-2</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>176</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

[illegible]

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		15	0
37.00		0	15

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

153.33

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>1</u>	Test Pit/Boring Hole Number:	<u>BH-3</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>174</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

presoak

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

76.67

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>2</u>	Test Pit/Boring Hole Number:	<u>BH-3</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u></u>	Surface Elevation (feet):	<u>174</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		21.5	86.00	
15.00		1.5			
	19.00		23	72.63	Finish
Stabilized Infiltration Testing Rate (inches per hour):				72.63	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>3</u>	Test Pit/Boring Hole Number:	<u>BH-3</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>174</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		21	84.00	
15.00		2			
	21.00		23	65.71	Finish
Stabilized Infiltration Testing Rate (inches per hour):				65.71	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>4</u>	Test Pit/Boring Hole Number:	<u>BH-3</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>174</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		19.5	78.00	
15.00		3.5			
	23.00		23	60.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				60.00	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>5</u>	Test Pit/Boring Hole Number:	<u>BH-3</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):	<u></u>	Surface Elevation (feet):	<u>174</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

presoak

Infiltration Testing

[illegible]**Stabilized Infiltration Testing Rate (inches per hour):**

60.00

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>1</u>	Test Pit/Boring Hole Number:	<u>BH-4</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>181.85</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
10.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		23	92.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				92.00	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>2</u>	Test Pit/Boring Hole Number:	<u>BH-4</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>181.85</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
10.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	13.00		23	106.15	Finish
Stabilized Infiltration Testing Rate (inches per hour):				106.15	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>3</u>	Test Pit/Boring Hole Number:	<u>BH-4</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>181.85</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
10.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	14.00		23	98.57	Finish
Stabilized Infiltration Testing Rate (inches per hour):				98.57	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>4</u>	Test Pit/Boring Hole Number:	<u>BH-4</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>181.85</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
10.00		0	23

presoak

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

92.00

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>5</u>	Test Pit/Boring Hole Number:	<u>BH-4</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>181.85</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
10.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		23	92.00	Finish
Stabilized Infiltration Testing Rate (inches per hour):				92.00	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>1</u>	Test Pit/Boring Hole Number:	<u>BH-5</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>180.44</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	Fine Sandy Loam	N
18-24	Grey hardpan	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
30.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		14	56.00	
15.00		9			
	30.00		19.5	39.00	
30.00		3.5			
	41.00		23	33.66	Finish
Stabilized Infiltration Testing Rate (inches per hour):				33.66	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>2</u>	Test Pit/Boring Hole Number:	<u>BH-5</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>180.44</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	Fine Sandy Loam	N
18-24	Grey hardpan	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
30.00		0	23

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		14	56.00	
15.00		9			
	30.00		19	38.00	
30.00		4			
	44.00		23	31.36	Finish
Stabilized Infiltration Testing Rate (inches per hour):				31.36	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	Date:	10/31/2024
Project Address:	512 Sixth Street, Dover NH	Weather:	Sunny, 78°
Testing Company:	Civilworks NE	Tester's Name:	Mike Menary
Phone Number:	(603) 749-0443	Email Address:	mmenary@civilworksne.com

Test Number:	<u>3</u>	Test Pit/Boring Hole Number:	<u>BH-5</u>	Test Method:	<u>Borehole Infiltration Test</u>
Test Depth (feet):		Surface Elevation (feet):	<u>180.44</u>	Instrument Diameter (inches):	<u>4</u>

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	Fine Sandy Loam	N
18-24	Grey hardpan	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
30.00		0	23

presoak

Infiltration Testing

[illegible]

Stabilized Infiltration Testing Rate (inches per hour):

30.67

Notes:

Stormwater Infiltration Testing Log

Project Name:

CNE#24094 - DBS Holdings Sixth St

Date:

10/31/2024

Project Address:

512 Sixth Street, Dover NH

Weather:

Sunny, 78°

Testing Company:

Civilworks NE

Tester's Name:

Mike Menary

Phone Number:

(603) 749-0443

Email Address:

mmenary@civilworksne.com

Test Number:

4

Test Pit/Boring Hole Number:

BH-5

Test Method:

Borehole Infiltration Test

Test Depth (feet):

Surface Elevation (feet):

180.44

Instrument Diameter (inches):

4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	Fine Sandy Loam	N
18-24	Grey hardpan	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):	presoak
0.00		23	0	
30.00		0	23	

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		14	56.00	
15.00		9			
	30.00		18	36.00	
30.00		5			
	45.00		22.5	30.00	
45.00		0.5			
	49.00		23	28.16	Finish
Stabilized Infiltration Testing Rate (inches per hour):				28.16	

Notes:

Stormwater Infiltration Testing Log

Project Name:

CNE#24094 - DBS Holdings Sixth St

Date:

10/31/2024

Project Address:

512 Sixth Street, Dover NH

Weather:

Sunny, 78°

Testing Company:

Civilworks NE

Tester's Name:

Mike Menary

Phone Number:

(603) 749-0443

Email Address:

mmenary@civilworksne.com

Test Number:

5

Test Pit/Boring Hole Number:

BH-5

Test Method:

Borehole Infiltration Test

Test Depth (feet):

Surface Elevation (feet):

180.44

Instrument Diameter (inches):

4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	Fine Sandy Loam	N
18-24	Grey hardpan	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):	presoak
0.00		23	0	
30.00		0	23	

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		13	52.00	
15.00		10			
	30.00		18.5	37.00	
30.00		4.5			
	45.00		22.5	30.00	
45.00		0.5			
	49.00		23	28.16	Finish
Stabilized Infiltration Testing Rate (inches per hour):				28.16	

Notes:

APPENDIX C

INSPECTION AND MAINTENANCE

C – 1

**STORMWATER MANAGEMENT SYSTEM
INSPECTION & MAINTENANCE PLAN**

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

**TDR SITE PLAN
5 UNIT RESIDENTIAL
Map B, Lot 2**

**512 Sixth Street
Dover, New Hampshire
Strafford County**

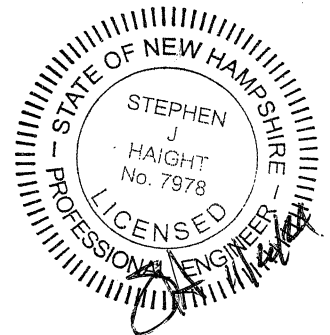
November 2024

Owner of Record:

DBS HOLDINGS, LLC
71 Danielle Lane
Dover, New Hampshire 03820

Prepared By:

CIVILWORKS NEW ENGLAND
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03821



Introduction

Civilworks New England has prepared the following Stormwater Management System Inspection & Maintenance Plan for **DBS Holdings, LLC**. The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The inspection and maintenance requirements outlined in this document are required to be performed in perpetuity. In the event the property is sold, future owners will be responsible for implementing the responsibilities outlined in this document.

The following inspection and maintenance program is necessary to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel 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.

This plan also requires the Owner/Operator to prepare and implement a salt minimization plan to reduce salt usage on-site and ultimately within the watershed. This plan will allow the owner/operator to monitor and modify how much salt is needed, when it should be applied, and where it needs to be applied, with the ultimate goal of reducing salt-use without compromising safety. It is expected that salt-use reduction will lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation (e.g., landscaping) and corrosion of infrastructure.

The salt minimization plan should include the retention of a contractor who has completed the Green SnowPro Training course and obtained NHDES Salt Application Certification.

It is anticipated that this be a living document that will be updated at regular intervals (recommend updating annually in advance of the winter season in order to facilitate adjustments).

Owner:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party.

Contact / Responsible Party:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

**Dave Sullivan
Phone: (603) 743-4284
Email: dbsholdingsllc@gmail.com**

The contact information for the Contact / Responsible Party shall be kept current.

Management Company:

**DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820**

The contact information for the Management Party shall be kept current.

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NHDES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to the City of Dover Community Services Department annually before Dec 15th.

Stormwater Management System Components

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

- Pipes / Culverts
- Catch Basin
- Grass Lined Conveyance Swales
- Infiltration Basins
- Stone Drip Edges
- Pavement
- Litter / Trash Removal

Design elements are identified in the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. Invasive plants shall be controlled to prevent them from reproducing, spreading, or re-growing. See the University of New Hampshire – Cooperative Extension's "Method for Disposing Non-Native Invasive Plants", included at the end of this manual, for guidance on the removal and disposal of invasive species.

Inspection and Maintenance Plan

By implementing the following procedures, the owners 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.

PIPES/CULVERTS:

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

CATCH BASIN(S):

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 1 foot.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

GRASS LINED CONVEYANCE SWALE:

- Inspect once per year.
- Inspect for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas as needed; remove invasive species and dead vegetation.
- Perform periodic mowing of swale (at least twice annually), maintain a 4" stand of vegetative growth.

INFILTRATION BASIN:

- Inspect and remove any debris from inlet and outlet structures.
- Remove any accumulated sediment.
- Inspect and repair outlet structures and appurtenances.
- Inspection of infiltration components at least twice annually and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Periodic mowing of basin and embankments.
- Removal of woody vegetation from basin and embankments.
- Inspection and repair of embankments and spillways.
- If an infiltration 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 infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration bottom.

STONE DRIP EDGES:

- Inspect twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period.
- If system does not drain within 72-hours following a rainfall event, a qualified engineer should inspect the system and determine measures required to restore the condition of the facility.
- Follow the University of New Hampshire's "Methods for Disposing Non-Native Invasive Plants" for disposing of invasive species (Attached).
- There shall be no use of chemical herbicides or pesticides, except for wildlife habitat management and then only in coordination with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program. Herbicides or pesticides are absolutely prohibited within wetlands or wetland buffer setbacks.

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick-up.

DE-ICING AGENTS:

- To address the concerns associated with the application of chlorides and other deicing materials, NHDES recommends that the Owner/Operator develop a Road Salt and Deicing Minimization Plan for the parking lots and roadways. The plan should develop the policies that the development will keep in place to minimize salt and other deicer use after the project has been completed. The plan should include tracking the use of salt and other deicers for each storm event and compiling salt use data annually. (See Deicing Salt Quantity Use Log).
- Use sand as primary agent for driveway and access way safety during ice and snow conditions.
- Minimize the use of salt 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.
- Recommend using a certified Winter Operator (Green SnowPro Trained) for applying de-icing agents.
- Monitor weather and apply de-icing agents based on weather conditions and temperatures.

ANTI-ICING AND SALT MINIMIZATION:

- Owner to develop a Road Salt and Deicing Minimization Plan.
- Provide a written policy that the "Development" will keep in place to minimize salt and other deicer use after the project has been completed.
- Use the attached form to track the use of salt and other deicers for each storm event and compiling salt use data annually.

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pipes/Culverts	Annually	- Check for clogging - Check for sediment accumulation	Remove when noticed Clean when necessary
Catch Basin	Annually	- Check for sediment accumulation - Check for floatable contaminants - Check for hydrocarbons (oils and grease)	≥ 1 ft. sediment depth Remove all floatables Remove immediately
Grass Lined Conveyance Swale	Annually	- Check for sediment accumulation - Check for erosion - Ensure swale is stabilized - Maintain healthy stand of veg., min 4" - Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Infiltration Basin	Bi-Annually	- Check for sediment accumulation - Check for debris - Inspect for woody vegetation - Maintain healthy stand of veg., 4" minimum - Inspect for invasive species - Check for water draining	Remove any accumulated Sediment Remove from inlet/outlet structures Remove Immediately Mow twice per year (applies to IB1 and IB2) Remove/Dispose of accordingly 72 hours after a 2.5 inch storm event in a 24 hour period
Stone Drip Edges	Bi-Annually	- Check for sediment accumulation - Check for woody vegetation growth - Check for debris	Remove/Dispose of accordingly Remove Immediately Remove/Dispose of accordingly
Pavement: - Sanding - Salt Applications - Sweep/Vacuum - Trash/Debris	Limit use As required 1 - 2 x's Year Periodically	- Minimize use to prevent tracking issues - RECORD APPLICATION RATES - Sweep or vacuum to prevent tracking issues - Check for trash/debris	Sweep to prevent issues Minimize (as required) Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

The following pages contain a blank copy of the Stormwater Management System's Inspection & Maintenance Log and a Deicing Salt Quantity Use Log. These forms are provided to assist the owners with the inspection and maintenance of the aforementioned Stormwater Management System.

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance _____ Inspector: _____

[illegible]

Deicing Salt Quantity Use Log

[illegible]

Methods for Disposing Non-Native Invasive Plants

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



Tatarian honeysuckle

Lonicera tatarica

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

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

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

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

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

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

New Hampshire Regulations

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

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

How and When to Dispose of Invasives?

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

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

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

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

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

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

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

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



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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple <i>(Acer platanoides)</i> European barberry <i>(Berberis vulgaris)</i> Japanese barberry <i>(Berberis thunbergii)</i> autumn olive <i>(Elaeagnus umbellata)</i> burning bush <i>(Euonymus alatus)</i> Morrow's honeysuckle <i>(Lonicera morrowii)</i> Tatarian honeysuckle <i>(Lonicera tatarica)</i> showy bush honeysuckle <i>(Lonicera x bella)</i> common buckthorn <i>(Rhamnus cathartica)</i> glossy buckthorn <i>(Frangula alnus)</i>	Fruit and Seeds 	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.
		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.
oriental bittersweet <i>(Celastrus orbiculatus)</i> multiflora rose <i>(Rosa multiflora)</i>	Fruits, Seeds, Plant Fragments 	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.
		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.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard (<i>Alliaria petiolata</i>) spotted knapweed (<i>Centaurea maculosa</i>) ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort (<i>Cynanchum nigrum</i>) ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort (<i>Cynanchum rossicum</i>) giant hogweed (<i>Heracleum mantegazzianum</i>) ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket (<i>Hesperis matronalis</i>) perennial pepperweed (<i>Lepidium latifolium</i>) purple loosestrife (<i>Lythrum salicaria</i>) Japanese stilt grass (<i>Microstegium vimineum</i>) mile-a-minute weed (<i>Polygonum perfoliatum</i>)	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 (<i>Phragmites australis</i>) Japanese knotweed (<i>Polygonum cuspidatum</i>) Bohemian knotweed (<i>Polygonum x bohemicum</i>)	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.

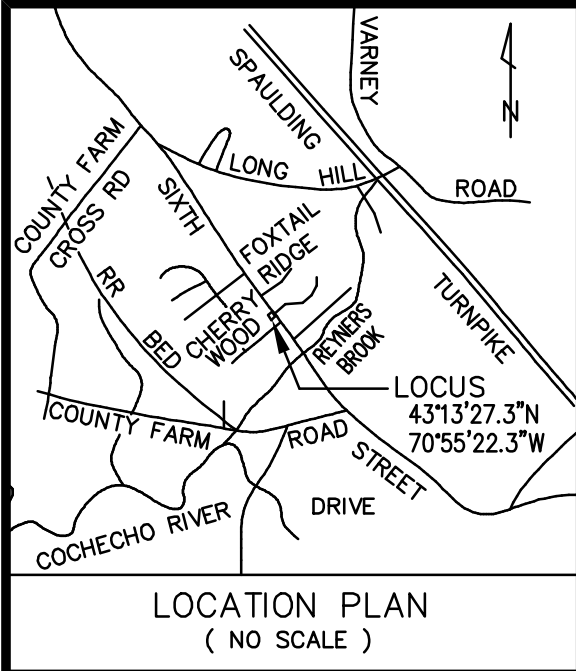
January 2010

APPENDIX D

WATERSHED PLANS

D – 1

PRE-DEVELOPMENT CONDITIONS



B / 4-6

NATHAN A. DOWNS
ELIZABETH A. DOWNS
59 COTTONWOOD DRIVE
DOVER, NH 03820
4263 / 364

B / 4-69

ROBERT L. SUYDAM
JO ANN SUYDAM
11 CHERRYWOOD DRIVE
DOVER, NH 03820
2963 / 798

B / 3

J. TODD CORLEY
DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

B / 2

PARCEL AREA
81,270 S.F.
1.87 Ac.

A / 45-1

WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LAI
DOVER, NH 03820
4748 / 180

PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A	0.79	157	15.9
B	0.42	190	13.2
C	0.67	244	14.7
D	0.17	133	19.9

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- PROPERTY LINE
- EX BUILDING
- EX EDGE OF PAVEMENT
- EX EDGE OF GRAVEL
- EX TREELINE
- EDGE OF WETLAND
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- SUBCATCHMENT DESIGNATION

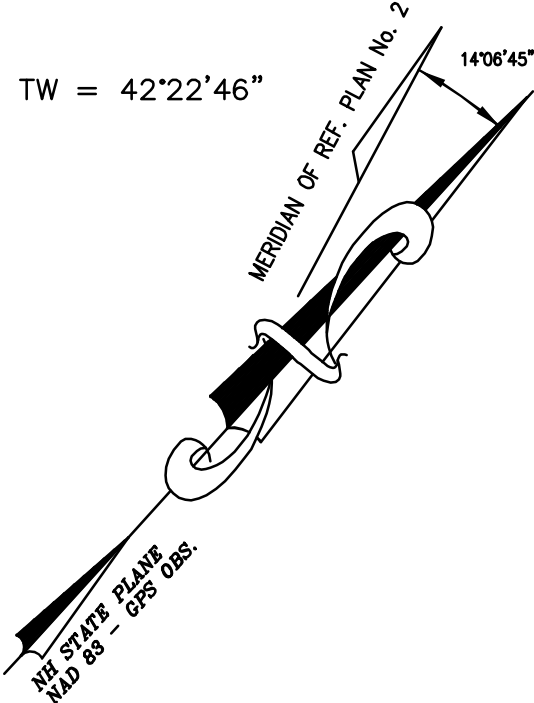
A / 45-2-9

DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

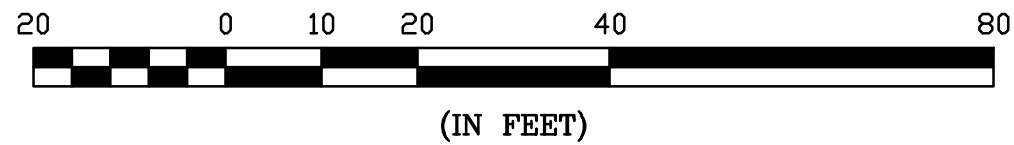
A / 46

CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

TW = 42°22'46"



GRAPHIC SCALE



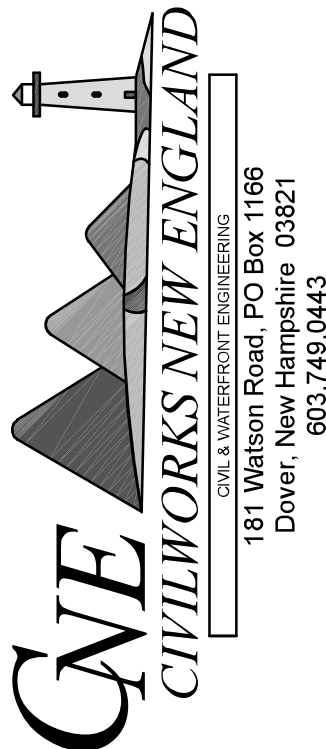
PRE-DEVELOPMENT WATERSHED PLAN

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

WS-1

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

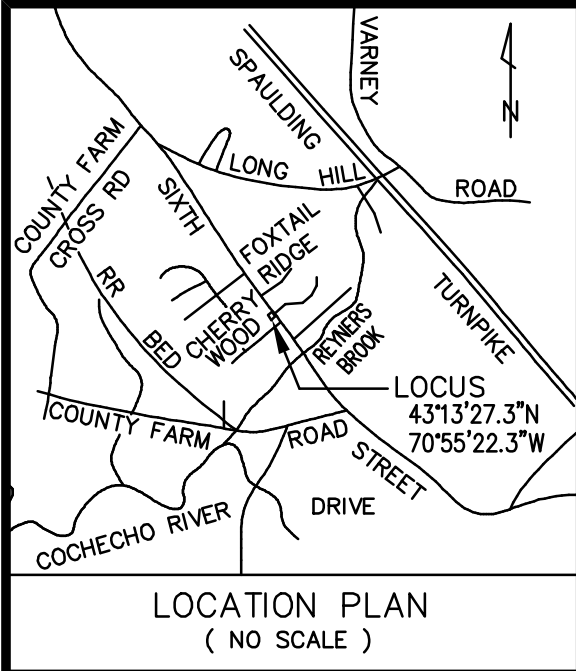


181 Watson Road, PO Box 1166
Dover, NH 03820
603.748.0443

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE	NO.	REVISION	APP'D	DATE
11-21-24	1"=20'	SRD	JPG	BY:JH	24084	Dm.dwg				

D – 2

POST-DEVELOPMENT CONDITIONS



B / 4-6

NATHAN A. DOWNS
ELIZABETH A. DOWNS
59 COTTONWOOD DRIVE
DOVER, NH 03820
4263 / 364

B / 4-69

ROBERT L. SUYDAM
JO ANN SUYDAM
11 CHERRYWOOD DRIVE
DOVER, NH 03820
2963 / 798

B / 3

J. TODD CORLEY
DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

B / 2C

DURELL FAMILY REVOCABLE
TRUST OF 2018
508 SIXTH STREET
DOVER, NH 03820
4572 / 641

TW = 42°22'46"

NO STATE PLANT
MAY 08 09:00 AM

MERIDIAN OF REF. PLAN No. 2
147°06'45"

A / 45-1

WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LAI
DOVER, NH 03820
4748 / 180

POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
1	0.27	87	7.0
2	0.09	48	7.3
3	0.34	125	12.3
4	0.11	52	4.1
5	0.01	15	1.2
6	0.09	60	5.9
7	0.30	90	11.3
8	0.01	15	1.2
9	0.01	15	1.2
10	0.01	15	1.2
11	0.01	15	1.2
12	0.71	384	16.0
13	0.08	122	17.4

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- PROPOSED FINISH GRADE
- PROPERTY LINE
- PROPOSED BUILDING
- EX EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED EDGE OF GRAVEL
- EX TREELINE
- PROPOSED TREELINE
- EDGE OF WETLAND
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH
WITH DIRECTION OF FLOW
- SUBCATCHMENT DESIGNATION

A / 45-2-9

DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

A / 46

CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

GRAPHIC SCALE



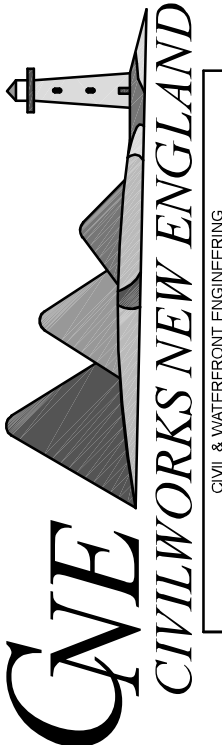
POST-DEVELOPMENT WATERSHED PLAN

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

WS-2

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY



181 Watson Road, PO Box 1166
Dover, NH 03820
603.748.0443

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE	NO.	REVISION	APPD	DATE
11-21-24	1"=20'	SRD	JPG	BY:JH	24084	Drn.dwg				

Test Pit: 1**Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-13	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
13-36	10 YR 6/4	Loamy Sand	Massive	Friable		Roots few, fine @ 36"
36-59	10 YR 5/6	Fine Sandy Loam	Massive	Friable		10% Cobbles
59-78	2.5 Y 2/3	Fine Sandy Loam	Blocky		<2% Redox 59"	

Seasonal High Water (in): 59**Soil Series:****Observed Water (in):** None**NHDES Soil Group:****Restrictive Layer (in):** None**Hydrologic Soil Group:****Bedrock/Refusal (in):** None

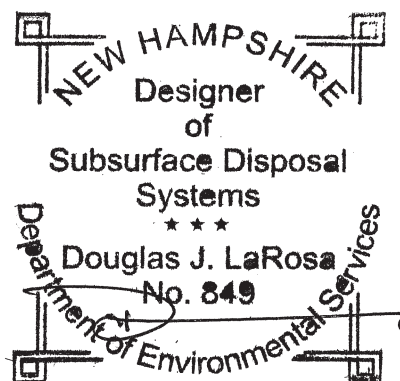
Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849**Test Pit: 2****Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-25	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
25-46	10 YR 6/6	Loamy sand	Massive	Friable		Roots many common @38"
46-72	10 YR 4/3	Fine Sandy Loam	Blocky	Firm	<2% Redox 48"	Roots few, fine @ 48"

Seasonal High Water (in): 48**Soil Series:****Observed Water (in):** None**NHDES Soil Group:****Restrictive Layer (in):** None**Hydrologic Soil Group:****Bedrock/Refusal (in):** None**Percolation Test**

Depth Perc Test Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849**Test Pit: 3****Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-8	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
8-50	2.5 Y 5/4	Loamy Sand	Massive	Friable		10% Cobbles
50-78	2.5 Y 4/3	Fne Sandy Loam	Massive	Firm	Redox > 2%, at 51"	Roots, few fine 50"

Seasonal High Water (in): 51

Soil Series:

Observed Water (in): None

NHDES Soil Group:

Restrictive Layer (in): None

Hydrologic Soil Group:

Bedrock/Refusal (in): None

Percolation Test

Depth Perc Test Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849

Test Pit: 4

Date: 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-1	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
1-59	10 YR 4/6	Loamy Sand	Massive	Loose		Roots 58" few fine
59-78	10 YR 4/4	Fine Sandy Loam	Blocky	Firm	2% Redox+ 59"	

Seasonal High Water (in): 59"

Soil Series:

Observed Water (in): None

NHDES Soil Group:

Restrictive Layer (in): None

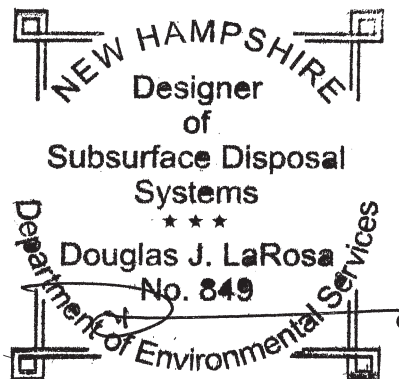
Hydrologic Soil Group:

Bedrock/Refusal (in): None

Percolation Test

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Test Pit: 5

Date: 10/25/2024

Redox

Depth (in)	Color	Texture	Structure	Consistence	Features	Notes
0-3	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
3-48	10 YR 6/4	Loamy Sand	Massive	Friable		5% Gravel
48-56	10 YR3/3	Fine Sandy Loam	Massive	Friable		Roots few, fine @ 48"
56-80	10 YR 5/4	Fine Sandy Loam	Massive		2%+ Redox 5YR 5/4 56"	

Seasonal High Water (in): 56"

Observed Water (in): None

Restrictive Layer (in): None

Bedrock/Refusal (in): None

Soil Series:

NHDES Soil Group:

Hydrologic Soil Group:

Percolation Test

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



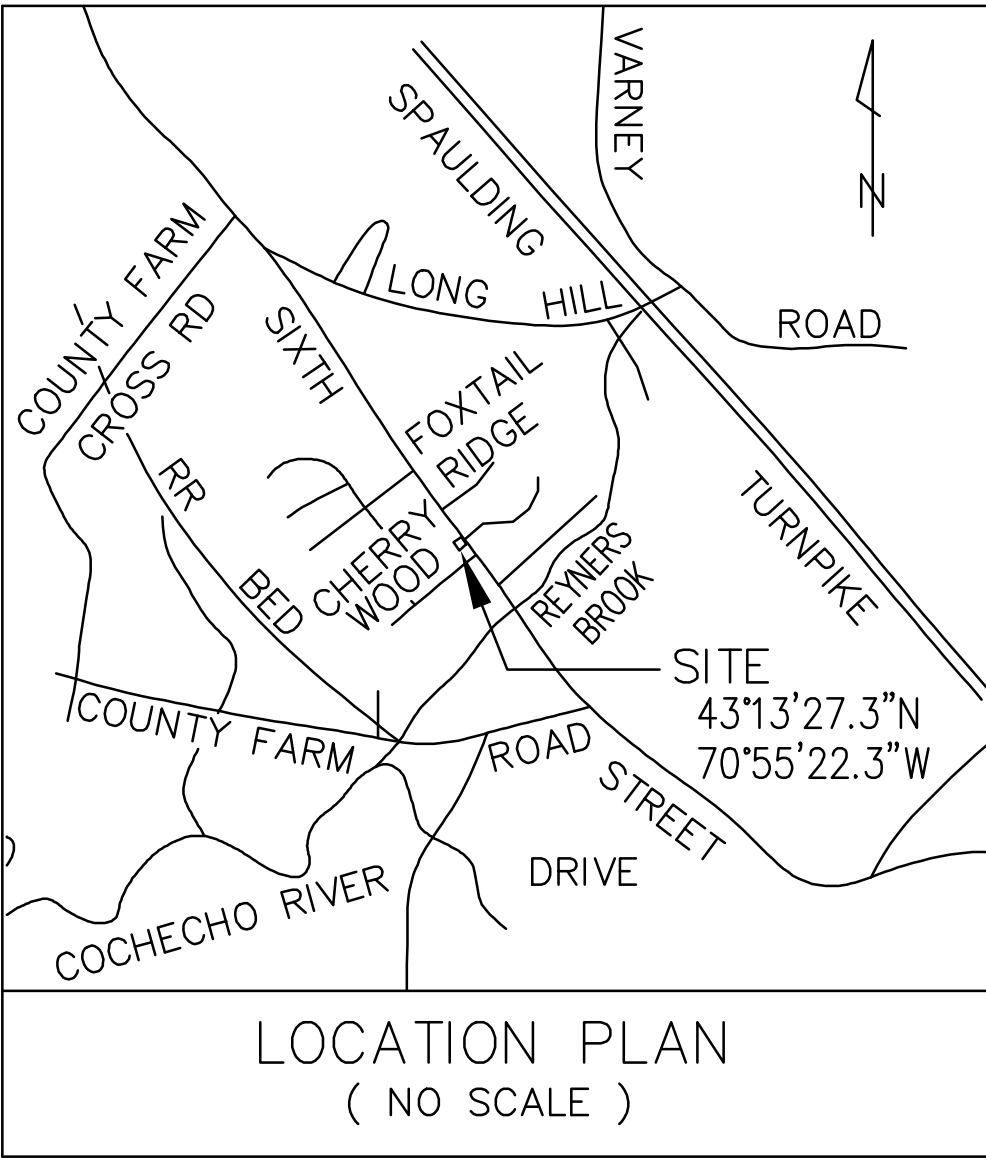
TDR SITE PLAN

5 UNIT RESIDENTIAL

TAX MAP B, LOT No. 2

512 SIXTH STREET
DOVER, NH

NOVEMBER 21, 2024

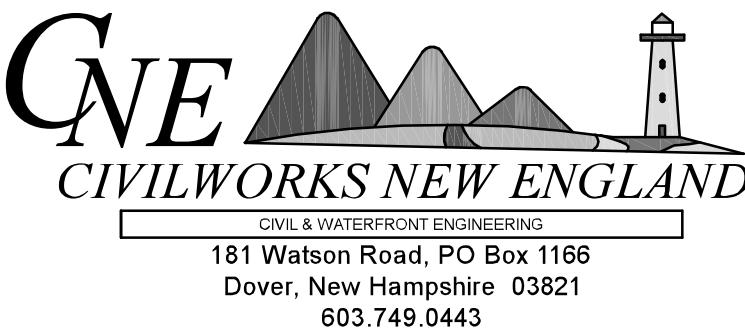


OWNER

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820

OWNER SIGNATURE

SITE CIVIL ENGINEER



LAND SURVEYOR

MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND
P.O. BOX 1166
181 WATSON ROAD
DOVER, NH 03821
(603) 742-0911

WETLAND SCIENTIST

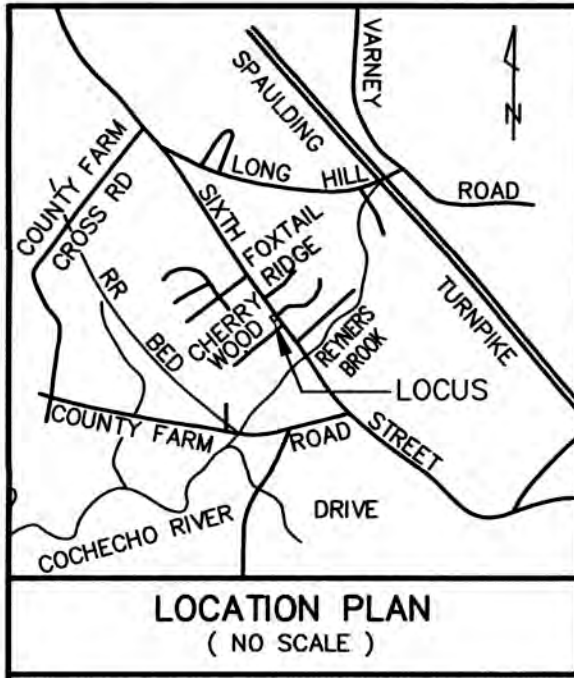
DAMON E BURT, CWS, CPESC
FRAGGLE ROCK ENVIRONMENTAL SERVICES
38 GARLAND ROAD
STRAFFORD, NH 03884
(603) 969-5574

PERMIT SUMMARY/ WAIVER SUMMARY:
1. CITY PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS.
SITE PLAN:
CONDITIONAL USE PERMIT:
2. WAIVERS REQUESTED:
A WAIVER REQUEST FROM SECTION 149-13.A (12) TO NOT REQUIRE A LANDSCAPE PLAN.

SHEET INDEX
COVER SHEET
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)
NEIGHBORHOOD PLAN
NOTE SHEET
DEMOLITION PLAN
SITE PLAN
GRADING & DRAINAGE PLAN
IMPACT & EROSION CONTROL PLAN
UTILITY PLAN
PLAN & PROFILES
EROSION CONTROL NOTES
EROSION CONTROL DETAILS
DETAILS
TRUCK MOVEMENT PLAN

SHEET
1
2
3
4
5
6
7
8
9
10
11
12 - 14
15 - 18
19

PLANNING FILE NO.: SITE - 2024 -



REFERENCE PLANS:

- 1.) PLAN OF LOTS BETHARLENE WEEDEN TO ROBERT W. & BEATRICE MILLER, L. WILLIAM & JOANNA E. DOTCHIN, DOVER, NEW HAMPSHIRE; SCALE: 1" = 50'; DATED: AUGUST 1973; BY: R.W. McCORNE; RECORDED S.C.R.D. PLAN 50, POCKET 4, FOLDER 2.
- 2.) ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE; SCALE: 1" = 60'; DATED: APRIL 27, 1998, REVISED THROUGH 10/7/98; BY McENEANEY SURVEY ASSOCIATES, INC.; RECORDED S.C.R.D. PLAN 56-32.

B / 3

J. TODD CORLEY
DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

NOTES:

- 1.) OWNER OF RECORD:
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 5155, PAGE 367
- 2.) B / 2 - DENOTES TAX MAP AND PARCEL NUMBER.
- 3.) PARCEL AREA = 81,270 S.F. / 1.87 Ac.
- 4.) THE INTENT OF THIS PLAN IS TO DEPICT THE PARCEL BOUNDARY AND EXISTING SITE CONDITIONS AS OF DECEMBER 14, 2023.
- 5.) ZONING DISTRICT:
DISTRICT RURAL RESIDENTIAL (R-40)
DIMENSIONAL REQUIREMENTS:
MINIMUM LOT SIZE = 40,000 S.F.
MAXIMUM LOT COVERAGE = 10 PERCENT
MINIMUM FRONTAGE = 150 FEET
BUILDING SETBACK REQUIREMENTS:
FRONT SETBACK = 40 FEET
SIDE SETBACK = 25 FEET
REAR SETBACK = 30 FEET
MAXIMUM BUILDING HEIGHT = 35 FEET MAXIMUM
OUTBUILDING SETBACK REQUIREMENTS:
FRONT SETBACK = 40 FEET
SIDE SETBACK = 10 FEET
REAR SETBACK = 10 FEET
- 7.) BASIS OF BEARING IS NH STATE PLANE (NAD83) AND VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED DECEMBER 12, 2023.
- 11.) WETLANDS SHOWN WERE DELINEATED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES, ON DECEMBER 13, 2023 IN ACCORDANCE WITH THE 1987 CORPS. OF ENGINEERS WETLANDS DELINEATION MANUAL AND LOCATED BY THIS OFFICE.
- 12.) PARCEL IS SERVICED BY MUNICIPAL SEWER AND WATER.

A / 45-1

WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LANE
DOVER, NH 03820
4748 / 180

A / 45-2-9

DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

A / 46

CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

B / 2C

DURELL FAMILY REVOCABLE TRUST OF 2018
508 SIXTH STREET
DOVER, NH 03820
4572 / 641

LEGEND

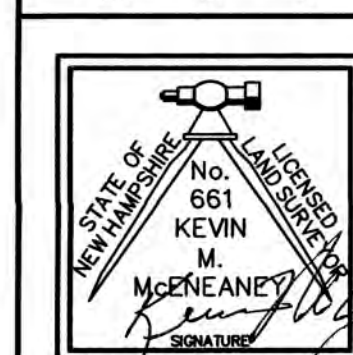
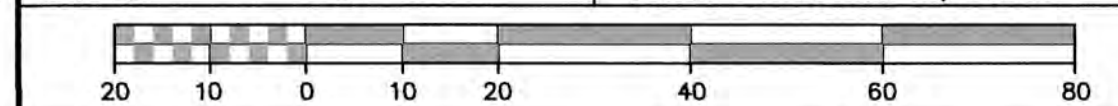
I.P.(fnd) - IRON PIPE FOUND
I.R.(fnd) - IRON ROD FOUND
I.R.(tbs) - IRON ROD WITH ID CAP #661
TO BE SET
S.F. - SQUARE FEET
Ac. - ACRE
(TYP.) - TYPICAL
± - MORE OR LESS
Ø - DIAMETER
S.C.R.D. - STRAFFORD COUNTY
REGISTRY OF DEEDS
UP 55/14 - UTILITY POLE W/ I.D. No.
OHU - OVERHEAD UTILITY WIRES

F.F. - FINISHED FLOOR ELEVATION
ELEV. - ELEVATION
R.O.W. - RIGHT OF WAY
SMH - SEWER MANHOLE
WATER GATE VALVE
FIRE HYDRANT
CONTOUR LINE (2 FOOT INTERVAL)
WETLAND BOUNDARY
GAS VALVE

NO.	DATE	DESCRIPTION	BY	CHK
REVISIONS				
23-2416	EC	23-11	34-38	
PROJECT NO	TYPE	FIELDBOOK & PAGES		

EXISTING CONDITIONS PLAN
PREPARED FOR
DBS HOLDINGS, LLC
TAX MAP B, LOT No. 2
512 SIXTH STREET
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DRAWN BY: KJF
SCALE: 1" = 20'
FILE: MSA\2416\23-2416
DATE: JANUARY 10, 2023



McEaney
Survey
Associates
of NEW ENGLAND
P.O. Box 681 - 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742-0911

SURVEYING - PLANNING - CONSULTING

DOVER NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 5 UNIT RESIDENTIAL DEVELOPMENT INCLUDING 5 SINGLE FAMILY UNITS, SITE ACCESS, DRIVEWAYS, GRADING AND DRAINAGE IMPROVEMENTS, AND UTILITY UPGRADES.

2. OWNER OF RECORD:

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820
3. THE PARCEL IS SHOWN ON CITY OF DOVER ASSESSOR'S MAP B, LOT 2.

4. PARCEL AREA = 81,270 S.F. / 1.87 Ac. THERE IS NO LAND AREA CURRENTLY IN CURRENT USE.

5. TITLE REFERENCE FOR THE PROJECT PARCEL IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK 5155, PAGE NO. 367.

6. REFERENCE PLAN: EXISTING CONDITIONS PLAN PREPARED FOR DBS HOLDINGS, LLC; TAX MAP B, LOT NO.2; 512 SIXTH STREET, CITY OF DOVER; COUNTY OF STAFFORD; STATE OF NEW HAMPSHIRE; SCALE 1"=20'; DATED: OCTOBER 31, 2024.

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. ZONING DISTRICT: RURAL RESIDENTIAL (R40)
- DIMENSIONAL REQUIREMENTS:

REQUIRED

PROPOSED

MINIMUM LOT SIZE

40,000 S.F.

81,270 S.F.

MAXIMUM LOT COVERAGE

10 %

8.3 %

MINIMUM FRONTAGE

150 FEET

250 FEET

BUILDING SETBACK REQUIREMENTS:

FRONT SETBACK

40 FEET

SEE TDR BELOW

SIDE SETBACK

25 FEET

SEE TDR BELOW

REAR SETBACK

30 FEET

SEE TDR BELOW

MAXIMUM BUILDING HEIGHT

35 FEET

28'-2"

WETLAND BUFFER

50 FEET

CUP REQUESTED

TRANSFER OF DEVELOPMENT RIGHTS REGULATIONS:

ABUTTING A ROAD SETBACK

20 FEET

MIN 21.8 FEET

ABUTTING A LOT LINE SETBACK

10 FEET

N/A

STREET SIDES OF UNITS

20 FEET

MIN 20.6 FEET

ABUTTING STRUCTURES

20 FEET

MIN 20.6 FEET

NO CUT BUFFER FROM EXTERIOR

LOT LINE

30 FEET

MIN 30 FEET

9. OFF STREET PARKING REQUIREMENTS: MAXIMUM PROVIDED

PARKING DIMENSIONS

9 X 18

9 X 18

(SEE SITE PLAN FOR PARKING CALCULATIONS)

10. THE PROJECT IS REQUESTING A WAIVER FROM SECTION 149-13.A (12) TO NOT REQUIRE A LANDSCAPE PLAN.

11. THE PROJECT DOES NOT REQUIRE VARIANCES OR SPECIAL EXCEPTIONS TO BE GRANTED BY THE ZONING BOARD.

12. THE PROJECT REQUIRES A CONDITIONAL USE PERMIT. SEE THE CITY PERMITS GRANTED SECTION.

13. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND DURING JANUARY AND MARCH, 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 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. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA) AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0310E, EFFECTIVE DATE 9/30/2015.

16. TOPOGRAPHIC SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATE, JANUARY AND MARCH 2024.

17. BASIS OF BEARING IS NH STATE PLANE (NAD83) AND VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED DECEMBER 12, 2023.

18. WETLANDS SHOWN WERE DELINEATED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES ON DECEMBER 13, 2023 IN ACCORDANCE WITH THE 1987 CORPS. OF ENGINEERS WETLANDS DELINEATION MANUAL AND LOCATED BY THIS OFFICE.

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 (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.

22. CONTRACTOR SHALL FOLLOW 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 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.

26. ALL 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 ANY EARTH DISTURBING ACTIVITY OCCURS.

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.
- DOVER NOTES CONTINUED:
30. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM AND SATURDAYS 9AM-4PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. WORK PRECLUDED ON SUNDAYS AND FEDERAL HOLIDAYS.

31. BUILDING ADDRESSES (INCLUDING APT/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 (STRUCTURE) IS FIVE (5) SINGLE FAMILY RESIDENTIAL UNITS.

33. THE PROJECT DOES NOT REQUIRE FEDERAL OR STATE PERMITTING FOR APPROVAL.

34. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR OR THEIR DESIGNEE.

35. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

36. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

37. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.
[HTTPS://PTAPP.UNH.EDU/](https://ptapp.unh.edu/)

38. IF APPLICABLE, 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 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 (AS APPLICABLE).

42. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.

43. THE PROPOSED STRUCTURES 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 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 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 (AS APPLICABLE).

48. DESIGN ENGINEER SHALL PROVIDE SIGNED LETTER TO CITY ENGINEER CERTIFYING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.

49. ALL MANHOLE COVERS SHALL BE LIFTMATE R-1743-LM OR APPROVED EQUAL WITH 90 DEGREE HINGE.

50. THE WATER MAIN SHALL BE POLY WRAPPED IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS.

51. ALL SEWER MAINS AND MANHOLES SHALL BE TESTED IN ACCORDANCE WITH NHDES ENV-WQ 700 REQUIREMENTS. COPIES OF TEST RESULTS SHALL BE PROVIDED TO THE CITY OF DOVER ENGINEERING DEPARTMENT.

52. ALL FITTINGS MUST BE CLASS 140 WATER FITTINGS.

53. ALL GATE VALVES MUST BE MANUFACTURED BY MUELLER OR CLOW.

54. THE APPLICANT SHALL PROVIDE THE CITY OF DOVER AN EASEMENT TO ACCESS WATERLINE AND HYDRANT TO MAINTAIN WATER QUALITY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

55. REFUSE REMOVAL SHALL BE CURBSIDE PICKUP ON SIXTH STREET.
- DEMOLITION NOTES:
1. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

2. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

3. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY DEMOLITION/ CONSTRUCTION ACTIVITIES. (811).

4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, UTILITIES AND PAVEMENT ON THE SITE TO THE LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.

6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NOT ALREADY OBTAINED BY THE OWNER AND ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.

8. STONES FROM REMOVED STONEWALLS SHALL REMAIN ON-SITE. STONES SHALL BE REPURPOSED ON-SITE AND SHALL NOT BE USED AS FILL.

9. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.

10. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES, AND CODES.
- SITE NOTES
1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.

2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.

3. ALL CONSTRUCTION LAYOUT SHALL BE DONE BY A LICENSED SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.

4. SEE DETAILS FOR SIGN LEGENDS.

5. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICAN WITH DISABILITIES ACT, LATEST EDITIONS.

6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS. SUCH MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.

7. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO DUST CONTROL AND SILT BARRIERS.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES OR UTILITIES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION PHASE CAUSED BY HIMSELF, HIS EMPLOYEES, HIS SUBCONTRACTORS OR EMPLOYEES OF SAME. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY FACILITIES FOR THE PROTECTION OF THE WORK, WORKERS AND PUBLIC SAFETY.

9. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.

10. SNOW STORAGE WILL BE ACCORDING TO THE OPERATION AND MAINTENANCE PLAN AND WITHIN AREAS AS INDICATED. ON-SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.

11. ALL EXTERIOR DOORS ARE MANUAL AND OPENED FROM THE INTERIOR BY PANIC HARDWARE. ALL EXTERIOR DOORS SHALL COMPLY WITH ADA AND ALL LOCAL BUILDING CODE REQUIREMENTS.
- GRADING NOTES:
1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.

2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING.

3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.

4. ALL DRAINAGE PIPES SHALL BE HOPE OR APPROVED EQUAL UNLESS OTHERWISE NOTED.

5. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 6" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS.

6. ALL SITEWORK CONSTRUCTION SHALL BE ADVANCED USING "BEST MANAGEMENT PRACTICES" SANCTIONED BY THE USDA, SCS AND NHDES.

7. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED, UTILIZED AND MAINTAINED UNTIL BASE MATERIALS ARE CONSTRUCTED.

8. CONTRACTOR SHALL PROVIDE A FINISH GRADED SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND UNDER RAISED STRUCTURES.

9. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND AS SHOWN ON PLAN. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED AND UPSTREAM AREAS HAVE BEEN STABILIZED.

10. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF THE FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.

11. LIMIT TREE CLEARING TO ONLY THE EXTENT NECESSARY FOR CONSTRUCTION.

12. CONTRACTOR SHALL NOTIFY THE CITY OF DOVER AND THE DESIGN ENGINEER 48 HOURS PRIOR TO THE INSTALLATION OF PERMANENT STORMWATER BMP'S TO PROVIDE THE CITY AND THE ENGINEER THE OPPORTUNITY TO WITNESS THE CONSTRUCTION AND MATERIALS. THE DESIGN ENGINEER MUST CERTIFY THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.

13. DENSITY REQUIREMENTS:

LOCATION

BELOW PAVED OR CONCRETE AREAS

TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL

BELOW LOAM AND SEED AREA

MINIMUM DENSITY

95%

95%

90%

*ALL PERCENTAGES SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH AASHTO STANDARD 180, METHOD C. FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH AASHTO STANDARD T-191, T-204, OR T-238 AND T-239.
- UTILITY CONTACTS
- NATURAL GAS: -

CONTACT:

WATER & SEWER: -

CONTACT:

ELECTRIC: -

CONTACT:

UNITIL CORPORATION
DAVID MACLEAN
325 WEST ROAD
PORTSMOUTH, NH 03801
TEL: (603)-294-5261
EMAIL: MACLEAND@UNITIL.COM

CITY OF DOVER COMMUNITY SERVICES DEPARTMENT
PUBLIC WORKS & UTILITIES
KEN MAVROGEORGE, PE
271 MAST ROAD
DOVER, NH 03820
TEL: (603)-516-6450
EMAIL: K.MAVROGEORGE@DOVER.NH.GOV

EVERSOURCE
TREVOR EMMONS
4 OLD DOVER ROAD
ROCHESTER, NH 03867
TEL: (603)-332-7515
EMAIL: TREVOR.EMMONS@EVERSOURCE.COM
- UTILITY NOTES
1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.

2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.

3. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.

5. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.

6. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, DOUBLE CEMENT LINED DUCTILE IRON PIPE OR TYPE "K" COPPER, OR CITY APPROVED MATERIAL.

7. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF DOVER WATER DEPARTMENT.

8. ALL GRAVITY SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE NOTED AND CONFORM TO THE REQUIREMENTS OF THE CITY OF DOVER SEWER DEPARTMENT STANDARDS.

9. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.

10. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.

11. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE UTILITY COMPANIES.

12. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.

13. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS. ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.

14. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.

15. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES. COORDINATE WITH GAS COMPANY.

16. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.

17. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.

18. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.

19. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF DOVER.

20. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF DOVER. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.

21. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.

23. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AS APPLICABLE SHALL BE PREPARED BY THE PROJECT ELECTRICAL ENGINEER.

24. THE PROPOSED STRUCTURE SHALL COMPLY WITH CHAPTER 81, ARTICLE IV, SECTION 81-27 AND THE STATE BUILDING CODES OF THE CODE OF THE CITY OF DOVER.

25. FIRE SUPPRESSION PLANS SHALL BE PROVIDED TO THE FIRE/INSPECTION DEPARTMENT PRIOR TO INSTALLATION AS APPROPRIATE.

26. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.

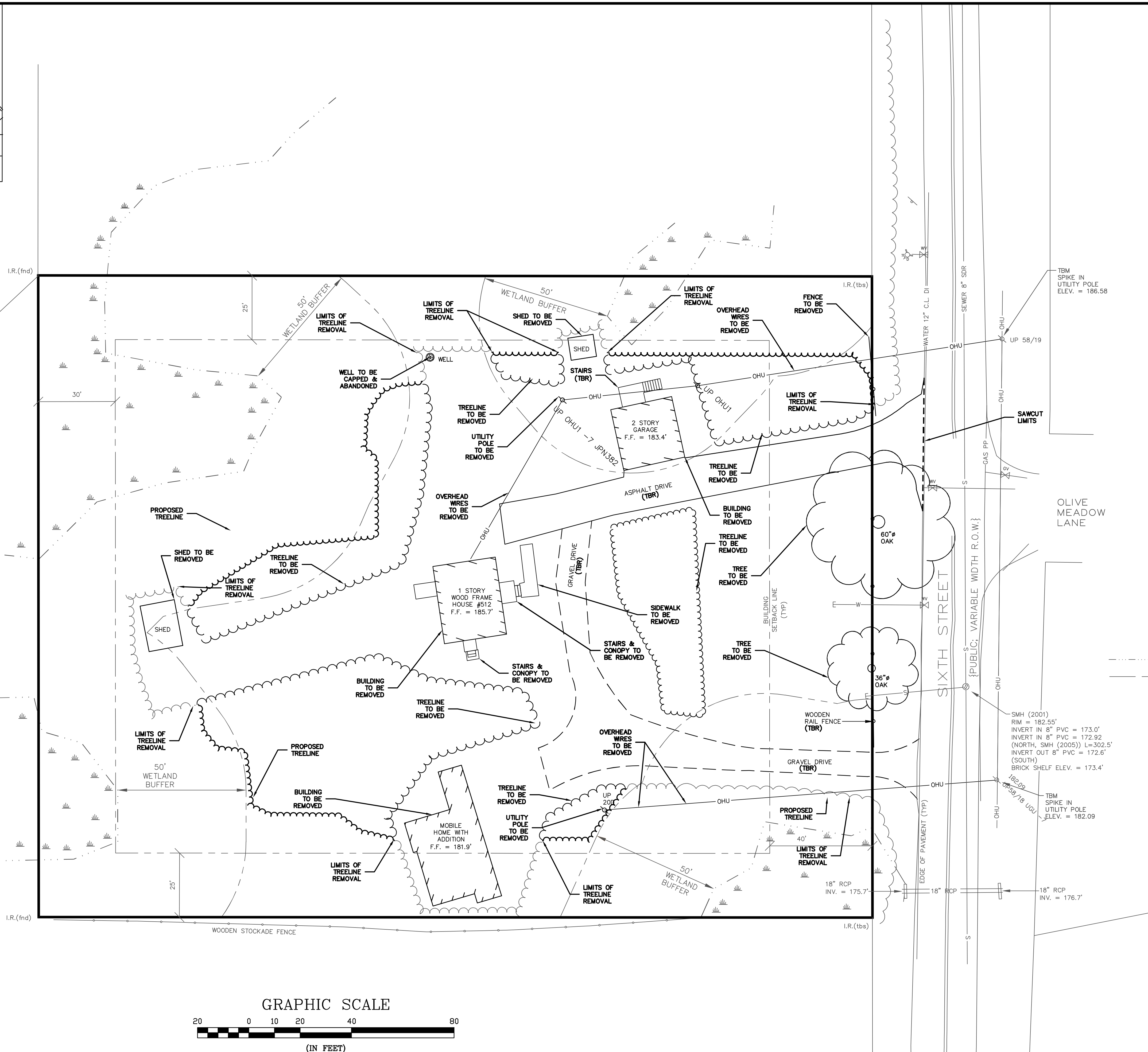
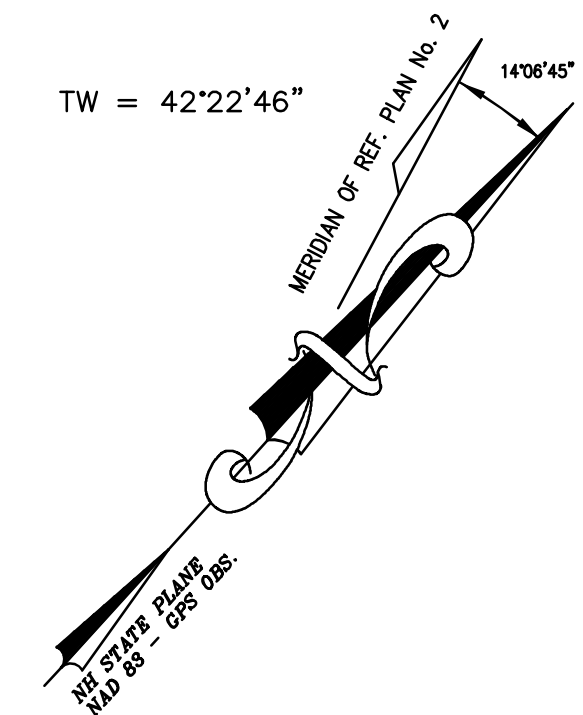
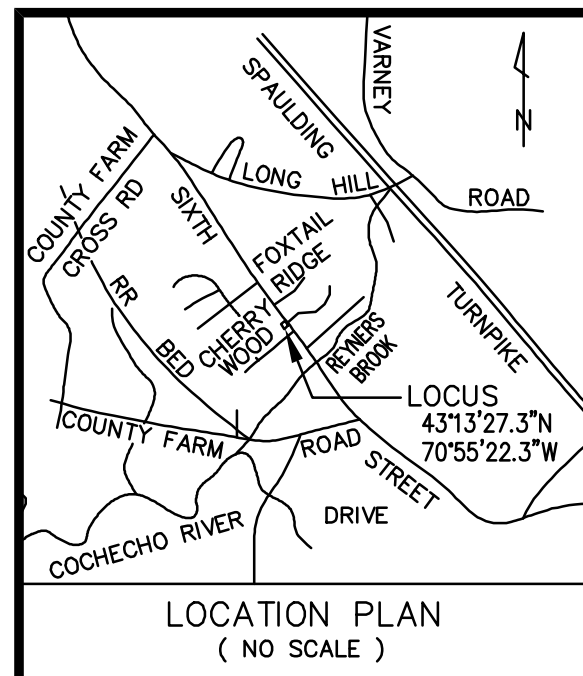
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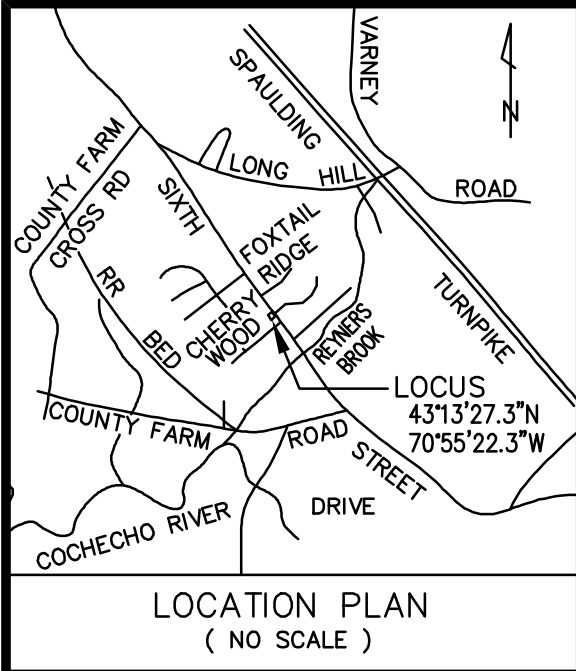
THE PROJECT TOTAL DESIGN FLOW IS ESTIMATED AS FOLLOWS:
SINGLE FAMILY 3 BEDROOM UNIT = 300 GPD FOR 1ST 2 BEDROOMS + 150 GPD FOR 3RD BEDROOM = 450 GPD PER UNIT

5 UNIT x 450 GPD/UNIT = 2,250 GPD = TOTAL ESTIMATED DESIGN

28. AN EASEMENT WILL BE GRANTED TO THE CITY ALONG THE WATER LINES TO ALLOW ACCESS FOR OPERATION OF THE WATER INFRASTRUCTURE TO MAINTAIN WATER QUALITY.

29. ALL VALVES SHALL OPEN COUNTER CLOCKWISE.
- PLANNING FILE NO.: SITE-2024-
- NOTE SHEET
- TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH
- DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820
- 4
-
- 181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.748.0443
- NOT FOR CONSTRUCTION FOR PERMIT USE ONLY
- | DATE | SCALE | DRAWN BY | DESIGN BY | APPROVED BY | PROJECT NO. | FILE SITE | REVISION | APPD | DATE |
|----------|--------|----------|-----------|-------------|-------------|-----------|----------|------|------|
| 11-21-24 | N.T.S. | SRD | JPG | BYSLH | 24084 | DWG | | | |



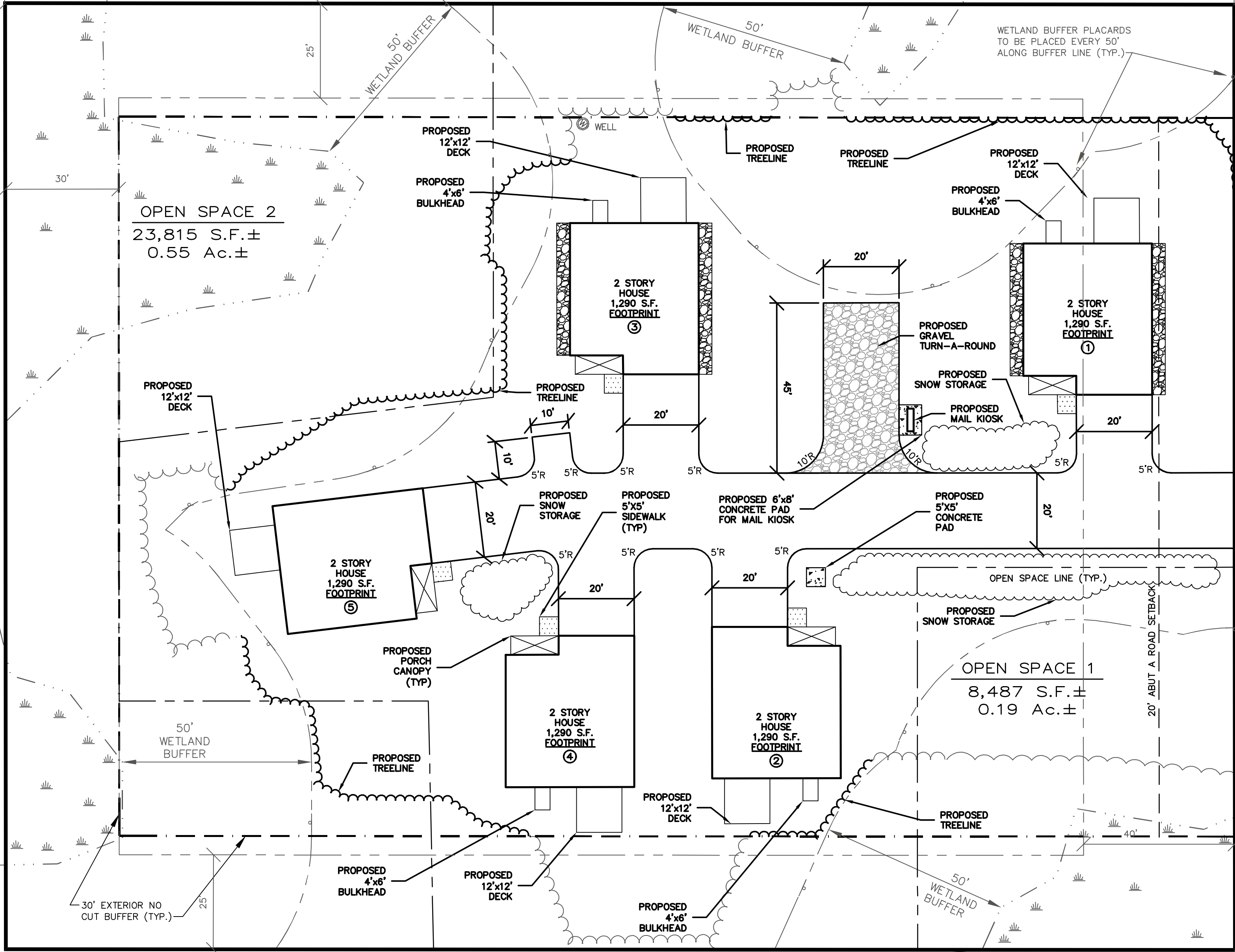
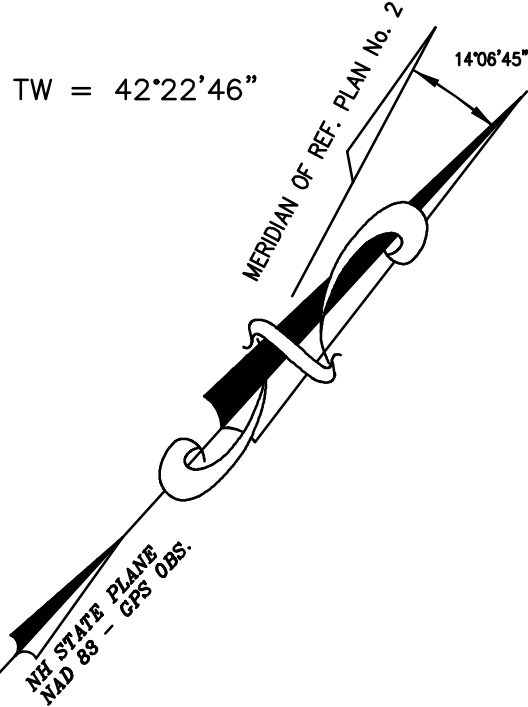


SITE PARKING CALCULATIONS

RESIDENTIAL (NON-CBD-G) MAX PROPOSED
5 UNITS @ 1.4 SPACES + 0.5 SPACES PER UNIT 10 10

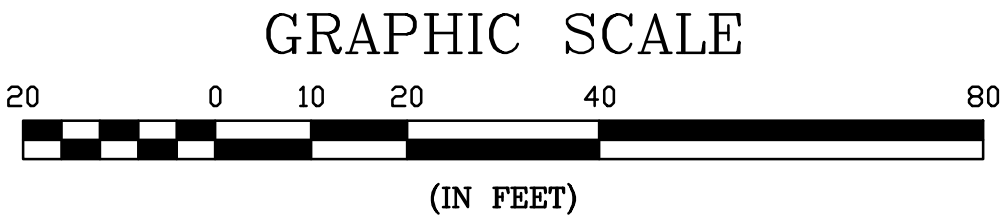
SNOW STORAGE CALCULATIONS

IMPERVIOUS PAVEMENT AREA = ±7,738 S.F.
SNOW STORAGE REQUIRED = ±775 S.F.
SNOW STORAGE PROVIDED = ±1,465 S.F.



LEGEND

- S.F. SQUARE FEET
- Ac. ACRE
- ± MORE OR LESS
- (TYP) TYPICAL
- DIA. DIAMETER
- V.I.F. VERIFY IN FIELD
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING HYDRANT
- EXISTING LIGHT/SIGNAL POLE
- PAVEMENT RADIUS
- EDGE OF WET
- 50' WETLAND BUFFER
- PROPOSED SIGN
- PROPOSED STONE
- PROPOSED CONCRETE



PLANNING FILE NO.: SITE-2024-

SITE PLAN

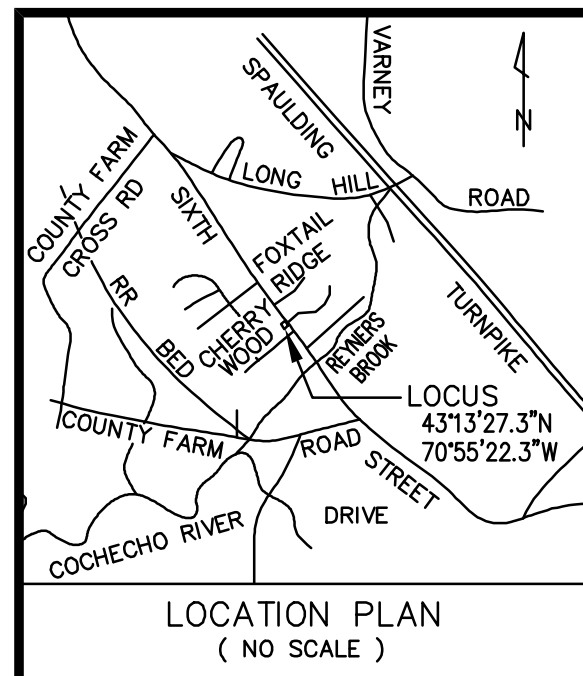
TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

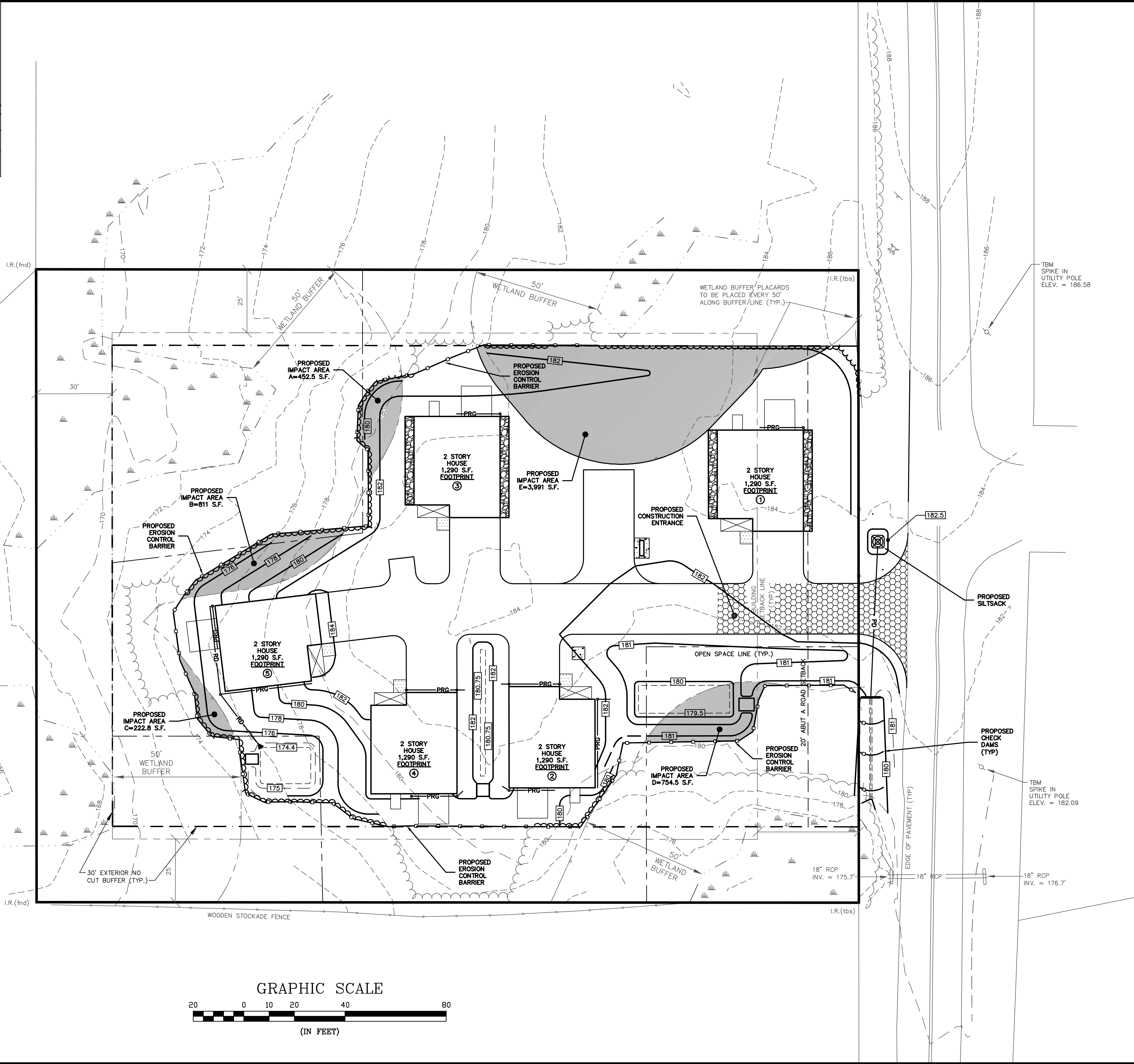
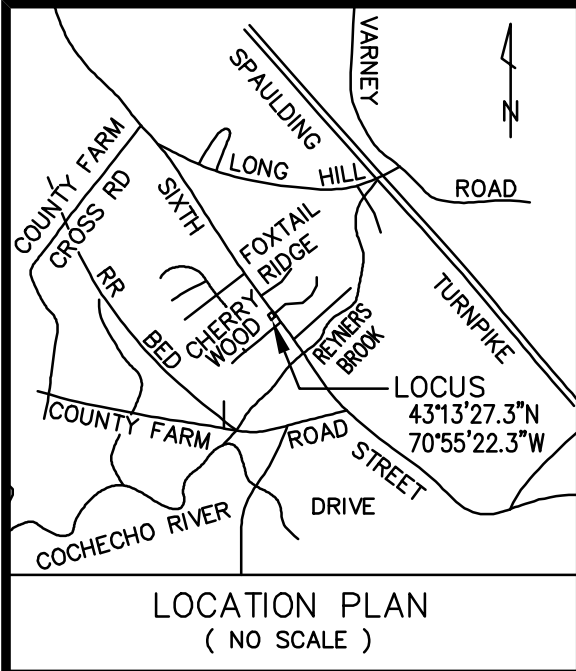
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

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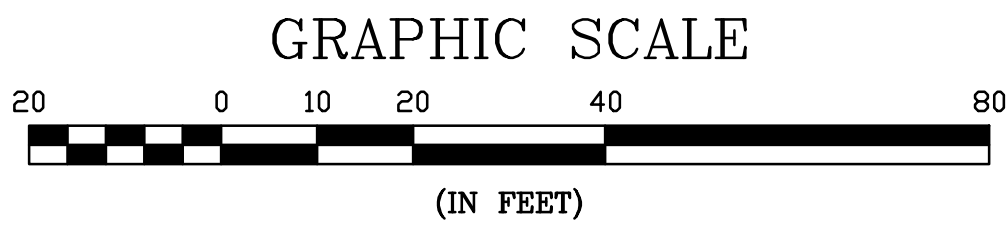
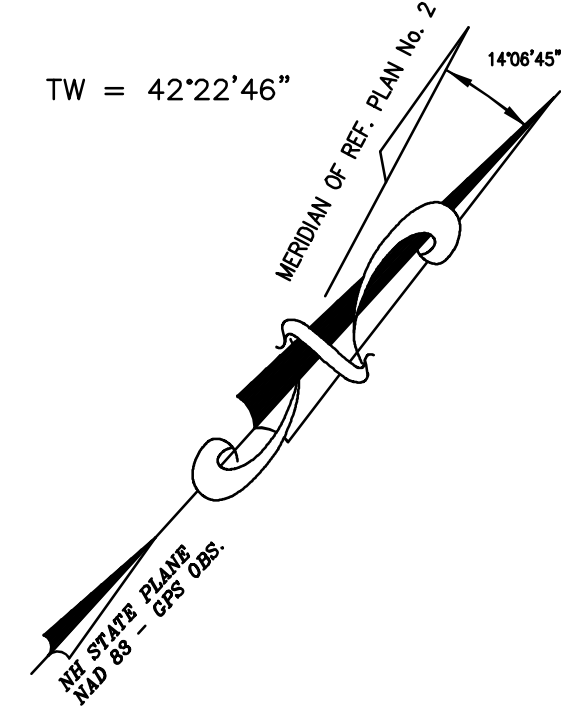
NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

CNE CIVILWORKS NEW ENGLAND
181 Watson Road, PO Box 1166
Dover, NH 03820
603.748.0443





PROPOSED IMPACT AREA	
IMPACT AREA	SQUARE FEET
A	452.5
B	811.0
C	222.8
D	754.5
E	3,991.0
TOTAL	6,231.8



PLANNING FILE NO.: SITE-2024-

IMPACT & EROSION CONTROL PLAN

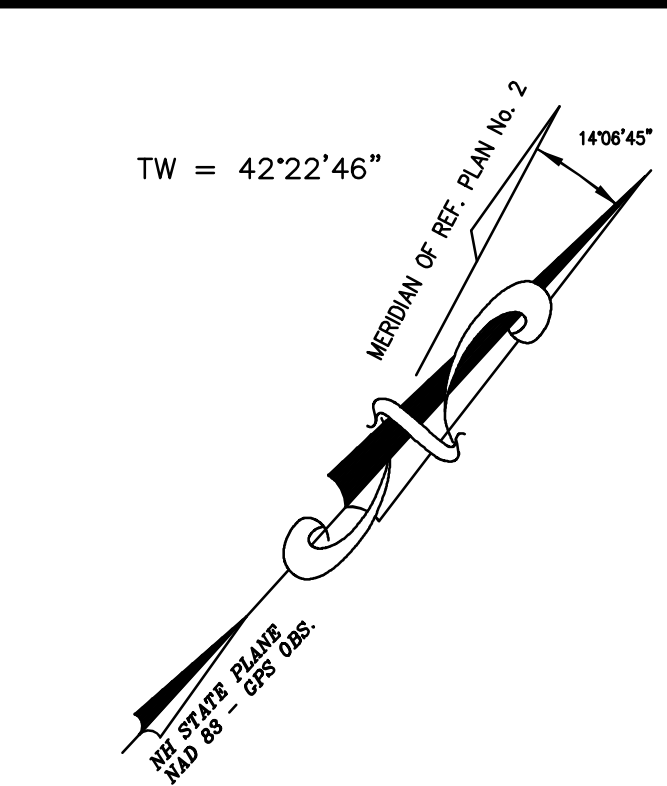
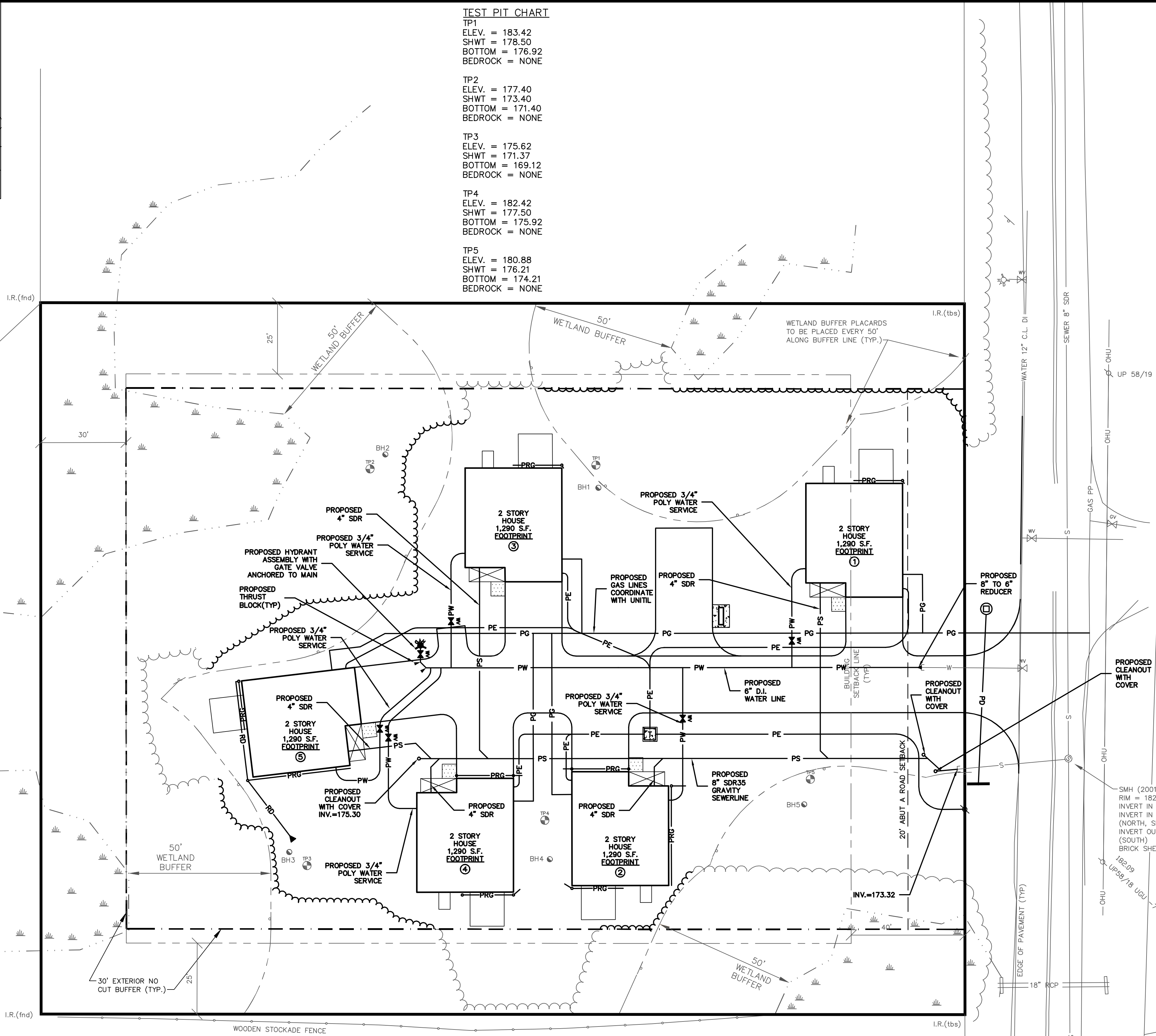
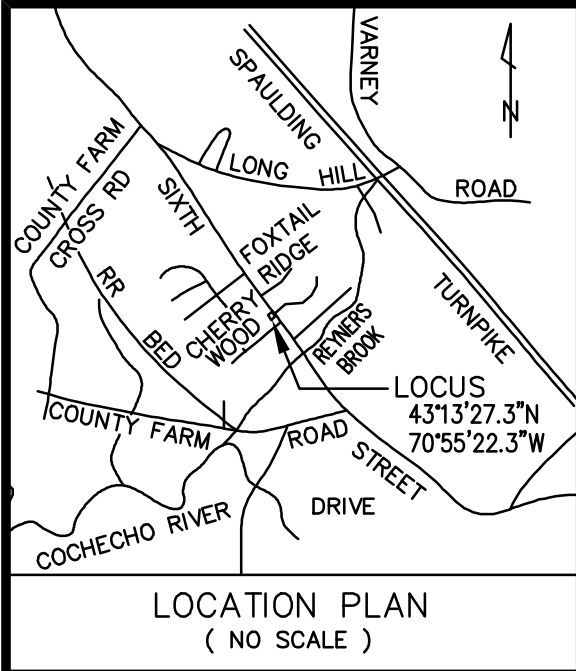
TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

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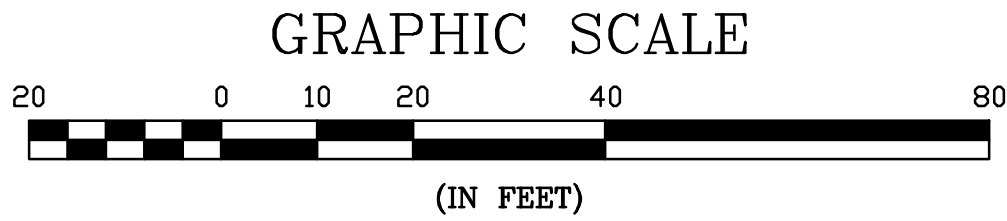
GNE CIVILWORKS NEW ENGLAND
181 Watson Road, PO Box 1166
Dover, NH 03820
603.748.0443

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE SITE-DWG	NO.	REVISION	APP'D	DATE
11-21-24	1"=20'	SRD	JPG	BY:JH	24084					



LEGEND

- | | |
|---------|----------------------------|
| S.F. | SQUARE FEET |
| Ac. | ACRE |
| ± | MORE OR LESS |
| (TYP) | TYPICAL |
| DIA. | DIAMETER |
| V.I.F. | VERIFY IN FIELD |
| ⊕ | EXISTING UTILITY POLE |
| ⊕ | EXISTING WATER SHUT-OFF |
| ⊕ | EXISTING WATER VALVE |
| ⊕ | EXISTING GAS VALVE |
| ⊕ | EXISTING HYDRANT |
| ⊕ | EXISTING LIGHT/SIGNAL POLE |
| ⊕ | EXISTING SEWER MANHOLE |
| — OHU — | OVERHEAD UTILITY |
| — E — | EXISTING ELECTRIC |
| — W — | EXISTING WATER LINE |
| — S — | EXISTING SEWER LINE |
| — D — | EXISTING DRAINAGE LINE |
| — G — | EXISTING GAS LINE |
| --- | EDGE OF WET |
| --- | 50' WETLAND BUFFER |
| — PG — | PROPOSED GAS |
| — PW — | PROPOSED WATER |
| — PE — | PROPOSED ELECTRIC |
| — RD — | PROPOSED ROOF DRAIN |
| — PS — | PROPOSED SEWER |
| — PD — | PROPOSED DRAIN LINE |
| ⊕ | PROPOSED CATCHBASIN |
| ⊕ | PROPOSED THRUST BLOCK |
| ⊕ | PROPOSED WATER SHUTOFF |
| ⊕ | PROPOSED FIRE HYDRANT |
| ⊕ | PROPOSED UTILITY POLE |
| ⊕ | PROPOSED STONE |
| ⊕ | PROPOSED CONCRETE |



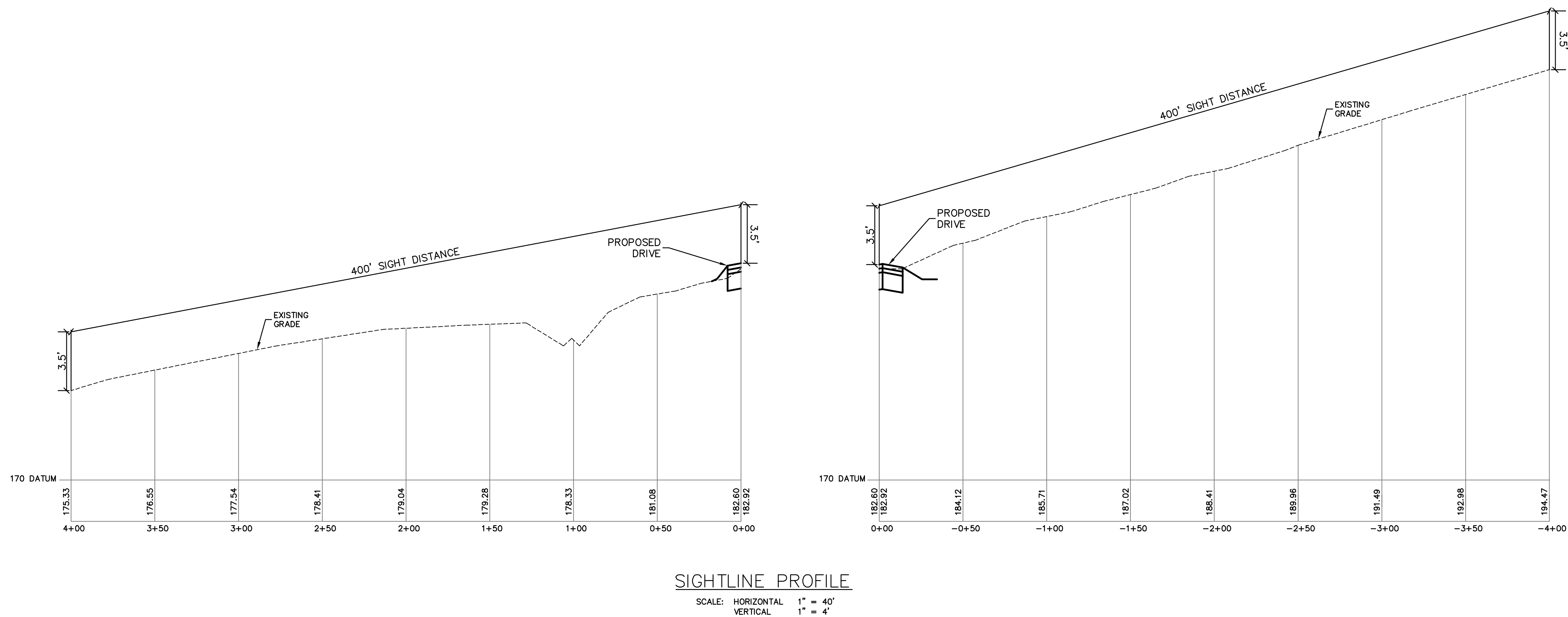
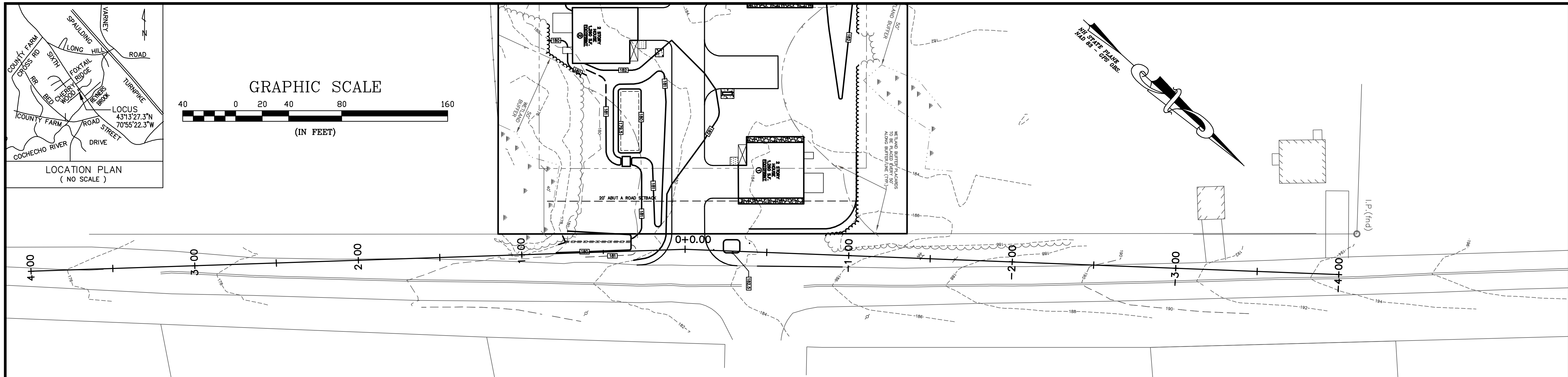
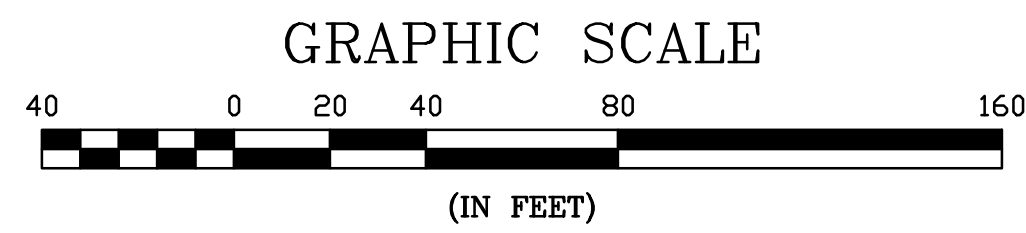
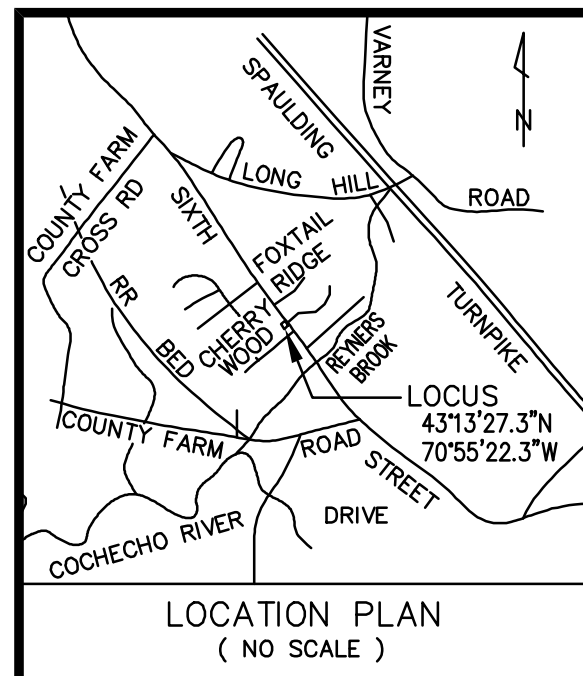
PLANNING FILE NO.: SITE-2024-

UTILITY PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE SITE	DWG	NO.	REVISION	APP'D	DATE
11-21-24	1"=20'	SRD	JPG	24084	24084						



PLANNING FILE NO.: SITE-2024-

PLAN & PROFILES

**TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH**

**DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820**

[illegible]

DESCRIPTION

1. THE PURPOSE OF THIS PLAN IS TO DEPICT SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 5 UNIT RESIDENTIAL DEVELOPMENT INCLUDING 6 SINGLE FAMILY UNITS, SITE ACCESS, DRIVEWAYS, GRADING AND DRAINAGE IMPROVEMENTS, AND UTILITY UPGRADES.

PROJECT NAME AND LOCATION

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

LATITUDE N43° 13' 27.3"
LONGITUDE W70° 55' 22.3"

DISTURBED AREA

±42,000 S.F.

NOTES:

1. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.

SEQUENCE OF MAJOR ACTIVITIES

1. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
2. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
3. SELECTIVE DEMOLITION.
4. REGRADE SITE TO SUBGRADE.
5. TEMPORARY WATER DIVERSION (SWALES, BASINS) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
6. SWALES AND PONDS (AS APPLICABLE) SHALL BE CONSTRUCTED EARLY ON IN THE CONSTRUCTION SEQUENCE AND BEFORE ROUGH GRADING OF THE SITE AND ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. INSTALL DRAINAGE STRUCTURES AND CONTROLS.
8. INSTALL FOUNDATION FOOTINGS AND WALLS.
9. INSTALL UTILITIES.
10. PLACE GRAVELS AND FINE GRADE.
11. STABILIZE ROADWAYS AND PARKING AREAS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
13. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
14. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
15. WHEN ALL SITE WORK IS COMPLETE AND ALL DISTURBED AREAS ARE STABILIZED REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND FILE THE EPA – N.O.T.

DEFINITIONS

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED.

1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
3. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED

INSTALLATION, MAINTENANCE, AND INSPECTION PROCEDURES OF EROSION AND SEDIMENT CONTROLS

A. SILT BARRIER

1. INSTALLATION
a. USE SILT BARRIER AS PERIMETER CONTROLS, PARTICULARLY AT THE LOWER OR DOWN SLOPE EDGE OF A DISTURBED AREA.
b. LEAVE SPACE FOR MAINTENANCE BETWEEN TOE AND SLOPE OF SILT BARRIER.
c. TRENCH IN THE SILT BARRIER ON THE UPHILL SIDE (6 INCHES DEEP BY 8 INCHES WIDE)
d. INSTALL STAKES ON THE DOWNHILL SIDE OF THE SILT BARRIER.
e. CURVE THE END OF THE SILT BARRIER UP–GRADIENT TO HELP IT CONTAIN RUNOFF.
2. SEQUENCE OF INSTALLATION
a. SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.
3. MAINTENANCE
a. SILT BARRIERS SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
b. SILT BARRIERS HAVE A USEFUL LIFE OF ONE SEASON. ON LONGER CONSTRUCTION PROJECTS, SILT BARRIERS SHOULD BE REPLACED PERIODICALLY TO MAINTAIN EFFECTIVENESS.
c. REMOVE SEDIMENT WHEN IT REACHES ONE–THIRD (1/3) THE HEIGHT OF THE SILT BARRIER.
d. REPLACE THE SILT BARRIERS WHERE THEY ARE TORN, WORN, OR OTHERWISE DAMAGED AND MONITOR PERFORMANCE TO ENSURE EFFECTIVE PERFORMANCE.
e. RETRENCH OR REPLACE ANY SILT BARRIER THAT IS NOT PROPERLY ANCHORED TO THE GROUND.
f. IF THERE IS EVIDENCE OF END FLOW ON PROPERLY INSTALLED BARRIERS, EXTEND BARRIERS UPHILL OR CONSIDER REPLACING THEM WITH OTHER MEASURES, SUCH AS TEMPORARY DIVERSIONS AND SEDIMENT TRAPS.
g. SILT BARRIERS SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SILT BARRIERS SHOULD BE REPLACED WITH A TEMPORARY CHECK DAM.

B. MULCHING

1. TIMING
a. APPLY MULCH PRIOR TO ANY STORM EVENT. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
b. IN OTHER AREAS, THE TIME PERIOD CAN RANGE FROM 14 TO 30 DAYS OF INACTIVITY ON A AREA. THE LENGTH OF THE VARYING WITH SITE CONDITIONS. PROFESSIONAL JUDGEMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.
c. WITHIN 100 FEET OF RIVERS, STREAMS, WETLANDS, AND IN LAKE AND POND WATERSHEDS, THE TIME PERIOD OF WHICH MULCHING SHOULD TAKE OCCUR SHOULD BE NO GREATER THAN SEVEN (7) DAYS. THIS SEVEN DAY LIMIT SHOULD BE REDUCED FURTHER DURING WET WEATHER PERIODS.
2. APPLICATION RATE
a. MULCH SHALL BE APPLIED AT A RATE OF BETWEEN 1.5 TO 2 TONS PER ACRE, OR 70 TO 90 POUNDS PER 1000 SQUARE FEET.
b. GUIDELINES FOR WINTER MULCH APPLICATION. WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 150–200 POUNDS OF HAY OR STRAW PER ACRE WITH ABOUT 4 INCHES IN DEPTH. A TACKIFIER MAY BE ADDED TO THE MULCH.
3. MAINTENANCE
a. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS. CHECK FOR SIGNS OF EROSION OR DISPLACEMENT OF THE MULCH. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.
b. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE AND SHOULD BE REPAIRED AS NECESSARY.
c. INSPECTIONS SHOULD TAKE PLACE UNTIL THE SITE IS ESTABLISHED.
d. EROSION CONTROL MIX MULCH USED FOR TEMPORARY STABILIZATION SHOULD BE LEFT IN PLACE. VEGETATION ADDS STABILITY AND SHOULD BE PROMOTED.

C. TEMPORARY SEEDING

1. SEEDBED PREPARATION
a. STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
c. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS.
i) APPLY FERTILIZER AT A RATE OF 600 POUNDS PER ACRE OR 13.8 POUNDS PER 1,000 SQUARE FEET OF LOW PHOSPHATE FERTILIZER OR EQUIVALENT.
ii) APPLY LIMESTONE AT A RATE OF 3 TONS PER ACRE OR 138 POUNDS PER 1,000 SQUARE FEET.
2. SEEDING
a. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SUMMARY INCLUDING SEED AND FERTILIZER) WITH A SEEDING DEPTH FROM A QUARTER (1/4) TO A HALF (1/2) INCH.
b. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
c. TEMPORARY SEEDING BETWEEN MAY 15TH AND AUGUST 15TH SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE.
d. VEGETATED GROWTH COVERING 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH.
3. MAINTENANCE
a. TEMPORARY SEEDING SHALL BE INSPECTED PERIODICALLY. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER FABRICS, CHECK DAMS, ETC.).

D. PERMANENT SEEDING

1. BEDDING – STONES LARGER THAN 2 INCHES, TRASH, ROOTS, AND OTHER DEBRIS INTERFERING WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA SHOULD BE REMOVED. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF 4" TO PREPARE A SEEDBED AND MIX FERTILIZER INTO THE SOIL.
2. FERTILIZER
a. LIME AND FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 4 INCHES USING A DISC, SPRING TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT PRIOR TO OR AT THE SAME TIME OF SEEDING.
b. FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 FEET AND 250 FEET FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER.
c. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
AGRICULTURAL LIMESTONE @ 138 LBS. PER 1,000 S.F.
LOW PHOSPHATE (N–P205–K2O) FERTILIZER @ 13.8 LBS. PER 1,000 S.F.
3. SEED MIXTURE (RECOMMENDED)
RATE:
TYPE LBS. PER ACRE LBS. PER 1,000 S.F.
TALL FESCUE 20 0.45
CREEPING RED 20 0.45
FESCUE
BIRDSFOOT TREFOIL 8 0.20
TOTAL 48 1.10
4. SEEDING
a. SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST.
b. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER) WITH A SEEDING DEPTH FROM A QUARTER (1/4) TO A HALF (1/2) INCH.
c. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.
5. HYDROSEEDING
a. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF STRAW MULCH ON CRITICAL AREAS IS PREFERRED SINCE IT GRANTS BETTER SLOPE PROTECTION BY USING ADHESIVE MATERIALS.
b. SLOPES MUST BE NO STEEPER THAN 2 TO 1 (2 FEET HORIZONTALLY TO 1 FOOT VERTICALLY).
c. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
6. MAINTENANCE
a. PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTIONS, MAINTENANCE, AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
b. SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION, WITH MOWING HEIGHT AND FREQUENCY DEPENDENT ON TYPE OF GRASS COVER.
c. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
d. IF EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS RESEEDED. WITH OTHER TEMPORARY MEASURES USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.
e. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.

E. STORM DRAIN INLET PROTECTION

1. SPECIFICATIONS
a. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE BARRIER SHOULD BE LESS THAN ONE ACRE.
b. ANY RESULTANT PONDING OF STORMWATER MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.
2. INSTALLATION
a. INSTALL INLET PROTECTION AS SOON AS STORM DRAIN INLETS ARE INSTALLED AND BEFORE LAND–DISTURBANCE ACTIVITIES BEGIN IN AREAS WITH EXISTING STORM DRAIN SYSTEMS.
b. PROTECT ALL INLETS THAT COULD RECEIVE STORMWATER FROM YOUR CONSTRUCTION PROJECT.
c. USE IN CONJUNCTION WITH OTHER EROSION PREVENTION AND SEDIMENT CONTROL BMPs.
d. DESIGN YOUR INLET PROTECTION TO HANDLE THE VOLUME OF WATER FROM THE AREA BEING DRAINED. ENSURE THAT THE DESIGN IS SIZED APPROPRIATELY.
3. MAINTENANCE
a. INSPECT INLETS BARRIERS FREQUENTLY, BEFORE AND AFTER EACH RAINFALL EVENT AND REPAIR WHEN NECESSARY.
b. SEDIMENT SHOULD BE REMOVED AND THE STORM DRAIN SEDIMENT BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE BARRIER.
c. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
d. SWEEP STREETS, SIDEWALKS, AND OTHER PAVED AREAS REGULARLY.
e. ALL CATCH BASINS AND STORM DRAIN INLETS MUST BE CLEANED AT THE END OF CONSTRUCTION AND AFTER THE SITE HAS BEEN FULLY STABILIZED

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES THE SILT BARRIERS SHALL BE INSTALLED PRIOR TO COMMENCING ANY CLEARING OR GRADING OF THE SITE. STRUCTURAL CONTROLS SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN TWENTY ONE (21) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT FENCES AND ANY EARTH/DIKES WILL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.

WASTE DISPOSAL

- a. WASTE MATERIALS
ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN A DUMPSTER. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL PERSONEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
b. HAZARDOUS WASTE
ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
c. SANITARY WASTE
ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

THE PROJECT PROPONENT IS RESPONSIBLE FOR THE MAINTENANCE OF ALL STORMWATER FACILITIES DURING CONSTRUCTION AND THE PROPERTY OWNER IS RESPONSIBLE AFTER CONSTRUCTION IS COMPLETE.

CATCH BASINS & STORMWATER TREATMENT STRUCTURES

1. CATCH BASINS & STORMWATER TREATMENT STRUCTURES SHOULD BE INSPECTED ON A MONTHLY BASIS AND/OR AFTER A MAJOR RAINFALL EVENT TO ASSURE THAT DEBRIS OR SEDIMENTS DO NOT REDUCE THE EFFECTIVENESS OF THE SYSTEM.

SPILL PREVENTION

- A. MATERIAL MANAGEMENT PRACTICES
THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL SANITARY EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
GOOD HOUSEKEEPING:
THE FOLLOWING GOOD HOUSEKEEPING PRACTICES THAT WILL BE FOLLOWED ON SITE DURING THE CONSTRUCTION PROJECT:
1. THE CONSTRUCTION PROJECT:
a. AN EFFORT WILL BE MADE TO STORE ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB.
b. ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
d. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.
e. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
f. WHENEVER POSSIBLE ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
2. HAZARDOUS PRODUCTS:
a. THE FOLLOWING PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
b. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
c. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION.
d. SURPLUS PRODUCT THAT MUST BE DISPOSED OF WILL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
B. PRODUCT SPECIFICATION PRACTICES
THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:
1. PETROLEUM PRODUCTS:
a. ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. FERTILIZERS:
a. FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
3. PAINTS:
a. ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE DISPOSED OF PROPERLY ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
4. CONCRETE TRUCKS:
a. CONCRETE TRUCKS WILL DISCHARGE AND WASH OUT SURPLUS CONCRETE OR DRUM WASH WATER IN A CONTAINED AREA ON SITE.

- C. SPILL CONTROL PRACTICES
IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
c. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
d. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OF LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.
f. THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEANUP THE SPILL IF IT OCCURS. A DESCRIPTION OF THE SPILL, ITS CAUSE, AND THE CLEANUP MEASURES WILL BE INCLUDED.
g. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY–TO–DAY SITE OPERATIONS WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.

THE PROJECT PROPONENT IS REQUIRED TO MANAGE CONSTRUCTION TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO CONTROLLING INVASIVE SPECIES AND CONTROLLING FUGITIVE DUST IN ACCORDANCE WITH ENV–A 1002.

AGR 3800 PROHIBITED INVASIVE PLANT SPECIES RULES

THE RULE, AGR 3800, STATES: NO PERSON SHALL COLLECT, TRANSPORT, IMPORT, EXPORT, MOVE, BUY SELL, DISTRIBUTE, PROPAGATE OR TRANSPLANT ANY LIVING AND VIABLE PORTION OF ANY PLANT SPECIES, WHICH INCLUDED ALL OF THEIR CULTIVARS AND VARIETIES, LISTED IN TABLE 3800.1, NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST. A COMPLETE COPY OF THE RULES CAN BE ACCESSED ON THE INTERNET AT [HTTP://AGRICULTURE.NH.GOV/TOPICS/PLANTS_INSECTS.HTM](http://agriculture.nh.gov/topics/plants_insects.htm).

ENV–A 1002 FUGITIVE DUST: PRECAUTIONS TO PREVENT, ABATE, AND CONTROL FUGITIVE DUST.

- a. ANY PERSON ENGAGED IN ANY ACTIVITY WITHIN THE STATE EMITS FUGITIVE DUST, OTHER THAT THOSE LISTED IN ENV–A 1002.02 (b), SHALL TAKE PRECAUTIONS THROUGHOUT THE DURATION OF THE ACTIVITY IN ORDER TO PREVENT, ABATE, AND CONTROL THE EMISSION OF FUGITIVE DUST.
b. PRECAUTIONS REQUIRED BY (g) ABOVE, SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
i) THE USE OF WATER OR HYDROPHILIC MATERIAL ON OPERATIONS OR SURFACES, OR BOTH;
ii) THE APPLICATION OF ASPHALT, WATER, OR HYDROPHILIC MATERIAL, OR TARPS OR OTHER SUCH COVERS TO MATERIAL STOCKPILES;
iii) THE USE OF HOODS, FANS, FABRIC FILTERS, OR OTHER DEVICES TO ENCLOSE AND VENT AREAS WHERE MATERIALS PRONE TO PRODUCING FUGITIVE DUST ARE HANDLED;
iv) THE USE OF CONTAINMENT METHODS FOR SANDBLASTING OR SIMILAR OPERATIONS; AND
v) THE USE OF VACUUMS OR OTHER SUCTION DEVICES TO COLLECT AIRBORNE PARTICULATE MATTER.

WINTER CONSTRUCTION NOTES

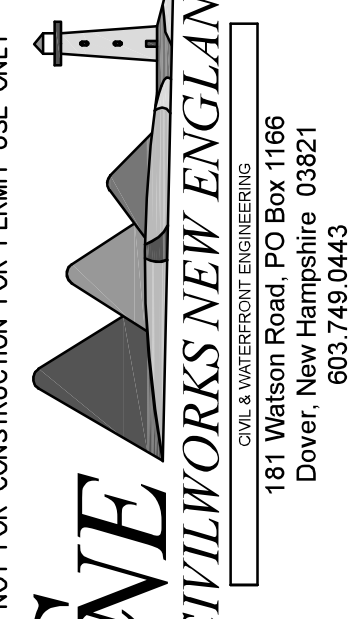
1. ALL PROPOSED POST–DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE. SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT.
2. ALL DITCHES & SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD AND PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3–INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.

PLANNING FILE NO.: SITE–2024–

EROSION CONTROL NOTES

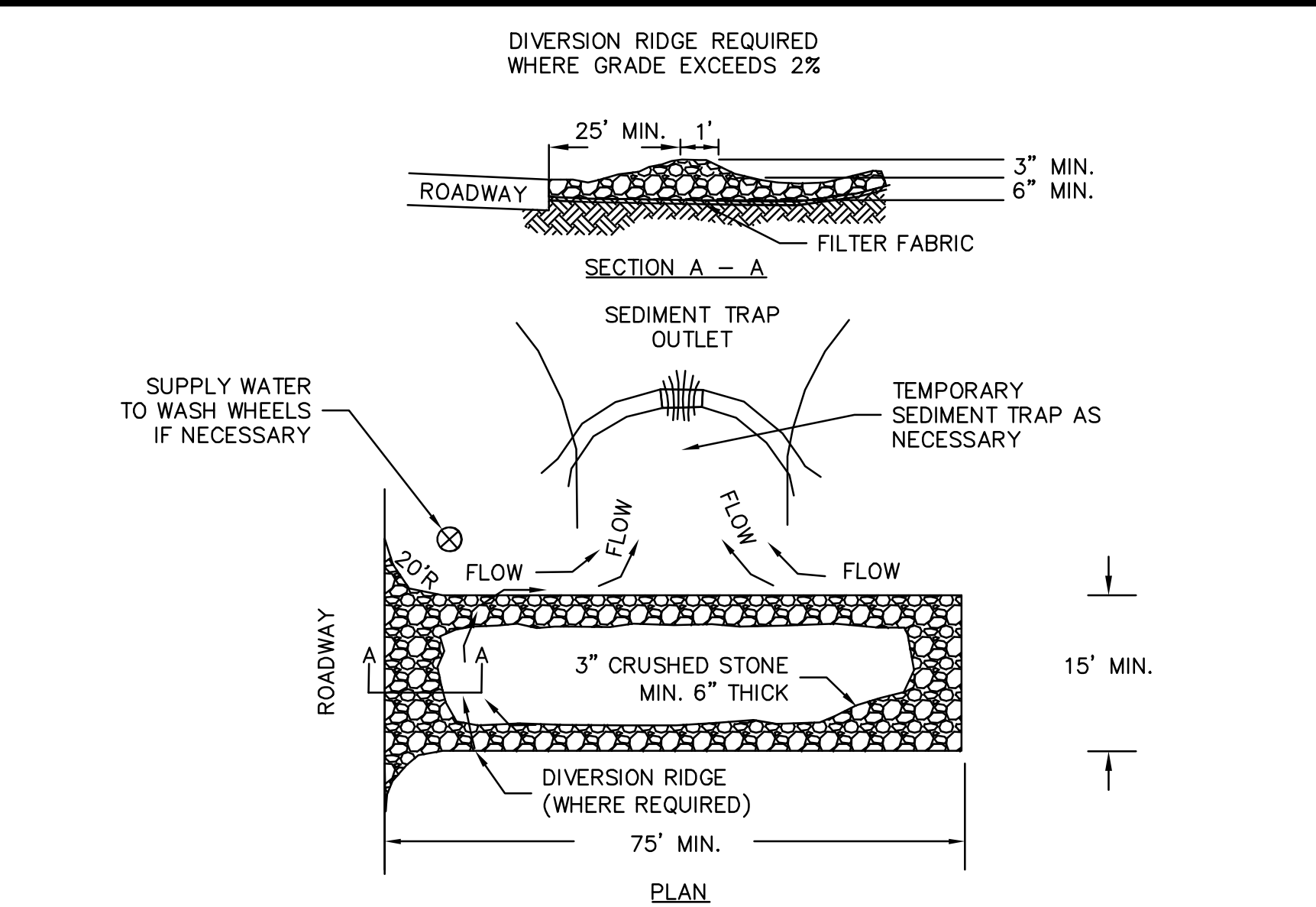
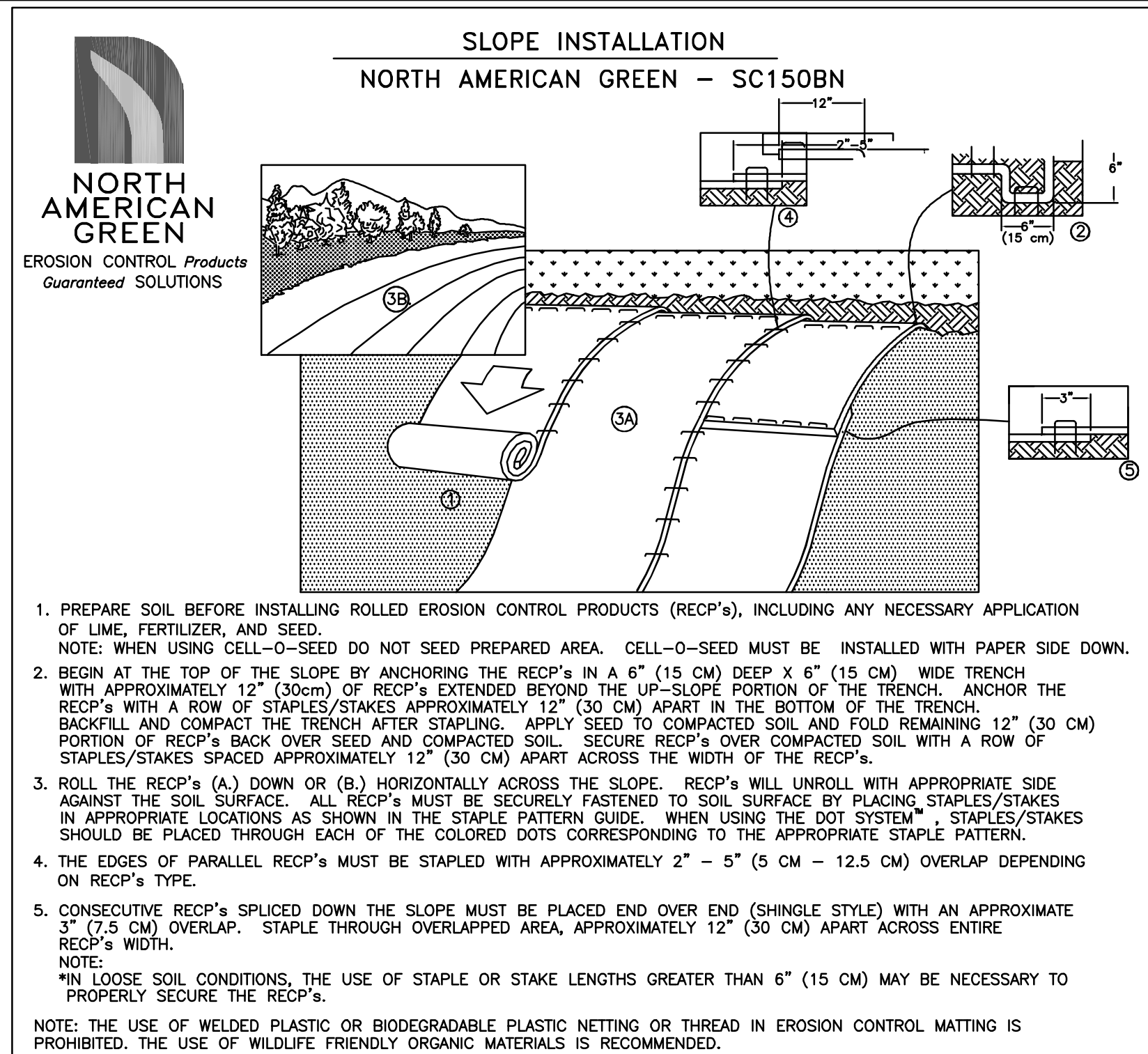
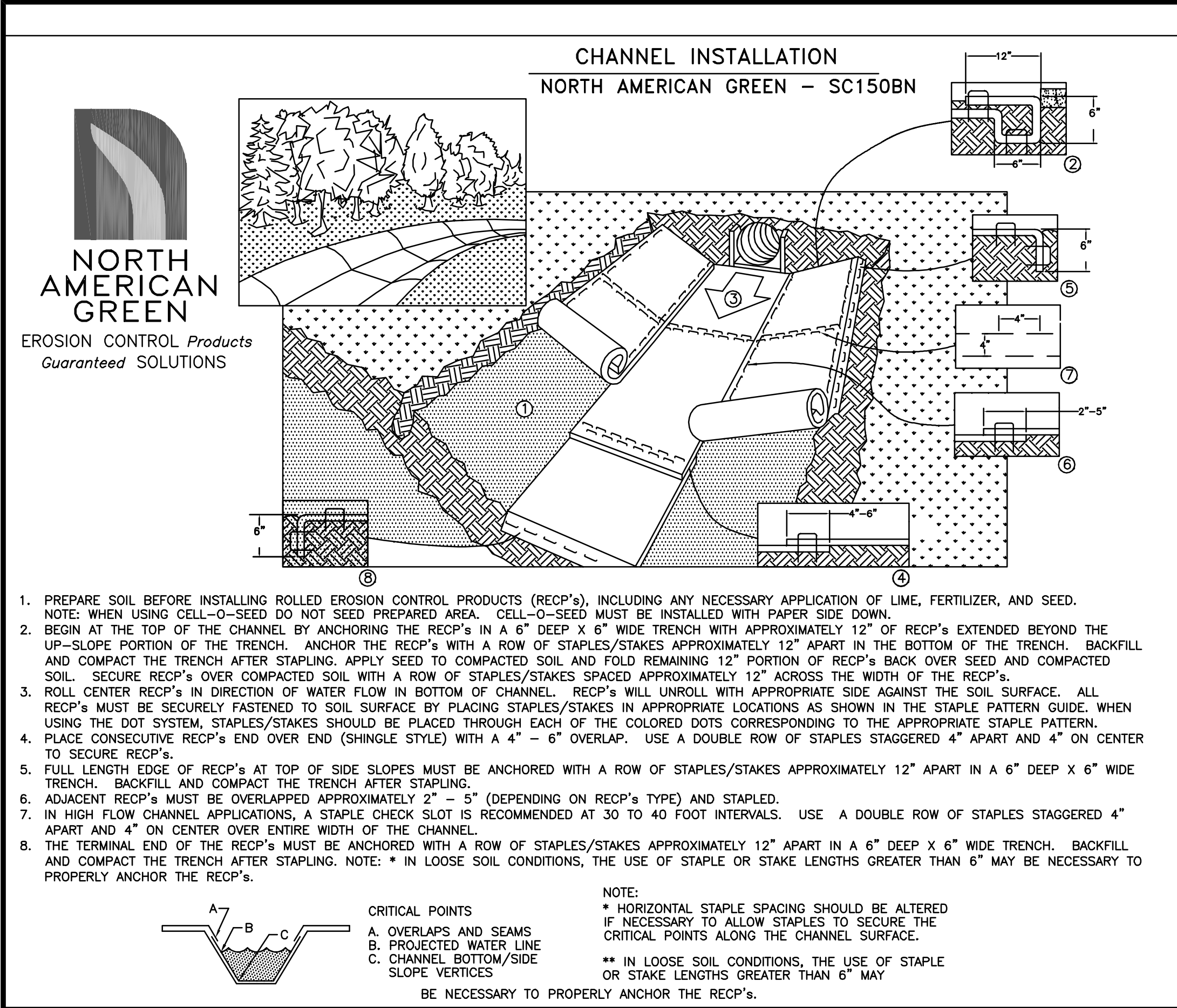
TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820



NOT FOR CONSTRUCTION FOR PERMIT USE ONLY
181 Watson Road, PO Box 1166
Dover, NH 03820
603.748.0443

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE SITE	NO.	REVISION	APP'D	DATE
11-21-24	N.T.S.	SRD	JPG	BYSH	24084	DWG				



A. GENERAL NOTES:

- A STABILIZED CONSTRUCTION ENTRANCE/EXIT CONSISTS OF A PAD OF STONE AGGREGATE PLACED ON A GEOTEXTILE FILTER FABRIC, LOCATED AT ANY POINT WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO AN EXISTING ACCESS ROAD WAY OR OTHER PAVED SURFACE. ITS PURPOSE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC ROADS BY CONSTRUCTION VEHICLES. THIS HELPS PROTECT RECEIVING WATERS FROM SEDIMENT CARRIED BY STORM WATER RUNOFF FROM ROADS
- ONLY CONSTRUCTION TRAFFIC LEAVING THE SITE IS REQUIRED TO USE THE TEMPORARY STABILIZED EXIT. CONSIDER PROVIDING A SEPARATE, UNPROTECTED ENTRANCE FOR TRAFFIC ENTERING THE SITE. THIS WILL INCREASE THE LONGEVITY OF THE STABILIZED EXIT BY ELIMINATING HEAVY LOADS ENTERING THE SITE AND REDUCING THE TOTAL TRAFFIC OVER THE DEVICE.
- LOCATE THE CONSTRUCTION ENTRANCES AND EXITS, A MINIMUM OF 100 FEET FROM INTERSECTIONS, TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES THAT HAVE STEEP GRADES AND ENTRANCES AT CURVES IN ROADS.
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.

B. SPECIFICATIONS (TEMPORARY CONSTRUCTION ENTRANCE/EXITS SHOULD MEET THE FOLLOWING REQUIREMENTS).

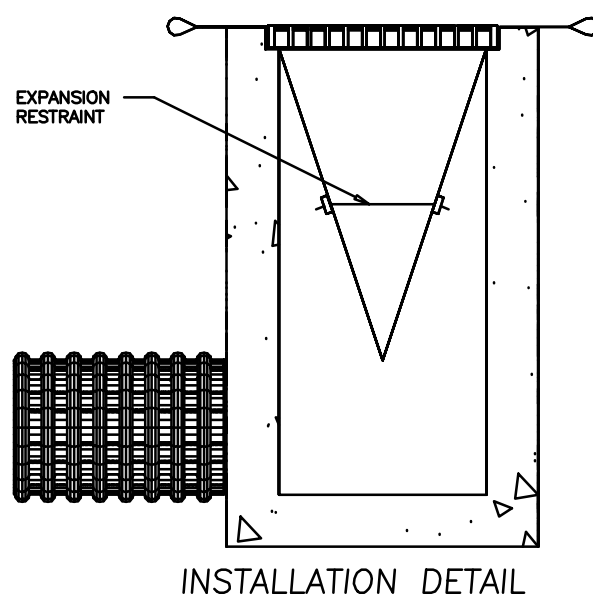
- STONE SIZE MINIMUM: USE SHOULD BE 3" CRUSHED STONE.
- THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET.
- THE MINIMUM WIDTH OF THE PAD SHOULD BE 15 FEET OR THE WIDTH OF THE ENTRANCE, WHICHEVER IS GREATER
- THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
- THE PAD SHOULD BE AT LEAST 6" THICK.
- A GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
- THE PAD SHOULD BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF-SITE.
- NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

C. MAINTENANCE REQUIREMENTS (THE ENTRANCE/EXIT SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT).

- WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED.
- THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES OR WATERWAYS.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

NOT TO SCALE



OIL-ABSORBANT SILTSACK

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)
DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK, WITH A WOVEN PILLLOW INSERT.

SILTSACK®
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.
AS SUPPLIED BY AH HARRIS OF PORTSMOUTH OR APPROVED EQUAL

REGULAR FLOW SILTSACK

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4823	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK

(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4823	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	15 SEC -1

DETAIL OF INLET SEDIMENT CONTROL DEVICE



SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:



Blanding's turtle (state endangered)

- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land



Wood turtle (special concern)

- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land



Eastern box turtle (state endangered)

- Small terrestrial turtle with highly domed shell
- Irregular yellow or orange markings over brown/black base



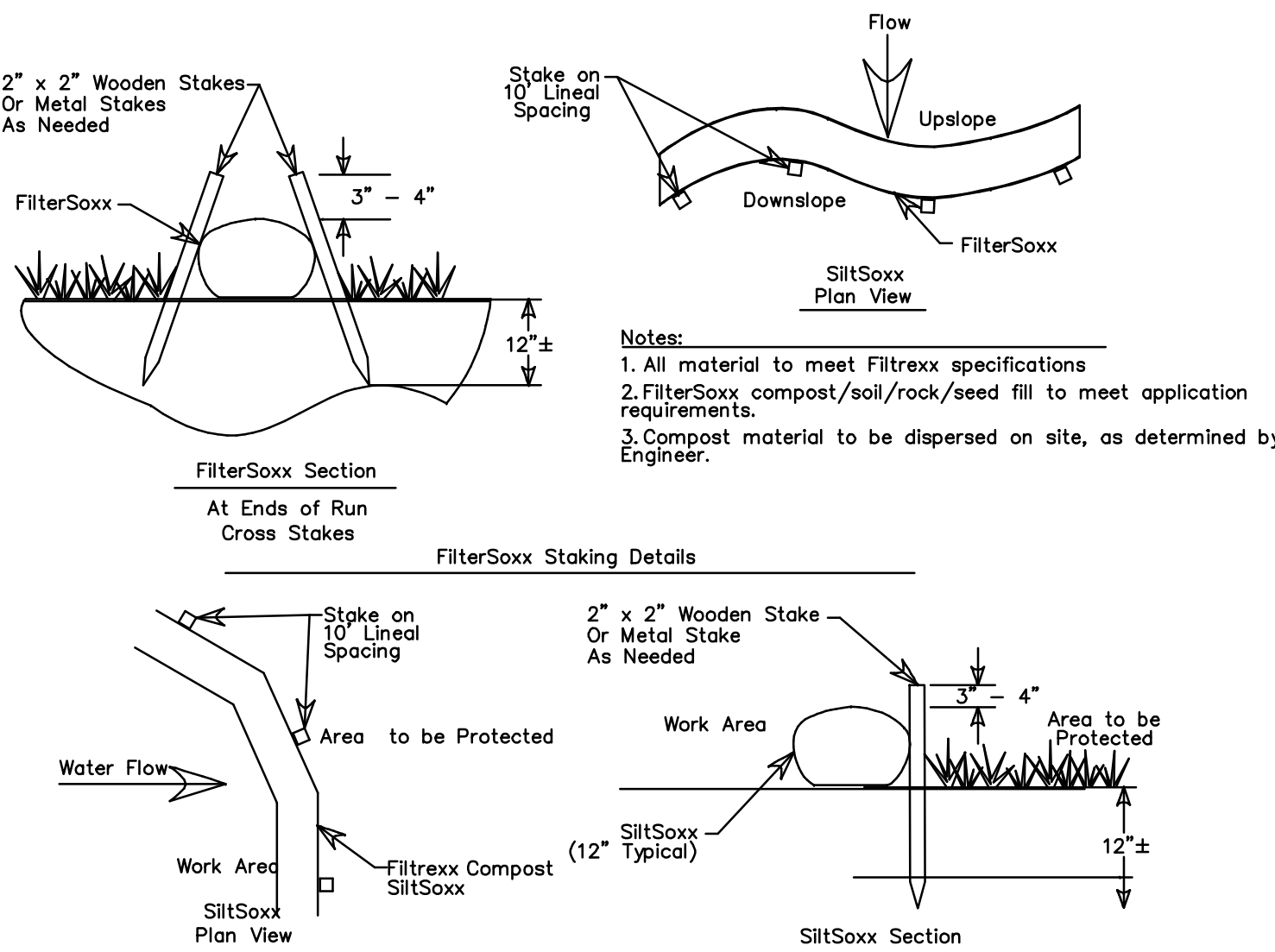
Spotted turtle (state threatened)

- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 Please report promptly, noting specific location and date – Photographs strongly encouraged

NOTES:

- ALL OUTSIDE CONSTRUCTION PERSONNEL SHALL RECEIVE TRAINING IN THE IDENTIFICATION OF RARE TURTLE SPECIES AND MADE AWARE OF THEIR PROTECTED STATUS.
- THE USE OF WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED
- THE USE OF EROSION CONTROL BERM, WHITE FILTREXX DEGRADABLE WOVEN SILT SOCK, OR 'WILDLIFE FRIENDLY' WOVEN ORGANIC MATERIAL (E.G. COCO OR JUTE MATTING SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT) ARE ACCEPTABLE FOR USE
- IF WOOD, SPOTTED, OR BLANDING'S TURTLES ARE FOUND LAYING EGGS IN THE WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI AT 271-1738 or JOSH MEGYESY AT 271-1125 FOR FURTHER INSTRUCTIONS.



NOTES:

- All material to meet Filtrrexx specifications
- SiltSoxx compost/soil/rock/seed fill to meet application requirements.
- SiltSoxx depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
- Compost material to be dispersed on site, as determined by Engineer.

SILTSOXX DETAILS

NOT TO SCALE

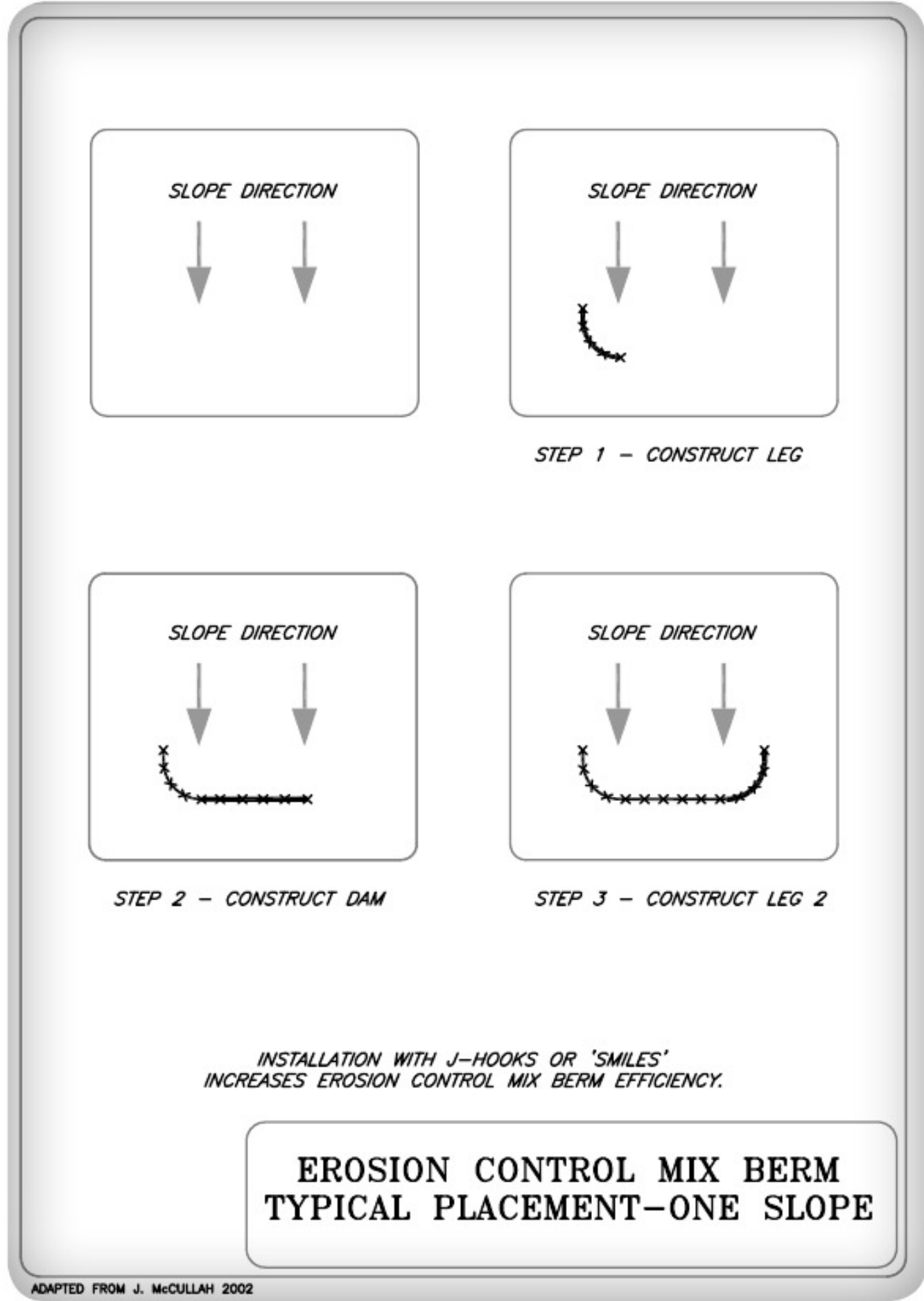
PLANNING FILE NO.: SITE-2024-

EROSION CONTROL DETAILS

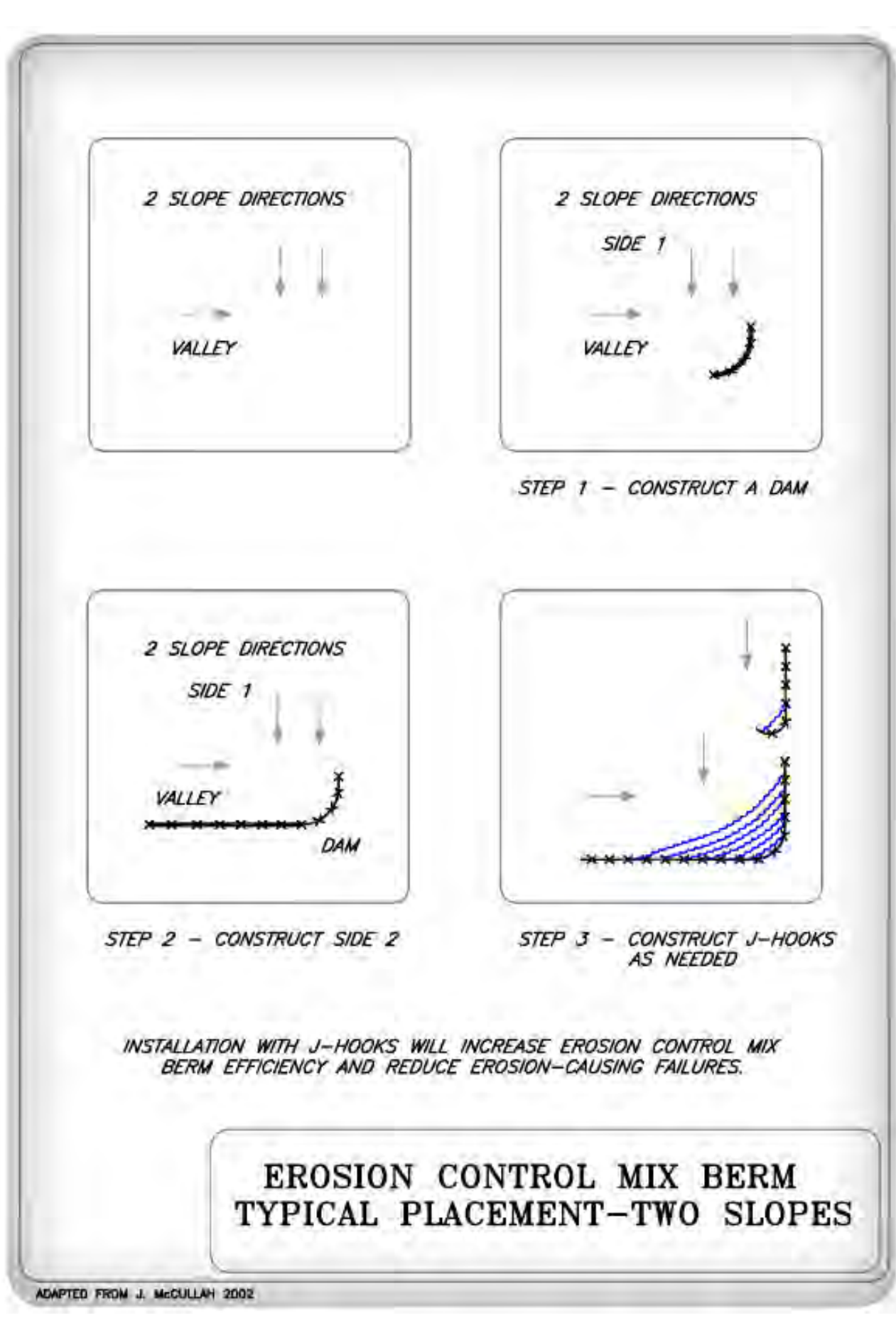
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

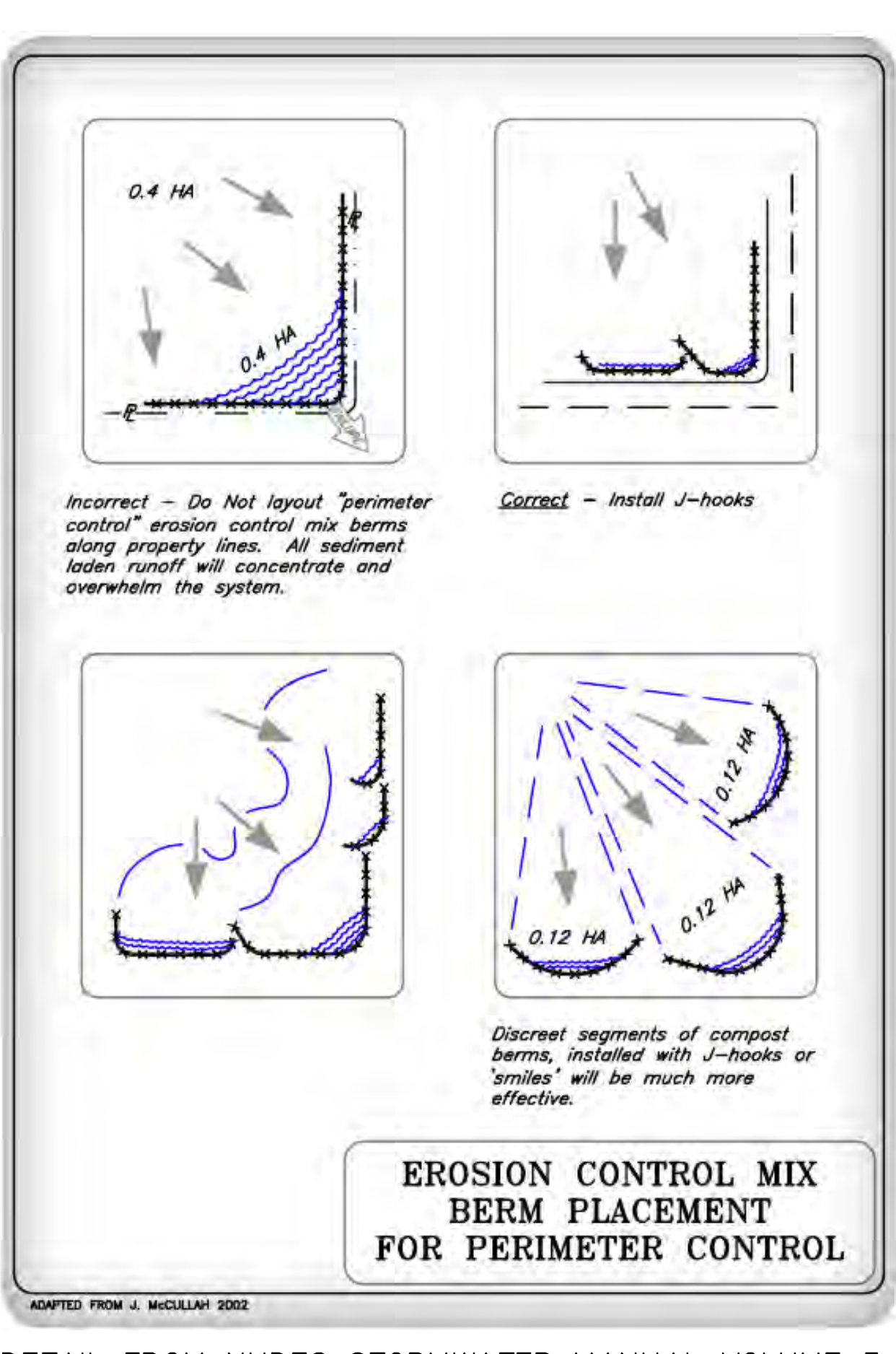
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11-21-24	N.T.S.	SRD	JPG	BYSLH	24084					



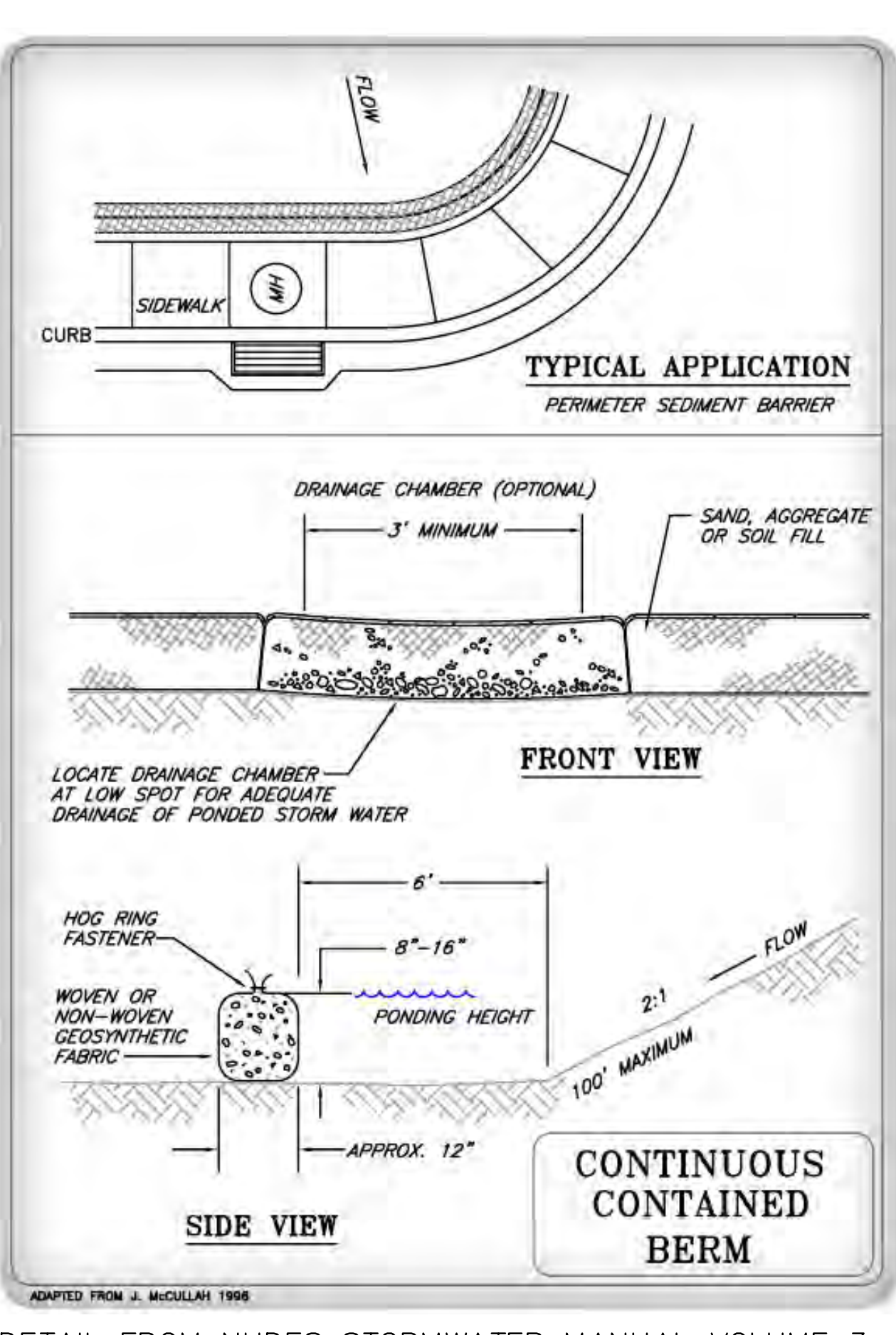
DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



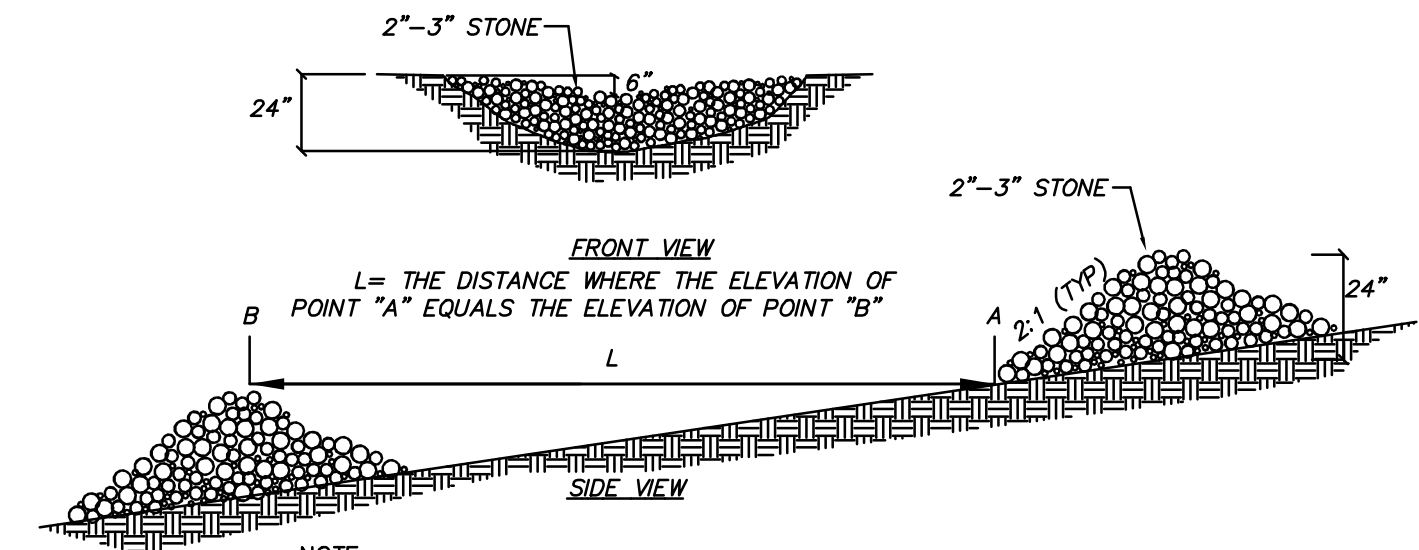
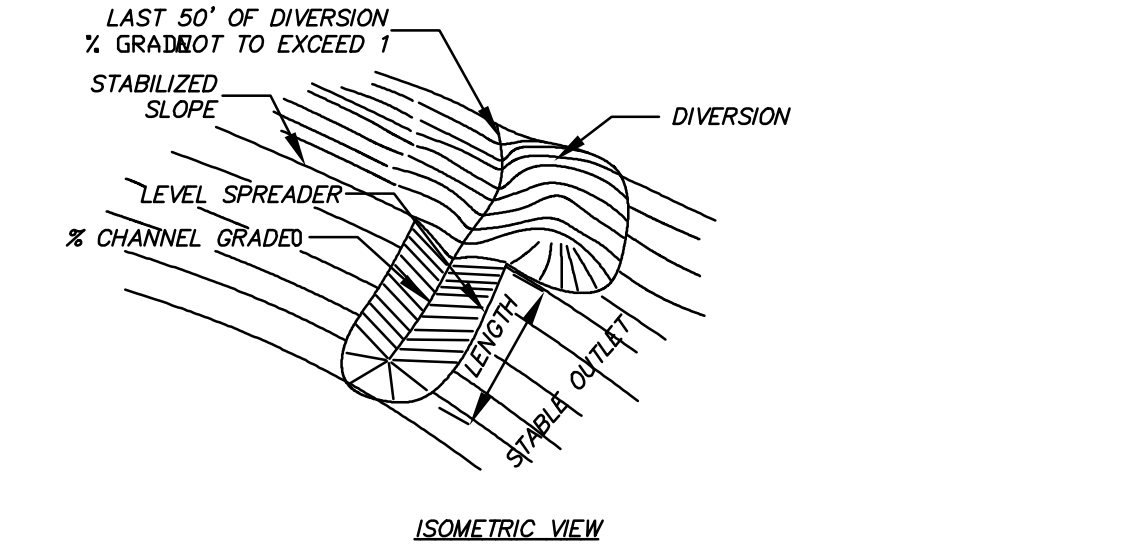
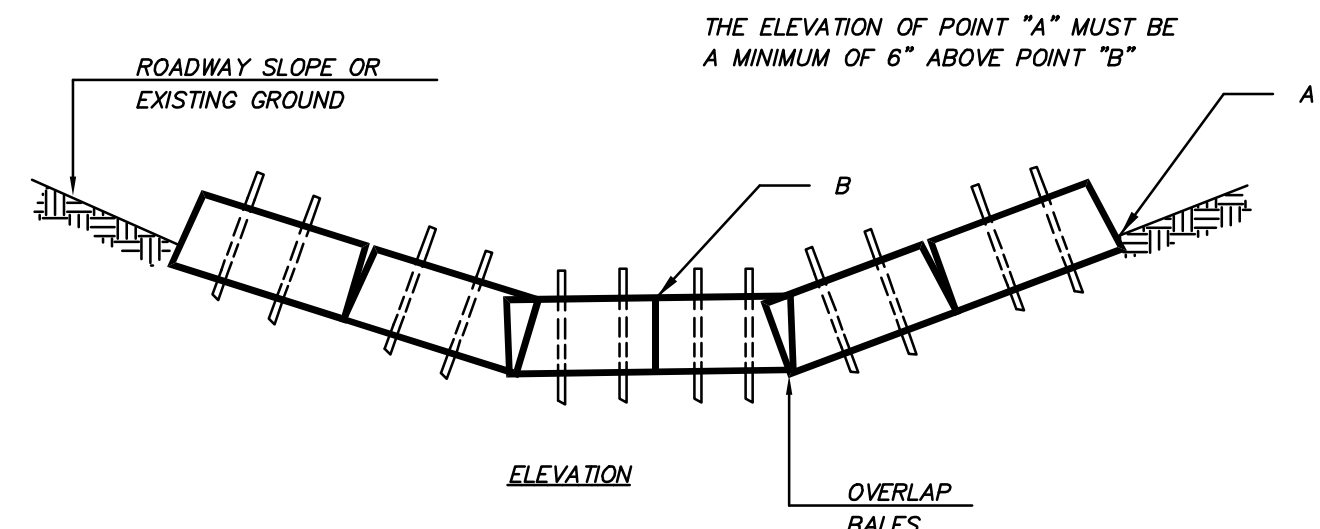
DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



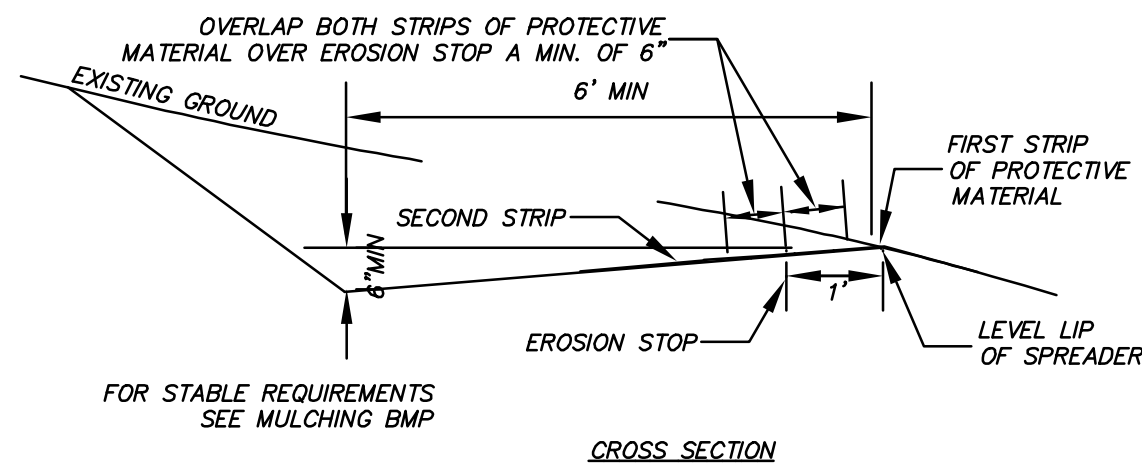
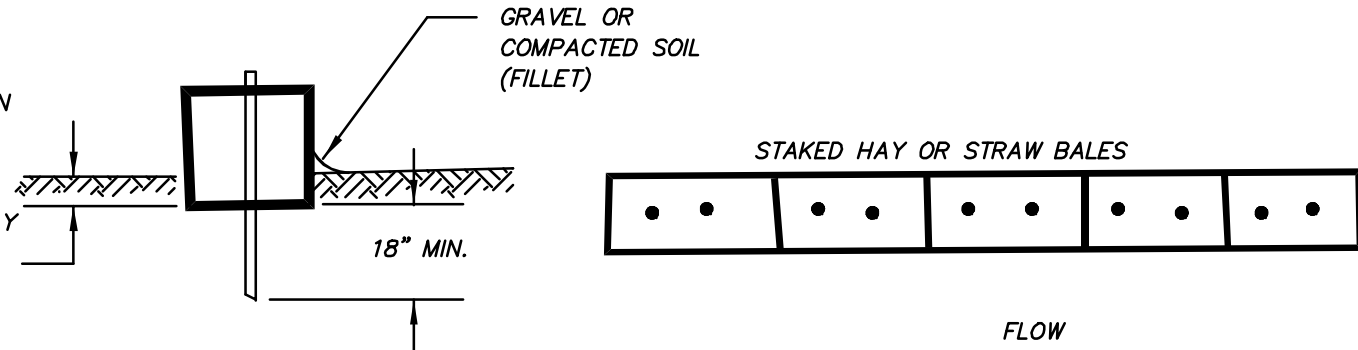
DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3

PLANNING FILE NO.: SITE—2024—

EROSION CONTROL DETAILS		NOT FOR CONSTRUCTION FOR PERMIT USE ONLY											
13	TDR SITE PLAN 5 UNIT RESIDENTIAL SIXTH STREET DOVER, NH	DBS HOLDINGS, LLC 71 DANIELLE LANE DOVER, NH 03820	 CIVILWORKS NEW ENGLAND C&A & WATERBURY ENGINEERING 181 Watson Road, PO Box 1166 Dover, New Hampshire 03821 603.749.0443										
			DATE: 11-21-24										
			SCALE: N.T.S.										
			DRAWN BY: SRD										
			DESIGN BY: JFG										
			APPROVED BY: JH										
			PROJECT NO: 24084										
FILE: SITE.DWG	NO.								REVISION	APP'D	DATE		



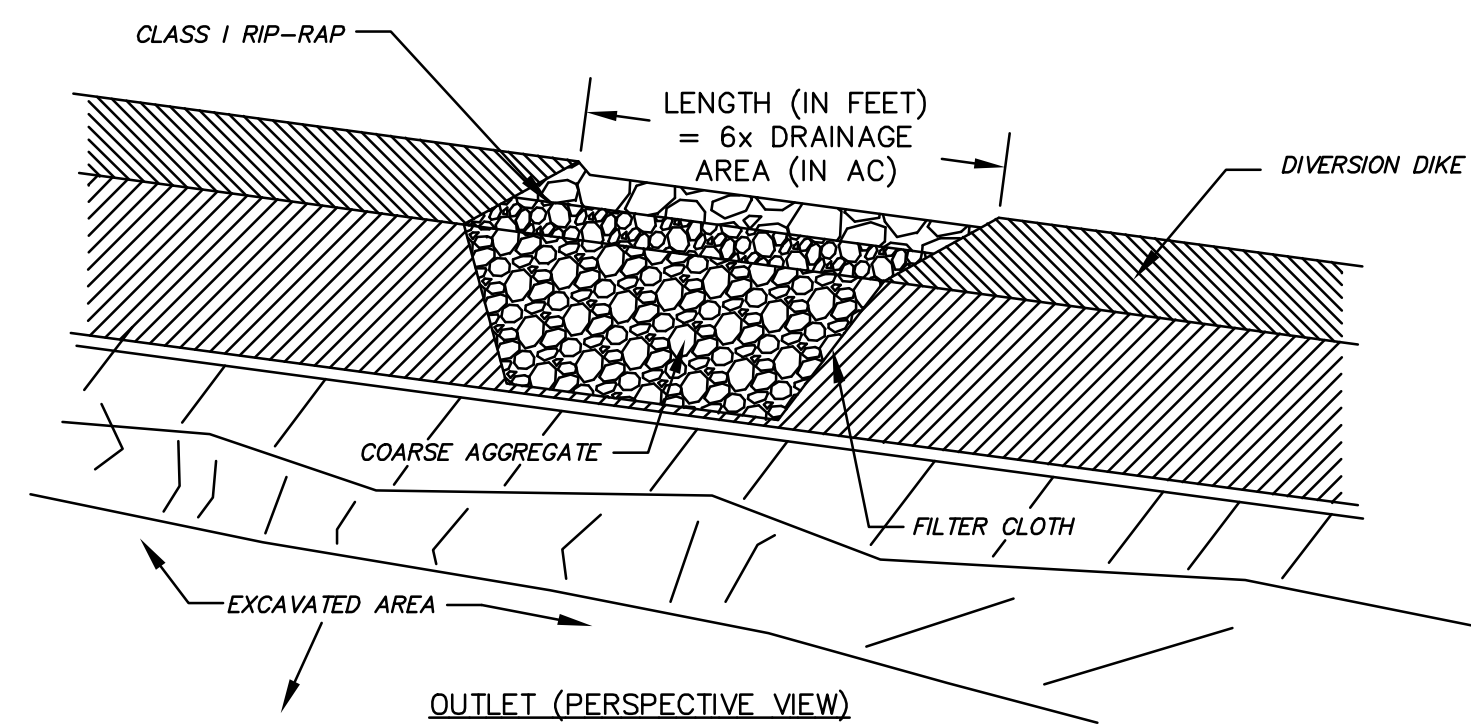
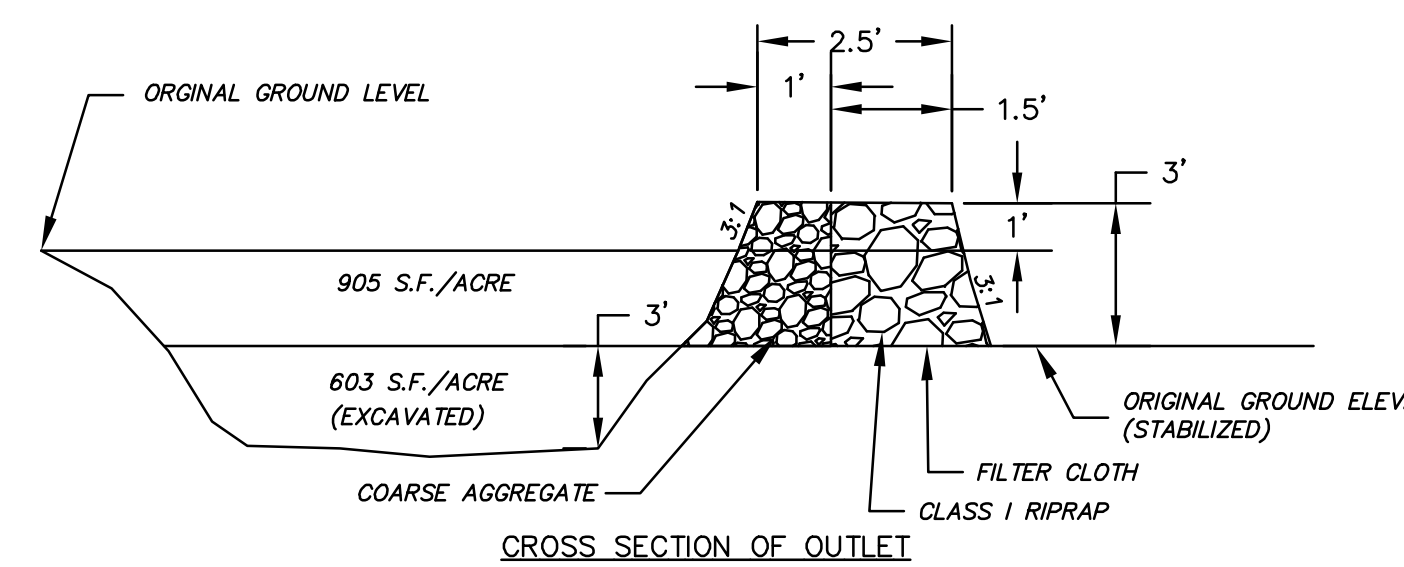
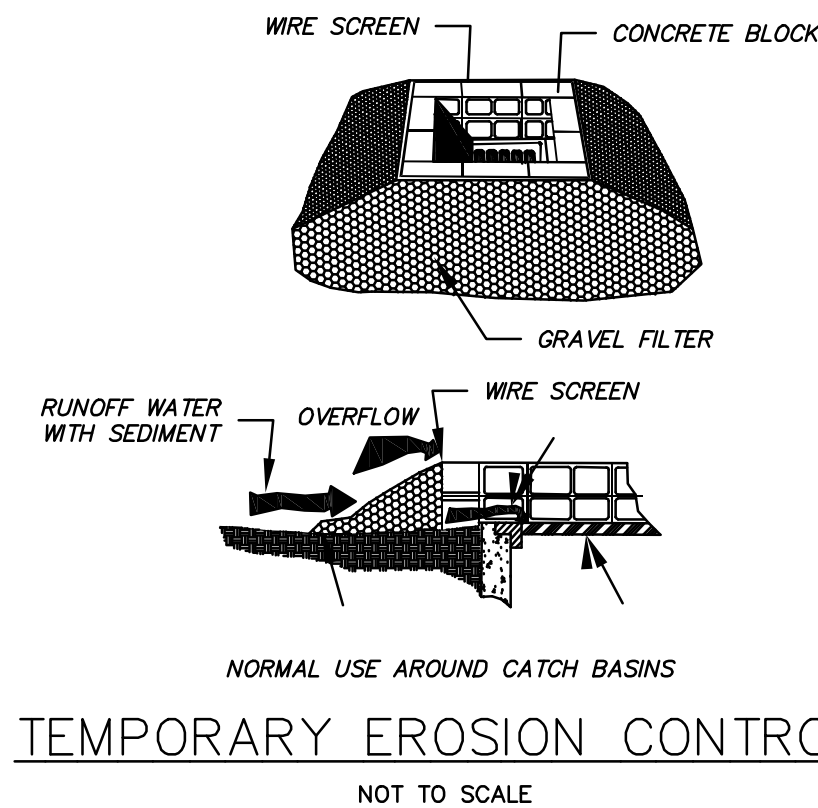
1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY 2" x 2" STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4" MIN.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. REMOVE AND PROPERLY DISPOSE OF ALL SEDIMENT PRIOR TO REMOVING HAYBALES.



LEVEL SPREADER DETAIL
NOT TO SCALE

HAYBALE NOTES AND DETAILS

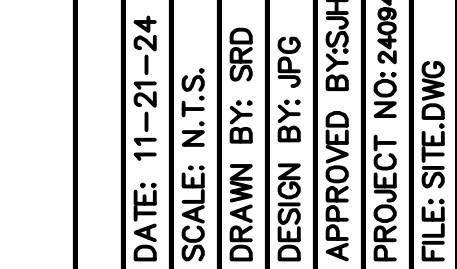
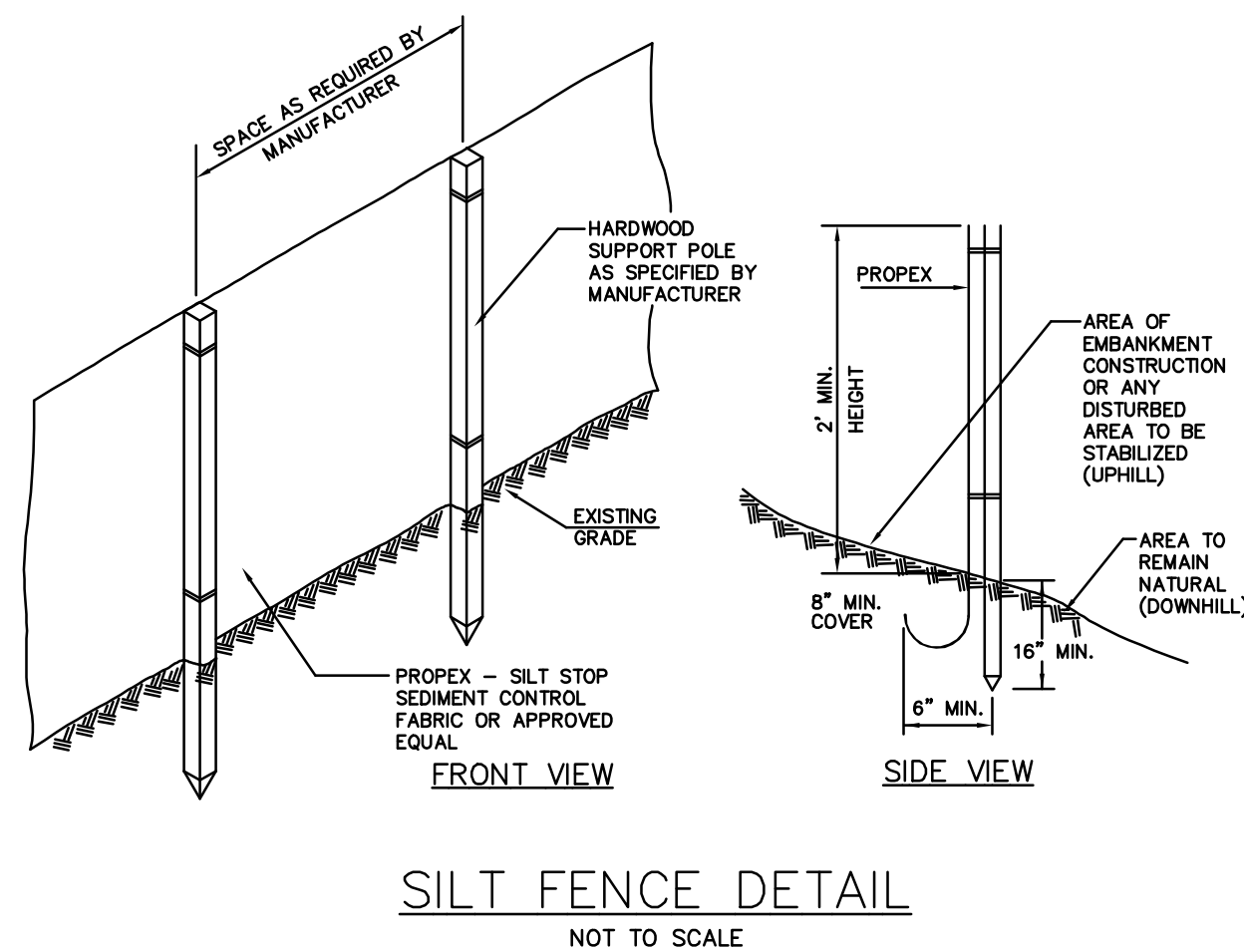
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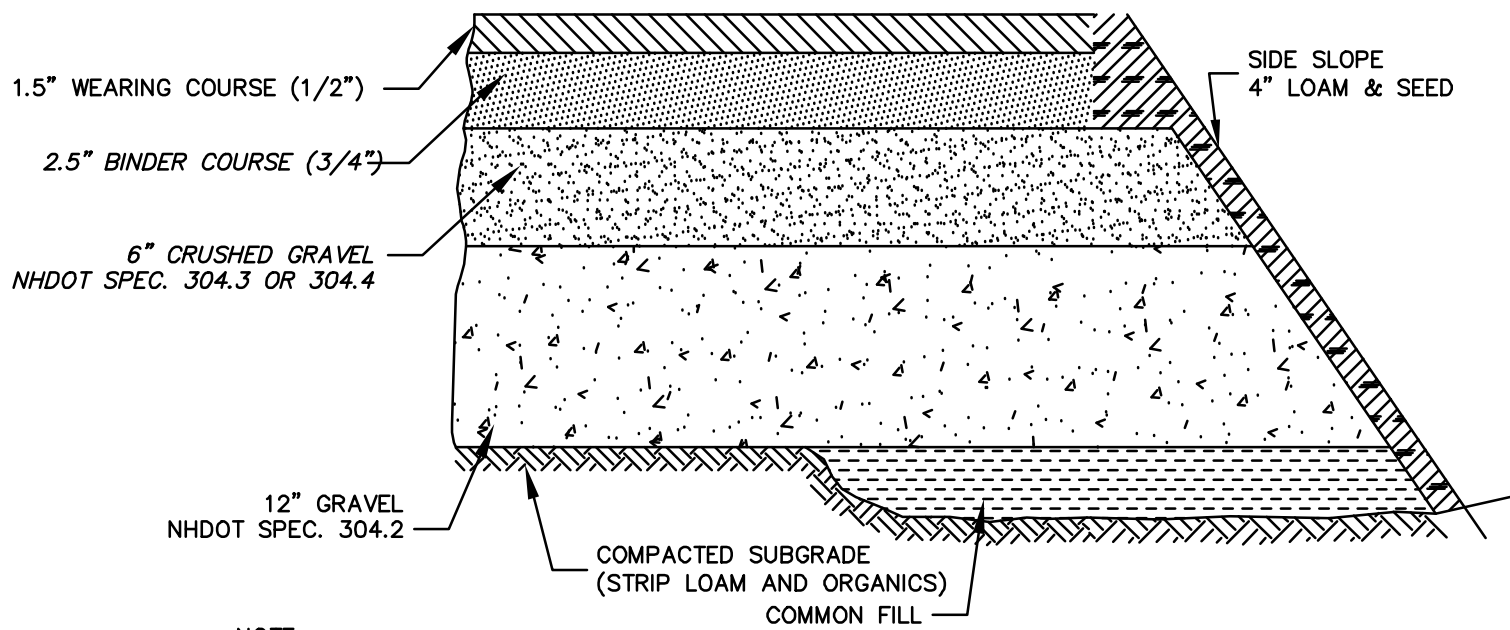


- NOTES:**
1. COARSE AGGREGATE SHALL MEET NHDOT 304.5 SPECIFICATIONS AND SHALL NOT CONTAIN MORE THAN 5% FINES PASSING THE #200 SIEVE.
 2. FILTER CLOTH SHALL BE MIRAFI 700X OR APPROVED EQUAL.
 3. CLASS I RIPRAP SHALL MEET NHDOT 583 SS SPECIFICATIONS.
 4. THE MAXIMUM CONTRIBUTING AREA TO THE TRAP SHALL BE LESS THAN 5 AC.
 5. THE TRAP SHALL BE CLEANED WHEN 50% OF THE ORIGINAL VOLUME IS FILLED.
 6. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

TEMPORARY SEDIMENT TRAP

NOT TO SCALE

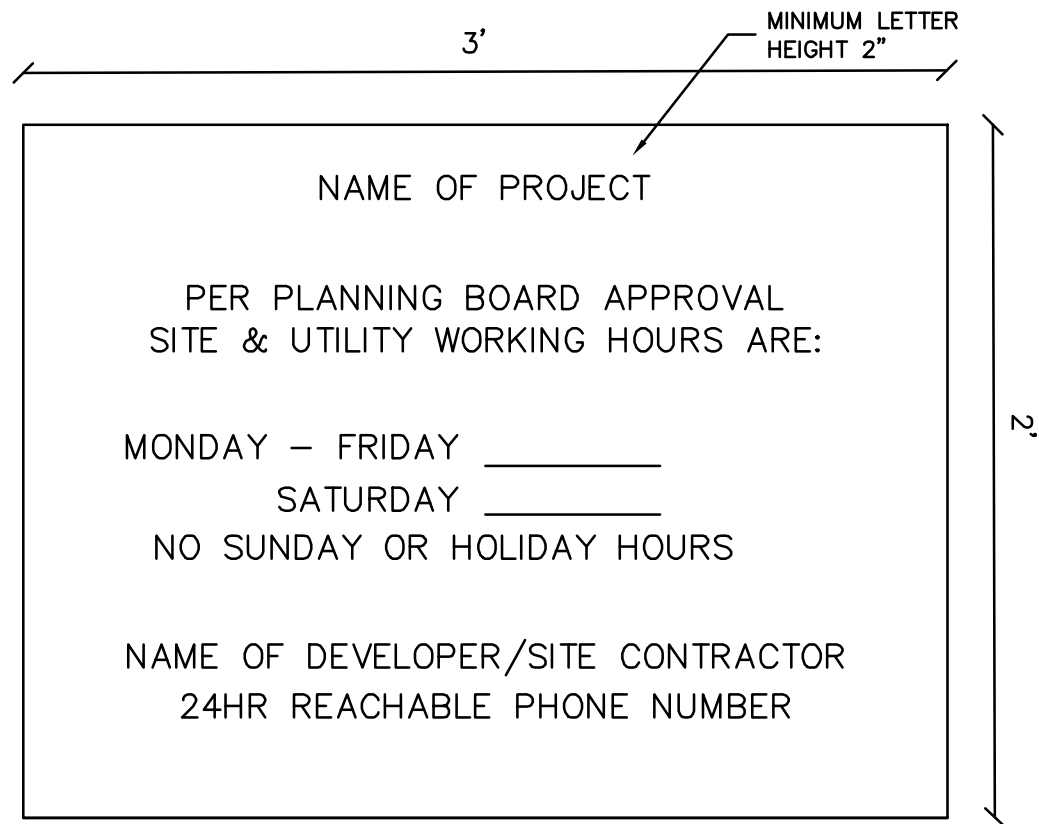




- NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
 2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
 3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER BASED UPON SITE CONDITIONS.

TYPICAL PAVEMENT SECTION

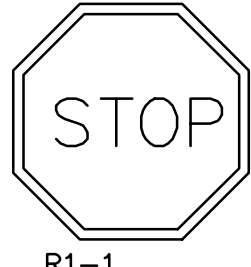
NOT TO SCALE



- NOTES:
1. SIGN SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND
 2. SIGN SHALL BE WEATHER RESISTANT AND SECURED TO THE GROUND
 3. HOURS ON THE SIGN SHALL COMPLY WITH ALL PLANNING BOARD CONDITIONS OF APPROVAL.

CITY OF DOVER D-2
CONSTRUCTION SIGN

NOT TO SCALE



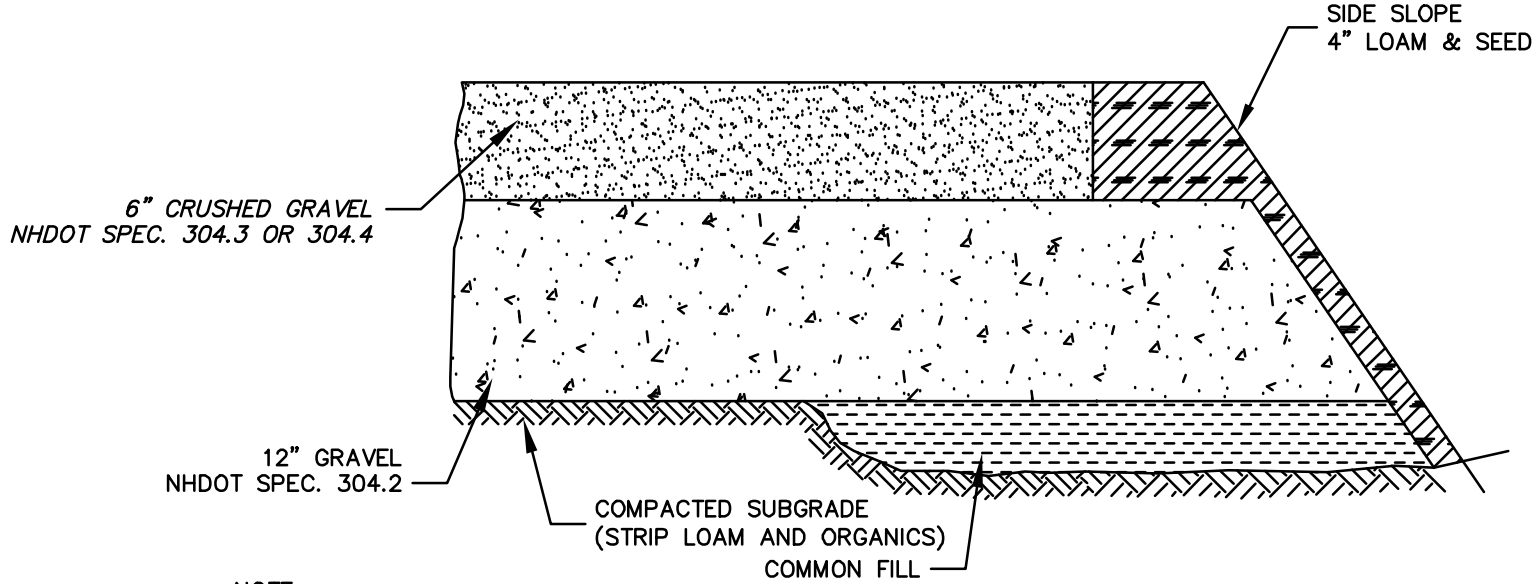
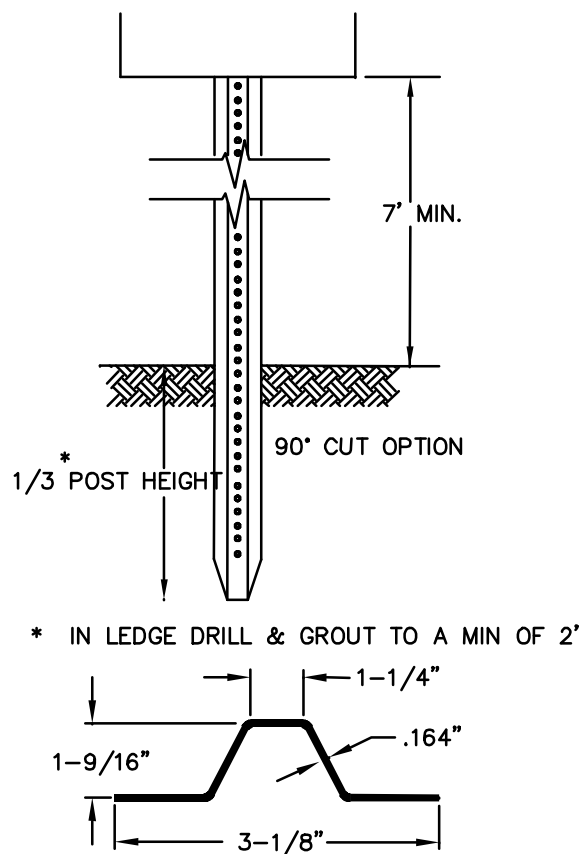
R1-1
30" x 30"

- NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

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

SIGN LEGEND & SIGN POST

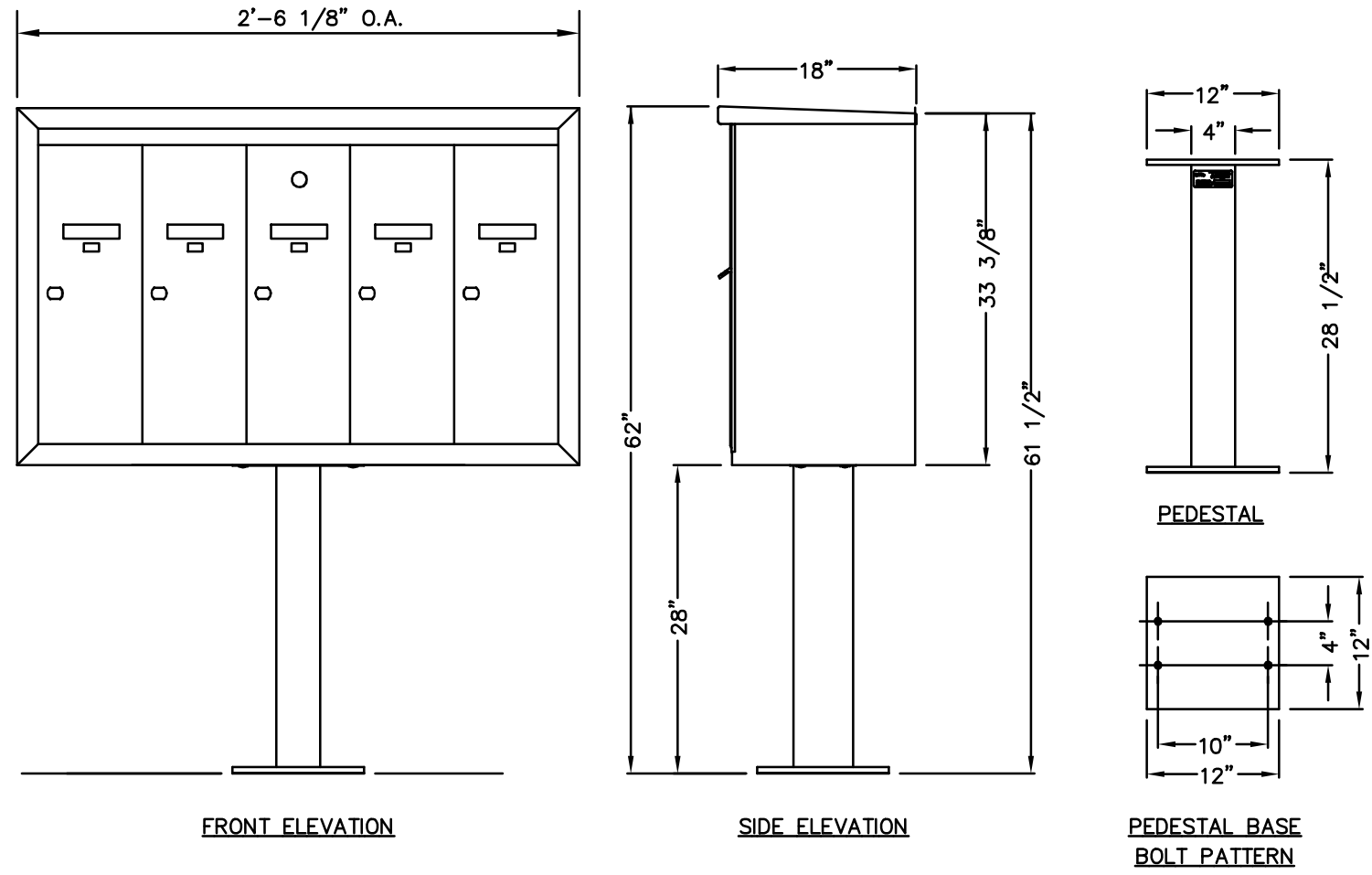
NOT TO SCALE



- NOTE:
1. SEE SITE PLAN FOR GRAVEL WIDTH AND LOCATION.
 2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR GRAVEL SLOPE AND CROSS-SLOPE.
 3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER BASED UPON SITE CONDITIONS.

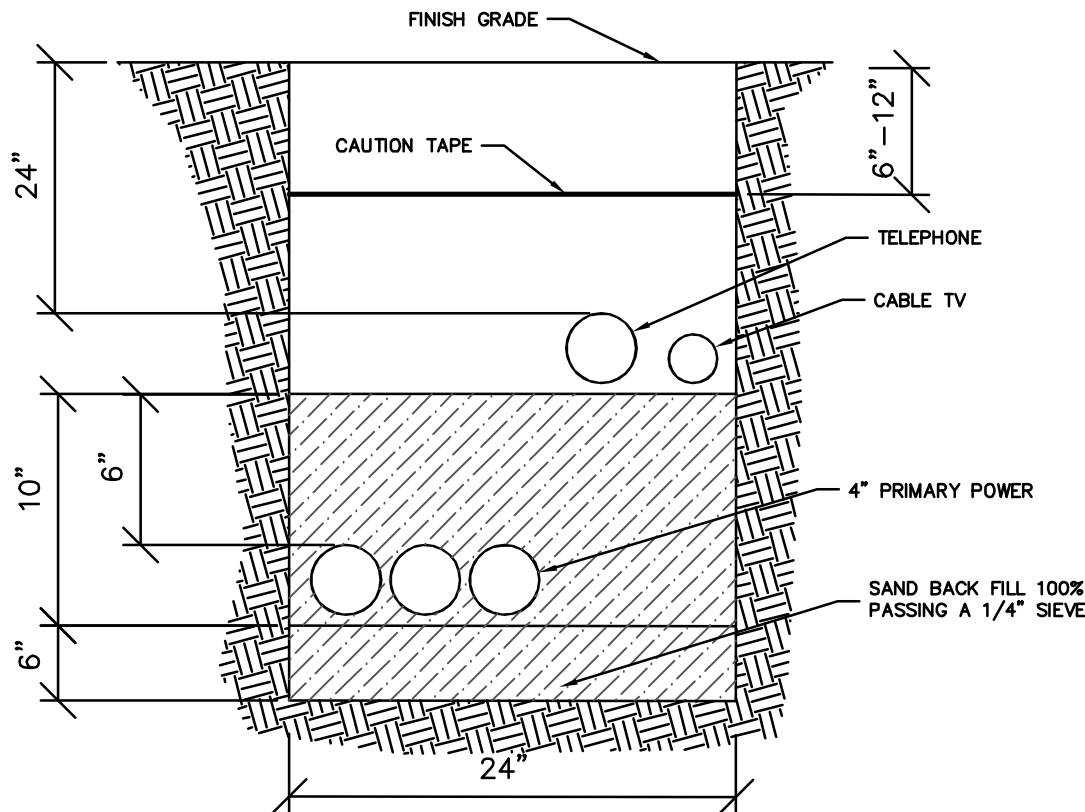
TYPICAL GRAVEL SECTION

NOT TO SCALE



MAIL KIOSK DETAIL

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 SPECIFICATIONS 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.

UTILITY TRENCH

NOT TO SCALE

PLANNING FILE NO.: SITE-2024-

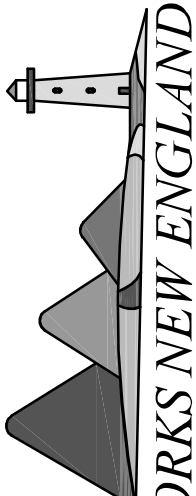
DETAILS

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

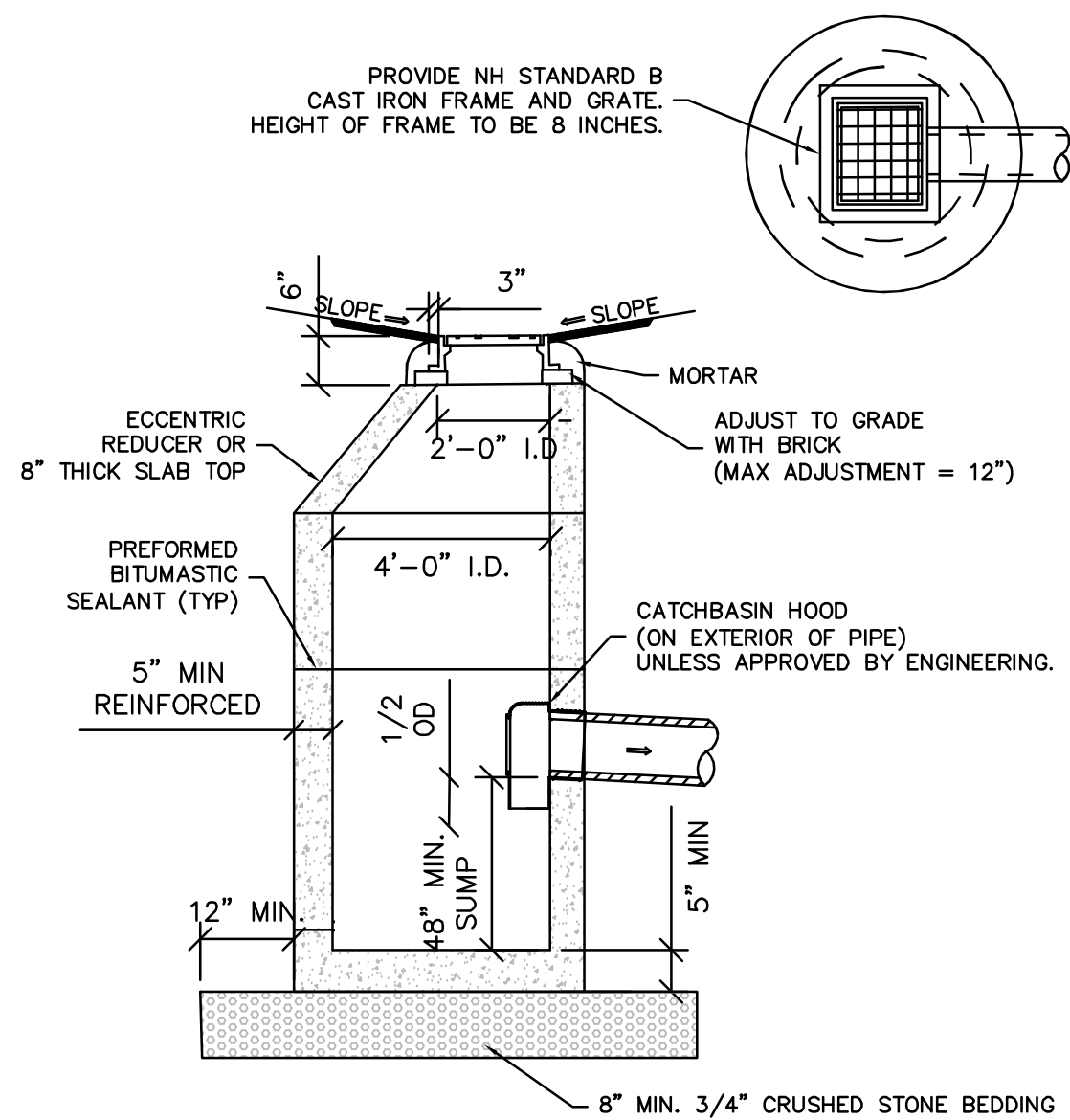
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE SITE-DWG	NO.	REVISION	APP'D	DATE
DATE: 11-21-24	SCALE: N.T.S.	DRAWN BY: SRD	DESIGN BY: JFG	APPROVED BY: JH	PROJECT NO: 24084	FILE SITE-DWG	NO.			

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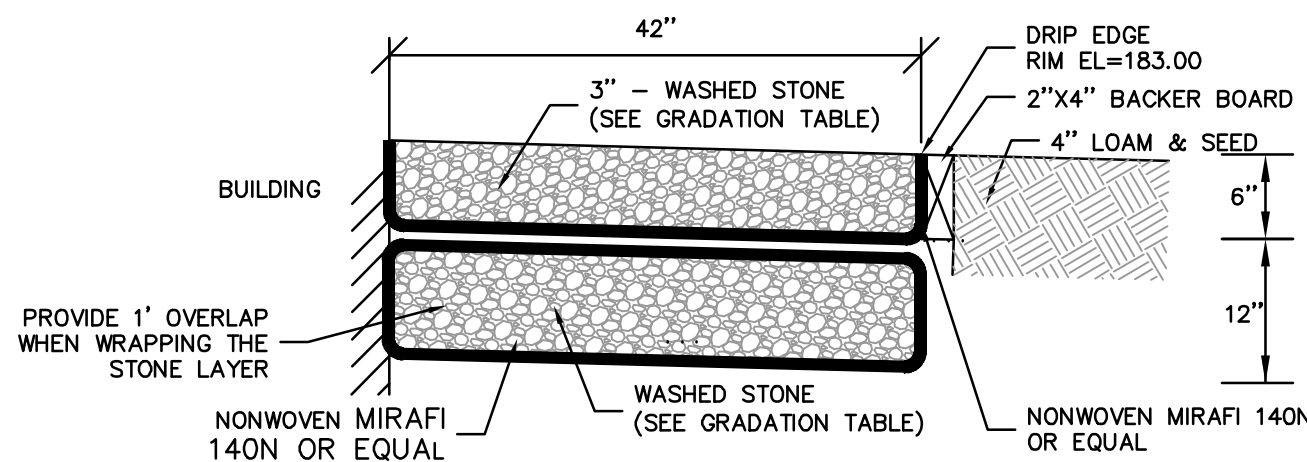
CIVILWORKS NEW ENGLAND
CIVIL & WATERWORKS ENGINEERING
181 Watson Road, PO Box 1166
Dover, NH 03820



NOTES:
1. ENTIRE STRUCTURE SHALL BE H-20 LOAD RATED. PROVIDE MANUFACTURER REINFORCEMENT DETAILS TO THE CITY ENGINEER UPON REQUEST.

CITY OF DOVER D-19 CATCHBASIN DETAIL

NOT TO SCALE



DE1 & DE3 3-1/2' WIDE x 40' LONG
DE2 & DE4 3-1/2' WIDE x 35' LONG

NOTES: SEE SITE AND GRADING PLANS FOR LIMITS OF STONE DRIPEDGE

INSTALLATION NOTES:

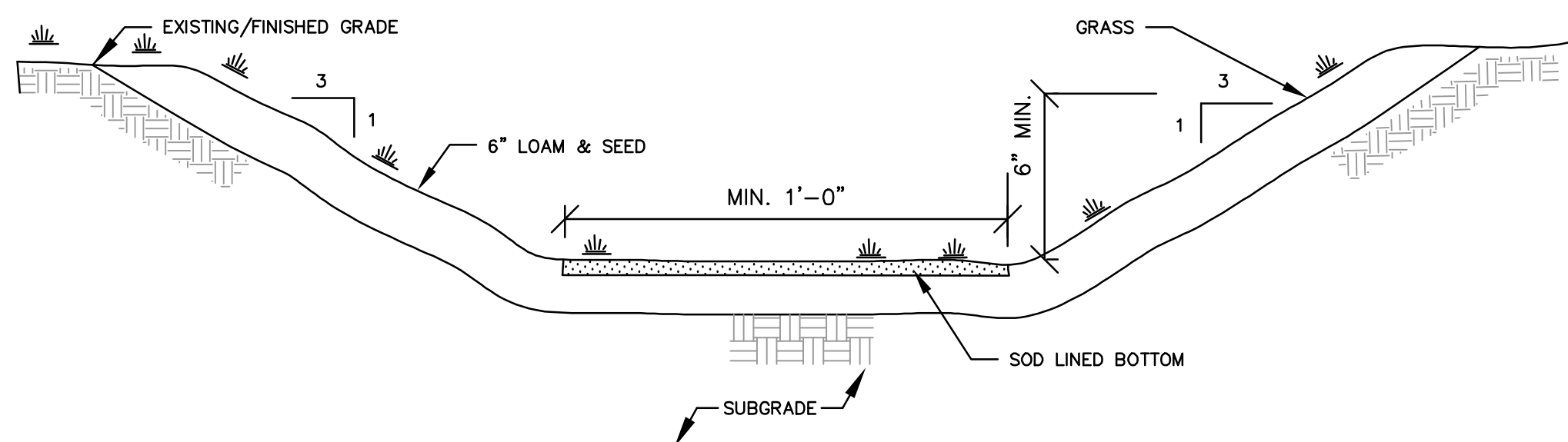
1. THE FILTER FABRIC SHALL BE ENTIRELY WRAPPED AROUND THE 12" LAYER OF STONE.
2. A SECOND FILTER FABRIC SHALL BE LAID ON TOP AND ATTACHED TO THE BACKER BOARD TO CREATE A "U". THIS ALLOWS FOR EASY REMOVAL OF TOP 3" OF STONE AND "U" SHAPED FABRIC, FOR MAINTENANCE.

MAINTENANCE NOTES:

- IF PONDING OR SAND/DEBRIS BUILD UP IS NOTICED FOLLOW HE BELOW STEPS
1. REMOVE TOP 3" OF STONE AND THE "U" SHAPED FILTER FABRIC.
 2. CLEAN THE TOP OF THE FILTER FABRIC THAT IS WRAPPED AROUND 12" LAYER OF STONE.
 3. INSPECT ANY RIPS OR TEARS IN FABRIC, IF ANY. LAY ADDITIONAL FILTER FABRIC OVER THE RIPS OR THE TEARS.
 4. CLEAN AND INSPECT THE "U" SHAPED FILTER FABRIC THAT WAS REMOVED. IF THERE ARE NO TEARS OR RIPS THE FILTER FABRIC MAY BE REUSED.
 5. INSPECT AND REMOVE ANY SAND OR DEBRIS FROM THE TOP 3" LAYER OF STONE.
 6. RE-INSTALL FILTER FABRIC AND 3" STONE LAYER

DRIP EDGE INFILTRATION TRENCH DETAIL

NOT TO SCALE



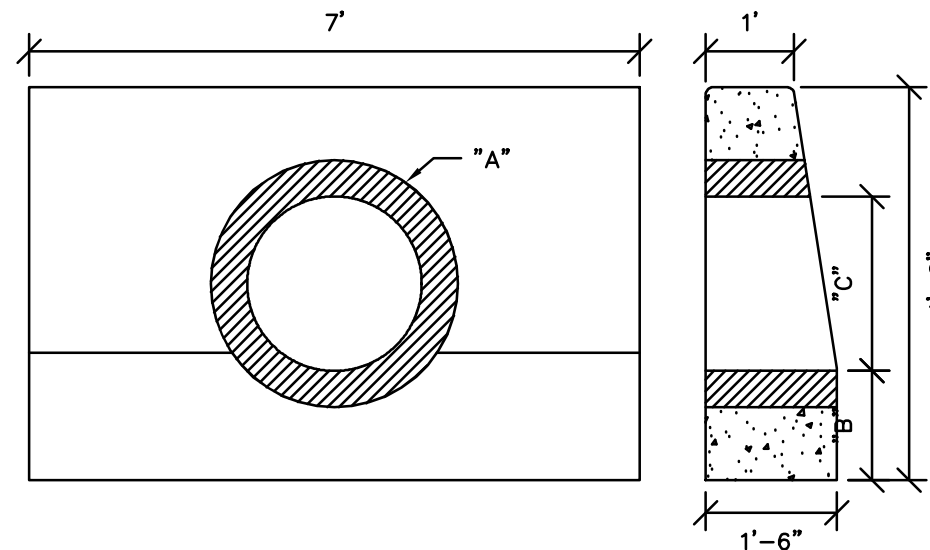
MAINTENANCE

TIMELY MAINTENANCE IS IMPORTANT TO KEEP THE VEGETATION IN THE SWALE IN GOOD CONDITION. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO KEEP THE VEGETATION IN VIGOROUS CONDITION AND TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION, HOWEVER IT SHOULD NOT BE MOWED TOO CLOSELY, MAINTAIN A MINIMUM 4" STAND OF VEGETATION. FERTILIZE ON AN "AS NEEDED" BASIS TO KEEP THE GRASS HEALTHY. OVER FERTILIZATION CAN RESULT IN THE SWALE BECOMING A SOURCE OF POLLUTION.

THE SWALE SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE SWALE. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

GRASS LINED CONVEYANCE SWALE DETAIL

NOT TO SCALE



DIA	"A"	"B"	"C"
15"	19"	18"	15"
18"	26"	18"	18"
24"	34"	15"	24"

GENERAL NOTES

1. STEEL REINFORCEMENT CONFORMS TO LATEST ASTM SPECIFICATION: ASTM A-615 GRADE 60 BLACK DEFORMED BARS
2. CONCRETE: FC = 4,000 PSI @ 28 DAYS MINIMUM
3. EST WEIGHT: 5,035 LBS

HEADWALL DETAIL

NOT TO SCALE

TRELLEBORG PIPE SEALS



Kor-N-Seal® I Stainless Steel Wedge Connector (WS Series)

Installation Instructions

CONNECTOR INSTALLATION

1. Check to be sure the Stainless Steel Waveband® is properly located in Connector groove.
2. Inspect the inside surface of the cored/formed hole. If there is porosity or wire-to-concrete separation, use patching or hydraulic cement to smooth the surface.
3. Insert Connector Assembly into hole with Wedge Expander at top of hole.
4. Position Connector so it is square to manhole both vertically and horizontally.
5. Tighten Wedge Expander using 1/2" socket wrench to 12 foot pounds.
6. Retorquing prior to shipment is recommended but not required.

Note if Vacuum Testing

Testing should be done prior to backfilling so that leaks can be easily located and repaired.

All lift holes need to be plugged with a nonshrinking mortar.

Plug all pipes entering the manhole, taking care to securely brace the pipes and plugs.

Patented Waveband technology "captures" the rubber between itself and the concrete, creating a more effective seal.



*Covered under US Patent No. 11,579,359

PIPE INSTALLATION

1. Be sure sealing area of pipe is smooth and free of defects. Repair if needed.
2. Center pipe in Connector opening. (Pipe must not rest on Connector Korband).
3. Position the Pipe Clamp in the Connector's Pipe Clamp groove with the screw at the top.
4. Tighten the Pipe Clamp screw to 60 inch pounds with a T-handle Torque Wrench, P/N 80090

Note:

On minimum pipe O.D. installations, tension the rubber under the pipe clamp by lifting the rubber toward pipe clamp screw housing by hand. This will help prevent the rubber from wrinkling or folding over during tightening of hose clamp. Application of a very small amount pipe tube on the pipe clamp track will allow the pipe clamp to slide on the rubber and improve the performance of the hose clamp. Make sure to torque all screw locations on the pipe clamps.

Caution:

Do not use an impact wrench for installation.

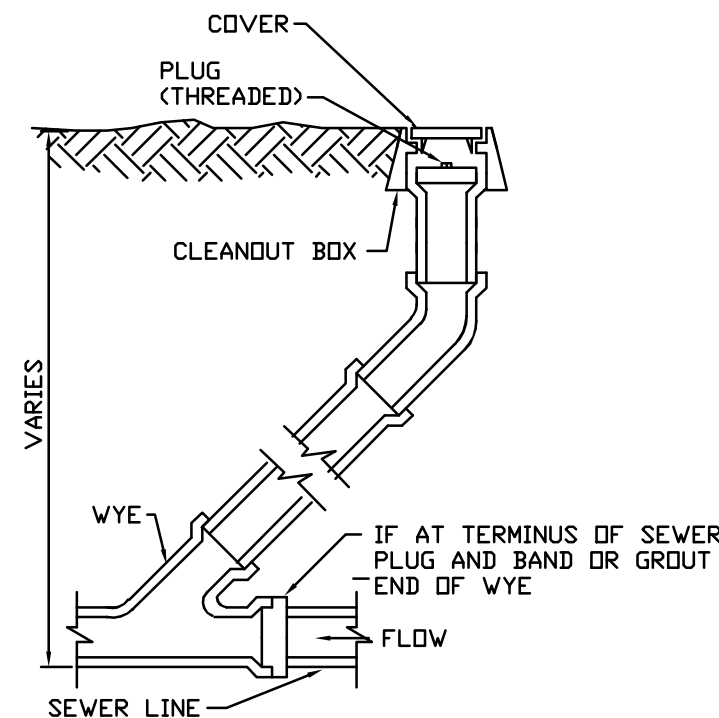
All pipe stubs must be restrained.

Adapters are required when using Corrugated Pipe. Refer to the Corrugated Pipe Adapter Data Sheet for more information.

Check calibration of torque limiters monthly

Torque limiters are available for connectors that can be used with cordless drills and hand or air ratchets.

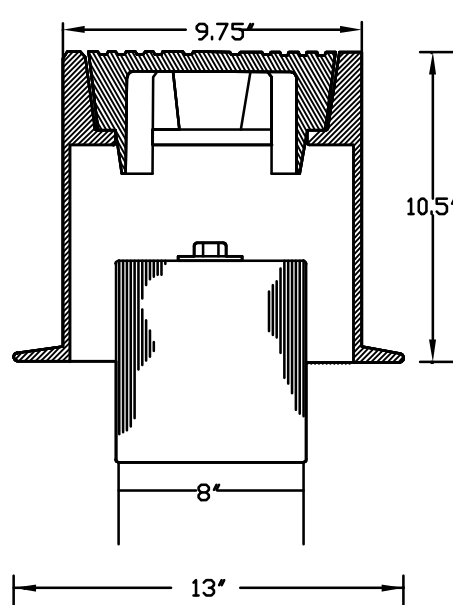
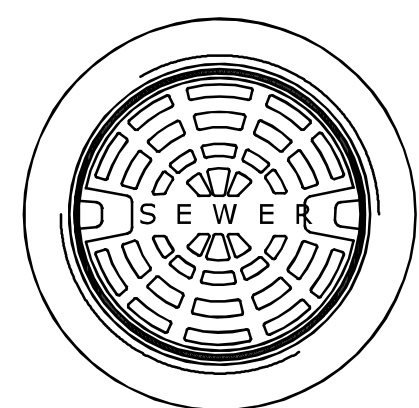
Call 800-626-2180 for information.



SEWER CLEANOUT DETAIL

NOT TO SCALE

SEWER CLEANOUT NOTES:
1) MINIMUM SIZE PIPE FOR THIS SERVICE SHALL BE 8 INCHES.
2) PIPE AND JOINT MATERIALS
A) MATERIALS PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION D3034 FOR SDR 35. THE PIPE SHALL BE COLORED GREEN FOR IN-GROUND IDENTIFICATION AS SEWER PIPE. MANUFACTURER'S CERTIFICATE OF COMPLIANCE SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. METHODS OF SHIPPING AND STORAGE ON SITE SHALL BE SUCH AS TO AVOID DAMAGE TO THE PIPE. DAMAGED PIPE SHALL BE REMOVED FROM THE SITE.
B) PIPE SHALL BE SUITABLE FOR USE AS A GRAVITY SEWER CONDUIT.
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 MATERIAL USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER T-Y OR AT THE FOUNDATION WALL, APPROPRIATE ADAPTERS SHALL BE USED.
5) PIPE INSTALLATION THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER.
6) ILLEGAL CONNECTIONS NOTHING BUT SANITARY WASTE FLOW FROM THE COMMERCIAL FACILITY TOILETS, SINKS, RESTAURANT, BREWERY, ETC. SHALL BE PERMITTED. ROOF LEADER, FOOTING DRAINS, SUMP PUMPS OR ANY OTHER SIMILAR CONNECTION CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.
7) CLEANOUT BOX SHALL BE NDS 10" ROUND METER BOX - PART NO. 212BCBS OR APPROVED EQUAL.



SEWER CLEANOUT BOX DETAIL

NOT TO SCALE

PLANNING FILE NO.: SITE-2024-

DETAILS

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

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DATE	SCALE	DRAWN BY	DESIGN BY	APPROVED BY	PROJECT NO.	FILE SITE-DWG	NO.	REVISION	APP'D	DATE
11-21-24	N.T.S.	SRD	JPG	BY: SJH	24084					

INFILTRATION BASIN CONSTRUCTION NOTES

INFILTRATION AREA EARTH EMBANKMENT:

1. TOP BERM WIDTH SHALL BE A MINIMUM OF 6 FEET.
2. SIDE SLOPES – THREE HORIZONTAL TO ONE VERTICAL (3:1) OR UNLESS OTHERWISE NOTED
3. GRAVEL FILL MATERIALS SHALL BE HARD DURABLE GRANULAR STOCK AND SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 6 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATERIAL.
4. FILL MATERIALS SHALL BE A MIXTURE OF STONES (NOT EXCEEDING 6" IN DIAMETER) AND A FINE SANDY SILT MATERIAL.
5. THE SOIL USED FOR THE BERM SHALL HAVE A MINIMUM PERCOLATION RATE OF 10 MINUTES AN INCH.
6. SELECTED BACKFILL MATERIAL SHALL BE PLACED AROUND STRUCTURES AND PIPE CONDUITS AT ABOUT THE SAME RATE ON ALL SIDES TO PREVENT DAMAGE FROM UNEQUAL LOADING.

DETENTION AREA BERM BASE PREPARATION:

1. THE BASE AREA SHALL BE CLEARED OF TREES, LOGS, STUMPS, ROOTS, BRUSH, BOLDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED BERM.
2. REMOVE ALL SOFT ORGANIC MATTER, PEAT, DEBRIS AND FOREIGN MATERIAL TO A DEPTH AS NEEDED (1' MIN) TO REACH AN UNYIELDING BASE OF VIRGIN SOIL.

EXECUTION:

1. GRAVEL FILL SHALL BE PLACED IN HORIZONTAL 12" (MAX.) LIFTS TO FULL WIDTHS AS SHOWN ON THE DESIGN PLAN.
2. GRAVEL FILLS SHALL BE FRESHLY PLACED PRIOR TO COMPACTION.
3. ALL FILLS SHALL BE COMPACTED BY MECHANICAL VIBRATORY COMPACTION TO 95% PROCTOR DENSITY.
4. FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. PLACE THE MORE IMPERVIOUS SOIL (HIGHER PERCENTAGE PASSING THE #200 SIEVE) IN THE UPSTREAM TWO-THIRDS (2/3) OF THE BERM. THE MORE GRANULAR SOIL MATERIAL SHOULD BE PLACED IN THE REMAINING DOWNSTREAM ONE-THIRD PORTION OF THE BERM.

GENERAL NOTES:

1. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE INFILTRATION BASIN.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION BASIN.
3. AFTER THE BASIN IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4. VEGETATION SHOULD BE ESTABLISHED IMMEDIATELY.
5. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

MOISTURE CONTROL

1. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.

COMPACTION

1. FILL ADJACENT TO STRUCTURES, PIPES CONDUITS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEAN OF HAND TAMPING OR MANUALLY POWER TAMPER OR PLATE VIBRATORS.

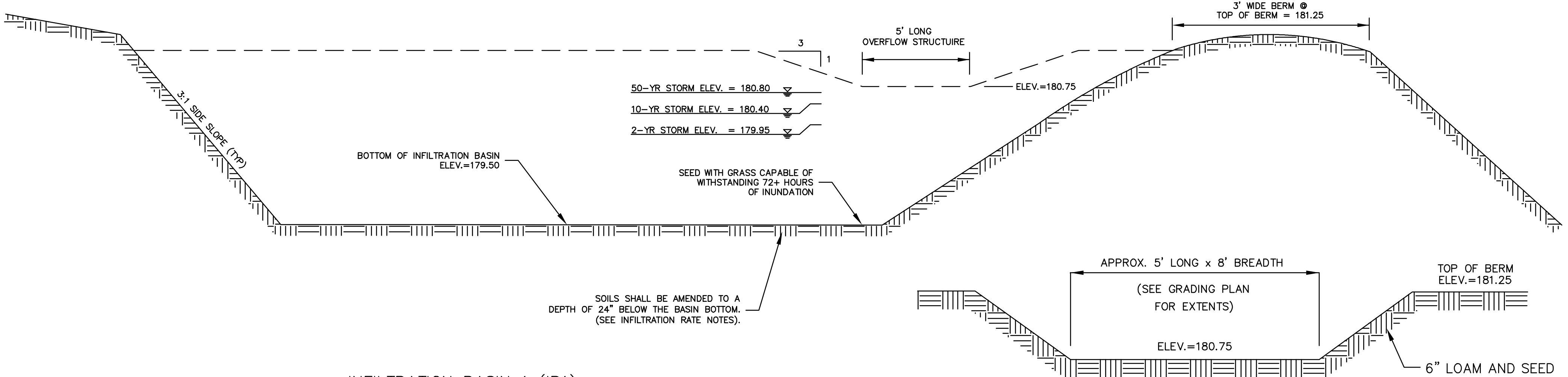
MAINTENANCE

MAINTENANCE IS NECESSARY TO ENSURE THAT THE INFILTRATION BASIN WILL CONTINUE TO FUNCTION AS ORIGINALLY DESIGNED. THE OWNER IS RESPONSIBLE FOR MAINTAINING THE STRUCTURES AND THE BASIN AREA.

1. EMBANKMENT – THE EMBANKMENT SHOULD BE INSPECTED ANNUALLY TO DETERMINE IF RODENT BURROWS, WET AREAS, OR EROSION OF THE FILL IS TAKING PLACE. IF SUCH ISSUES ARE NOTED THEY SHALL BE RECTIFIED AS SOON AS PRACTICAL.
2. VEGETATION – THE VEGETATED AREAS OF THE SYSTEM SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH. LIME AND FERTILIZER SHOULD BE APPLIED AS NECESSARY AS DETERMINED BY SOIL TESTS. TREES SHOULD BE KEPT OFF THE BERM AREA.
3. INLETS AND OUTLETS – SHOULD BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. ACCUMULATED DEBRIS AND SEDIMENT SHOULD BE REMOVED.
4. SEDIMENT – SEDIMENT SHOULD BE CONTINUALLY CHECKED IN THE FOREBAY. WHEN SEDIMENT ACCUMULATIONS REACH 3 INCHES THEN THE SEDIMENT SHOULD BE REMOVED AND PROPERLY DISPOSED OF.

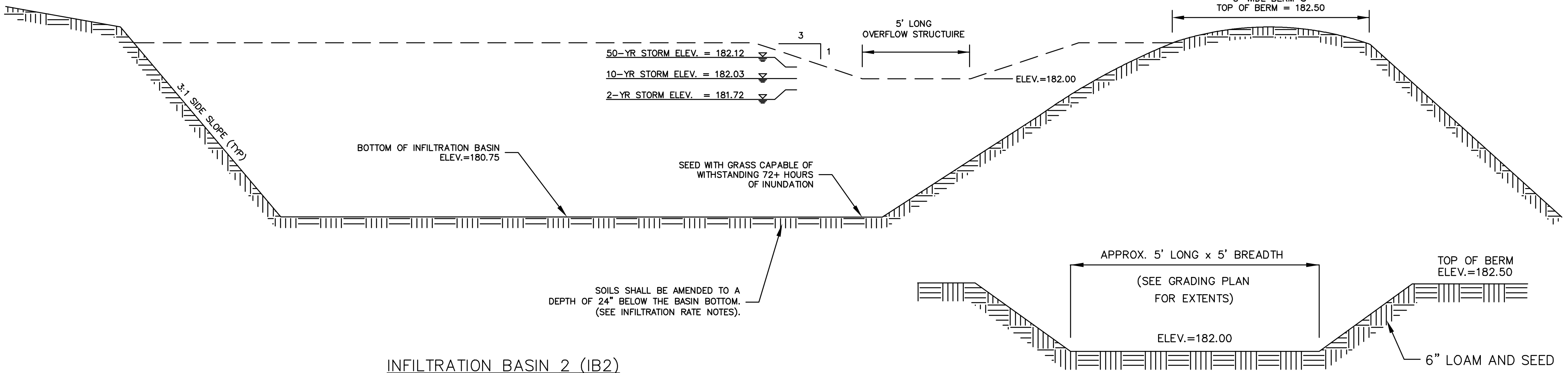
INFILTRATION RATE NOTES

1. INFILTRATION RATES IN AND AROUND THE AREA OF THE INFILTRATION BASINS WERE FIELD MEASURED TO BE GREATER THAN 20 INCHES/HR.
2. AMEND EXISTING SOILS ALONG THE BOTTOM OF THE BASINS WITH A FINE SANDY SILT MATERIAL TO A DEPTH OF 24" PER NHDES ENV-WQ 1508.06(b).
3. THE AMENDED SOILS SHALL EXHIBIT AN INFILTRATION RATE OF BETWEEN 8 AND 10 INCHES/HR.
4. IN SITU INFILTRATION TESTING MUST BE PERFORMED IN ACCORDANCE WITH NHDES ENV-WQ 1504.14(e) TO CONFIRM THE INFILTRATION RATE OF 8 TO 10 INCHES/HR. TESTING SHALL BE PERFORMED BY A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL, A CERTIFIED SOIL SCIENTIST, PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER.
5. PERFORM TWO TESTS LOCATED WITHIN THE FOOTPRINT OF EACH INFILTRATION BASIN. THE LOCATIONS SHALL BE SUFFICIENTLY SPACED TO BE REPRESENTATIVE OF THE OVERALL CONDITIONS. CONDUCT THE TESTS AT THE BASE ELEVATION OF THE PROPOSED PRACTICE.
6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE DESIGN ENGINEER.
7. SOIL TESTING SHALL BE COORDINATED WITH THE DESIGN ENGINEER.



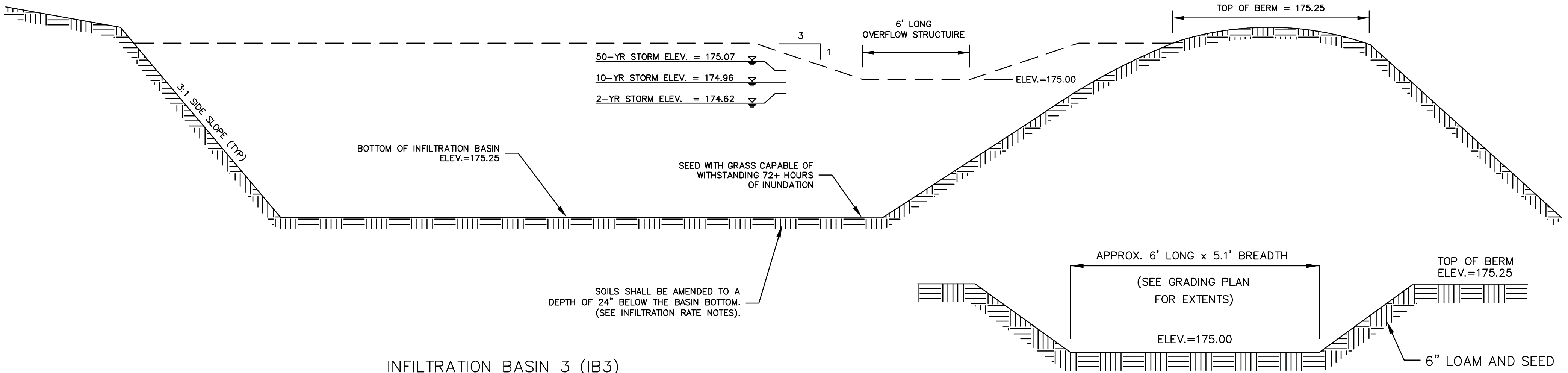
INFILTRATION BASIN 1 (IB1)

NOT TO SCALE



INFILTRATION BASIN 2 (IB2)

NOT TO SCALE



INFILTRATION BASIN 3 (IB3)

NOT TO SCALE

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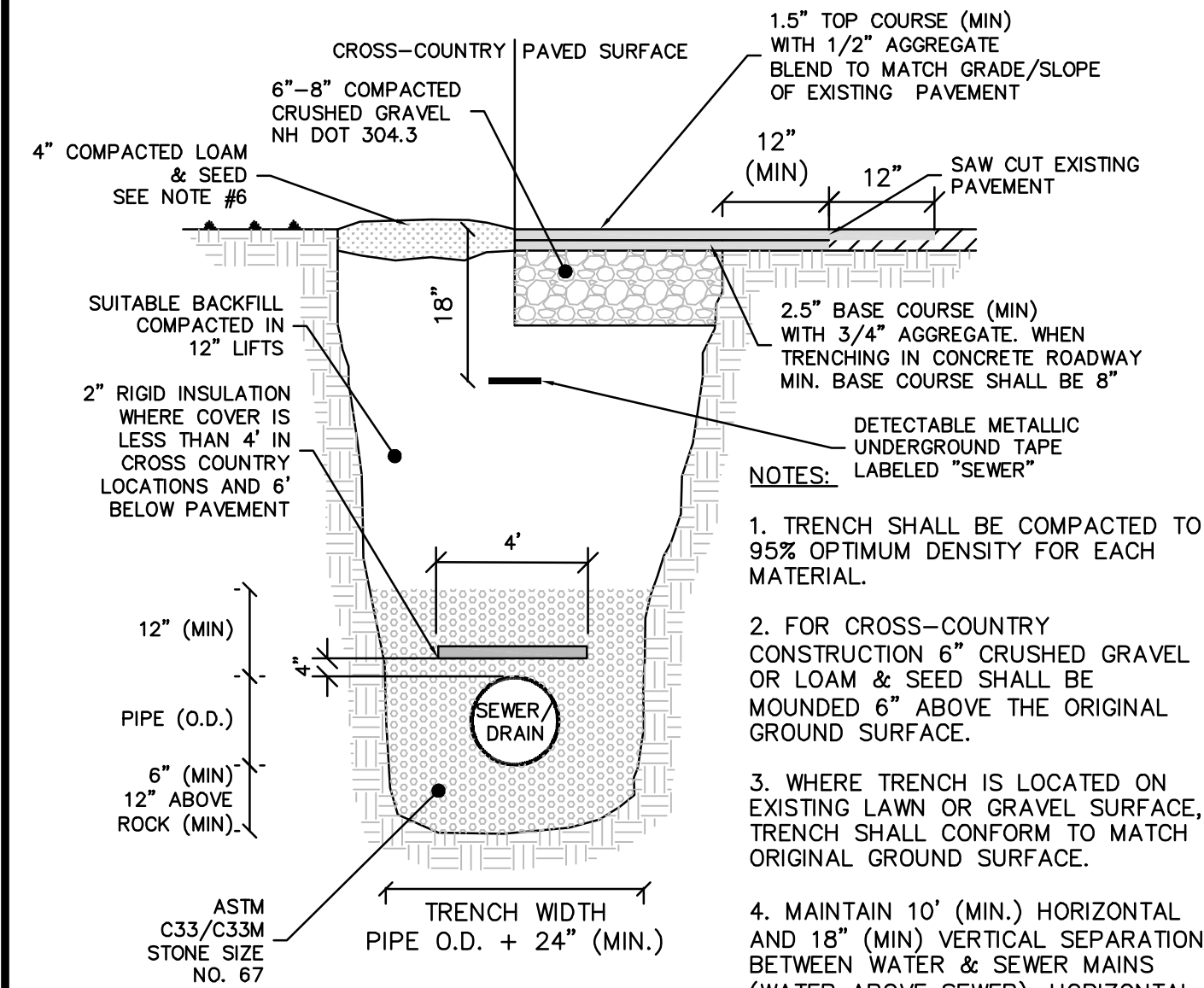
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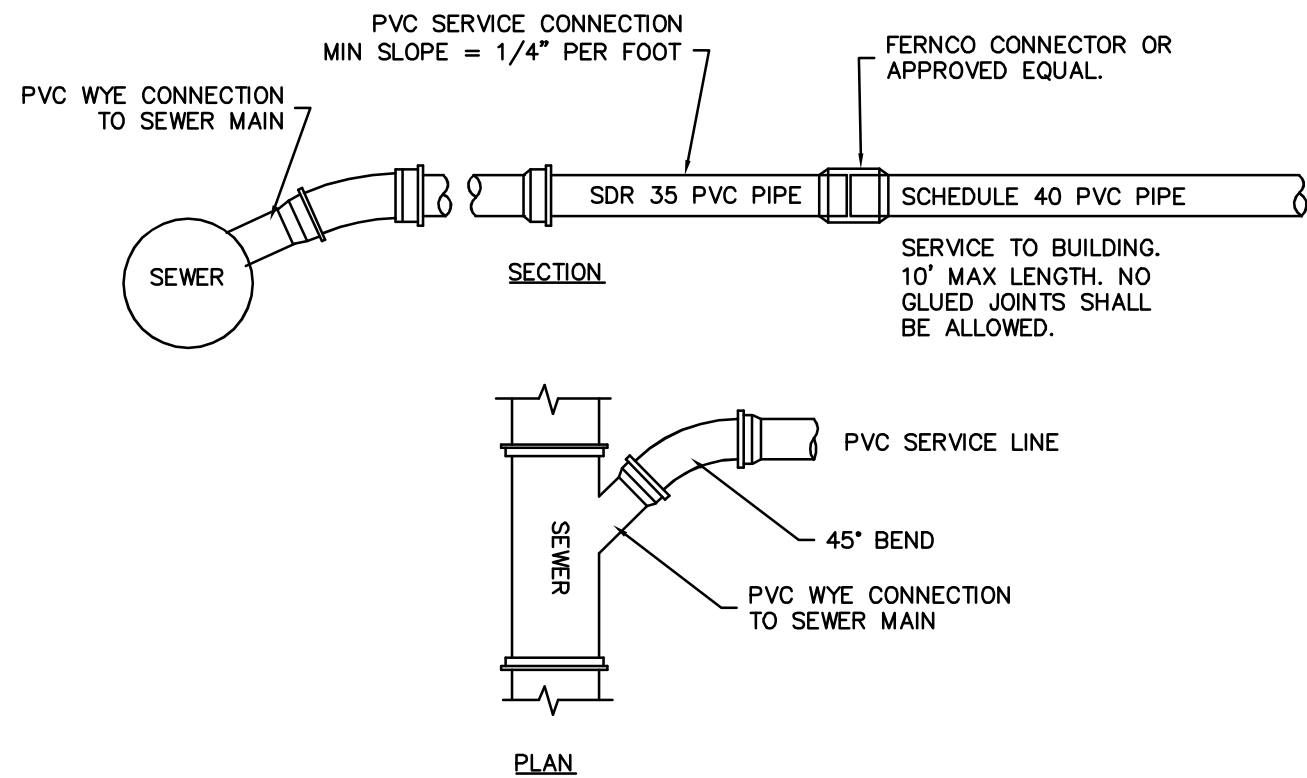
DETAILS

DBS HOLDINGS, LLC
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DOVER, NH 03820

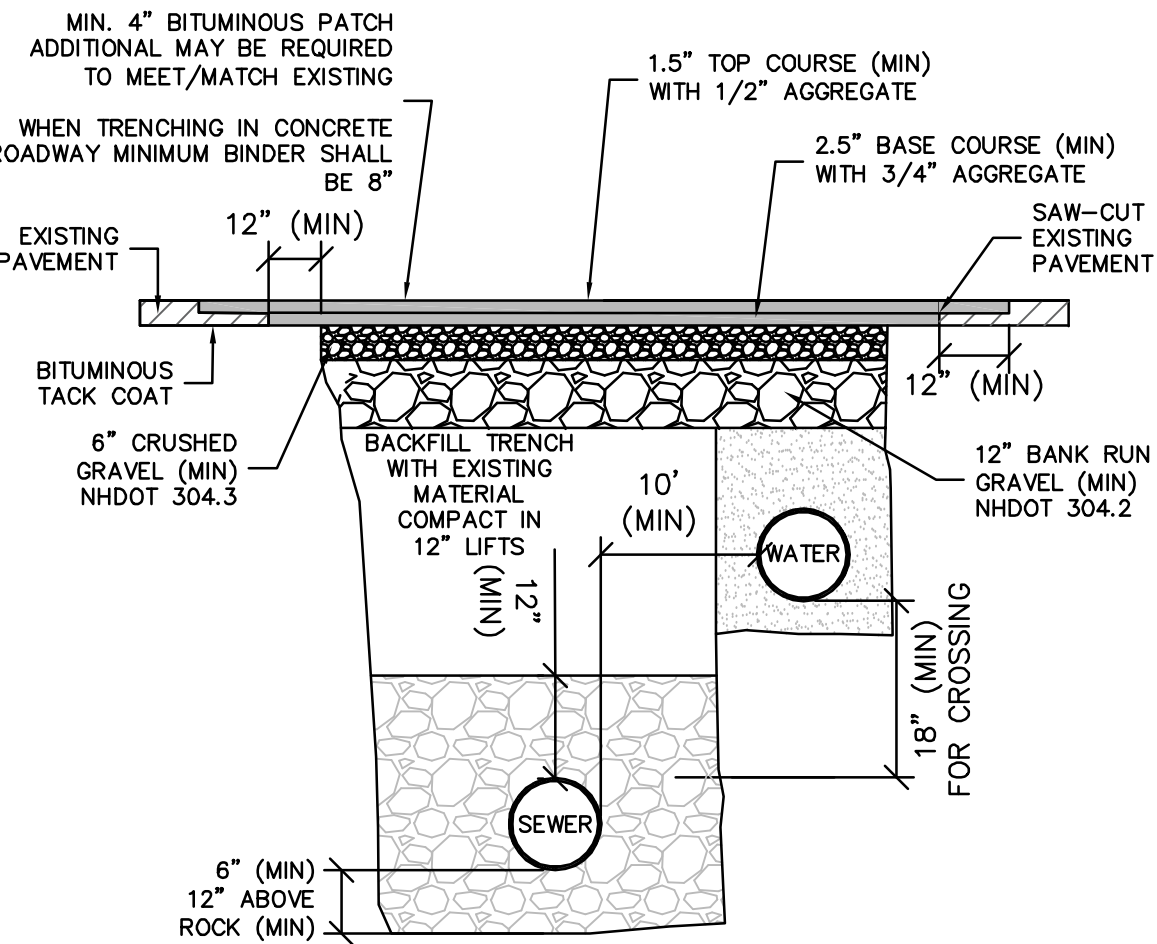
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5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH



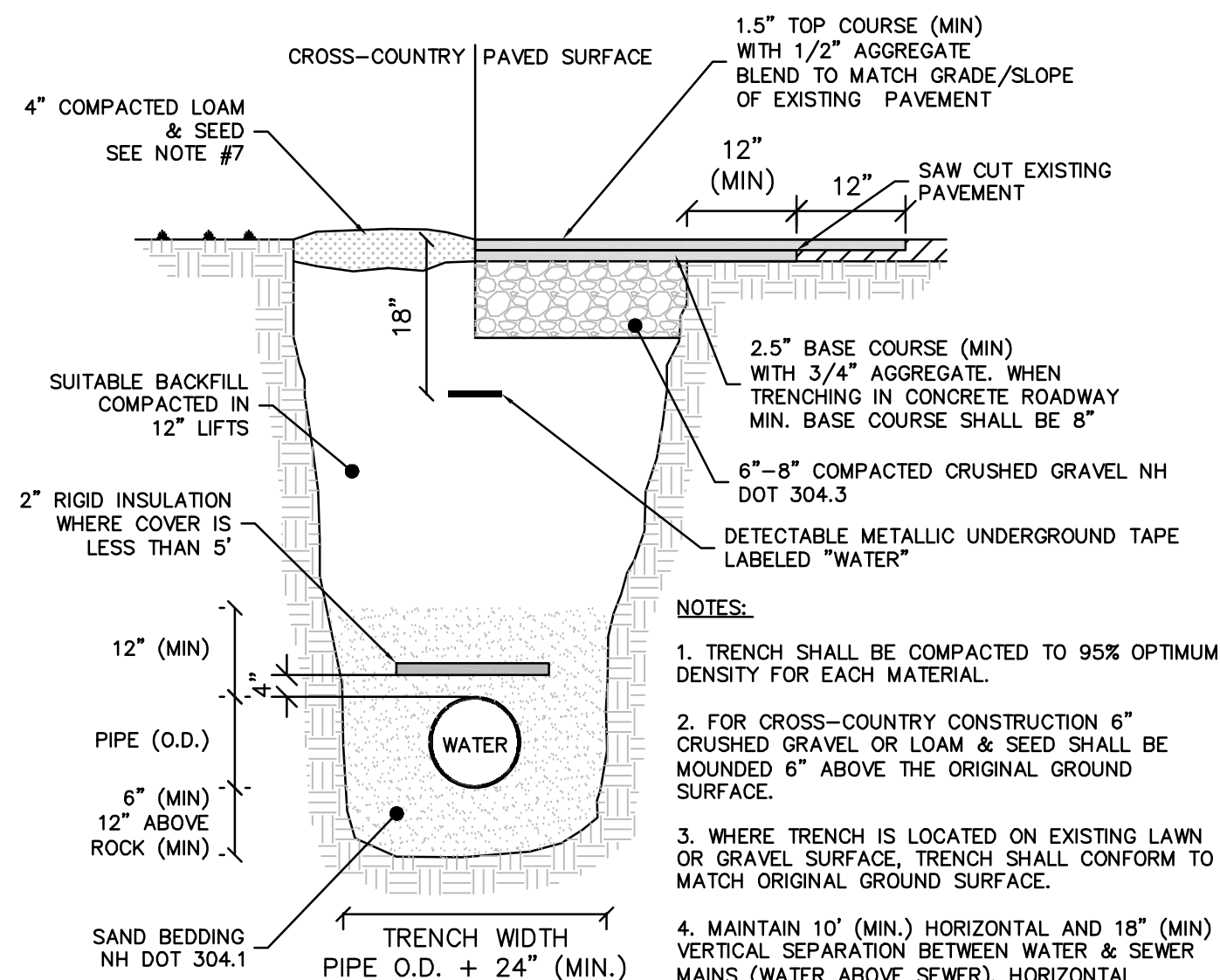
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SEWER TRENCH DETAIL
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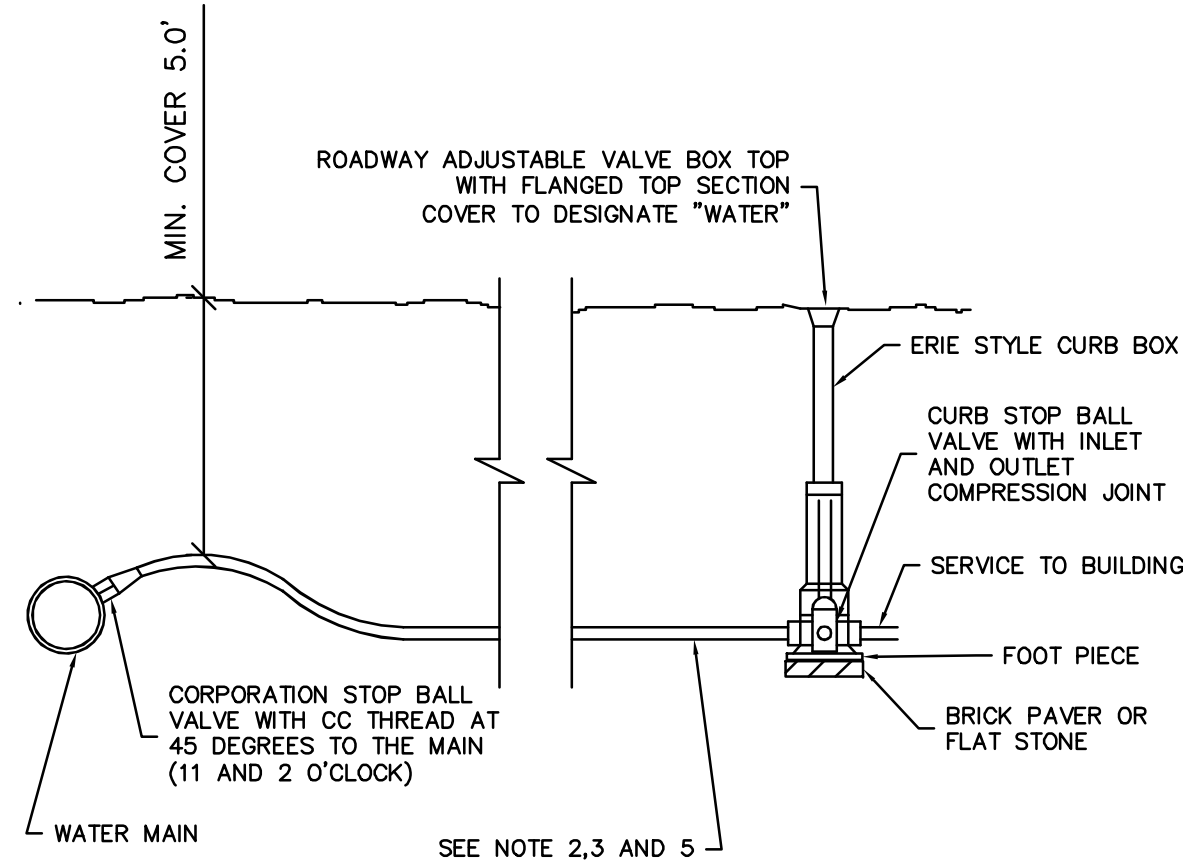
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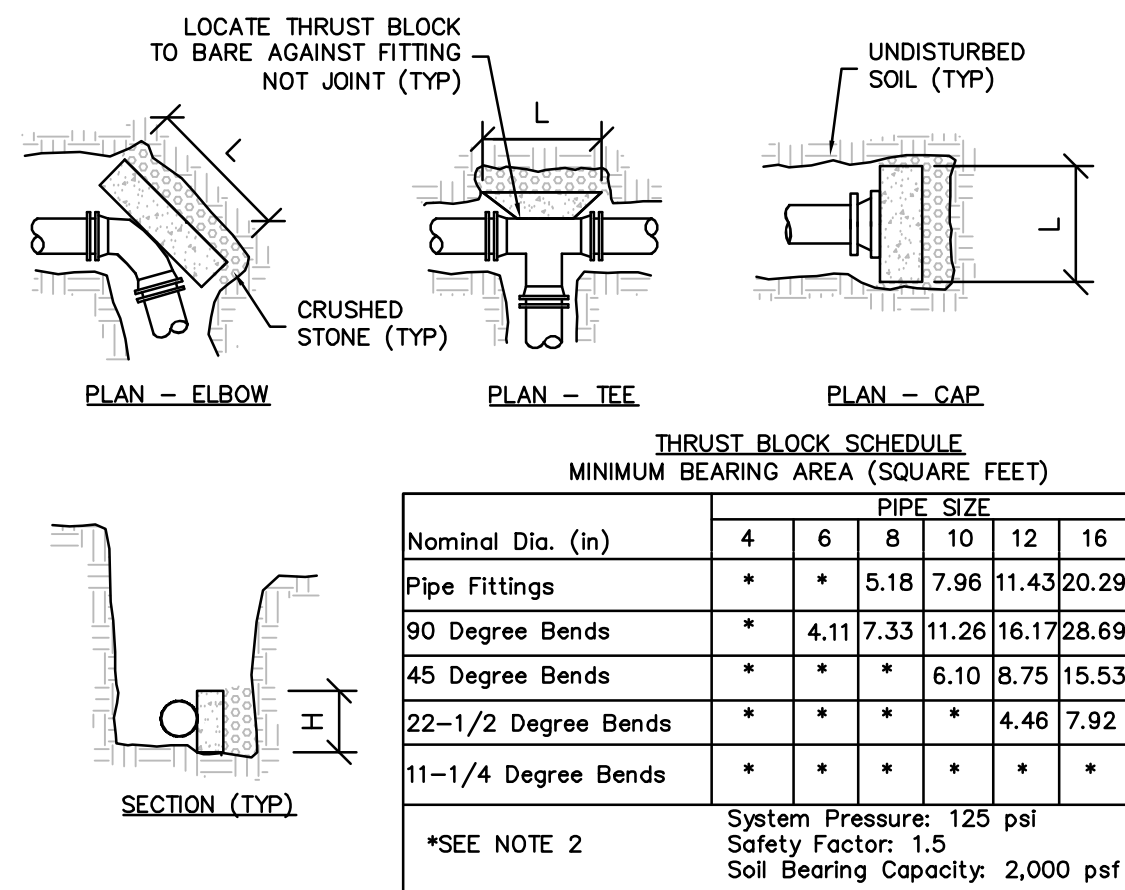
CITY OF DOVER
TYPICAL TRENCH DETAIL
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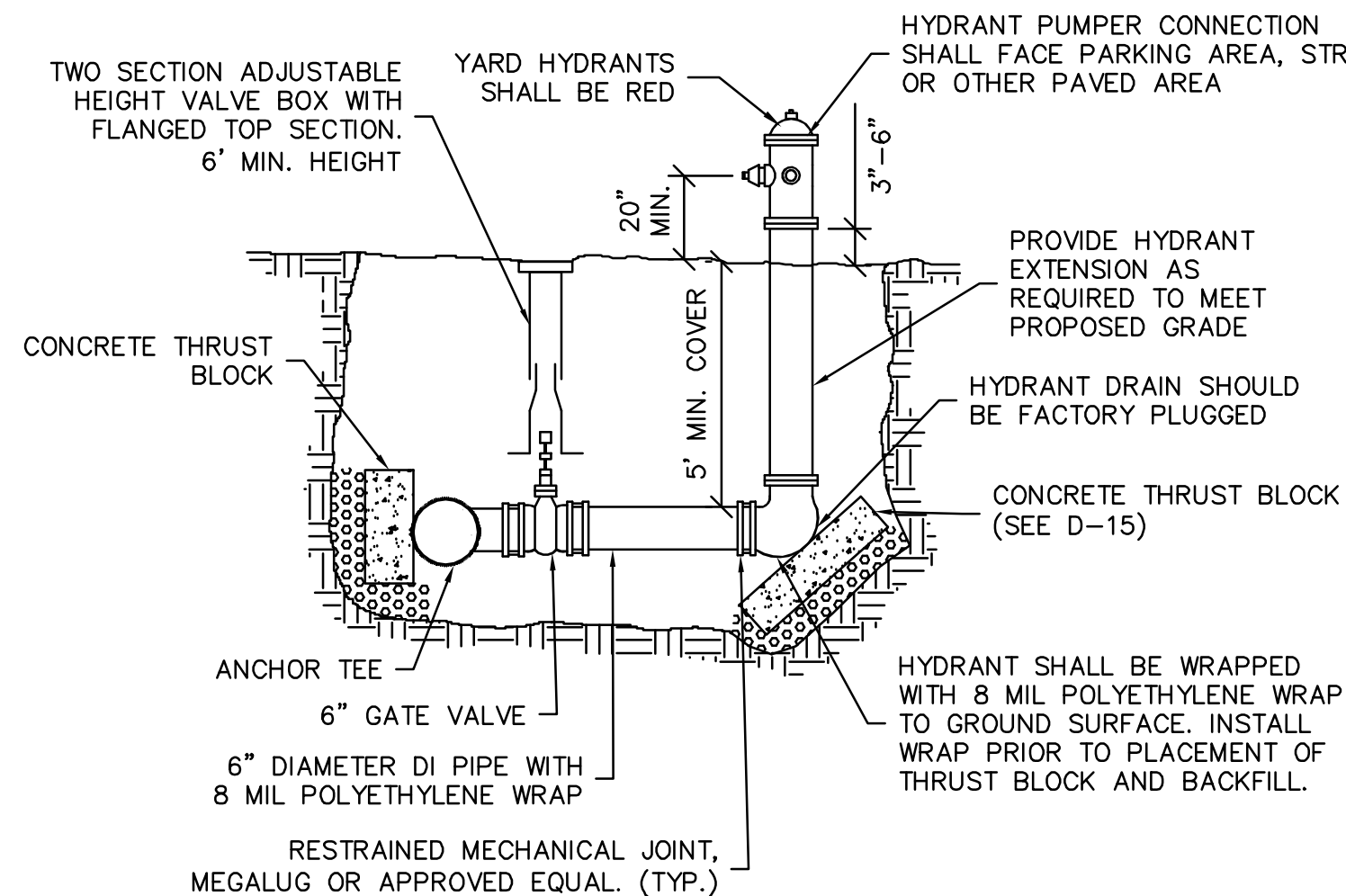
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WATER TRENCH DETAIL
NOT TO SCALE



CITY OF DOVER D-13
WATER SERVICE CONNECTION DETAIL
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CITY OF DOVER D-15
THRUST BLOCK DETAIL
NOT TO SCALE



CITY OF DOVER
TYPICAL HYDRANT DETAIL
NOT TO SCALE

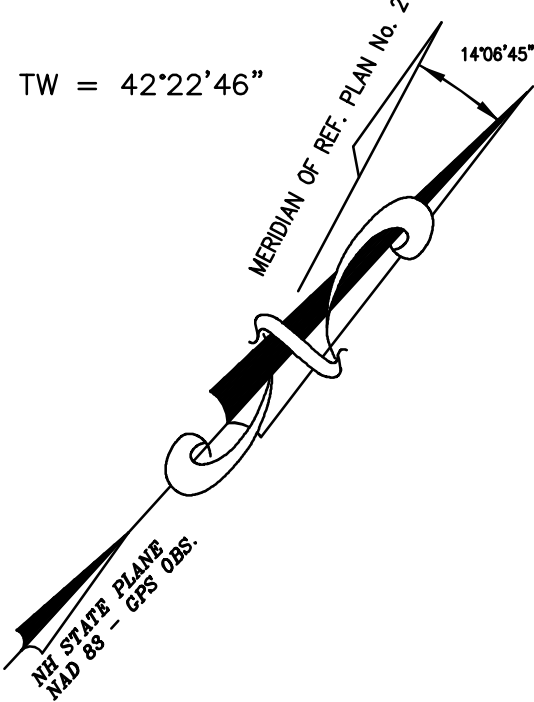
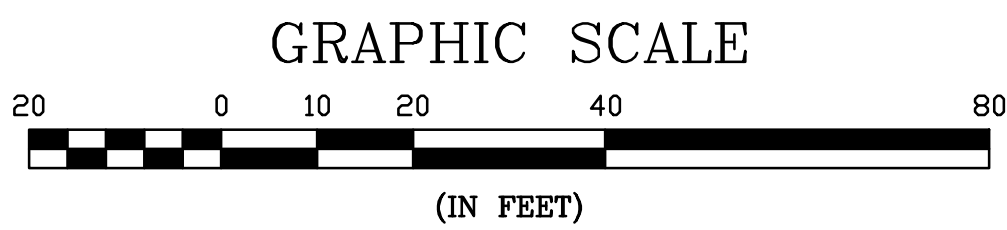
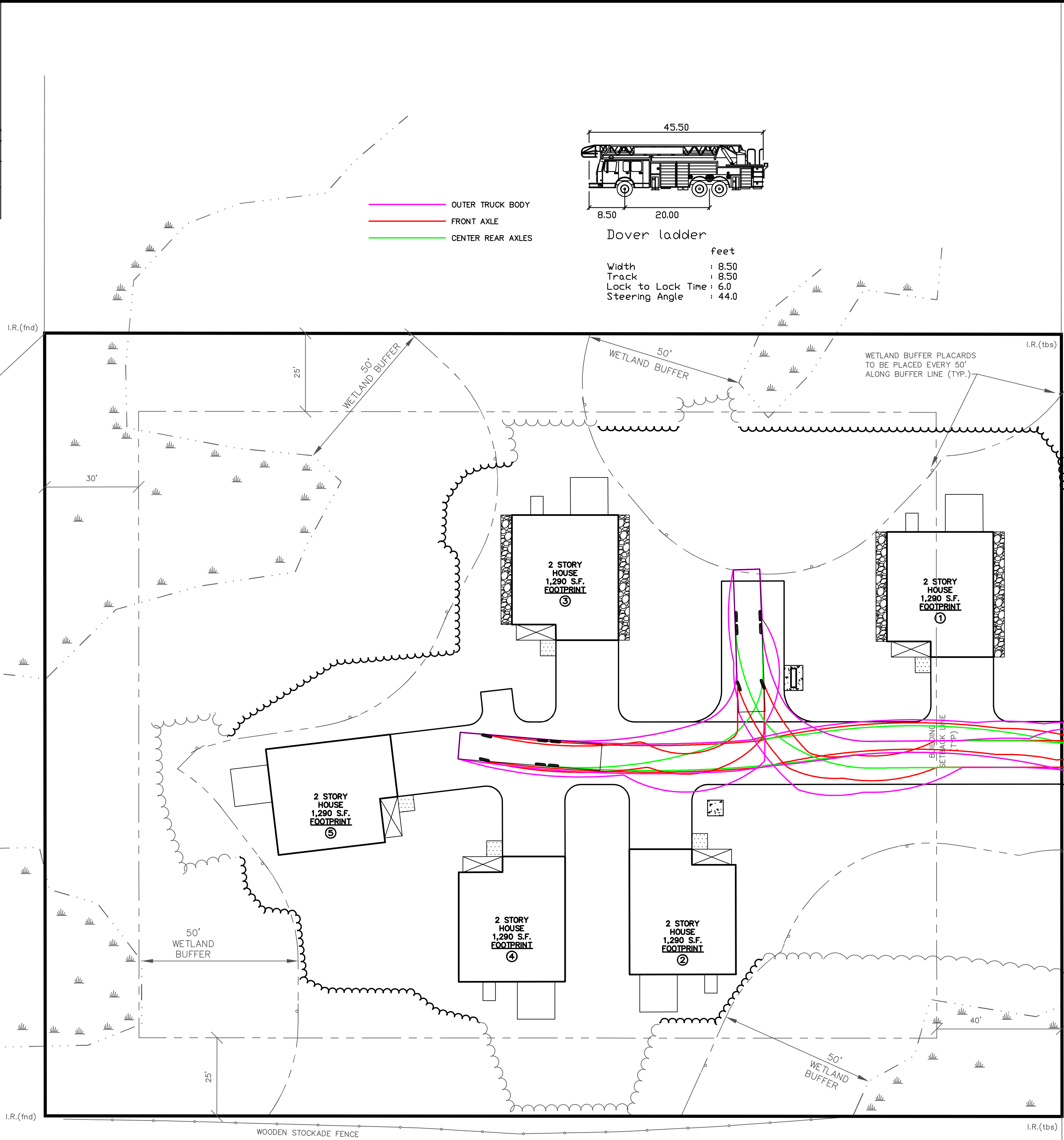
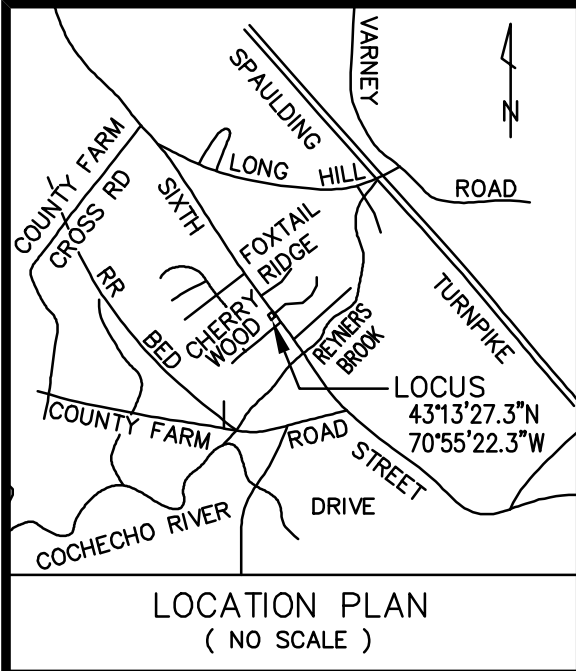
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DETAILS

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TRUCK MOVEMENT PLAN

TDR SITE PLAN
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DOVER, NH

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									DATE

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