CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

REVISED

Meeting Type: Regular Meeting
Meeting Location: 1st Floor Conference Room – City Hall, Dover NH
Meeting Date: **Thursday, February 28, 2019**
Meeting Time: **10:30 am**

1. 10:30 AM - 11:15 AM: Site Review for Amer Fakhoury & Micheline Elias, Assessor's Map 4, Lot 40, zoned CBD - General, and located at 6-12 Preble Street. (Proposal is to construct 1 new four-story building and driveway with 11 parking spaces. The building will consist of 12 apartment units on the upper three floors, as well as 966 sq. ft. of office space and 845 sq. ft. of restaurant space on the first floor. A CUP application for lot coverage will also appear before the Planning Board). (P19-11)

2. 11:15 AM - 11:45 AM: Site Review for Central Partners Realty, LLC, Assessor's Map 29, Lots 23 & 25, zoned Office (O), and located at 784 Central Avenue & 4 Abbott Street. (Proposal is to merge the lots, demolish the existing abandoned house and garage, and construct 8 employee parking spaces totaling 6,700 sq. ft. of disturbed area). (P19-14)

3. 12:15 PM – 1:00 PM: Site Review for Little Bay Marina & Development, LLC Assessor's Map 8, Lots 9, 10, 11, & 12, zoned LBW, located at 421, 423, 425, and 427 Dover Point Road. (Proposal is to develop a condominium containing 23 units plus marina/marina office with 1 ADU and 27 parking spaces. This project has TDR approval from the Planning Board. A related CUP application for wetland buffer impact will also appear before the Planning Board). (P19-04)

4. 1:00 PM – 1:30 PM: Site Review for Summit Land Development, Assessor's Map 15, Lot 4, zoned B-5, located at 14 Central Avenue. (Proposal is to construct a 2,400 sq. ft. drive-up restaurant). (P16-24B)

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES - P18-25

Application Type:	Site Plan Review
Applicant(s):	First Street at Garrison, LLC
Owner(s):	First Street at Chestnut, LLC
Location:	First Street (Tax Map 6, Lots 3-1 and 9)
Date:	February 7, 2019

INTENT: To re-use the existing building and construct one new building with 24 two bedroom units and 8 one bedroom units also containing 3,729 sq. ft. of commercial space plus two smaller buildings with a total of 5 one bedroom units and 54 proposed parking spaces. CUP applications will also appear before the Planning Board.

LOTS/UNITS PROPOSED: 37 residential, 3,729 sq. ft. commercial

AGENDA ITEM #: 1

ACREAGE: 0.73 acre and 0.41 acre

ZONING DISTRICT: CBD - General

EXISTING LAND USE: Commercial, parking lot

SURROUNDING LAND USE: Residential, commercial, mixed use, public park, assembly hall, Transportation Center

ZBA ACTION: None

PERMITS REQUIRED: Conditional Use Permits (street wall, minimum frontage build-out, minimum lot coverage)

WAIVERS REQUESTED: None

ATTENDANCE:
Members:
Donna Benton, Planning
Jim Maxfield, Inspection Services
Sgt. Marn Speidel, Police
Frank Torr, Planning Board
Chris Parker, Planning
Dave White, Community Services
Dan Barufaldi, Economic Development
Others:
Kevin McEneaney
Steve Haight
Bill Hopkins
Stuart Mitchell
Elena Piekut
Bill Simons

Approval of 1/31/2019 Meeting Minutes
D.White moved to approve the minutes of January 31, 2019. J.Maxfield seconded. Vote: U/A

PLAN REVIEW:
Planning Comments:

- Water and Sewer Investment fees
- Only units with commercial underneath them will qualify for lesser residential-over-commercial impacts fees
- Where will mail be located?
- Please provide reciprocal access easements for First Street at Garrison, LLC and First Street at Chestnut, LLC
- Please revise application to include:
  - Letter from Eversource regarding ability to provide service
  - Building materials on elevations for all sides of all buildings that matches floor plans and streetscape
  - Floor plans for all floors
  - Streetscape that meets the regulations
- Please revise plan set to:
  - Address Eversource concerns
  - Include full landscape plan; note that regulations were recently amended
  - Note what is provided to meet zoning requirements of CBD
  - Indicate brick sidewalk on plan view on sheet 5
  - Add screening around transformers to the satisfaction of the Assistant City Manager
  - Provide dumpster screening detail
  - Provide walkway to Chestnut Street from all buildings
  - Provide benches, trash and recycling receptacles, and bike rack
  - Engineer, LLS, and Landscape architect to sign and stamp final plan set
  - Include a lot line adjustment plan or easement plan for the Chestnut Street sidewalk that is over your parcel.
  - Show cross access easement between properties
  - Note drainage easement near Chestnut Street
  - Note signage noting visibility and noise will be installed and used during any earthwork, to the satisfaction of the City Engineer.

Police Department Comments:

- Show the proposed traffic flow on site

DRAFT

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES - P18-25

Application Type:	Site Plan Review
Applicant(s):	First Street at Garrison, LLC
Owner(s):	First Street at Chestnut, LLC
Location:	First Street (Tax Map 6, Lots 3-1 and 9)
Date:	February 7, 2019

- Updated Traffic Assessment/Analysis (pp.2-3) should reflect Chestnut Street's new lane designations (no longer two lanes each direction)
- Provide pedestrian connection - integrated with existing traffic signal - on the south side of the Chestnut/First intersection – to help access potential public parking supply on westerly side of Chestnut Street bridge
- Review feasibility of converting westerly side of Chestnut Street bridge to angle parking
- Most plan sheets are 1:15 scale, consider amending to 1:10 or 1:20

Fire/Inspections Comments:

- Plans shall be reviewed for compliance with accessibility requirements in accordance with State building code, (IBC, ANSI A117.1) and all other applicable accessibility regulations
- Plans shall include a handrail detail for the stairways in accordance with applicable accessibility regulations.
- Accessible parking spaces shall be marked with the applicable signage. Place signage details on plan set.
- Clarify the location of the accessible parking for the three new structures.
- Provide a location of the accessible dwelling units for the project.
- 24 Chestnut Street parking lot does not appear to provide the minimum number of 2 accessible parking spaces per IBC.
- Plans shall contain a statement the design has been reviewed for compliance w/ accessibility regulations and meets adopted accessibility regulations in accordance as well as NH RSA 155-A;5
- Discuss location of electrical service and gas service on sheet 7
- Architectural elevation plan A .20 does not appear to meet floor plan A 1.1 (i.e. door layout, balconies, North wall building alignment).
- Clarify location of standby power source. If installed on roof, need to screen inside building or on roof.
- Provide elevation plans for all sides of each building.
- Clarify if there is public access to the roof.
- Provide a note on the plan indicating retaining walls 4' or higher will require a building permit
- Think about ventilation on first floor for commercial uses

Engineering Comments:

- Where is the water service to the existing building?
- Show more detail on where the water service will tie into Chestnut St
- Replace the existing catchbasin 6667 with a deep sump cb with a hood.
- Sprinkler service separate from domestic water
- Tip down by Cottage needs to move
- Show drainage on utility plan

Economic Development Comments:

- Looking for update cottage rendering

Planning Board Comments:

- Was demolishing or adding on to 24 Chestnut Street considered by the applicant?
- First phase landscaping needs to be completed.
- What are plans for signage?
- Make sure architectural renderings are accurate.
- Snow removal plan
- Show landscaping for all buildings

Next Steps:

Come back for an unofficial second TRC when plans have been revised and then submit to be on the March 12 PB meeting.

Motion to adjourn TRC at 11:32am by J.Maxfield and seconded by D.White. Vote: U/A

DRAFT

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: August 02, 2017]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Amer Fakhoury & Micheline Elias Telephone # (603)-617-8068

Address of Applicant: 21 Bellamy Road Dover, NH 03820

E-Mail Address: quick2go@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 6-12 Preble Street

Assessor's Map # 4 Lot(s) # 40

Zoning District(s) Commercial Business District Overlay District(s) _____

Size of Parcel: 11,208 sq. ft. 0.257 ac. Property Deed: Book 3853 Page: 17

Existing Use of Property: Vacant Land

SITE PLAN INFORMATION

Describe Proposed Use: Mixed-Use Commercial and Residential

Area of Parcel to be Developed: 11,208 sq. ft.

If Multi-family Residential, Specify Number of Units & Buildings Proposed: 12 Units, 1 Building

Number of Parking Spaces: Existing 0 Proposed 11

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

Number of Employees Total: Unknown In Maximum Shift: Unknown

Disposition of Parcel:

Building Footprint 4,212 sq. ft.

Total Building Area 16,848 sq. ft.

Paved Area 5,188 sq. ft.

Building Setbacks:

Front Yard 2.00 ft.

Rear Yard 25.24 ft.

Side Yard: Right 9.86 ft. Left 20.48 ft.

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

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

BUILDING INFORMATION

Type of Building to be Built: Commercial and Residential - Mixed Use

Height of Building: 44' 5" Finished Floor Elevation: 72.10 ft.

Number of Seats (where applicable) Unknown

Estimated value of construction: $2,350,000 Refuse removal: Public/(Private) (circle one)

WAIVER REQUESTS

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

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

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Robert J. Stowell, Tritech Engineering Corporation

Address 755 Central Ave, Dover, NH 03820 Telephone #: (603)-742-8107

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

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Robert J. Stowell, Tritech Engineering Corporation

Address 755 Central Ave, Dover, NH 03820 Telephone #: (603)-742-8107

Professional License #: 9903 E-mail address: rjs@tritecheng.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. 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: 1-23-19

Signature of Applicant (*if different from owner*): _____ 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: 1-23-19

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: 1-23-19

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: 1-23-19

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

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: December 15, 2017]

This site plan review checklist, as required by Chapter 149-6-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.

Fees will be invoiced and are due along with fifteen (15), folded, copies of the plan set and materials, including response to TRC comments, will be due 3 weeks 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: Amer & Michelle Fakhoury File Number: _____

PROJECT TITLE: 6-12 Preble Street

PROPERTY LOCATION: Preble Street Tax Map: 4 Lot: 40

	Explain How Provided	Reviewed
1. Completed and signed Application form	Enclosed	
2. Electronic copy of the engineered/surveyed plan layout	Emailed	
3. Electronic copy of supplementary materials and application	Emailed	
4. Traffic Impact Assessment and Analysis (Standard or Advanced)	Enclosed	
5. Fiscal Impact Analysis (For more than 10 units)	N/A	
6. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
7. Conditional Use Permit applications	N/A	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	Enclosed	
9. A colored architectural plan showing all sides of buildings	Enclosed	
10. List of all professional agents to be notified for Planning Board	Enclosed	
11. Letter to Serve from Public and Private Utilities	Enclosed	
12. Eight 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:	Enclosed	
Location map at appropriate scale	Sheet SP-1	
Proposed Project name and title and Planning File #	Sheet T-1	
Date, north arrow and scale	All Sheets	
Names of all abutting property owners	Sheet SP-1	
Name and address of owners and/or applicants	Sheet SP-1	
Signature & stamp of NH licensed land surveyor and/or engineer	All Sheets	
Zoning District boundaries, including any special or overlay districts	Sheet SP-1	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Sheet SP-1 & SP-4	
Location and widths of existing & proposed easements & right of ways	Sheet SP-1	
Depict pedestrian walkways and accessible access	All Sheets	
Location and width of existing and proposed access/egress ways	All Sheets	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Sheet SP-1	

	Explain How Provided	Reviewed
Existing and proposed topographic information at two foot intervals	Sheet T-1	
Existing and proposed buildings and structure locations	All Sheets	
Minimum building setbacks or build to lines on all lots	Sheet T-1	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Sheet SP-3	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Sheet SP-3	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed stormwater lines and facilities	Sheet SP-4	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Sheet Li-1	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	N/A	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Sheet T-2	
Existing natural features and/or significant vegetation on property	EX-1	
Depict existing contours up to 100 ft. beyond project limits		
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	La-1	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Sheet SP-1	
Location, material and size of existing and proposed pavement area	Sheet SP-1	
Location of proposed fire lanes	N/A	
Specify finished floor elevations of buildings	Sheet SP-4	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	Sheet SP-2	
Depict all service, storage, loading bays and utility areas	Sheet SP-3	
All applicable Dover Common Site Plan notes	All Sheets	
13. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Enclosed	
Stormwater Management System Operation and Maintenance Plan	Enclosed	
Erosion and Sedimentation Control Plan	Enclosed	
Landscape Operation and Maintenance Plan	Enclosed	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Enclosed	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	N/A	

REVIEWED BY: _____ DATE_____ TRC DATE_____

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Amer Fakhoury & Mciheline Elias Telephone # (603)-617-8068

Address of Applicant: 21 Bellamy Road, Dover, NH 03820

E-Mail Address: quick2go@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # 4 Lot(s) # 40

Address of Property: 6-12 Preble Street, Dover, NH 03820

Zoning District(s) Commercial Business District Overlay District(s) _____

Existing Use of Property: Vacant Land

CONDITIONAL USE PERMIT INFORMATION

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

☐ Conservation District ☐ RCM Use Overlay District ☐ I-1 District Uses

☐ 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:

The proposed building provides 37.6% lot coverage where a minimum lot coverage of 75% is required.

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: Robert J. Stowell, Tritech Engineering Corporation

Address 755 Central Avenue, Dover, NH 03820 Telephone #: (603)-742-8107

Professional License #: 9903 E-mail address: rjs@tritecheng.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: 1-23-19

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

Signature of Agent: _____, PRESIDENT Date: 01/23/19

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: 1-23-19

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	MAILING ADDRESS
4	40	Amer Fakhoury & Micheline Elias	21 Bellamy Road, Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Robert J. Stowell	Tritech Engineering Corporation	755 Central Ave, Dover, NH 03820

Conservation Easement Holder:

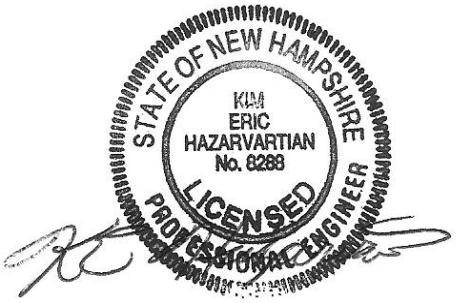
TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING AND POLICY

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

MEMORANDUM

Ref: 1454
Subject: Traffic Assessment
6-12 Preble Street
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Date: January 24, 2019



INTRODUCTION

Tritech Engineering Corporation has retained TEPP LLC to prepare this traffic-assessment memorandum (TAM). This TAM regards the 6-12 Preble Street mixed-use development in the City of Dover, New Hampshire.

This TAM includes:

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

This TAM concludes that the proposed development is not anticipated to add significant new traffic to the area.

EXISTING SITE DESCRIPTION

The site:

- is along the north side of Preble Street
- has an area of about 0.257 acres
- is essentially vacant
- is located across Preble Street from a bank, has a small restaurant and automobile repair facility to the west and has residential development to the east

PROPOSED PROJECT DESCRIPTION

The project will provide:

- one four-story building
- about 966 square feet (sf) of office floor area on the first floor
- about 845 sf of restaurant floor area on the first floor
- total of 12 apartment units on the upper three floors
- a driveway intersecting the north side of Preble Street about 110 feet (ft) west of Central Avenue

ROAD DESCRIPTION

Preble Street:

- is under the jurisdiction of the City
- is an urban local street about 600-ft long
- has its western terminus at Central Avenue, an arterial street that provides a connection with the City central business district (CBD), to/from the south
- has its eastern terminus at Pierce Street, a collector street
- has horizontal alignment that include a small-radius turn about 225-ft east of the proposed driveway intersection
- is almost level near the site
- has asphalt-cement-concrete pavement in overall good condition

- has a 20-ft wide travelway
- has one travel lane per direction
- has parking prohibited on the south side
- includes curb and sidewalk along both sides
- has no posted speed limit
- generally does not include pavement markings
- includes utility poles, some with luminaires

PUBLIC TRANSIT

The Dover Transportation Center is located about 1,500-ft walking distance southwest of the site. The Dover Transportation Center includes the following services:

- Amtrak Downeaster trains, providing direct connections with multiple municipalities in Maine (including Portland); Massachusetts (including Boston) and New Hampshire
- Cooperative Alliance for Seacoast Transportation (COAST) bus routes 1, 2, and 33, providing direct connections with Dover, Newington, Portsmouth, Rochester and Somersworth, New Hampshire and Berwick, Maine
- University of New Hampshire (UNH) Wildcat bus route, providing direct connections with Dover, Durham and Madbury, New Hampshire

COAST bus route 2 runs along Central Avenue near the site and provides connections with the:

- Dover Transportation Center
- City of Rochester, to/from the north
- City of Somersworth, to/from the north
- City CBD, to/from the south
- Town of Newington, to/from the south
- City of Portsmouth, to/from the south

UNH Wildcat bus route 3 runs along Central Avenue near the site and provides connections with the:

- Dover Transportation Center
- City CBD, to/from the south
- Town of Madbury, to/from the south

- Town of Durham, to/from the south
- University of New Hampshire campus in the Town of Durham

SIGHT DISTANCES

The proposed driveway will intersect the north side of Preble Street about:

- 110 ft east of the terminus of Preble Street at Central Avenue
- 225 ft west of the small-radius Preble Street turn

The proximity of the terminus and the small-radius turn serve to limit Preble Street speeds.

Sight distances are anticipated to extend from the terminus to the turn, subject to the potential presence of parked vehicles on the north side of Preble Street east of the proposed driveway. Such presence of parked vehicles is common in an urban area.

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 information for:

- multifamily housing (mid-rise), land use 221, based on number of dwelling units[2]
- small office building, land use 712, based on floor area[3]
- fast-casual restaurant, based on floor area[4]

Table 1 shows calculated weekday vehicle trips due to the proposed 8 dwelling units as:

- daily, 347 (total of in and out)
- AM-street-peak hour, 8 (4 in and 4 out)
- PM-street-peak hour, 19 (10 in and 9 out)

[1] ITE, *Trip Generation Manual*, 10th edition (Washington DC, September 2017).

[2] ITE, *Trip Generation Manual*, Volume 2, Data, Residential (Land Uses 200-299), pages 71 to 149.

[3] ITE, *Trip Generation Manual*, Volume 2, Data, Office (Land Uses 700-799), pages 93 to 110.

[4] ITE, *Trip Generation Manual*, Volume 2, Data, Services (Land Uses 900-999), pages 60 to 68.

Table 1. Calculated weekday vehicle-trip generation.

	Vehicle-Trips[a]						
		AM-Street-Peak Hour			PM-Street-Peak Hour		
	Daily	Total	In	Out	Total	In	Out
Residential[a]	65	4	1	3	5	3	2
Office[b]	16	2	2	0	2	0	2
Restaurant[c]	266	2	1	1	12	7	5
Total	347	8	4	4	19	10	9

[a] Based on ITE, *Trip Generation Manual*, multifamily housing (mid-rise), land use 221, 12 dwelling units.

[a] Based on ITE, *Trip Generation Manual*, small office building, land use 712, 966-sf floor area.

[a] Based on ITE, *Trip Generation Manual*, fast-casual restaurant, land use 930, 845-sf floor area.

ITE states, in the authoritative Hooper, *Trip Generation Handbook: A Recommended Practice*, that "the total generation of vehicle trips entering and exiting the multi-use site may be reduced from simply a sum of the individual, discrete trips generated by each land use."[5] The proposed uses constitute a multi-use site. Table 1 conservatively shows no such reduction.

Total trips appear on site driveways but not all are added to roads near the site. Accordingly, ITE compiles information on three trip types, based on empirical data for many land uses, in Hooper, *Trip Generation Handbook*. These three trip types are:

- primary trips that are added to the area and are primarily for visiting the site
- diverted trips that not added to the general area; these trips are from existing traffic on roads near the site
- pass-by trips that are not added to the general area; these trips are from existing traffic passing the site[6]

Table 1 conservatively does not break down trips as primary, diverted or pass-by.

[5] Kevin G. Hooper, P.E., Principal Editor, *Trip Generation Handbook: A Recommended Practice*, 2nd edition (Washington DC: Institute of Transportation Engineers, June 2004), page 85.

[6] Kevin G. Hooper, P.E., Principal Editor, *Trip Generation Handbook*, 3nd edition (Washington DC: Institute of Transportation Engineers, September 2017), page 93.

TRIP DISTRIBUTION/ASSIGNMENT

Calculated trip generation is so low that area traffic operations are not sensitive to trip distribution/assignment. Vehicle-trips to and from the south may predominate due to the proximity of the CBD.

POTENTIAL TRAFFIC IMPACTS

Table 1 shows less than 100 peak-hour vehicle-trips due to the proposed development. More specifically, tabulated peak-hour trip generation is:

- 8 to 19 vehicle-trips
- split entering versus exiting the site
- further split by orientation to and from the north, south, east and west
- further split by amongst area streets

Therefore, the proposed development is not anticipated to add significant new traffic to the area.

CONCLUSION

In conclusion, the proposed development is not anticipated to add significant new traffic to the area.

SITE DEVELOPMENT PLANS

6-12 PREBLE STREET

6-12 PREBLE STREET
DOVER, NEW HAMPSHIRE

LIST OF PLANS

T-1	-	TITLE SHEET
T-2	-	NEIGHBORHOOD PLAN 1" = 50'
EX-1	-	EXISTING CONDITIONS PLAN 1" = 10'
DE-1	-	DEMOLITION PLAN 1" = 10'
SP-1	-	GENERAL SITE PLAN 1" = 10'
SP-2	-	SITE DEVELOPMENT PLAN 1" = 10'
SP-3	-	UTILITY PLAN 1" = 10'
SP-4	-	GRADING & DRAINAGE PLAN 1" = 10'
SP-4A	-	OFF-SITE DRAINAGE IMPROVEMENTS PLAN 1" = 10'
SP-4B	-	EROSION & SEDIMENT CONTROL PLAN 1" = 10'
SP-5	-	CONSTRUCTION DETAILS
SP-6	-	CONSTRUCTION DETAILS
SP-7	-	CONSTRUCTION DETAILS
SP-8	-	DRAINAGE DETAILS
SP-9	-	SEWER DETAILS
SP-10	-	SEWER DETAILS
Li-1	-	LIGHTING PLAN 1" = 10'
LA-1	-	LANDSCAPING PLAN 1" = 10'
A-1	-	BUILDING ELEVATIONS 1/8" = 1'-0"
A-2	-	BUILDING FLOOR PLANS 1/8" = 1'-0"

PREPARED FOR:

AMER FAKHOURY & MICHELINE ELIAS
21 BELLAMY ROAD
DOVER, NEW HAMPSHIRE

OWNER:

AMER FAKHOURY & MICHELINE ELIAS
21 BELLAMY ROAD
DOVER, NEW HAMPSHIRE

PREPARED BY

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 9630

REVISIONS
DATE: DESCRIPTION:

TITLE SHEET
6-12 PREBLE STREET
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019
JOB No. 17141

SHEET NO.
T-1

(P19-1234)

N

TRITECH
ENGINEERING CORPORATION

ABUTTERS LIST

MAP 4, LOT 39	TDL GAS & FOOD CORP. 547 CENTRAL AVE DOVER, NH 03820
MAP 4, LOT 76	TDL GAS & FOOD CORP. 547 CENTRAL AVE DOVER, NH 03820
MAP 4, LOT 75	MYLES & ELIZABETH BRATTER 75 SPUR ROAD DOVER, NH 03820
MAP 4, LOT 70	MASK & MONSTERS, LLC 561 CENTRAL AVE DOVER, NH 03820
MAP 4, LOT 69	VASANT T. DASS 14 OLD ROCHESTER ROAD ROCHESTER, NH 03867
MAP 4, LOT 68	LOREN O'NEIL 285 OLD MOUNTAIN ROAD NORTHWOOD, NH 03261
MAP 4, LOT 67	RANDEL K LEACH & STANLEY J FREEDA 569 MAIN STREET FARMINGTON, NH 03835
MAP 4, LOT 41	JAMES R. HASENFUS 14 PREBLE STREET DOVER, NH 03820
MAP 4, LOT 29	CHITTENDEN CORPORATION 2 BURLINGTON SQUARE BURLINGTON, VT 05401
MAP 4, LOT 30	CHITTENDEN CORPORATION 2 BURLINGTON SQUARE BURLINGTON, VT 05401

50 0 25 50 100 200

1"=50'

TRITECH
ENGINEERING CORPORATION
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REVISIONS
DATE: DESCRIPTION:

NEIGHBORHOOD PLAN

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

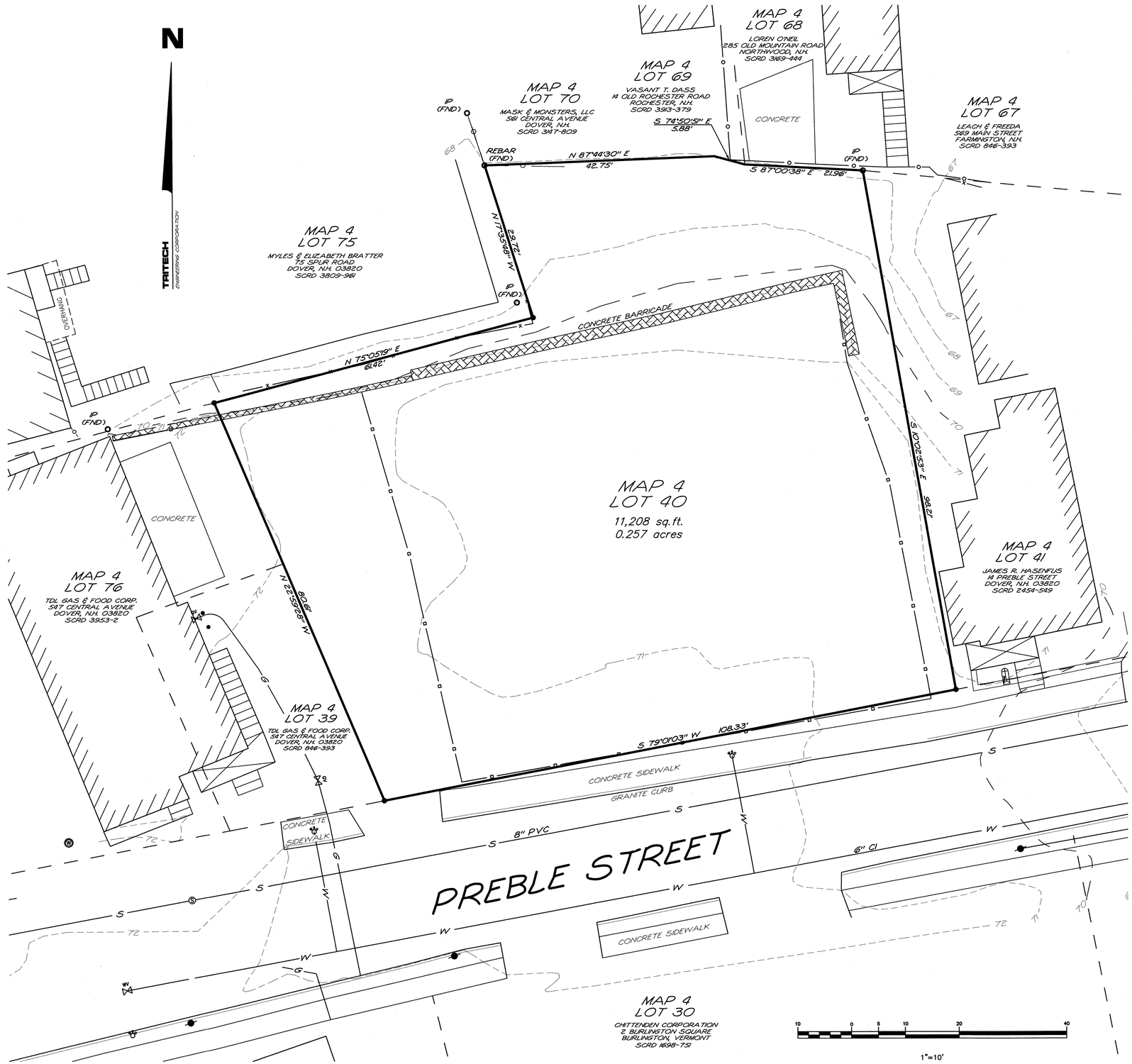
JANUARY 24, 2019 JOB No. 1714

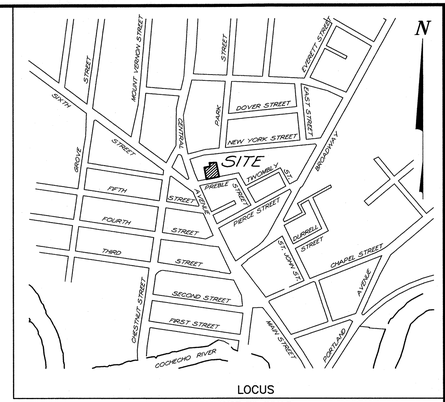
SCALE: 1" = 50'

SHEET NO.

T-2

(P19-1234)





LOCUS
(NOT TO SCALE)

NOTES

1.) INTENT: TO SHOW THE EXISTING CONDITIONS OF DOVER TAX MAP 4 LOT 40.

2.) CURRENT OWNER: AMER FAKHOURY & MICHELINE ELIAS
21 BELLAMY ROAD
DOVER, N.H. 03820

3.) TOTAL AREA: 11,208 SQ.FT. = 0.257 ACRES

4.) TAX MAP 4 LOT 40

5.) PROJECT DEED REFERENCE: BOOK 3853 PAGE 17

6.) PROJECT PLAN REFERENCE:

BOUNDARY PLAN
MASK AND SPIDER ENTERPRISES
CENTRAL AVENUE AND
NEW YORK STREET
DOVER, NEW HAMPSHIRE
TRITECH ENGINEERING CORPORATION
NOVEMBER 29, 1995

PLAN OF LAND FOR
DAVID AND DEBORAH JOHNSON
11 & 13 NEW YORK STREET
DOVER, N.H.
ROARING BROOK CONSULTANTS
6/21/90 NOT RECORDED

PLAN OF NEW YORK STREET
AND EAST BRICK STREET CORNER
S.S. JENKINS MAY 1893
SCRD POCKET 2 FOLDER 15 PLAN 1

7.) ZONING: CENTRAL BUSINESS DISTRICT – GENERAL SUB–DISTRICT
MIN. LOT SIZE: N–A
FRONTAGE BUILD OUT: 70% MIN.
MIN. SETBACKS:
FRONT: AVERAGE ± 5 FT
SIDE: 0' MIN TO 24' MAX
REAR: 10 FT MIN.

8.) THE RAW UNADJUSTED CLOSURE OF OUR RANDOM POINT TRAVERSE WAS 1 PART IN 26,000 AND WAS ACCOMPLISHED USING A TOPCON GT 503 TOTAL STATION, DURING THE MONTH OF DECEMBER 2017.

9.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (PANEL 0310E, MAP No. 33017C0310E, DATE: 9–30–2015).

10.) LOT IS SERVICED BY MUNICIPAL WATER AND SEWER.

11.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 31, 2017 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 13, 2017. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (NAVD 88).

12.) SUBJECT PARCEL IS LOCATED IN THE CITY OF DOVER, COUNTY OF STRAFFORD AND THE STATE OF NEW HAMPSHIRE.

13.) THIS PROPERTY FALLS WITHIN THE FOLLOWING ZONING OVERLAY DISTRICTS: NONE

14.) PLANS T–1, T–2, EX–1, DE–1, SP–1 THRU SP–10, LI–1, LA–1, A–1 AND A–2 ARE PART OF THIS APPROVAL.

15.) SUBJECT PARCEL SCS SOIL TYPES –SfC– SUFFIELD, SILT LOAM, 8 TO 15% SLOPES

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- SEWER MANHOLE
- S — SEWER LINE
- HYDRANT
- WV — WATER GATE VALVE
- WATER SHUT–OFF
- W — WATER LINE
- MONITORING WELL
- GV — GAS GATE
- G — GAS LINE
- BOLLARD
- ▫ — STOCKADE FENCE
- O — CHAIN LINK FENCE
- X — WIRE FENCE

TRITECH
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DOVER, NEW HAMPSHIRE 03820
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REVISIONS
DATE: DESCRIPTION:

EXISTING CONDITIONS PLAN
AMER FAKHOURY & MICHELINE ELIAS
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET No. EX-1

(P19-1234)

N

TRITECH
ENGINEERING CORPORATION

IP (FND)

REBAR (FND)

IP (FND)

IP (FND)

IP (FND)

CONCRETE BARRICADE

DE-3

CONCRETE

EDGE OF PAVEMENT

DE-5

DE-4

DE-2

DE-5

DE-6

DE-7

DE-8

DE-1

DE-6

DE-1

DE-7

PREBLE STREET

6" CI

W

WV

WSO

(W)

DE-1 DEMOLITION NOTES:

1. SAW CUT PAVEMENT.
2. EXISTING ASPHALT TO BE REMOVED AND DISPOSED OF OFF SITE.
3. EXISTING CONCRETE BARRICADE TO BE REMOVED AND DISPOSED OF OFF SITE.
4. CONCRETE PAD TO BE REMOVED AND DISPOSED OF OFF SITE.
5. EXISTING STOCKADE FENCE TO BE REMOVED AND DISPOSED OF OFF SITE.
6. EXISTING GRANITE CURB TO BE REMOVED AND RETURNED TO CITY OF DOVER TO BE RECYCLED.
7. EXISTING SIDEWALK TO BE REMOVED AND DISPOSED OF OFF SITE.
8. EXISTING WATER LINE AND WATER SHUT OFF TO BE REMOVED.

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- FENCE POST
- WV EXISTING WATER GATE VALVE
- WSO EXISTING WATER SHUT OFF
- AREA OF PAVEMENT TO BE REMOVED
- AREA OF SIDEWALK TO BE REMOVED
- W EXISTING WATER LINE

10 0 5 10 20 40

1"=10'

TRITECH
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FAX 603 742 3830

REVISIONS
DATE: DESCRIPTION:

DEMOLITION PLAN

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET No.

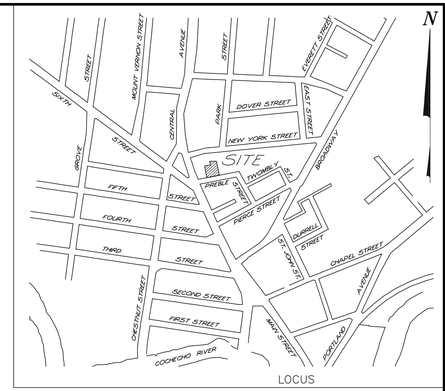
DE-1

(P19-1234)



N

TRITECH ENGINEERING CORPORATION



NOTES

1.) INTENT: TO SHOW THE DEVELOPMENT OF DOVER TAX MAP 4 LOT 40, WITH THE CONSTRUCTION OF A MIXED USE BUILDING WITH 1,811 SQ.FT. OF COMMERCIAL SPACE AND COVERED PARKING ON THE FIRST FLOOR, AND TWELVE (12) RESIDENTIAL UNITS ON THE UPPER 3 FLOORS.

2.) CURRENT OWNER: AMER FAKHOURY & MICHELINE ELIAS
21 BELLAMY ROAD
DOVER, N.H. 03820

APPLICANT: AMER FAKHOURY & MICHELINE ELIAS
21 BELLAMY ROAD
DOVER, N.H. 03820

SIGNATURE

3.) TOTAL AREA: 11208 SQ.FT. = 0.257 ACRES

4.) TAX MAP 4 LOT 40

5.) PROJECT DEED REFERENCE: BOOK 3853 PAGE 17

6.) PROJECT PLAN REFERENCE: BOUNDARY PLAN
MASK AND SPIDER ENTERPRISES
CENTRAL AVENUE AND
NEW YORK STREET
DOVER, NEW HAMPSHIRE
TRITECH ENGINEERING CORPORATION
NOVEMBER 29, 1995

PLAN OF NEW YORK STREET
AND EAST BRICK STREET CORNER
S.S. JENKINS MAY 1893
SCRD POCKET 2 FOLDER 15 PLAN 1

PLAN OF LAND FOR
DAVID AND DEBORAH JOHNSON
11 & 13 NEW YORK STREET
DOVER, N.H.
ROARING BROOK CONSULTANTS
6/21/90 NOT RECORDED

7.) ZONING: CENTRAL BUSINESS DISTRICT, SUBDISTRICT–GENERAL
MIN. LOT SIZE: N/A
MIN. FRONTAGE: N/A FRONTAGE BUILD OUT 70%
MIN. SETBACKS:
FRONT: AVG. +/– 5 FT
SIDE: 0 TO 24 FT MAX
REAR: 10 FT MIN

8.) THE RAW UNADJUSTED CLOSURE OF OUR RANDOM POINT TRAVERSE WAS 1 PART IN 26,000, AND WAS ACCOMPLISHED USING A TOPCON GT 503 TOTAL STATION, DURING THE MONTH OF DECEMBER 2017.

9.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (PANEL 0310E, MAP No. 33017C0310E, DATE: 9–30–2015).

10.) LOT IS SERVICED BY MUNICIPAL WATER AND SEWER.

11.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 31, 2017 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 13, 2017. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (NAVD 88).

12.) SUBJECT PARCEL CONTAINS NO WETLANDS.

13.) PARKING CALCULATION

BUILDING "A" – MIXED USE
12 RESIDENTIAL
1.65 x 12 = 19.8 = 20 SPACES — 20 SPACES
1,790 SQ. FT. COMMERCIAL
1,790 SQ.FT. 6.5 = 7 SPACES — NOT ALLOWED
275 — 20 SPACES

PARKING PROVIDED
5 SPACES, EXTERIOR
6 SPACES, GARAGE — 20 SPACES
9 SPACES, LEASED

14.) VARIANCES, SPECIAL EXCEPTIONS, CONDITIONAL USE PERMITS:
CONDITIONAL USE PERMIT FOR LOT COVERAGE: PENDING

15.) THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: NONE

16.) ACCESS AND UTILITY EASEMENT ACROSS MAP 4 LOT 39, IN FAVOR OF MAP 4 LOT 40.

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- PROPOSED LIGHT
- SEWER MANHOLE
- HYDRANT
- BUILDING ENTRANCE
- PROPOSED HIGH VINYL STOCKADE FENCE
- PROPERTY LINE
- PROPOSED BOLLARD
- PROPOSED SIGN
- PROPOSED DETECTABLE WARNING PAD

TRITECH
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REVISIONS
DATE: DESCRIPTION:

GENERAL SITE PLAN

6-12 PREBLE STREET

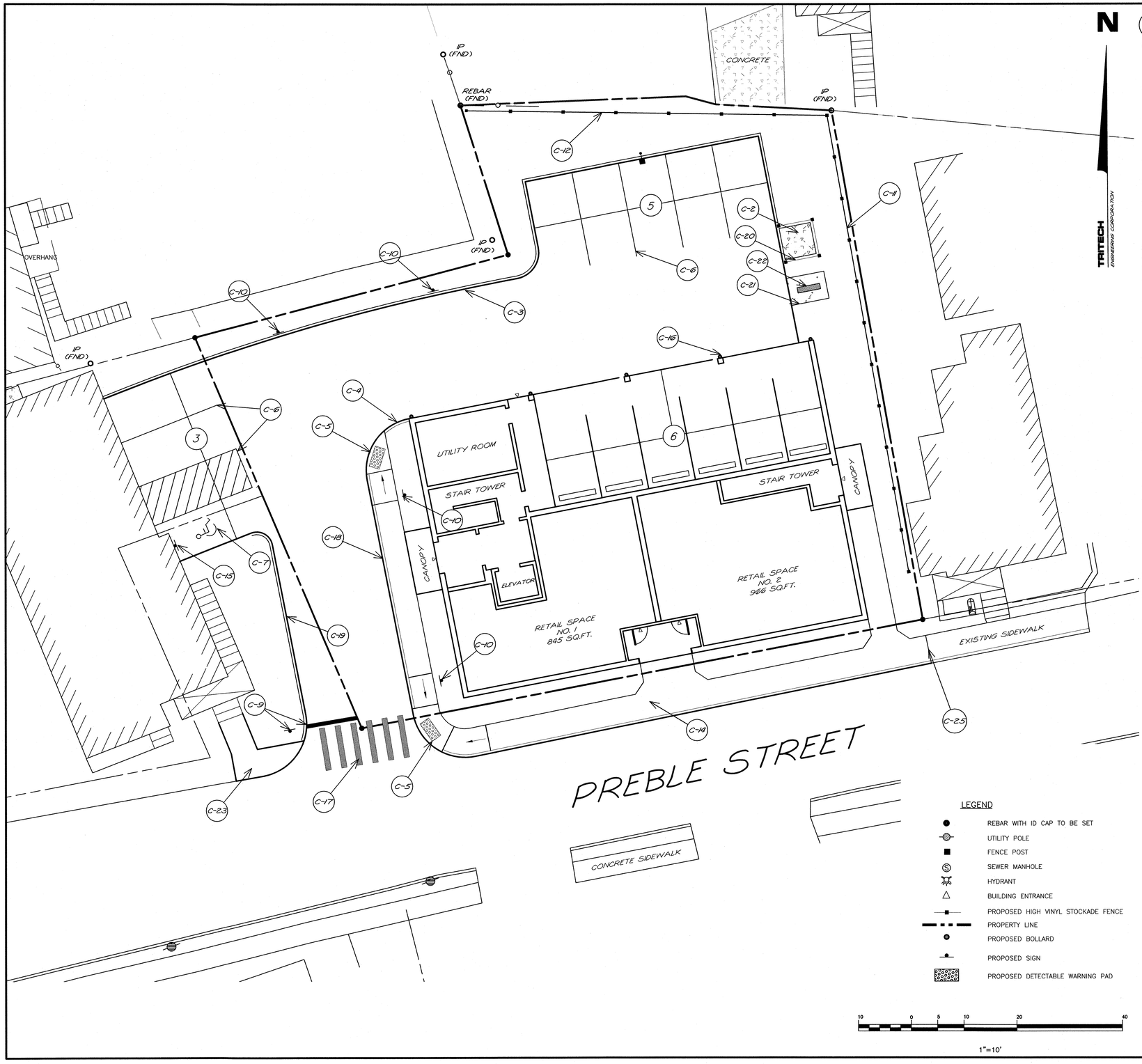
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET NO.

SP-1

(P19-1234)



N

TRITECH ENGINEERING CORPORATION

LEGEND

- REBAR WITH ID CAP TO BE SET
- UTILITY POLE
- FENCE POST
- SEWER MANHOLE
- HYDRANT
- BUILDING ENTRANCE
- PROPOSED HIGH VINYL STOCKADE FENCE
- PROPERTY LINE
- PROPOSED BOLLARD
- PROPOSED SIGN
- PROPOSED DETECTABLE WARNING PAD

10 0 5 10 20 40

1"=10'

GC-1 GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR IS REQUIRED UNDER NEW HAMPSHIRE LAW TO CONTACT "DIG SAFE" AT 1-800-225-4977, 72 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN THE "DIG SAFE" LOCATIONS THROUGH OUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL BEAR THE COST TO REPAIR ANY UTILITIES DAMAGED DURING THE COURSE OF THE WORK.
2. EXISTING UTILITIES – ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES ARE APPROXIMATE AND BASED ON FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF THE 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 NAD 83 AND SHALL BE EXPRESSED IN FEET.
4. ALL BACKFILL IN TRENCHES AND FILL FOR ROADBEDS SHALL BE THOROUGHLY COMPACTED TO 95% OF OPTIMUM DENSITY.
5. TOPOGRAPHIC SURVEY PERFORMED BY TRITECH ENGINEERING CORPORATION FEBRUARY, 2017 AND ELEVATIONS ARE BASED ON U.S.G.S. DATUM.
6. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE 1, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
7. BUILDING/MAILING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
8. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
9. TRASH REMOVAL WILL BE PROVIDED ON SITE BY A DUMPSTER.
10. COMMERCIAL VEHICLE ROUTES DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
11. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
12. THE OWNER SHALL RECORD AT THE STRAFFORD COUNTY REGISTRY OF DEEDS: DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO SUCCESSORS IN TITLE THAT THIS PROPERTY IS SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN.
13. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FOOT OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
14. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
15. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE AND APPROVED CONSTRUCTION SIGN SHALL BE IN PLACE PRIOR TO ANY EARTH DISTURBING ACTIVITY.
16. 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.
17. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6 PM AND SATURDAY 9AM-4PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
18. 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.
19. THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109-30 OF THE CODE OF THE CITY OF DOVER AND THE 2015 STATE BUILDING CODES.
20. 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.
21. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
22. THESE PLANS HAVE BEEN DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBLE REGULATIONS (i.e. STATE ADOPTED BUILDING CODE W/AMENDMENTS, ANSI 117, ETC.) AND RSA-155-A:5.
23. ALL UNITS ARE PROPOSED TO BE SERVED BY MUNICIPAL WATER AND SEWER.
24. CALL PROFESSIONAL EXTERMINATOR A MINIMUM OF THREE WEEKS AHEAD OF GROUND BREAKING PEST CONTROL DEVICES AREA TO BE SET A MINIMUM OF TWO WEEKS BEFORE GROUNDBREAKING.

C-1 CONSTRUCTION NOTES:

1. INSTALL SILT FENCE PER DETAIL 1, SHEET SP-7 OR FILTER SOXX PER DETAIL 6, SHEET SP-7.
2. INSTALL 6.0' x 6.0' CONCRETE DUMPSTER PAD PER DETAIL 8, SHEET SP-5.
3. INSTALL 160' OF SLOPED GRANITE CURB PER DETAIL 4, SHEET SP-5.
4. INSTALL 7' OF SLOPED GRANITE CURB PER DETAIL 4, SHEET SP-5.
5. INSTALL HANDICAP ACCESSIBLE REINFORCED CONCRETE RAMP (MAXIMUM SLOPE = 1" IN 12") FROM PAVEMENT GRADE TO SIDEWALK GRADE IN COMPLIANCE WITH ALL A.D.A. STANDARDS, PER DETAIL 5, SHEET SP-5.
6. INSTALL WHITE PAVEMENT MARKINGS FOR PARKING SPACES.
7. INSTALL HANDICAP SYMBOL, SEE DETAIL 9, SHEET SP-6.
8. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 3, SHEET SP-7.
9. INSTALL 10' STOP BAR AND SIGN IN ACCORDANCE WITH THE 2010 STATE OF N. H. DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", PER DETAIL 12, SHEET SP-6.
10. INSTALL SIGN (4) "NO PARKING – FIRE LANE"
11. INSTALL 88' OF 6' HIGH VINYL STOCKADE FENCE PER DETAIL 1, SHEET SP-6.
12. INSTALL 68' OF 6' HIGH VINYL STOCKADE FENCE PER DETAIL 1, SHEET SP-6.
13. SAWCUT PAVEMENT, PATCH AND MATCH EXISTING PAVEMENT PER DETAIL 2, SHEET SP-6.
14. INSTALL 5' WIDE CONCRETE SIDEWALK WITH VERTICAL CURB PER DETAIL 9, SHEET SP-5.
15. HANDICAP PARKING SIGN (1) PER DETAIL 10, SHEET SP-6.
16. INSTALL (5) BOLLARDS PER DETAIL 8, SHEET SP-6.
17. INSTALL PEDESTRIAN CROSSWALK PER DETAIL 11, SHEET SP-6.
18. INSTALL 5' WIDE CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURB, PER DETAIL 1, SHEET SP-5.
19. INSTALL 43' OF SLOPED GRANITE CURB PER DETAIL 4, SHEET SP-5.
20. INSTALL 18' OF 6' HIGH VINYL STOCKADE FENCE PER DETAIL 1, SP-6.
21. INSTALL 5.25' x 6.75' CONCRETE PAD FOR BIKE RACK PER DETAIL 7, SHEET SP-5.
22. INSTALL UPLIFT BIKE DOCK, 2 BIKE RACK (MODEL 543-4000), DETAIL 6, SHEET SP-5. BIKES FOR THE RESIDENTIAL UNITS SHALL BE STORED INSIDE THE INDIVIDUAL UNITS.
23. INSTALL AT GRADE PAVEMENT FOR APARTMENT WALKWAY AND MATCH EXISTING PAVEMENT PER DETAIL 2, SHEET SP-6.
24. INSTALL 5' WIDE CONCRETE WALK PER DETAIL 1, SHEET SP-5.
25. LIMITS OF SIDEWALK RECONSTRUCTION.

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REVISIONS DATE: DESCRIPTION:

SITE CONSTRUCTION PLAN

6-12 PREBLE STREET

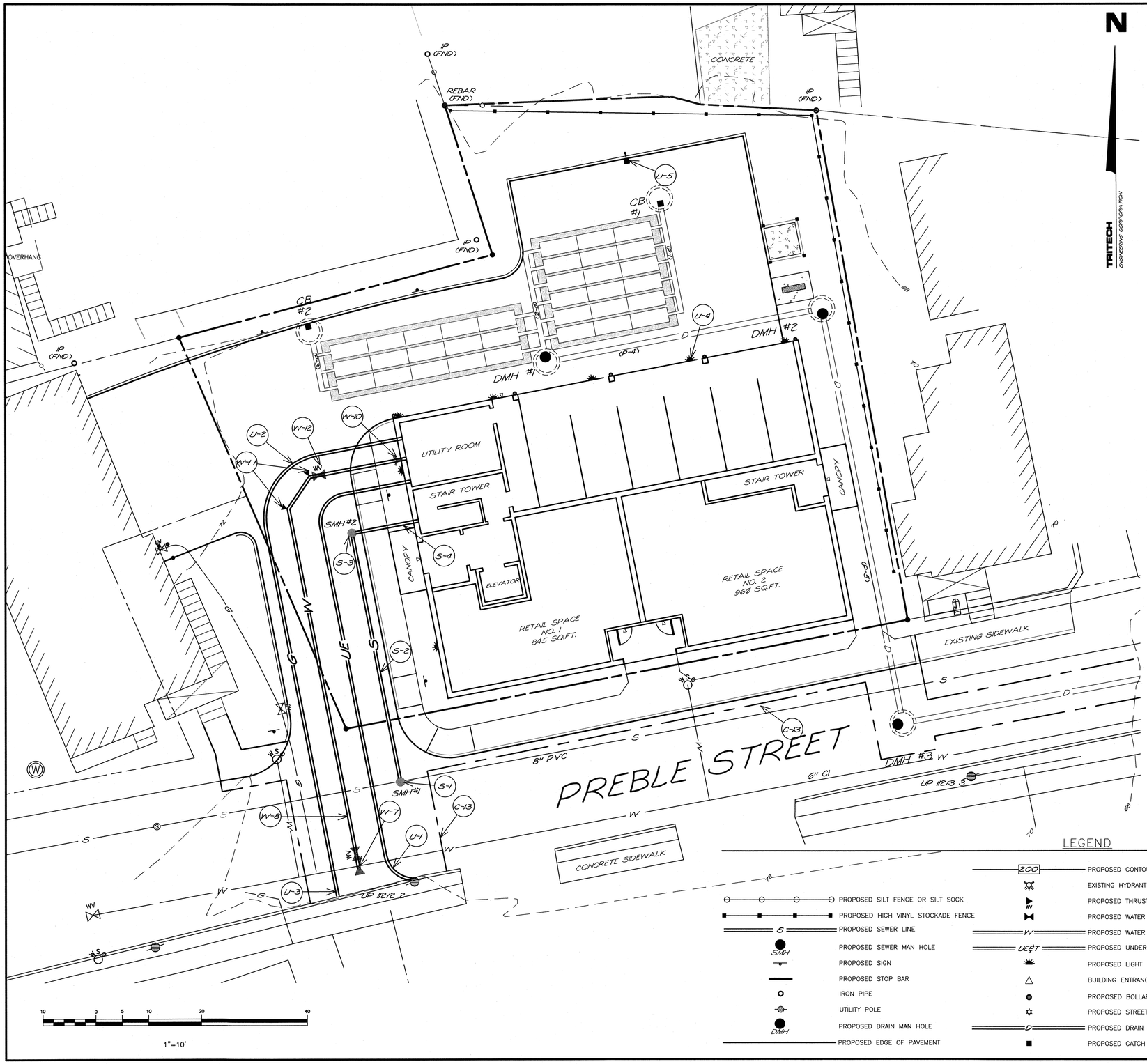
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

JANUARY 24, 2019 JOB No. 17141

SCALE: 1" = 10'

SHEET No. SP-2

(P19-1234)



N

TRITECH ENGINEERING CORPORATION

W-1 WATER NOTES:

1. WATERLINE AND APPENDITURES, INSTALLATION, AND MATERIALS SHALL CONFORM WITH THE CITY OF DOVER, NH AND AMERICAN WATER WORKS STANDARDS. ALL VALVES SHALL REQUIRE RESTRAINED MECHANICAL JOINTS USING EITHER MEGA-LUG, GRIP RINGS, OR OTHER METHODS OF RESTRAIN ACCEPTABLE TO THE CITY OF DOVER WATER DEPARTMENT, IN ADDITION TO USE OF CONCRETE THRUST BLOCKS.
2. PRESSURE AND LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST STANDARDS OF AAWA. CHLORINATING AND FLUSHING SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS OF AAWA, STATE AND LOCAL REGULATIONS.
3. THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109-30 OF THE CODE OF THE CITY OF DOVER AND THE 2015 STATE BUILDING CODES.
4. 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.
5. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
6. BACKFLOW PREVENTORS SHALL BE PROVIDED FOR ALL WATER LINES.
7. CONNECT TO EXISTING WATER MAIN. INSTALL TAPPING SLEEVE AND 6" GATE VALVE AND THRUST BLOCK.
8. INSTALL 95' – 6" CONCRETE LINED DUCTILE IRON CLASS 52 (C.L.D.I.) WATER MAIN WITH POLYWRAP FROM EXISTING LINE TO BUILDING. MINIMUM DEPTH OF COVER OVER PIPE = 5.5'.
9. DOMESTIC WATER AND LANDSCAPING WATER SHALL BE METERED SEPARATELY.
10. INSTALL FIRE DEPARTMENT CONNECTION.
11. INSTALL THRUST BLOCK
12. INSTALL 6" WATER GATE VALVE

S-1 SEWER NOTES:

1. INSTALL NEW SEWER MANHOLE (SMH #1) IN EXISTING SEWER LINE.
   NEW INVERT IN EL=62.00'
   INVERT OUT EL=61.90'
2. INSTALL 47' OF 8"ø SDR 35 SEWER PIPE
   AT A SLOPE OF 0.004 FT/FT FROM
   SMH #1 @ ELEV = 62.00' TO
   SMH #2 @ ELEV = 62.20'
3. INSTALL NEW SEWER MANHOLE (SMH #2)
   INVERT IN EL=62.30'
   INVERT OUT EL=62.20'
4. INSTALL 13' OF 8"ø SDR 35 SEWER PIPE
   AT A SLOPE OF 0.004 FT/FT FROM
   SMH #2 @ ELEV = 62.30' TO
   BUILDING @ ELEV = 62.35'

U-1 UTILITY NOTES:

1. INSTALL 90 FT OF UNDERGROUND CONDUIT IN ACCORDANCE WITH EVERSOURCE STANDARDS & DETAIL 4, (TRENCH "A"), SHEET SP-6 FROM EXISTING UTILITY POLE 112/2 2 TO BUILDING.
2. INSTALL GAS SERVICE AS SHOWN.
3. CONNECT PROPOSED GAS SERVICE TO EXISTING GAS MAIN IN PREBLE STREET.
4. INSTALL (5) BEGA MODEL 33542 WALL MOUNTED LIGHT FIXTURE. MOUNTING HEIGHT SHALL BE 12 FEET ABOVE FINISH GRADE
5. INSTALL CONCRETE POLE BASE AND LIGHTS WHERE SHOWN (1). LIGHTS SHALL BE 52 WATT TALON MEDIUM LED LUMINAIRE – MCGRAW EDISON, TLM-E02-LED-E1-SL3-BZ, OR EQUAL, MOUNTED 15' ABOVE FINISHED GRADE, WITH SHIELDING, SEE DETAIL 7, SHEET SP-6.

LEGEND

- PROPOSED SILT FENCE OR SILT SOCK
- PROPOSED HIGH VINYL STOCKADE FENCE
- PROPOSED SEWER LINE
- PROPOSED SEWER MAN HOLE
- PROPOSED SIGN
- PROPOSED STOP BAR
- IRON PIPE
- UTILITY POLE
- PROPOSED DRAIN MAN HOLE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CONTOUR
- EXISTING HYDRANT
- PROPOSED THRUST BLOCK
- PROPOSED WATER GATE VALVE
- PROPOSED WATER LINE OR SERVICE
- PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
- PROPOSED LIGHT
- BUILDING ENTRANCE
- PROPOSED BOLLARD
- PROPOSED STREET LIGHT
- PROPOSED DRAIN LINE
- PROPOSED CATCH BASIN
- TEST PIT
- EXISTING STREET LIGHT
- EXISTING SEWER MANHOLE
- EXISTING CATCH BASIN
- EXISTING 2 FOOT CONTOUR
- EXISTING 10 FT CONTOUR
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING WATER LINE OR SERVICE
- EXISTING WATER SHUTOFF
- EXISTING WATER GATE VALVE
- PROPERTY LINE

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DATE: DESCRIPTION:

UTILITIES PLAN

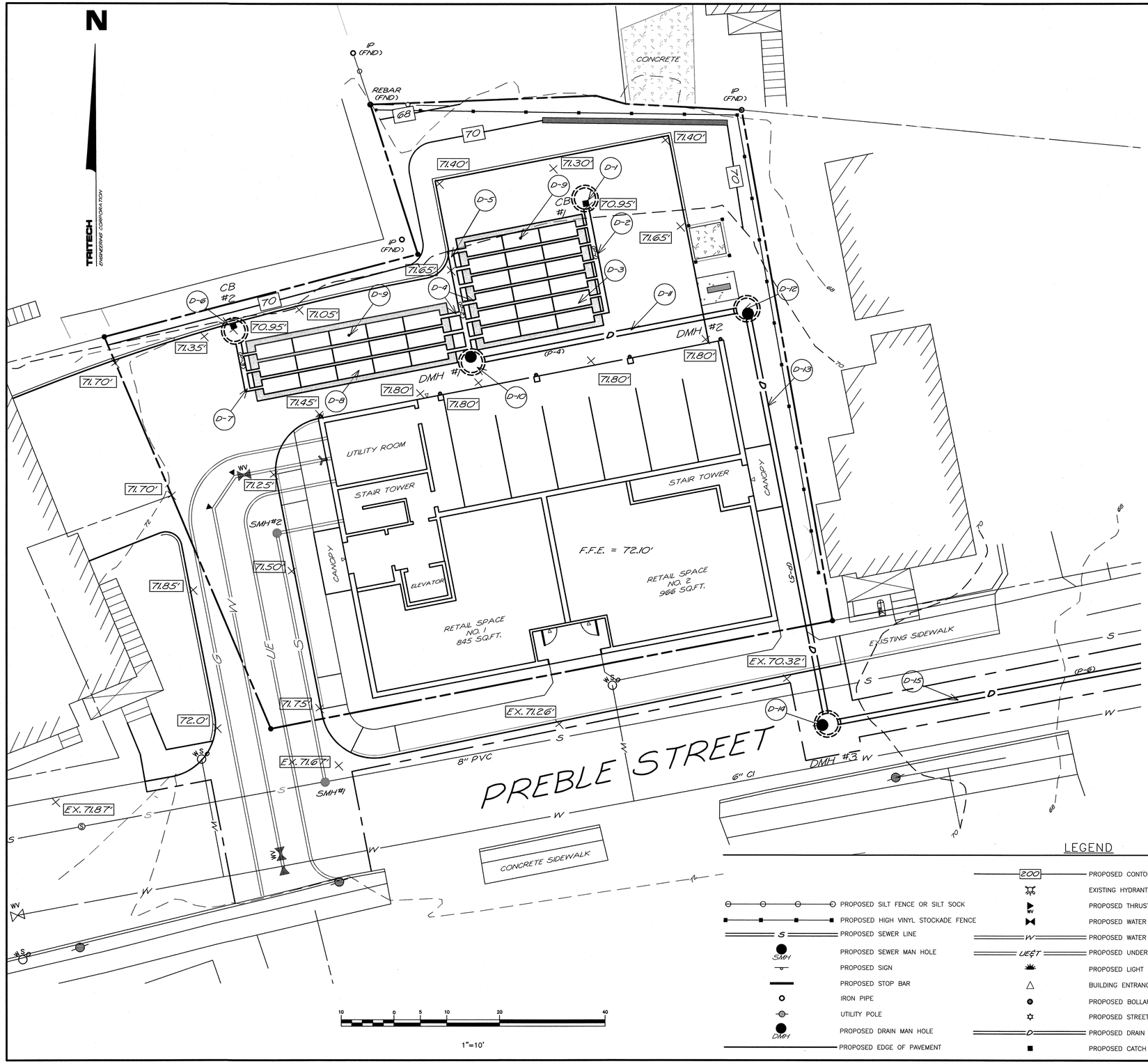
6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET No. SP-3

(P19-1234)



D-1 DRAINAGE NOTES

1. INSTALL CB #1 PER DETAIL 8, SHEET SP-8.
   RIM ELEV = 70.95'
   INVERT OUT = 67.55' (P-1)
   SUMP ELEV = 63.55'
2. INSTALL 20' OF 12"ø HDPE DRAINAGE PIPE AS INLET MANIFOLD FROM CB #1 @ ELEV = 67.55' TO 6" CHAMBER INLET STUBS, PART# SC310EPE06T AT ELEV = 67.35'.
3. INSTALL 6 ROWS, 3 CHAMBERS PER ROW, OF STORMTECH SC-310 CHAMBERS AND 6" SPACING BETWEEN ROWS, AND END-CAP AT END OF EACH ROW, SEE DETAIL 6, SHEET SP-8
4. INSTALL 8" OUTLET STUBS, PART# SC310EPE08B, AT ELEV = 67.65' TO (P-2).
5. INSTALL 20' of 12" HDPE DRAIN PIPE (P-2) TO DMH-1 AT ELEV = 67.65'.
6. INSTALL CB #2 PER DETAIL 8, SHEET SP-8.
   RIM ELEV = 70.95'
   INVERT OUT = 67.45' (P-3)
   SUMP ELEV = 63.45'
7. INSTALL 10' OF 12"ø HDPE DRAINAGE PIPE AS INLET MANIFOLD FROM CB #2 @ ELEV = 66.15' TO 6" CHAMBER INLET STUBS, PART# SC310EPE08T AT ELEV = 67.45'.
8. INSTALL 3 ROWS, 5 CHAMBERS PER ROW, OF STORMTECH SC-310 CHAMBERS AND 6" SPACING BETWEEN ROWS, AND END-CAP AT END OF EACH ROW, SEE DETAIL 6, SHEET SP-8
9. INSTALL 4" INSPECTION PORT, PER DETAIL 5, SHEET SP-8
10. INSTALL DMH-1 PER DETAIL 7, SHEET SP-7.
    RIM ELEV = 71.60'
    INVERT IN = 67.40'
    INVERT OUT = 62.30' (P-4)
11. INSTALL 50' OF 12"ø HDPE DRAINAGE PIPE (P-4) FROM DMH-1 TO DMH-2.
    INVERT IN = 67.30'
    INVERT OUT = 66.80'
    SLOPE = 0.010 FT/FT
12. INSTALL DMH-2 PER DETAIL 7, SHEET SP-7.
    RIM ELEV = 70.90'
    INVERT IN = 66.80' (P-4)
    INVERT OUT = 66.70' (P-5)
13. INSTALL 75' OF 12"ø HDPE DRAINAGE PIPE (P-5) FROM DMH-2 TO DMH-3.
    INVERT IN = 66.70'
    INVERT OUT = 65.95'
    SLOPE = 0.010 FT/FT
14. INSTALL DMH-3 PER DETAIL 7, SHEET SP-7.
    RIM ELEV = 70.10 +/-'
    INVERT IN = 65.95' (P-5)
    INVERT OUT = 65.85' (P-6)
15. INSTALL 110' OF 12"ø HDPE DRAINAGE PIPE (P-6) FROM DMH-3 TO DMH-4.
    INVERT IN = 65.85'
    INVERT OUT = 61.45'
    SLOPE = 0.040 FT/FT
16. INSTALL DMH-4 PER DETAIL 7, SHEET SP-7.
    RIM ELEV = 65.00 +/-'
    INVERT IN = 61.45' (P-6)
    INVERT OUT = 61.35' (P-7)
17. INSTALL 82' OF 12"ø HDPE DRAINAGE PIPE (P-7) FROM DMH-4 TO DMH-5.
    INVERT IN = 61.35'
    INVERT OUT = 59.60'
    SLOPE = 0.021 FT/FT
18. INSTALL DMH-5 PER DETAIL 8, SHEET SP-8.
    RIM ELEV = 63.00 +/-'
    INVERT IN = 59.60' (P-7)
    INVERT OUT = 59.50' (EXISTING)

LEGEND

- PROPOSED SILT FENCE OR SILT SOCK
- PROPOSED HIGH VINYL STOCKADE FENCE
- PROPOSED SEWER LINE
- PROPOSED SEWER MAN HOLE
- PROPOSED SIGN
- PROPOSED STOP BAR
- IRON PIPE
- UTILITY POLE
- PROPOSED DRAIN MAN HOLE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CONTOUR
- EXISTING HYDRANT
- PROPOSED THRUST BLOCK
- PROPOSED WATER GATE VALVE
- PROPOSED WATER LINE OR SERVICE
- PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
- PROPOSED LIGHT
- BUILDING ENTRANCE
- PROPOSED BOLLARD
- PROPOSED STREET LIGHT
- PROPOSED DRAIN LINE
- PROPOSED CATCH BASIN
- TEST PIT
- EXISTING STREET LIGHT
- EXISTING SEWER MANHOLE
- EXISTING CATCH BASIN
- EXISTING 2 FOOT CONTOUR
- EXISTING 10 FT CONTOUR
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING WATER LINE OR SERVICE
- EXISTING WATER SHUTOFF
- EXISTING WATER GATE VALVE
- PROPERTY LINE

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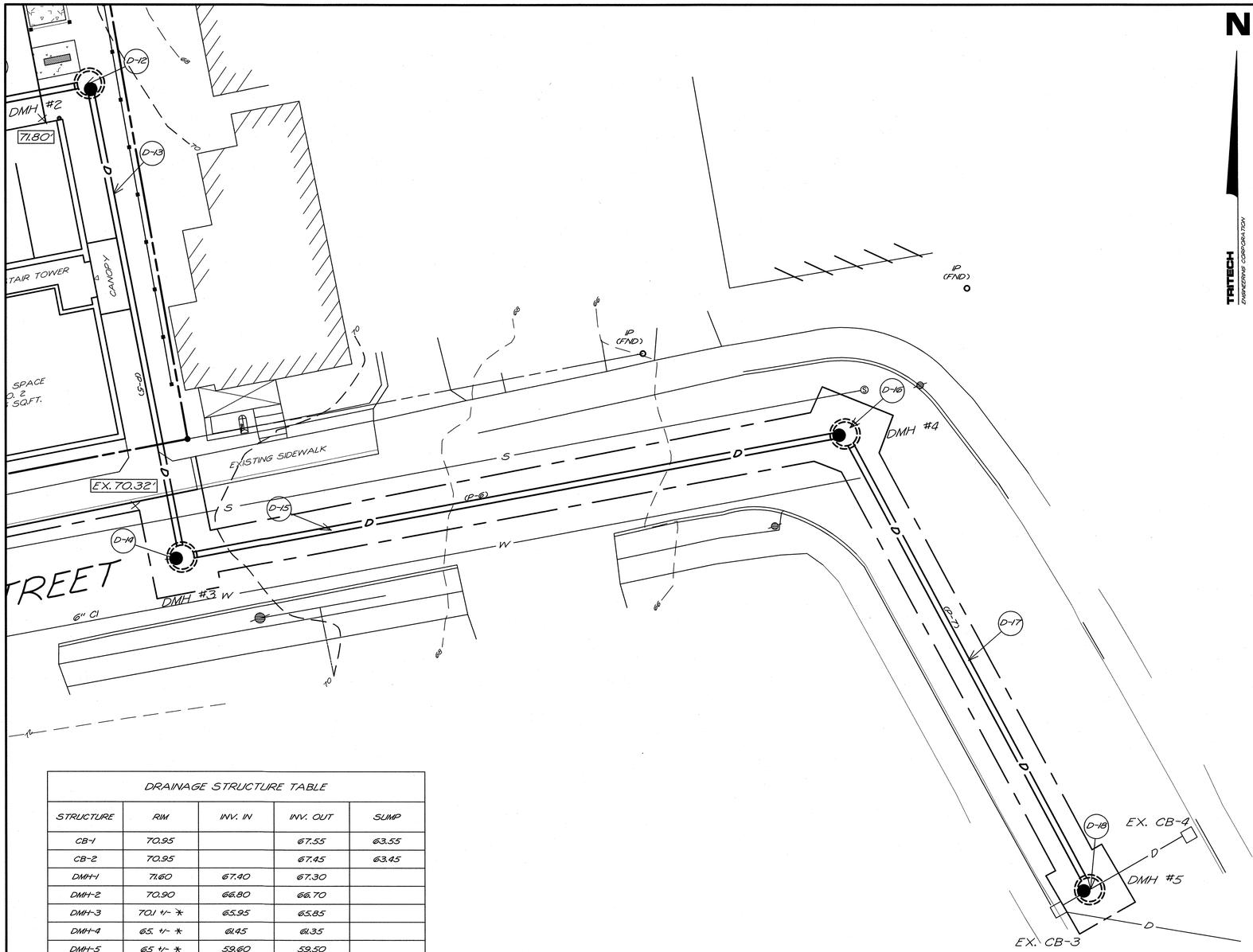
GRADING AND DRAINAGE PLAN

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET NO. SP-4

(P19-1234)



LEGEND

- IRON PIPE
- UTILITY POLE
- TEST PIT
- EXISTING STREET LIGHT
- EXISTING SEWER MANHOLE
- EXISTING CATCH BASIN
- 156 — EXISTING 2 FOOT CONTOUR
- 160 — EXISTING 10 FT CONTOUR
- S — EXISTING SEWER LINE
- G — EXISTING GAS LINE
- W — EXISTING WATER LINE OR SERVICE
- EXISTING WATER SHUTOFF
- EXISTING WATER GATE VALVE
- PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- 200 — PROPOSED CONTOUR
- EXISTING HYDRANT
- PROPOSED THRUST BLOCK
- PROPOSED WATER GATE VALVE
- W — PROPOSED WATER LINE OR SERVICE
- UGET — PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
- PROPOSED LIGHT
- BUILDING ENTRANCE
- PROPOSED BOLLARD
- PROPOSED STREET LIGHT
- D — PROPOSED DRAIN LINE
- PROPOSED CATCH BASIN
- DMH — PROPOSED DRAIN MAN HOLE
- PROPOSED SILT FENCE OR SILT SOCK
- PROPOSED 6' HIGH VINYL STOCKADE FENCE
- S — PROPOSED SEWER LINE
- SMH — PROPOSED SEWER MAN HOLE
- PROPOSED SIGN
- PROPOSED STOP BAR

DRAINAGE STRUCTURE TABLE				
STRUCTURE	RIM	INV. IN	INV. OUT	SUMP
CB-1	70.95		67.55	63.55
CB-2	70.95		67.45	63.45
DMH-1	71.60	67.40	67.30	
DMH-2	70.90	66.80	66.70	
DMH-3	70.1 +/- *	65.95	65.85	
DMH-4	65. +/- *	61.45	61.35	
DMH-5	65 +/- *	59.60	59.50	

* SET RIM TO MATCH EXISTING PAVEMENT.

DRAINAGE PIPE TABLE							
PIPE	START STRUCTURE	INV.	END STRUCTURE	INV.	SIZE	L.F.	SLOPE
P-1	CB-1	67.55	STORMTECH	67.35	12"	20'	0.010 FT/FT
P-2	STORMTECH	67.65	DMH-1	67.40	12"	20'	0.010 FT/FT
P-3	CB-2	67.45	STORMTECH	67.35	12"	10'	0.010 FT/FT
P-4	DMH-1	67.30	DMH-2	66.80	12"	50'	0.010 FT/FT
P-5	DMH-2	66.70	DMH-3	65.95	12"	75'	0.010 FT/FT
P-6	DMH-3	65.85	DMH-4	61.45	12"	110'	0.040 FT/FT
P-7	DMH-4	61.35	DMH-5	59.60	12"	82'	0.021 FT/FT

10 0 5 10 20 40

1"=10'

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DRAINAGE EXTENSION PLAN

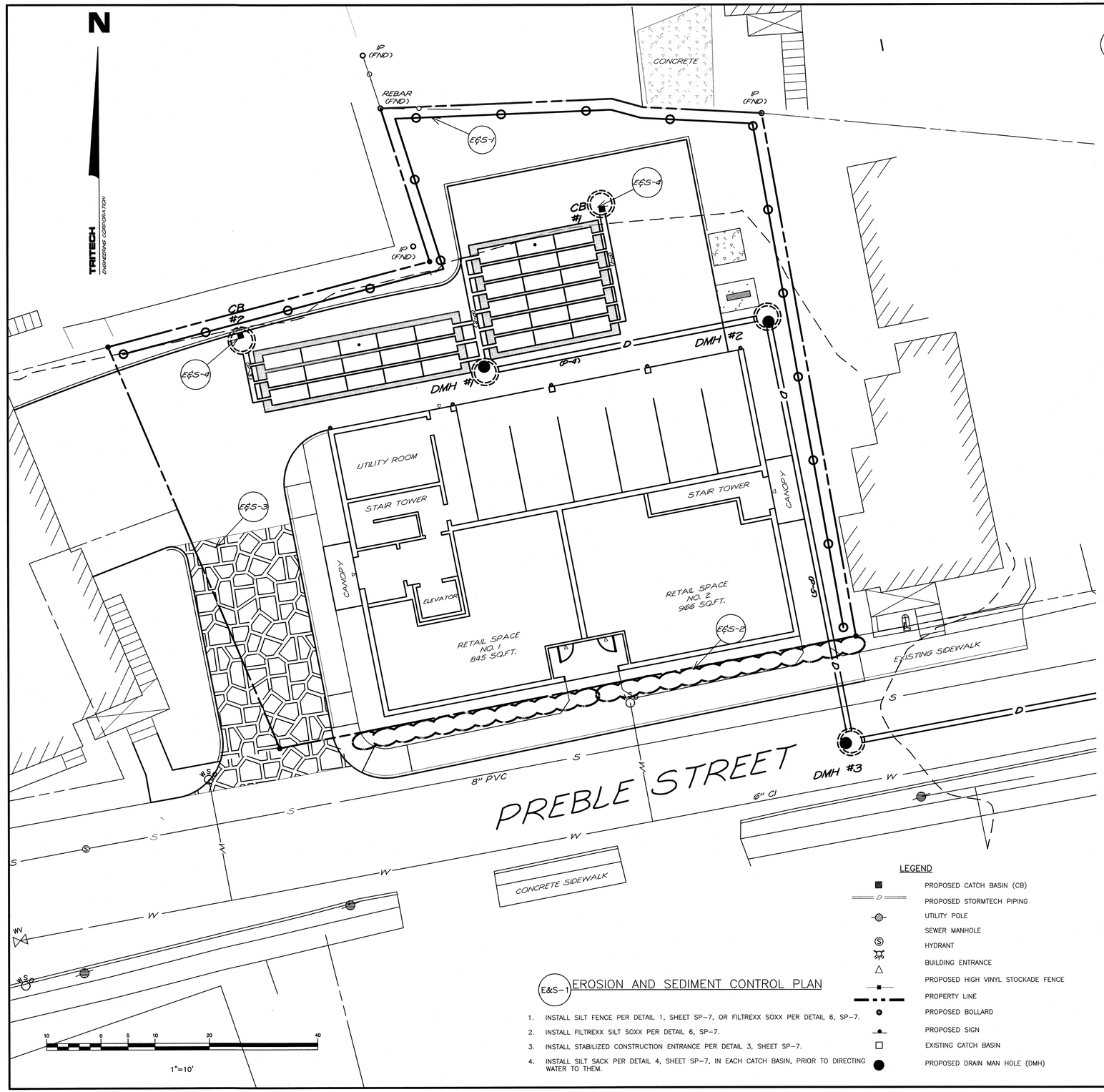
6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019
JOB No. 17141
SCALE: 1" = 10'

SHEET No.

SP-4A

(P19-1234)



E&S EROSION AND SEDIMENT CONTROL PLAN

1. INSTALL SILT FENCE PER DETAIL 1, SHEET SP-7, OR FILTREXX SOXX PER DETAIL 6, SP-7.
2. INSTALL FILTREXX SILT SOXX PER DETAIL 6, SP-7.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 3, SHEET SP-7.
4. INSTALL SILT SACK PER DETAIL 4, SHEET SP-7, IN EACH CATCH BASIN, PRIOR TO DIRECTING WATER TO THEM.

LEGEND

- PROPOSED CATCH BASIN (CB)
- PROPOSED STORMTECH PIPING
- UTILITY POLE
- SEWER MANHOLE
- HYDRANT
- BUILDING ENTRANCE
- PROPOSED HIGH VINYL STOCKADE FENCE
- PROPERTY LINE
- PROPOSED BOLLARD
- PROPOSED SIGN
- EXISTING CATCH BASIN
- PROPOSED DRAIN MAN HOLE (DMH)

E&S EROSION AND SEDIMENT CONTROL NOTES

1. THE PROJECT SHALL BE MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000.

CRITICAL AREAS

Anywhere on the site that existing vegetation is to be removed will require immediate erosion control treatment. Special care should be taken where runoff enters wetlands. All storm water practices areas shall be stabilized prior to directing storm water to them; specifically all bioretntion basins and all infiltration practices.

EROSION AND SEDIMENT CONTROL PRACTICES

Erosion and sediment control practices will include the use of rip-rap, and silt fence check dams. All erosion and sediment control practices will be constructed and maintained according to the minimum standards and specifications contained in the "New Hampshire Stormwater Manual, Volume 2".

A. Erosion and Sediment Control Measures

1. The erosion control procedures shall conform to Section 645 of the "Standard Specifications for Road and Bridge Construction" of the NH DOT, and the "New Hampshire Stormwater Manual."
2. During Construction and thereafter, erosion control measures are to be implemented as noted. The smallest practical area of land should be exposed at any one time during development. The amount of exposed areas which are temporarily stabilized without permanent stabilization shall be limited to 5 acres.
3. During grading operations, install stone check dams at 50 foot intervals in drainage swales and at drain inlets where shown. Barriers are to be maintained and cleaned until disturbed areas are stabilized.
4. Any disturbed areas which are to be left temporarily, and which will be regraded later during construction shall be machine hay mulched and seeded with rye grass to prevent erosion.
5. Silt fences and other erosion control measures shall be inspected weekly and after every 0.25" rainfall event during the life of the project. All damaged silt fences shall be repaired. Sediment deposits shall periodically be removed.
6. Avoid the use of future open spaces (loam and seed areas) wherever possible during the construction. Construction traffic shall use the roadbeds of future roads and parking areas.
7. Topsoil required for the establishment of vegetation shall be stock piled in amounts necessary to complete finished grading of all exposed areas.
8. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. Stumps shall be disposed by grinding or fill in an approved facility.
9. All fills shall be placed and compacted to reduce erosion, slippage settlement, subsidence or other related problems.
10. All fill shall be placed and compacted in layers not to exceed 8 inches in thickness.
11. Frozen material or soft, mucky or highly compressible material shall not be incorporated into fills.
12. Fill material shall not be placed on a frozen foundation subgrade.
13. Disturbed areas shall be seeded immediately following finished grading.
14. Limit of exposed area that is temporarily stabilized without permanent stabilization is 5 acres or less.
15. All areas not stabilized by Nov. 1st must be protected by Erosion Control Blankets or equivalent and mulched/seeded with winter rye or oats.
16. All disturbed areas must be seed and mulched within 3 days of final grading, permanently stabilized within 15 days of final grading or temporarily stabilized within 45 days of initial disturbance.
17. All ditches and swales are to be stabilized prior to directing runoff to these features.
18. All cut and fill slopes shall be seeded immediately.
19. An area shall be considered stable if one of the following has occurred:
    - a.) Base course gravels are installed in areas to be paved
    - b.) A minimum of 85% vegetated growth has been established
    - c.) A minimum of 3" of non-erosive material such as stone or riprap has been installed
    - d.) Erosion control blankets have been properly installed.

B. Vegetative Practice

All ground areas opened up for construction will be regraded, loamed, seeded and mulched in the shortest practical time. All Temporary and Permanent Seeding must be applied prior to October 1st. Employ temporary erosion and sedimentation control devices as detailed in this plan as necessary until adequate stabilization has been assured.

A. Temporary Seeding & Hay Mulching

1. At no time shall any disturbed area remain unstabilized for longer than 30 days. All areas where construction is not completed within 30 days of the initial disturbance shall receive temporary seeding measures.
2. Fertilizer shall be spread on the top layer of loam and worked into the surface. Fertilizer application rate shall be 300 pounds per acre of 10-10-10 fertilizer.
3. Seed shall be Winter Rye, 112 LBS. per acre.
4. Remove stones and trash that will interfere with seeding the area. Where feasible, till the soil to a depth of about 3 inches to prepare a seedbed and mix fertilizer into the soil. The seedbed should be left in a firm and smooth condition. The last tillage operation should be performed across the slope whenever practical.
5. If seeding between May 15th and August 15th, hay mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre and shall be held in place using appropriate techniques from the Erosion and Sediment Control Handbook.
6. The surface shall be watered and kept moist with a fine spray as required without washing away the soil, until the grass is well established. Any areas which are not satisfactorily covered with grass shall be reseeded, and all noxious weeds are removed.

B. Permanent Seeding & Hay Mulching

1. All disturbed areas shall be loamed (4") and limed. Lime shall be thoroughly incorporated into the loam layer at a rate of 2 tons per acre.
2. Fertilizer shall be spread on the top layer of loam and worked into then surface. Fertilizer application rate shall be 500 pounds per acre of 10-20-20 fertilizer.
3. Seed shall be 48 lbs. per acre, SCS mixture "c" (20 lbs tall fescue, 20 lbs. creeping red fescue and 8 lbs. birds foot trefoil = 48 lbs total.) The soil shall be lightly raked immediately before seeding. One half the seed shall be sown in one direction and the other half at right angles to the original direction. It shall be lightly raked in to the soil to a depth not over 1/4 inch and rolled with hand roller weighing not over 100 points per linear foot to width.
4. Hay mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre and shall be held in place using appropriate techniques from the Erosion and Sediment Control Handbook. The surface shall be watered and kept moist with a fine spray as required, without washing away the soil, until the grass is well established. Any areas which are not satisfactorily covered with grass shall be reseeded, and all noxious weeds removed.

CONSTRUCTION SEQUENCE

1. Do not begin construction until all local, state and federal permits have been applied for and received.
2. Install silt fences and/or filtrexx soxx as necessary to control erosion and prevent sediment contamination prior to any earth moving activities.
3. Cut and remove trees, shrubs, saplings, brush, vines and other debris and rubbish as specified for construction, and complete demolition as directed on sheet DE-1.
4. Care shall be taken to preserve the infiltration capacity of the infiltrating soil. See the New Hampshire Stormwater Manual for additional information.
5. Construct stormwater Infiltration Practice #1. Do not direct runoff to these practices until the practice and contributing areas are fully stabilized.
6. Building construction may begin.
7. Construct driveways, parking and utilities.
8. Loam and seed disturbed areas in accordance with vegetative practice and general construction notes. Cut and fill slopes shall be seeded immediately after their construction.
9. All areas receiving runoff, including but not limited to the stormwater infiltration shall be stabilized prior to directing runoff to them.
10. All soils that are finish graded must be stabilized within 72 hours of disturbance.
11. Maintain disturbed areas as necessary.

MAINTENANCE

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

1. Seeded areas will be fertilized and reseeded as necessary to insure vegetative establishment.
2. The side slopes will be checked after each significant rainfall.
3. The side slopes will be checked weekly and repaired when necessary until adequate vegetation is established.
4. The silt fence barriers will be checked regularly. Necessary repairs will be made to correct undermining or deterioration of the structures.

WINTER CONSTRUCTION NOTES

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetation growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melts.
2. All ditches or swales which do not exhibit a minimum of 85% vegetation growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
3. After November 15th, incomplete road or parking surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.

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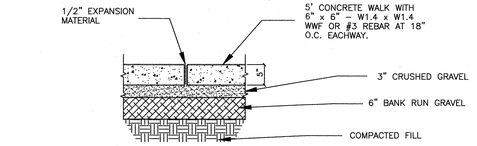
EROSION AND SEDIMENT CONTROL PLAN

6-12 PREBLE STREET

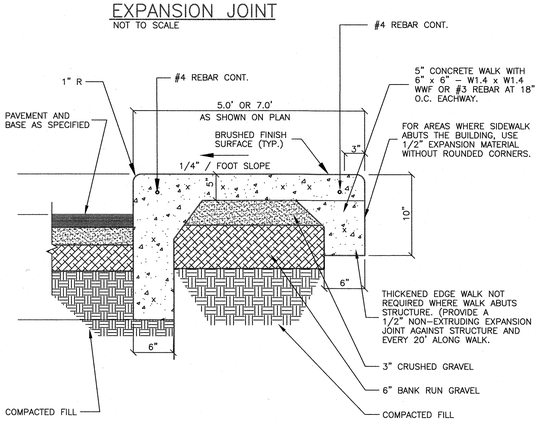
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET NO. SP-4B

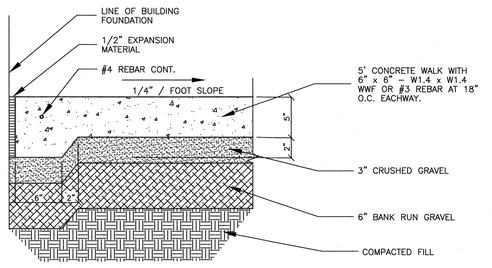
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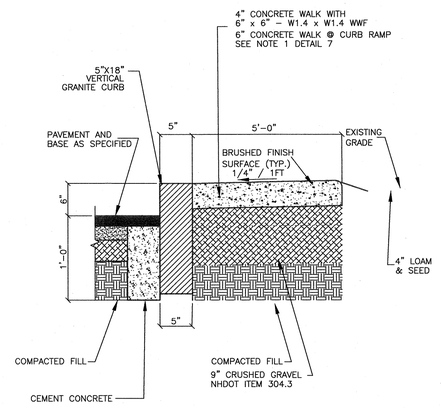
EXPANSION JOINT
NOT TO SCALE



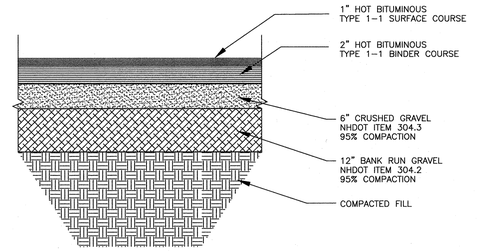
CONCRETE WALK W/CONCRETE CURB
NOT TO SCALE



1 CONCRETE WALK DETAILS
NOT TO SCALE



2 CONCRETE SIDEWALK WITH GRANITE CURB DETAIL
NOT TO SCALE



GENERAL MATERIALS NOTES – APPLIES TO ALL DETAILS UNLESS NOTED.

1.) MATERIALS & CONSTRUCTION METHODS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.
2.) COMPACTED FILL UNDER PAVEMENT OR CONCRETE AREAS SHALL BE FREE OF ORGANIC MATERIAL & COMPACTED IN 6" LIFTS TO NOT LESS THAN 95% OPTIMUM DENSITY.
3.) BANK RUN GRAVEL SHALL BE:

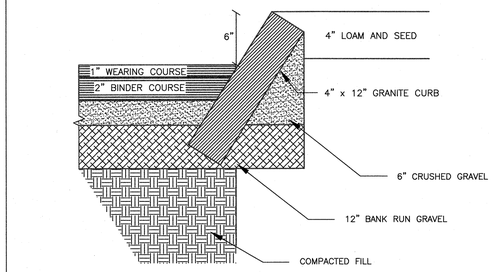
SIEVE	PERCENT PASSING
6"	100%
#4	25 – 70%
#200	≤ 12% OF PASSING #4

4.) CRUSHED GRAVEL SHALL BE:

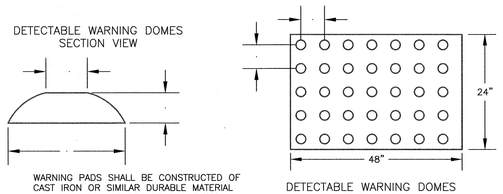
SIEVE	PERCENT PASSING
3"	100%
2"	95 – 100%
1"	55 – 85%
#4	27 –52%
#200	0 – 12%

5.) BASE COURSE OF PAVEMENT SHALL BE 3/4" DIA. TYPE I-1 HOT BITUMINOUS CONCRETE (225 LBS/SQ.YD.)
6.) WEARING COURSE OF PAVEMENT SHALL BE 1/2" DIA. TYPE I-1 HOT BITUMINOUS CONCRETE (115 LBS/SQ.YD.)

3 TYPICAL PAVEMENT SECTION
NOT TO SCALE



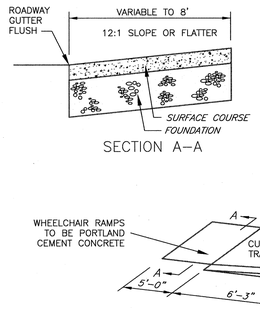
4 SLOPED GRANITE CURB SECTION
NOT TO SCALE

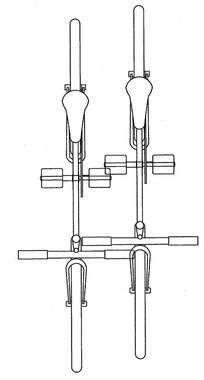


NOTES:
1. THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
2. RAMP CROSS SECTION TO BE SAME AS ADJACENT SIDEWALK; I.E.. DEPTH OF SURFACE AND FOUNDATION.
3. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
4. SIDEWALKS THAT CROSS DRIVEWAYS SHALL BE RAMPED TO MEET THE GRADE OF DRIVEWAY.
5. THESE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE.
6. DETECTABLE WARNINGS TO BE INSTALLED 6" FROM EDGE OF RAMP
7. DETECTABLE WARNINGS PADS SHALL BE CONSTRUCTED OF CAST IRON OR SIMILAR DURABLE MATERIAL APPROVED BY THE CITY OF ROCHESTER.

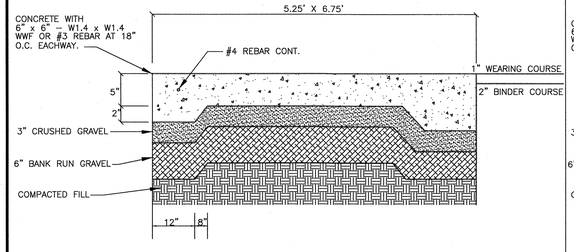
5 WHEEL CHAIR RAMP
NOT TO SCALE

W	L	S.Y.
5'–0"	2'–9"±	6.3
6'–0"	2'–0"±	7.2
7'–0"	1'–3"±	8.0
8'–0"	0'–0"	8.1

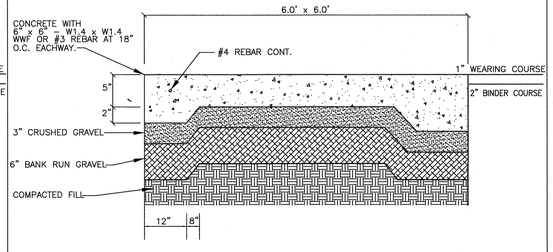




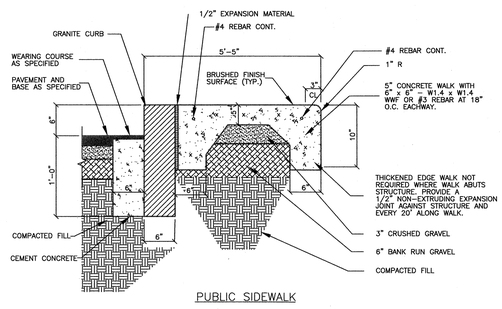
6 UPLIFT BIKE RACK
NOT TO SCALE



7 BIKE RACK CONCRETE PAD DETAIL
NOT TO SCALE

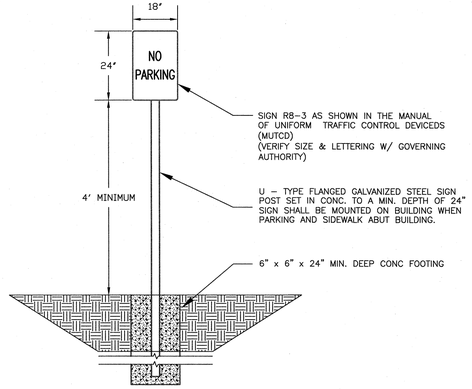


8 DUMPSTER CONCRETE PAD DETAIL
NOT TO SCALE



PUBLIC SIDEWALK

9 CONCRETE WALK WITH GRANITE CURB
NOT TO SCALE



10 NO PARKING SIGN
NOT TO SCALE

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REVISIONS
DATE: DESCRIPTION:

CONSTRUCTION DETAILS

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

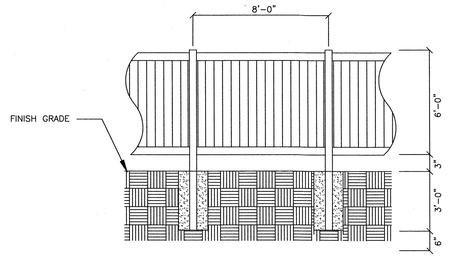
JOB No. 17141

JANUARY 24, 2019

SHEET NO.

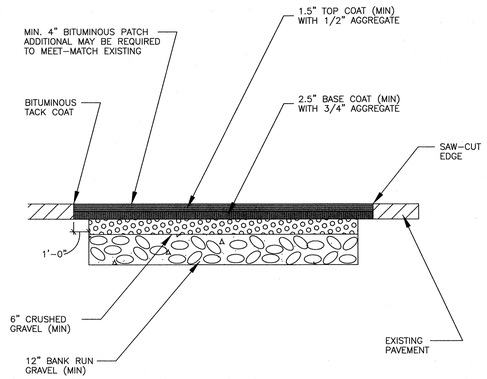
SP-5

(P19-1234)

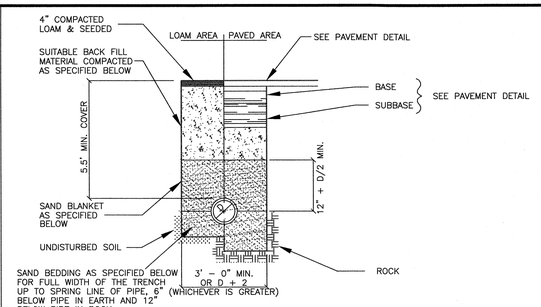


INSTALL 6' TALL VINYL FENCE
POSTS SHALL BE EMBEDDED 36" MINIMUM

1 VINYL STOCKADE FENCE DETAIL
NOT TO SCALE



2 TRENCH PATCH DETAIL
NOT TO SCALE

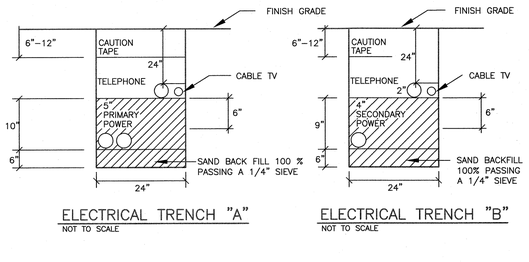


SAND BLANKET & BEDDING

SIEVE SIZE	%FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

BACK FILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACK FILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

3 WATER LINE TRENCH
NOT TO SCALE



ELECTRICAL TRENCH "A"
NOT TO SCALE

ELECTRICAL TRENCH "B"
NOT TO SCALE

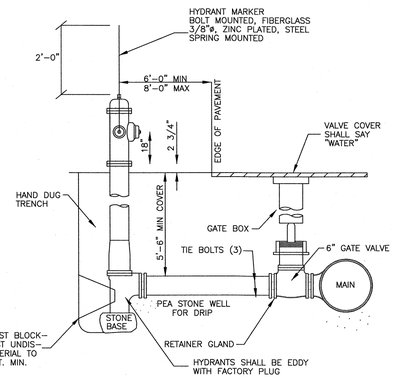
1.) TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.

2.) LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.

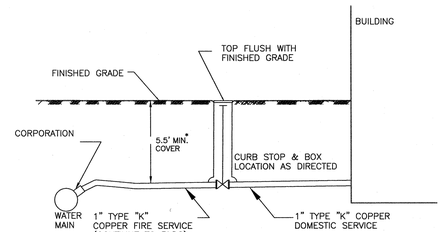
3.) FOR COMPLETE SPECIFICATION SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".

4.) CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

4 ELECTRICAL TRENCH
NOT TO SCALE



5 HYDRANT & VALVE DETAIL
NOT TO SCALE



USE 2" x 2' RIGID BOARD INSULATION OVER PIPE WHEN COVER REQUIREMENT CANNOT BE SATISFIED.

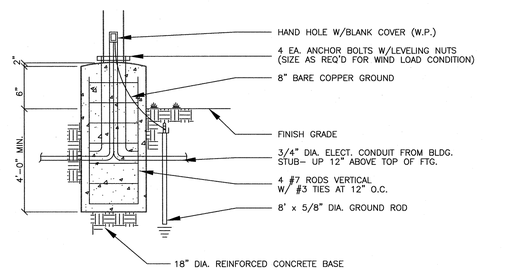
NOTES:

1.) SERVICE TO BE TYPE "K" COPPER OR EQUAL, APPROVED BY LOCAL AND STATE SPECIFICATIONS.

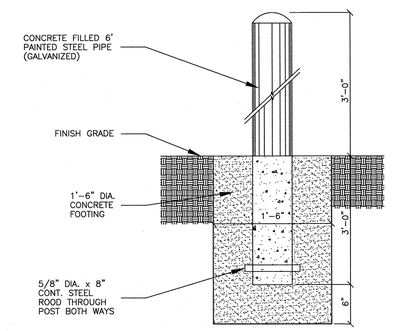
2.) BALL VALVE CURB STOP COMPRESSION (NO DRAIN)

3.) WATER SERVICE SIZE MAY BE MODIFIED AS WARRANTED BY FIRE SUPPRESSION SYSTEM DESIGN.

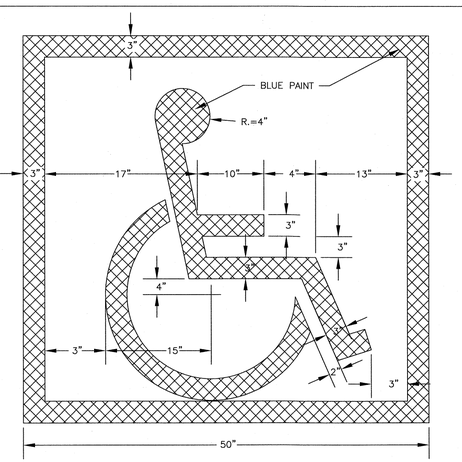
6 BUILDING WATER SERVICE
NOT TO SCALE



7 SITE LIGHTING BASE
NOT TO SCALE



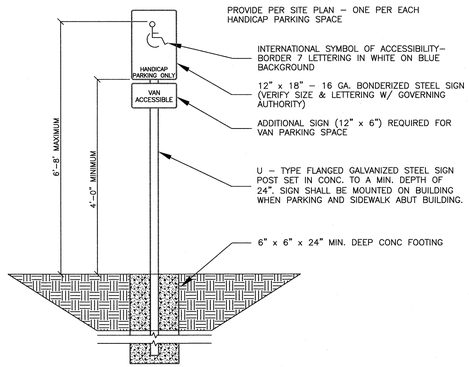
8 BOLLARD DETAIL
NOT TO SCALE



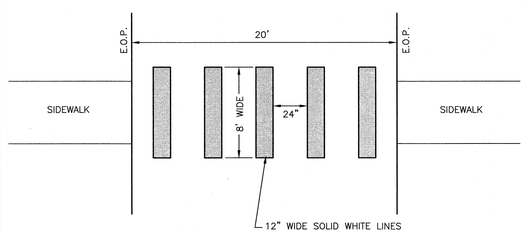
9 HANDICAP SYMBOL DETAIL
NOT TO SCALE

NOTE:
CONTRACTOR TO VERIFY ALL STATE APPROVED OR ADDITIONAL REQUIREMENTS FOR ACCESSIBLE SIGNAGE

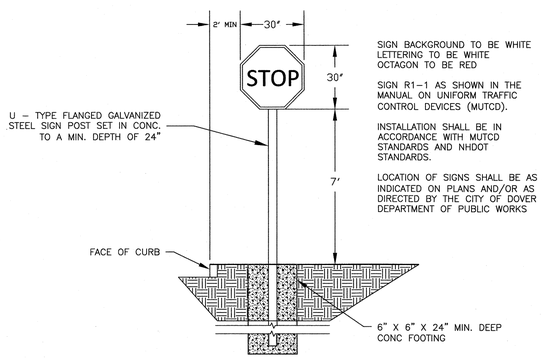
PROVIDE PER SITE PLAN – ONE PER EACH HANDICAP PARKING SPACE



10 HANDICAP PARKING SIGN
NOT TO SCALE



11 PEDESTRIAN CROSSWALK
NOT TO SCALE



12 STOP SIGN
NOT TO SCALE

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6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

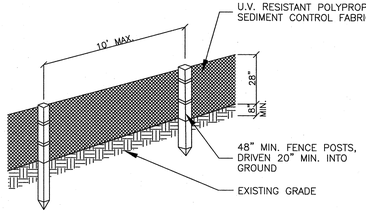
JANUARY 24, 2019

JOB No. 17141

SHEET NO.

SP-6

(P19-1234)



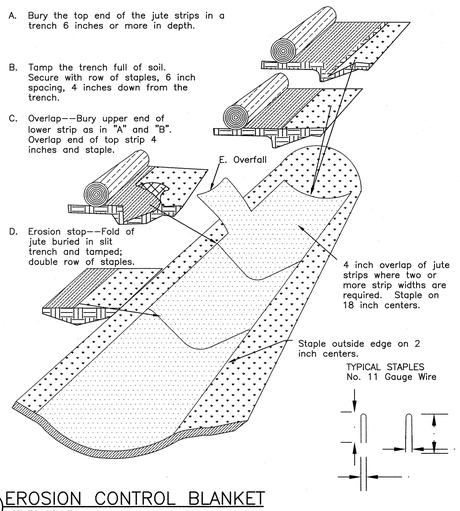
PERSPECTIVE VIEW

NOTES

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR BEST MANAGEMENT PRACTICE FOR SILT FENCES, OF THE "STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE" PREPARED BY ROCKINGHAM COUNTY CONSERVATION DISTRICT, DATED AUGUST 1992.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
4. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 20 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQ.IN..
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BULGES IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.
6. REMOVE BY HAND AND PROPERLY DISPOSE OF ALL SEDIMENT PRIOR TO REMOVING FENCE.

SECTION

1 SILT FENCE
NOT TO SCALE



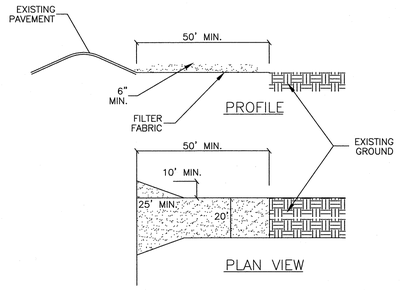
2 EROSION CONTROL BLANKET
NOT TO SCALE

Specifications:

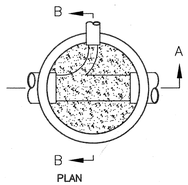
a) Fabric used should not be laminated.
b) Silt sack to have two #2 grommets, one on each of the two sides, 15" from the bottom of the silt sack.
c) Tie 1/4" wide yellow rope 19" long through the grommets on two sides of the silt sack.

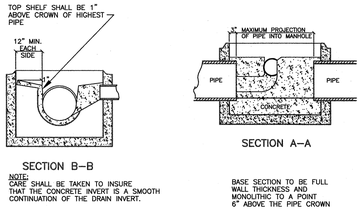
4 Hi Vis Hi Flow Silt Sack
NOT TO SCALE

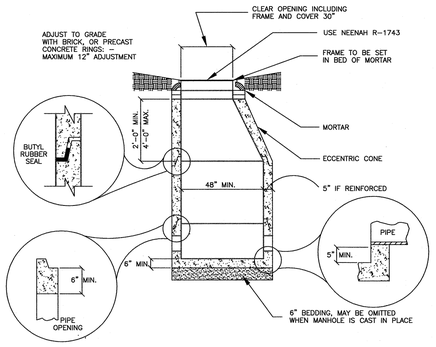
1. GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY PLACE FILTER FABRIC (MIRAFI OR EQUAL) AND PLACE 6" OF 1" – 2" STONE TO MATCH SLOPE OF EXISTING ROAD
2. PROVIDE NECESSARY SWALES OR DIVERSIONS TO MINIMIZE DIRECT FLOW OF WATER ONTO STONE AREA.
3. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS NECESSARY TO REMOVE SILT FROM TIRES PRIOR TO ENTERING PUBLIC ROADS. A SMALL SWALE SHALL BE CONSTRUCTED ON THE DOWN GRADIENT SIDE TO TRAP ANY SILT WASHED FROM THE STONE.
4. HAYBALES OR SILT FENCE SHALL BE PLACED ON THE DOWN GRADIENT SIDE AS SHOWN ON THE EROSION CONTROL PLAN.



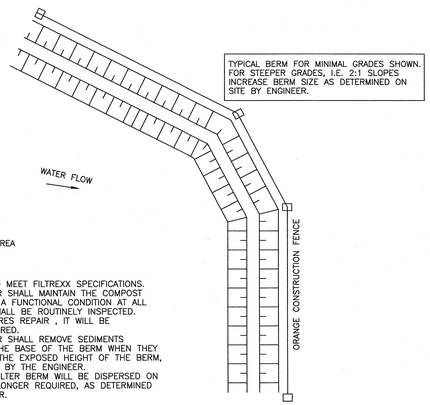
3 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE





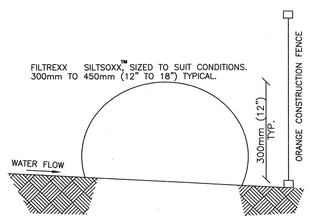


7 DRAIN MANHOLE DETAILS
NOT TO SCALE



NOTES

1.) ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2.) THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
3.) WHERE IT REQUIRES REPAIR , IT WILL BE ROUTINELY REPAIRED.
4.) THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE ENGINEER.
5.) THE COMPOST FILTER BERM WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.



6 FILTREXX® SILTSOXX™ – SILT FENCE
NOT TO SCALE

1. THE PROJECT SHALL BE MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV–A 1000.

CRITICAL AREAS

Anywhere on the site that existing vegetation is to be removed will require immediate erosion control treatment. Special care should be taken where runoff enters wetlands. All storm water practices areas shall be stabilized prior to directing storm water to them; specifically all bioretntion basins and all infiltration practices.

EROSION AND SEDIMENT CONTROL PRACTICES

Erosion and sediment control practices will include the use of rip–rap, and silt fence check dams. All erosion and sediment control practices will be constructed and maintained according to the minimum standards and specifications contained in the "New Hampshire Stormwater Manual, Volume 2".

A. Erosion and Sediment Control Measures

1. The erosion control procedures shall conform to Section 645 of the "Standard Specifications for Road and Bridge Construction" of the NH DOT, and the "New Hampshire Stormwater Manual."
2. During Construction and thereafter, erosion control measures are to be implemented as noted. The smallest practical area of land should be exposed at any one time during development. The amount of exposed areas which are temporarily stabilized without permanent stabilization shall be limited to 5 acres.
3. During grading operations, install stone check dams at 50 foot intervals in drainage swales and at drain inlets where shown. Barriers are to be maintained and cleaned until disturbed areas are stabilized.
4. Any disturbed areas which are to be left temporarily, and which will be regraded later during construction shall be machine hay mulched and seeded with rye grass to prevent erosion.
5. Silt fences and other erosion control measures shall be inspected weekly and after every 0.25" rainfall event during the life of the project. All damaged silt fences shall be repaired. Sediment deposits shall periodically be removed.
6. Avoid the use of future open spaces (loam and seed areas) wherever possible during the construction. Construction traffic shall use the roadbeds of future roads and parking areas.
7. Topsoil required for the establishment of vegetation shall be stock piled in amounts necessary to complete finished grading of all exposed areas.
8. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. Stumps shall be disposed by grinding or fill in an approved facility.
9. All fills shall be placed and compacted to reduce erosion, slippage settlement, subsidence or other related problems.
10. All fill shall be placed and compacted in layers not to exceed 8 inches in thickness.
11. Frozen material or soft, mucky or highly compressible material shall not be incorporated into fills.
12. Fill material shall not be placed on a frozen foundation subgrade.
13. Disturbed areas shall be seeded immediately following finished grading.
14. Limit of exposed area that is temporarily stabilized without permanent stabilization is 5 acres or less.
15. All areas not stabilized by Nov. 1st must be protected by Erosion Control Blankets or equivalent and mulched/seeded with winter rye or oats.
16. All disturbed areas must be seed and mulched within 3 days of final grading, permanently stabilized within 15 days of final grading or temporarily stabilized within 45 days of initial disturbance.
17. All ditches and swales are to be stabilized prior to directing runoff to these features.
18. All cut and fill slopes shall be seeded immediately.
19. An area shall be considered stable if one of the following has occurred:
    a.) Base course gravels are installed in areas to be paved
    b.) A minimum of 85% vegetated growth has been established
    c.) A minimum of 3" of non–erosive material such as stone or riprap has been installed
    d.) Erosion control blankets have been properly installed.

B. Vegetative Practice

All ground areas opened up for construction will be regraded, loamed, seeded and mulched in the shortest practical time. All Temporary and Permanent Seeding must be applied prior to October 1st. Employ temporary erosion and sedimentation control devices as detailed in this plan as necessary until adequate stabilization has been assured.

A. Temporary Seeding & Hay Mulching

1. At no time shall any disturbed area remain unstabilized for longer than 30 days. All areas where construction is not completed within 30 days of the initial disturbance shall receive temporary seeding measures.
2. Fertilizer shall be spread on the top layer of loam and worked into the surface. Fertilizer application rate shall be 300 pounds per acre of 10–10–10 fertilizer.
3. Seed shall be Winter Rye, 112 LBS. per acre.
4. Remove stones and trash that will interfere with seeding the area. Where feasible, till the soil to a depth of about 3 inches to prepare a seedbed and mix fertilizer into the soil. The seedbed should be left in a firm and smooth condition. The last tillage operation should be performed across the slope whenever practical.
5. If seeding between May 15th and August 15th, hay mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre and shall be held in place using appropriate techniques from the Erosion and Sediment Control Handbook.
6. The surface shall be watered and kept moist with a fine spray as required without washing away the soil, until the grass is well established. Any areas which are not satisfactorily covered with grass shall be reseeded, and all noxious weeds are removed.

B. Permanent Seeding & Hay Mulching

1. All disturbed areas shall be loamed (4") and limed. Lime shall be thoroughly incorporated into the loam layer at a rate of 2 tons per acre.
2. Fertilizer shall be spread on the top layer of loam and worked into then surface. Fertilizer application rate shall be 500 pounds per acre of 10–20–20 fertilizer.
3. Seed shall be 48 lbs. per acre, SCS mixture "c" (20 lbs tall fescue, 20 lbs. creeping red fescue and 8 lbs. birds foot trefoil = 48 lbs total.) The soil shall be lightly raked immediately before seeding. One half the seed shall be sown in one direction and the other half at right angles to the original direction. It shall be lightly raked in to the soil to a depth not over 1/4 inch and rolled with hand roller weighing not over 100 points per linear foot to width.
4. Hay mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre and shall be held in place using appropriate techniques from the Erosion and Sediment Control Handbook. The surface shall be watered and kept moist with a fine spray as required, without washing away the soil, until the grass is well established. Any areas which are not satisfactorily covered with grass shall be reseeded, and all noxious weeds removed.

CONSTRUCTION SEQUENCE

1. Do not begin construction until all local, state and federal permits have been applied for and received.
2. Install silt fences and/or filtrexx soxx as necessary to control erosion and prevent sediment contamination prior to any earth moving activities.
3. Cut and remove trees, shrubs, saplings, brush, vines and other debris and rubbish as specified for construction, and complete demolition as directed on sheet DE–1.
4. Care shall be taken to preserve the infiltration capacity of the infiltrating soil. See the New Hampshire Stormwater Manual for additional information.
5. Construct stormwater Infiltration Practice #1. Do not direct runoff to these practices until the practice and contributing areas are fully stabilized.
6. Building construction may begin.
7. Construct driveways, parking and utilities.
8. Loam and seed disturbed areas in accordance with vegetative practice and general construction notes. Cut and fill slopes shall be seeded immediately after their construction.
9. All areas receiving runoff, including but not limited to the stormwater infiltration shall be stabilized prior to directing runoff to them.
10. All soils that are finish graded must be stabilized within 72 hours of disturbance.
11. Maintain disturbed areas as necessary.

MAINTENANCE

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

1. Seeded areas will be fertilized and reseeded as necessary to insure vegetative establishment.
2. The side slopes will be checked after each significant rainfall.
3. The side slopes will be checked weekly and repaired when necessary until adequate vegetation is established.
4. The silt fence barriers will be checked regularly. Necessary repairs will be made to correct undermining or deterioration of the structures.

WINTER CONSTRUCTION NOTES

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetation growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melts.
2. All ditches or swales which do not exhibit a minimum of 85% vegetation growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
3. After November 15th, incomplete road or parking surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.

8 EROSION AND SEDIMENT CONTROL NOTES

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REVISIONS
DATE: DESCRIPTION:

EROSION & SEDIMENT CONTROL DETAILS

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

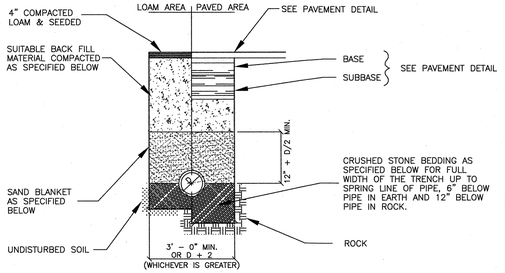
JANUARY 24, 2019

JOB No. 17141

SHEET NO.

SP-7

(P19-1234)

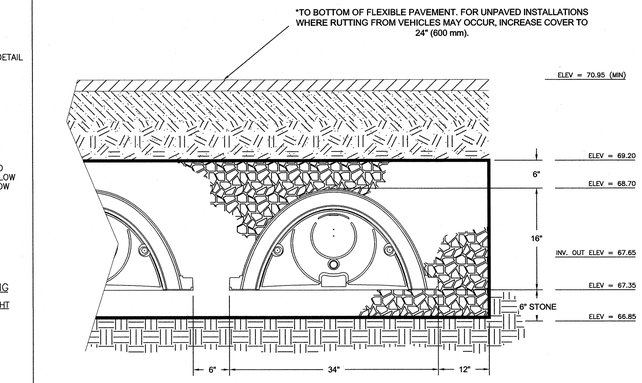


SAND BLANKET		CRUSHED STONE BEDDING	
SIEVE SIZE	%FINER BY WEIGHT	SIEVE SIZE	%FINER BY WEIGHT
1/2"	90 – 100	1"	100
200	0 – 15	3/4"	90 – 100
		3/8"	20 – 55
		#4	0 – 10
		#8	0 – 5

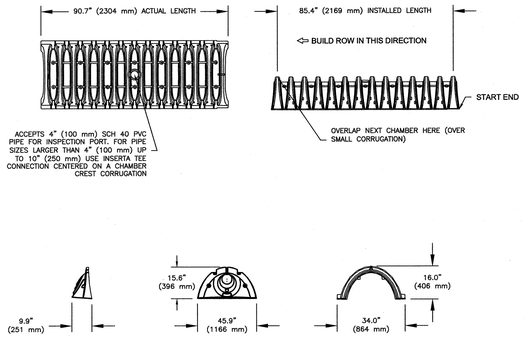
EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

BACK FILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACK FILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

1 STORM DRAINAGE & SEWER PIPE TRENCH
NOT TO SCALE



2 STORMTECH ELEVATION DETAIL
NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS
SIZE (W X H X INSTALLED LENGTH) 34.0" X 16.0" X 85.4" (864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE 14.7 CUBIC FEET (0.42 m³)
MINIMUM INSTALLED STORAGE* 31.0 CUBIC FEET (0.88 m³)
WEIGHT 35.0 lbs. (16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



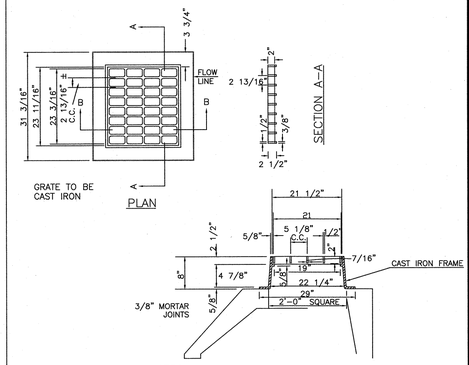
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

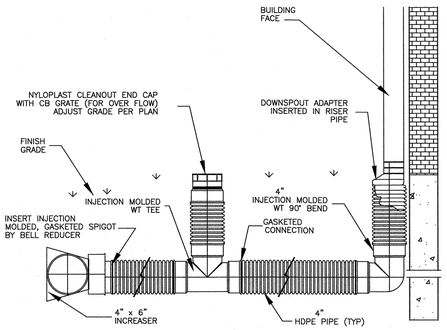
NOTE: ALL DIMENSIONS ARE NOMINAL

6 STORMTECH SC-310
NOT TO SCALE

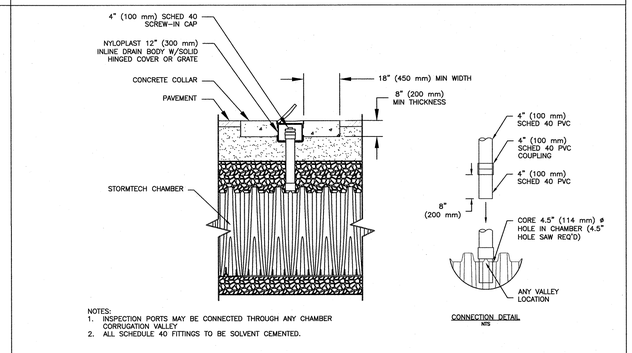


NOTES
1.) USE NEENAH R-3570
2.) FOR SHALLOW INVERTS, USE NEENAH R-3570-A.

3 CATCH BASIN FRAME & GRATE
NOT TO SCALE

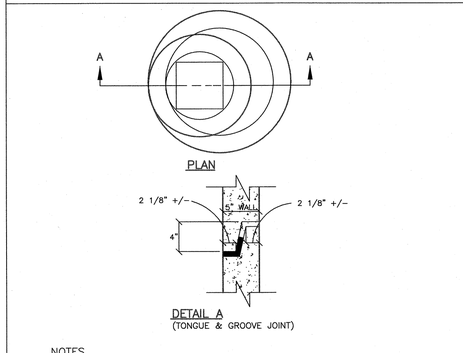


4 ROOF DRAIN W-TEE CLEANOUT
NOT TO SCALE



NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

5 STORMTECH–INSPECTION PORT
NOT TO SCALE

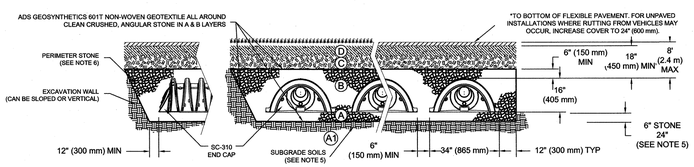


NOTES
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H–20 LOADING.
6. FOR SHALLOW INVERTS, A FLAT TOP SLAB WITH TONGUE AND GROOVE JOINTS (DETAIL A), MEETING H–20 LOADING MAY BE USED.

8 DEEP SUMP HOODED CATCH BASIN
NOT TO SCALE

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #1 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



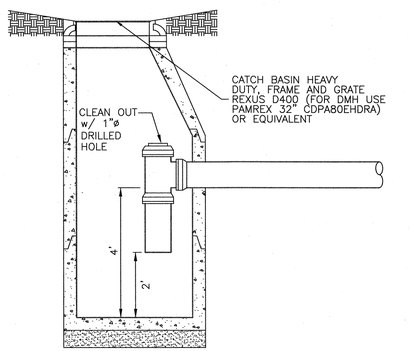
7 STORMTECH ACCEPTABLE FILL MATERIALS
NOT TO SCALE

FILL SPECIFICATION A1

COMPONENT MATERIAL	PERCENT BY VOLUME	GRADATION OF MATERIAL	
		SIEVE No.	% PASSING BY WEIGHT
ASTM C-33 CONCRETE SAND	50–55%		
LOAMY SAND TOPSOIL	20–30%	200	15–25%
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20–30%	200	<5%

PROPOSED FILL UNDER INFILTRATION SYSTEM SHALL BE TESTED FOR INFILTRATION RATE PRIOR TO INSTALLATION BY THE LABORATORY METHOD DESCRIBED IN NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES Env–Wq 1504.14 (g). AFTER FILL IS PLACED BUT BEFORE THE PRACTICE IS INSTALLED, FILL SHALL BE TESTED BY FIELD MEASUREMENT METHOD DESCRIBED IN Env–Wq 1504.14 (b). A MINIMUM INFILTRATION RATE OF 4 INCHES PER HOUR MUST BE ACHIEVED IN BOTH TESTS.

NOTES:
1. SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. SUBBASE SOIL SHALL BE AS FOLLOWS: A1 FILL SECTION.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.



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REVISIONS
DATE: DESCRIPTION:

DRAINAGE DETAILS

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

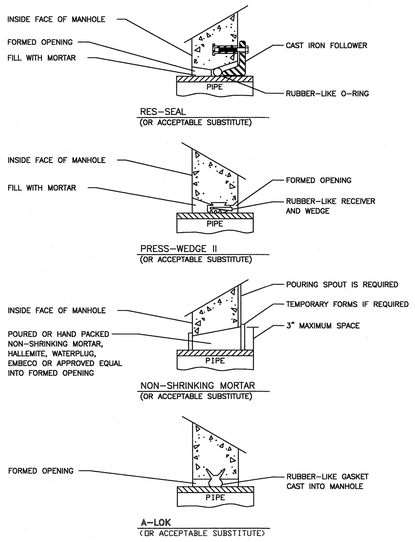
JOB No. 17141

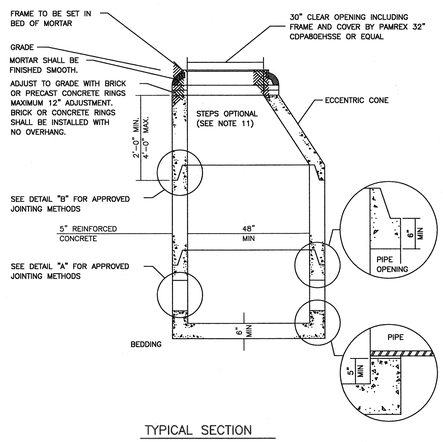
JANUARY 24, 2019

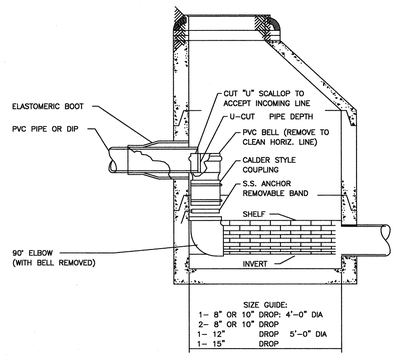
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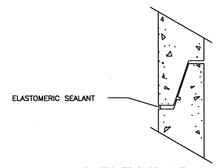
SP-8

(P19-1234)









NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

DETAIL "B" – HORIZONTAL JOINTS

GENERAL NOTES

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS(H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED CONCRETE.

3) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

4) LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.

5) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED OR PRECAST CONCRETE SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY OR PRECAST CONCRETE.

6) FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS AND "DRAIN" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER

7) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33, SIZE NUMBER 67.
100% PASSING 1 INCH SCREEN 0-10% PASSING #4 SIEVE
90-100% PASSING INCH SCREEN 0-5% PASSING #8 SIEVE
20-55% PASSING INCH SCREEN
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE INCH TO 1 INCH SHALL BE USED.

8) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDE WITHIN THE FOLLOWING DISTANCES: RCP & CI PIPE – ALL SIZES – 48"

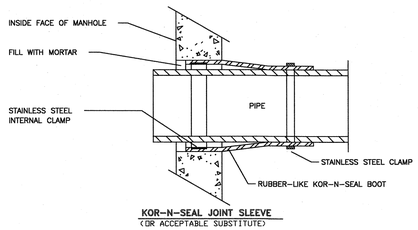
9) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

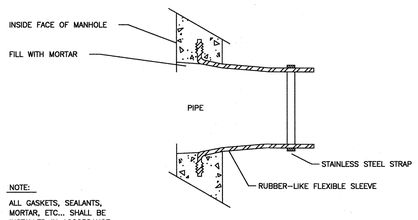
10) MANHOLE STEPS MAY BE PERMITTED UPON REQUEST BY THE OWNER AS SECONDARY ADDITIONAL SAFETY FEATURE SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY AND WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:

1. THE STEPS SHALL BE MANUFACTURED OF PLASTIC COVERED STEEL. THEY SHALL BE SHAPED SO THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.
2. THE STEPS SHALL BE EMBEDDED IN THE CONCRETE BY THE MANUFACTURER DURING MANUFACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES, WILL NOT BE ACCEPTABLE.
3. THE STEPS SHALL BE OF THE DROP TYPE WITH A DEPRESSED SECTION FOR HANDHOLD. APPROXIMATELY 14"X10" IN DIMENSION.

11) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET. APPROVED ELASTOMERIC SEALANTS ARE: RAM-NEK
KENT SEAL NO.2
EZ

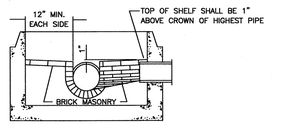
12) PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.

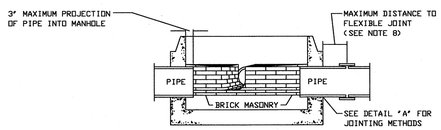




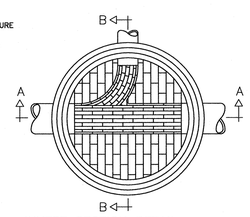
NOTE:
ALL GASKETS, SEALANTS, MORTAR, ETC... SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

DETAIL "A" – PIPE TO MANHOLE JOINTS





NOTES:
A) INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST
B) CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
C) BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN



INVERT SECTION DETAIL
NOT TO SCALE

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REVISIONS
DATE: DESCRIPTION:

STANDARD SEWER DETAILS

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE

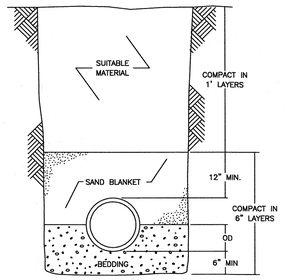
JANUARY 24, 2019

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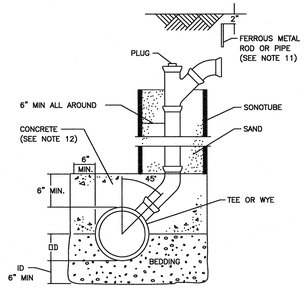
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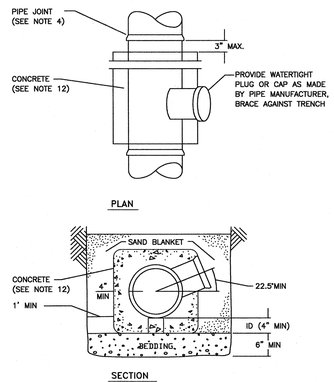


TRENCH CROSS-SECTION
NOT TO SCALE

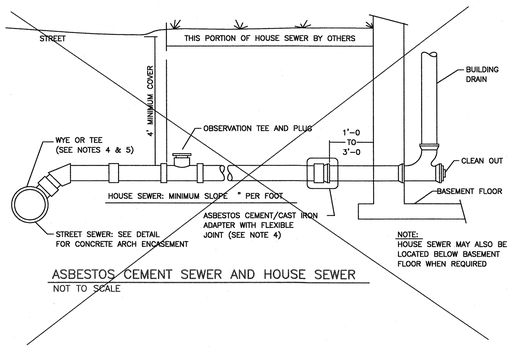


NO BACKFILLING BEFORE CONCRETE HAS TAKEN INITIAL SET (7 HRS. MIN.). BACKFILLING TO BE BROUGHT UP EVENLY ON ALL SIDES.

CHIMNEY (SEE NOTE 13)
NOT TO SCALE

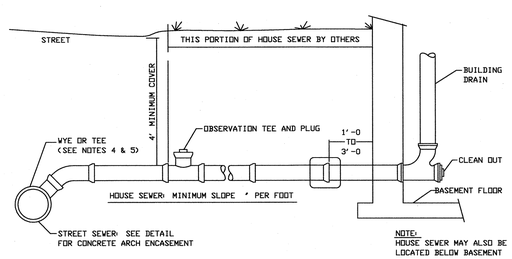


CONCRETE FULL ENCASEMENT
NOT TO SCALE



ASBESTOS CEMENT SEWER AND HOUSE SEWER
NOT TO SCALE

NOT USED



SEWER AND HOUSE SEWER
NOT TO SCALE

GENERAL NOTES

1) MINIMUM SIZE PIPE FOR HOUSE SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:

A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 TO T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
D2680	*ABS (COMPOSITES WALL)	8" THROUGH 15"

*PVC: POLY VINYL CHLORIDE
*ABS: ACRYLONITRILE-BUTADIENE-STYRENE

2. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

ABS TRUSS PIPE AND FITTINGS SHALL CONFORM TO ASTM D-2680, POLYMER COMPOUNDING SHALL BE TO ASTM D-1788 (CLASS 322).

JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICAL WELDED COUPLINGS TYPE SC IN ACCORDANCE WITH ASTM D-2680, FORMING A CHEMICAL WELDED JOINT.

B. DUCTILE-IRON PIPE, FITTINGS AND JOINTS.

1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.

2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING MANUFACTURERS' INSTRUCTIONS USING A BOLTED, CLAMPED OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, STUFFING CLOTH OR OTHER SUCH MATERIAL AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION, AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED AS SHOWN IN THE DETAIL UP TO AND INCLUDING 15" DIAMETER.

6) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)

A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.

B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER, TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

C. DRY FLUORESCENE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWN-STREAM MANHOLE.

LEAKAGE OBSERVED IN ANY ONE OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER TIGHTNESS.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) HOUSE WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33-67.

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

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.

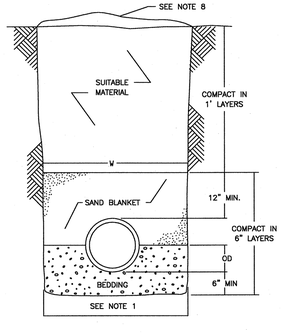
12) CONCRETE: CONCRETE SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

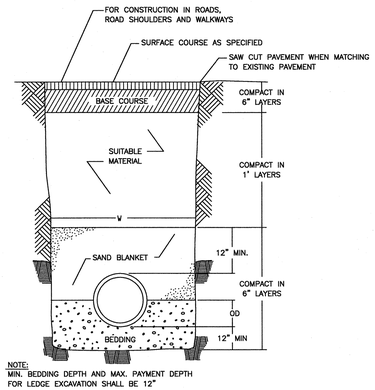
13) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

14) MAINTAIN A 10' HORIZONTAL SEPARATION BETWEEN SEWER LINES AND WATER LINES, AND AN 18" VERTICAL SEPARATION AT SEWER AND WATER CROSSINGS, WITH WATER OVER SEWER

NOT USED

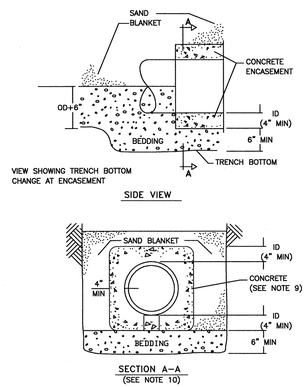


TYPICAL SECTION
NOT TO SCALE



NOTE:
MIN. BEDDING DEPTH AND MAX. PAYMENT DEPTH FOR LEDGE EXCAVATION SHALL BE 12"

LEDGE CONSTRUCTION
NOT TO SCALE



CONCRETE FULL ENCASEMENT
NOT TO SCALE

GENERAL NOTES

1) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE NOTE 7.

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

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

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

3) SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER SO GRADED THAT 90%-100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAT 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

4) SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED.

5) BASE COURSE, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

6) WOOD SHEETING, IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

7) W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES, FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.

8) FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

9) CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 LB) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS: CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

10) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

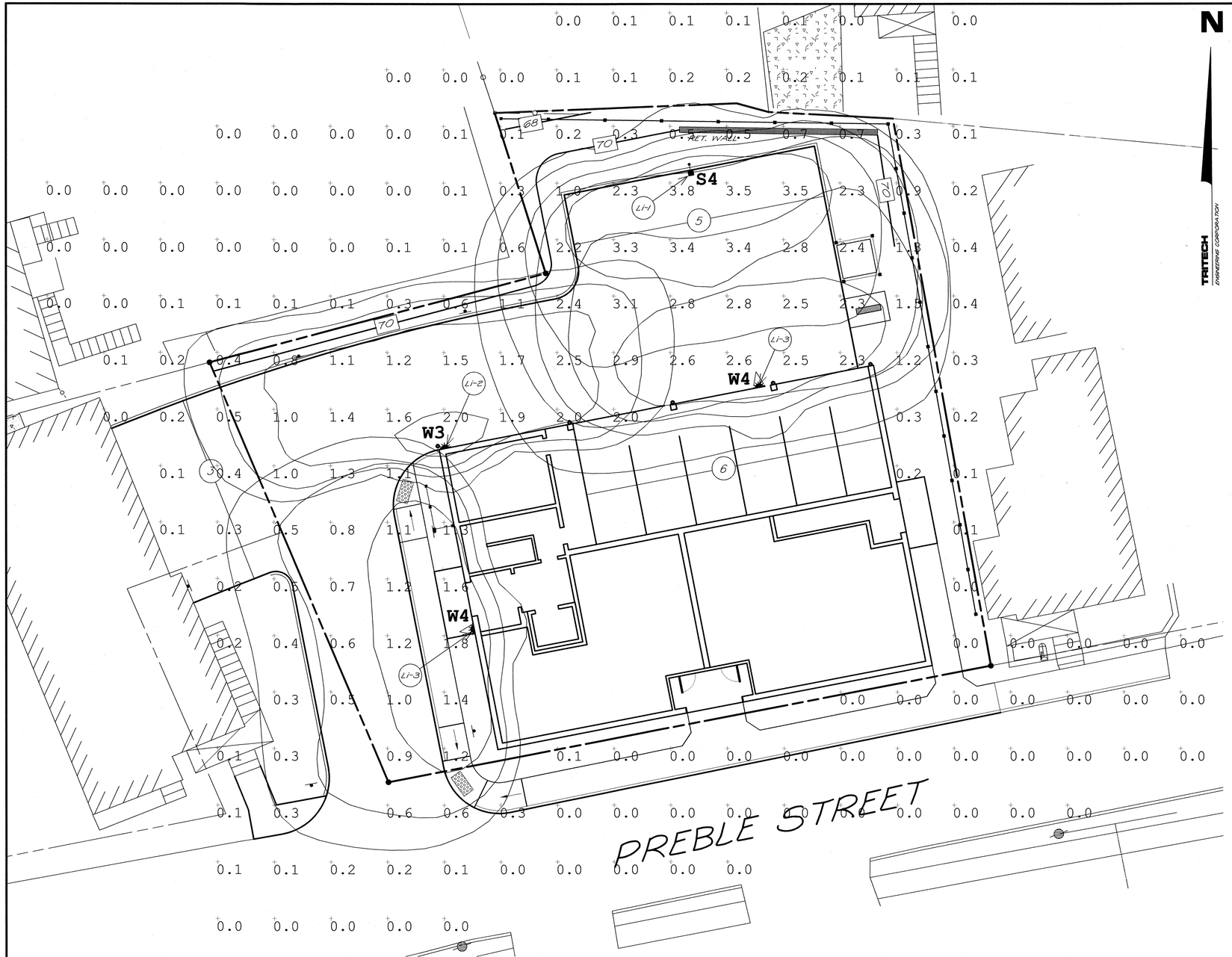
TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3630

REVISIONS
DATE: DESCRIPTION:

STANDARD SEWER DETAILS
6-12 PREBLE STREET
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019
JOB No. 1714.1

SHEET NO.
SP-10

(P19-1234)



LIGHTING NOTES:

1. INSTALL CONCRETE POLE BASE AND LIGHT WHERE SHOWN (1). LIGHT SHALL BE 52 WATT GALLEON LED, MCGRAW-EDISON GLEON-AF-01-LED-E1-SL4, OR EQUAL, MOUNTED 15' ABOVE FINISHED GRADE, WITH SHIELDING, SEE DETAIL 7, SHEET SP-6.
2. INSTALL (1) MCGRAW-EDISON ISS-AF-450-LED-E1-SL3 WALL MOUNTED LIGHT FIXTURE, MOUNTED 15' ABOVE FINISHED GRADE, WITH SHIELDING,
3. INSTALL (2) MCGRAW-EDISON ISS-AF-450-LED-E1-SL4 WALL MOUNTED LIGHT FIXTURES, MOUNTED 15' ABOVE FINISHED GRADE, WITH SHIELDING.
4. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
5. PHOTOMETRICS CONTAINED ON THIS PLAN PROVIDED BY CHARRON INC.

ILLUMINANCE (Fc)
AVERAGE = 1.95
MAXIMUM = 3.8
MINIMUM = 0.5
AVG/MIN RATIO = 3.90
MAX/MIN RATIO = 7.60

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	1	S4	SINGLE	GLEON-AF-01-LED-E1-SL4/ SSS4A15SFN1 (15'
	1	W3	SINGLE	ISS-AF-450-LED-E1-SL3/ WALL MTD 15' AFG
	2	W4	SINGLE	ISS-AF-450-LED-E1-SL4/ WALL MTD 15' AFG

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

REVISIONS
DATE: DESCRIPTION:
02/07/19 REVISED FIXTURES

SITE LIGHTING PLAN

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019
JOB No. 17141
SCALE: 1" = 10'

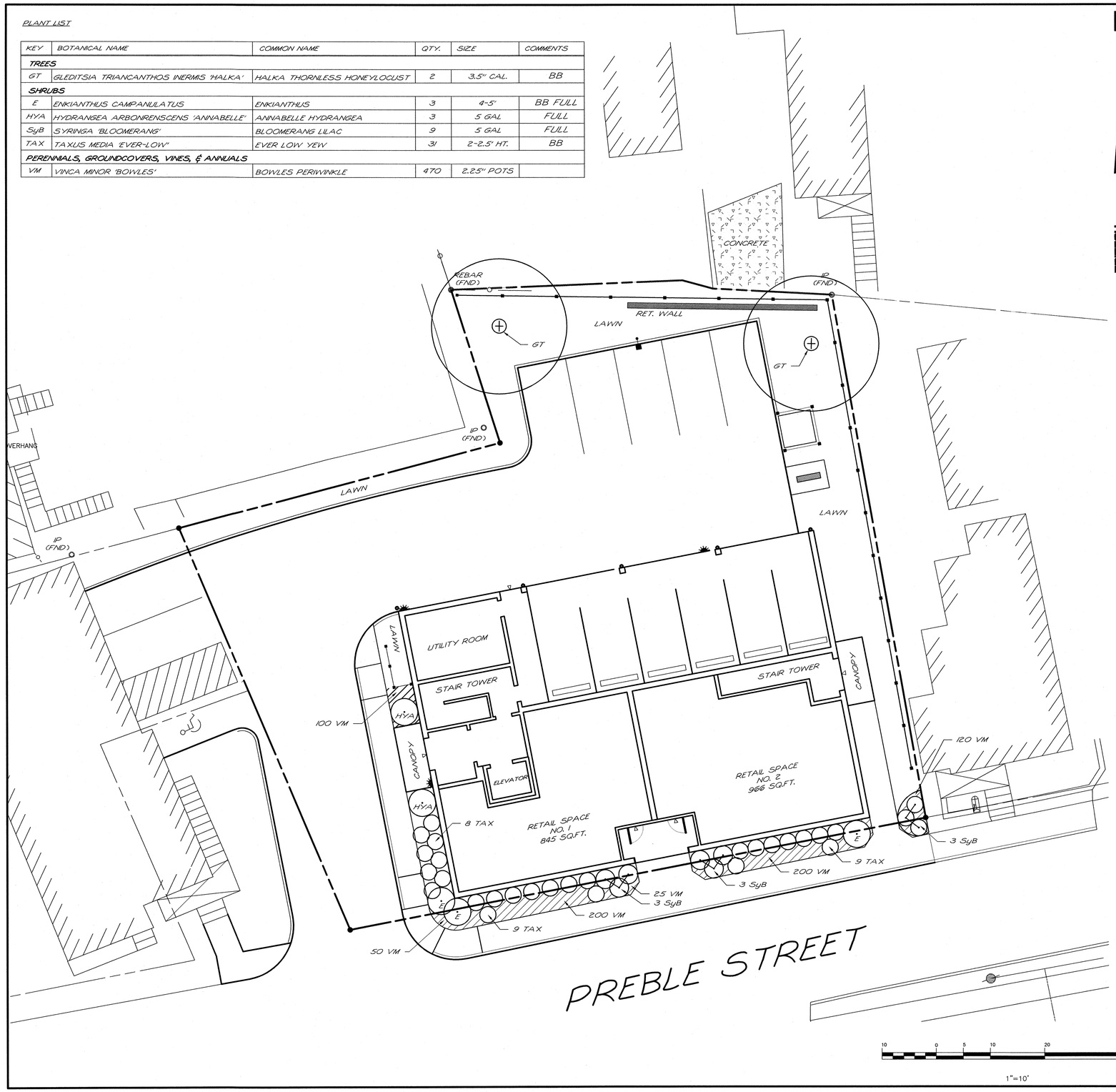
SHEET No.

Li-1

(P19-1234)

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	COMMENTS
TREES					
GT	GLEDITSIA TRIANCANTHOS INERMIS 'HALKA'	HALKA THORNLESS HONEYLOCUST	2	3.5" CAL.	BB
SHRUBS					
E	ENKIANTHUS CAMPANULATUS	ENKIANTHUS	3	4-5'	BB FULL
HYA	HYDRANGEA ARBONRENSCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	3	5 GAL	FULL
SyB	SYRINGA 'BLOOMERANG'	BLOOMERANG LILAC	9	5 GAL	FULL
TAX	TAXUS MEDIA 'EVER-LOW"	EVER LOW YEW	31	2-2.5' HT.	BB
PERENNIALS, GROUNDCOVERS, VINES, & ANNUALS					
VM	VINCA MINOR 'BOWLES'	BOWLES PERIWINKLE	470	2.25" POTS	



Landscape Notes

1. Design is based on drawings and information from Tritech Engineering received 09/28/2017 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control shall be in place prior to construction.
4. Erosion Control to consist of Hay Bales and Erosion Control Fabric and shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
5. The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
6. Plantings to remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Do not fill or mulch on the trunk flare. Do not disturb roots. Snow fence shall be located at the drip line or at least 4' from shrubs and 10' from trees in all directions, whichever is greater, and shall include any and all surface roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s).
7. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
8. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
9. The Contractor shall procure any required permits prior to construction.
10. The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climactic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
11. All plants shall be legibly tagged with proper botanical name.
12. The Contractor shall guarantee all plants for not less than one year from time of acceptance.
13. Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during the progress trees at the place of growth of the work. The Owner reserves the right to inspect and/or select all and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
14. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
15. All landscaping shall be provided with either of the following
    a. An underground sprinkling system
    b. An outside hose attachment within 150 feet
16. If automatic irrigation is installed, all irrigation valve boxes shall be located within planting bed areas.
17. Contractor shall provide an alternate price for irrigating all newly landscaped areas. Contractor shall provide irrigation design for review by Landscape Architect or Owner's Representative when awarded the project.
18. All disturbed areas will be dressed with 6" of loam and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75 % compost and 25 % loam.
19. Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and ½" in width, free of wood chips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer.
20. Owner is solely responsible for maintaining vehicular and pedestrian vision lines pertaining to vegetation growth.

Planting Detail
Scale: NTS

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

REVISIONS
DATE: DESCRIPTION:
02/07/19 ADDED PLANTINGS

LANDSCAPING PLAN
6-12 PREBLE STREET
6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019 JOB No. 17141
SCALE: 1" = 10'

SHEET No. **LA-1**

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

(P19-1234)

0 2 4 8 16

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

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3653

REVISIONS

DATE:	DESCRIPTION:
02/07/19	ADDED TO PLAN SET

STREETSCAPE PLAN

6-12 PREBLE STREET

6 - 12 PREBLE STREET
DOVER, NEW HAMPSHIRE
JANUARY 24, 2019 JOB No. 17141

SHEET No.

LA-2

(P19-1234)



REAR ELEVATION



RIGHT ELEVATION



FRONT ELEVATION
PREBLE STREET ELEVATION



LEFT ELEVATION

6-12 PREBLE STREET
DOVER NEW HAMPSHIRE

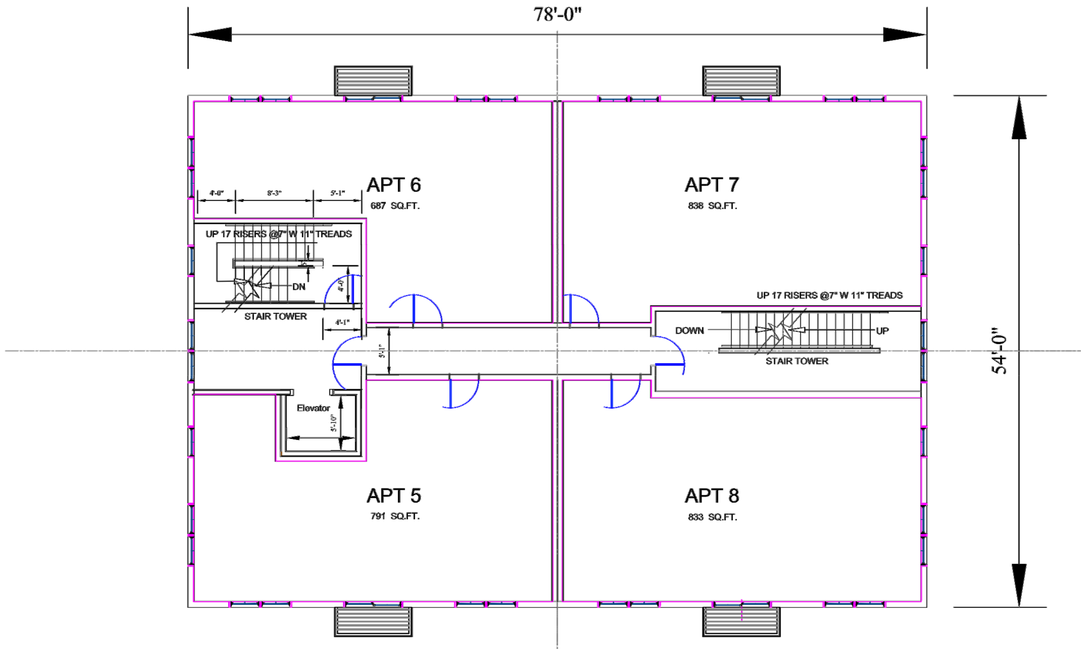
ELEVATIONS
SCALE: 1/8"=1'-0"

CHARLES HOYT DESIGNS
Shingle Style Architecture
893 Ocean Blvd.
Rye, NH. 03870
(603) 431-5310
charleshoytdesigns@hotmail.com

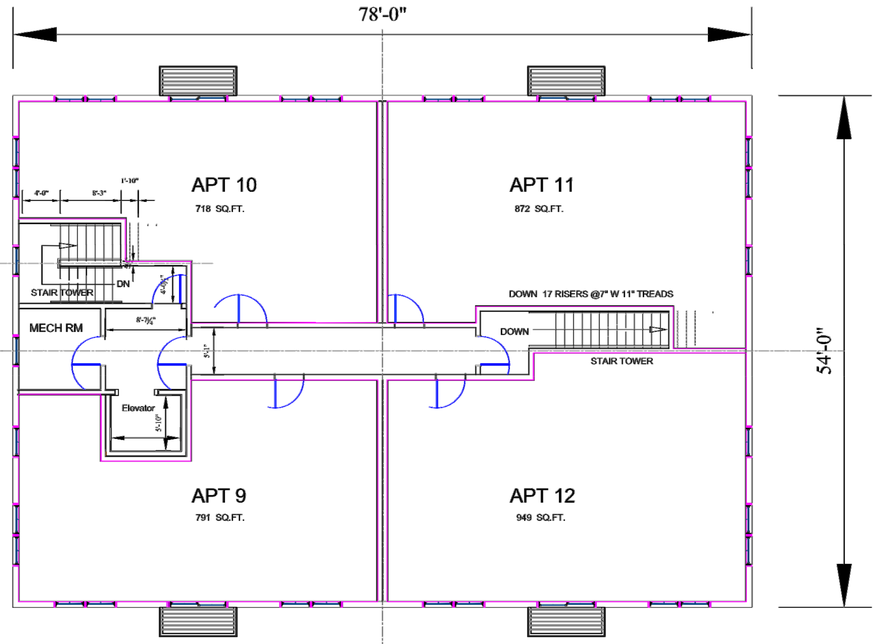
1-21-19

A1

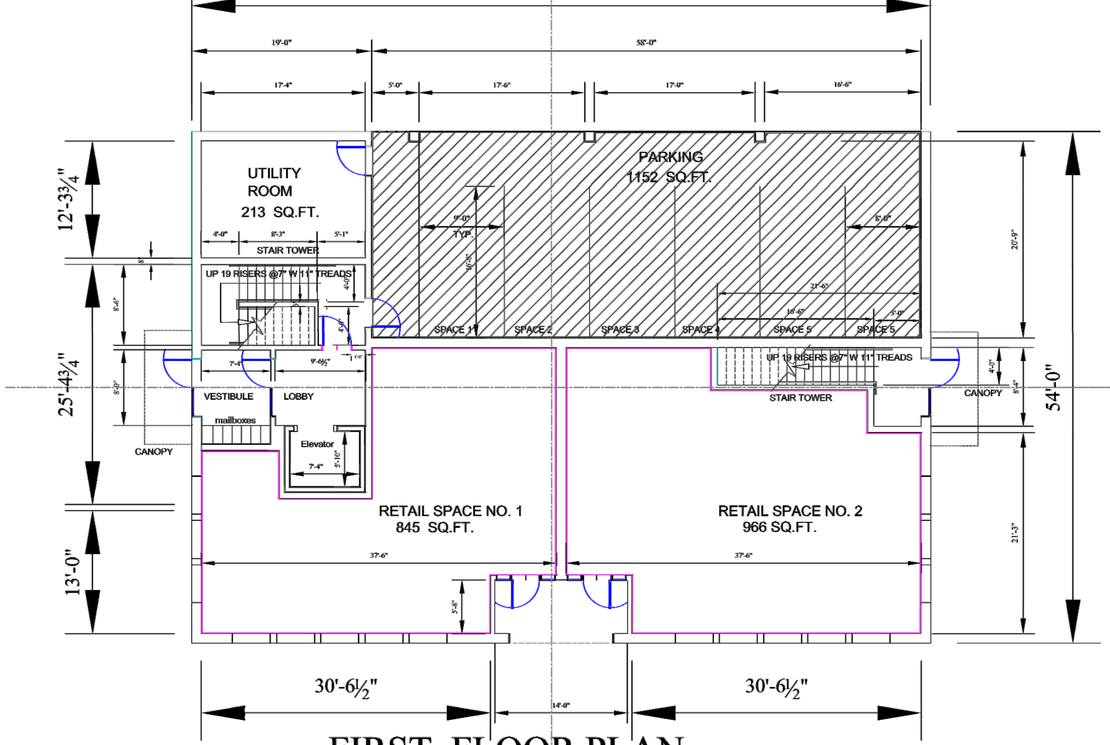
SCHEMATIC DESIGN



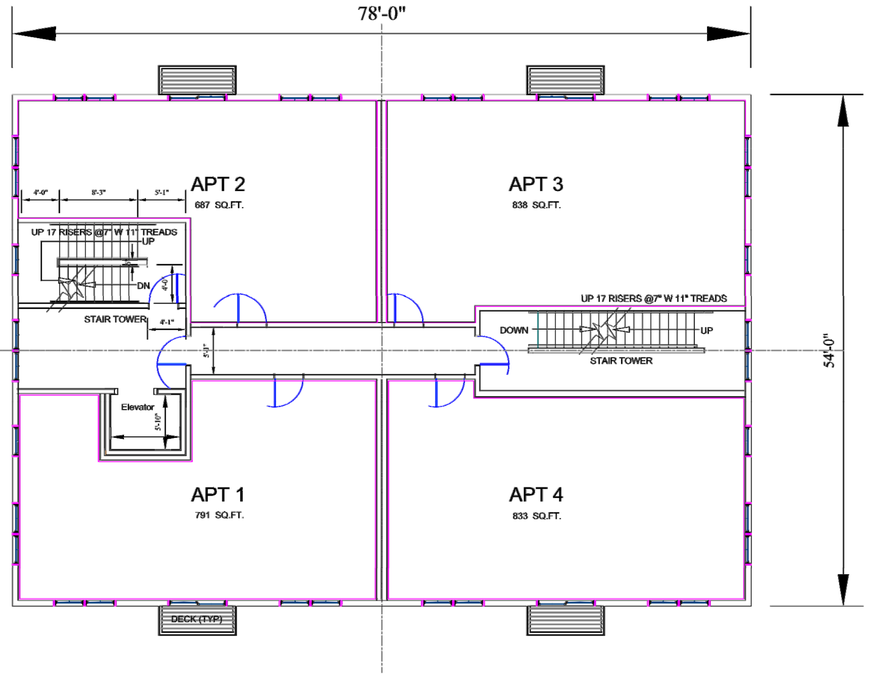
THIRD FLOOR PLAN



FOURTH FLOOR PLAN



FIRST FLOOR PLAN
(GROUND FLOOR)



SECOND FLOOR PLAN

6-12 PREBLE STREET
DOVER NEW HAMPSHIRE

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

CHARLES HOYT DESIGNS
Shingle Style Architecture
893 Ocean Blvd.
Rye, NH. 03870
(603) 431-5310
charleshoytdesigns@hotmail.com

1-21-19

A2

SCHEMATIC DESIGN

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: April 23, 2013]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Central Partners Realty, LLC Telephone # 742-5556

Address of Applicant: 784 Central Avenue, Dover, NH

E-Mail Address: g.mendese@dermskinhealth.com

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

Address of Property Owner: SAME

PROPERTY INFORMATION

Address of Property: 784 Central Avenue & 4 Abbott Street

Assessor's Map # 29 Lot(s) # 23 & 25

Zoning District(s) O Overlay District(s) None

Size of Parcel: 47,347 sq. ft. 1.09 ac. Property Deed: Book 4476 4471 Page: 217 221

Existing Use of Property: Lot 25

SITE PLAN INFORMATION

Describe Proposed Use: Demolition of house, construct eight (8) employee parking spaces, merge lots

Area of Parcel to be Developed: 7,000 +/- sq. ft.

If Multi-family Residential, Specify Number of Units & Buildings Proposed: N/A

Number of Parking Spaces: Existing 48 Proposed 8

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

Number of Employees Total: 23 In Maximum Shift: 23

Disposition of Parcel:

Building Footprint E = 8,682 P = 7,261 sq. ft.

Total Building Area P = 14,500 +/- sq. ft.

Building Setbacks:

Front Yard 12 ft.

Rear Yard 130 +/- ft.

Paved Area E = 19,862 P = 22,290 sq. ft. Side Yard: Right 12 ft. Left 74 ft.

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

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

BUILDING INFORMATION

Type of Building to be Built: N/A (no new building)

Height of Building: N/A Finished Floor Elevation: N/A

Number of Seats (where applicable) N/A

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: See attached Waiver Request

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

SURVEYOR INFORMATION

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

Address P.O. Box 681 Telephone #: 742-0911

Professional License #: 661 E-mail address: msa@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Dana C. Lynch, P.E., Civilworks New England

Address P.O. Box 1166 Telephone #: 749-0443

Professional License #: 5745 E-mail address: dlynch@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: 7/2/12

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

Signature of Agent: Paul C. Lynch, P.E. Date: 2/5/19

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: 2/7/19

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: 2/7/19

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: 2/7/19

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

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 25, 2018]

This site plan review checklist, as required by Chapter 149-6-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.

Fees will be invoiced and are due along with fifteen (15), folded, copies of the plan set and materials, including response to TRC comments, will be due 3 weeks 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: Central Partners Realty, LLC File Number: _____

PROJECT TITLE: Parking Expansion

PROPERTY LOCATION: Abbott Street Tax Map: 29 Lot: 23 & 25

	Explain How Provided	Reviewed
1. Completed and signed Application form	X	
2. Electronic copy of the engineered/surveyed plan layout	X	
3. Electronic copy of supplementary materials and application	X	
4. Traffic Impact Assessment and Analysis (Standard or Advanced)	X	
5. Waiver requests to the Site Plan Review Regulations, with written justification	X	
6. Conditional Use Permit applications	N/A	
7. A colored rendering of the streetscape that will be created along the existing public right-of-way	N/A (WAIVER REQUEST)	
8. A colored architectural plan showing all sides of buildings	N/A (WAIVER REQUEST)	
9. List of all professional agents to be notified for Planning Board	X	
10. Letter to Serve from Public and Private Utilities	N/A (WAIVER REQUEST)	
11. Eight 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:		
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	X	
Location of Conservation District areas	X	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	X	
Location and widths of existing & proposed easements & right of ways	X	
Depict pedestrian walkways and accessible access	X	
Location and width of existing and proposed access/egress ways	X	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	X	
	Explain How Provided	**Reviewed**

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 - N/A	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	X - N/A	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed stormwater lines and facilities	X - N/A	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	X	
Location of Flood Hazard Zone	X	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	N/A	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	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	X	
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	N/A	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	X	
Depict all service, storage, loading bays and utility areas	X	
All applicable Dover Common Site Plan notes	X	
12. 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	
Erosion and Sedimentation Control Plan	X	
Landscape Operation and Maintenance Plan	~~X~~ ~~N/A~~	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	N/A	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	N/A	

REVIEWED BY: _____ DATE_____ TRC DATE_____

CIVILWORKS NEW ENGLAND

181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: (603) 750.4266 FAX: (603) 749.7348

February 1, 2019

City of Dover
Planning and Community Development
288 Central Avenue
Dover, NH 03820

Attn: Christopher Parker, Director

Subject: Dermatology & Skin Health Parking Expansion
784 Central Avenue, Dover
Tax Map 29, Lots 23 & 25
Our Reference No. 1539

Dear Mr. Parker:

On behalf of our client, Central Partners Realty, LLC, we are pleased to submit eight (8) copies each of the following materials for Technical Review Committee consideration:

1) Site Review Application including Checklist
2) Project Narrative Accompanying Site Review Application
3) Traffic Impact Assessment and Standard Analysis
4) Site Plans (sheets 1-8) for TRC review and discussion, including:
    a. Cover sheet with Abutters List
    b. Existing Conditions Plan of Land
    c. Note Sheet
    d. Site Plan
    e. Landscape & Lighting Plan
    f. Detail Sheets
    g. Neighborhood Plan
5) Waiver Requests
6) Stormwater Management System Inspection & Maintenance Plan

A signed Notice of Merger has been submitted under separate cover for processing, thereby facilitating consideration and approval of this application. A Drainage Report will address the adequacy of the existing on-site rain garden to receive any additional runoff generated by the additional impervious area of 1,007 s.f. resulting from removal of the existing residence and construction of an employee parking area.

We look forward to discussing this application further, following review by City staff. Please feel free to contact us directly if you should have any questions or require additional information.

Best Regards,
CIVILWORKS NEW ENGLAND

Dana C. Lynch, P.E.

DCL/lrd

Enclosures

cc: Dr. Gary Mendese
Dr. Niki Bryn

PROJECT NARRATIVE
ACCOMPANYING SITE REVIEW APPLICATION
for
CENTRAL PARTNERS REALTY, LLC
EMPLOYEE PARKING LOT
Tax Map 29, Lots 23 and 25

PROJECT OVERVIEW

The proposed project consists of demolition of an existing abandoned house and garage at 4 Abbott Street, Tax Map 29, Lot 25, and construction of an eight (8) space parking area for purposes of providing additional employee parking. This will aid in reducing current parking quantity shortfalls in existing patient and customer parking at 784 Central Avenue, Tax Map 29, Lot 23.

This application is accompanied by a Notice of Merger form which, upon acceptance by the Planning Board, will consolidate Lots 23 and 25, thereby facilitating the parking area use under City Ordinance as part of a commercial use in the Office (O) District at 784 Central Avenue.

PROJECT LOCATIONS AND SITE CHARACTERISTICS

The project site currently consists of two parcels Lots 23 and 25, as shown on Tax Map 29. Lot 23 contains 39,193 s.f. and is presently occupied by a medical office and spa at 784 Central Avenue. Lot 25 contains 8,154 s.f. and is occupied by a single-family dwelling and garage at 4 Abbott Street. Both parcels are located in the Office (O) District. The site is abutted to the north by Abbott Street, to the east by Central Avenue, medical offices to the south and residential uses to the west in the R-12 District.

The site slopes generally from the northeast to southwest. A sixteen (16) space "upper" parking area, immediately behind the medical office and spa is accessed via Abbott Street and will remain in service. This parking area includes two (2) accessible parking spaces. This parking area primarily serves patients.

The "lower" parking lot contains thirty-two (32) parking spaces including one (1) accessible space. This parking lot currently primarily serves facility employees and patrons of the spa located in the lower level of 784 Central Avenue. This lot accesses Central Avenue at a signalized intersection directly across from Old Rollinsford Road. The applicant's predecessor participated in the funding and provision of easements for this intersection constructed in 2009. Additionally, this parking lot serves as an egress way via an access easement, for patrons of Garrison Women's Health Center, located at 770 Central Avenue.

The primary site improvement proposal contained in this application is an eight (8) space parking area located on the land area formerly occupied by the residence at 4 Abbott Street. This parking area will include approximately 3,331 s.f. of new pavement which represents an increase of 1,007 s.f. of impervious area on Lot 25.

As a result of the aforementioned parking area adjustment, the site will have a total of 56 spaces including three (3) accessible spaces. The eight (8) new spaces will be signed as "employee parking" and will, therefore, make more patient/patron parking available in the existing parking lots.

DRAINAGE

The existing stormwater management system will continue to function as originally designed and approved in 2009. The "upper" parking lot will continue to drain via a closed system to the Abbott Street drainage system. The "lower" parking lot and the front yard at 784 Central Avenue drains to a subsurface detention area prior to discharge to the Central Avenue drainage system. The small remaining portion of the "lower" parking area runs to a rain garden in the southwesterly corner of the overall parcel. The proposed parking creates an additional 1,007 s.f. of impervious area which will be directed to the existing rain garden. The infiltration volume will not coincide with peak runoff from the existing catchment area directed to the rain garden and, therefore, will not require additional capacity in the rain garden.

UTILITIES AND LIGHTING

The existing office structure at 784 Central Avenue will continue to utilize the existing connections to City sewer and private utilities. Exiting utility connections to 4 Abbott Street will be terminated as coordinated with the City and respective utilities.

Additional site lighting will be provided for the proposed parking lot. This lighting will replicate existing fixture style and height on-site and will comply with Site Review regulations.

DERMATOLOGY & SKIN HEALTH
PARKING IMPROVEMENTS & EXPANSION

WAIVER REQUESTS

The following waiver requests are made in accordance with Article VI, Section 149-19, Waivers:

- Section 149-13.A(15)(17) – A "colored architect PLAN "and" A colored rendering of the streetscape"

  The applicant seeks a waiver from these requirements for the reason that no new structures or any site improvements, other than a relocated fence, will be visible from either Central Avenue or Abbott Street.

- Item 11 from Site Plan Review Checklist – "Letter to Serve from Public and Private Utilities"

  The applicant seeks a waiver from this checklist item as no new structures requiring utility installations are being proposed.

Landscape Operation & Maintenance Plan For Dermatology & Skin Health Parking Lot

Weekly Tasks

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

Yearly Tasks

Early Spring

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.
2. Apply granular fertilizer to shrubs beds and lawns. Be sure to make application prior to a moderate rainfall in drip-irrigated planters so the rain will wash the fertilizer in.
3. Submit receipts to owner's authorized representative as proof of fertilizer purchase.
4. Trim any perennial foliage left in the fall for winter interest to within six inches of the ground.
5. Add new mulch to planters where the mulch depth has been reduced to less than 2 inches (5 cm) thick. Mulch depth shall not exceed 2". Additional mulch not required where shrubs or groundcover completely hide the soil surface from view.

6. Where there is irrigation and after threat of frost is gone, flush out irrigation systems as needed and check for proper operation of each valve zone.
7. Clean or replace plugged sprinkler nozzles. Replace plugged drip emitters.
8. Replace irrigation controller program back-up batteries.

June:

No additional items

July:

No additional items

August:

No additional items

September:

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

October:

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

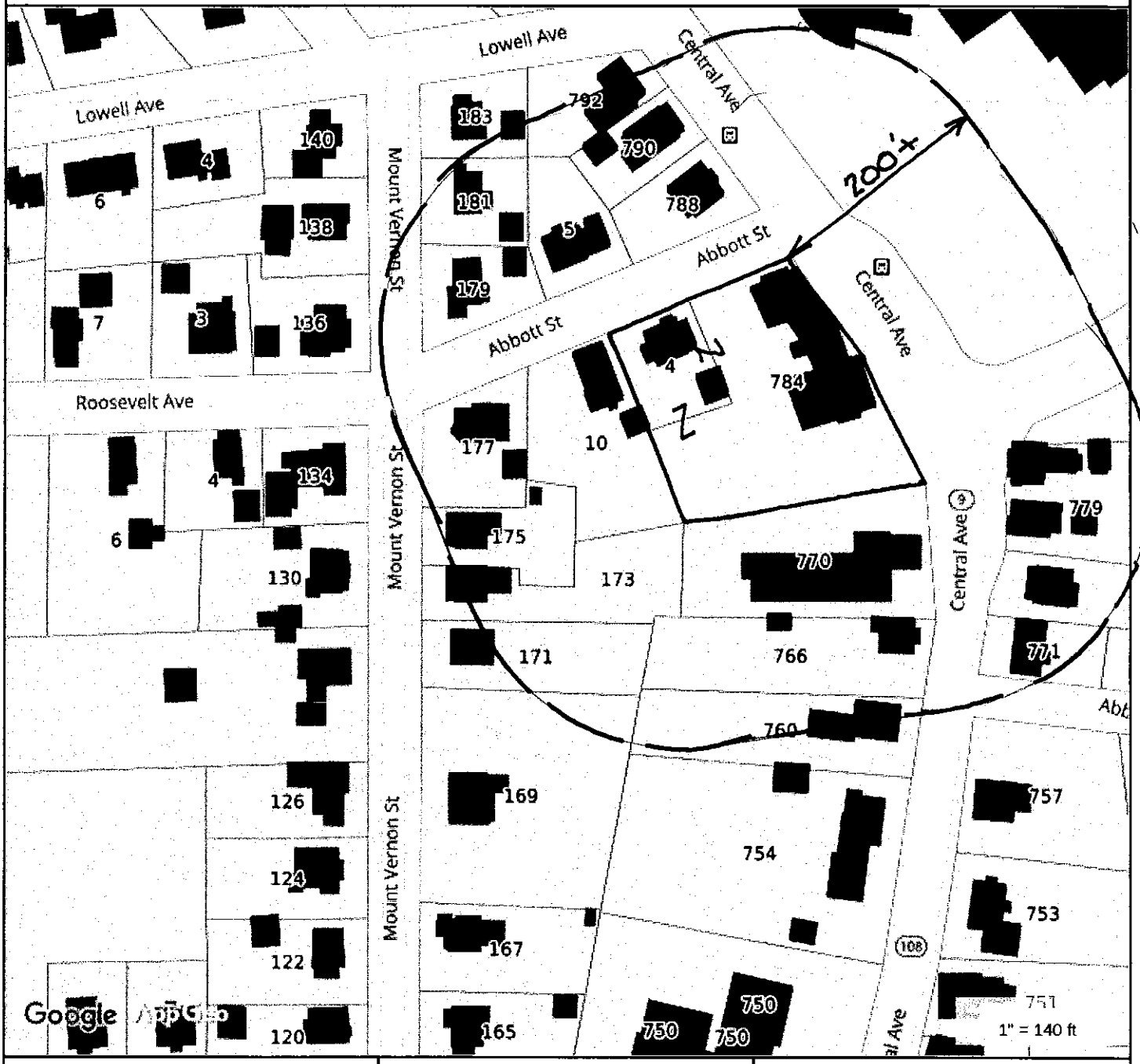
November:

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

December:

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

Dermatology Abutters



MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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

Geometry updated 11/16/2018
Data updated 11/18/2018

TRAFFIC IMPACT ASSESSMENT AND STANDARD ANALYSIS
DERMATOLOGY & SKIN HEALTH
784 CENTRAL AVENUE & 4 ABBOTT STREET
LOTS 23 & 25, TAX MAP 29
DOVER, NH 03820

as prepared for:
Central Partners Realty, LLC
784 Central Avenue
Dover, NH 03820

as prepared by:
Dana C. Lynch, P.E.
Civilworks New England
P.O. Box 1166
Dover, NH 0321-1166

Our Reference No. 1539

INTRODUCTION

In accord with the requirements of Chapter 149-13-A(20) of the City of Dover Site Plan Review Regulations, the following "Standard Traffic Impact Assessment and Analysis" has been prepared in support of the subject project. The project consists of the following improvements:

The proposed project consists of demolition of an existing abandoned house and garage at 4 Abbott Street, Tax Map 29, Lot 25, and construction of an eight (8) space parking area for purposes of providing additional employee parking. This will aid in reducing current parking quantity shortfalls in existing patient and customer parking at 784 Central Avenue, Tax Map 29, Lot 23.

This application is accompanied by a Notice of Merger form which, upon acceptance by the Planning Board, will consolidate Lots 23 and 25, thereby facilitating the parking area use under City Ordinance as part of a commercial use in the Office (O) District at 784 Central Avenue.

In summary, the only site improvement that pertains to trip generation and traffic movement changes compared to current conditions is the removal of the house and re-use as an employee parking lot to serve the existing Dermatology & Skin Health facility.

PROJECT LOCATION AND SITE CHARACTERISTICS

The project site currently consists of two parcels, Lots 23 and 25, as shown on Tax Map 29. Lot 23 contains 39,193 s.f. and is presently occupied by a medical office and spa at 784 Central Avenue. Lot 25 contains 8,154 s.f. and is occupied by a single-family dwelling and garage at 4 Abbott Street. Both parcels are located in the Office (O) District. The site is abutted to the north by Abbott Street, to the east by Central Avenue, medical offices to the south, and residential uses to the west in the R-12 District.

The site slopes generally from the northeast to southwest. A sixteen (16) space "upper" parking area, immediately behind the medical office and spa, is accessed via Abbott Street and will remain in service. This parking area includes two (2) accessible parking spaces and is used primarily by patients off the Dermatology practice.

The "lower" parking lot contains thirty-two (32) parking spaces including one (1) accessible space. This parking lot primarily serves facility employees and patrons of the spa located in the lower level of 784 Central Avenue. This lot accesses Central Avenue at a signalized intersection directly across from Old Rollinsford Road. The applicant's predecessor participated in funding and provision of easements for this intersection constructed in 2009. Additionally, this parking lot serves as an egress way for patrons of Garrison Women's Health Center, located at 770 Central Avenue, via a cross-access easement.

The primary site improvement proposal contained in this application is an eight (8) space parking area located on the land formerly occupied by the residence at 4 Abbott Street. This parking area will include approximately 3,331 s.f. of new pavement.

As a result of the aforementioned parking area adjustment, the site will have a total of fifty six (56) spaces including three (3) accessible spaces.

DESCRIPTION OF ROADWAYS

The existing medical offices and spa at 784 Central Avenue has access points which will remain unchanged. The so-called "upper" parking lot will continue to access Abbott Street at a point approximately 85 ft. west of Central Avenue. The so-called "lower" parking lot accesses Central Avenue directly opposite Old Rollinsford Road at a signalized intersection which also serves Wentworth-Douglass Hospital. The driveway serving the residence at 4 Abbott Street is located approximately 125 feet west of Central Avenue. The driveway use will change from a single-family residence to limited employee use from the existing office.

Central Avenue is a major north-south arterial through Dover. At the signalized intersection serving the subject site and Wentworth-Douglass Hospital (WDH) and various medical practices on Old Rollinsford Road, Central Avenue has one thru-lane in each direction, as well as a right-turn lane northbound into the WDH campus and exclusive left-turn lanes in both the northbound and the southbound directions, for movements into the subject parcel and the WDH campus, respectively. The Abbott Street intersection is located approximately 240 feet north of the signalized intersection.

The speed limit in this section of Central Avenue is 30 miles per hour. There are sidewalks on both sides and handicap ramps at all of the subject intersections. Crosswalks and pedestrian signals are provided at this signalized intersection.

Abbott Street is a two-way street and is approximately 23-24 ft. wide. A sidewalk is located on the southerly side of the street, along the frontage of the subject property, and extends into the residential area to the west.

SIGHT DISTANCE

The driveway at 784 Central Avenue "lower" parking lot is controlled by an actuated traffic signal. For traffic turning right on red at the signal, the all-season safe distance is approximately 300 ft. looking north on Central Avenue. Sight distance looking south is approximately 250 ft.

The driveways accessing Abbott Street have unencumbered visibility to Central Avenue to the east and to Mount Vernon Street to the west, a stop sign controlled intersection.

TRIP GENERATION

A traffic impact memorandum was prepared for the medical office portion of this project, in April, 2009. That memorandum addressed the traffic movements at the then proposed traffic signal as a result of both the subject facility at 784 Central Avenue (Tax Map 29, Lot 23) and the adjacent use at 780 Central Avenue, to the south (Tax Map 29, Lot 22). These properties were

combined in the analysis to account for an access cross-easement between them and a site traffic pattern which encouraged use of the traffic signal as a primary egress onto Central Avenue. There is no change in the trip generation of this facility and no discernable change in the traffic patterns attributable to this site.

From the standpoint of trip generation, the only change proposed at the subject project site is the addition of parking spaces, which unto themselves, do not generate traffic. Using the ITE Trip Generation handbook, the following comparison was developed to attempt to quantify changes in vehicle trips attributed to the former residential use as compared to having eight (8) employees using the proposed lot. A rate for "per employee" was available under ITE Land Use Code 710, General Office. The results are presented in the table below:

Comparison of Average Vehicle Trip Ends at 4 Abbott Driveway

	Land Use Code Single-Family Housing [1]	Land Use Code 710 General Office
Average Weekday	9.6	26.6
Average Weekday A.M. Peak Hour	0.75	3.8
Average Weekday P.M. Peak Hour	1.01	3.7

(1) Using "Per Dwelling Unit" average rate
(2) Using "Per Employee" average rate multiplied by 8 to account for each parking space

TRAFFIC DISTRIBUTION

The distribution of trip ends during the peak hours of traffic on Central Avenue will most likely be split nearly 50/50 with 1.5 turning left (northbound) and 1.5 turning right (southbound), assuming all trips turn right at the driveway.

PUBLIC TRANSIT

Coast Bus Route 2 passes by the site both north and southbound. A COAST bus shelter is located in the northbound side of Central Avenue.

The increase in trips at the subject driveway can best be summarized as 17 trip ends over an average weekday with three (3) additional trip ends occurring in both the A.M. and P.M. peak hours on Central Avenue. It should be noted, however, there will be a commensurate reduction of trip ends at either the "upper" or "lower" lot access points to Abbott Street or Central Avenue.

TRAFFIC ENGINEERING CERTIFICATIONS

The curriculum vitae of Dana C. Lynch, P.E. is attached herewith. His qualifications and experience are outlined therein.

CURRICULUM VITAE

Dana C. Lynch, P.E.

DANA C. LYNCH, P.E.

36 Cardinal Drive, Dover, NH 03820 (603) 742-6440 (H)
181 Watson Road, P.O. Box 1166, Dover, NH 03821 (603) 749-0443 (W)

EDUCATION

University of Rhode Island, B.S. Civil and Environmental Engineering, 1977
Certificate of Training, National Highway Institute, Safety Design and Operations Practices for Streets and Highways, 1981
Northwestern University Traffic Institute Workshops

- Intersection Design and Channelization, 1992
- Traffic Signal Timing, 1994

USDOT, Federal Highway Administration Road Safety Audit Workshop, 2006
Certificate of Training, National Highway Institute, Design and Operation of Work Zone Traffic Control, 2012

LICENSES AND REGISTRATIONS

Registered Professional Engineer:	New Hampshire #5745
	Maine #6137
Licensed Designer of Subsurface Disposal Systems:	New Hampshire #719

PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers	Honorary Member
Institute of Transportation Engineers	Fellow
Transportation and Development Institute, ASCE	Charter Member

CIVIC ACTIVITIES

Cochecho Waterfront Advisory Committee	Chair, 2003-2006 & 2017 to Present
Greater Dover Chamber of Commerce	B.O.D., 1988-1991 & 1995-2000
Greater Dover Chamber of Commerce	President, 1998
Cochecho Waterfront Task Force	Chair, 1990
Cochecho Riverwalk Committee	Chair, 1994-1998
Downtown Parking Task Force	1988
Rail Station Task Force	Chair, 1993
Woodman Park School Playground Project	1990

CIVIC ACTIVITIES (Cont'd.)

Guest Lecturer, University of New Hampshire	
• "Planning & Engineering in Real Estate Development "	1988, 1989
• "Transportation Aspects of Community Planning"	1994
COAST Route 3, Dover Transportation Committee	1997
City of Dover Masterplan - Transportation Committee	
Dover Main Street Application Team	1999
Dover Clean-Up Day Founding Organizer	2000-2003
Dover Economic Development Commission	2004-2006
Strafford Economic Development Corporation	Board of Directors
Woodman Park School	Mentor, 2004

AWARDS AND ACKNOWLEDGEMENT

Chamber of Commerce President's Award	1994
Paul Harris Fellow – Dover Rotary Club	
Greater Dover Chamber of Commerce, Volunteer of the Year	1999
Award of Merit, State of New Hampshire, Office of Statewide Planning	1996

VOCATIONAL EXPERIENCE

Civilworks New England, Dover NH
181 Watson Road
Dover, NH

JAN 2016 to Present
Senior Project Manager

Responsibilities include management and direction of engineering and business aspects of the firm including client acquisition and retention, proposal preparation and fee negotiation, public presentations, permit acquisition

Civilworks Inc., Dover, NH
P.O Box 1166
Dover, NH

OCT 1985 - MAR 1993 and
JUL 1995 - JAN 2016
Co-Owner, President, Project Director

Founded the firm in 1985 and developed a professional /technical staff of 11 people including four registered professional engineers and one licensed land surveyor. Responsibilities include management and direction of engineering and business aspects of the firm including client acquisition and retention, proposal preparation and fee negotiation, public presentations, permit acquisition and coordination of budgetary policy. Projects include a wide variety of private and public, commercial and residential developments from concept through construction, as well as technical advisory services relative to litigation associated with highway design and temporary traffic control.

VOCATIONAL EXPERIENCE (Cont'd.)

Appledore Engineering, Inc.
600 State Street
Portsmouth, NH

APR 1993 - AUG 1995
Senior Project Manager

Responsible for preparation of plans, specifications, and cost estimates for roadway and site development projects. Projects included site design and permitting for corporate headquarters, schools, several supermarkets and retail developments, conceptual planning for a warehouse/truck maintenance facility, and arterial bypass roadway, as well as engineering review services for local municipalities.

Costello, Lomasney & deNapoli, Inc.
540 Commercial Street
Manchester, NH

AUG 1982 – OCT 1985
Project Manager

Responsibilities included a variety of commercial, residential and industrial projects from conceptual design stage through engineering design, permitting, and bid documents. Projects completed include 1600 and 600 unit housing projects, 115,000 and 240,000 square foot commercial space/office complexes, a 57,000 square foot storage facility as well as conceptual design reports for parking facilities in Dover, NH and reports and specifications for dredging of the Cochecho River.

R.A. Cataldo and Associates, Inc.
83 Power Road
Pawtucket, RI

SEP 1980 – AUG 1982
Design Engineer

Responsible for preparation of plans, specifications, and cost estimates for highway and site improvement projects. Work included preparation of conceptual design reports, supervision of field and support staff, and coordination with clients.

Wilbur Smith and Associates
Peace Dale, RI, New Haven, Ct, and Providence, RI

FEB 1976 – AUG 1980
Junior Engineer/Design Engineer

Assisted in preparation of the 40-mile I-985 corridor location/EIS, completed roadway and drainage design assignments for highway reconstruction and signalization projects as well as landside terminal access improvements at JFK International Airport, NY.

Joseph W. Frisella, Civil Engineering
Wakefield, RI

JUN 1971 – DEC 1975
Survey Crew Chief/Sr. Draftsman

Supervised and coordinated land surveying projects.

CIVILWORKS, INC.
Civil Engineers
Land Surveyors

P.O. Box 1166
Dover, NH 03821-1166

603-749-0443
(Facsimile) 603-749-7348

MEMORANDUM

To: Christopher Parker, Planning Director

From: Dana C. Lynch, P.E. dcl

Date: April 7, 2009

Re: Traffic Impact
Dermatology & Skin Health
Tax Map 29, Lot 23
Our Reference No. 08154

The following memorandum is intended to present the following:

- Project overview of building, parking, and internal circulation improvements;
- Trip generation calculations and general distribution pursuant to the ITE Trip Generation manual and the Central Avenue Corridor Study;
- Relationship of the proposed project to practices recommended in the Central Avenue Corridor Study

Project Overview

The proposed project includes demolition of an existing medial office on former Lot 23 as shown on Tax Map 29, and construction of an addition to the existing medical office located on the former Lot 24. The owner, Long Road, LLC, has voluntarily merged the lots to create a new Lot 23 containing approximately 39,000 s.f.

The existing office to remain at 784 Central Avenue is currently occupied by Dermatology and Skin Health (DSH), the applicant. This medical office contains 6,214 sf. of gross floor area (GFA). Total staff, including physicians, is 17. The parking for this structure contains 17 spaces and is accessed via Abbott Street.

The medical office at 780 Central Avenue is to be demolished to make way for the expansion of 784 Central Avenue. This facility has a GFA of approximately 2,500 s.f. and the site contains a 17 space parking lot accessing Central Avenue. This parking lot is currently utilized by a portion of the staff at 784 Central Avenue and the existing curb cut at Central Avenue is essentially the same location as the proposed curb cut.

The proposed structure to be occupied by the applicant will contain a total of 12,822 s.f. with an estimated staff of 25. The 17 space parking area accessing Abbott Street will remain as is and a new parking lot containing 32 spaces will access Central Avenue in the same location as the existing driveway serving 780 Central Avenue. This access point aligns with the proposed alignment of Old Rollinsford Road as set forth in the Wentworth-Douglass Hospital proposal currently in review. The completed four-way intersection will be signalized.

Trip Generation

An analysis of the trip generation for the proposed single medical office combined with a portion of the Garrison Women's Health (GWH) facility was completed and presented in the attached table 1. The ITE Trip Generation manual data was used for medical office (Land Use Code 720) based on employees. Allocations of trips to the signalized intersection derived from the medical office use were prepared based on the portion of parking spaces which are afforded access to Central Avenue via the proposed four-way intersection with relocated Old Rollinsford Road.

In summary,

- The development of the proposed medical office provides a total of 49 parking spaces, 17 of which access Abbott Street and 32, or 65.3%, which access Central Avenue at the new intersection.

- The GWH facility will have a total of 72 parking spaces, 32 of which are located on the northerly side of the GWH building and are utilized by residents of the apartments and patients of the practice. It is assumed that 95% will use the GWH driveway to enter the site, and by virtue of signing and striping within the site, 100% will exit via the Dermatology and Skin Health parking lot and the new intersection at Central Avenue.

- The attached Table 1 shows that eight (8) vehicles will enter the project site via the proposed signalized intersection and eight (8) vehicles will exit during the A.M. peak hour of traffic on Central Avenue. Similarly, it is estimated that six (6) vehicles will enter and 24 vehicles will exit during the P.M. peak hour. This represents 1.5% of the current total volume using the Old Rollinsford Road/Central Avenue intersection during the 2008 P.M. peak hour and 1.3% during the 2018 P.M. peak hour.

Conformance with Improvement Actions

Through a cooperative effort between Dermatology and Skin Health (DSH), Garrison Women's Health (GWH), and Wentworth-Douglass Hospital(WDH), the proposal submitted by the applicant makes noteworthy strides toward meeting goals for Improvement Actions – Intermediate Term (2009-2013) as presented in the recently completed Central Avenue Corridor Study under the category of Access Management (pg. 22):

a) Relocation of the Old Rollinsford Road intersection places the primary access to Central Avenue for the DSH "upper" parking lot, via Abbott Street, approximately 230 feet from the signals versus the current 110 feet;

b) Signing and striping will promote an "in only" access off Central Avenue for the GWH facility;

c) This proposal also will partially address the desire of the City to consolidate entrances onto Central Avenue.

Summary

It is our opinion that the completed project is a relatively low traffic generator and the new trips generated will result in a negligible impact to the Central Avenue Corridor. Furthermore, we believe that the circulation and access improvements resulting from the interconnection of the parking lots of Garrison Women's Health and Dermatology and Skin Health, and the separation of the Old Rollinsford Road/Abbott Street intersections with Central Avenue, will afford desirable results with regard to safety and function.

PROPOSED TRIP GENERAITON
ALLOCATION TO SIGNALIZED INTERSECTION

	TAX MAP 29, LOT 23		TAX MAP 29, LOT 22			
Avg. Vehicle Trip Ends On:	Med Office (1) (L.U.C. 720)	Allocation (2) to Signal	Med Office (3) (L.U.C. 720)	Apts. (9 units) (L.U.C. 220)	Allocation (4) to Signal	Total Allocation (5) to Signal
Weekday	223	146	276	61	98	244
	(111.5 / 111.5)	(73 / 73)	(138 / 138)	(30.5 / 30.5)	(5 / 93)	(78 / 166)
Weekday AM Peak (7-9 A.M.)	14	10	17	5	6	16
	(11 / 3)	(8 /2)	(14 / 3)	(1 / 4)	(0 / 6)	(8 / 8)
Weekday P.M. Peak (4-6 P.M.)	27	18	33	6	12	30
	(9 / 18)	(6 / 12)	(11 / 22)	(4 / 2)	(0 / 12)	(6 / 24)
Saturday	100	66	124	58	61	127
	(50 / 50)	(33 / 33)	(62 / 62)	(29 / 29)	(4 / 57)	(37 / 90)

(XX/XX) = trips ends entering / trip ends exiting

FOOTNOTES:

(1) Medical Office trip generation based on 25 employees (max. shift) as presented in parking calculations for subject project.

(2) 32 of the 49 spaces provided on Lot 23, or 65.3%, will utilize the Central Avenue access

(3) Medical office trip generation based on 31 employees (max. shift)

(4) 32 of the 72 spaces serving Lot 22 (Garrison Women's Health), or 45%, will utilize the Central Avenue access as an egress drive (out). These 32 spaces are used by residents of apartments and patients. It is assumed that 95% of residents/patients for Lot 22 will use the existing driveway to enter the site and 100% will use the signalized intersection to leave.

(5) Total of Columns (2) and (4)

SITE PLANS

Dermatology & Skin Health

Parking Expansion

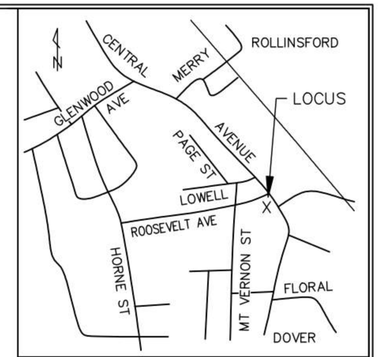
Tax Map 29, Lots 23 & 25

784 Central Avenue & 4 Abbott Street

Dover, New Hampshire

DOVER PLANNING FILE No. P 19-__

January 16, 2019



LOCATION PLAN
(NO SCALE)

ABUTTERS LIST:

(within 200 ft. of site)

Tax Map	Lot No.	Owner Name & Address
28	2, 3, 4, 5, 6	Wentworth-Douglass Hospital 789 Central Avenue Dover, NH 03820
29	20	Johnstone Enterprises, Ltd. 760 Central Avenue Dover, NH 03820
29	21, 22	Lagcheck Realty 770 Central Avenue Dover, NH 03820
29	23, 25	Central Partners Realty, LLC (SITE) 784 Central Avenue Dover, NH 03820
29	26	Marena N. Hoogeveen 10 Abbott Street Dover, NH 03820
29	27	William & Deborah Davis 177 Mount Vernon Street Dover, NH 03820
29	28	James & Taylor Davis 175 Mount Vernon Street Dover, NH 03820
29	29	Christopher Soucy 173 Mount Vernon Street Dover, NH 03820
29	30	Shasheen M. Conroy 171 Mount Vernon Street Dover, NH 03820
29	31	Allan B., Jr. & Jennifer Krans 169 Mount Vernon Street Dover, NH 03820
37	1	Wentworth-Douglass Hospital 789 Central Avenue Dover, NH 03820
37	58	Eric P. & Denise A. Littlefield 183 Mount Vernon Street Dover, NH 03820
37	59	Keryn Bernard-Kriegl 181 Mount Vernon Street Dover, NH 03820
37	60	George F., III & Alice K. Snow 179 Mount Vernon Street Dover, NH 03820
37	61	Cynthia Vomvoris 118 Boxwood Lane Dover, NH 03820
37	62	Robert M. Chaplick 788 Central Avenue Dover, NH 03820
37	63	Wentworth-Douglass Hospital P.O. Box 609 Dover, NH 03821
37	64	Scott M. Goodman 792 Central Avenue Dover, NH 03820

LEGEND

I / 94C	– TAX MAP AND LOT NUMBER
S.F.	– SQUARE FEET
Ac.	– ACRE
F.F. or FIN. FLR.	– FINISH FLOOR
ELEV.	– ELEVATION
G.F.A.	– GROSS FLOOR AREA
INV.	– INVERT
PVC	– POLYVINYL CHLORIDE
RCP	– REINFORCED CONCRETE PIPE
HDPE	– HIGH DENSITY POLYETHYLENE
155.2⊕	– EXISTING SPOT GRADE
155.65+	– PROPOSED SPOT GRADE
—155—	– EXISTING CONTOUR
155	– PROPOSED CONTOUR
5'R	– RADIUS DISTANCE
(TYP.)	– TYPICAL
W/	– WITH
±	– MORE OR LESS
ø or D	– DIAMETER
L	– LENGTH
W	– WIDTH
H	– HEIGHT
S	– SLOPE
L.F.	– LINEAR FEET
'/, or FT/FT	– FEET PER FOOT
E	– EXISTING
P	– PROPOSED
UP	– UTILITY POLE
OHW	– OVERHEAD WIRES
UGU	– UNDERGROUND UTILITIES
UGE	– UNDERGROUND ELECTRIC
UCATV	– UNDERGROUND CABLE TELEVISION
TMH	– TELEPHONE MANHOLE
EMH	– ELECTRIC MANHOLE
CB	– CATCH BASIN
DMH	– DRAIN MANHOLE
D	– DRAINAGE PIPE
F.E.S.	– FLARED END SECTION
	– STONE RIP-RAP
RD	– ROOF DRAIN
FD	– FOUNDATION DRAIN
UD	– UNDERDRAIN
	– SOIL TEST BORING
B-1	– SOIL TEST BORING I.D. NUMBER
SMH	– SANITARY SEWER MANHOLE
S	– SEWER MAIN
S.S.	– SEWER SERVICE
C.O.	– CLEANOUT
W	– WATER MAIN
WV	– WATER GATE VALVE
WSO	– WATER SHUT OFF (CURB STOP)
HYD.	– FIRE HYDRANT
GW	– GAS MAIN
EOP	– EDGE OF PAVEMENT
SGC	– SLOPED GRANITE CURB
VGC	– VERTICAL GRANITE CURB
ICC	– INTEGRATED CONCRETE CURB
CCB	– CAPE COD BERM
BIT.	– BITUMINOUS
CONC.	– CONCRETE
TOW	– TOP OF WALL
TOP	– TOP OF SLOPE
TOE	– TOE OF SLOPE
	– TRAFFIC DIRECTIONAL FLOW
	– HANDICAP DESIGNATED PARKING SPACE
	– SIGN POST
	– TREE
	– EXISTING FENCE (AS SPECIFIED)
	– PROPOSED FENCE (AS SPECIFIED)
①	– PROPOSED PARKING SPACE I.D. NUMBER

Owner of Record / Prepared for:
Central Partners Realty, LLC
784 Central Avenue
Dover, NH 03820
603-742-5556

Prepared by:
Civilworks New England
P.O. Box 1166
181 Watson Road
Dover, NH 03820
603-749-0443

Landscape Architects:
Woodburn & Company
103 Kent Place
Newmarket, NH 03857
603-659-5949

Index	Sheet No.

Cover Sheet	1
Existing Conditions Plan	2
General Notes	3
Site Plan Grading, Drainage, Utility & Erosion Control Plan	4
Landscape Plan	5
Lighting Plan	6
Erosion Control Notes	7
Miscellaneous Details Sheet	8
Neighborhood Plan	9

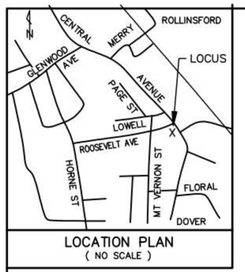
Signature Block:

Owner of Record/Applicant:

_____ _____

Central Partners Realty, LLC Date

FILE: W10 CP\2096\15-2096 SITE 2018



LOCATION PLAN
(NO SCALE)

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	19°34'18"	251.00	85.74	85.32	S21°38'44"E

REFERENCE PLANS:

1.) AS-BUILT SITE PLAN OF DERMATOLOGY & SKIN HEALTH EXPANSION PREPARED FOR LONG ROAD, LLC TAX MAP 29, LOT No. 23, 780 CENTRAL AVENUE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE. SCALE: 1" = 20'; DATED: 09/10/10; BY: CIVILWORKS, INC., PROJECT # 08154AB

2.) "EXISTING CONDITIONS PLAN OF LAND PREPARED FOR LONG ROAD LLC, TAX MAP 29, LOT No. 23, 780 & 784 CENTRAL AVENUE, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE" SCALE: 1" = 20'; DATED: JANUARY 29, 2009, REVISED THROUGH 4/2/09; BY: McENEANEY SURVEY ASSOCIATES, INC.

3.) STANDARD BOUNDARY SURVEY PREPARED FOR GASTROENTEROLOGY, INC. ABBOTT STREET AND CENTRAL AVENUE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 10'; DATED: APRIL 17, 1990; BY: CIVIL CONSULTANTS.
RECORDED S.C.R.D. PLAN 38-46.

4.) EASEMENT PLAN OF LAND PREPARED FOR LONG ROAD LLC, TAX MAP 29, LOT No. 23, 784 CENTRAL AVENUE, CITY of DOVER, COUNTY of STRAFFORD, STATE of NEW HAMPSHIRE. SCALE: 1" = 20'; DATED: JANUARY 1, 2011; McENEANEY SURVEY ASSOCIATES, INC. RECORDED S.C.R.D. PLAN 100-75.

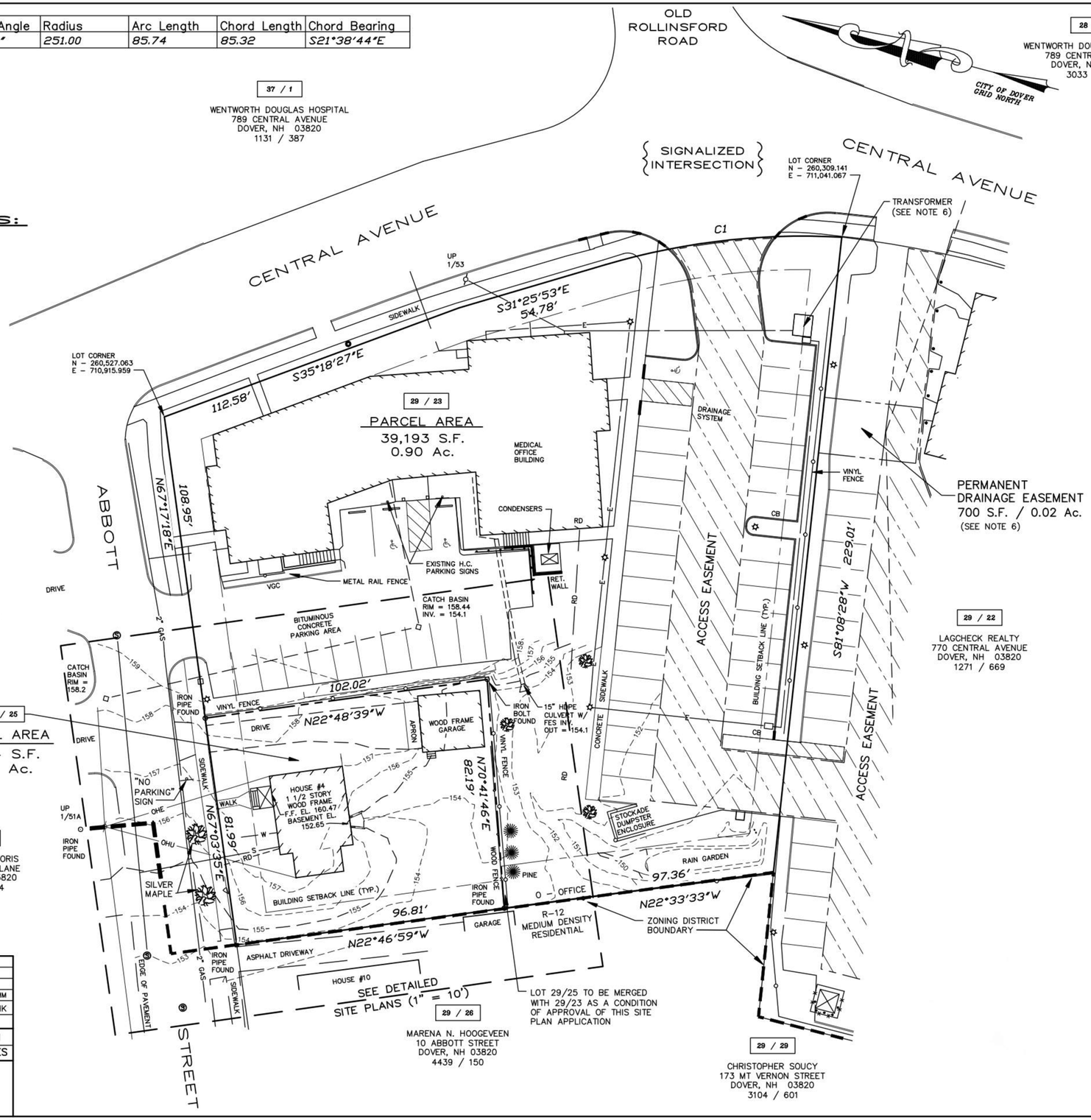
LEGEND

- I.R.(set) – IRON ROD W/ PLASTIC I.D. CAP SET
- -○- – UTILITY POLE
- S.F. – SQUARE FEET
- Ac. – ACRE
- ± – MORE OR LESS
- (TYP.) – TYPICAL
- W/ – WITH
- ø – DIAMETER
- S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
- TREE
- W – WATER GATE VALVE
- FIRE HYDRANT
- CB – CATCH BASIN
- S SMH – SANITARY SEWER MANHOLE
- T TMH – TELEPHONE MANHOLE
- UGU – UNDERGROUND UTILITIES
- UGE – UNDERGROUND ELECTRIC
- OHU – OVERHEAD UTILITIES
- OHE – OVERHEAD ELECTRIC
- ——W—— – WATER SERVICE
- ——S—— – SEWER SERVICE
- --154--- – EXISTING CONTOUR
- ✲ – EXISTING POLE W/ LUMINAIRE
- ✱ – PROPOSED POLE W/ LUMINAIRE
- RD – ROOF DRAIN

NO.	DATE	DESCRIPTION	BY	CHK
1	12/26/18	2018 UPDATE	RJM	KMM

REVISIONS

15-2096	EXIST COND	15-04	46-51
PROJECT NO	TYPE	FIELDBOOK & PAGES	



NOTES:

1.) OWNERS OF RECORD:

29 / 23 — CENTRAL PARTNERS REALTY, LLC
784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4471, PAGE 221

29 / 25 — CENTRAL PARTNERS REALTY, LLC
784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4471, PAGE 217

2.) 29 / 25 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) THE INTENT OF THIS PLAN IS TO SHOW THE PARCEL BOUNDARIES AND MONUMENTS, AND TO SHOW THE LOCATION OF THE EXISTING FEATURES LOCATED ON THE SUBJECT PARCELS DURING AUGUST 2015 AND SEPTEMBER 2010.

4.) THE SUBJECT PARCELS ARE LOCATED WITHIN THE OFFICE (O) ZONING DISTRICT.

MINIMUM LOT SIZE	= 10,000 S.F.
MINIMUM LOT FRONTAGE	= 100 FEET
BUILDING SETBACK REQUIREMENTS:	
FRONT	= 12 FEET
REAR	= 15 FEET
SIDE	= 10 FEET
MAXIMUM BUILDING HEIGHT	= 45 FEET
MAXIMUM LOT COVERAGE	= 50 PERCENT

5.) THE SUBJECT PARCEL IS LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY 330145, PANEL 0310, SUFFIX E, MAP NUMBER 33017C0310E, EFFECTIVE DATE: SEPTEMBER 30, 2015.

6.) PARCEL 29 / 23 IS SUBJECT TO AND BENEFITED BY:
A 20' WIDE EASEMENT GRANTED TO P.S.N.H. S.C.R.D. VOL. 3793, PAGE 777.
A CROSS ACCESS EASEMENT WITH PARCEL 29/22 S.C.R.D. VOL. 3906, PAGE 611.
A DRAINAGE SYSTEM EASEMENT OVER PARCEL 29/22 S.C.R.D. VOL. 3906, PAGE 601.

7.) BASIS OF BEARINGS FOR HORIZONTAL AND VERTICAL DATUM SHOWN IS BASED UPON CITY OF DOVER GEOD COORDINATE GRID, BASED UPON INFORMATION PROVIDED BY CITY OF DOVER ENGINEER'S OFFICE.

8.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DATED JANUARY 2009 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

SHEET 2 OF 9

EXISTING CONDITIONS PLAN OF LAND
PREPARED FOR
CENTRAL PARTNERS REALTY, LLC
TAX MAP 29, LOT Nos. 23 & 25
784 CENTRAL AVENUE & 4 ABBOTT STREET
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 16-02

DRAWN BY: KJF / RJM	FILE: W10 CP\2096\15-2096 SITE 2018
SCALE: 1" = 20'	DATE: DECEMBER 8, 2015

20 10 0 10 20 40 60 80

STATE OF NEW HAMPSHIRE — No. 661 KEVIN M. McENEANEY — LICENSED LAND SURVEYOR — SIGNATURE

McENEANEY SURVEY ASSOCIATES, INC.
P.O. Box 681 – 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742-0911

SURVEYING – PLANNING – CONSULTING

GENERAL NOTES

1. THE INTENT OF THIS PLAN IS TO DEPICT THE DEMOLITION OF EXISTING RESIDENTIAL STRUCTURES AND CONSTRUCTION OF AN EIGHT (8) SPACE PARKING AREA FOR USE BY EMPLOYEES OF 784 CENTRAL AVENUE.

2. CURRENT OWNERS OF RECORD:
MAP 29, LOTS 23 & 25
CENTRAL PARTNERS REALTY, LLC
784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4471, PAGE 221
S.C.R.D. VOLUME 4471, PAGE 217

3. THE PROJECT PARCELS ARE SHOWN AS LOT NO. 23 & 25, MAP 29 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.

4. THE PROJECT PARCELS COMBINED CONTAIN 47,347 S.F.± / 1.09 Ac.± OF LAND.

5. TITLE REFERENCE FOR THE PROJECT PARCELS IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 4471, PAGE NO 221; AND BOOK NO. 4471, PAGE NO. 217.

6. PROJECT PLAN REFERENCES:
A.) AS-BUILT SITE PLAN OF DERMATOLOGY & SKIN HEALTH EXPANSION PREPARED FOR LONG ROAD, LLC TAX MAP 29, LOT No. 23, 780 CENTRAL AVENUE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE. SCALE: 1" = 20'; DATED: 09/10/10; BY: CIVILWORKS, INC., PROJECT # 08154AB

B.) "EXISTING CONDITIONS PLAN OF LAND PREPARED FOR LONG ROAD LLC, TAX MAP 29, LOT No. 23, 780 & 784 CENTRAL AVENUE, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE" SCALE: 1" = 20'; DATED: JANUARY 29, 2009, REVISED THROUGH 4/2/09; BY: McENEANEY SURVEY ASSOCIATES, INC.

C.) STANDARD BOUNDARY SURVEY PREPARED FOR GASTROENTEROLOGY, INC. ABBOTT STREET AND CENTRAL AVENUE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 10'; DATED: APRIL 17, 1990; BY: CIVIL CONSULTANTS. RECORDED S.C.R.D. PLAN 38-46.

D.) EASEMENT PLAN OF LAND PREPARED FOR LONG ROAD LLC, TAX MAP 29, LOT No. 23, 784 CENTRAL AVENUE, CITY of DOVER, COUNTY of STRAFFORD, STATE of NEW HAMPSHIRE. SCALE: 1" = 20'; DATED: JANUARY 1, 2011; McENEANEY SURVEY ASSOCIATES, INC. RECORDED S.C.R.D. PLAN 100-75.

7. ALL APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, UTILITY, ACCESS, OR OTHER EASEMENTS SHALL BE REFERENCED IN A NOTE AND SHOWN ON THE PLAN.

8. ZONING DIMENSIONAL AND DENSITY REQUIREMENTS ARE AS FOLLOWS:
ZONING DISTRICT: OFFICE (O) ZONING DISTRICT

MINIMUM LOT SIZE:	10,000 S.F.
MAXIMUM LOT COVERAGE:	50 PERCENT
FRONT SETBACK:	12 FEET
ABUT A STREET SETBACK:	12 FEET
SIDE SETBACK:	10 FEET
REAR SETBACK:	15 FEET
HEIGHT OF BUILDING:	45 FEET MAXIMUM

THIS PROPERTY FALLS WITHIN THE FOLLOWING ZONING OVERLAY DISTRICTS: (NONE)

9. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY McENEANEY SURVEY ASSOCIATES, INC. WITH AN ERROR OF CLOSURE NOT GREATER THAN 1 IN 10,000 (SEE SHEET 2).

10. THE SUBJECT PARCEL IS LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY 330145, PANEL 0310, SUFFIX E, MAP NUMBER 33017C0310E, EFFECTIVE DATE: SEPTEMBER 30, 2015.

11. THERE ARE NO WETLANDS ON THE SUBJECT PARCEL.

12. MAXIMUM PARKING SPACE CALCULATION
(REF. SECTION 149-14.D.(1))

MEDICAL USE		
13 EXAM ROOMS x 0.5 SPACES / ROOM		= 7 SPACES
23 EMPLOYEES x 1 SPACE / EMPLOYEE		= 23 SPACES
RETAIL / SERVICE USE (SPA)		
7,000 S.F. x 1 SPACE / 275 S.F.		= 26 SPACES
TOTAL ALLOWED		= 56 SPACES
PARKING PROVIDED		
EXISTING -		
UPPER LOT		= 16 SPACES
LOWER LOT		= 32 SPACES
	SUBTOTAL	= 48 SPACES
PROPOSED		= 8 SPACES
TOTAL PROVIDED		= 56 SPACES, (INCLUDING 3 ACCESSIBLE)

13. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN 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.

14. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.

15. TOPOGRAPHIC SURVEY PERFORMED BY McENEANEY SURVEY ASSOCIATES, INC. AUGUST 2015 AND SEPTEMBER 2010.

16. BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON FEBRUARY 14, 2011. VERTICAL DATUM IS NAVD88.

17. (RESERVED)

18. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.

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 PARCELS ARE SERVED BY MUNICIPAL WATER AND SEWER.

21. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION. SEE PERMANENT SEEDING CHART SHEET 7.

22. 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 TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

23. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.

24. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.

25. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE AND APPROVED CONSTRUCTION SIGN SHALL BE IN PLACE PRIOR TO ANY EARTH DISTURBING ACTIVITY.

26. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY AND SUNDAY 9 AM-4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.

27. 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.

28. 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.

29. (RESERVED)

30. (RESERVED)

31. (RESERVED)

32. (RESERVED)

33. (RESERVED)

34. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.

35. THE PROPOSED USE FOR THE SITE PARKING IS COMMERCIAL.

36. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: (NONE)

37. VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT - (NONE)

CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, (NONE)

38. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATIONS WITH THE RESPECTIVE UTILITY OWNERS PRIOR TO ANY WORK BEING PERFORMED. CALL DIGSAFE AT 1-888-344-7233.

39. THIS PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON THE DATE OF SURVEY. THE ABSENCE OF SUBSURFACE STRUCTURES, UTILITIES, ETC. FROM THIS PLAN, BUT IN EXISTENCE, IS NOT INTENDED OR IMPLIED.

40. THE PLANS AND SPECIFICATIONS ARE INTENDED TO BE EXPLANATORY OF THE WORK TO BE DONE AND OF EACH OTHER, BUT SHOULD ANY OMISSION, ERRORS OR DISCREPANCIES APPEAR, THEY SHALL BE SUBJECT TO CORRECTION AND INTERPRETATION BY THE "DESIGN ENGINEER" THEREBY DEFINING AND FULFILLING THE INTENT OF THE PLANS.

41. CONSTRUCTION WILL CONFORM TO THE FOLLOWING UTILITIES STANDARDS AND SPECIFICATIONS:

A) SANITARY SEWAGE DISPOSAL	- N.H. DEPARTMENT OF ENVIRONMENTAL SERVICES
B) ELECTRICAL DISTRIBUTION	- EVERSOURCE
C) TELEPHONE	- FAIRPOINT
D) CABLE T.V.	- COMCAST
E) WATER	- N.H. DEPARTMENT OF ENVIRONMENTAL SERVICES

ALL PROPOSED ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND, EASEMENTS ARE TO BE PROVIDED WHERE APPLICABLE. CONTACT INDIVIDUAL UTILITY COMPANIES TO DETERMINE CONDUIT SIZES AND SCHEDULES

42. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE CITY AND STATE CODES.

43. ALL DRAINAGE PIPES SHOWN SHALL BE RCP CLASS IV OR HDPE, UNLESS OTHERWISE NOTED.

44. UNDERDRAINS SHALL BE PROVIDED WHERE SHOWN ON PLAN AND/OR AS DIRECTED BY THE ENGINEER AS FIELD CONDITIONS WARRANT.

45. REMOVAL OF ANY ROADWAY OR SIDEWALK SIGNAGE SHALL BE COORDINATED WITH THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

46. THERE SHALL BE NO PARKING AREA CONSTRUCTION ON WET OR FROZEN SUBGRADE.

47. LAND USE CALCULATIONS:

	EXISTING	S.F.		PROPOSED	S.F.	
BUILDINGS	OFFICE, HOUSE & GARAGE	8,682	(18.3%)	OFFICE ONLY	7,261	(15.3%)
PAVEMENT / DRIVE	PAVEMENT / DRIVE	19,862	(41.9%)	EXIST / PROPOSED	22,290	(47.0%)
GREEN SPACE	CURRENT	18,803	(39.8%)	PROPOSED	17,796	(37.7%)
TOTAL		47,347			47,347	

48. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 4" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS. SEE PERMANENT SEEDING NOTES.

49. ALL BACKFILL IN TRENCHES AND FILL FOR ROADBEDS SHALL BE THOROUGHLY COMPACTED TO 95% OF OPTIMUM DENSITY.

50. THE CONTRACTOR SHALL MAINTAIN ADDITIONAL EROSION / SEDIMENT CONTROL MEASURES AS REQUIRED TO ASSURE THAT SOIL EROSION IS MINIMIZED AND THAT NO EROSION OCCURS OUTSIDE THE LIMITS OF THE PROPERTY.

51. ALL TEMPORARY EROSION CONTROL DEVICES PLACED SHALL BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION UNTIL ALL DISTURBED AREAS ASSOCIATED WITH THE PROPOSED IMPROVEMENTS HAVE BEEN STABILIZED. REMOVAL OF THESE DEVICES SHALL BE OPTIONAL AND AS DIRECTED BY THE ENGINEER IN THAT SOME LOCATIONS MAY BE LEFT TO AFFORD PROTECTION FOR INDIVIDUAL LOT DEVELOPMENT. FINAL REMOVAL, HOWEVER, OF ANY OF THESE DEVICES SHALL BE SUBJECT TO APPROVAL BY THE SUBDIVISION INSPECTOR.
ALL TEMPORARY LOAM STOCKPILES SHALL RECEIVE TEMPORARY EROSION CONTROL MEASURES

52. SEDIMENT CONTROL DEVICES SHALL BE PROVIDED IN ALL LOCATIONS DOWN-SLOPE OF ANY WORK, WHETHER SHOWN ON PLANS OR NOT.

53. ADDITIONAL TEMPORARY CONTROL DEVICES MAY BE REQUIRED PURSUANT TO THE ON-SITE DIRECTION OF THE PLANNING BOARD (OR ITS AUTHORIZED AGENT) OR INSPECTOR.

54. ALL FINISHED SLOPES SHALL BE TREATED AS FOLLOWS:

3:1 SLOPES OR FLATTER
WILDFLOWER MIX (SUN) OR BIRDSFOOT TREFOIL AND RYE MIX (SHADE), HAY MULCH AS REQUIRED. PROVIDE 10% RYE MIX WITH WILDFLOWER MIX FOR TEMPORARY STABILIZATION.

2:1 SLOPES TO 3:1 SLOPES
SLOPE MIX OF 50% CREEPING RED FESCUE, 30% KENTUCKY TALL FESCUE, 10% ANNUAL RYE GRASS, 5% REDTOP, 5% LADINO CLOVER, HYDROSEED AND HAY MULCH.

SLOPES GREATER THAN 2:1
EROSION CONTROL BLANKET ALONG WITH SLOPE MIX SPECIFIED ABOVE. EROSION CONTROL BLANKET SHALL BE CURLAX BLANKETS AS MANUFACTURED BY AMXCO (OR EQUAL) AND STAPLED IN PLACE.

DRAINAGE SWALES
SEE DETAIL SHEET 7

HAY MULCH AND TACKING
TO BE FIELD SPECIFIED BY ENGINEER DEPENDING ON WEATHER CONDITIONS AND TIME OF SEEDING.

TOPSOIL
ALL DISTURBED AREAS TO HAVE 4" MINIMUM TOPSOIL AND SHALL BE SEEDED.

MAINTENANCE
ALL DISTURBED AND TREATED AREAS TO BE MAINTAINED UNTIL MATURE GROWTH IS ESTABLISHED.

55. ALL SLOPED GRANITE CURB ENDS SHALL BE TIPPED DOWN (SEE DETAIL) UNLESS BUTT TO ANOTHER FINISH.

56. SNOW STORAGE SHALL BE MANAGED THROUGH PROPER ON-SITE AND OFF-SITE DISPOSAL.

No.	DATE	BY	REVISION FILE: W10 CP\2096\15-2096 SITE 2018

GENERAL NOTES

TAX MAP 29, LOTS 23 & 24

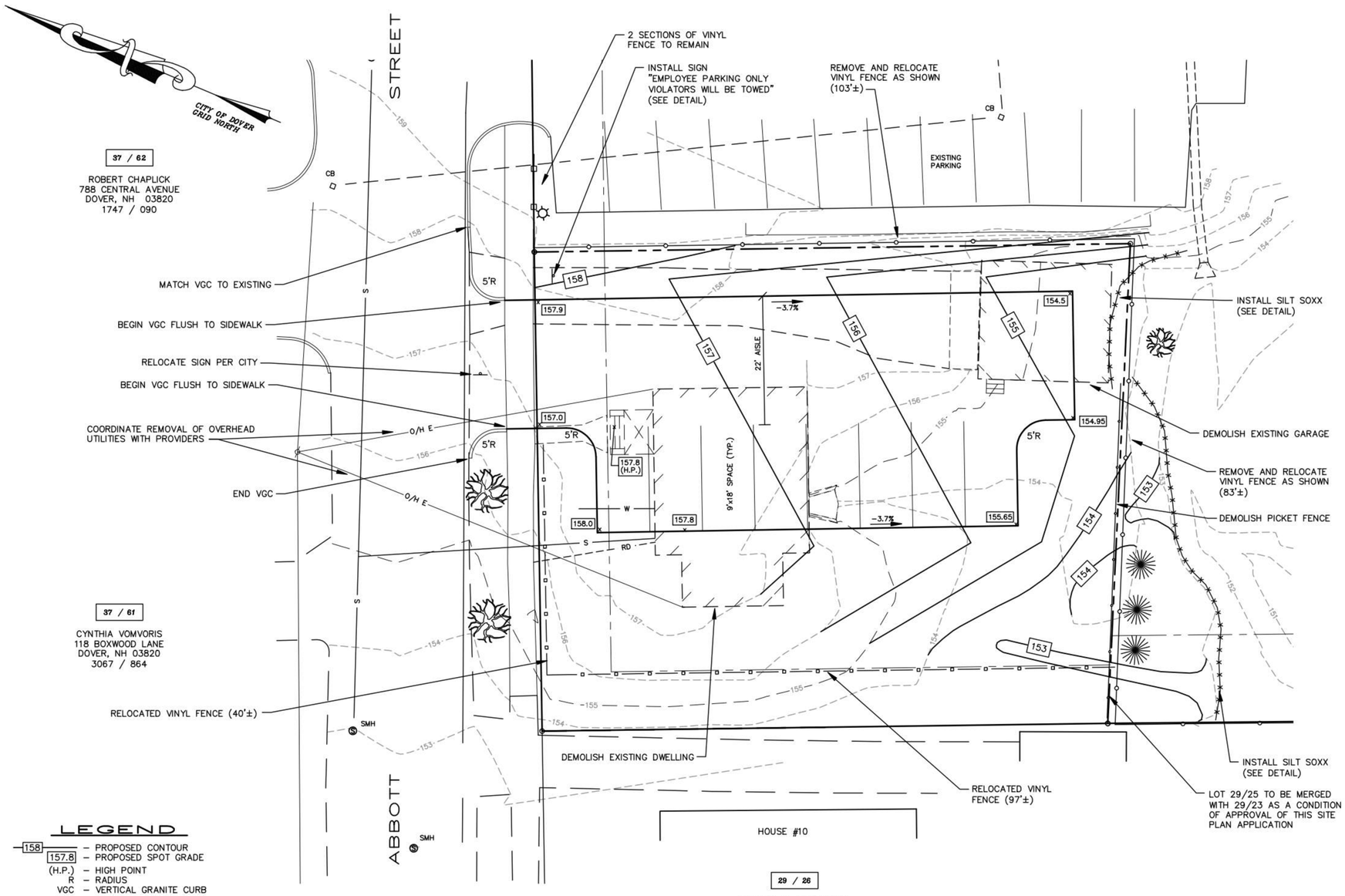
DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

DOVER PLANNING FILE No. P 19-__

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: NONE
DATE: 1/16/19
SHEET 3 OF 9
PROJECT #1539



LEGEND

158 ——— – PROPOSED CONTOUR
157.8 – PROPOSED SPOT GRADE
(H.P.) – HIGH POINT
R – RADIUS
VGC – VERTICAL GRANITE CURB

SEE SHEET 3 OF 8 FOR NOTES

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 OF THE OWNER.
3. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES (811).
4. THE CONTRACTOR SHALL REMOVE AND DIPSOSE OF ALL EXISTING STRUCTURES, UTILITES AND PAVEMENT ON THE SITE TO THE LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE, BUT ARE NOT LIMITED TO: PAVEMENT, BUILDINGS, FENCES AND TREES.
5. IT IS THE CONTRACTORS 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. 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.
9. 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.
10. PURSUANT TO CITY OF DOVER ORDINANCE AND APPROVALS ASSOCIATED WITH THIS WORK, CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY – FRIDAY 7am – 6pm, SATURDAY 8am – 5pm, WITH NO SUNDAY HOURS. HOURS OF CONSTRUCTION SHALL BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR GENERAL CONTRACTOR, SAID SIGNAGE SHALL BE LOCATED AND APPROVED BY THE CITY ENGINEER OR DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT.

No.	DATE	BY	REVISION

FILE: W10 CP\2096\15-2096 SITE 2018

SITE PLAN – GRADING, DRAINAGE, UTILITY & EROSION CONTROL PLAN

TAX MAP 29, LOTS 23 & 24

DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

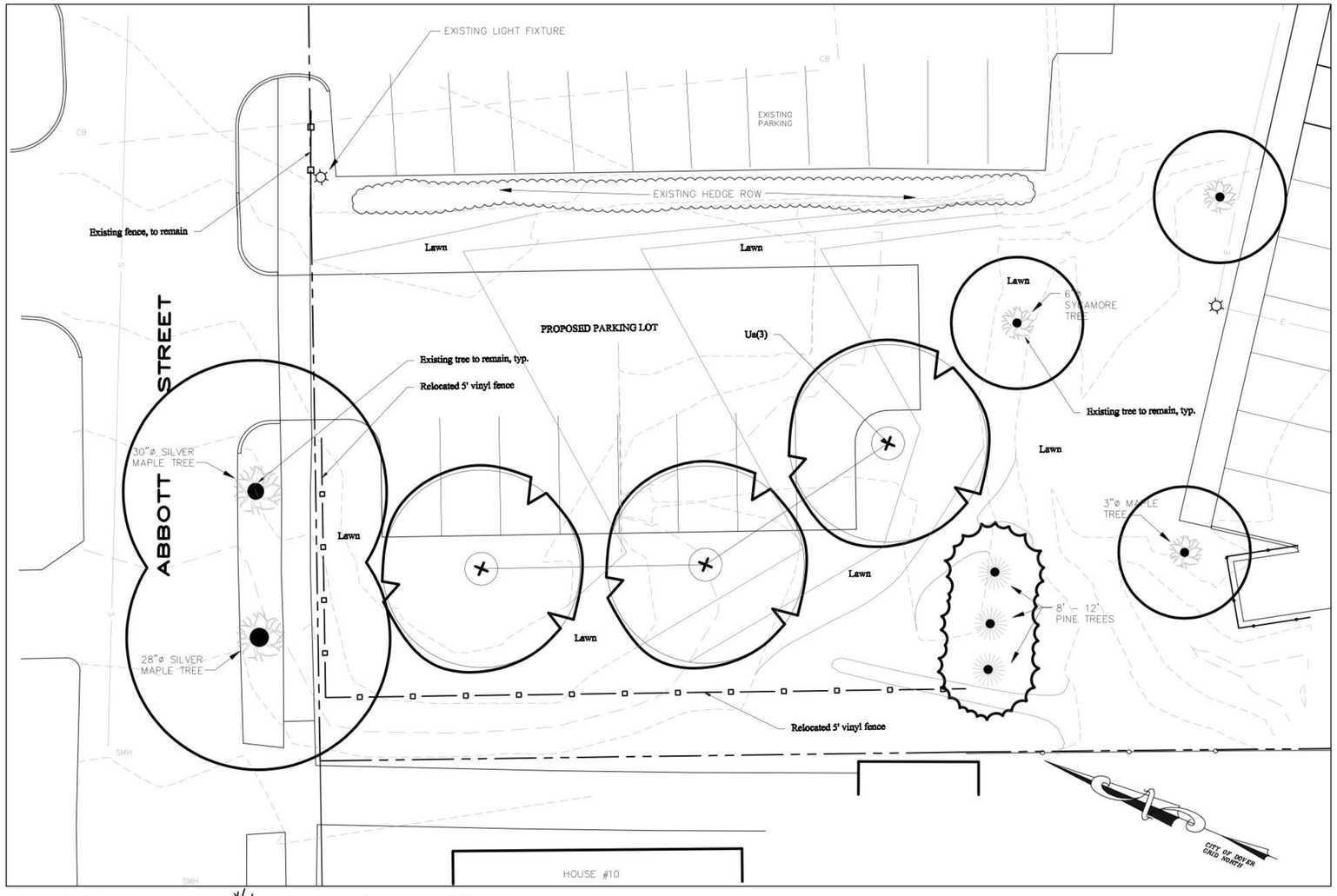
OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

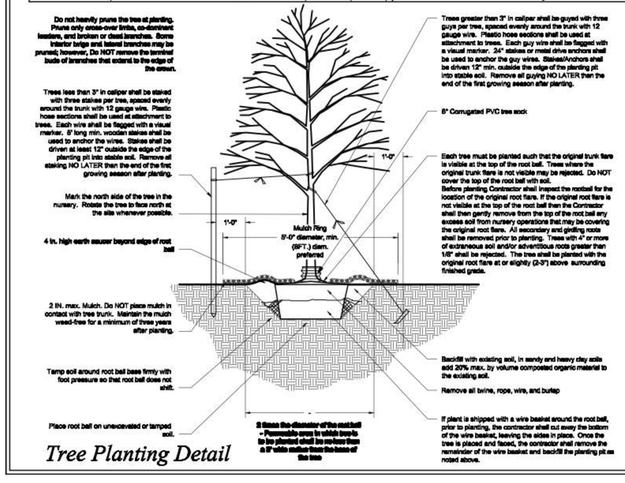
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SCALE IN FEET

DOVER PLANNING FILE No. P 19-__

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: 1" = 10'
DATE: 1/16/19
SHEET 4 OF 9
PROJECT #1539





Tree Planting Detail

Plant List

TREES					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ua	*Ulmus americana 'Princeton'*	Princeton American Elm	3	3-3.5" Cal	B&B

Landscape Notes

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

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

No.	DATE	BY	REVISION

SITE PLAN — LANDSCAPE PLAN

TAX MAP 29, LOTS 23 & 24

DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

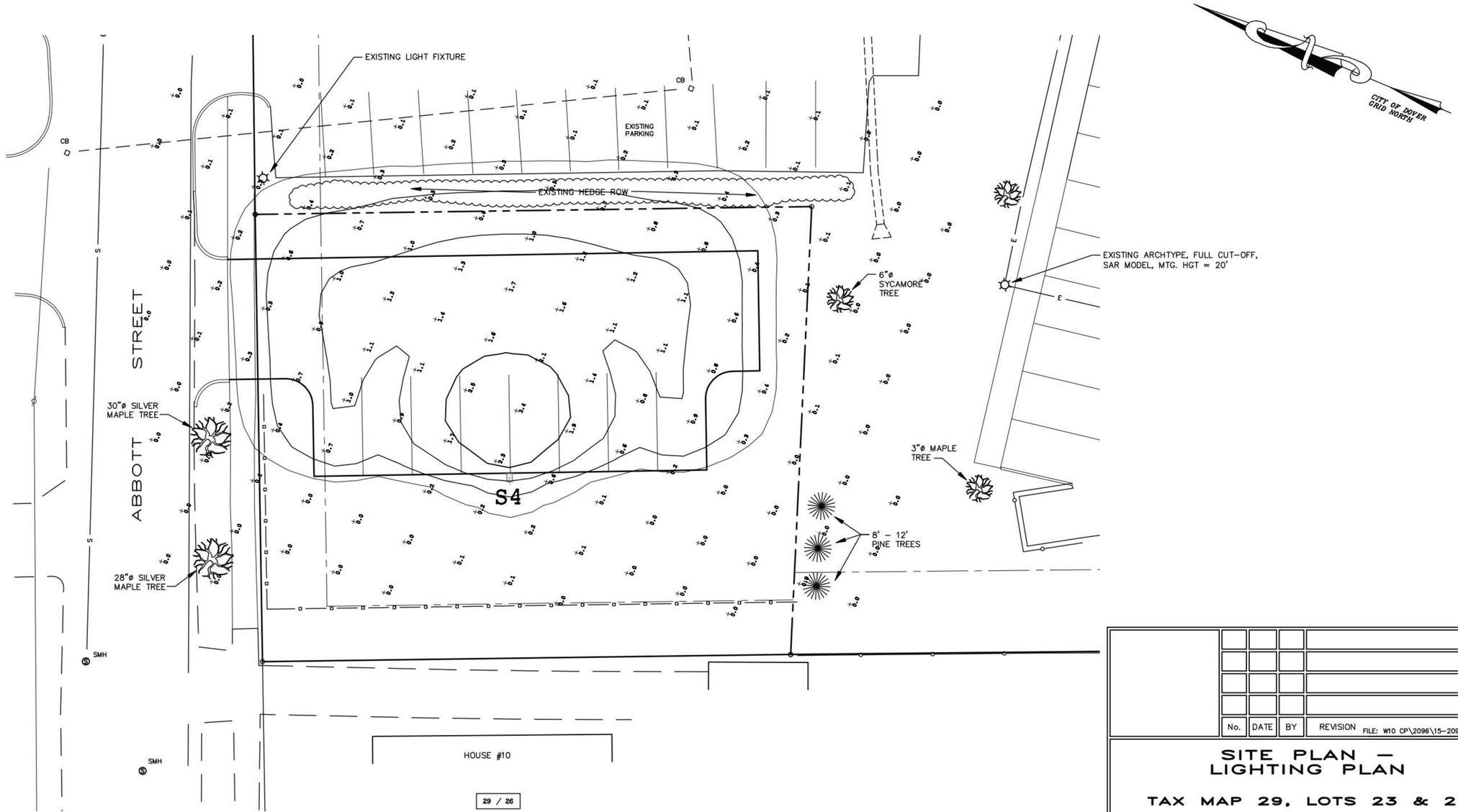
OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

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SCALE IN FEET

DOVER PLANNING FILE No. P 19-__

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: VM
SCALE: 1" = 10'
DATE: 2/6/19
SHEET 5 OF 9
PROJECT #1539



StatArea_1
PARKING LOT AREA ONLY
Illuminance (Fc)
Average = 1.31
Maximum = 3.4
Minimum = 0.4
Avg/Min Ratio = 3.28
Max/Min Ratio = 8.50

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
⊣⊢	1	S4	SINGLE	TLM-E03-LED-E1-SL4-HSS/ SSS4A20SFN1 (20' AFG)

No.	DATE	BY	REVISION

FILE: W10 CP\2096\15-2096 SITE 2018

SITE PLAN — LIGHTING PLAN

TAX MAP 29, LOTS 23 & 24

DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
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SCALE IN FEET

DOVER PLANNING FILE No. P 19-___

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: 1" = 10'
DATE: 1/16/19
SHEET 6 OF 9
PROJECT #1539

PROJECT NAME AND LOCATION

Applicant: Central Partners, LLC
784 Central Avenue
Dover, New Hampshire

LATITUDE: 43° 12' 42"
LONGITUDE: 70° 59' 29"

DESCRIPTION

The project consists of the construction of a employee parking area on a 0.9 ac. parcel of land with associated site improvements.

DISTURBED AREA

The total area to be disturbed is approximately 6,700 s.f.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control silt fences and stabilized construction entrance.
2. Clear and Grub wooded areas.
3. Demolish house, garage, & driveway.
4. Strip loam and stockpile in designated area.
5. Stabilize all swales with sod lining and jute matting prior to directing flow to them. Stabilize detention pond slopes with jute matting. All areas shall be stabilized within 72 hours of achieving finished grade.
6. Construct pavements.
7. Loam and seed disturbed areas.
8. When all construction activity is complete and site is stabilized, remove all inlet protection silt fences and sediment that has been trapped by these devices.

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

PROJECT PHASING

The proposed project will be constructed in a single phase.

NAME OF RECEIVING WATER

Unnamed wetlands tributary to the Cochecho River (approx. 1 mile away).

TEMPORARY EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES

As indicated in the sequence of Major Activities, the inlet protection and silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Areas where construction activity temporarily ceases for more than twenty eight (28) days will be stabilized with a temporary seed and mulch within twenty-one (21) days of the last disturbance. Once construction activity ceases permanently in an area, silt fences and inlet protection and any earth/dikes will be removed once permanent measures are established.

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

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site will be filtered through inlet protection and silt fences. All storm drain inlets shall be provided with inlet protection. Stone rip rap shall be provided at the outlets of drain pipes and culverts.

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

A. GENERAL

These are the general inspection and maintenance practices that will be used to implement the plan.

1. The smallest practical portion of the site will be denuded at one time, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.
2. All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
3. All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built up sediment will be removed from silt fence or inlet protection when it has reached one third the height of the fence or barrier, or when "bulges" occur.
5. All diversion dikes will be inspected and any breaches promptly repaired.
6. Temporary seeding and planting will be inspected for bare spots, washouts, and unhealthy growth.
7. A maintenance inspection report will be made after each inspection.
8. The Contractor's site superintendent will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.
9. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.

B. MULCHING

1. Timing

Mulching – mulch should be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this.

a. Apply mulch prior to any storm event.

This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.

b. Required Mulching within a specified time period.

The time period can range from 21 to 28 days of inactivity on an area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

2. Guidelines for Winter Mulch Application.

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting	As per manufacturer Specifications	Used in scope areas, water coursed and other areas.
Crushed Stone 1/4" to 1-1/2" dia.	Spread more than 1/2" thick	Effective in controlling

3. Maintenance

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

C. TEMPORARY GRASS COVER

1. Seedbed Preparation

Apply fertilizer at the rate of 600 pounds per acre of 10-10-10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.

2. Seeding

a. Utilize annual rye grass at a rate of 40 lbs/acre.

b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.

c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. Maintenance

Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

D. FILTERS

1. Silt Fence

a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM-51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM-52	Extra Strength 50 lb/lin in (min)
Flow Rate	VTM-51	0.3 gal/sf/min (min)

* Requirements reduced by 50 percent after six (6) months of installation.

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120° F.

b. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer and driven securely into the ground (minimum of 16 inches).

c. A trench shall be excavated approximately six (6) inches wide and eight (8) inches deep along the line of posts and upslope from the barrier.

d. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces. Filter cloth shall be fastened securely to the woven wire fence with ties spaced every 24 inches at the top, mid-section and bottom.

e. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees. When two sections of filter cloth adjoin each other, they shall be overlapped by 6 inches, folded and stapled. Standard Strength 30 lb/lin in (min)

f. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (g) applying.

g. The trench shall be backfilled and the soil compacted over the filter fabric.

h. Silt fences shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

3. Sequence of Installation

Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.

4. Maintenance

a. Inlet protection barrier and silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary check dam.

b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.

c. Sediment deposits must be removed when deposits reach approximately one third (1/3) the height of the barrier.

d. Any sediment deposits remaining in place after the silt fence or haybale barrier is no longer required shall be removed. The area shall be prepared and seeded.

e. Additional stone may have to be added to the construction entrance, periodically to maintain proper function of the erosion control structure. of the erosion control structure.

E. Permanent Seeding:

1. Bedding – stones larger than 1½", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 4" to prepare a seedbed and mix fertilizer into the soil.
2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

   Agricultural Limestone @ 100 lbs. per 1,000 s.f.
   10-20-20 fertilizer @ 12 lbs. per 1,000 s.f.
3. Seed Mixture (recommended):

   Rate:

Type	LBS. per Acre	LBS per 1,000 sf
Tall Fescue	20	0.45
Creeping Red Fescue	20	0.45
Birdsfoot Trefoil	8	0.20
Total	48	1.10

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook.

   Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water coursed, easily erodible soils (fine sand/silt) etc.

5. Provide a minimum of 4 inches (5 inches loose) of topsoil to all areas to be seeded.

F. Winter Construction Notes

a. 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 events.

b. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized with stone or erosion control blankets appropriate for the design flow conditions.

c. After November 15th, incomplete road or 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.

No.	DATE	BY	REVISION
			FILE: W10 CP\2096\15-2096 SITE 2018

EROSION CONTROL NOTES

TAX MAP 29, LOTS 23 & 24

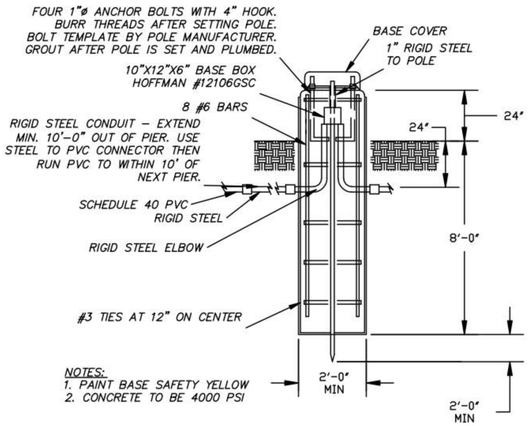
DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

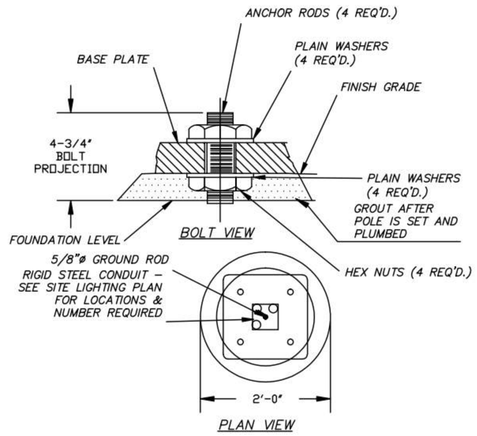
OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

DOVER PLANNING FILE No. P 19-___

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: NONE
DATE: 1/16/19
SHEET 7 OF 9
PROJECT #1539

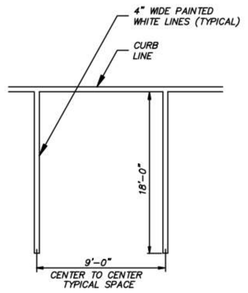




LIGHT POLE BASE

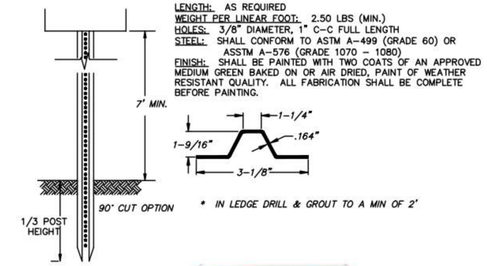
NOT TO SCALE

NOTE:
REFER TO ELECTRICAL DRAWINGS FOR GROUNDING REQUIREMENTS.



SINGLE STRIPED PARKING STALL

NOT TO SCALE

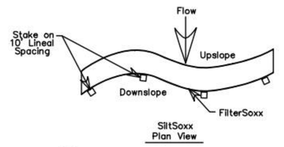




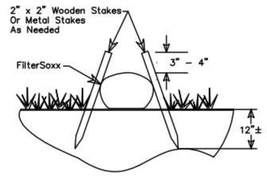
NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

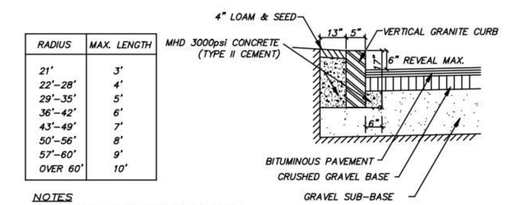
SIGN LEGEND & SIGN POST

NOT TO SCALE



Notes:
1. All material to meet Filtrexx specifications
2. FilterSoxx compost/soil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.



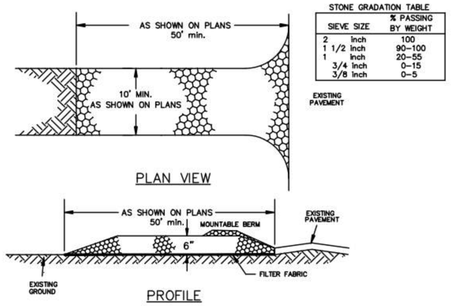


RADIUS	MAX. LENGTH
21'	3'
22'–28'	4'
29'–35'	5'
36'–42'	6'
43'–49'	7'
50'–56'	8'
57'–60'	9'
OVER 60'	10'

NOTES
1. SEE SITE PLAN FOR LIMITS OF CURBING.
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF CURB STONES = 3'
4. MAXIMUM LENGTH OF CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE CHART)
6. ALL RADII 20 FEET AND SMALLER TO BE CONSTRUCTED USING CURVED SECTIONS.

VERTICAL GRANITE CURB

NOT TO SCALE



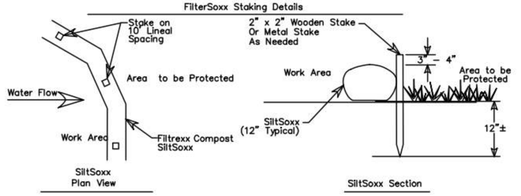
STONE GRADATION TABLE	
SIEVE SIZE	% PASSING BY WEIGHT
2 Inch	100
1 1/2 Inch	90–100
1 Inch	20–55
3/4 Inch	0–15
3/8 Inch	0–5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – NHDOT STANDARD STONE SIZE #4 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS. (SEE GRADATION TABLE)
2. LENGTH – DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. WIDTH – FULL DRIVE WIDTH (10 FOOT MINIMUM).
5. FILTER FABRIC – MIRAFI 600X OR APPROVED EQUAL.
6. SURFACE WATER CONTROL – ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION ENTRANCE

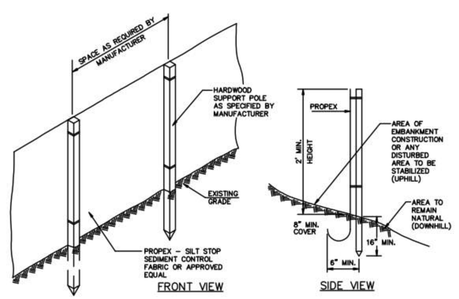
NOT TO SCALE



Notes:
1. All material to meet Filtrexx specifications
2. SiltSoxx compost/soil/rock/seed fill to meet application requirements.
3. SiltSoxx depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
4. Compost material to be dispersed on site, as determined by Engineer.

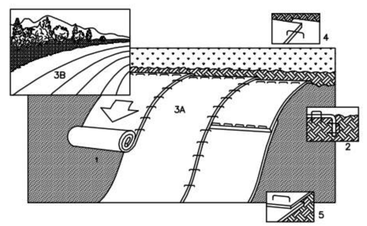
SiltSoxx Details

NOT TO SCALE



SILT FENCE DETAIL

NOT TO SCALE



NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. NORTH AMERICAN GREEN DS150 1-800-772-2440.

NOTE:
TO BE INSTALLED ON SLOPES STEEPER THAN 3:1 UNLESS OTHERWISE STABILIZED BY STONE RIP-RAP.

EROSION CONTROL BLANKET SLOPE INSTALLATION

NOT TO SCALE

No.	DATE	BY	REVISION
			FILE: W10 CP\2096\15-2096 SITE 2018

MISCELLANEOUS SITE DETAILS

TAX MAP 29, LOTS 23 & 24

DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

DOVER PLANNING FILE No. P 19-__

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: NONE
DATE: 1/16/19
SHEET 8 OF 9
PROJECT #1539



CITY OF DOVER GRID NORTH

NEIGHBORHOOD PLAN BASED ON INFORMATION COLLECTED AT:
https: //dovernh.mapgeo.io/datasets/properties

https: //dovernh.mapgeo.io/datasets/properties?abuttersDistance=200&basemap=google-satellite&latlng=43.212473%2C-70.875493&panel=themes&themes=%5B%22aerial-photo-2015%22%2C%22address-points-pilot-review-125%22%2C%22zoning%22%5D&zoom=17

ZONING DISTRICT LEGEND

O	– OFFICE (O) DISTRICT
R-12	– MEDIUM DENSITY RESIDENTIAL (R-12) DISTRICT
CBD	– CBD GENERAL SUB-DISTRICT
H	– HOSPITAL (H) DISTRICT
B-3	– THOROUGHFARE BUSINESS (B-3) DISTRICT
– – –	– ZONING DISTRICT BOUNDARY

No.	DATE	BY	REVISION
			FILE: W10 CP\2096\15-2096 SITE 2018

NEIGHBORHOOD PLAN

TAX MAP 29, LOTS 23 & 24

DERMATOLOGY & SKIN HEALTH
780 & 784 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE
COUNTY OF STRAFFORD

OWNER OF RECORD: Central Partners Realty, LLC
784 Central Avenue
Dover, New Hampshire 03820

200 100 0 100 200 400 600 800
SCALE IN FEET

DOVER PLANNING FILE No. P 19-___

Civilworks New England
civil engineering
P.O. Box 1166 181 Watson Road
Dover, NH 603-749-0443

DESIGN: DCL / RJM
SCALE: 1"= 200'±
DATE: 1/16/19
SHEET 9 OF 9
PROJECT #1539

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: April 02, 2018]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Little Bay Marina and Development, LLC Telephone # (603) 224-2251

Address of Applicant: 111 Loudon Road, Concord, NH 03301

E-Mail Address: aaversa@nedermatology.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 421 Dover Point Road

Assessor's Map # 8 Lot(s) # 9, 10, 11, & 12

Zoning District(s) LBW-Little Bay Waterfront Overlay District(s) Conservation District, Wetlands Protection District

Size of Parcel: 152,438 sq. ft. 3.49 ac. Property Deed: Book 2770, 4101, 4415, 4475 Page: 977, 409, 221, 288

Existing Use of Property: Residential / Commercial / Marina

SITE PLAN INFORMATION

Describe Proposed Use: 23 residential units and marina/marina office w/(1) apartment

Area of Parcel to be Developed: 152,438 sq. ft.

If Multi-family Residential, Specify Number of Units & Buildings Proposed: 23 units, 6 buildings (Mixed Use Bldg 1 Unit)

Number of Parking Spaces: Existing 60 boat trailers Proposed 27

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

Number of Employees Total: 2 In Maximum Shift: 2

Disposition of Parcel:

Building Footprint 5-4120 sf, 1-1400 sf, 1-3090 sf sq. ft.

Total Building Area 25,090 sq. ft.

Paved Area 50,890 sq. ft.

Building Setbacks:

Front Yard 28 ft.

Rear Yard 104 ft.

Side Yard: Right 17.1 ft. Left 12.9 ft.

City Water? X Yes ___ No How far is city water from the property? along frontage

City Sewer? X Yes ___ No How far is city sewer from the property? along frontage

BUILDING INFORMATION

Type of Building to be Built: Wood-frame

Height of Building: 34'-47' Finished Floor Elevation: Varies

Number of Seats (where applicable) 0

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

WAIVER REQUESTS

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

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

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) McEneaney Survey Associates, Inc.

Address P.O. Box 681, Dover, NH Telephone #: (603) 742.0911

Professional License #: 661 E-mail address: msa@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Civilworks New England

Address P.O. Box 1166, Dover, NH Telephone #: (603) 749.0443

Professional License #: 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. 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: 11/5/18

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

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Little Bay Marina and Development, LLC Telephone #(603) 224-2251

Address of Applicant: 111 Loudon Road, Concord, NH 03301

E-Mail Address: aaversa@nedermatology.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # 8 Lot(s) # 9, 10, 11, 12

Address of Property: 421, 423, 425, 427 Dover Point Road

Zoning District(s) LBW Overlay District(s) Conservation District
Wetlands Protection District

Existing Use of Property: residential/commercial/marina

CONDITIONAL USE PERMIT INFORMATION

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

☒ Conservation District ☐ RCM Use Overlay District ☐ I-1 District Uses

☐ 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:

The project applicant proposes to install a driveway, utilities, sidewalk, a commercial building, and conduct site grading within a small wetland island (2,304 SF) and the associated 50' wetland buffer.

Total permanent impact area within the non-tidal wetlands on-site of 2,304 SF and the total 50' Dover wetland buffer impact will be 15,579 SF A total of 58,203 SF of temporary and permanent impact of previously developed 100' tidal buffer will be disturbed within the property.

PROJECT NARRATIVE
for
Little Bay Marina
423 Dover Point Road, Dover, NH
Tax Map 08, Lots 09, 10, 11 & 12

PROJECT OVERVIEW

The project applicant is proposing to combine four existing lots, remove the existing buildings and driveways, and create a new residential neighborhood with a commercial marina using the existing slips and moorings. The proposed site will include a new mixed use marina office building including (1) residential 2-bedroom unit, (23) additional 3-bedroom residential units within (6) new buildings, a new driveway layout, a new drop-off access at the waterfront, and replacing any remaining gravel areas with green space. The project will impact 2,304 square feet of non-tidal wetlands.

As a portion of the work proposed is within the 100' tidal buffer but does not fill greater than 0.5 acre-feet. The project will require filing for additional State Permits, including an Alteration of Terrain (AOT) permit and Wetland Permit including Shoreland permitting requirements.

The project consists of the following general improvements:

- Remove existing buildings, driveways, and existing site improvements
- Construction of (6) new multi-unit buildings and (1) Commercial mixed-use building
- Construction of stormwater treatment structures, grading, and other drainage requirements
- Site utility construction
- Construct new parking lots, 24' wide driveway, and access ways
- Stabilize remaining areas with loam and seed

PROJECT LOCATION AND SITE CHARACTERISTICS

The project site is located within the Little Bay Waterfront district. The project area consists of (4) parcels of land shown on Tax Map 08 as Lots 09, 10, 11 and 12. Lot 09 contains +/- 2.04 acres and is currently developed as a commercial marina with onsite storage, patron parking, and access to the existing slips and mooring field. Lots 10, 11 and 12 contain a total of +/- 1.45 acres and are currently developed as residential housing lots. The project proposes to combine the existing (4) lots with a lot line adjustment application attached. All the lots are accessed from Dover Point Road and are located along Little Bay.

DRIVEWAY AND PARKING LOT

The proposed driveway will be 24' with curbing and sidewalk. The proposed entrance located along Dover Point Road will be 24' wide and will service all the proposed buildings. There will be +/- 26,726 S.F. of porous pavement in the parking areas. Lighting for the proposed parking lot and driveway will be per the lighting plan.

For the proposed development, the City of Dover Parking maximums allow for the following:

- LBW Residential (24 Units)*(1.4.+0.5) = 45.6 Spaces Maximum
- LBW Office (1400 SF)/(275 SF) = 5.1 Spaces Maximum
- Boat Slips (42 Slips/0.8) = 34 Spaces
    - Total for Site = **84.7 Spaces Maximum (Surface)**

- Proposed Garage (23)*(2) = 46 Private Garage Spaces
- Proposed Surface Spaces = 27 Public Surface Spaces
- Total proposed = 73 Spaces (2 Accessible Space)

WETLAND IMPACT TYPE

The project work requires a standard Dredge and Fill Wetlands Permit Application. Approximately 2,304 SF of non-tidal wetland will be impacted. The total area of the 100' tidal buffer is 58,203 S.F. and the 50' buffer area to be impacted will be 15,579 S.F. The project does not impact bogs, marshes, sand dunes, tidal wetlands, cedar swamps, undisturbed tidal buffer zone, or involve any work within 50 feet of a salt marsh. The project is not located within 100 feet of prime wetlands.

DRAINAGE

The proposed development of the site includes the demolition of all the existing structures as well as the construction of 6 multi-unit residential buildings as well as a mixed use commercial building with the marina offices on the first floor and an apartment above. The development also includes the construction of an access road, parking for the residential and commercial use of the site, utility upgrades, and drainage improvements including the stormwater quality treatment structures of rain gardens, porous pavement, and a treatment swale.

The post development watershed is modeled utilizing the same point of analysis, Little Bay, incorporated in the pre development conditions to allow direct comparison of the peak runoff between the pre and post developed conditions. The post development condition has been divided into sixteen sub-catchments to accurately model the proposed development with the inclusion of rain gardens, porous pavement areas, a detention

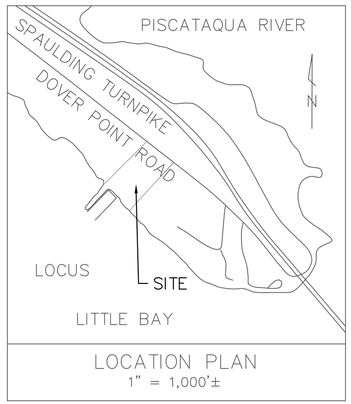
pond, and a treatment swale as well as the closed drainage system. The stormwater conveyance systems include an existing swale to the north of the site and a closed drainage system which includes under drains and drain manholes to the south, both of which discharge to Little Bay .

The analysis indicates that the proposed development of the site will have negligible impact on the watershed.

UTILITIES

The proposed project expects to connect to City of Dover water and sewer as well as Unitil natural gas, and Eversource electric. Natural Gas lines are located within the Dover Point Road right-of-way which is the anticipated location for this connection. The existing site is already serviced by Natural Gas and Electricity. City of Dover water and sewer lines are located within the Dover Point Road right-of-way. The project anticipates connecting to City of Dover water via the Portland Road water main. Internal water services will be 6” mains with 2” connections to the buildings. Buildings will be sprinkled and connections made per the City’s Community Services Utility Division and Fire Department requirements and standards. The project plans to connect to the gravity sewer lines in Dover Point Road. Electricity for the site is proposed to be provided by the existing electric lines located along Dover Point Road.

LITTLE BAY MARINA MIX USE DEVELOPMENT
MULTI UNIT RESIDENTIAL
AND MARINA OFFICE SITE PLAN



LOCATION PLAN
1" = 1,000'±

TAX MAP 8, LOTS 9, 10, 11 & 12

DOVER POINT ROAD

DOVER, NH

FEBRUARY 21, 2019

OWNER/APPLICANT — LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

_____ _____
FOR:_____ DATE

SITE CIVIL ENGINEER — CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

LAND SURVEYOR — MCENEANEY SURVEY ASSOCIATES, INC.
P.O. BOX 681
24 CHESTNUT STREET
DOVER, NH 03820
(603) 742-0911

LANDSCAPE ARCHITECT — WOOBBURN & COMPANY
103 KENT PLACE
NEWMARKET, NH 03857
(603) 659-5949

SHEET INDEX

SHEET INDEX	SHEET
COVER SHEET	1
NEIGHBORHOOD PLAN	2
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	3
NOTE SHEET	4
OVERALL SITE PLAN	5
DEMOLITION PLAN	6
SITE PLAN	7
GRADING, DRAINAGE & EROSION CONTROL PLAN	8
SITE IMPACT PLAN	9
UTILITY PLAN	10
EROSION CONTROL NOTES	11
EROSION CONTROL DETAILS	12
DETAILS	13 - 16
LIGHTING PLAN	17
LIGHTING DETAILS	18
DOVER LADDER TRUCK MOVEMENT PLAN	19
SITE SPECIFIC SOILS PLAN	-
LANDSCAPE PLAN	-
STREET SCAPE PLAN	-
ARCHITECTURAL ELEVATIONS & FLOOR PLANS	-

PLANNING FILE NO.: P18-___



ABUTTERS LIST
(WITHIN 200 FT)

	TAX MAP	LOT NO.	NAME & ADDRESS
8 / 8-B	8	8-B	JOHN H & M BLACKWELL 57 PLEASANT LANE HAMPSTEAD, NH 03841
8 / 13-A	8	13-A	NEWICK FAMILY REAL ESTATE LLC & NEWWICK JOAN LIFE ESTATE 431 DOVER POINT ROAD DOVER, NH 03820
8 / 29	8	29	STATE OF NEW HAMPSHIRE PO BOX 483 CONCORD, NH 03302-0483
8 / 38	8	38	SETH C. DESJARDINS 422 DOVER POINT ROAD DOVER, NH 03820
8 / 38-A	8	38-A	MILES C. & COUTRNEY E. ROBERGE 420 DOVER POINT ROAD DOVER, NH 03820
8 / 38-C	8	38-C	PATRICK J. CRAGIN PO BOX 250 DOVER, NH 03820
H / 33-D	8	38-D	PAUL G. LONG JR. 418 DOVER POINT ROAD DOVER, NH 03820

H / 33-E TAX MAP LOT NUMBER

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

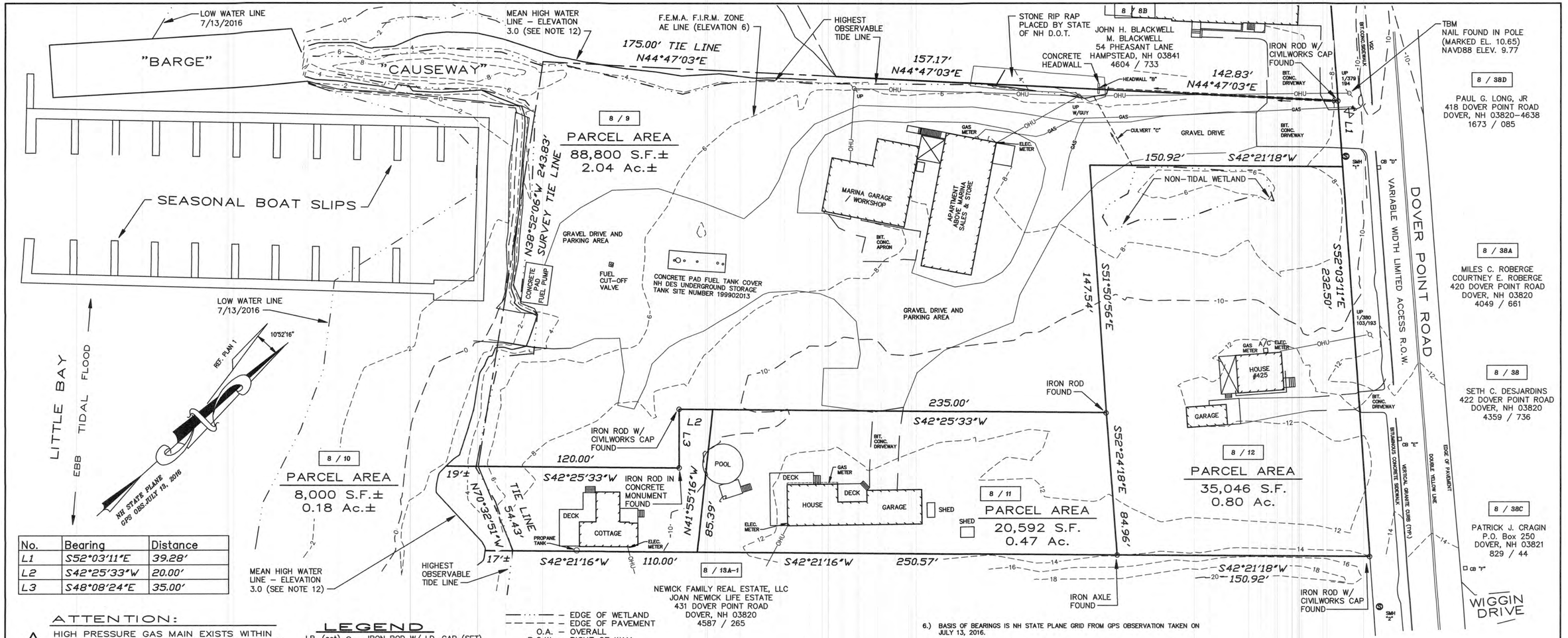
DATE: 11-2-18
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

NEIGHBORHOOD PLAN

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

LITTLE BAY MARINA &
DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

2



No.	Bearing	Distance
L1	S52°03'11"E	39.28'
L2	S42°25'33"W	20.00'
L3	S48°08'24"E	35.00'

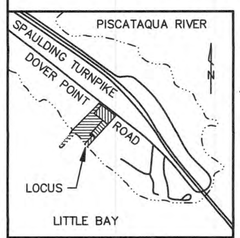
ATTENTION:

⚠ HIGH PRESSURE GAS MAIN EXISTS WITHIN THE RIGHT OF WAY OF DOVER POINT ROAD; PRIOR TO ANY EARTH MOVING ACTIVITY CONTACT DIGSAFE AT 1-888-344-7233 TO VERIFY LOCATION.

LEGEND

I.R. (set) o – IRON ROD W/ I.D. CAP (SET)
S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
-o- UP – UTILITY POLE

– · – · – EDGE OF WETLAND
– – – – – EDGE OF PAVEMENT
O.A. – OVERALL
R.O.W. – RIGHT OF WAY
CB – CATCH BASIN
SMH – SEWER MANHOLE
WV – WATER GATE VALVE
BIT. – BITUMINOUS
CONC. – CONCRETE
ELEV. – ELEVATION
FF – FINISH FLOOR
ELEC. – ELECTRIC
OHU – OVERHEAD UTILITIES



LOCATION PLAN
1" = 1,000'±

SANITARY SEWER STRUCTURE SCHEDULE

EXIST. SMH "1"
RIM ELEV: = 8.9
INVERT IN: = 3.1 – SITE
INVERT IN: = 3.2 NORTH WEST
INVERT OUT: = 3.0 SOUTH EAST

EXIST. SMH "2"
RIM ELEV: = 16.4
INVERT IN: =
INVERT OUT: =

STORMDRAINAGE STRUCTURE SCHEDULE

EXIST. CB "A"
RIM = 7.7
INVERT OUT = 4.1
SUMP = 3.7
12" HDPE

EXIST. HEADWALL "B" – CONCRETE
TOP = 5.3±
INVERT OUT: = 2.7 12" HDPE

EXIST. CULVERT "C"
INVERT IN = 4.8± 6" CMP
INVERT OUT = 4.0± 6" CLAY

EXIST. CB "D"
RIM = 10.0

EXIST. CB "E"
RIM = 12.3

EXIST. CB "F"
RIM = 13.3

NOTES:

1.) OWNERS OF RECORD:

8 / 9 — LITTLE BAY MARINA & DEVELOPMENT, LLC, 197 LOUDON ROAD, SUITE 350, CONCORD, NEW HAMPSHIRE 03301-8000, S.C.R.D. VOL. 4101, PAGE 409, REF. S.C.R.D. VOL. 4593, PAGE 978

8 / 10 — LITTLE BAY MARINA & DEVELOPMENT, LLC, 197 LOUDON ROAD, SUITE 350, CONCORD, NEW HAMPSHIRE 03301-8000, S.C.R.D. VOL. 4473 PAGE 288

8 / 11 — LITTLE BAY MARINA & DEVELOPMENT, LLC, 197 LOUDON ROAD, SUITE 350, CONCORD, NEW HAMPSHIRE 03301-8000D, S.C.R.D. VOL. 4589, PAGE 826

8 / 12 — LITTLE BAY MARINA & DEVELOPMENT, LLC, 197 LOUDON ROAD, SUITE 350, CONCORD, NEW HAMPSHIRE 03301-8000, S.C.R.D. VOL. 4415, PAGE 221

2.) 8 / 9 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) ZONING DISTRICT: LITTLE BAY WATERFRONT (LBW)

MINIMUM LOT SIZE	= 10,000 S.F.
MAXIMUM COVERAGE	= 50 PERCENT
MINIMUM FRONTAGE	= 75 FEET
FRONT SETBACK	= 15 FEET
ABUT A STREET SETBACK	= 15 FEET
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 15 FEET
MAXIMUM BUILDING HEIGHT	= 40 FEET

4.) PLAN INTENT: TO DEPICT THE PROJECT PARCEL BOUNDARIES AND IMPROVEMENTS AS OF NOVEMBER 2018, PARCELS ARE SERVICED BY MUNICIPAL SEWER AND WATER SUPPLY SYSTEMS.

5.) A PORTION OF PARCEL 8 / 9 & PARCEL 8 / 10 IS LOCATED WITHIN THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN, ZONE AE (ELEVATION 6) AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0405; SUFFIX E; MAP NUMBER 33017C0405E; EFFECTIVE DATE SEPTEMBER 30, 2015. PARCELS 8 / 11 AND 8 / 12 ARE LOCATED OUTSIDE OF THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0405; SUFFIX E; MAP NUMBER 33017C0405E; EFFECTIVE DATE SEPTEMBER 30, 2015.

6.) BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON JULY 13, 2016.

7.) VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON JULY 13, 2016.

8.) JURISDICTIONAL WETLANDS AND HIGHEST OBSERVABLE TIDE LINE (H.O.T.L.) IDENTIFIED AND FLAGGED BY DAMON BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES. DURING JULY 2016 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC.

9.) PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483-B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE LITTLE BAY H.O.T.L. (REFERENCE LINE).

10.) REFERENCE IS MADE TO CERTAIN SEWER EASEMENTS GRANTED TO THE CITY OF DOVER, ALTHOUGH IT APPEARS THAT THE SAID SEWER LINE WAS NEVER CONSTRUCTED.
PARCEL 8 / 9 – S.C.R.D. VOL. 1006, PAGE 450
PARCEL 8 / 11 – S.C.R.D. VOL. 1011, PAGE 244
PARCEL 8 / 12 – S.C.R.D. VOL. 1014, PAGE 904

11.) PARCELS ARE SUBJECT TO ACCESS RIGHTS IN COMMON WITH EACH OTHER.

12.) MEAN HIGH WATER (ELEVATION 3.0) IS BASED ON NATIONAL TIDAL DATUM EPOCH INFORMATION PUBLISHED BY NOAA FOR STATION 8423005, ATLANTIC TERMINALS TI4A NH (https://tidesandcurrents.noaa.gov/datums.html?id=8423005)

13.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DATED APRIL 2018 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

REFERENCE PLANS:

1.) PLAN OF LAND PREPARED FOR LITTLE BAY MARINA & DEVELOPMENT, LLC AND RICHARD J.C. & VICTORIA BENN AND LITTLE BAY MARINA & DEVELOPMENT, LLC, TAX MAP 8, LOT Nos. 9, 10, 11 & 12, DOVER POINT ROAD & LITTLE BAY, CITY of DOVER, COUNTY of STRAFFORD, STATE of NEW HAMPSHIRE. SCALE: 1" = 30'; DATED: APRIL 1, 2018; BY: THIS OFFICE. RECORDED S.C.R.D. PLAN 116-58.

2.) LOT LINE ADJUSTMENT PLAN PREPARED FOR ANN SHINE TAX MAP 8, LOT No. 8, 419 DOVER POINT ROAD AND JOHN ANASTAS & GLORIA ESPOSITO-ANASTAS TAX MAP 8, LOT No. 8B, 419A DOVER POINT ROAD, CITY of DOVER, COUNTY of STRAFFORD, STATE of NEW HAMPSHIRE. SCALE: 1" = 20'; DATED: AUGUST 17, 2018, REVISED THROUGH 9/18/18; BY THIS OFFICE. RECORDED S.C.R.D. PLAN 117-33.

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		

16-2123	EXIST. COND.	16-05	23-47
PROJECT NO	TYPE	FIELDBOOK & PAGES	

EXISTING CONDITIONS PLAN
PREPARED FOR
LITTLE BAY MARINA & DEVELOPMENT, LLC
TAX MAP 8, LOT Nos. 9, 10, 11 & 12
DOVER POINT ROAD & LITTLE BAY
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 18-___

DRAWN BY: RJM	FILE: W10 CP\2123\16-2123 2018EC
SCALE: 1" = 30'	DATE: NOVEMBER 27, 2018

30 15 0 15 30 60 90 120

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 661 KEVIN M. McENEANEY SIGNATURE

McEneaney Survey Associates, inc.
P.O. Box 681 – 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742-0911
SURVEYING – PLANNING – CONSULTING

GENERAL NOTES

1. OWNERS OF RECORD:

8 / 9, 10, 11 & 12	LITTLE BAY MARINA & DEVELOPMENT, LLC 111 LOUDON ROAD CONCORD, NEW HAMPSHIRE 03301 S.C.R.D. VOL. 4101, PAGE 409
8 / 9	– DENOTES TAX MAP AND PARCEL NUMBER.

2.

3. ZONING DISTRICT: LITTLE BAY WATERFRONT (LBW)

MINIMUM LOT SIZE	= 10,000 S.F.
MAXIMUM COVERAGE	= 50 PERCENT
MINIMUM FRONTAGE	= 75 FEET
FRONT SETBACK	= 15 FEET
ABUT A STREET SETBACK	= 15 FEET
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 15 FEET
MAXIMUM BUILDING HEIGHT	= 40 FEET

4. PLAN INTENT: TO DEPICT THE PROJECT PARCEL BOUNDARIES AND IMPROVEMENTS AS OF NOVEMBER 2018, PARCELS ARE SERVICED BY MUNICIPAL SEWER AND WATER SUPPLY SYSTEMS.
5. A PORTION OF PARCEL 8 / 9 & PARCEL 8 / 10 IS LOCATED WITHIN THE 0.2 PERCENT ANNUAL CHANCE FLOOD PLAIN, ZONE AE (ELEVATION 6) AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0405; SUFFIX E; MAP NUMBER 33017C0405E; EFFECTIVE DATE SEPTEMBER 30, 2015.
   PARCELS 8 / 11 AND 8 / 12 ARE LOCATED OUTSIDE OF THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0405; SUFFIX E; MAP NUMBER 33017C0405E; EFFECTIVE DATE SEPTEMBER 30, 2015.
6. BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON JULY 13, 2016.
7. VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON JULY 13, 2016.
8. JURISDICTIONAL WETLANDS AND HIGHEST OBSERVABLE TIDE LINE (H.O.T.L.) IDENTIFIED AND FLAGGED BY DAMON BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES. DURING JULY 2016 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC., IN ACCORDANCE WITH CHAPTER 170–27.1 OF THE ZONING ORDINANCE.
9. PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483–B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER H.O.T.L.
10. REFERENCE IS MADE TO CERTAIN SEWER EASEMENTS GRANTED TO THE CITY OF DOVER, ALTHOUGH IT APPEARS THAT THE SAID SEWER LINE WAS NEVER CONSTRUCTED.
    PARCEL 8 / 9 – S.C.R.D. VOL. 1003, PAGE 450
    PARCEL 8 / 11 – S.C.R.D. VOL. 1101, PAGE 244
    PARCEL 8 / 12 – S.C.R.D. VOL. 1014, PAGE 904
11. PARCELS ARE SUBJECT TO ACCESS RIGHTS IN COMMON WITH EACH OTHER.
12. 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 TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

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. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT AND POLES.
5. IT IS THE CONTRACTORS 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. 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.
9. 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.
10. EXISTING ("OLD") WATER SERVICES TO THE SUBJECT SITE SHALL BE DISCONNECTED AND SHUT–OFF AT THE WATER MAIN.
11. EXISTING SEWER SERVICES TO BE CUT AND PERMANENTLY CAPPED AT PROPERTY LINE.
12. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.

SITE DATA:

1. THE PARCEL IS SHOWN AS LOT NO. 9, 10, 11 & 12 4 ON MAP 8 OF THE CITY OF DOVER, TAX ASSESSOR'S MAPS.
2. THE PROJECT PARCEL CONTAINS 3.49 ACRES OF LAND.
3. PARKING CALCS:
   RETAIL: 1 PER 275 S.F. 1400 S.F./275 S.F. = 5 SPACES
   RESIDENTIAL UNITS: 24 24 UNITS x (1.4+0.5) = 45 SPACES
   GATHERING SPACES: SLIPS: 42 x .5 = 21 SPACES
   MAX ALLOWED = 72
   PROPOSED: 27 SURFACE PARKING AND 24 SPACES W/IN GARAGES = 51*
   * THE PROJECT PROPOSES GATHERING AND RETAIL SPACES THAT ARE INTENDED TO BE SHARED WITH RESIDENTIAL FOR VISITOR USE AS NEEDED.

SITE NOTES:

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A PLAN REFERENCED AND PREPARED BY MCENEANEY SURVEY ASSOCIATES INC. (SEE EXISTING CONDITIONS PLAN IN THIS PLAN SET)
2. THE INTENT OF THIS PLAN IS TO SHOW SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF 6 MULTI–UNIT CONDOMINIUM BUILDINGS, 1 MIXED–USE COMMERCIAL BUILDING, SURFACE PARKING, DRIVE AISLES, DRAINAGE IMPROVEMENTS, AND UTILITIES.
3. EXTERIOR LIGHTING SHALL BE CUT–OFF TYPE FIXTURES PER CHAPTER 149–14–E AND SHALL PROVIDE LIGHTING DIRECTED ON–SITE ONLY.
4. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
5. ALL ON–SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
7. STRIPE PARKING AREAS AS SHOWN INCLUDING HANDICAP SYMBOLS AND PAINTED ISLANDS. ALL MARKINGS SHALL BE CONSTRUCTED USING WHITE TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M–248–TYPE N.
8. 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.
9. PAINTED ISLANDS SHALL BE 4 INCHES WIDE DIAGONAL LINES 3 FEET ON CENTER.
10. ON–SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
11. LAYOUT OF BUILDING CORNERS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AND SHALL BE BASED UPON THE ARCHITECT'S FINAL FOUNDATION PLAN AND ALL SITE LAYOUT SHALL BE PERFORMED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.
12. SEE DETAILS FOR SIGN LEGENDS.
13. 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 OWNERS 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.
14. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTORS' 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.
15. 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.
16. BUILDING ADDRESSES TO BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
17. THE SITE DESIGN IS IN COMPLIANCE WITH THE APPLICABLE ACCESSIBILITY REGULATIONS 2009 IBC AND ANSI STANDARDS.
18. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.
19. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
20. THE SUBJECT PARCEL(S) IS (ARE) SERVED BY MUNICIPAL WATER AND SEWER.
21. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTRUBAIN ACTIVITY OCCURS.
22. AS–BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN 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.
23. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58–2 OF THE CODE OF THE CITY OF DOVER.
24. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY–FRIDAY 7 AM–6 PM, SATURDAY AND SUNDAY 9 AM–4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
25. 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.
26. 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.
27. BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
28. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
29. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
    NHDOT AOT: PENDING
    NHDOT WETLANDS/SHORLAND: PENDING
30. LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS.
    CONDITIONAL USE PERMIT: PENDING

GRADING NOTES:

1. ALL ROAD (INCLUDING PARKING LOT AND DRAINAGE) WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR CONSTRUCTION OF THE CITY OF DOVER, N.H. AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION", LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING PER THE ABOVE REFERENCED "STANDARD SPECIFICATIONS".
3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.
4. ALL DRAINAGE PIPES SHALL BE HDPE 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. DENSITY REQUIREMENTS:

LOCATION	MINIMUM DENSITY
BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREA	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.

10. SEE GENERAL EROSION CONTROL NOTES ON DETAIL SHEET.
11. 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.
12. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
13. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED FOR THIS PROJECT. THE SWPPP MUST INCLUDE THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE SITE. PARTIES RESPONSIBLE FOR DEVELOPING THE SWPPP SHOULD REFER TO THE EPA NPDES CONSTRUCTION GENERAL PERMITS NOTICE OF INTENT FOR A COMPLETE OUTLINE OR REQUIRED ELEMENTS. THESE PLANS AND THE STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN PREPARED FOR THIS PROJECT MAY BE UTILIZED IN FULFILLING THE REQUIREMENTS.
14. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
15. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
16. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE AND APPROVED CONSTRUCTION SIGN SHALL BE IN PLACE PRIOR TO ANY EARTH DISTURBING ACTIVITY.

UTILITY NOTES:

1. THE PROJECT SITE IS SERVED BY CITY WATER AND SEWER.
2. THE BEST AVAILABLE INFORMATION WAS USED TO DETERMINE THE LOCATION AND SIZE OF EXISTING UTILITIES. THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. THE EXACT SIZE AND LOCATION OF UTILITIES SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING WORK. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATIONS WITH THE RESPECTIVE UTILITY OWNERS PRIOR TO WORK BEING PERFORMED. CALL DIGSAFE AT 1–888–388–7233 OR "811"
4. ALL PROPOSED UTILITY SERVICES SHALL BE UNDERGROUND WITHIN THE SITE.
5. UNDERGROUND ELECTRIC, TELEPHONE, AND CABLE TV CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH/PER PSNH, VERIZON, COMCAST, AND UNITIL STANDARDS.
6. PROPOSED INSTALLATION OF UNDERGROUND CONDUITS FOR TELEPHONE, ELECTRIC AND GAS SERVICE SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTS ARE AS FOLLOWS:

ELECTRIC:	EVERSOURCE 1.800.362.7764
CABLE:	COMCAST 603.334.3615
GAS:	UNITIL 866.933.3821

7. SEE ELECTRICAL DRAWINGS AND DETAILS FOR OUTDOOR LIGHTING CONDUIT LOCATIONS.
8. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. SEWAGE LOADING (PER ENV. – Wq 1008.03 TABLE 1008–1)
    23 – 3 BEDROOM RESIDENTIAL TOWNHOMES =
    3 BDRMS x 150 GALS./DAY/BDRM x 23 = 10,350 GPD
    PLUS
    1 – 2 BEDROOM ACCESSORY APT. =
    2 BDRMS x 150 GALS./DAY/BDRM x 1 = 300 GPD
    PLUS
    1 MARINA OFFICE/DRY GOODS STORE @ 16'x20' = 1,400 S.F.
    1,400 S.F. x 5 GPD/100 S.F. + 10 GPD/EMPLOYEE (2) = 90 GPD
    TOTAL = 10,740 GPD
11. THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109–30 OF THE CODE OF THE CITY OF DOVER AND THE 2009 STATE BUILDING CODE.
12. 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.
13. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
14. ALL ON–SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
15. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
16. BACKFLOW PREVENTORS SHALL BE INSTALLED ON BOTH FIRE AND DOMESTIC WATER LINES.
17. ALL UNUSED WATER SERVICES SHALL BE REMOVED BACK TO THE CORPORATION AT THE MAIN.

LEGEND

S.F.	SQUARE FEET		PROPOSED SIGN
Ac.	ACRE	74	PROPOSED FINISH GRADE
±	MORE OR LESS	x 74.00	PROPOSED SPOT GRADE
(TYP.)	TYPICAL	PD	PROPOSED DRAIN LINE
S.C.R.D.			PAVEMENT WITH CURB
TBR	TO BE REMOVED		SILT BARRIER
	EXISTING UTILITY POLE	PG	PROPOSED GAS
	EXISTING SIGN	PW	PROPOSED WATER
	EXISTING WATER SHUT–OFF		PROPOSED FENCE
	EXISTING WATER VALVE	PE	PROPOSED ELECTRIC
	EXISTING GAS VALVE	PD	PROPOSED DRAIN LINE
	EXISTING HYDRANT	PUD	PROPOSED UNDERDRAIN LINE
	EXISTING LIGHT/SIGNAL POLE		PROPOSED CATCHBASIN
S	EXISTING SEWER MANHOLE		INLET PROTECTION
D	EXISTING DRAINAGE MANHOLE		HANDICAP PARKING SYMBOL
	EXISTING CATCHBASIN		PROPOSED CONCRETE
5'R	PAVEMENT RADIUS		PROPOSED SIDEWALK
SGC	SLOPE GRANITE CURB		PROPOSED POROUS PAVEMENT
VGC	VERTICAL GRANITE CURB		
x 74.00	EXISTING SPOT GRADE		
94	EXISTING GRADE		
OHW	OVERHEAD WIRES		
E	EXISTING ELECTRIC		
W	EXISTING WATER LINE		
S	EXISTING SEWER LINE		
D	EXISTING DRAINAGE LINE		
G	EXISTING GAS LINE		

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18–___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

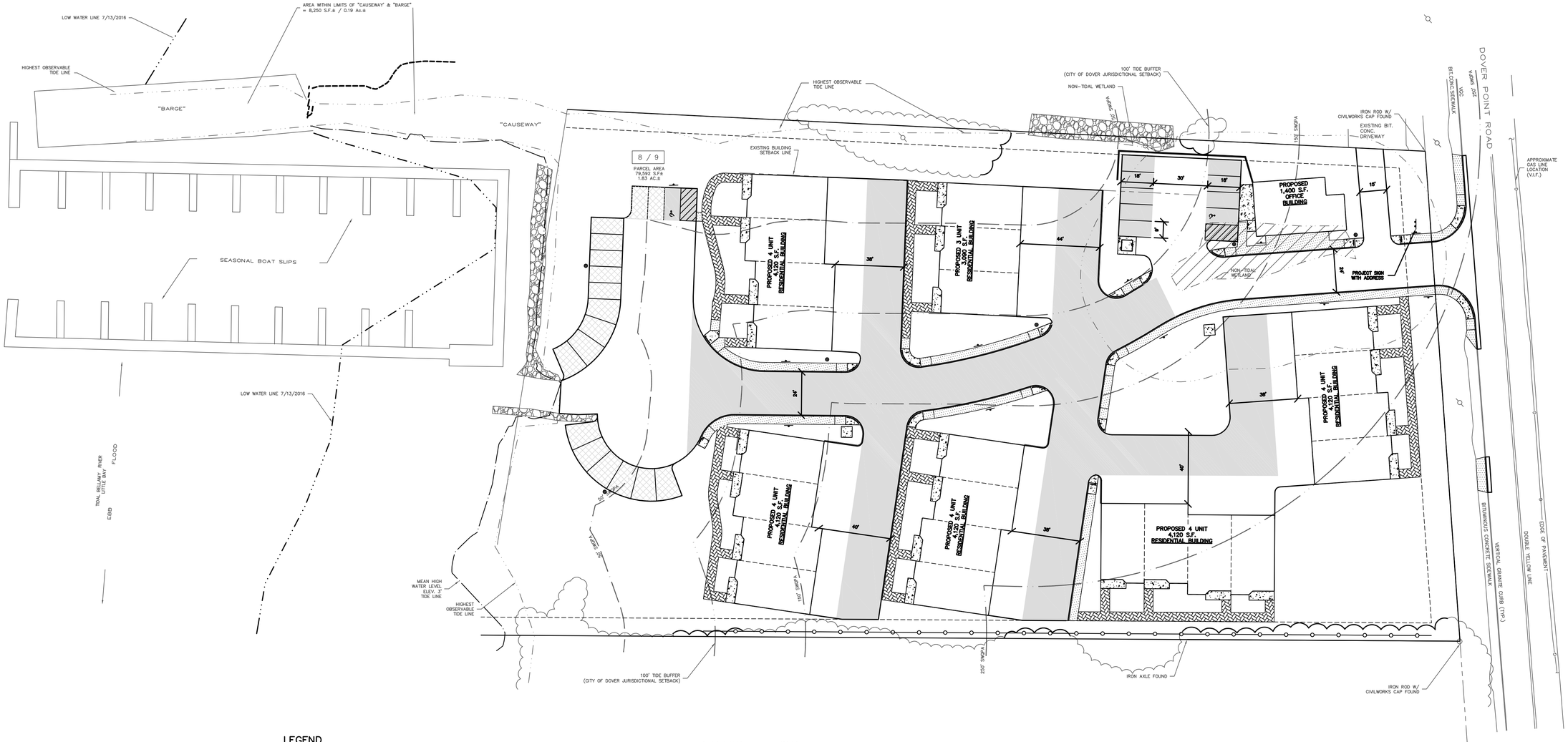
NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1–22–19

DATE: 2–21–19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

NOTE SHEET

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH



LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP.)	TYPICAL
S.C.R.D.	
TBR	TO BE REMOVED
	EXISTING UTILITY POLE
	EXISTING SIGN
	EXISTING LIGHT/SIGNAL POLE
	PROPOSED SIGN
	PAVEMENT WITH CURB
	PROPOSED FENCE
	HANDICAP PARKING SYMBOL
	PROPOSED CONCRETE
	PROPOSED SIDEWALK
	PROPOSED POROUS PAVEMENT

PARKING ANALYSIS

RETAIL SPACE	1,400 S.F. / 250	= 5.6 SPACES
RECREATION DOCK	5,938 S.F. / 300	= 19.8 SPACES
RECREATION AREA	10,105 S.F. / 300	= 33.7 SPACES
RESIDENTIAL	24 UNITS x 1.6	= 6.4 SPACES
TOTAL		= 65.5 SPACES

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

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OVERALL SITE PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

5

8 / 38D

JOHN ANASTAS
GLORIA ESPOSITO-ANASTAS
419A DOVER POINT ROAD
DOVER, NH 03820
2567 / 760

"CAUSEWAY"

8 / 9

PARCEL AREA
79,592 S.F.±
1.83 AC.±

HIGHEST OBSERVABLE TIDE LINE

100' TIDE BUFFER
(CITY OF DOVER JURISDICTIONAL SETBACK)

NON-TIDAL WETLAND

50' SWQPA

150' SWQPA

250' SWQPA

HEADWALL "B"

OVERHEAD WIRES TO BE REMOVED

OHU

TREES & SHRUBS TO BE REMOVED

CONCRETE TO BE REMOVED

PROPOSED NEW TREELINE

STAIRS TO BE REMOVED

GAS METER (TBR)

BUILDING TO BE REMOVED

MARINA GARAGE / WORKSHOP

APARTMENT ABOVE MARINA SALES & STORE

ELEC. METER (TBR)

UP W/GUY

GAS

GAS LINE TO BE REMOVED

CULVERT "C" (TO BE REMOVED)

GRAVEL DRIVE (TO BE REMOVED)

PAVEMENT TO BE REMOVED

IRON ROD W/ CIVILWORKS CAP FOUND

EXISTING BIT. CONC. DRIVEWAY

VGC

BIT.CONC.SIDEWALK

DOVER POINT ROAD

APPROXIMATE GAS LINE LOCATION (V.I.F.)

GRAVEL DRIVE AND PARKING AREA (TO BE REMOVED)

CONCRETE AND FUEL CUT-OFF VALVE TO BE REMOVED

CONCRETE PAD AND ALL FUEL COMPONENTS TO BE REMOVED

FUEL CUT-OFF VALVE

CONCRETE PAD FUEL TANK COVER NH DES UNDERGROUND STORAGE TANK SITE NUMBER 199902013

PAD FUEL PUMP CONCRETE

CONCRETE FUEL PAD TO BE REMOVED

(TO BE REMOVED)

GRAVEL DRIVE AND PARKING AREA (TO BE REMOVED)

NON-TIDAL WETLAND

2,304 S.F. OF NON-TIDAL WETLAND TO BE REMOVED

TREES & SHRUBS TO BE REMOVED

SAWCUT LIMITS

CONCRETE RUBBLE PILE TO BE REMOVED

A/C UNITS TO BE REMOVED

ALL GAS CONPONENTS SHALL BE DISCONNECTED AND REMOVED PER LOCAL UTILITY COMPANY STANDARDS

OHW TO BE REMOVED

BUILDING TO BE REMOVED

HOUSE #425

COVERED PORCH & STAIRS TO BE REMOVED

STAIRS TO BE REMOVED

GARAGE TO BE REMOVED

GARAGE

SAWCUT LIMITS

APPROXIMATE WATERLINE LOCATION (V.I.F.)

CB "L"

GRAVEL TO BE REMOVED

PAVEMENT TO BE REMOVED

TREE & SHRUBS TO BE REMOVED

CONCRETE TO BE REMOVED

8 / 12

PARCEL AREA
35,046 S.F.±
0.80 AC.±

BITUMINOUS CONCRETE SIDEWALK

VERTICAL GRANITE CURB (TYP.)

DOUBLE YELLOW LINE

EDGE OF PAVEMENT

PROPOSED NEW TREELINE

APPROXIMATE SEWER LINE LOCATION (V.I.F.)

IRON ROD W/ CIVILWORKS CAP FOUND

IRON ROD FOUND (TO BE REMOVED)

IRON AXLE FOUND

8 / 10

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301
4473 / 288

COTTAGE, DECK AND STEPS TO BE REMOVED

IRON ROD IN CONCRETE MONUMENT FOUND (TO BE REMOVED)

IRON ROD W/ CIVILWORKS CAP FOUND (TO BE REMOVED)

COTTAGE

POOL

POOL TO BE REMOVED

DECK & STAIRS TO BE REMOVED

TREES & SHRUBS TO BE REMOVED

DECK & STAIRS TO BE REMOVED

DECK

HOUSE

GAS METER

GARAGE

SHED TO BE REMOVED

SHED

8 / 11

PARCEL AREA
20,592 S.F.±
0.47 AC.±

PROPANE TANK (TBR)

ELEC. METER (TBR)

ELEC. (TBR) METER

PROPOSED NEW TREELINE

OHW TO BE REMOVED

BUILDING TO BE REMOVED

100' TIDE BUFFER
(CITY OF DOVER JURISDICTIONAL SETBACK)

8 / 13A-1

JOHN F. NEWWICK REVOCABLE TRUST 2001
JOHN F NEWICK, TRUSTEE
431 DOVER POINT ROAD
DOVER, NH 03820
2472 / 010

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

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PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

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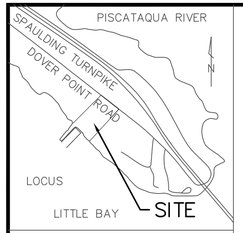
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DEMOLITION PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

6



LOCATION PLAN
1" = 1,000'±

"CAUSEWAY"

8 / 9

PARCEL AREA
79,592 S.F.±
1.83 AC.±

HIGHEST OBSERVABLE TIDE LINE

100' TIDE BUFFER
(CITY OF DOVER JURISDICTIONAL SETBACK)

NON-TIDAL WETLAND

EXISTING BUILDING SETBACK LINE

PROPOSED SNOW STORAGE AREA

PROPOSED 5' WIDE SIDEWALK

PROPOSED R7-8 & R7-8A SIGN

PROPOSED TREELINE

PROPOSED CONCRETE PAD (TYP)

PROPOSED RETAINING WALL

PROPOSED POROUS PAVEMENT

PROPOSED GRASS PAVERS

PROPOSED PERMEABLE PAVERS

PROPOSED RAMP & TIP-DOWN CURB

PROPOSED CONCRETE PAD WITH ADA TACTILE MAT

PROPOSED R7-32 SIGN

PROPOSED R7-32 " PARKING FIRE LANE" SIGN

PROPOSED CONCRETE TRANSFORMER PAD

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 3 UNIT 3,090 S.F. RESIDENTIAL BUILDING

PROPOSED 5 WIDE SIDEWALK

PROPOSED CONCRETE TAMINFORMER PAD

PROPOSED 5' WIDE SIDEWALK

PROPOSED 6' HIGH FENCE

PROPOSED CONCRETE DUMPSTER PAD

PROPOSED BIKE RACK

PROPOSED CONCRETE RAMP WITH ADA TACTILE MAT & TIP-DOWN CURB

PROPOSED LIGHT POLE BASE

PROPOSED PROJECT SIGN WITH ADDRESS

PROPOSED CONCRETE PAD ADA TICTILE MAT

PROPOSED RAMP WITH TIP-DOWN CURB

PROPOSED CONCRETE PAD (TYP)

PROPOSED 5' WIDE SIDEWALK

PROPOSED 5" WIDE SIDEWALK

PROPOSED CONCRETE RAMP WITH ADA TACTILE MAT

PROPOSED CONCRETE PAD

PROPOSED PERMEABLE PAVERS

PROPOSED TREELINE

PROPOSED 5' WIDE SIDEWALK

PROPOSED 6' HIGH FENCE

PROPOSED PERMEABLE PAVERS

PROPOSED 1500 S.F. R7-8 & OFFICE BUILDING

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED SNOW STORAGE AREA

PROPOSED CONCRETE PAD WITH ADA TACTILE MAT

PROPOSED RAMP & TIP-DOWN CURB

PROPOSED 5 WIDE SIDEWALK

PROPOSED CONCRETE PAD WITH ADA TACTILE MAT

PROPOSED CONCRETE PAD

PROPOSED POROUS PAVEMENT

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED TREELINE

PROPOSED CONCRETE PAD (TYP)

PROPOSED SNOW STORAGE AREA

PROPOSED 5' WIDE SIDEWALK

PROPOSED 6' HIGH FENCE

PROPOSED PERMEABLE PAVERS

IRON AXLE FOUND

IRON ROD W/ CIVILWORKS CAP FOUND

MEET/MATCH EXISTING

VGC MEET/MATCH EXISTING

IRON ROD W/ CIVILWORKS CAP FOUND

EXISTING BIT. CONC. DRIVEWAY

APPROXIMATE GAS LINE LOCATION (V.I.F.)

DOVER POINT ROAD

VGC

BIT.CONC.SIDEWALK

250' SWQPA

150' SWQPA

50' SWQPA

100' SWQPA

30A

VERTICAL GRANITE CURB (TYP.)

BITUMINOUS CONCRETE SIDEWALK

DOUBLE YELLOW LINE

EDGE OF PAVEMENT

DV = 312.0000'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

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PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
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(603) 749-0443

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LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

SITE PLAN

7

DRAINAGE SCHEDULE

PDMH 1
RIM=12.75
INV.IN=6.35 (OS–RG1)
INV.OUT=6.35 (PDMH 2)

PDMH 2
RIM=12.25
INV.IN=9.1 (PP1)
INV.IN=5.7 (OS–RG2)
INV.IN=5.6 (PDMH 1)
INV.OUT=5.6 (PDMH 3)

PDMH 3
RIM=9.75
INV.IN=4.7 (OS–RG3)
INV.IN=4.7 (PDMH 2)
INV.OUT=4.7

OS–RG1
INV.IN=(SEE DETAIL)
INV.OUT=6.42 (PDMH 1)

OS–RG2
INV.IN= 7.5 (DP1)
INV.OUT=6.55 (PDMH 2)

OS–RG3
INV.IN=(SEE DETAIL)
INV.OUT=4.8 (PDMH 3)

OS–DP1
INV.IN=(SEE DETAIL)
INV.OUT=8.0 (OS–RG2)

OS–RG4
INV.IN=(SEE DETAIL)
INV.OUT=7.40 (PP7)

POROUS PAVEMENT SCHEDULE

PP 1 (PIPE OUTFALL)
INV.IN= 9.81
INV.OUT=9.10

PP 2 (PIPE OUTFALL)
INV.IN=5.42
INV.OUT=5.42

PP 3 (PIPE OUTFALL)
INV.IN=5.42
INV.OUT=5.42

PP 4 (PIPE OUTFALL)
INV.IN=9.45
INV.OUT=8.95

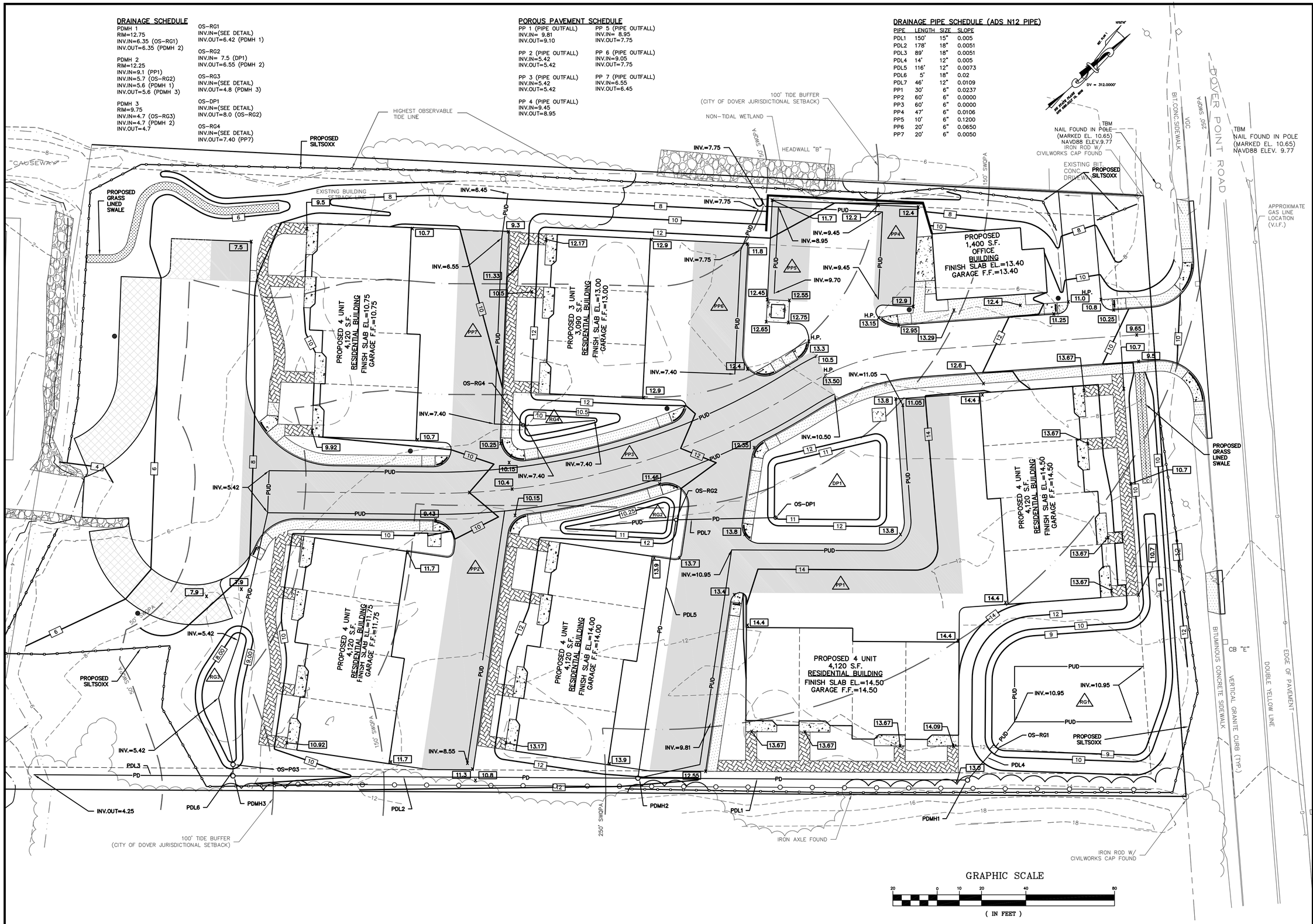
PP 5 (PIPE OUTFALL)
INV.IN= 8.95
INV.OUT=7.75

PP 6 (PIPE OUTFALL)
INV.IN=9.05
INV.OUT=7.75

PP 7 (PIPE OUTFALL)
INV.IN=6.55
INV.OUT=6.45

DRAINAGE PIPE SCHEDULE (ADS N12 PIPE)

PIPE	LENGTH	SIZE	SLOPE
PDL1	150'	15"	0.005
PDL2	178'	18"	0.0051
PDL3	89'	18"	0.0051
PDL4	14'	12"	0.005
PDL5	116'	12"	0.0073
PDL6	5'	18"	0.02
PDL7	46'	12"	0.0109
PP1	30'	6"	0.0237
PP2	60'	6"	0.0000
PP3	60'	6"	0.0000
PP4	47'	6"	0.0106
PP5	10'	6"	0.1200
PP6	20'	6"	0.0650
PP7	20'	6"	0.0050



GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

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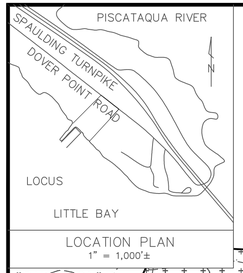
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GRADING, DRAINAGE & EROSION CONTROL PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

8



LOCATION PLAN
1" = 1,000'±

WETLAND IMPACT = 2,304 S.F.

50' BUFFER IMPACT = 15,579 S.F.

100' BUFFER IMPACT = 58,203 S.F.

HIGHEST OBSERVABLE TIDE LINE

100' TIDE BUFFER (CITY OF DOVER JURISDICTIONAL SETBACK)

NON-TIDAL WETLAND

"CAUSEWAY"

EXISTING BUILDING SETBACK LINE

PARCEL AREA
79,592 S.F.±
1.83 AC.±

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 3 UNIT 3,090 S.F. RESIDENTIAL BUILDING

PROPOSED 1,400 S.F. OFFICE BUILDING

NON-TIDAL WETLAND

IRON ROD W/ CIVILWORKS CAP FOUND

EXISTING BIT. CONC. DRIVEWAY

DOVER POINT ROAD

APPROXIMATE GAS LINE LOCATION (V.I.F.)

BIT.CONC.SIDEWALK

VGC

250' SWQPA

150' SWQPA

DV = 312.0000'

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

BITUMINOUS CONCRETE SIDEWALK

VERTICAL GRANITE CURB (TYP.)

EDGE OF PAVEMENT

DOUBLE YELLOW LINE

IRON AXLE FOUND

IRON ROD W/ CIVILWORKS CAP FOUND

100' TIDE BUFFER (CITY OF DOVER JURISDICTIONAL SETBACK)

GENERAL NOTE:
JURISDICTIONAL WETLAND BOUNDARIES VERIFIED BY GOVE ENVIRONMENTAL SERVICES INC. IN 2018 IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL TECHNICAL REPORT Y-87-1.

WETLAND NOTES

1. US ARMY CORPS OF ENGINEERS REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, TECHNICAL REPORT ERDC/EL TR-09-19 (OCT 2009).
2. FILED INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2010).
3. NORTH AMERICAN DIGITAL FLORA: NATION WETLAND PLANT LIST, VERSION 2.2.1 (2009)
4. CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS-79/31 (1979).

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DATE: 2-21-19
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DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

IMPACT SITE PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

9

"CAUSEWAY"

HIGHEST OBSERVABLE TIDE LINE

EXISTING BUILDING SETBACK LINE

8 / 9

PARCEL AREA
79,592 S.F±
1.83 AC.±

100' TIDE BUFFER
(CITY OF DOVER JURISDICTIONAL SETBACK)

NON-TIDAL WETLAND

HEADWALL "B"

50' SWQPA

150' SWQPA

250' SWQPA

PROPOSED 4 UNIT 4,120 S.F. RESIDENTIAL BUILDING

PROPOSED 3 UNIT 3,090 S.F. RESIDENTIAL BUILDING

PROPOSED 1,400 S.F. OFFICE BUILDING

PROPOSED 2" DOMESTIC SERVICE

PROPOSED 6" FIRE SERVICE

PROPOSED WATER SERVICE HUT SEE DETAIL

PROPOSED 2" DOMESTIC FOR DOCK SERVICE

INV.=5.668

INV.= 5.205

INV.=3.777

INV.=3.905

INV.= 5.650

INV.= 5.231

INV.=6.266

PSMH1

PSMH2

PSMH3

EXISTING SMH

TBM
NAIL FOUND IN POLE
(MARKED EL. 10.65)
NAVD88 ELEV.9.77
IRON ROD W/
CIVILWORKS CAP FOUND

TBM
NAIL FOUND IN POLE
(MARKED EL. 10.65)
NAVD88 ELEV. 9.77

EXISTING BIT. CONC. DRIVEWAY

DOVER POINT ROAD

BIT.CONC.SIDEWALK

VGC

APPROXIMATE GAS LINE LOCATION (V.I.F.)

APPROXIMATE WATERLINE LOCATION (V.I.F.)

APPROXIMATE SEWER LINE LOCATION (V.I.F.)

CB "E"

BITUMINOUS CONCRETE SIDEWALK

VERTICAL GRANITE CURB (TYP.)

DOUBLE YELLOW LINE

EDGE OF PAVEMENT

IRON AXLE FOUND

IRON ROD W/ CIVILWORKS CAP FOUND

OHU

W

S

G

PW

PS

PG

PE

PUD

PD

SANITARY SEWER SCHEDULE

*EXISTING SMH
RIM=8.88
INV.=3.0

PSMH1
RIM=±12.17
INV.IN=3.54
INV.OUT=3.44

PSMH2
RIM=±13.44
INV.IN=4.0
INV.OUT=3.9

PSMH3
RIM=±11.35
INV.IN=4.61
INV.OUT=4.51

*EXISTING MANHOLE SUBJECT TO CHANGE PENDING ONGOING NHDOT IMPROVEMENTS ALONG DOVER POINT ROAD.

NOTE:
ALL SEWER LATERALS & SEWER MAINS 6" SDR-35, MIN. SLOPE OF 0.005.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

DATE: 2-21-19
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UTILITY PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

10

DESCRIPTION

THE INTENT OF THIS PLAN IS TO SHOW THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF (6) MULTI-UNIT BUILDINGS, (1) MIXED USE-COMMERCIAL BUILDING, SITE ACCESS DRIVE, PARKING AREAS, UTILITY INSTALLATION, AND DRAINAGE IMPROVEMENTS.

PROJECT NAME AND LOCATION

LITTLE BAY MARINA & DEVELOPMENT — LATITUDE N43°07'18"
421 DOVER POINT ROAD — LONGITUDE W70°49'58"
DOVER, NH 03820

DISTURBED AREA

±152,438 square feet

SEQUENCE OF MAJOR ACTIVITIES

1. CONTRACTOR SHALL PREPARE THE SWPPP, FILE FOR AND OBTAIN THE NOI A MINIMUM OF 2 WEEKS PRIOR TO COMMENCEMENT OF SITE WORK.
2. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
3. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
4. SELECTIVE DEMOLITION.
5. REGRADE SITE TO SUBGRADE.
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 UNDERGROUND UTILITIES AND FOUNDATIONS FOR STRUCTURES.
9. PLACE GRAVELS AND FINE GRADE.
10. STABILIZE, ROADWAYS & PARKING LOTS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
11. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
12. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
13. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 3.5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
14. 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 OF ONE OF THE FOLLOWNG 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. GENERAL

1. CONTRACTOR SHALL PREPARE THE SWPPP, FILE FOR AND OBTAIN THE NOI A MINIMUM OF 2 WEEKS PRIOR TO COMMENCEMENT OF SITE WORK.
2. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
3. TEMPORARY WATER DIVERSION MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
4. SELECTIVE DEMOLITION.
5. REGRADE SITE TO SUBGRADE
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.
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13. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 3.5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
14. 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.

1. Silt Fence
   a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM-51	75% minimum
Tensile Strength at 20% Maximum Elongation* Standard Strength 30 lb/lin in (min)	VTM-52	Extra Strength 50 lb/lin in (min)
Flow Rate	VTM-51	0.3 gal/sf/min (min)

* Requirements reduced by 50 percent after six (6) months of installation.

   Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120 Degrees F.

   b. The height of a silt fence shall not exceed thirty-six (36) inches.
   c. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at support post, with a minimum six (6) inch overlap, and securely sealed.
   d. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet.
   e. Posts for silt fences shall be 2-inch diameter wood with a minimum length of 5 feet.
   f. Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.
   g. A trench shall be excavated approximately four (4) inches wide and four (4) inches deep along the line of posts and upslope from the barrier.
   h. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.
   i. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
   j. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (i) applying.
   k. The trench shall be backfilled and the soil compacted over the filter fabric.
   l. Silt fences shall be removed when they have served their useful purpose, but not before the upslope areas has been permanently stabilized.

2. Sequence of Installation
   Sediment barriers shall be installed prior to any soil disturbance of the contributing drainage area above them.
3. Maintenance
   a. Check dams and silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
   b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
   c. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one third (1/3) the height of the barrier.
   d. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

C. MULCHING

1. Timing
   In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this.
   a. Apply mulch prior to any storm event. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
   b. Required Mulching within a specified time period. The time period can range from 14 to 21 days of inactivity on a area, the length of time 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.
2. Application Rate
   Mulch shall be applied at a rate of between 1.5 to 2 tons per acre, or 90 to 100 pounds per 1000 square feet.
3. 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 6,000 pounds of hay or straw per acre. A tackifier may be added to the mulch.
4. Maintenance All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.
5. Excelsior Matting Excelsior Matting shall be used in place of mulch on all slopes steeper than 3:1.

D. TEMPORARY GRASS COVER

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

E. PERMANENT SEEDING

1. Bedding – stones larger than 1 ½ ", trash, roots, and other debris interfere 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 – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:
   Agricultural Limestone @ 100 lbs. per 1,000 s.f.
   10-20-20 fertilizer @ 12 lbs. per 1,000 s.f.
3. Seed Mixture (recommended)
   Rate:

Type	LBS. per Acre	LBS. per 1,000 s.f.
Tall Fescue	20	0.45
Creeping Red Fescue	20	0.45
Birdsfoot Trefoil	8	0.20
Total	48	1.10

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook.

   Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt) etc.
5. Provide a minimum of 4 inches (5 inches loose) of topsoil to all areas to be seeded.

F. STORM DRAIN INLET PROTECTION

1. Straw/Hay Bale Inlet Structure
   a. Bales shall be either wire bound or string tied with the bindings oriented around the sides rather than over and under the bales.
   b. Bales shall be placed lengthwise in a single row surrounding the inlet, with the ends of adjacent bales pressed together.
   c. The filter barrier shall be entrenched and backfilled. A trench shall be excavated around the inlet the width of bale to a minimum depth of four (4) inches. After the bales are staked, the excavated soil shall be backfilled and compacted against the filter barrier.
   d. Each bale shall be securely anchored and held in place by at least two (2) stakes or rebars driven through the bale.
   e. Loose straw/hay shall be wedged between bales to prevent water from entering between bales.
   f. All structures should be inspected after every rainstorm and repairs made as necessary.
   g. Sediment should be removed from the devices after the sediment has reached a maximum of one-third the depth of the trap.
   h. Haybales should be removed and the area repaired as soon as the contributing drainage area to the inlet has been completely stabilized.

TIMING OF CONTROLS/MEASURES

As indicated in the sequence of Major Activities the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. 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 personnel 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.

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 exposure of materials and substances during construction to stormwater runoff:

Good Housekeeping:

The following good housekeeping practices will be followed on site during the construction project:

- An effort will be made to store only sufficient amounts of products to do the job.
- 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.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible all of a product will be used up before disposing of the container.

Hazardous Products:

The following practices will be used to reduce the risks associated with hazardous materials:

- Products will be kept in their original containers unless they are not resealable.
- Original labels and material safety data will be retained for important product information.
- 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:

Petroleum Products:

All on site vehicles will be monitored for leaks and receive regular preventive 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.

Fertilizers:

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

Paints:

spills.
All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be disposed of properly according to manufacturer's instructions or state and local regulations.

Concrete Trucks:

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:

- 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.
- 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.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause, and the cleanup measures will be included.
- 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 includes 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.

Env-A 1002 FUGITIVE DUST: Precautions to Prevent, Abate, and Control Fugitive Dust
(a) Any person engaged in any activity within the state that emits fugitive dust, other than 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 (a), above, shall include but not be limited to the following:

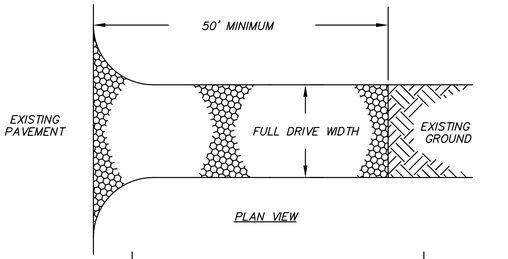
(1) The use of water or hydrophilic material on operations or surfaces, or both;

(2) The application of asphalt, water or hydrophilic material, or tarps or other such covers to material stockpiles;

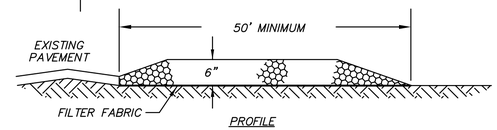
(3) The use of hoods, fans, fabric filters, or other devices to enclose and vent areas where materials prone to producing fugitive dust are handled;

(4) The use of containment methods for sandblasting or similar operations; and

(5) The use of vacuums or other suction devices to collect airborne particulate matter.



PLAN VIEW



PROFILE

NOTES:

1. SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.
2. TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.

STABILIZED CONSTRUCTION ENTRANCE

1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE TWO (2) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN FIFTY (50) FEET. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED.
   E. GEOTEXTILE: TO BE PLACED OVER THE ENTIRE AREA TO BE COVERED WITH AGGREGATE.
   F. CRITERIA FOR GEOTEXTILE: THE FABRICS SHALL BE TREVIA SPUNBOND 1135, MIRAFI 600X OR EQUAL.
2. MAINTENANCE
   THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

PER 149-10 F:
All site improvements which require blasting of land shall meet the following requirements prior to any blasting occurring.

1. The Applicant shall prepare a pre-blast survey of all structures within five (500) feet of the external boundaries of the proposed lot to be developed. This survey, along with a monitoring plan, shall be on file with the Dover Fire and Rescue. Upon recommendations of the Chief , the planning Board may require a pre-blast survey of all structures within one thousand (1000) feet.
2. The Applicant shall hold a neighborhood meeting to review the blasting plan and pre-blast survey, with representatives of the Fire and Rescue and the blasting company in attendance, prior to any on-site blasting. Abutters within on thousand (1000) feet of the external boundary of the project parcel shall be notified by certified mail (paid for by the applicant) of the meeting no less than ten (10) days prior to the meeting.
3. Permit holders shall be in compliance with NFPA 495, The Code for the Manufacture, Transportation, Storage and Use of Explosive Material, in addition to all other ordinances and codes set forth in the City of Dover Fire Prevention Code, which specifically prohibits the overnight storage of explosive or blasting agents. Further all storage magazines shall be locked in the open position at the end of the days' operation, for easy inspection by City Officials.
4. blasting permits may be obtained by calling the Dover Fire and Rescue during normal business hours. The permits are only active for the dates and time specified on the permit.
5. Permit holders shall hold insurance against claims for damages for personal injury and property which may arise from performance of the work.
6. Hours of operation for the blasting shall be no earlier than 8:00 am and no later than 6:00 pm Monday through Friday, excluding federal holidays.

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.

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 slopes 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 surfaces shall be protected with a minimum of 3-inches of crushed gravel per NHDOT item 403.3, or if construction is to continue through the winter season be cleared of any accumulated snow after each storm event.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

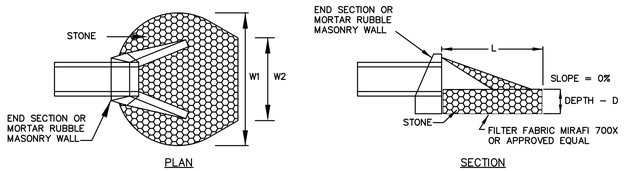
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PROJECT NO:1788
FILE: SITE.DWG

EROSION CONTROL NOTES

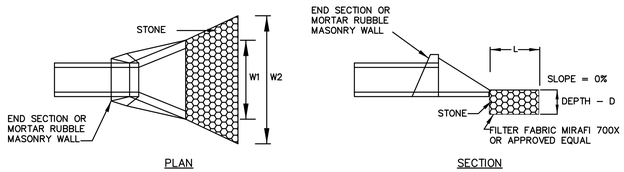
LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

11



STONE APRON OUTLET PROTECTION DETAIL
OUTLET TO DEFINED CHANNEL



STONE APRON OUTLET PROTECTION DETAIL
OUTLET TO FLAT AREA, NON DEFINED CHANNEL

MAINTENANCE

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

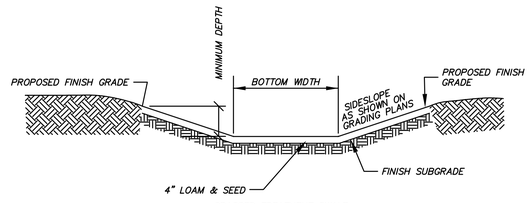
STONE GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100	1.5 TO 2.0 D50
85	1.3 TO 1.8 D50
50	1.0 TO 1.5 D50
15	0.3 TO 0.5 D50

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIP RAP OUTLET PROTECTION
NOT TO SCALE



GRASSED TREATMENT SWALE

NOTES:

1. THE FOUNDATION AREA OF THE WATERWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING OF THE WATERWAY.

2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA. THE WATERWAY SHALL BE FREE OF IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED WATERWAY. EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.

4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO MINIMIZE EROSION AND AIR AND WATER POLLUTION. ALL APPROPRIATE STATE AND LOCAL LAWS AND REGULATIONS SHALL BE COMPLIED WITH FOR INSTALLATION.

5. VEGETATION SHALL BE ESTABLISHED IN THE SWALE PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW THROUGH THE SWALE.

6. MAINTENANCE OF THE VEGETATION IN THE GRASSED WATERWAY IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE WATERWAY. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP THE GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHOULD NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE WATERWAY.

7. THE WATERWAY SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE WATERWAY. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

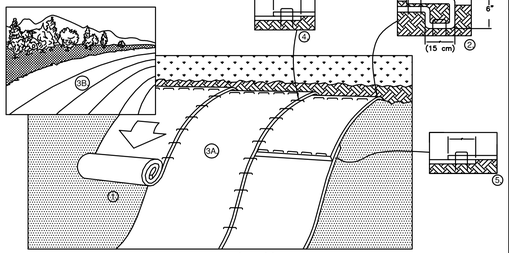
8. PERIODIC APPLICATIONS OF LIME AND FERTILIZER MAY BE NEEDED TO MAINTAIN VIGOROUS GROWTH.

GRASSED TREATMENT SWALE
NOT TO SCALE

STRUCTURE	WIDTH (Ft)	LENGTH (Ft)	SLOPE (Ft/Ft)
TS 1	3.5	110	0.0064
PRE TREATMENT	4	50	±0.005

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS

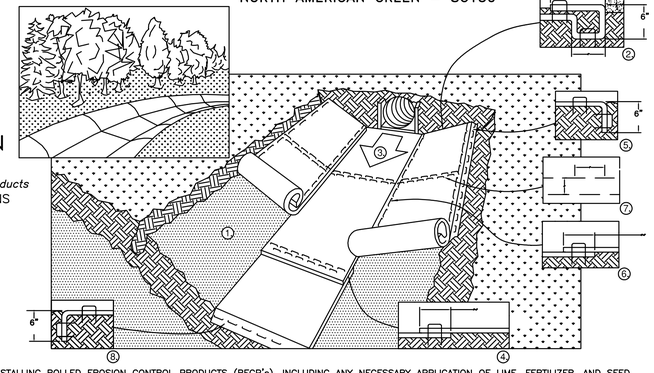
SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150



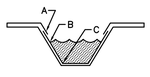
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM® , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
   NOTE:
   *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS

CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" – 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

SILTSACK®
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS AS SUPPLIED BY AM HARRIS OF PORTSMOUTH OR APPROVED EQUAL

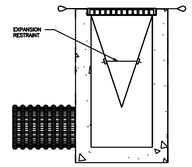
REGULAR FLOW SILTSACK●
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	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)

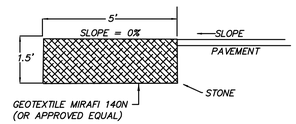
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

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 PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK®, WITH A WOVEN PILLOW INSERT.



INSTALLATION DETAIL

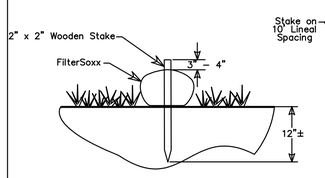
DETAIL OF INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE



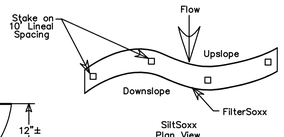
GEOTEXTILE MIRAFI 140N (OR APPROVED EQUAL)

NOTES:
1. RIP-RAP APPLICATIONS SHALL CONSIST OF d50 = 6" (MIN) STONE WITH A STONE LAYER THICKNESS OF 1.5' (MIN) ON FILTER FABRIC WITH A 6" THICK (MIN) GRAVEL BASE. SEE GRADING PLAN FOR APRON LOCATIONS.

RIP-RAP APRON
NOT TO SCALE



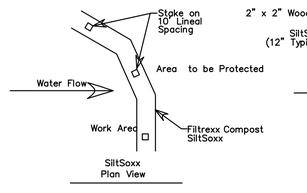
FilterSoxx Section



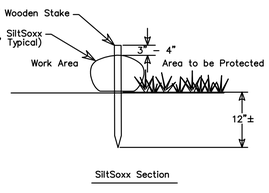
SiltSoxx Plan View

Notes:
1. All material to meet Filtrexx specifications
2. FilterSoxx compost/jsoil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.

FilterSoxx Staking Details



SiltSoxx Plan View



SiltSoxx Section

Notes:
1. All material to meet Filtrexx specifications or approved equal.
2. SiltSoxx compost/soil/rock/seed fill to meet application requirements.
3. SiltSoxx depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
4. Compost material to be dispersed on site, as determined by Engineer.

1. SEE EROSION CONTROL NOTES FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.

Filter Barrier Detail
NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

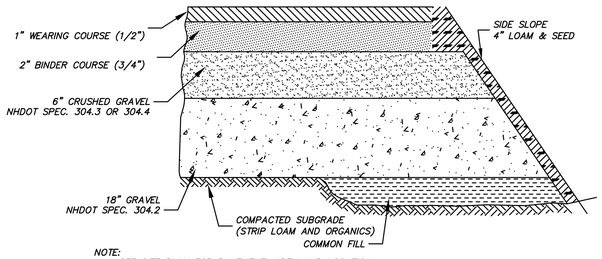
DATE: 2-21-19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

EROSION CONTROL DETAILS

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

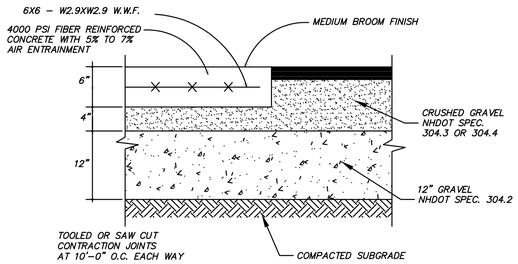
12



NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.

TYPICAL PAVEMENT SECTION

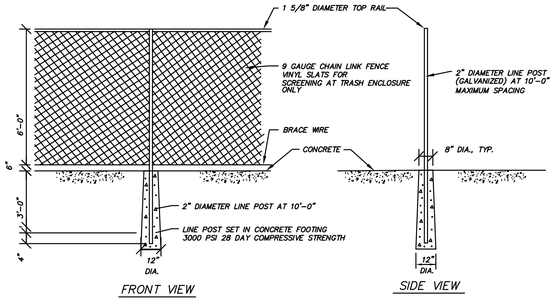
NOT TO SCALE



NOTE: PITCH CONCRETE PAD GRADING TO CENTER

DUMPSTER DETAIL

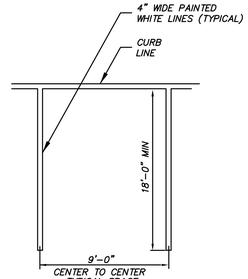
NOT TO SCALE



NOTES:
1. DUMPSTER CHAINLINK FENCE SHALL HAVE GREEN VINYL PRIVACY SLATS.

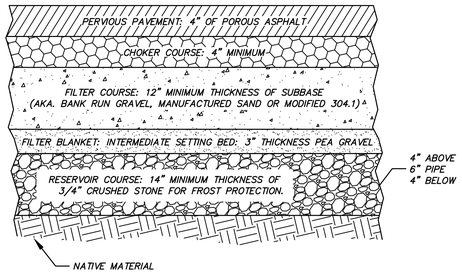
CHAINLINK FENCE DETAIL

NOT TO SCALE



STANDARD PARKING STALL

NOT TO SCALE

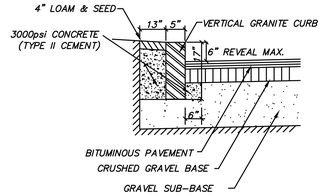


NOTE:
1. SEE SITE PLAN FOR LOCATION OF POROUS PAVEMENT, PAVEMENT WIDTH AND LOCATION.
2. CONSTRUCTION MATERIALS SHALL NOT BE STORED ON THE POROUS PAVEMENT OR BASE MATERIALS.
3. PLACEMENT OF POROUS PAVEMENT AND BASE MATERIALS SHALL BE MONITORED BY THE DESIGN ENGINEER. ADVISE THE CITY ENGINEER AS TO INSTALLATION SCHEDULE.
4. CRUSHED STONE, BANK RUN GRAVEL & CRUSHED GRAVEL MATERIALS SHALL CONFORM WITH MASSDOT STD. SPECIFICATIONS.
5. POROUS PAVEMENT SHALL CONFORM WITH GENERAL POROUS BITUMINOUS PAVING SPECIFICATIONS PREPARED BY THE UNH STORMWATER CENTER 2/14).
6. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.

POROUS PAVEMENT SECTION

NOT TO SCALE

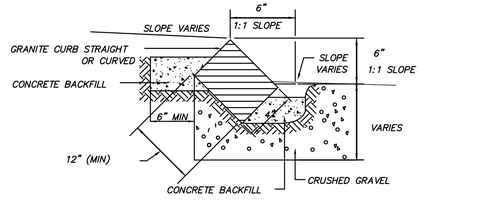
RADIUS	MAX. LENGTH
21'	3'
22'–28'	4'
29'–35'	5'
36'–42'	6'
43'–49'	7'
50'–56'	8'
57'–60'	9'
OVER 60'	10'



NOTES
1. SEE SITE PLAN FOR LIMITS OF CURBING.
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF CURB STONES = 3'
4. MAXIMUM LENGTH OF CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE CHART)
6. ALL RADII 20 FEET AND SMALLER TO BE CONSTRUCTED USING CURVED SECTIONS.

VERTICAL GRANITE CURB

NOT TO SCALE



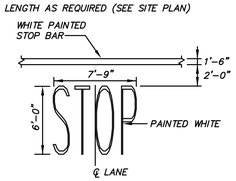
NOTES
1. ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH
2. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART

RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'–28'	1'–6"
29'–41'	2'
42'–55'	3'
56'–68'	4'
69'–82'	5'
83'–96'	6'
97'–110'	7'
OVER 110'	8'

SLOPED GRANITE CURBING

NOT TO SCALE

LENGTH AS REQUIRED (SEE SITE PLAN)

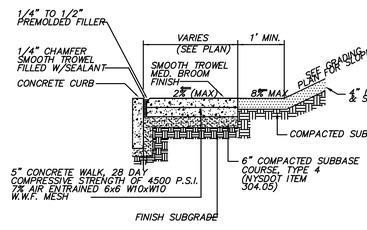


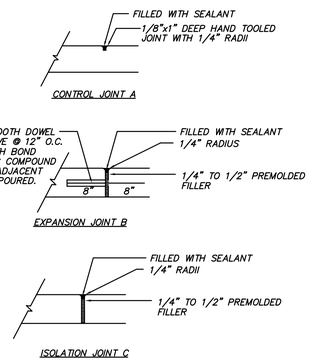
NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS. APPLY TWO COATS.

STOP BAR & LEGEND

PAVEMENT MARKINGS

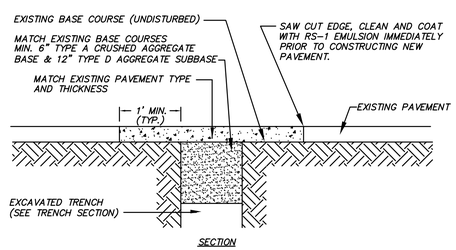
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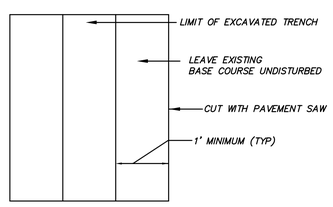


CONCRETE SIDEWALK

NOT TO SCALE



SECTION

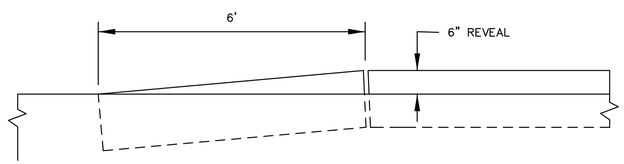


PLAN

ROADWAY TRENCH PATCH DETAIL

NOT TO SCALE

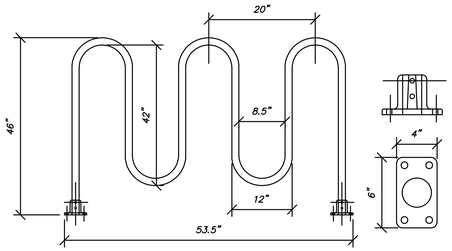
GRANITE CURB & MORTAR JOINTS
SLOPE LAST SECTION TO MEET EXISTING GROUND



SIMILAR TREATMENT BOTH SIDES OF OPENING

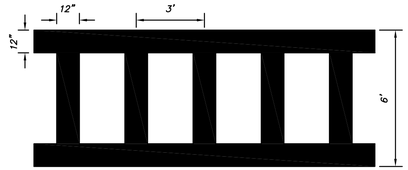
"TIP–DOWN" CURB DETAIL

NOT TO SCALE



BIKE RACK DETAIL

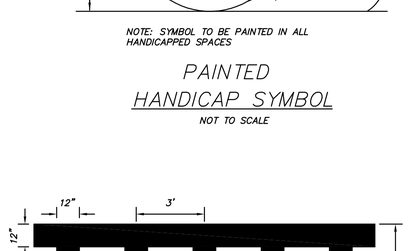
NOT TO SCALE



NOTE:
1. ALL PAINT SHALL BE NORMAL DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248–TYPE N. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT.

CROSSWALK MARKING DETAIL

NOT TO SCALE



NOTE: SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES

PAINTED HANDICAP SYMBOL

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18–___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1–22–19

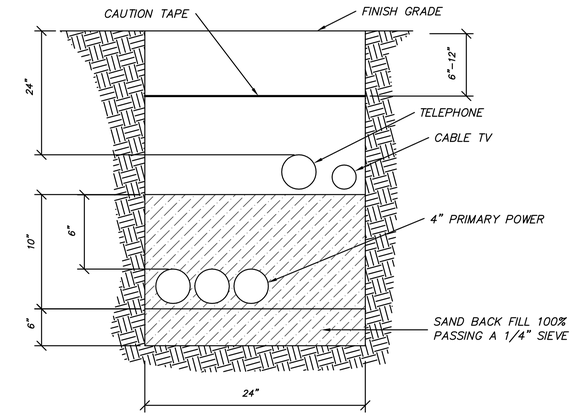
DATE: 2–21–19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

DETAILS

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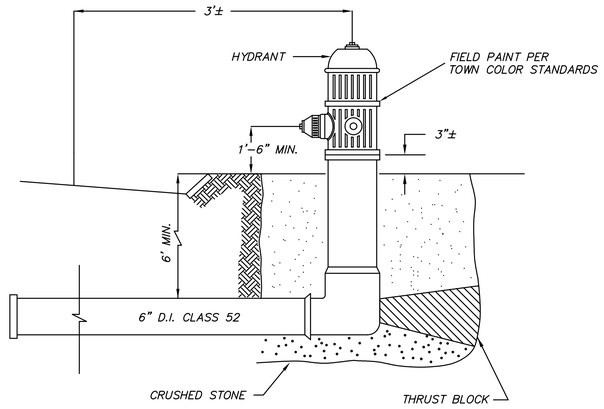


1. TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.
2. LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.
3. FOR COMPLETE SPECIFICATIONS SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".
4. CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

UTILITY TRENCH

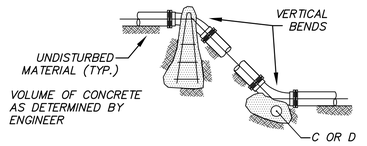
NOT TO SCALE

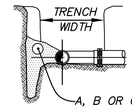
NOTE:
HYDRANT INSTALLATION & OPERATION TO CONFORM TO REGULATIONS OF CITY OF DOVER FIRE DEPARTMENT.

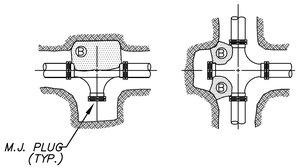


FIRE HYDRANT DETAIL

NOT TO SCALE

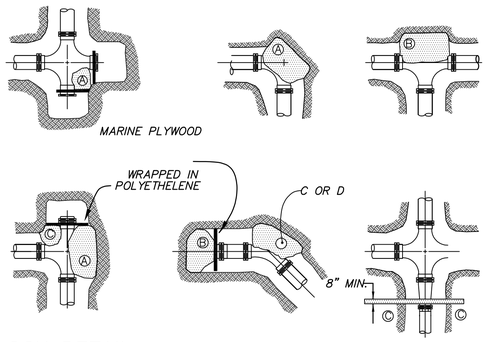






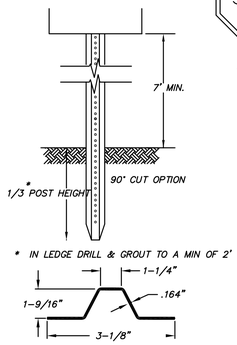
TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30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

NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.



TRUST BLOCK DETAIL

NOT TO SCALE





R1-1
30" x 30"



R7-8
12" x 18"

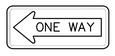


R7-8b
18" X 12"



R4-7

NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

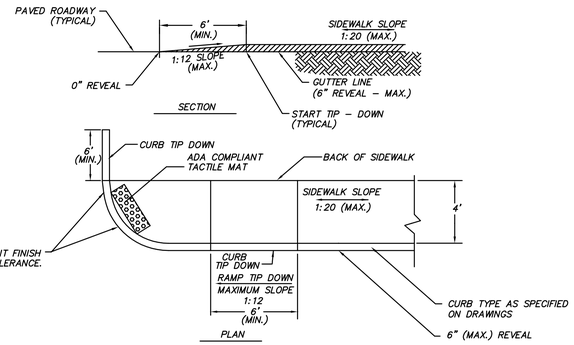


R6-1b

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.

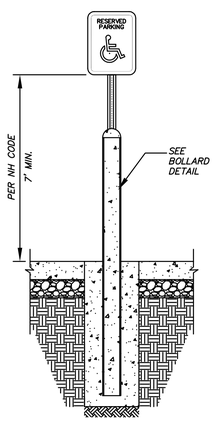
SIGN LEGEND & SIGN POST

NOT TO SCALE



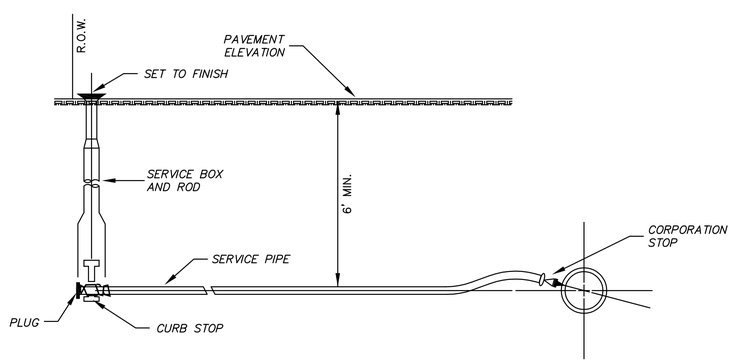
SIDEWALK TIP DOWN RAMP

NOT TO SCALE



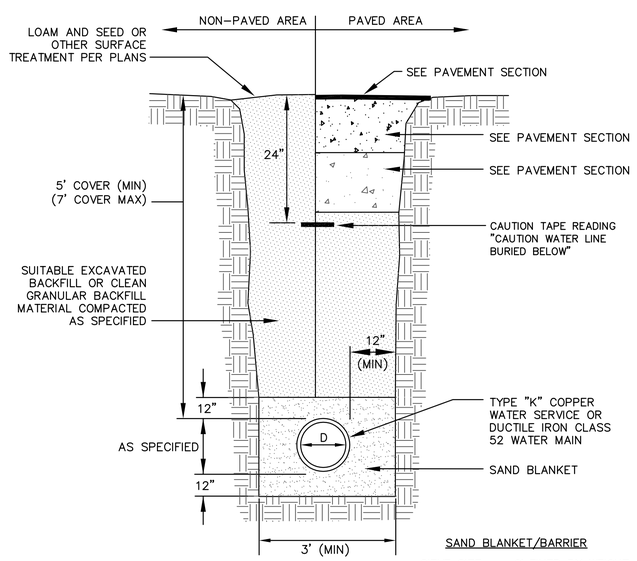
SIGN IN BOLLARD

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES
1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

WATER MAIN TRENCH

NOT TO SCALE

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PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

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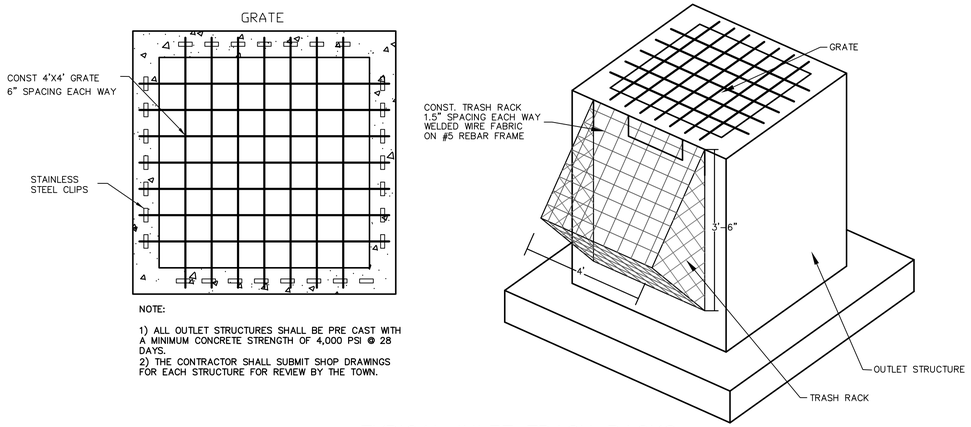
DATE: 2-21-19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

DETAILS

14

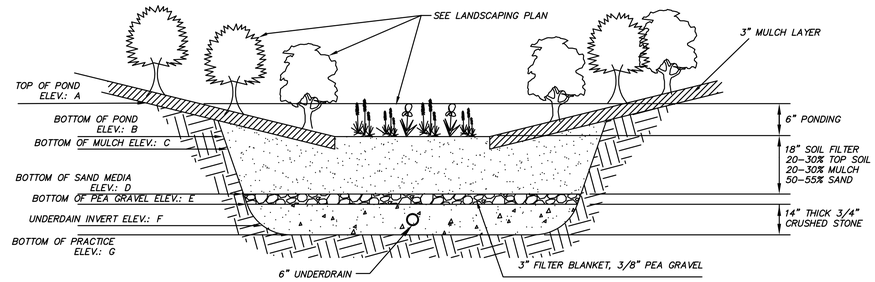


NOTE:

1) ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE TOWN.

TYPICAL INLET TRASH RACKS

NOT TO SCALE



BIORETENTION POND SYSTEM CHART

POND	POND ELEVATION						
	A	B	C	D	E	F	G
RG1	9.5	9.0	8.75	7.5	7.25	6.42	6.09
RG2	10.75	10.25	10.0	8.75	8.5	7.67	7.34
RG3	8.5	8.0	7.75	6.5	6.25	5.42	5.09
RG4	10.5	10.0	9.75	8.5	8.25	7.40	7.09

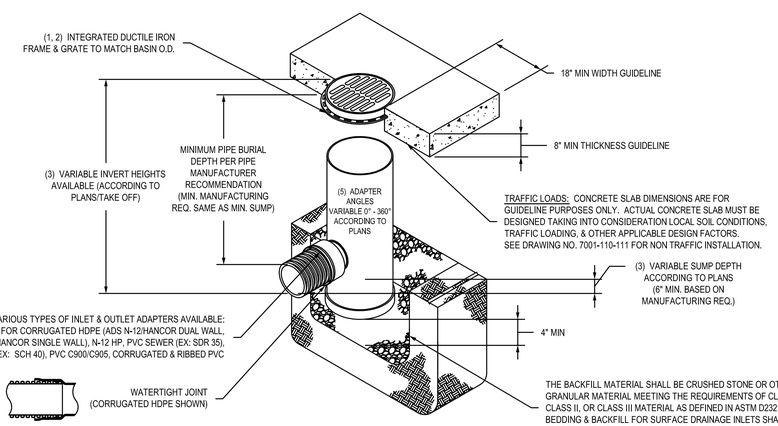
NOTES:

1. CONSTRUCT GRASSED OVERFLOW SPREADER EARLY DURING INITIAL CONSTRUCTION TO ESTABLISH TURF PRIOR TO CONSTRUCTION OF BIORETENTION SYSTEM.
2. DO NOT BEGIN CONSTRUCTION OF THE BIORETENTION AREA UNTIL LAWN AREA ON THE ENTIRE SITE AREA ESTABLISHED WITH AT LEAST 80 PERCENT TURF. FILTER ALL DRAIN INLETS IN THE SEDIMENT FOREBAYS TO PREVENT SILTATION INTO THE BIORETENTION AREA.
3. THE RAIN GARDEN SUBGRADE SHALL BE EXCAVATED TO THE DESIGN DEPTH PLUS TWO (2) INCHES. AT THAT DEPTH FOUR (4) INCHES OF COMPOST SHALL BE TILLED INTO THE EXISTING SOILS SUCH THAT THE SOILS ARE WILL MIXED.
4. DO NOT DRIVE CONSTRUCTION EQUIPMENT ON FILTER SUBGRADE NOR ON THE FILTER MATERIAL. INSTALL FILTER MATERIAL BY MEANS OF AN EXCAVATOR LOCATED ADJACENT TO THE FILTER AREA.
5. MATERIALS: CRUSHED STONE LAYER SHALL MEET NHDOT 304.4. STONE SHALL CONTAIN NO MORE THAN 5% FINES PASSING THE #200 SIEVE. TOPSOIL SHALL CONTAIN 15 TO 25% FINES PASSING THE #200 SIEVE. MULCH SHALL BE SHREDDED HARDWOOD, AGES IN A STOCKPILE OR STORED FOR AT LEAST 12 MONTH. NON-WOVEN GEOTEXTILE BE 4 TO 6 OZ. PER SQUARE YARD WITH A.O.S. OF #70 SIEVE OR LOWER, AND A MINIMUM FLOW RATE OF 125 GAL PER SQUARE FEET. UNDERDRAIN SHALL BE PERFORATED 6" PVC OR TRIPLE WALL PE PIPE; SLOPE 1/4"/FT. MINIMUM.
6. REFER TO LANDSCAPING DRAWINGS FOR GRASS SEED MIXES AND PLANTINGS. FERTILIZATION OF THE FILTER AREA SHALL BE AVOIDED UNLESS ABSOLUTELY NECESSARY TO ESTABLISH VEGETATION.
7. INITIAL ESTABLISHMENT: DURING THE FIRST 2-3 MONTHS OF ESTABLISHMENT WATER THE GARDEN ON A WEEKLY BASIS (TO SUPPLEMENT RAINFALL FOR TOTAL OF 1 INCH PER WEEK).
8. ANNUAL MAINTENANCE: IN THE SPRING OF EACH YEAR, ANY DEAD VEGETATION SHALL BE REMOVED TO ALLOW FOR NEW GROWTH, AND ANY ACCUMULATED SEDIMENT (NORMALLY AT THE ENTRANCE TO THE GARDEN) SHALL ALSO BE REMOVED. DURING THE GROWING SEASON THE RAIN GARDEN SHALL BE WEEDED TWO (2) TIMES AND ADDITIONAL HARDWOOD MULCH SHALL BE ADDED AS NEEDED TO ASSIST IN WEED SUPPRESSION. TURF AT FILTER SHALL BE MOWED NO MORE THAN 3 TIMES PER GROWING SEASON. IF WATER PONDS ON THE SURFACE FOR MORE THAN 24 HOURS DURING THE FIRST YEAR OR 72 HOURS THEREAFTER, THE FILTER SURFACE SHALL BE AERATED WITH DEEP TINES OR THE SURFACE REPLACED.
9. PLANTINGS SHALL BE NATIVE NON-INVASIVE SPECIES, SEE LANDSCAPE ARCHITECT DRAWINGS.

BIORETENTION SYSTEM DETAIL (SEE GRADING PLAN FOR LOCATION)

NOT TO SCALE

NYLOPLAST 18" DRAIN BASIN: 2818AG _ _ X



1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

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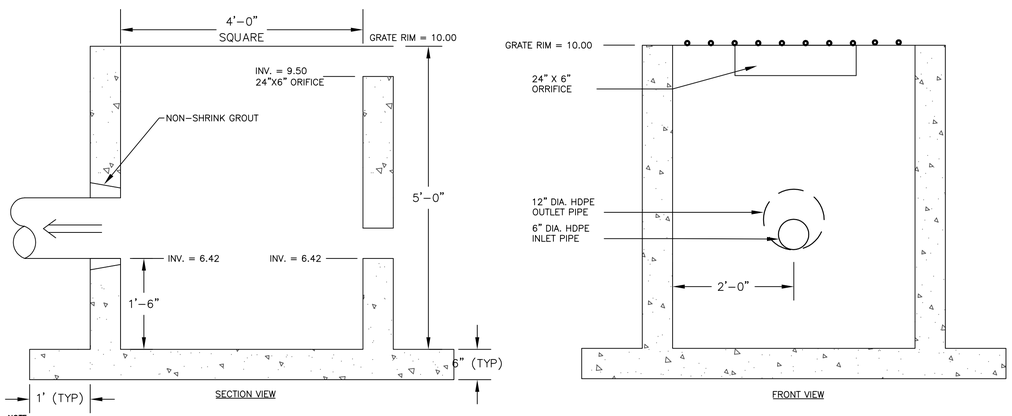
DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 04-03-06			
REVISED BY NMH	PROJECT NO./NAME	TITLE	
DATE 03-14-16		18 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL	
DWG SIZE A	SCALE 1:30 SHEET 1 OF 1 DWG NO. 7001-110-191 REV E		

DETAIL NOTES:

1) DRAIN MANHOLES PDMH1, PDMH2, & PDMH3 TO USE SOLID COVERS.
2) RAINGARDEN AND DETENTION POND OUTLETS TO USE DOME COVERS
3) SEE DRAINAGE PLAN FOR INVERTS, INLETS AND OUTLET LOCATION AND SIZES.

TYPICAL OUTLET STRUCTURES AND MANHOLE DETAIL (OS-RG2)(OS-RG3)(OS-RG4)(OS-DP1)(PDMH1)(PDMH2)(PDMH3)

NOT TO SCALE



NOTE:

1) ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE TOWN.

OUTLET STRUCTURE 1 (OS-RG1) DETAIL

NOT TO SCALE

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PLANNING FILENO.: P18-___

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CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
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(603) 749-0443

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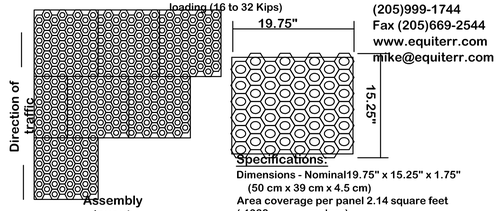
DETAILS

15

GRASS PAVERS DETAIL

H10 to H20 Loading Medium to heavy loading (16 to 32 Kips)

CV Supply
3923 Hwy 61
Columbiana, AL 35051
(205)999-1744
Fax (205)669-2544
www.equiterr.com
mike@equiterr.com

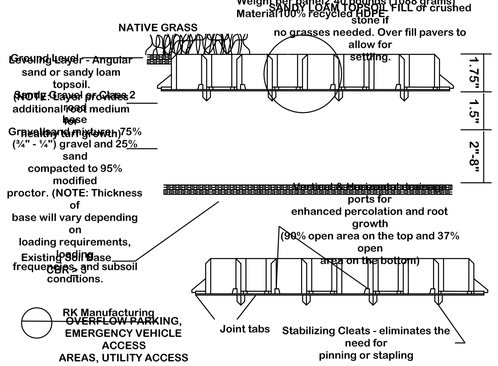


Specifications:

Dimensions - Nominal19.75" x 15.25" x 1.75" (50 cm x 39 cm x 4.5 cm)
Area coverage per panel 2.14 square feet (.1988 square meters)
Weight per panel2.40 pounds (1088 grams)
Material100% recycled HDPE

Sand, loam or stone if no grasses needed. Over fill pavers to allow for settling.

FILL of crushed



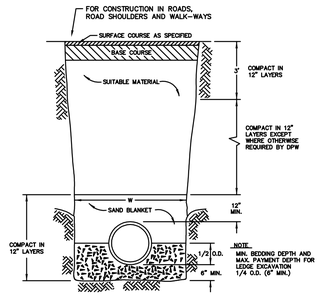
RK Manufacturing

OVERFLOW PARKING, EMERGENCY VEHICLE ACCESS AREAS, UTILITY ACCESS

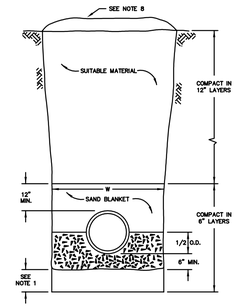
GRASS PAVER DETAIL

NOT TO SCALE

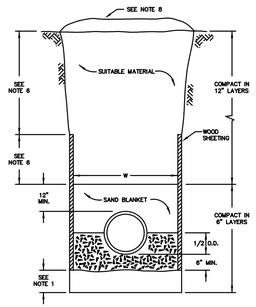
STANDARD TRENCH SECTION



LEDGE CONSTRUCTION



EARTH CONSTRUCTION



EARTH CONSTRUCTION WITH SHEETING

NOTES:

1.) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. SEE ALSO NOTE 7.

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

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

– CRUSHED STONE 1/2 INCH – 1 1/2 INCH MAY BE USED INSTEAD OF SCREENED GRAVEL WHERE ALLOWED BY THE ENGINEER.

3.) SAND BLANKET : CLEAN SAND FREE FROM ORGANIC MATTER SO GRADED THAT 90–100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE.

4.) SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK–WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

IN CROSS–COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY, WILL BE PRESERVED.

5.) BASE COURSE . IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, (D.O.T.).

6.) WOOD SHEETING . IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID–DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

7.) W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.

8.) FOR CROSS COUNTRY CONSTRUCTION , BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

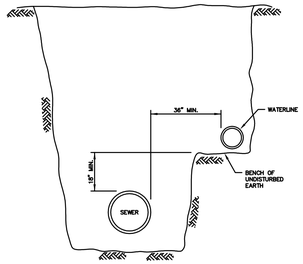
9.) CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER : 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

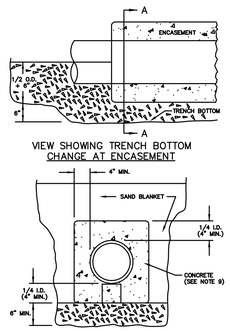
10.) NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION (NH DES) DESIGN STANDARDS REQUIRE 10 FT. SEPARATION. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FT. HORIZONTAL FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED.

A. IF THE WATERLINE CAN BE KEPT AT LEAST 18 INCHES ABOVE AND 3 FEET TO ONE SIDE OF THE SEWER, AS SHOWN AND SUPPORTED ON A BENCH OF ORIGINAL SOIL, NO OTHER PROTECTION IS REQUIRED.

11.) IF FULL CASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.



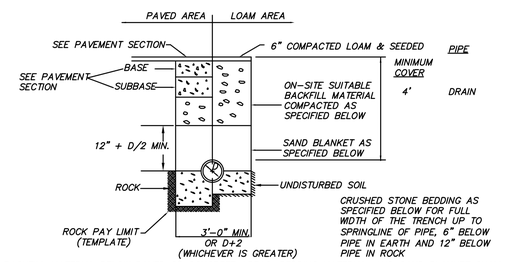
WATER AND SEWER IN SAME TRENCH



VIEW SHOWING TRENCH BOTTOM CHANGE AT ENCASEMENT

SECTION A–A

CONCRETE FULL ENCASEMENT
(SEE NOTE 11)



BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET & BEDDING

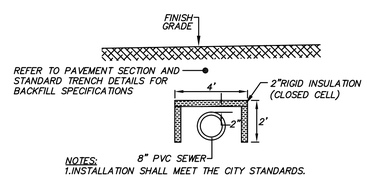
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15
(FOR WATER MAIN BEDDING)	

3/4" CRUSHED STONE BEDDING

SIEVE SIZE	% FINER BY WEIGHT
1"	100
3/4"	90 – 100
1/2"	20 – 50
3/8"	0 – 20
# 4	0 – 5

DRAINAGE TRENCH

NOT TO SCALE



NOTES:
1.INSTALLATION SHALL MEET THE CITY STANDARDS.

SEWER INSULATION DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18–___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1–22–19

DATE: 2–21–19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

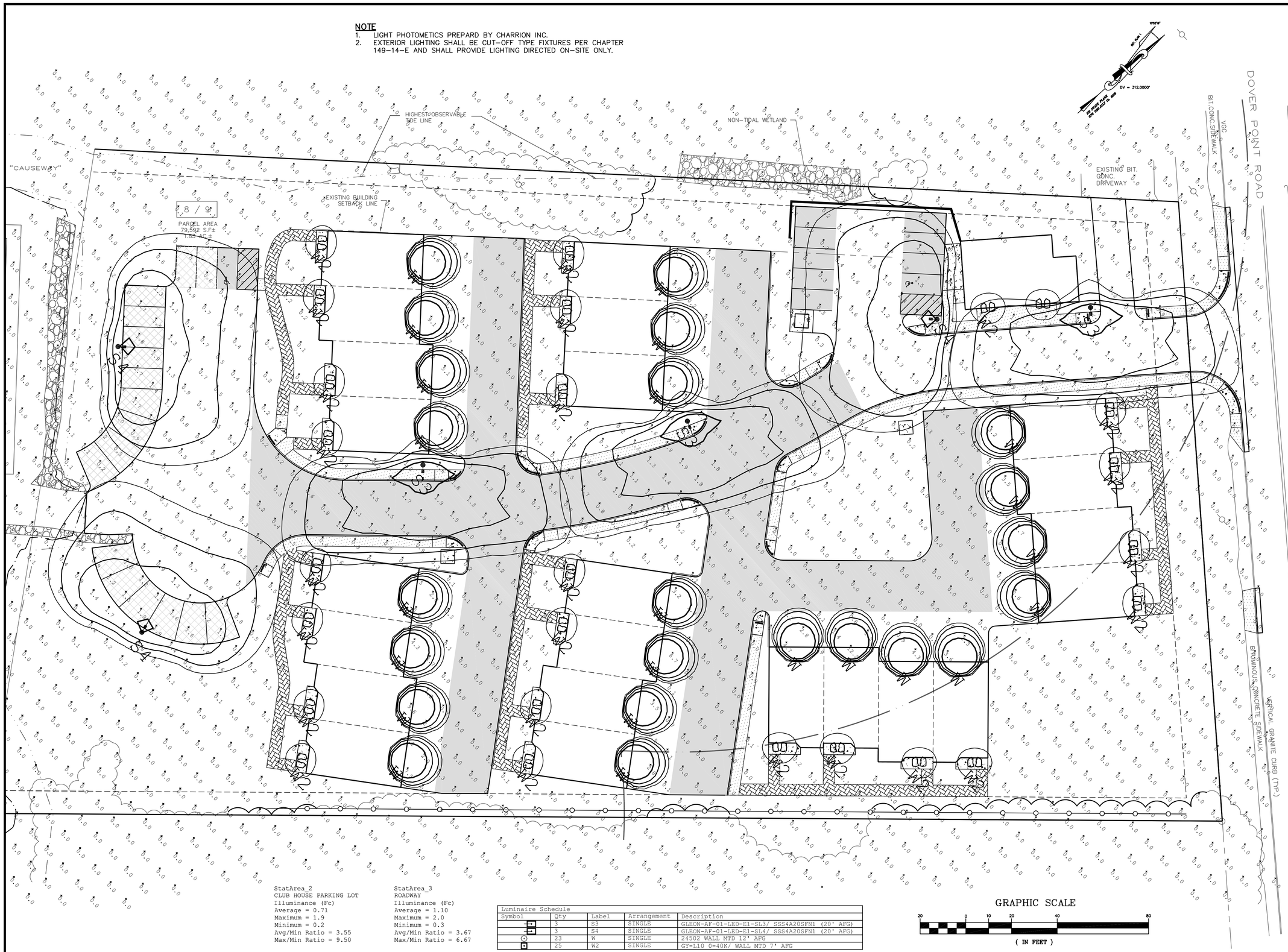
LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

DETAILS

16

NOTE
1. LIGHT PHOTOMETICS PREPARD BY CHARRION INC.
2. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.



StatArea_2
CLUB HOUSE PARKING LOT
Illuminance (Fc)
Average = 0.71
Maximum = 1.9
Minimum = 0.2
Avg/Min Ratio = 3.55
Max/Min Ratio = 9.50

StatArea_3
ROADWAY
Illuminance (Fc)
Average = 1.10
Maximum = 2.0
Minimum = 0.3
Avg/Min Ratio = 3.67
Max/Min Ratio = 6.67

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	3	S3	SINGLE	GLEON-AF-01-LED-E1-SL3/ SSS4A20SFN1 (20' AFG)
	3	S4	SINGLE	GLEON-AF-01-LED-E1-SL4/ SSS4A20SFN1 (20' AFG)
	23	W	SINGLE	24502 WALL MTD 12' AFG
	25	W2	SINGLE	GY-L10 0-40K/ WALL MTD 7' AFG

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

DATE: 2-21-19
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

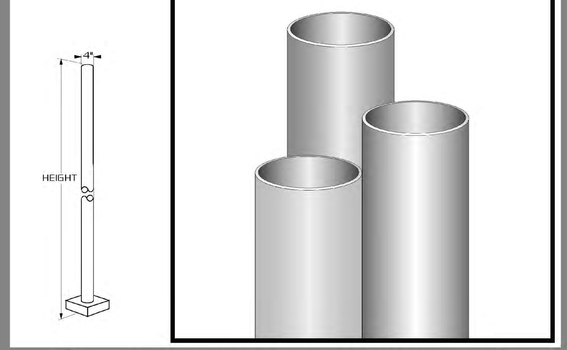
LIGHTING PLAN

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

LITTLE BAY MARINA &
DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

17

RNTA 4"



4" ROUND STRAIGHT ALUMINUM

SPECIFICATIONS

SHAFT: 4" DIAMETER, EXTRUDED FROM 6063 ALLOY ALUMINUM TUBING, HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT INCLUDES A PERIPHERALLY REINFORCED HAND HOLE FURNISHED WITH COVER. SHAFT IS FURNISHED WITH GROUND LUG LOCATED ON CAST ALUMINUM BASE PLATE.

BASE PLATE: CAST ALUMINUM CONSTRUCTED OF A-356 ALUMINUM ALLOY HEAT TREATED TO PRODUCE A T6 TEMPER. STRUCTURALLY ENGINEERED BASE INCLUDES EIGHT HEAVY WALL REINFORCING VERTICAL GUSSETS. BASE TELESCOPES AND IS CIRCUMFERENTIALLY WELDED TO SHAFT AT BOTH THE OUTSIDE TOP AND INSIDE BOTTOM OF THE BASE.

ANCHORAGE: (4) ANCHOR BOLTS FABRICATED FROM HOT ROLLED STEEL BAR, MINIMUM YIELD STRENGTH OF 50,000 P.S.I. BOLTS HAVE "L" BEND ON ONE END AND ARE THREADED ON THE OTHER END. BOLTS ARE FULLY GALVANIZED AND ARE FURNISHED WITH TWO NUTS AND TWO WASHERS.

BASE COVER: FABRICATED FROM HEAVY WALL ALUMINUM CONSTRUCTION. TWO PIECE COVER ENTIRELY CONCEALS BASE.

FINISH: POLYESTER POWDER COAT-STATE OF THE ART 20 PSI PRESSURE POWER WASH AT 140° TEMPERATURE INCORPORATES FOUR STEP IRON PHOSPHATE PROCESS TO CLEANSE AND PRETREAT THE METAL SURFACE FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED TEXTURED POLYESTER POWDER TOPCOAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.

U.S. ARCHITECTURAL LIGHTING
650 WEST AVENUE O, PALMDALE, CA. 93551
(661) 233-2000
FAX NO. (661) 233-2001
www.usalt.g.com

F1-33

McGraw-Edison

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting
STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. QUICK MOUNT ARM: Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty
Five-year warranty.

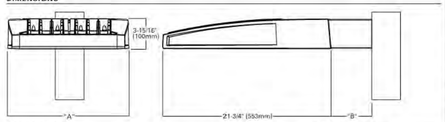


GLEON
GALLEON LED

1-10 Light Squares
Solid State LED

AREA/SITE LUMINAIRE

DIMENSIONS

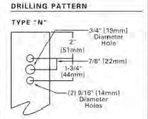


DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length †	Weight with Arm (lbs.)	EPA with Arm ‡ (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	19" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	19" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: †. Optional arm length to be used when mounting two, fixtures at 90° on a single pole. ‡. EPA calculated with optional arm length.

DRILLING PATTERN



CERTIFICATION DATA
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium™ Qualified*

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

*www.designlights.org

TDI000020EN
2018-08-28 15:31:55

EATON
Powering Business Worldwide

MERU Series

LED GENERAL & EMERGENCY LIGHTING

EZ SPEC

PROJECT:
FIXTURE TYPE:
LOCATION:
CONTACT/PHONE:

PRODUCT DESCRIPTION

The MERU Series is an architectural, low-profile outdoor light, offering "normally On" AC and emergency lighting with powerful LED illumination. The housing is fully sealed and gasketed, and has an IP65 rating. Designed for wall mounting with universal K/O pattern in back-plate for easy installation to most standard size junction boxes. Includes a single ½" NPT conduit entry in the top, center of the housing. Illumination provided by 8 high power LEDs which achieve 1,600 lumens in AC and 600 lumens in emergency. LED color at 4000K.



PRODUCT SPECIFICATIONS

CONSTRUCTION
Die cast aluminum housing with superior heat sink • Scratch resistant Polyester powder coat finish • UV resistant polycarbonate lens • Snap-fit housing and mounting plate are held together by four stainless steel clips • Universal mounting pattern molded into the back plate • 1/2" threaded top access for surface conduit installation • Silicone rubber seal with hollow center, shape adaptive design protects the electrical components • Junction box neoprene seal is attached to the back plate for a weather proof installation • Dark Bronze or White textured finish.

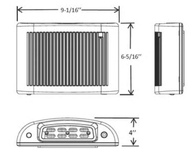
ELECTRICAL
Dual voltage 120/277VAC 60Hz input • Solid state charging and switching • Battery low voltage disconnect • AC power indicator and test switch at the bottom of the unit • Standard with Self Diagnostics to monitor proper operation.

LAMPS
Supplied with eight (8) LG SMD 4000K LED'S • L70 > 72,000hours • 17 Watts total (32 Watts with IH option) • 1600 Lumens in AC mode, 600 Lumens in Emergency mode • Full cut-off optics for Dark Sky compliance

BATTERY
Maintenance-free, long-life rechargeable NiCad battery will operate fixture for a minimum of 90 minutes in the event of a power outage • 24 hour recharge after 90 minute discharge.

CODE COMPLIANCE
UL924 • Listed for wet location applications (0°C-50°C) • Optional "IH" cold weather package for (-40°C-50°C) • IP65 Rated • NFPA 101 Life Safety Code compliant • NEC and OSHA compliant • DLC Listed • RoHS Compliant

WARRANTY
5-year warranty. Product specifications subject to change without notice.



ACEM Model (NiCad Battery Backup)

Integral photocell: Unit operates as a dusk to dawn luminaire and in the event of a power failure as an emergency light.
Remote Switched: The integral photocell can be defeated to allow remote switching for normal operation. In the event of a power failure unit operates as an emergency light.

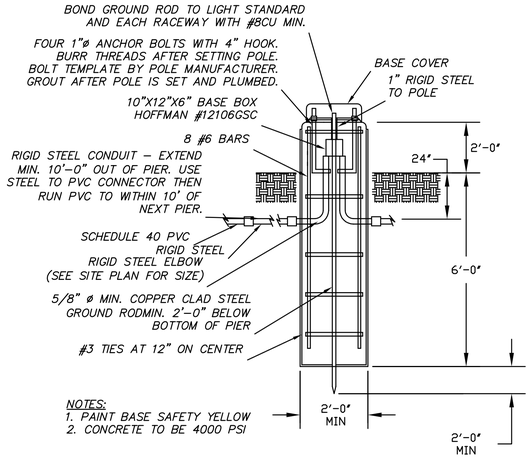
INSTALLATION

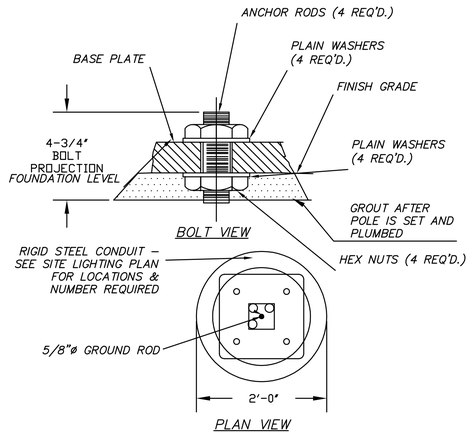
MOUNTING
Suitable for indoor or outdoor wall mounting on junction box, or with surface conduit using the supplied 1/2" threaded top access • Mounting plate has molded universal mounting pattern for simple mounting over junction box.

ORDERING INFORMATION

model	operation mode	housing color	options
MERU-LED	ACEM = General & Emergency Lighting	DB = Dark Bronze	*Self-Diagnostics & Photocell (Included Standard)*
	AC = General Lighting	WH = White	IH = Internal Heater
		BK = Black	PIR = Passive Infra-Red Motion Sensor
Ordering Example: MERU-ACEM-DB		NK = Nickel	

Mule Lighting , Inc. 46 Baker Street Providence, RI 02905 800 556-7690 P 401 941-2929 F www.mulelighting.com





LIGHT POLE BASE

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

DATE	DESCRIPTION	APP'D
1-22-19	AOT SUBMISSION	SJH
	REVISION	

DATE: 2-21-19
SCALE: AS NOTED
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG
NO. 1

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

DETAILS

18

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE

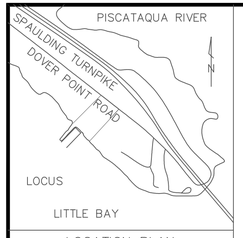
DATE: 2-21-19
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO:1788
FILE: SITE.DWG

DOVER LADDER TRUCK MOVEMENT PLAN

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

19



LOCATION PLAN
1" = 1,000'±

SOIL IDENTIFICATION LEGEND

SYMBOL	TAXONOMIC NAME	SOIL GROUP	HYDROLOGIC
100	UDORTHENTS WET SUBSTRATUM		D
38	ELDRIDGE	C	
943	ELDRIDGE VARIANTC		
546	WALPOLE	D	

8 / 38D
JOHN ANASTAS
GLORIA ESPOSITO-ANASTAS
419A DOVER POINT ROAD
DOVER, NH 03820
2567 / 760

"CAUSEWAY"
HIGHEST OBSERVABLE TIDE LINE
100' TIDE BUFFER (CITY OF DOVER JURISDICTIONAL SETBACK)
NON-TIDAL WETLAND
HEADWALL "B"
150' SWQPA
250' SWQPA
IRON ROD W/ CIVILWORKS CAP FOUND
EXISTING BIT. CONC. DRIVEWAY
BIT.CONC.SIDEWALK
VGC
DOVER POINT ROAD
APPROXIMATE GAS LINE LOCATION (V.I.F.)
OHU
UP W/GUY
GAS
METER
ELEC. METER
CULVERT "C"
GRAVEL DRIVE
8 / 9
PARCEL AREA
79,592 S.F±
1.83 AC.±
100/943A
MARINA GARAGE / WORKSHOP
APARTMENT ABOVE MARINA SALES & STORE
100/38A
546A
NON-TIDAL WETLAND
GRAVEL DRIVE AND PARKING AREA
FUEL CUT-OFF VALVE
PAD FUEL PUMP CONCRETE
CONCRETE PAD FUEL TANK COVER NH DES UNDERGROUND STORAGE TANK SITE NUMBER 199902013
APPROXIMATE WATERLINE LOCATION (V.I.F.)
A/C
G
E
HOUSE #425
GARAGE
IRON ROD FOUND
38A
8 / 12
PARCEL AREA
35,046 S.F±
0.80 AC.±
BITUMINOUS CONCRETE SIDEWALK
CB "E"
VERTICAL GRANITE CURB (TYP.)
EDGE OF PAVEMENT
DOUBLE YELLOW LINE
APPROXIMATE SEWER LINE LOCATION (V.I.F.)
IRON ROD W/ CIVILWORKS CAP FOUND
IRON AXLE FOUND
8 / 10
LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301
4473 / 288
IRON ROD IN CONCRETE MONUMENT FOUND
POOL
DECK
HOUSE
GAS METER
GARAGE
SHED
COTTAGE
PROPANE TANK
ELEC. METER
8 / 11
PARCEL AREA
20,592 S.F±
0.47 AC.±
8 / 13A-1
JOHN F. NEWWICK REVOCABLE TRUST 2001
JOHN F NEWICK, TRUSTEE
431 DOVER POINT ROAD
DOVER, NH 03820
2472 / 010

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

PREPARED BY LUKE HURLEY, CSS #95, CWS #232

STATE OF NEW HAMPSHIRE LUKE D. HURLEY 95 1/30/19 CERTIFIED SOIL SCIENTIST

STATE OF NEW HAMPSHIRE LUKE D. HURLEY 1/30/19 No. 232 CERTIFIED WETLAND SCIENTIST

*THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE SITE SPECIFICMAPPING STANDARDS FOR NH & VT, SSSNNE SPECIAL PUBLICATION NO. 3

LUKE HURLEY CSS #95, CWS #232

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PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	AOT SUBMISSION	SJH	1-22-19

DATE: 1-21-19
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: SITE.DWG

SITE SPECIFIC SOILS PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

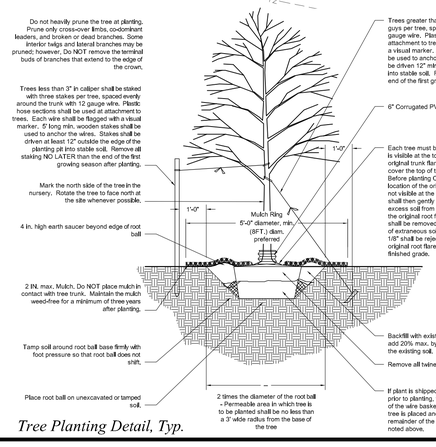
LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

SS-1



Landscape Notes

1. Design is based on drawings by Civilworks New England dated February 2019 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control shall be in place prior to construction.
4. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
5. The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
6. It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
7. Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
8. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
9. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
10. The Contractor shall procure any required permits prior to construction.
11. Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
12. Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
13. The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
14. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
15. All plants shall be legibly tagged with proper botanical name.
16. The Contractor shall guarantee all plants for not less than one year from time of acceptance.
17. Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
18. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
19. All landscaping shall be provided with either of the following
    a. An underground sprinkling system
    b. An outside hose attachment within 150 feet.
20. If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
21. The contractor is responsible for all plant material from the time their work commences until final acceptance. This includes but is not limited to maintaining all plants in good condition, the security of the plant material once delivered to the site, and watering of plants. Plants shall be appropriately watered prior to, during and after planting. It is the contractor's responsibility to provide water from off site, should it not be available on site.
22. All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
23. Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and ½" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer then 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
24. In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
25. Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 8' to allow clear and safe passage of vehicles and pedestrians under tree canopy.
26. Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
27. Landscape Architect is not responsible for the means and methods of the contractor.



Tree Planting Detail, Typ.

Plant List

TREES

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Gt	*Gleditsia triancanthos inermis 'Halka'*	Halka Thornless	4	3-3.5" Cal	B&B
Ns	*Nyssa Sylvatica*	Black Tupelo	6	3-3.5" Cal	B&B
Th	*Thuja plicata 'Atrovirens'*	Atrovirens Arborvitae	5	8-10' Ht	B&B
Ua	*Ulmus americana 'Princeton'*	Princeton American Elm	6	3-3.5" Cal	B&B

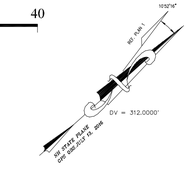
SHRUBS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Arb	*Thuja occidentalis 'Techny'*	Techny Arborvitae	5	6-7' Ht	B&B
Hy	*Hydrangea arborescens 'Incridiball'*	Incridiball Hydrangea	10	5 gal	
Syr	*Syringa meyeri 'Palibin'*	Dwarf Korean Lilac	18	3-4' Ht	B&B
Tax	*Taxus media 'Greenwave'*	Greenwave Yew	10	5 gal	

PERENNIALS, GROUNDCOVERS, VINES and ANNUALS

Symbol	Botanical Name	Common Name	Quantity	Size	Comments
An	*Anemone 'Honorine Jobert'*	Windflower	20	1 gal	
Cal	*Calamagrostis acutifolia 'Karl Foerster'*	Feather Reed Grass	187	1 gal	
Hos	*Hosta 'Sum and Substance'*	Sum and Substance Hosta	7	1 gal	
Rud	*Rudbeckia fulgida 'Goldsturm'*	Black-Eyed Susan	167	1 gal	
Sal	*Salvia nemorosa 'Blue Hill'*	Dark Blue Salvia	269	1 gal	
Vm	*Vinca minor 'Bowles'*	Bowles Periwinkle	420	2.5" pots	

0 5 10 20 40



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PLANNING FILENO.: P18-____

NO.	REVISION	APP'D	DATE
0	INITIAL SUBMISSION	VM	1.11.2019
1	PER REVISED SITE PLAN	VM	2.21.2019

DATE: 01-11-19
SCALE: 1"=20'
DRAWN BY: VM
DESIGN BY: VM
APPROVED BY:RW
PROJECT NO:1788
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

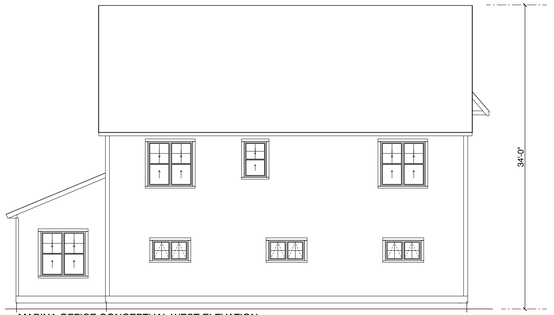
LANDSCAPE PLAN

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

L-1



MARINA OFFICE CONCEPTUAL NORTH ELEVATION



MARINA OFFICE CONCEPTUAL WEST ELEVATION



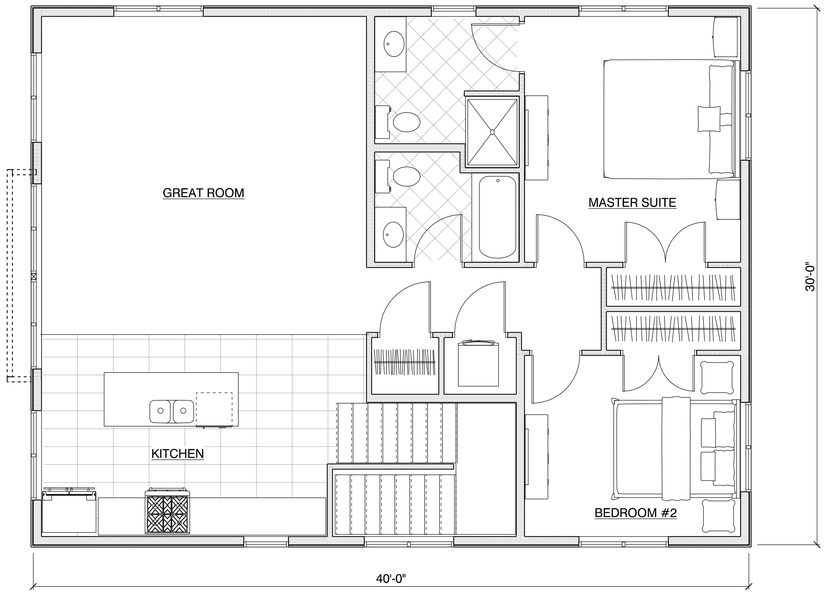
MARINA OFFICE CONCEPTUAL EAST ELEVATION



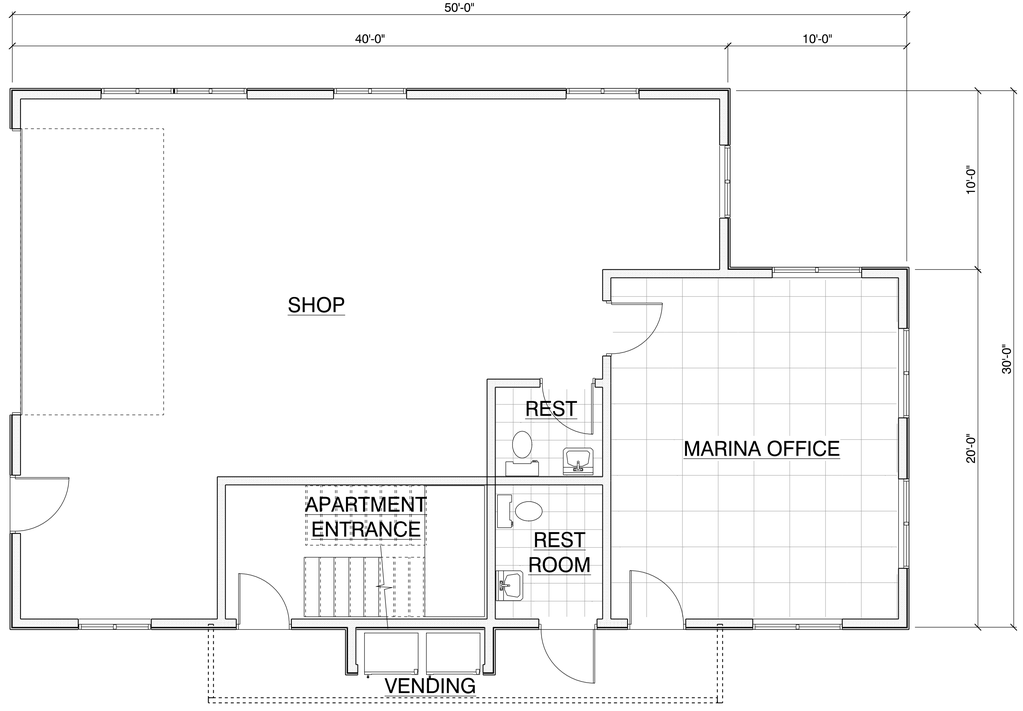
MARINA OFFICE CONCEPTUAL SOUTH ELEVATION







CONCEPTUAL SECOND FLOOR PLAN ACCESSORY APARTMENT



CONCEPTUAL FIRST FLOOR PLAN MARINA OFFICE

mjk
Michael J. Keane Architects, PLLC
ARCHITECTURE
PLANNING
DESIGN
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Newmarket, NH
03857
603-292-1400
mjkarchitects.com

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APPROVALS

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PROJECT

VARIANCE APPLICATION

LITTLE BAY MARINA AND DEVELOPMENT LLC

DOVER POINT ROAD
DOVER,
NH

TITLE

CONCEPTUAL MARINA OFFICE AND ACCESSORY APARTMENT

DRAWN BY: MJK
CHECKED BY: mjk
DATE: Wednesday, May 02, 2018
SCALE: As Noted

DRAWING NO.

A-1

DO NOT SCALE PRINTS



TYPICAL NORTH AND SOUTH ELEVATIONS TOWNHOUSE CONCEPTUAL



TYPICAL WEST ELEVATION TOWNHOUSE CONCEPTUAL





EAST ELEVATION TOWNHOUSE CONCEPTUAL

mjk

Michael J. Keane
Architects, PLLC

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PROJECT

VARIANCE APPLICATION

LITTLE BAY MARINA AND DEVELOPMENT LLC

DOVER POINT ROAD
DOVER,
NH

TITLE

CONCEPTUAL ELEVATIONS TYPCAL TOWNHOUSE UNITS

DRAWN BY: MJK

CHECKED BY: mjk

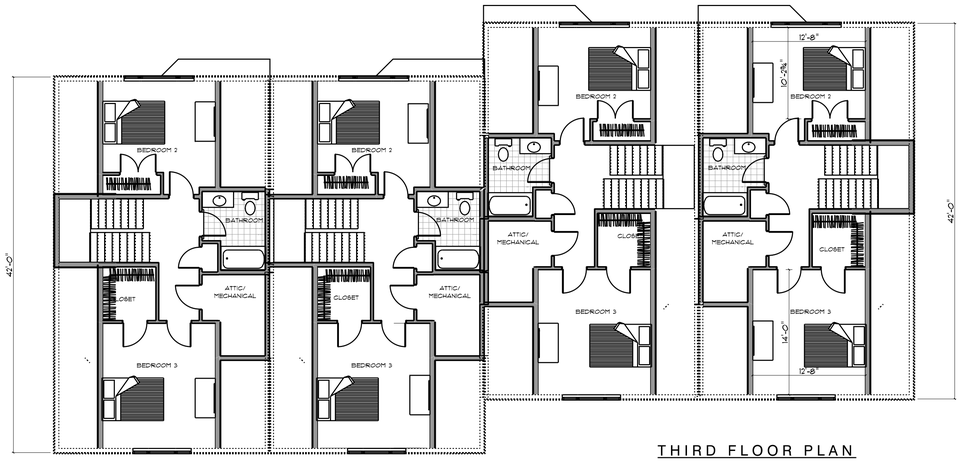
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SCALE: 1/8" = 1'-0"

DRAWING NO.

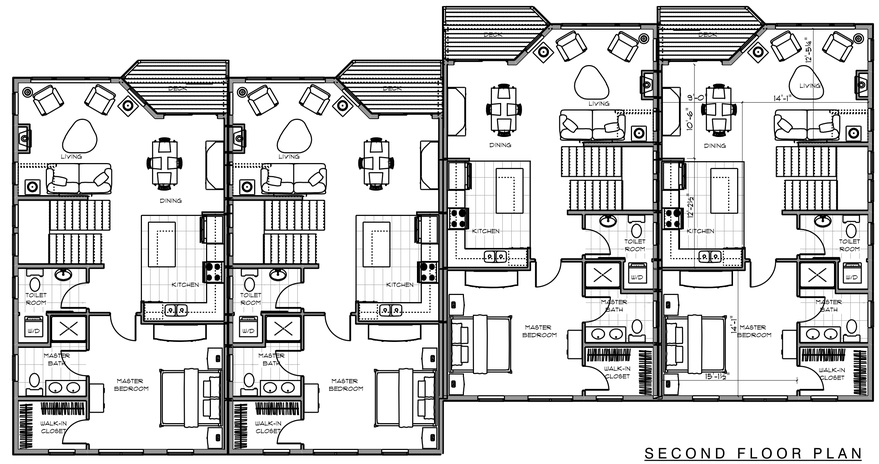
A-2

DO NOT SCALE PRINTS



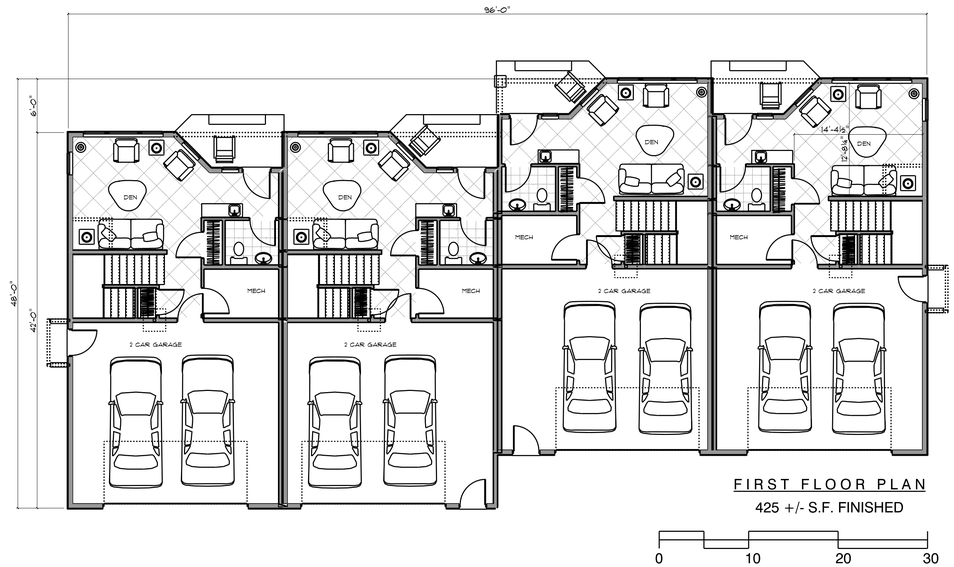
THIRD FLOOR PLAN

730 S.F. +/-



SECOND FLOOR PLAN

980 +/- S.F.



FIRST FLOOR PLAN

425 +/- S.F. FINISHED

0 10 20 30

mjk

Michael J. Keane Architects, PLLC

ARCHITECTURE
PLANNING
DESIGN

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Newmarket, NH
03857

603-292-1400
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PROJECT

VARIANCE APPLICATION

LITTLE BAY MARINA AND DEVELOPMENT LLC

DOVER POINT ROAD
DOVER,
NH

TITLE

CONCEPTUAL TOWNHOUSE FLOOR PLANS

DRAWN BY: MJK

CHECKED BY: mjk

DATE: Wednesday, May 02, 2018

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

DRAWING NO.

A-3

DO NOT SCALE PRINTS











mjk

Michael J. Keane
Architects, PLLC

ARCHITECTURE
PLANNING
DESIGN

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03857

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APPROVALS

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PROJECT

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

LITTLE BAY MARINA AND
DEVELOPMENT LLC
111 LOUDON ROAD
CONCORD NH 03301

TITLE

STREETSCAPE

DRAWN BY: MJK

CHECKED BY: mjk

DATE: 2/25/2019

SCALE:

DRAWING NO.

A-1

DO NOT SCALE PRINTS

DRAINAGE ANALYSIS

for

LITTLE BAY MARINA

December 2018
Revised: January 2019

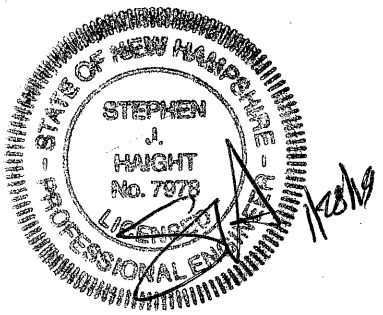
Prepared For:

Little Bay Marina & Development, LLC
111 Loudon Road
Concord, NH 03301

Prepared By:

Civilworks New England
181 Watson Road, P.O. Box 1166
Dover, NH 03820

Stephen J. Haight, PE



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2.1.2 Soils
2.1.3 Rainfall Data
2.1.4 Runoff Curve Numbers

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- 10-yr Storm Analysis
- 25-yr Summaries
- 50-yr Summaries

A-2 Developed Watersheds

- 2-yr Summaries
- 10-yr Storm Analysis
- 25-yr Summaries
- 50-yr Summaries

4.0 APPENDIX B – MAPS

B-1 Pre-Developed Conditions

B-2 Post-Developed Conditions

1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel, Tax Map 08 - Lots 09, 10, 11, and 12. The parcel is located at 423 Dover Point Road, Dover, NH. The site contains approximately 1.87 acres and is bounded on the east by Dover Point Road, the west by Little Bay, residential properties to the north, and commercial property to the south. The watershed of the parcel includes area of the project site. The project site consists of multiple parcels of land shown on Tax Map 08 as Lots 09, 10, 11 and 12. Lot 09 contains 1.87 acres +/- and is developed as a commercial marina with onsite storage, patron parking and access to slips and mooring field. Lots 10, 11 and 12 contain a total of 1.43 acres +/- and are developed as residential housing lots. The lots are located along the shore of Little Bay. On site soils are a mix of udorthents, eldridge, eldridge variant, and Walpole series. All soils are HSG C with the exception of the Walpole series and the Udorthents which are classified as HSG D.

The existing conditions within the property and its watershed have been analyzed using analysis points to compare the pre-development runoff to post-development. The subject parcel is located along Dover Point Road and the majority of the site slopes from east to west. The entirety of the property ultimately drains to Little Bay. The site is broken down into 4 major sub-catchments in order to model the pre-development condition. The largest sub-catchment includes the majority of the southern portion of the parcel, and includes residential housing, gravel and paved parking areas as well as a portion of the upper gravel parking lot of Newick's Restaurant. This sub-catchment drains overland, directly into Little Bay. The other three sub-catchments are made up of the northern and eastern portions of the site. One sub-catchment is made up of the existing residential lot located at 425 Dover Point Road and includes the associated onsite wetland area. This area drains overland and into a culvert which conveys the stormwater, underneath the existing driveway, into a drainage swale along the northern boundary of the site. The remaining two sub-catchments encompass the remaining area of the commercial marina operations which includes gravel and paved parking as well as some of the existing buildings. These two areas drain overland and directly into the drainage swale along the northern boundary before exiting into Little Bay.

The proposed development of the site includes the demolition of all the existing structures as well as the construction of 6 multi-unit residential buildings as well as a mixed use commercial building with the marina offices on the first floor and an apartment above. The development also includes the construction of an access road, parking for the residential and commercial use of the site, utility upgrades, and drainage improvements including the stormwater quality treatment structures of rain gardens, porous pavement, and a treatment swale.

The post development watershed is modeled utilizing the same point of analysis, Little Bay, incorporated in the pre development conditions to allow direct comparison of the peak runoff between the pre and post developed conditions. The post development condition has been divided into sixteen sub-catchments to accurately model the proposed development with the inclusion of rain gardens, porous pavement areas, a detention

pond, and a treatment swale as well as the closed drainage system. The stormwater conveyance systems include an existing swale to the north of the site and a closed drainage system which includes under drains and drain manholes to the south, both of which discharge to Little Bay .

The analysis indicates that the proposed development of the site will have negligible impact on the watershed.

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. 10.0

2.1 DRAINAGE DESIGN PARAMETERS

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

2.1.1 Watersheds

The watershed and subcatchment areas were delineated using topographic and boundary data provided by McEneaney Survey Associates, Inc of Dover, NH.

2.1.2 Soils

Onsite soil information used to estimate the runoff curve numbers was provided by Luke Hurley of Gove Environmental Services, Inc., a certified wetland scientist:

Hydrologic Drainage Class C: Eldridge
Eldridge Variant

Hydrologic Drainage Class D: Udorthents wet substratum
Walpole

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center (NRCC) were utilized in this analysis. As this project is located within the coastal/Great Bay region the NRCC precipitation values have been increased by 15% in accordance with recommendations by the Coastal Risks and Hazards Commission. As such, the analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.66", 5.53", 7.02", and 8.40" rainfall depths respectively. The detention pond has been sized to accommodate the 50-yr storm event.

2.1.4 Runoff Curve Numbers

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

2.2 EXISTING CONDTIONS

For purposes of this analysis the subject parcel was analyzed as 4 sub-watershed areas that are all analyzed with Little Bay as the summing point.

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	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
Little Bay	0.61	3.47	6.41	8.74	10.90

2.3 DEVELOPED CONDITIONS

The post development watershed was analyzed with 16 sub-watershed areas. Post development watersheds have the same summing point, Little Bay, as the pre development analysis.

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	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
Little Bay	0.80	3.75	6.01	7.83	9.49

Comparison Chart

Watershed	Pre/**Post-Development Volume (af)**	Pre/**Post Development Peak Flows (cfs)**			
Discharge Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
Little Bay	0.61/**0.80**	3.47/**3.75**	6.41/**6.01**	8.74/**7.83**	10.90/**9.49**

APPENDIX A

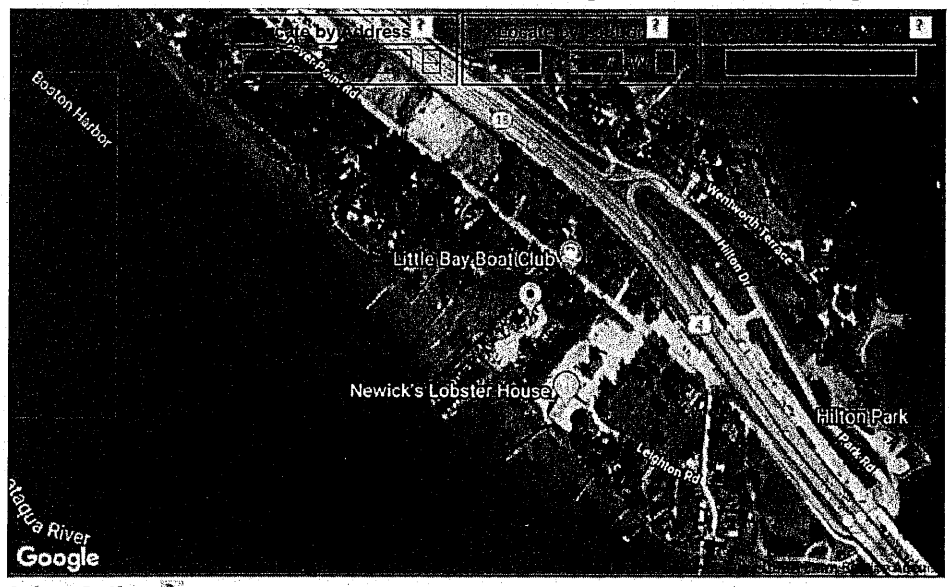
HYDROLOGIC CALCULATIONS

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 *Grxedn0fdfn#wkhp ds#wr#sdfh#hp dunhu/#ru#hqwhu#ggruhvv#ru#dlwxgh2rrqj lwxgh1*



Select Options

Smoothing: No

Submit

Version 1.12 Copyright 2010-2018.
This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) Cornell University

Natural Resources Conservation Service (NRCS) USDA NRCS

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	
Location	
Longitude	70.833 degrees West
Latitude	43.122 degrees North
Elevation	0 feet
Date/Time	Thu, 12 Jul 2018 21:09:54 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day		+15%
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.21	1.55	2.01	2.63	2.88	**1yr**	2.33	2.77	3.17	3.90	4.49	**1yr**	3.03
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.51	1.92	2.47	3.18	3.53	**2yr**	2.81	3.39	3.89	4.63	5.26	**2yr**	3.66
5yr	0.37	0.57	0.72	0.97	1.23	1.59	**5yr**	1.07	1.45	1.86	2.40	3.10	4.02	4.52	**5yr**	3.56	4.35	4.97	5.86	6.62	**5yr**	
10yr	0.41	0.64	0.81	1.10	1.43	1.86	**10yr**	1.23	1.70	2.20	2.85	3.70	4.81	5.46	**10yr**	4.26	5.25	5.99	7.01	7.88	**10yr**	5.53
25yr	0.47	0.74	0.95	1.31	1.74	2.29	**25yr**	1.50	2.11	2.72	3.57	4.67	6.10	7.01	**25yr**	5.39	6.74	7.66	8.89	9.93	**25yr**	7.02
50yr	0.52	0.84	1.07	1.50	2.02	2.69	**50yr**	1.74	2.48	3.22	4.24	5.57	7.30	8.47	**50yr**	6.46	8.15	9.24	10.64	11.83	**50yr**	8.40
100yr	0.59	0.95	1.22	1.73	2.35	3.16	**100yr**	2.03	2.92	3.79	5.03	6.64	8.74	10.25	**100yr**	7.73	9.85	11.15	12.74	14.10	**100yr**	
200yr	0.65	1.06	1.38	1.98	2.74	3.72	**200yr**	2.36	3.44	4.49	5.99	7.93	10.46	12.39	**200yr**	9.26	11.92	13.45	15.27	16.81	**200yr**	
500yr	0.77	1.26	1.65	2.39	3.35	4.61	**500yr**	2.89	4.27	5.58	7.50	10.0	13.29	15.94	**500yr**	11.76	15.33	17.24	19.40	21.23	**500yr**	

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.36	0.44	0.60	0.73	0.89	**1yr**	0.63	0.87	0.92	1.30	1.64	2.23	2.48	**1yr**	1.97	2.38	2.81	3.22	3.91	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.35	3.03	3.42	**2yr**	2.69	3.29	3.78	4.50	5.02	**2yr**
5yr	0.35	0.54	0.67	0.92	1.16	1.40	**5yr**	1.01	1.37	1.61	2.14	2.76	3.75	4.15	**5yr**	3.32	3.99	4.65	5.47	6.17	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.42	3.10	4.33	4.82	**10yr**	3.83	4.63	5.36	6.33	7.11	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.90	**25yr**	1.34	1.86	2.10	2.81	3.60	4.72	5.84	**25yr**	4.18	5.62	6.55	7.68	8.57	**25yr**
50yr	0.48	0.73	0.91	1.30	1.75	2.17	**50yr**	1.51	2.12	2.35	3.15	4.02	5.34	6.75	**50yr**	4.73	6.49	7.60	8.90	9.88	**50yr**
100yr	0.53	0.80	1.01	1.46	2.00	2.48	**100yr**	1.72	2.42	2.63	3.51	4.47	6.02	7.80	**100yr**	5.33	7.50	8.83	10.32	11.38	**100yr**
200yr	0.59	0.89	1.12	1.62	2.26	2.82	**200yr**	1.95	2.76	2.93	3.91	4.96	6.77	9.00	**200yr**	5.99	8.66	10.25	11.97	13.12	**200yr**
500yr	0.68	1.02	1.31	1.90	2.70	3.38	**500yr**	2.33	3.31	3.40	4.51	5.70	7.90	10.88	**500yr**	6.99	10.46	12.49	14.59	15.82	**500yr**

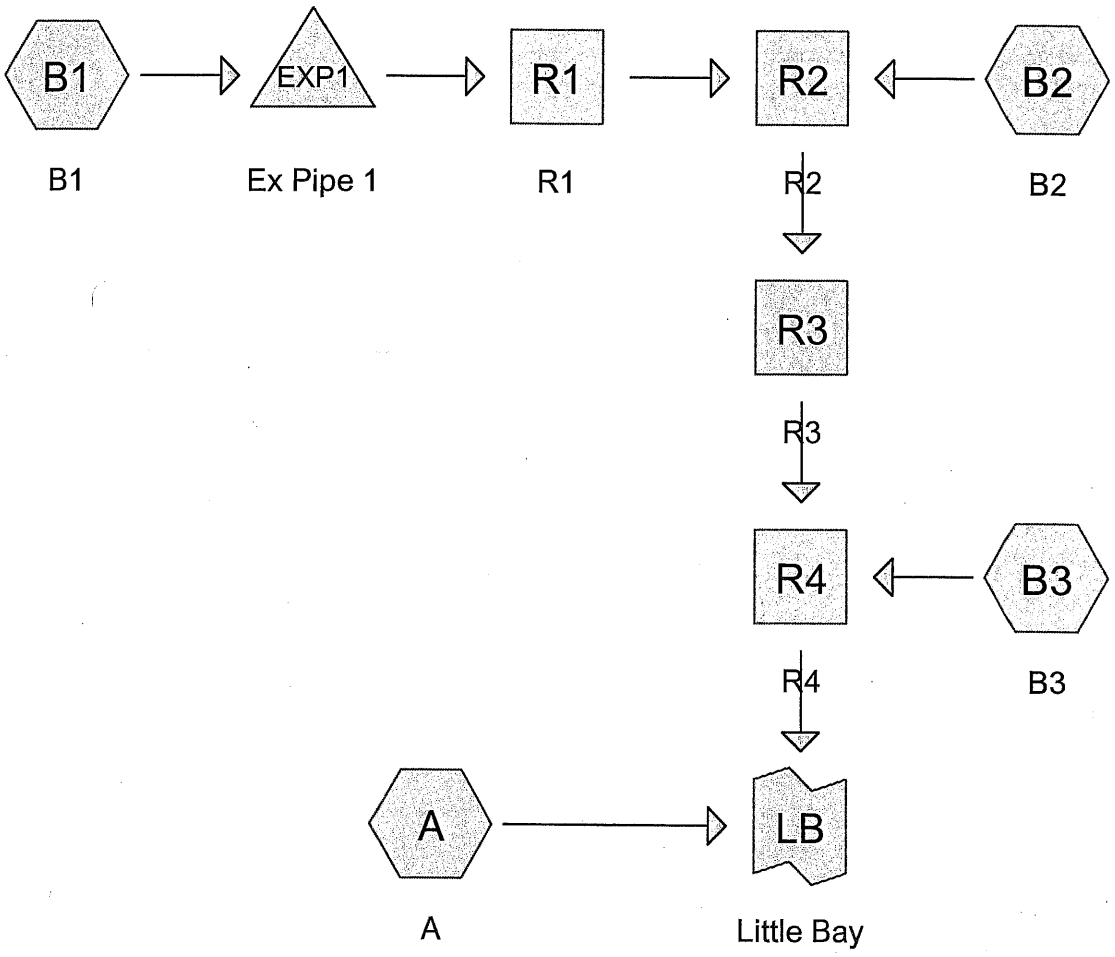
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.08	**1yr**	0.76	1.06	1.25	1.75	2.22	2.97	3.11	**1yr**	2.63	2.99	3.53	4.32	4.96	**1yr**
2yr	0.33	0.51	0.63	0.85	1.05	1.26	**2yr**	0.91	1.23	1.48	1.96	2.51	3.38	3.65	**2yr**	2.99	3.51	4.03	4.78	5.56	**2yr**
5yr	0.40	0.61	0.76	1.04	1.32	1.60	**5yr**	1.14	1.56	1.87	2.52	3.23	4.29	4.89	**5yr**	3.79	4.70	5.30	6.28	7.06	**5yr**
10yr	0.46	0.71	0.88	1.23	1.58	1.94	**10yr**	1.37	1.90	2.26	3.08	3.91	5.28	6.10	**10yr**	4.67	5.87	6.69	7.72	8.62	**10yr**
25yr	0.56	0.86	1.06	1.52	2.00	2.52	**25yr**	1.73	2.46	2.91	4.03	5.06	7.53	8.20	**25yr**	6.67	7.88	8.95	10.17	11.24	**25yr**
50yr	0.65	0.99	1.24	1.78	2.39	3.05	**50yr**	2.06	2.98	3.54	4.93	6.17	9.39	10.27	**50yr**	8.31	9.88	11.16	12.51	13.76	**50yr**
100yr	0.76	1.15	1.44	2.09	2.86	3.70	**100yr**	2.47	3.62	4.30	6.05	7.54	11.70	12.87	**100yr**	10.35	12.37	13.93	15.42	16.85	**100yr**
200yr	0.89	1.34	1.69	2.45	3.42	4.50	**200yr**	2.95	4.40	5.24	7.43	9.20	14.61	16.14	**200yr**	12.93	15.52	17.39	19.00	20.64	**200yr**
500yr	1.09	1.63	2.09	3.04	4.32	5.81	**500yr**	3.73	5.68	6.79	9.77	12.02	19.61	21.77	**500yr**	17.35	20.93	23.34	25.04	27.01	**500yr**

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Northeast Regional Climate Center

A-1

EXISTING WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 1788-Pre
Prepared by {enter your company name here}, Printed 1/21/2019
HydroCAD® 10.00 s/n 03240 © 2011 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.896	70	Woods, Good, HSG C (A, B1)
1.823	74	>75% Grass cover, Good, HSG C (A, B1, B2, B3)
0.053	77	Woods, Good, HSG D (B1)
0.928	96	Gravel surface, HSG C (A, B1, B2, B3)
0.278	98	Unconnected pavement, HSG C (A, B1, B2, B3)
0.223	98	Unconnected roofs, HSG C (A, B1, B2, B3)
0.010	98	Water Surface, HSG C (Pool) (A)
4.212	**81**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
4.159	HSG C	A, B1, B2, B3
0.053	HSG D	B1
0.000	Other	
4.212		**TOTAL AREA**

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NODE LISTING – 2-YR

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=123,127 sf 9.42% Impervious Runoff Depth=1.76"
Flow Length=664' Tc=26.7 min UI Adjusted CN=80 Runoff=2.42 cfs 0.416 af

Subcatchment B1: B1 Runoff Area=27,823 sf 14.71% Impervious Runoff Depth=1.35"
Flow Length=202' Tc=18.7 min UI Adjusted CN=74 Runoff=0.48 cfs 0.072 af

Subcatchment B2: B2 Runoff Area=17,482 sf 22.91% Impervious Runoff Depth=2.24"
Flow Length=197' Tc=13.6 min UI Adjusted CN=86 Runoff=0.62 cfs 0.075 af

Subcatchment B3: B3 Runoff Area=15,032 sf 17.26% Impervious Runoff Depth=1.69"
Flow Length=96' Slope=0.0400 '/' Tc=9.8 min UI Adjusted CN=79 Runoff=0.46 cfs 0.049 af

Reach R1: R1 Avg. Flow Depth=0.26' Max Vel=0.25 fps Inflow=0.44 cfs 0.072 af
n=0.070 L=52.0' S=0.0010 '/' Capacity=4.80 cfs Outflow=0.43 cfs 0.072 af

Reach R2: R2 Avg. Flow Depth=0.34' Max Vel=0.38 fps Inflow=0.91 cfs 0.147 af
n=0.070 L=30.0' S=0.0017 '/' Capacity=6.33 cfs Outflow=0.91 cfs 0.147 af

Reach R3: R3 Avg. Flow Depth=0.21' Max Vel=0.62 fps Inflow=0.91 cfs 0.147 af
n=0.050 L=175.0' S=0.0040 '/' Capacity=13.72 cfs Outflow=0.86 cfs 0.147 af

Reach R4: R4 Avg. Flow Depth=0.27' Max Vel=0.61 fps Inflow=1.12 cfs 0.196 af
n=0.050 L=85.0' S=0.0029 '/' Capacity=11.76 cfs Outflow=1.11 cfs 0.196 af

Pond EXP1: Ex Pipe 1 Peak Elev=5.42' Storage=70 cf Inflow=0.48 cfs 0.072 af
6.0" Round Culvert n=0.021 L=46.5' S=0.0189 '/' Outflow=0.44 cfs 0.072 af

Link LB: Little Bay Inflow=3.47 cfs 0.611 af
Primary=3.47 cfs 0.611 af

Total Runoff Area = 4.212 ac Runoff Volume = 0.611 af Average Runoff Depth = 1.74"
87.85% Pervious = 3.700 ac 12.15% Impervious = 0.512 ac

A – 1

NODE LISTING – 10-YR

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=123,127 sf 9.42% Impervious Runoff Depth=3.36"
Flow Length=664' Tc=26.7 min UI Adjusted CN=80 Runoff=4.64 cfs 0.791 af

Subcatchment B1: B1 Runoff Area=27,823 sf 14.71% Impervious Runoff Depth=2.79"
Flow Length=202' Tc=18.7 min UI Adjusted CN=74 Runoff=1.04 cfs 0.149 af

Subcatchment B2: B2 Runoff Area=17,482 sf 22.91% Impervious Runoff Depth=3.96"
Flow Length=197' Tc=13.6 min UI Adjusted CN=86 Runoff=1.08 cfs 0.133 af

Subcatchment B3: B3 Runoff Area=15,032 sf 17.26% Impervious Runoff Depth=3.26"
Flow Length=96' Slope=0.0400 '/' Tc=9.8 min UI Adjusted CN=79 Runoff=0.90 cfs 0.094 af

Reach R1: R1 Avg. Flow Depth=0.31' Max Vel=0.27 fps Inflow=0.59 cfs 0.149 af
n=0.070 L=52.0' S=0.0010 '/' Capacity=4.80 cfs Outflow=0.59 cfs 0.149 af

Reach R2: R2 Avg. Flow Depth=0.46' Max Vel=0.45 fps Inflow=1.54 cfs 0.281 af
n=0.070 L=30.0' S=0.0017 '/' Capacity=6.33 cfs Outflow=1.53 cfs 0.281 af

Reach R3: R3 Avg. Flow Depth=0.29' Max Vel=0.75 fps Inflow=1.53 cfs 0.281 af
n=0.050 L=175.0' S=0.0040 '/' Capacity=13.72 cfs Outflow=1.46 cfs 0.281 af

Reach R4: R4 Avg. Flow Depth=0.38' Max Vel=0.76 fps Inflow=2.08 cfs 0.375 af
n=0.050 L=85.0' S=0.0029 '/' Capacity=11.76 cfs Outflow=2.06 cfs 0.375 af

Pond EXP1: Ex Pipe 1 Peak Elev=6.06' Storage=488 cf Inflow=1.04 cfs 0.149 af
6.0" Round Culvert n=0.021 L=46.5' S=0.0189 '/' Outflow=0.59 cfs 0.149 af

Link LB: Little Bay Inflow=6.41 cfs 1.167 af
Primary=6.41 cfs 1.167 af

Total Runoff Area = 4.212 ac Runoff Volume = 1.167 af Average Runoff Depth = 3.32"
87.85% Pervious = 3.700 ac 12.15% Impervious = 0.512 ac

A – 1

10-YR STORM SUMMARY

Summary for Subcatchment A: A

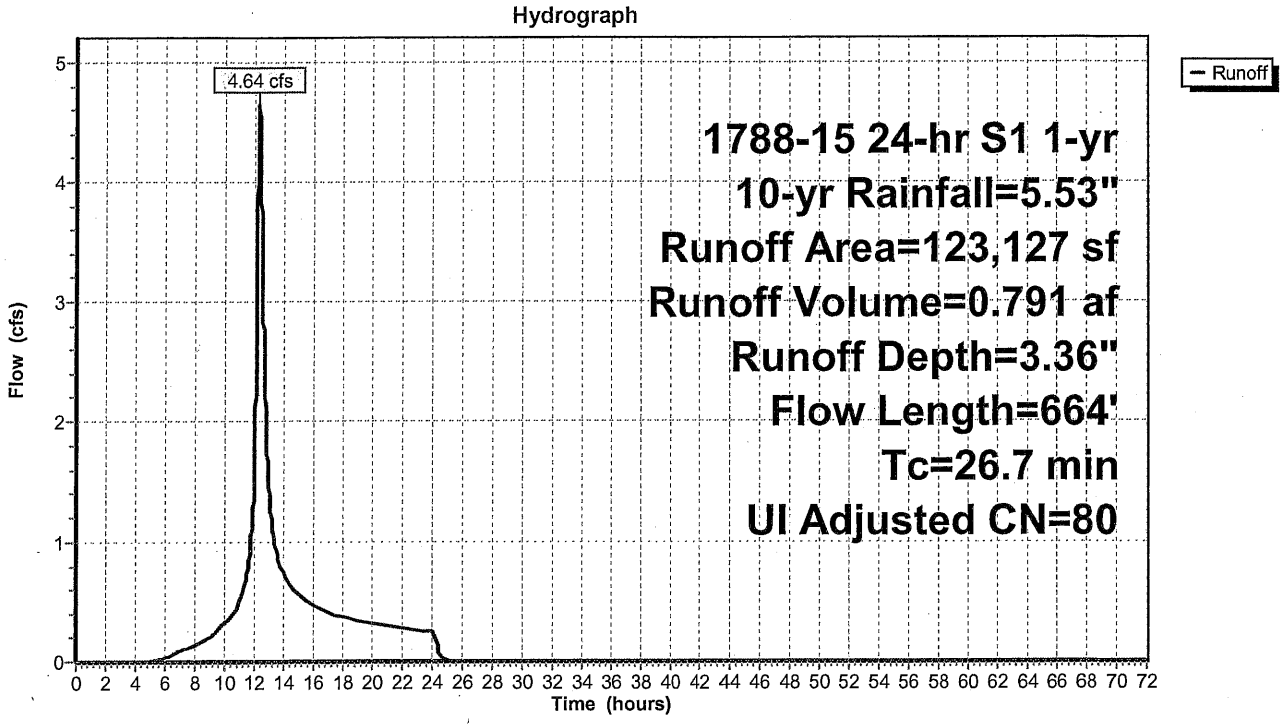
Runoff = 4.64 cfs @ 12.31 hrs, Volume= 0.791 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

	Area (sf)	CN	Description
	25,732	70	Woods, Good, HSG C
	53,180	74	>75% Grass cover, Good, HSG C
	32,614	96	Gravel surface, HSG C
	5,918	98	Unconnected pavement, HSG C
	5,231	98	Unconnected roofs, HSG C
*	452	98	Water Surface, HSG C (Pool)
	123,127	81	Weighted Average, UI Adjusted CN = 80
	111,526		90.58% Pervious Area
	11,601		9.42% Impervious Area
	11,149		96.10% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	100	0.0270	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
5.6	204	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	67	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0	293	0.0240	2.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.7	664	Total			

Subcatchment A: A



Summary for Subcatchment B1: B1

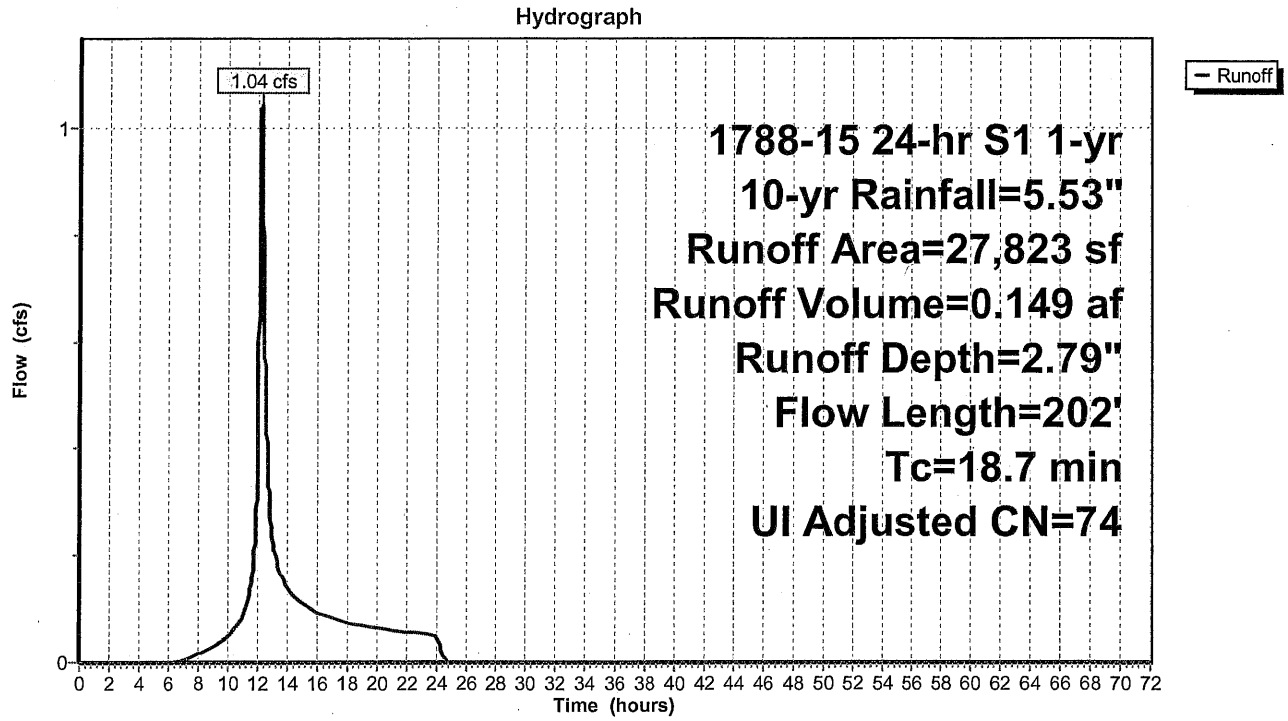
Runoff = 1.04 cfs @ 12.20 hrs, Volume= 0.149 af, Depth= 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
13,290	70	Woods, Good, HSG C
8,085	74	>75% Grass cover, Good, HSG C
44	96	Gravel surface, HSG C
3,400	98	Unconnected pavement, HSG C
693	98	Unconnected roofs, HSG C
2,311	77	Woods, Good, HSG D
27,823	76	Weighted Average, UI Adjusted CN = 74
23,730		85.29% Pervious Area
4,093		14.71% Impervious Area
4,093		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	20	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
12.3	80	0.0440	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
2.7	102	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	202	Total			

Subcatchment B1: B1



Summary for Subcatchment B2: B2

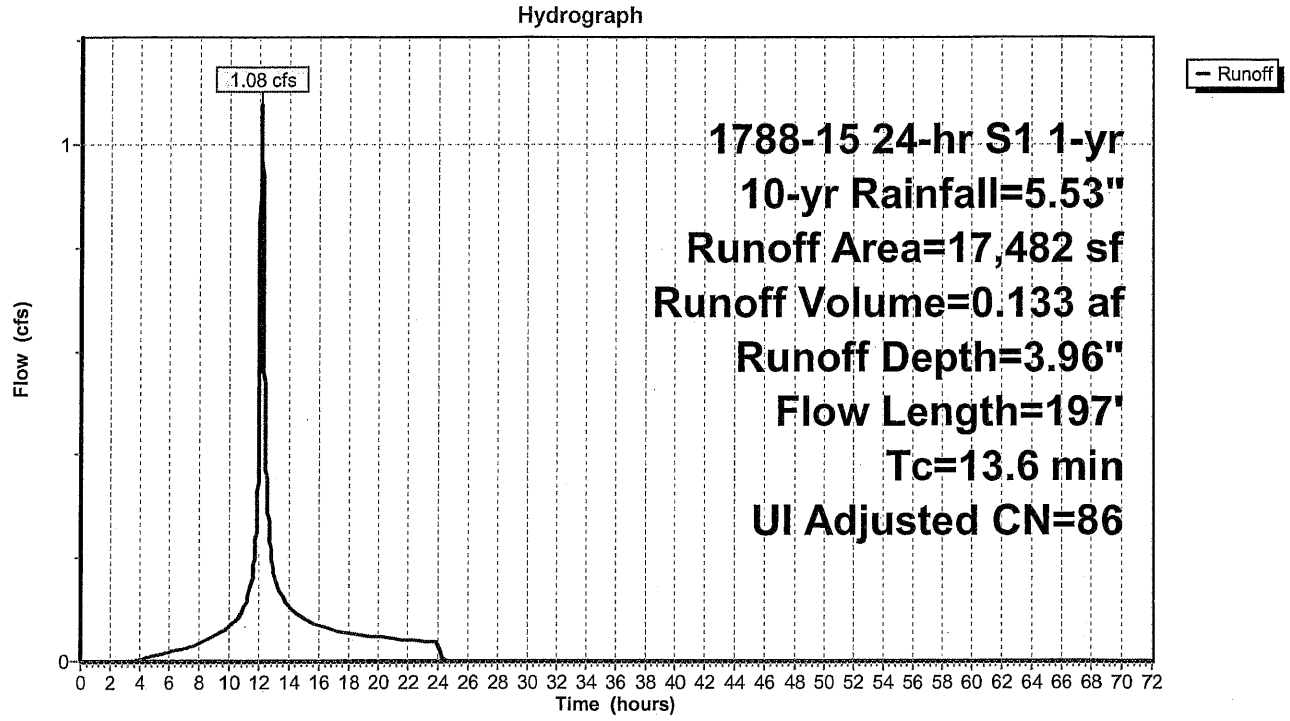
Runoff = 1.08 cfs @ 12.13 hrs, Volume= 0.133 af, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
7,339	74	>75% Grass cover, Good, HSG C
6,138	96	Gravel surface, HSG C
2,781	98	Unconnected pavement, HSG C
1,224	98	Unconnected roofs, HSG C
17,482	87	Weighted Average, UI Adjusted CN = 86
13,477		77.09% Pervious Area
4,005		22.91% Impervious Area
4,005		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	15	0.0100	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
6.7	58	0.0380	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
1.0	106	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	18	0.1830	2.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.6	197	Total			

Subcatchment B2: B2



Summary for Subcatchment B3: B3

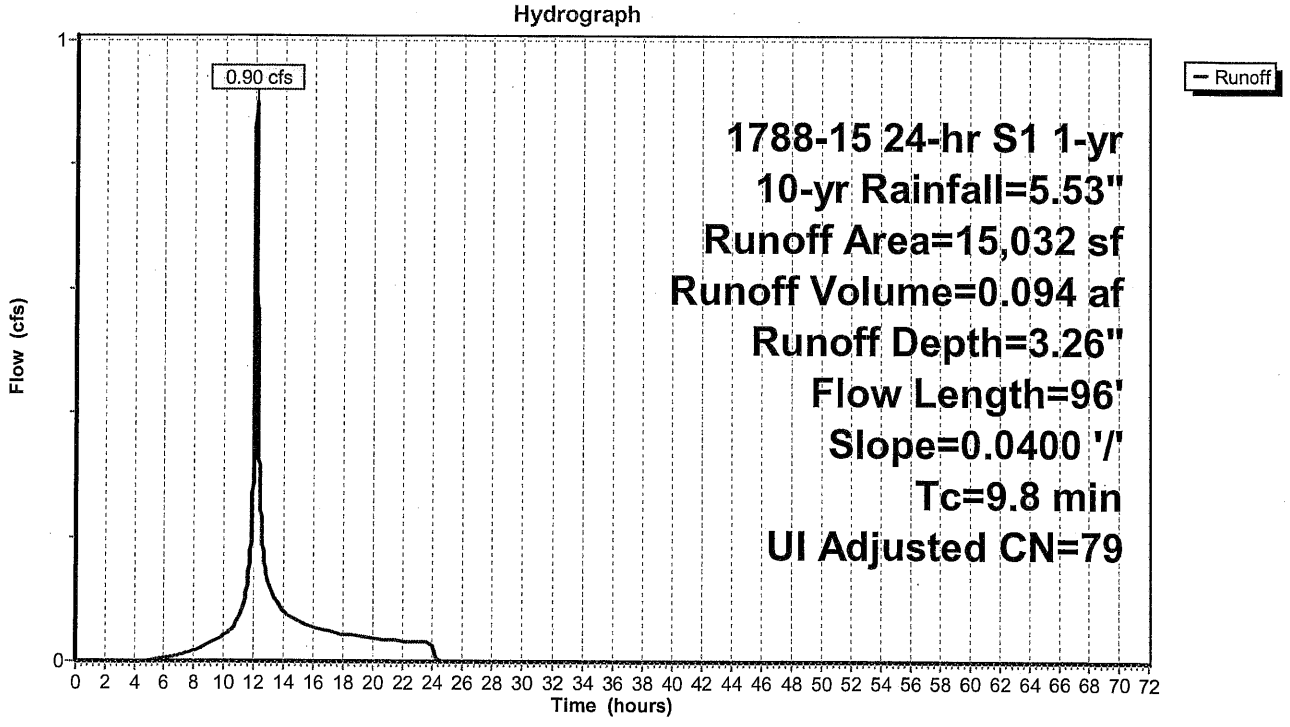
Runoff = 0.90 cfs @ 12.08 hrs, Volume= 0.094 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
10,816	74	>75% Grass cover, Good, HSG C
1,622	96	Gravel surface, HSG C
25	98	Unconnected pavement, HSG C
2,569	98	Unconnected roofs, HSG C
15,032	81	Weighted Average, UI Adjusted CN = 79
12,438		82.74% Pervious Area
2,594		17.26% Impervious Area
2,594		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	96	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment B3: B3



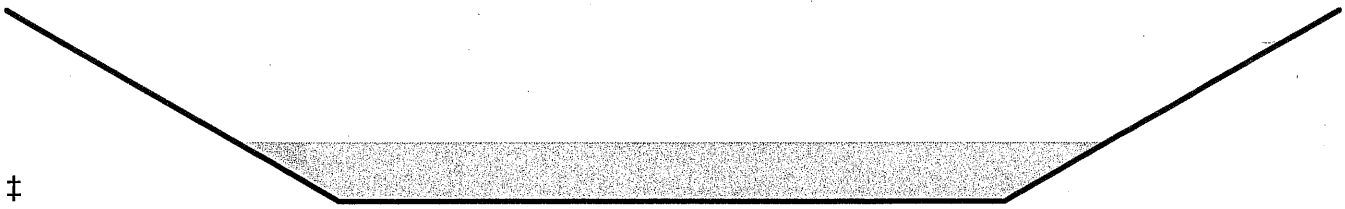
Summary for Reach R1: R1

Inflow Area = 0.639 ac, 14.71% Impervious, Inflow Depth = 2.79" for 10-yr event
Inflow = 0.59 cfs @ 12.45 hrs, Volume= 0.149 af
Outflow = 0.59 cfs @ 12.49 hrs, Volume= 0.149 af, Atten= 0%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.27 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 7.7 min

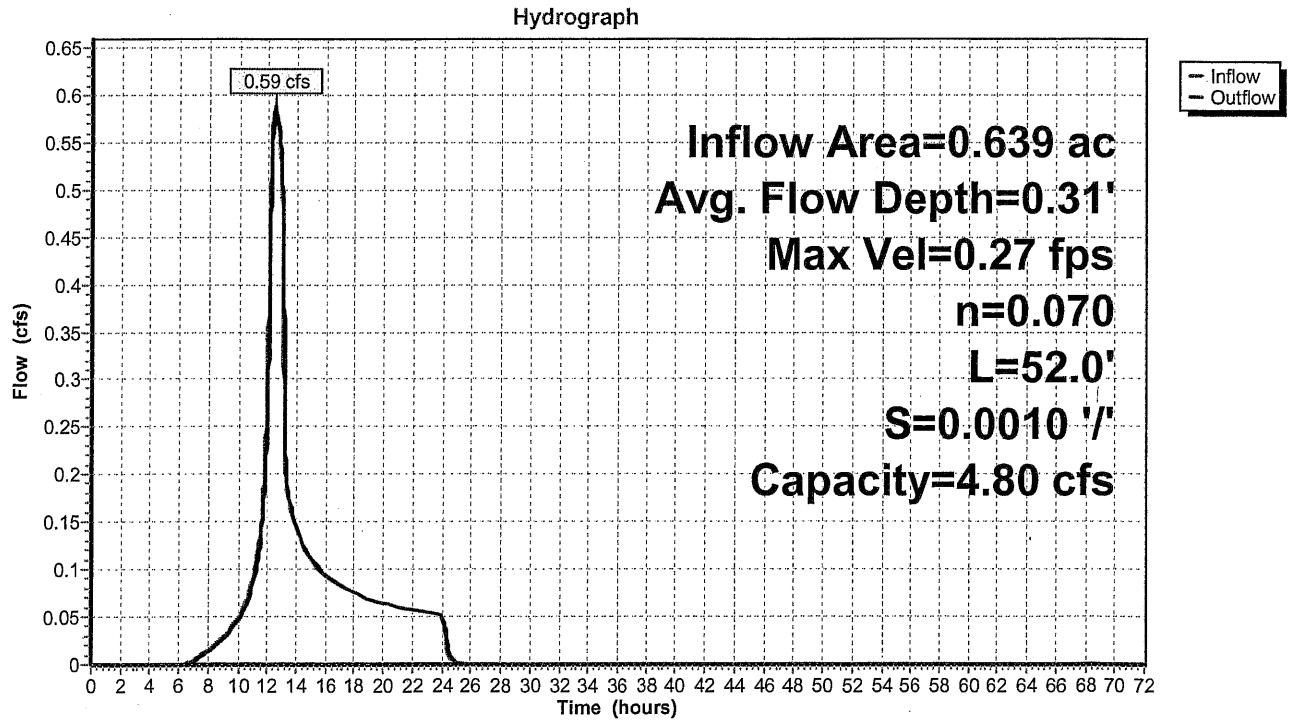
Peak Storage= 111 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 4.80 cfs

6.00' x 1.00' deep channel, n= 0.070
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 52.0' Slope= 0.0010 '/'
Inlet Invert= 3.95', Outlet Invert= 3.90'



‡

Reach R1: R1



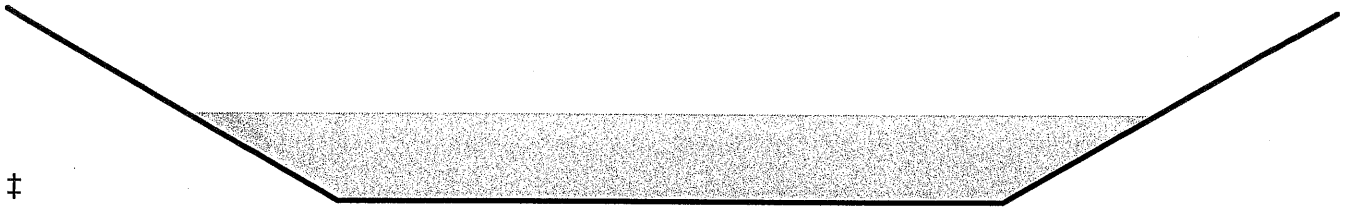
Summary for Reach R2: R2

Inflow Area = 1.040 ac, 17.87% Impervious, Inflow Depth = 3.25" for 10-yr event
Inflow = 1.54 cfs @ 12.14 hrs, Volume= 0.281 af
Outflow = 1.53 cfs @ 12.16 hrs, Volume= 0.281 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.45 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 3.2 min

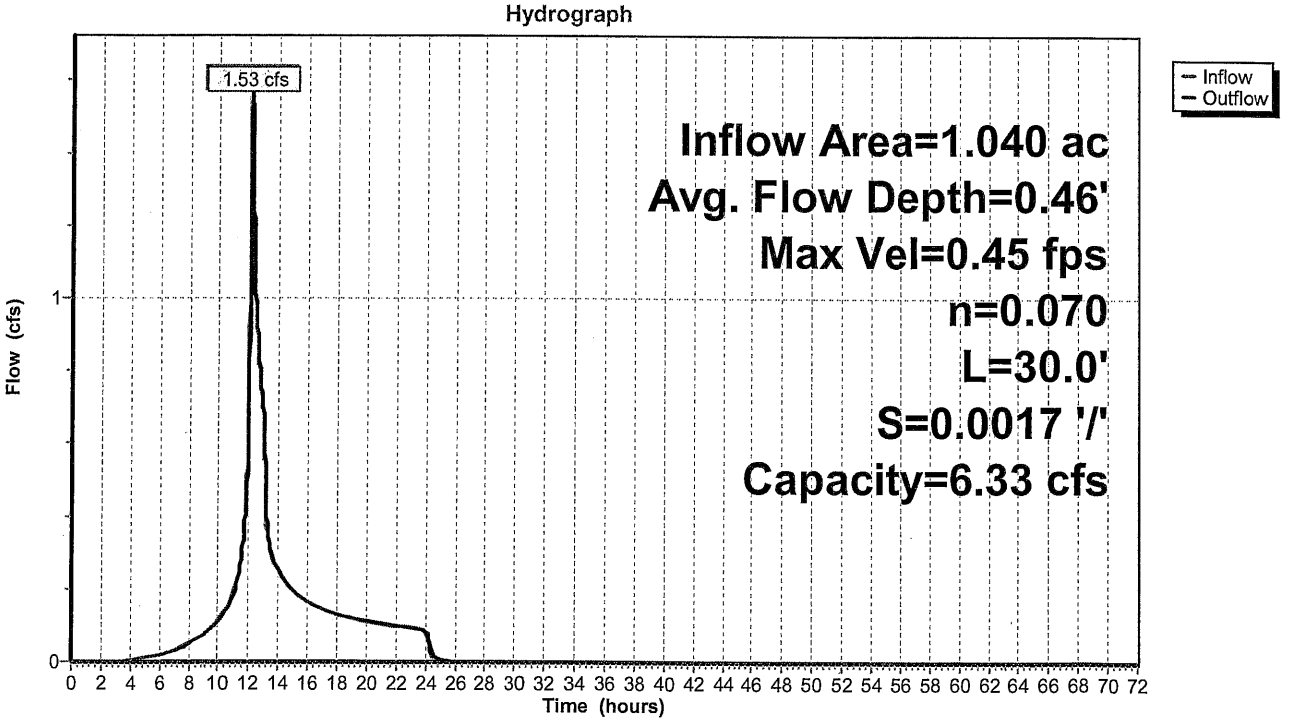
Peak Storage= 101 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 6.33 cfs

6.00' x 1.00' deep channel, n= 0.070
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 30.0' Slope= 0.0017 '/'
Inlet Invert= 3.90', Outlet Invert= 3.85'



‡

Reach R2: R2



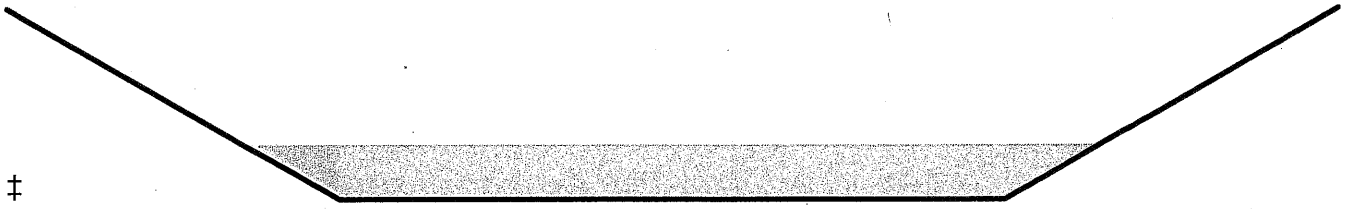
Summary for Reach R3: R3

Inflow Area = 1.040 ac, 17.87% Impervious, Inflow Depth = 3.25" for 10-yr event
Inflow = 1.53 cfs @ 12.16 hrs, Volume= 0.281 af
Outflow = 1.46 cfs @ 12.21 hrs, Volume= 0.281 af, Atten= 5%, Lag= 2.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.75 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 11.5 min

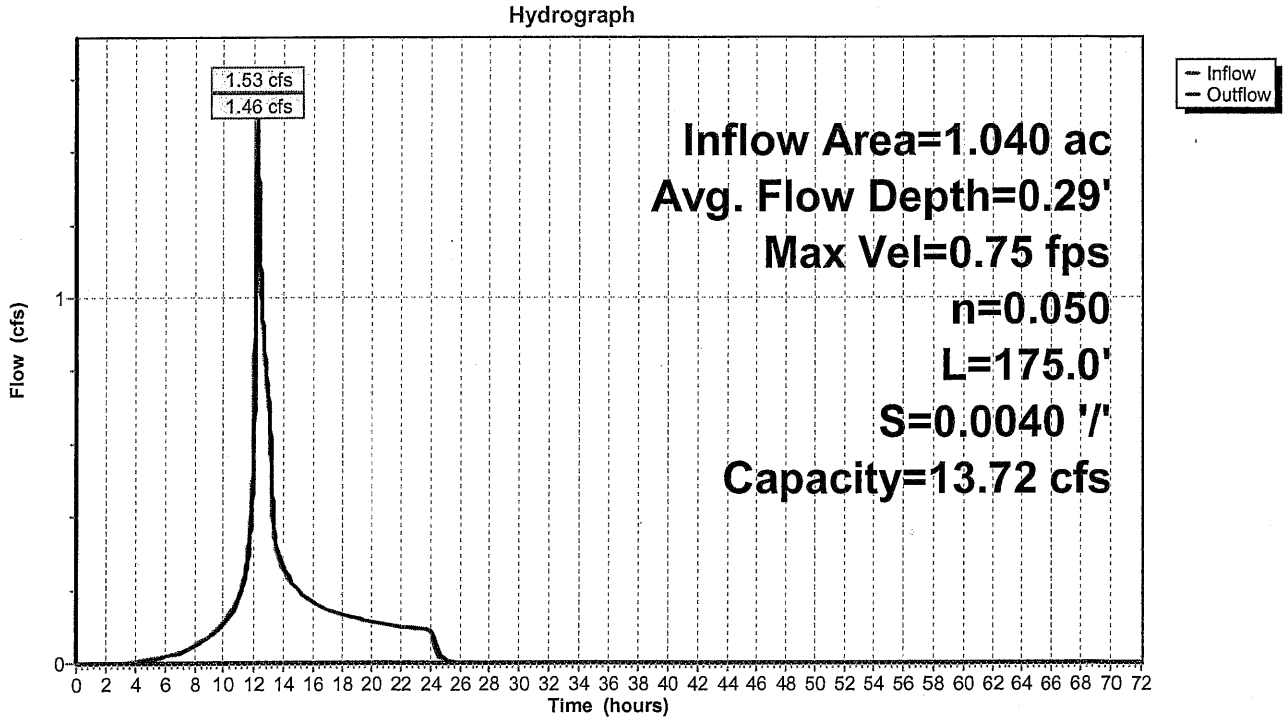
Peak Storage= 342 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 13.72 cfs

6.00' x 1.00' deep channel, n= 0.050 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 175.0' Slope= 0.0040 '/'
Inlet Invert= 3.80', Outlet Invert= 3.10'



‡

Reach R3: R3



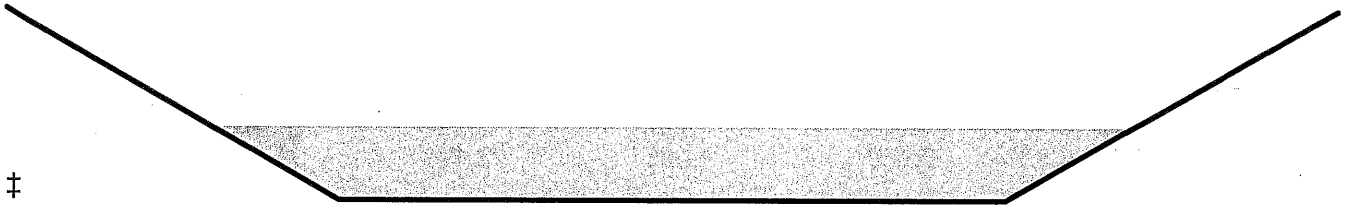
Summary for Reach R4: R4

Inflow Area = 1.385 ac, 17.72% Impervious, Inflow Depth = 3.25" for 10-yr event
Inflow = 2.08 cfs @ 12.16 hrs, Volume= 0.375 af
Outflow = 2.06 cfs @ 12.18 hrs, Volume= 0.375 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.76 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 5.7 min

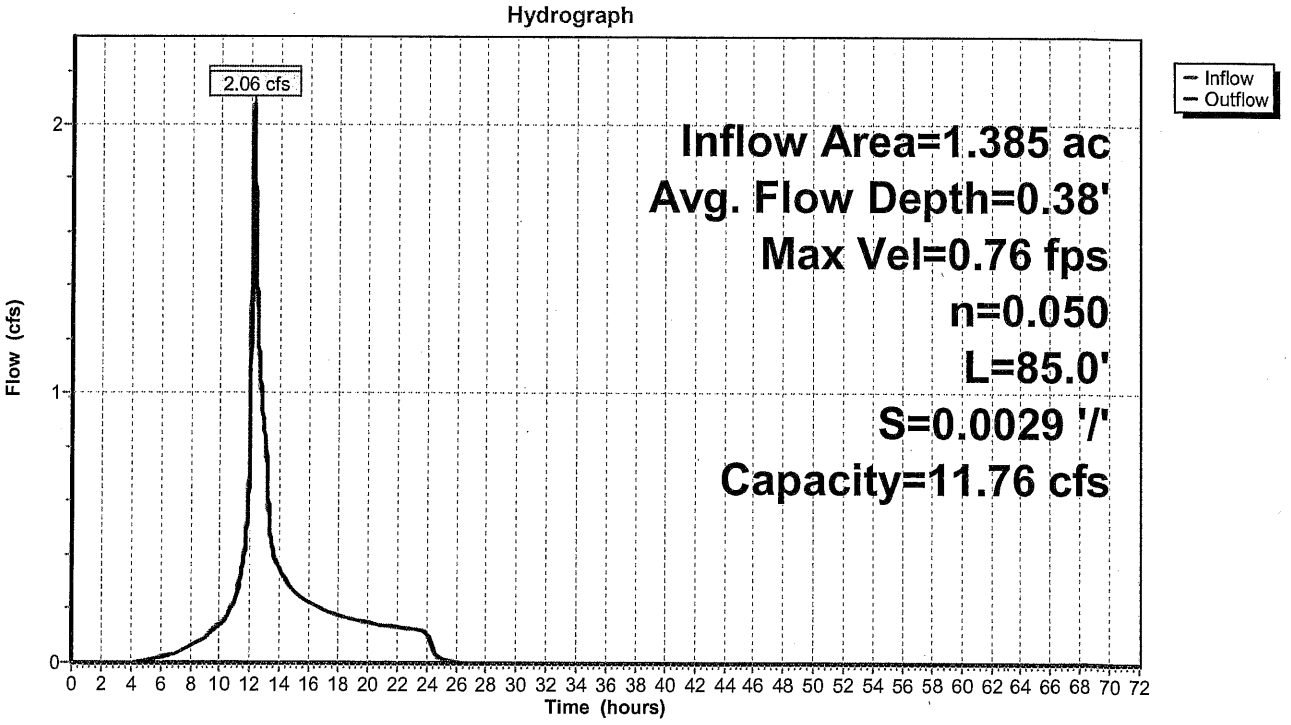
Peak Storage= 231 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 11.76 cfs

6.00' x 1.00' deep channel, n= 0.050 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 85.0' Slope= 0.0029 '/'
Inlet Invert= 3.10', Outlet Invert= 2.85'



‡

Reach R4: R4



Summary for Pond EXP1: Ex Pipe 1

Inflow Area = 0.639 ac, 14.71% Impervious, Inflow Depth = 2.79" for 10-yr event
Inflow = 1.04 cfs @ 12.20 hrs, Volume= 0.149 af
Outflow = 0.59 cfs @ 12.45 hrs, Volume= 0.149 af, Atten= 43%, Lag= 14.7 min
Primary = 0.59 cfs @ 12.45 hrs, Volume= 0.149 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 6.06' @ 12.45 hrs Surf.Area= 1,082 sf Storage= 488 cf
Flood Elev= 7.00' Surf.Area= 5,828 sf Storage= 3,190 cf

Plug-Flow detention time= 3.5 min calculated for 0.149 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (889.4 - 885.8)

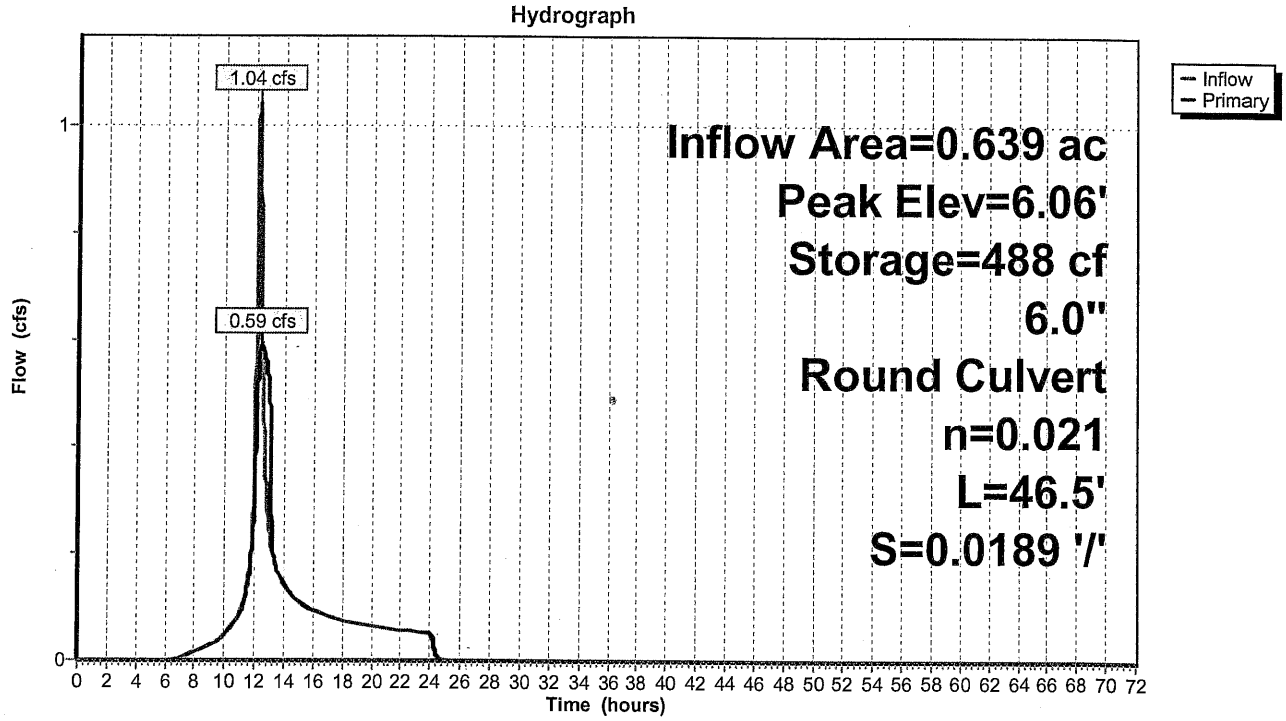
Volume	Invert	Avail.Storage	Storage Description
#1	4.83'	3,190 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
4.83	4	8.0	0	0	4
5.60	507	168.0	143	143	2,246
6.00	962	180.9	289	432	2,611
6.50	2,304	243.8	792	1,224	4,739
7.00	5,828	352.0	1,966	3,190	9,871

Device	Routing	Invert	Outlet Devices
#1	Primary	4.83'	**6.0" Round Culvert** L= 46.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 4.83' / 3.95' S= 0.0189 '/' Cc= 0.900 n= 0.021 Corrugated metal, Flow Area= 0.20 sf

Primary OutFlow Max=0.59 cfs @ 12.45 hrs HW=6.06' TW=4.26' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.59 cfs @ 3.00 fps)

Pond EXP1: Ex Pipe 1

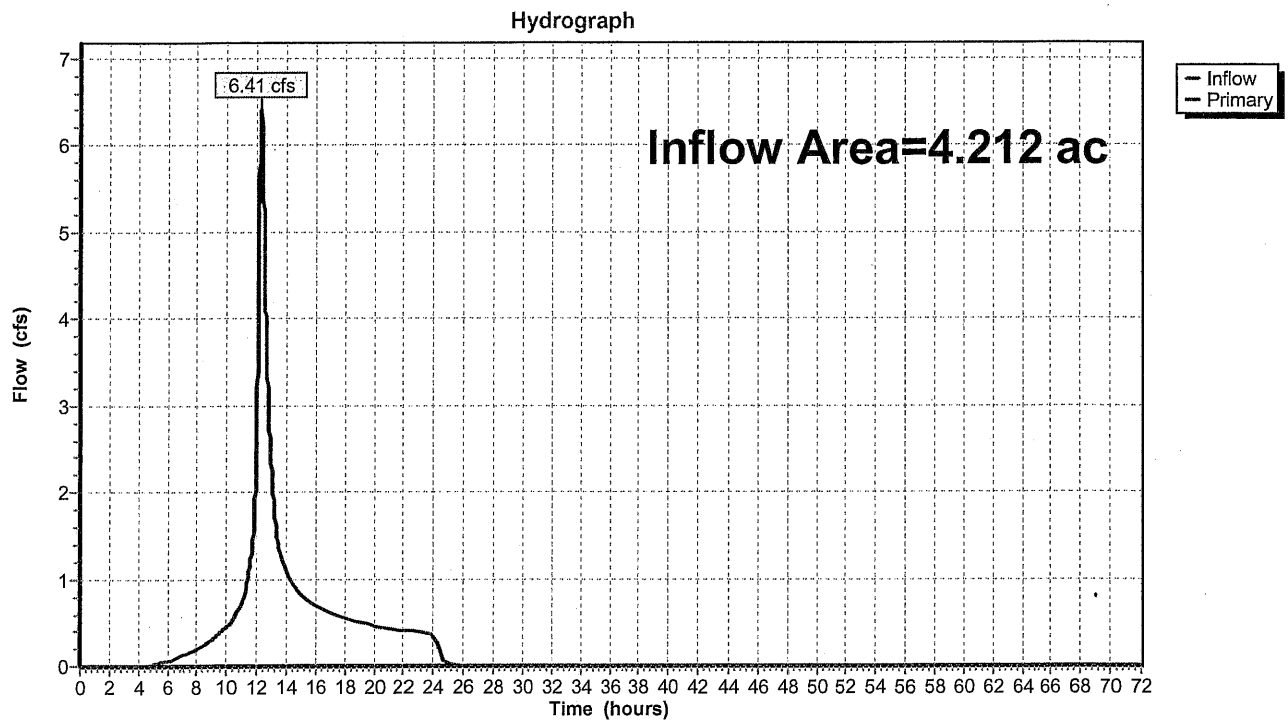


Summary for Link LB: Little Bay

Inflow Area = 4.212 ac, 12.15% Impervious, Inflow Depth = 3.32" for 10-yr event
Inflow = 6.41 cfs @ 12.28 hrs, Volume= 1.167 af
Primary = 6.41 cfs @ 12.28 hrs, Volume= 1.167 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link LB: Little Bay



A – 1

NODE LISTING – 25-YR

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=123,127 sf 9.42% Impervious Runoff Depth=4.71"
Flow Length=664' Tc=26.7 min UI Adjusted CN=80 Runoff=6.48 cfs 1.110 af

Subcatchment B1: B1 Runoff Area=27,823 sf 14.71% Impervious Runoff Depth=4.06"
Flow Length=202' Tc=18.7 min UI Adjusted CN=74 Runoff=1.52 cfs 0.216 af

Subcatchment B2: B2 Runoff Area=17,482 sf 22.91% Impervious Runoff Depth=5.38"
Flow Length=197' Tc=13.6 min UI Adjusted CN=86 Runoff=1.44 cfs 0.180 af

Subcatchment B3: B3 Runoff Area=15,032 sf 17.26% Impervious Runoff Depth=4.60"
Flow Length=96' Slope=0.0400 '/' Tc=9.8 min UI Adjusted CN=79 Runoff=1.26 cfs 0.132 af

Reach R1: R1 Avg. Flow Depth=0.33' Max Vel=0.28 fps Inflow=0.65 cfs 0.216 af
n=0.070 L=52.0' S=0.0010 '/' Capacity=4.80 cfs Outflow=0.65 cfs 0.216 af

Reach R2: R2 Avg. Flow Depth=0.53' Max Vel=0.49 fps Inflow=1.96 cfs 0.396 af
n=0.070 L=30.0' S=0.0017 '/' Capacity=6.33 cfs Outflow=1.96 cfs 0.396 af

Reach R3: R3 Avg. Flow Depth=0.33' Max Vel=0.81 fps Inflow=1.96 cfs 0.396 af
n=0.050 L=175.0' S=0.0040 '/' Capacity=13.72 cfs Outflow=1.88 cfs 0.396 af

Reach R4: R4 Avg. Flow Depth=0.45' Max Vel=0.84 fps Inflow=2.80 cfs 0.529 af
n=0.050 L=85.0' S=0.0029 '/' Capacity=11.76 cfs Outflow=2.78 cfs 0.529 af

Pond EXP1: Ex Pipe 1 Peak Elev=6.42' Storage=1,056 cf Inflow=1.52 cfs 0.216 af
6.0" Round Culvert n=0.021 L=46.5' S=0.0189 '/' Outflow=0.65 cfs 0.216 af

Link LB: Little Bay Inflow=8.74 cfs 1.639 af
Primary=8.74 cfs 1.639 af

Total Runoff Area = 4.212 ac Runoff Volume = 1.639 af Average Runoff Depth = 4.67"
87.85% Pervious = 3.700 ac 12.15% Impervious = 0.512 ac

A – 1

NODE LISTING – 50-YR

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=123,127 sf 9.42% Impervious Runoff Depth=6.00"
Flow Length=664' Tc=26.7 min UI Adjusted CN=80 Runoff=8.19 cfs 1.414 af

Subcatchment B1: B1 Runoff Area=27,823 sf 14.71% Impervious Runoff Depth=5.28"
Flow Length=202' Tc=18.7 min UI Adjusted CN=74 Runoff=1.98 cfs 0.281 af

Subcatchment B2: B2 Runoff Area=17,482 sf 22.91% Impervious Runoff Depth=6.72"
Flow Length=197' Tc=13.6 min UI Adjusted CN=86 Runoff=1.78 cfs 0.225 af

Subcatchment B3: B3 Runoff Area=15,032 sf 17.26% Impervious Runoff Depth=5.88"
Flow Length=96' Slope=0.0400 '/' Tc=9.8 min UI Adjusted CN=79 Runoff=1.60 cfs 0.169 af

Reach R1: R1 Avg. Flow Depth=0.34' Max Vel=0.29 fps Inflow=0.69 cfs 0.281 af
n=0.070 L=52.0' S=0.0010 '/' Capacity=4.80 cfs Outflow=0.69 cfs 0.281 af

Reach R2: R2 Avg. Flow Depth=0.58' Max Vel=0.52 fps Inflow=2.34 cfs 0.506 af
n=0.070 L=30.0' S=0.0017 '/' Capacity=6.33 cfs Outflow=2.33 cfs 0.506 af

Reach R3: R3 Avg. Flow Depth=0.37' Max Vel=0.87 fps Inflow=2.33 cfs 0.506 af
n=0.050 L=175.0' S=0.0040 '/' Capacity=13.72 cfs Outflow=2.25 cfs 0.506 af

Reach R4: R4 Avg. Flow Depth=0.51' Max Vel=0.90 fps Inflow=3.46 cfs 0.675 af
n=0.050 L=85.0' S=0.0029 '/' Capacity=11.76 cfs Outflow=3.43 cfs 0.675 af

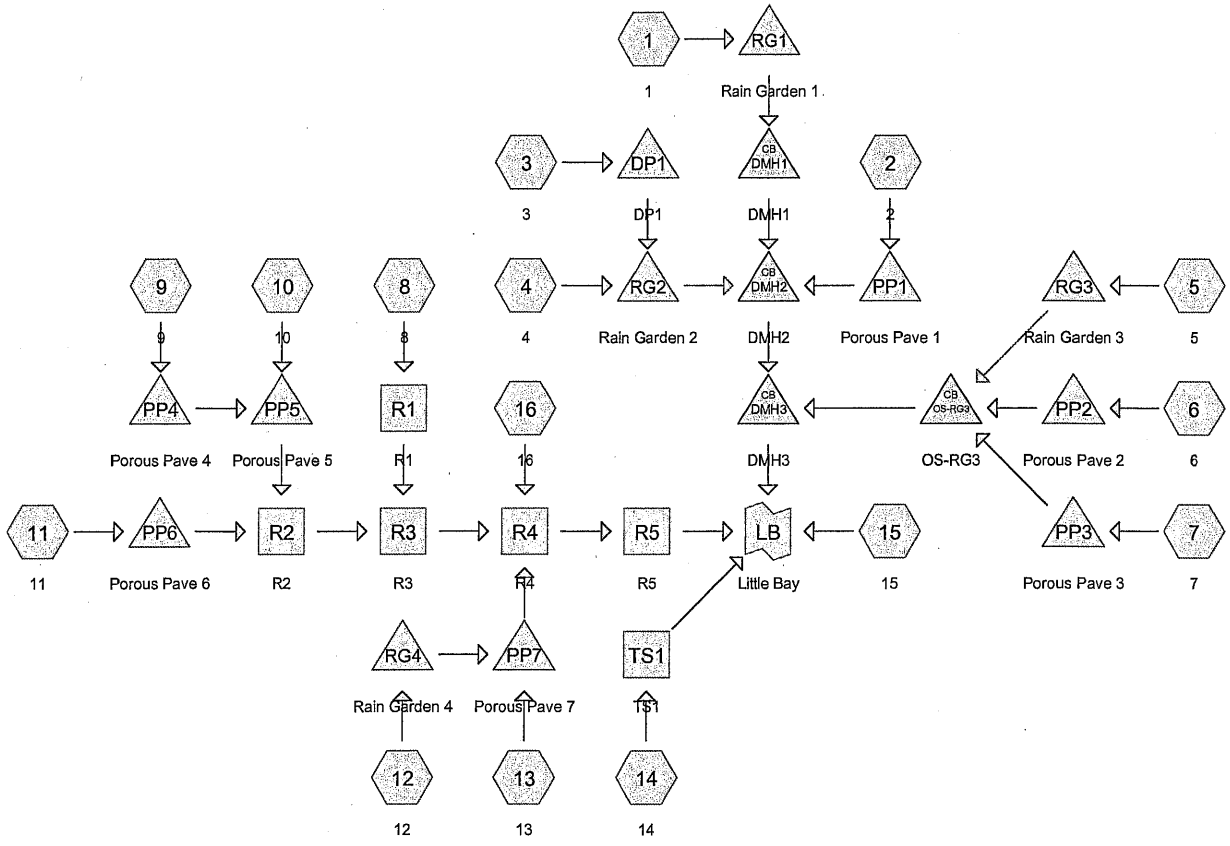
Pond EXP1: Ex Pipe 1 Peak Elev=6.67' Storage=1,711 cf Inflow=1.98 cfs 0.281 af
6.0" Round Culvert n=0.021 L=46.5' S=0.0189 '/' Outflow=0.69 cfs 0.281 af

Link LB: Little Bay Inflow=10.90 cfs 2.089 af
Primary=10.90 cfs 2.089 af

Total Runoff Area = 4.212 ac Runoff Volume = 2.089 af Average Runoff Depth = 5.95"
87.85% Pervious = 3.700 ac 12.15% Impervious = 0.512 ac

A-2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 1788-Post

Prepared by {enter your company name here}, Printed 1/21/2019

HydroCAD® 10.00 s/n 03240 © 2011 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.328	70	Woods, Good, HSG C (1, 5, 15)
1.433	74	>75% Grass cover, Good, HSG C (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)
0.289	96	Gravel surface, HSG C (1)
1.586	98	Paved parking, HSG C (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15)
0.576	98	Roofs, HSG C (1, 4, 5, 8, 12, 14)
4.212	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
4.212	HSG C	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
0.000	HSG D	
0.000	Other	
4.212		**TOTAL AREA**

A – 2

NODE LISTING – 2-YR

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

Subcatchment 1: 1 Runoff Area=55,061 sf 41.31% Impervious Runoff Depth>2.49"
Flow Length=126' Tc=14.4 min CN=89 Runoff=2.10 cfs 0.263 af

Subcatchment 2: 2 Runoff Area=13,289 sf 96.31% Impervious Runoff Depth>3.31"
Flow Length=27' Slope=0.0100 '/' Tc=0.2 min CN=97 Runoff=1.03 cfs 0.084 af

Subcatchment 3: 3 Runoff Area=3,525 sf 1.02% Impervious Runoff Depth>1.35"
Flow Length=81' Slope=0.0290 '/' Tc=9.7 min CN=74 Runoff=0.08 cfs 0.009 af

Subcatchment 4: 4 Runoff Area=5,425 sf 75.94% Impervious Runoff Depth>2.78"
Flow Length=68' Slope=0.0120 '/' Tc=12.0 min CN=92 Runoff=0.25 cfs 0.029 af

Subcatchment 5: 5 Runoff Area=20,950 sf 26.66% Impervious Runoff Depth>1.68"
Flow Length=359' Tc=20.7 min CN=79 Runoff=0.45 cfs 0.067 af

Subcatchment 6: 6 Runoff Area=12,870 sf 88.41% Impervious Runoff Depth>3.09"
Flow Length=15' Slope=0.0750 '/' Tc=1.7 min CN=95 Runoff=0.96 cfs 0.076 af

Subcatchment 7: 7 Runoff Area=6,009 sf 89.13% Impervious Runoff Depth>3.09"
Flow Length=27' Slope=0.0200 '/' Tc=2.9 min CN=95 Runoff=0.44 cfs 0.036 af

Subcatchment 8: 8 Runoff Area=6,740 sf 30.82% Impervious Runoff Depth>1.83"
Flow Length=161' Slope=0.0500 '/' Tc=9.8 min CN=81 Runoff=0.23 cfs 0.024 af

Subcatchment 9: 9 Runoff Area=1,205 sf 67.63% Impervious Runoff Depth>2.60"
Flow Length=12' Slope=0.0100 '/' Tc=3.2 min CN=90 Runoff=0.08 cfs 0.006 af

Subcatchment 10: 10 Runoff Area=3,052 sf 89.19% Impervious Runoff Depth>3.09"
Flow Length=16' Slope=0.0160 '/' Tc=3.4 min CN=95 Runoff=0.22 cfs 0.018 af

Subcatchment 11: 11 Runoff Area=3,725 sf 83.84% Impervious Runoff Depth>2.99"
Flow Length=18' Slope=0.0390 '/' Tc=2.6 min CN=94 Runoff=0.27 cfs 0.021 af

Subcatchment 12: 12 Runoff Area=4,318 sf 71.56% Impervious Runoff Depth>2.69"
Flow Length=34' Slope=0.0890 '/' Tc=3.1 min CN=91 Runoff=0.29 cfs 0.022 af

Subcatchment 13: 13 Runoff Area=5,669 sf 90.26% Impervious Runoff Depth>3.20"
Flow Length=18' Tc=1.3 min CN=96 Runoff=0.43 cfs 0.035 af

Subcatchment 14: 14 Runoff Area=7,934 sf 54.15% Impervious Runoff Depth>2.32"
Flow Length=60' Slope=0.0480 '/' Tc=6.2 min CN=87 Runoff=0.40 cfs 0.035 af

Subcatchment 15: 15 Runoff Area=27,197 sf 40.11% Impervious Runoff Depth>1.98"
Flow Length=170' Tc=20.7 min CN=83 Runoff=0.69 cfs 0.103 af

Subcatchment 16: 16 Runoff Area=6,490 sf 0.00% Impervious Runoff Depth>1.35"
Flow Length=36' Slope=0.1670 '/' Tc=2.5 min CN=74 Runoff=0.22 cfs 0.017 af

Reach R1: R1 Avg. Flow Depth=0.14' Max Vel=0.24 fps Inflow=0.23 cfs 0.024 af
n=0.070 L=26.0' S=0.0019 '/' Capacity=6.79 cfs Outflow=0.22 cfs 0.024 af

Reach R2: R2 Avg. Flow Depth=0.09' Max Vel=2.28 fps Inflow=0.31 cfs 0.044 af
n=0.050 L=16.0' S=0.2406 '/' Capacity=11.48 cfs Outflow=0.31 cfs 0.044 af

Reach R3: R3 Avg. Flow Depth=0.27' Max Vel=0.27 fps Inflow=0.51 cfs 0.068 af
n=0.070 L=44.0' S=0.0011 '/' Capacity=5.22 cfs Outflow=0.49 cfs 0.067 af

Reach R4: R4 Avg. Flow Depth=0.20' Max Vel=0.69 fps Inflow=0.90 cfs 0.139 af
n=0.050 L=77.0' S=0.0053 '/' Capacity=15.83 cfs Outflow=0.89 cfs 0.139 af

Reach R5: R5 Avg. Flow Depth=0.22' Max Vel=0.55 fps Inflow=0.89 cfs 0.139 af
n=0.050 L=185.0' S=0.0029 '/' Capacity=11.72 cfs Outflow=0.82 cfs 0.138 af

Reach TS1: TS1 Avg. Flow Depth=0.23' Max Vel=0.33 fps Inflow=0.40 cfs 0.035 af
n=0.120 L=110.0' S=0.0064 '/' Capacity=1.28 cfs Outflow=0.32 cfs 0.035 af

Pond DMH1: DMH1 Peak Elev=6.91' Inflow=1.00 cfs 0.252 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.00 cfs 0.252 af

Pond DMH2: DMH2 Peak Elev=6.24' Inflow=1.44 cfs 0.362 af
18.0" Round Culvert n=0.012 L=178.0' S=0.0051 '/' Outflow=1.44 cfs 0.362 af

Pond DMH3: DMH3 Peak Elev=5.44' Inflow=2.10 cfs 0.527 af
18.0" Round Culvert n=0.012 L=89.0' S=0.0051 '/' Outflow=2.10 cfs 0.527 af

Pond DP1: DP1 Peak Elev=11.20' Storage=306 cf Inflow=0.08 cfs 0.009 af
Outflow=0.00 cfs 0.002 af

Pond OS-RG3: OS-RG3 Peak Elev=5.49' Inflow=0.69 cfs 0.165 af
18.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.69 cfs 0.165 af

Pond PP1: Porous Pave 1 Peak Elev=10.20' Storage=1,688 cf Inflow=1.03 cfs 0.084 af
6.0" Round Culvert n=0.012 L=30.0' S=0.0237 '/' Outflow=0.28 cfs 0.079 af

Pond PP2: Porous Pave 2 Peak Elev=5.90' Storage=1,964 cf Inflow=0.96 cfs 0.076 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.19 cfs 0.066 af

Pond PP3: Porous Pave 3 Peak Elev=5.79' Storage=877 cf Inflow=0.44 cfs 0.036 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.12 cfs 0.032 af

Pond PP4: Porous Pave 4 Peak Elev=9.58' Storage=132 cf Inflow=0.08 cfs 0.006 af
6.0" Round Culvert n=0.012 L=47.0' S=0.0106 '/' Outflow=0.04 cfs 0.006 af

Pond PP5: Porous Pave 5 Peak Elev=9.25' Storage=179 cf Inflow=0.26 cfs 0.024 af
6.0" Round Culvert n=0.012 L=10.0' S=0.1200 '/' Outflow=0.18 cfs 0.024 af

Pond PP6: Porous Pave 6 Peak Elev=9.29' Storage=365 cf Inflow=0.27 cfs 0.021 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0650 '/' Outflow=0.12 cfs 0.021 af

Pond PP7: Porous Pave 7 Peak Elev=7.02' Storage=640 cf Inflow=0.68 cfs 0.057 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.32 cfs 0.055 af

Pond RG1: Rain Garden 1 Peak Elev=9.03' Storage=2,740 cf Inflow=2.10 cfs 0.263 af
Outflow=1.00 cfs 0.252 af

Pond RG2: Rain Garden 2 Peak Elev=8.17' Storage=98 cf Inflow=0.25 cfs 0.031 af
Outflow=0.23 cfs 0.031 af

Pond RG3: Rain Garden 3 Peak Elev=6.30' Storage=263 cf Inflow=0.45 cfs 0.067 af
Primary=0.40 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.066 af

Pond RG4: Rain Garden 4 Peak Elev=7.72' Storage=43 cf Inflow=0.29 cfs 0.022 af
6.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/' Outflow=0.27 cfs 0.022 af

Link LB: Little Bay Inflow=3.75 cfs 0.803 af
Primary=3.75 cfs 0.803 af

Total Runoff Area = 4.212 ac Runoff Volume = 0.844 af Average Runoff Depth = 2.41"
48.67% Pervious = 2.050 ac 51.33% Impervious = 2.162 ac

A – 2

NODE LISTING – 10-YR

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

Subcatchment 1: 1 Runoff Area=55,061 sf 41.31% Impervious Runoff Depth>4.26"
Flow Length=126' Tc=14.4 min CN=89 Runoff=3.52 cfs 0.449 af

Subcatchment 2: 2 Runoff Area=13,289 sf 96.31% Impervious Runoff Depth>5.18"
Flow Length=27' Slope=0.0100 '/' Tc=0.2 min CN=97 Runoff=1.57 cfs 0.132 af

Subcatchment 3: 3 Runoff Area=3,525 sf 1.02% Impervious Runoff Depth>2.78"
Flow Length=81' Slope=0.0290 '/' Tc=9.7 min CN=74 Runoff=0.18 cfs 0.019 af

Subcatchment 4: 4 Runoff Area=5,425 sf 75.94% Impervious Runoff Depth>4.59"
Flow Length=68' Slope=0.0120 '/' Tc=12.0 min CN=92 Runoff=0.40 cfs 0.048 af

Subcatchment 5: 5 Runoff Area=20,950 sf 26.66% Impervious Runoff Depth>3.24"
Flow Length=359' Tc=20.7 min CN=79 Runoff=0.87 cfs 0.130 af

Subcatchment 6: 6 Runoff Area=12,870 sf 88.41% Impervious Runoff Depth>4.94"
Flow Length=15' Slope=0.0750 '/' Tc=1.7 min CN=95 Runoff=1.50 cfs 0.122 af

Subcatchment 7: 7 Runoff Area=6,009 sf 89.13% Impervious Runoff Depth>4.94"
Flow Length=27' Slope=0.0200 '/' Tc=2.9 min CN=95 Runoff=0.69 cfs 0.057 af

Subcatchment 8: 8 Runoff Area=6,740 sf 30.82% Impervious Runoff Depth>3.45"
Flow Length=161' Slope=0.0500 '/' Tc=9.8 min CN=81 Runoff=0.43 cfs 0.044 af

Subcatchment 9: 9 Runoff Area=1,205 sf 67.63% Impervious Runoff Depth>4.38"
Flow Length=12' Slope=0.0100 '/' Tc=3.2 min CN=90 Runoff=0.13 cfs 0.010 af

Subcatchment 10: 10 Runoff Area=3,052 sf 89.19% Impervious Runoff Depth>4.94"
Flow Length=16' Slope=0.0160 '/' Tc=3.4 min CN=95 Runoff=0.34 cfs 0.029 af

Subcatchment 11: 11 Runoff Area=3,725 sf 83.84% Impervious Runoff Depth>4.83"
Flow Length=18' Slope=0.0390 '/' Tc=2.6 min CN=94 Runoff=0.42 cfs 0.034 af

Subcatchment 12: 12 Runoff Area=4,318 sf 71.56% Impervious Runoff Depth>4.49"
Flow Length=34' Slope=0.0890 '/' Tc=3.1 min CN=91 Runoff=0.47 cfs 0.037 af

Subcatchment 13: 13 Runoff Area=5,669 sf 90.26% Impervious Runoff Depth>5.06"
Flow Length=18' Tc=1.3 min CN=96 Runoff=0.66 cfs 0.055 af

Subcatchment 14: 14 Runoff Area=7,934 sf 54.15% Impervious Runoff Depth>4.06"
Flow Length=60' Slope=0.0480 '/' Tc=6.2 min CN=87 Runoff=0.69 cfs 0.062 af

Subcatchment 15: 15 Runoff Area=27,197 sf 40.11% Impervious Runoff Depth>3.63"
Flow Length=170' Tc=20.7 min CN=83 Runoff=1.27 cfs 0.189 af

Subcatchment 16: 16 Runoff Area=6,490 sf 0.00% Impervious Runoff Depth>2.79"
Flow Length=36' Slope=0.1670 '/' Tc=2.5 min CN=74 Runoff=0.47 cfs 0.035 af

Reach R1: R1 Avg. Flow Depth=0.21' Max Vel=0.31 fps Inflow=0.43 cfs 0.044 af
n=0.070 L=26.0' S=0.0019 '/' Capacity=6.79 cfs Outflow=0.42 cfs 0.044 af

Reach R2: R2 Avg. Flow Depth=0.12' Max Vel=2.68 fps Inflow=0.52 cfs 0.072 af
n=0.050 L=16.0' S=0.2406 '/' Capacity=11.48 cfs Outflow=0.52 cfs 0.072 af

Reach R3: R3 Avg. Flow Depth=0.37' Max Vel=0.33 fps Inflow=0.91 cfs 0.116 af
n=0.070 L=44.0' S=0.0011 '/' Capacity=5.22 cfs Outflow=0.89 cfs 0.116 af

Reach R4: R4 Avg. Flow Depth=0.27' Max Vel=0.83 fps Inflow=1.54 cfs 0.240 af
n=0.050 L=77.0' S=0.0053 '/' Capacity=15.83 cfs Outflow=1.53 cfs 0.240 af

Reach R5: R5 Avg. Flow Depth=0.31' Max Vel=0.67 fps Inflow=1.53 cfs 0.240 af
n=0.050 L=185.0' S=0.0029 '/' Capacity=11.72 cfs Outflow=1.45 cfs 0.239 af

Reach TS1: TS1 Avg. Flow Depth=0.32' Max Vel=0.40 fps Inflow=0.69 cfs 0.062 af
n=0.120 L=110.0' S=0.0064 '/' Capacity=1.28 cfs Outflow=0.57 cfs 0.061 af

Pond DMH1: DMH1 Peak Elev=6.95' Inflow=1.08 cfs 0.436 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.08 cfs 0.436 af

Pond DMH2: DMH2 Peak Elev=6.34' Inflow=1.79 cfs 0.620 af
18.0" Round Culvert n=0.012 L=178.0' S=0.0051 '/' Outflow=1.79 cfs 0.620 af

Pond DMH3: DMH3 Peak Elev=5.62' Inflow=3.04 cfs 0.912 af
18.0" Round Culvert n=0.012 L=89.0' S=0.0051 '/' Outflow=3.04 cfs 0.912 af

Pond DP1: DP1 Peak Elev=11.22' Storage=328 cf Inflow=0.18 cfs 0.019 af
Outflow=0.04 cfs 0.012 af

Pond OS-RG3: OS-RG3 Peak Elev=5.69' Inflow=1.29 cfs 0.291 af
18.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.29 cfs 0.291 af

Pond PP1: Porous Pave 1 Peak Elev=10.36' Storage=2,065 cf Inflow=1.57 cfs 0.132 af
6.0" Round Culvert n=0.012 L=30.0' S=0.0237 '/' Outflow=0.41 cfs 0.125 af

Pond PP2: Porous Pave 2 Peak Elev=6.10' Storage=2,461 cf Inflow=1.50 cfs 0.122 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.27 cfs 0.110 af

Pond PP3: Porous Pave 3 Peak Elev=5.92' Storage=1,046 cf Inflow=0.69 cfs 0.057 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.20 cfs 0.053 af

Pond PP4: Porous Pave 4 Peak Elev=9.64' Storage=148 cf Inflow=0.13 cfs 0.010 af
6.0" Round Culvert n=0.012 L=47.0' S=0.0106 '/' Outflow=0.07 cfs 0.010 af

Pond PP5: Porous Pave 5 Peak Elev=9.37' Storage=212 cf Inflow=0.41 cfs 0.039 af
6.0" Round Culvert n=0.012 L=10.0' S=0.1200 '/' Outflow=0.30 cfs 0.038 af

Pond PP6: Porous Pave 6 Peak Elev=9.38' Storage=425 cf Inflow=0.42 cfs 0.034 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0650 '/' Outflow=0.22 cfs 0.034 af

Pond PP7: Porous Pave 7 Peak Elev=7.23' Storage=815 cf Inflow=1.06 cfs 0.092 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.47 cfs 0.090 af

Pond RG1: Rain Garden 1 Peak Elev=9.43' Storage=4,630 cf Inflow=3.52 cfs 0.449 af
Outflow=1.08 cfs 0.436 af

Pond RG2: Rain Garden 2 Peak Elev=8.39' Storage=124 cf Inflow=0.40 cfs 0.059 af
Outflow=0.36 cfs 0.059 af

Pond RG3: Rain Garden 3 Peak Elev=7.55' Storage=354 cf Inflow=0.87 cfs 0.130 af
Primary=0.82 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=0.82 cfs 0.129 af

Pond RG4: Rain Garden 4 Peak Elev=7.99' Storage=61 cf Inflow=0.47 cfs 0.037 af
6.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/' Outflow=0.43 cfs 0.037 af

Link LB: Little Bay Inflow=6.01 cfs 1.400 af
Primary=6.01 cfs 1.400 af

Total Runoff Area = 4.212 ac Runoff Volume = 1.450 af Average Runoff Depth = 4.13"
48.67% Pervious = 2.050 ac 51.33% Impervious = 2.162 ac

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment 1: 1

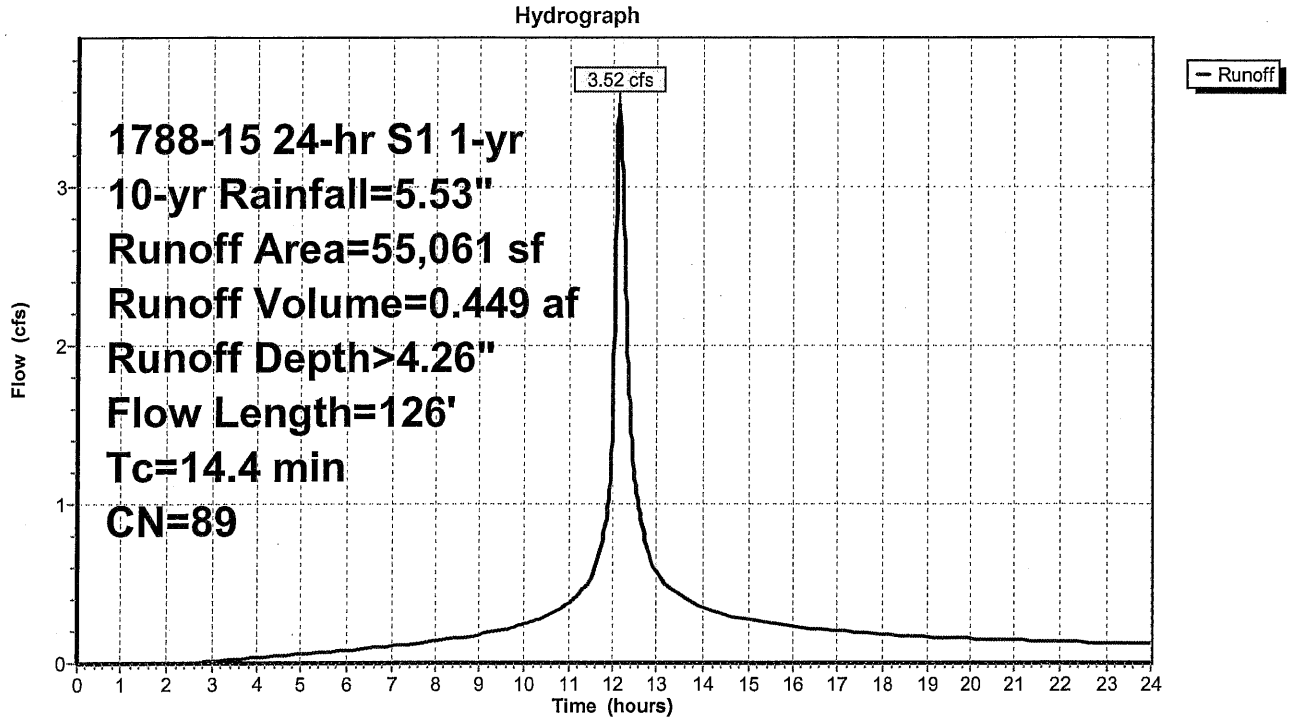
Runoff = 3.52 cfs @ 12.14 hrs, Volume= 0.449 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
4,002	70	Woods, Good, HSG C
15,736	74	>75% Grass cover, Good, HSG C
12,578	96	Gravel surface, HSG C
13,905	98	Paved parking, HSG C
8,840	98	Roofs, HSG C
55,061	89	Weighted Average
32,316		58.69% Pervious Area
22,745		41.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	48	0.0830	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
8.1	78	0.0420	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
14.4	126	Total			

Subcatchment 1: 1



Summary for Subcatchment 2: 2

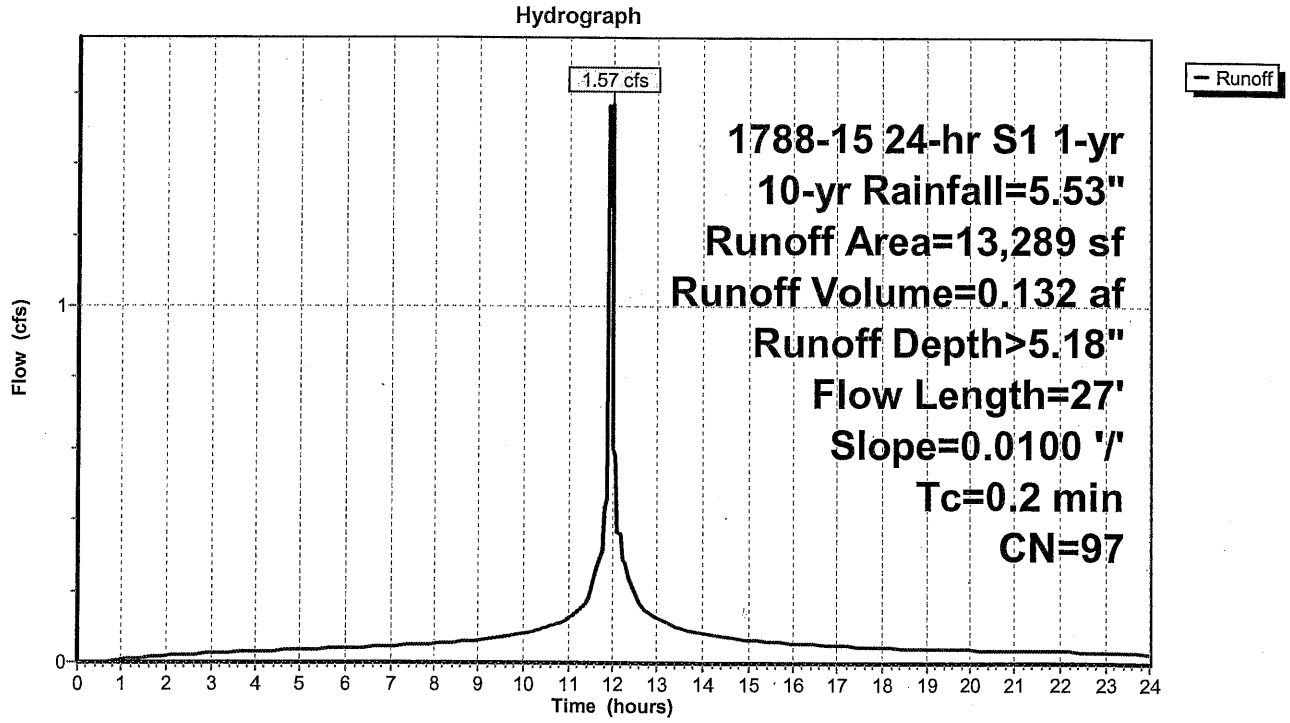
Runoff = 1.57 cfs @ 11.99 hrs, Volume= 0.132 af, Depth> 5.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
491	74	>75% Grass cover, Good, HSG C
12,798	98	Paved parking, HSG C
13,289	97	Weighted Average
491		3.69% Pervious Area
12,798		96.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	27	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Subcatchment 2: 2



Summary for Subcatchment 3: 3

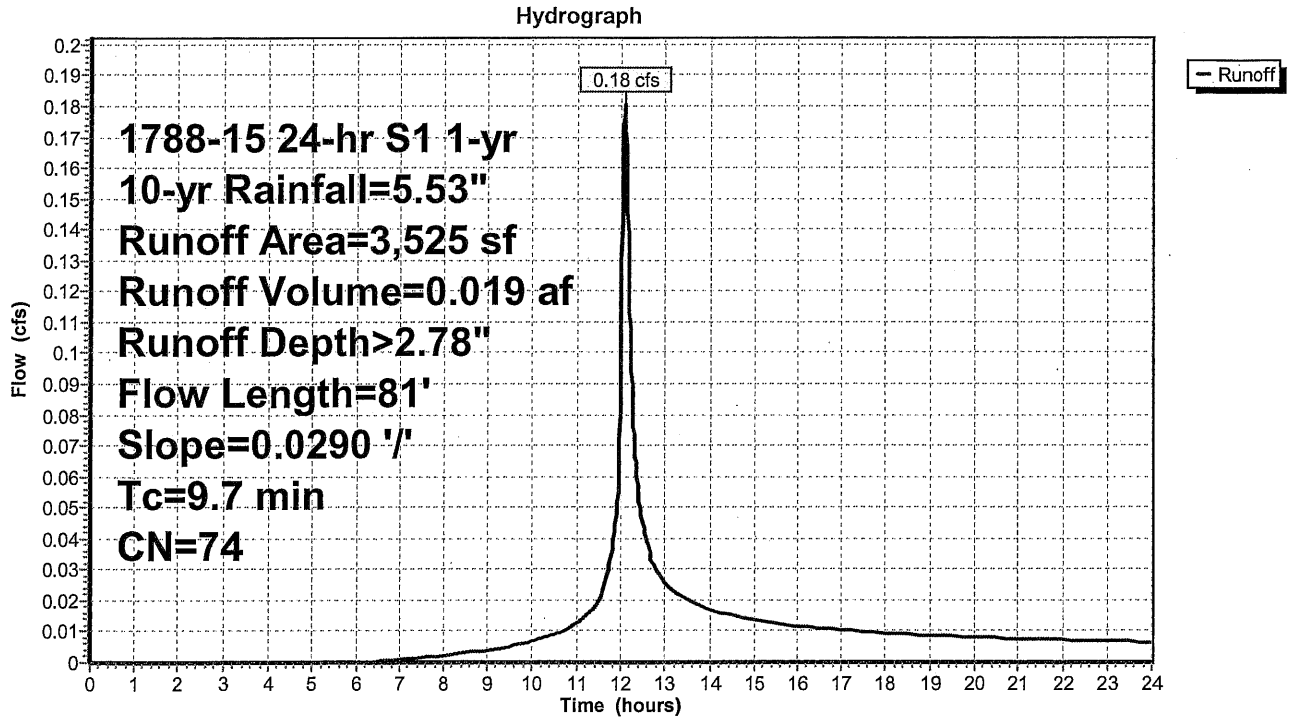
Runoff = 0.18 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
3,489	74	>75% Grass cover, Good, HSG C
36	98	Paved parking, HSG C
3,525	74	Weighted Average
3,489		98.98% Pervious Area
36		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	81	0.0290	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 3: 3



Summary for Subcatchment 4: 4

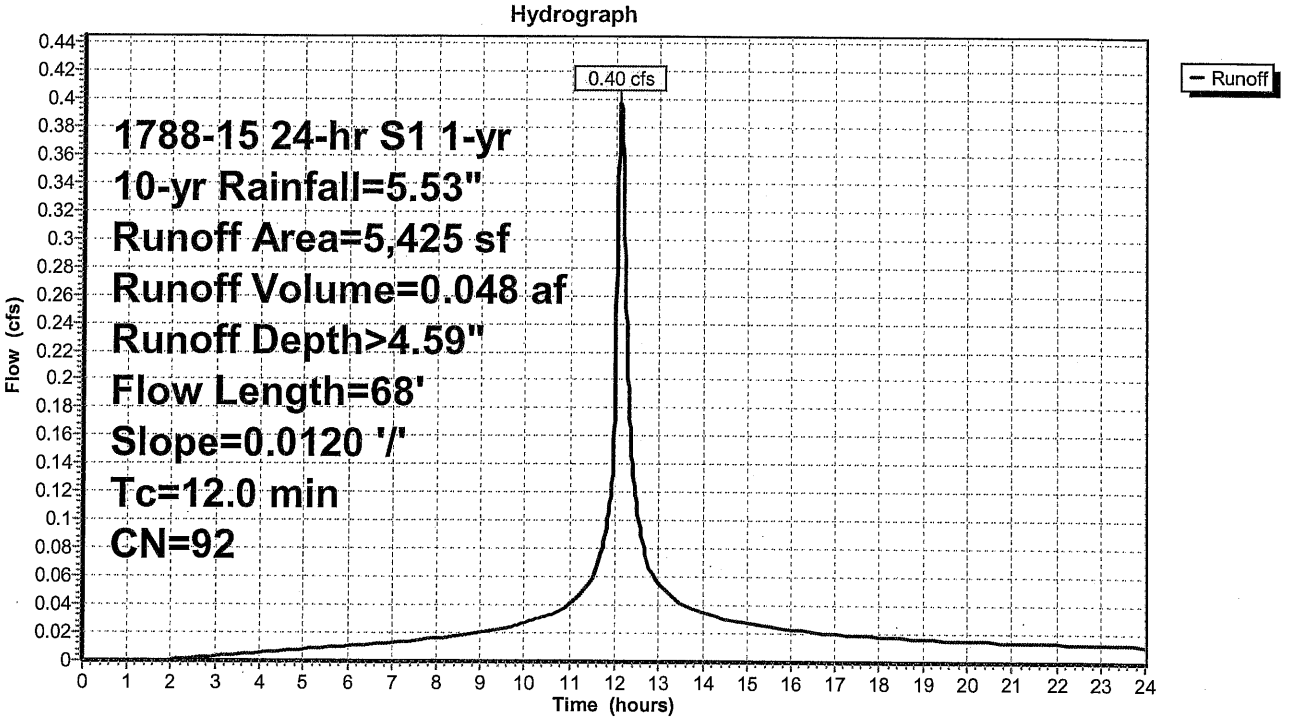
Runoff = 0.40 cfs @ 12.11 hrs, Volume= 0.048 af, Depth> 4.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
1,305	74	>75% Grass cover, Good, HSG C
4,120	98	Roofs, HSG C
5,425	92	Weighted Average
1,305		24.06% Pervious Area
4,120		75.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	68	0.0120	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 4: 4



Summary for Subcatchment 5: 5

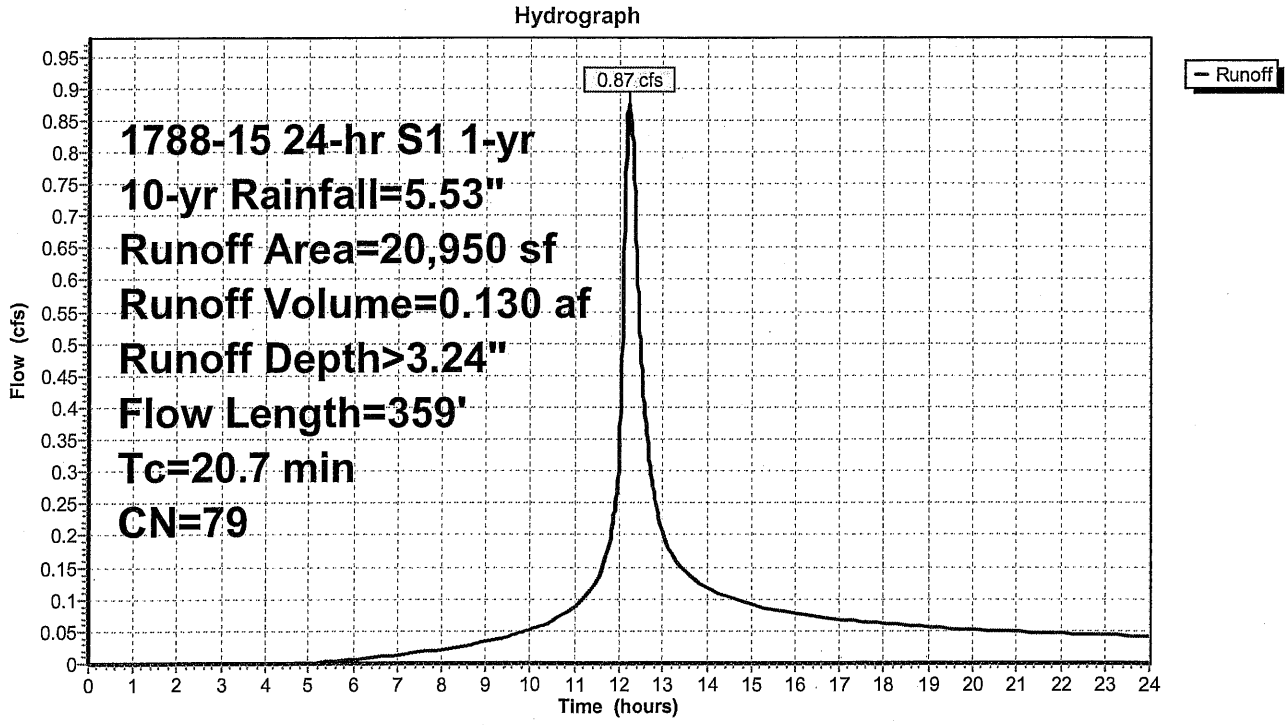
Runoff = 0.87 cfs @ 12.23 hrs, Volume= 0.130 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
7,010	70	Woods, Good, HSG C
8,355	74	>75% Grass cover, Good, HSG C
1,465	98	Paved parking, HSG C
4,120	98	Roofs, HSG C
20,950	79	Weighted Average
15,365		73.34% Pervious Area
5,585		26.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	32	0.1700	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
12.9	68	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
4.4	259	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	359	Total			

Subcatchment 5: 5



Summary for Subcatchment 6: 6

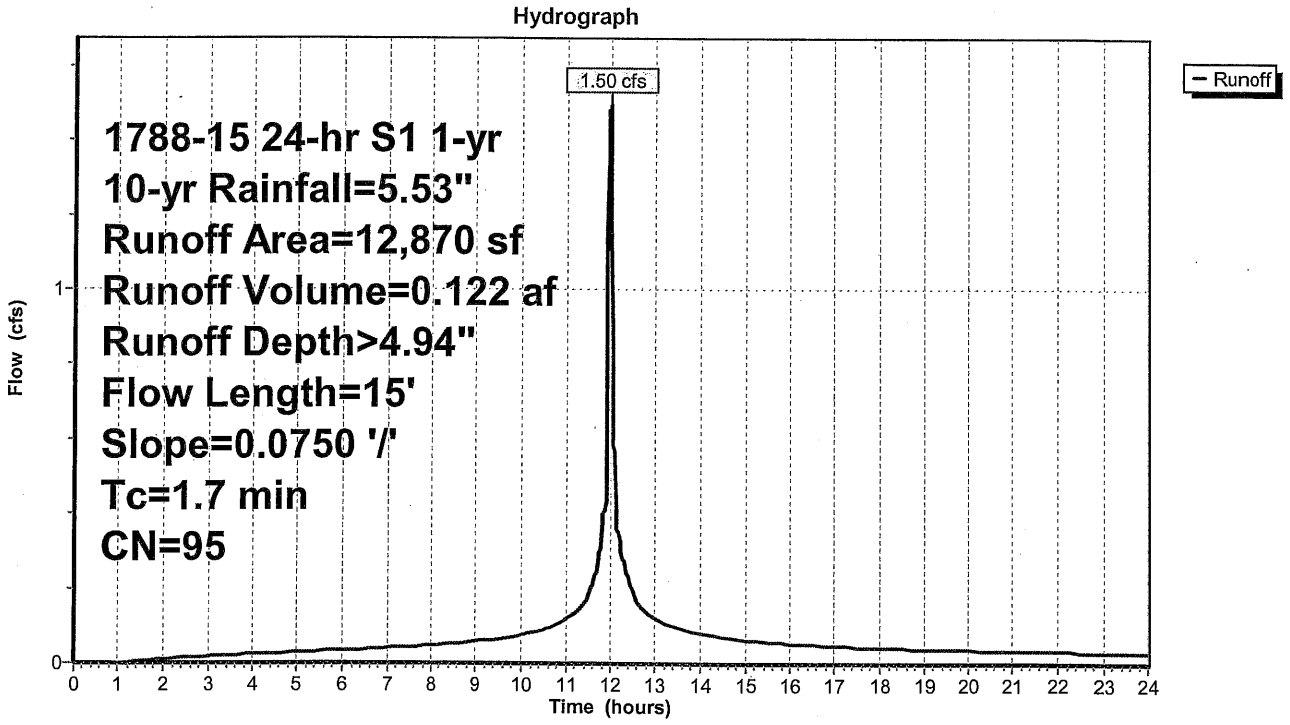
Runoff = 1.50 cfs @ 12.00 hrs, Volume= 0.122 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
1,491	74	>75% Grass cover, Good, HSG C
11,379	98	Paved parking, HSG C
12,870	95	Weighted Average
1,491		11.59% Pervious Area
11,379		88.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	15	0.0750	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 6: 6



Summary for Subcatchment 7: 7

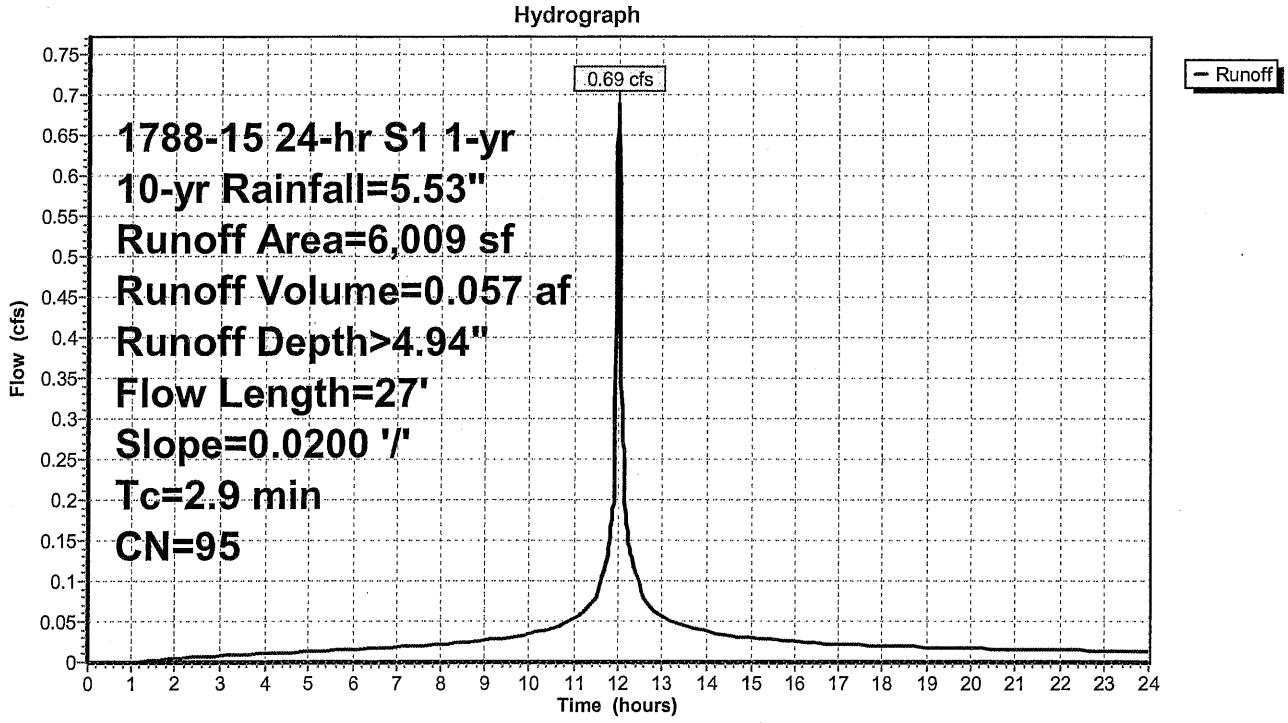
Runoff = 0.69 cfs @ 12.01 hrs, Volume= 0.057 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
653	74	>75% Grass cover, Good, HSG C
5,356	98	Paved parking, HSG C
6,009	95	Weighted Average
653		10.87% Pervious Area
5,356		89.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	14	0.0200	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
0.0	7	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	6	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.9	27	Total			

Subcatchment 7: 7



Summary for Subcatchment 8: 8

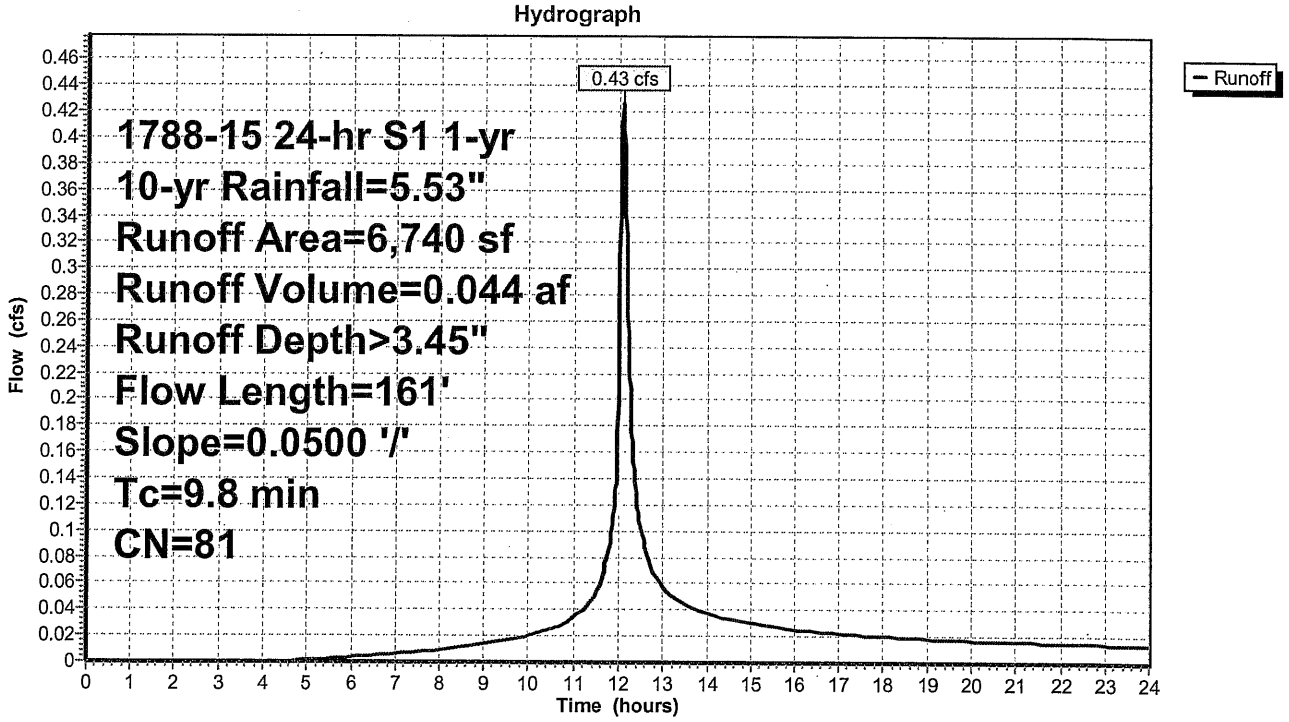
Runoff = 0.43 cfs @ 12.08 hrs, Volume= 0.044 af, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
4,663	74	>75% Grass cover, Good, HSG C
1,277	98	Paved parking, HSG C
800	98	Roofs, HSG C
6,740	81	Weighted Average
4,663		69.18% Pervious Area
2,077		30.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
0.6	61	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	161	Total			

Subcatchment 8: 8



Summary for Subcatchment 9: 9

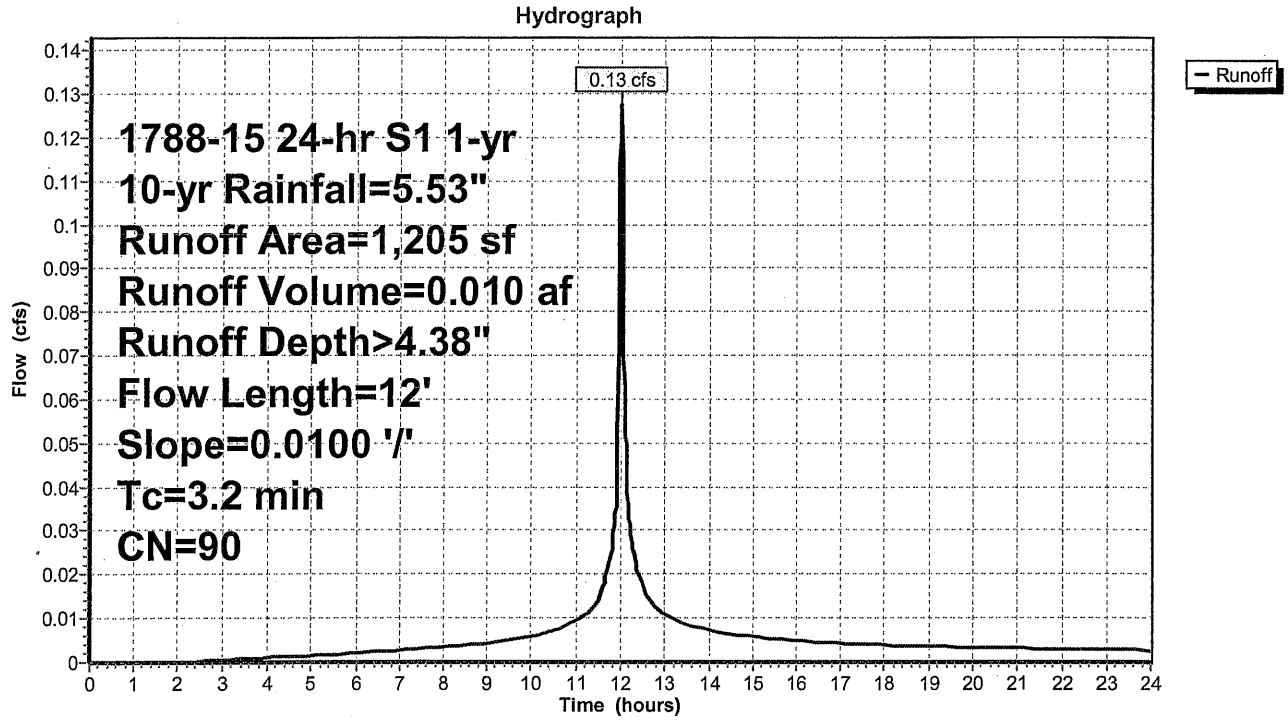
Runoff = 0.13 cfs @ 12.01 hrs, Volume= 0.010 af, Depth> 4.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
390	74	>75% Grass cover, Good, HSG C
815	98	Paved parking, HSG C
1,205	90	Weighted Average
390		32.37% Pervious Area
815		67.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	12	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 9: 9



Summary for Subcatchment 10: 10

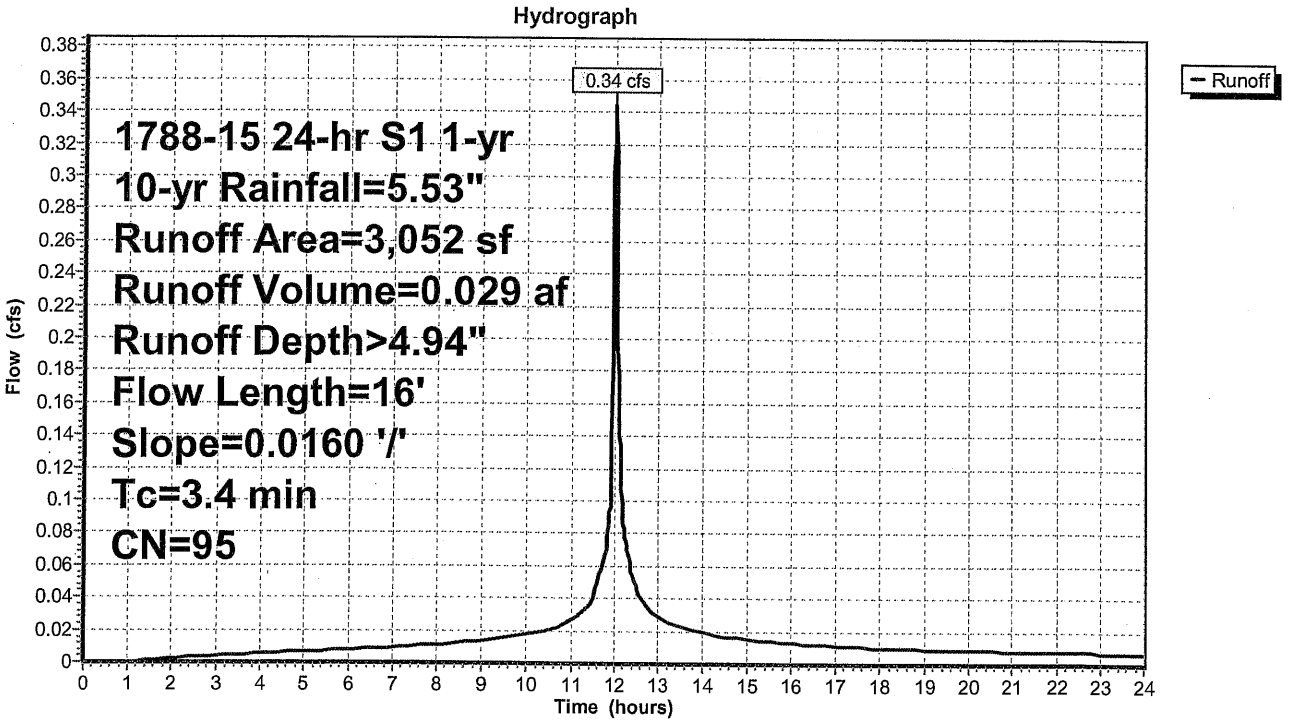
Runoff = 0.34 cfs @ 12.01 hrs, Volume= 0.029 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
330	74	>75% Grass cover, Good, HSG C
2,722	98	Paved parking, HSG C
3,052	95	Weighted Average
330		10.81% Pervious Area
2,722		89.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	16	0.0160	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 10: 10



Summary for Subcatchment 11: 11

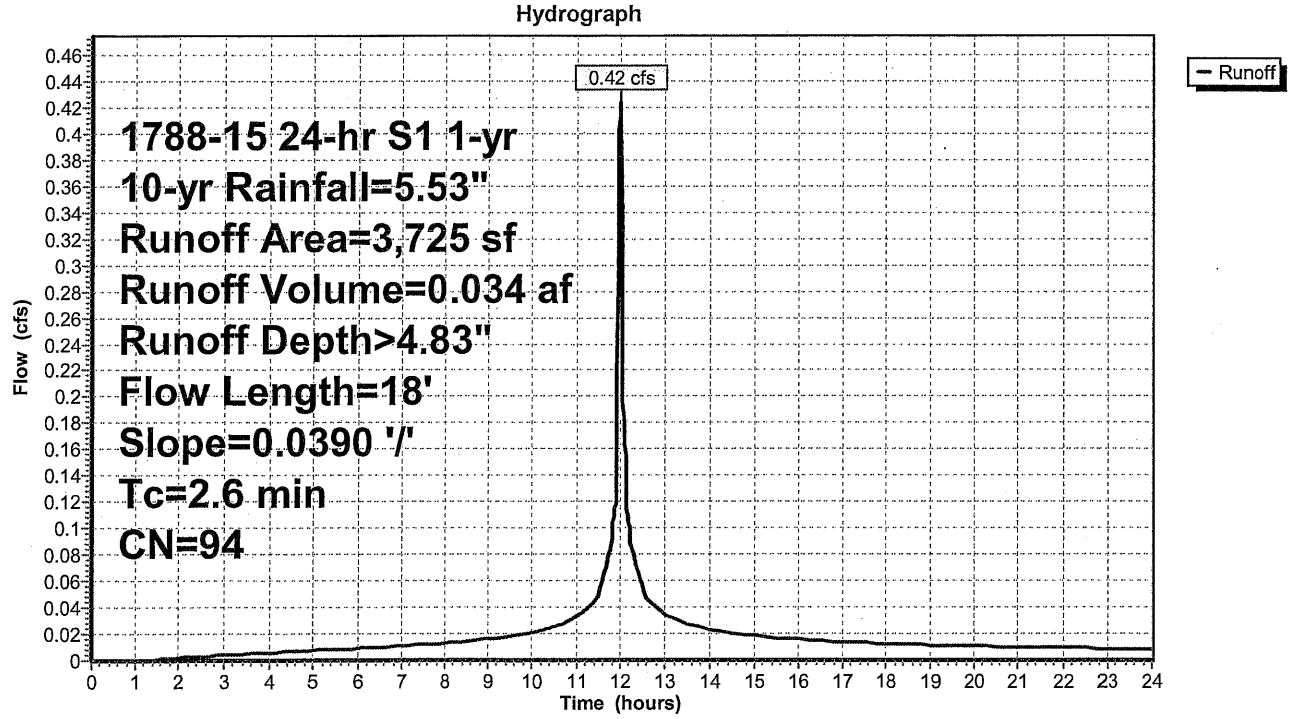
Runoff = 0.42 cfs @ 12.00 hrs, Volume= 0.034 af, Depth> 4.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
602	74	>75% Grass cover, Good, HSG C
3,123	98	Paved parking, HSG C
3,725	94	Weighted Average
602		16.16% Pervious Area
3,123		83.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	18	0.0390	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 11: 11



Summary for Subcatchment 12: 12

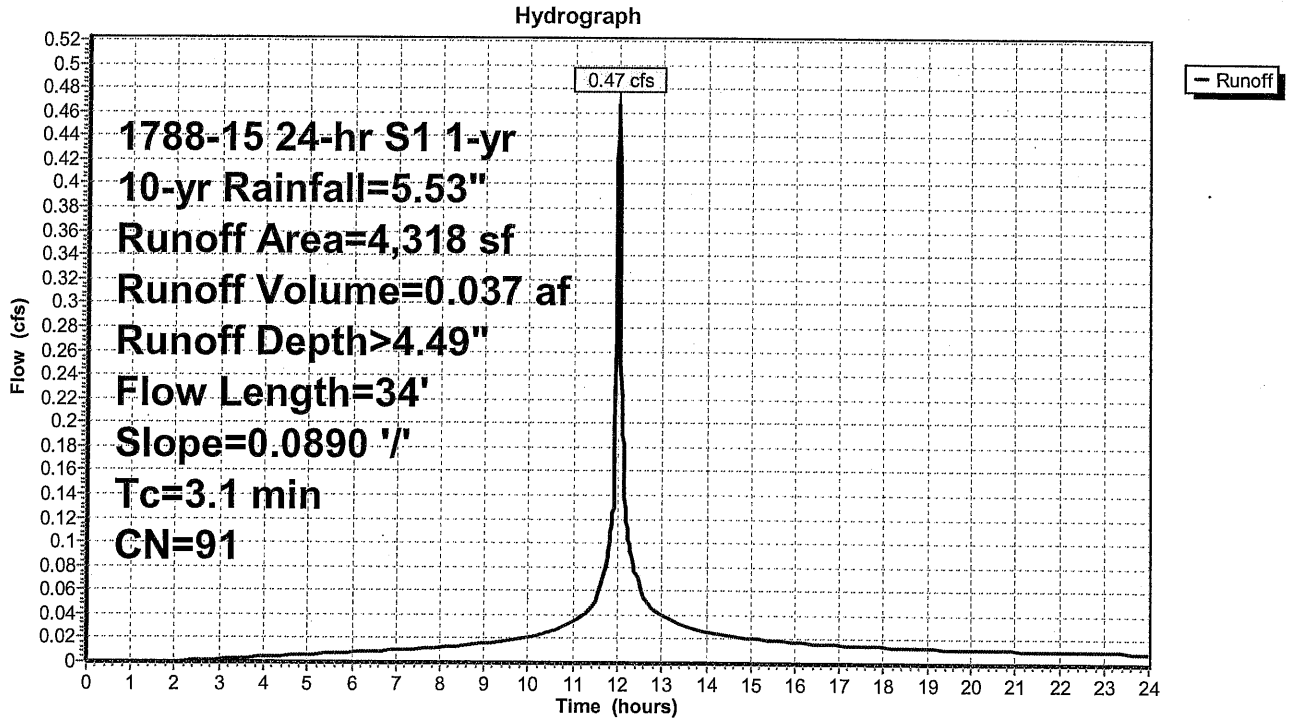
Runoff = 0.47 cfs @ 12.01 hrs, Volume= 0.037 af, Depth> 4.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
1,228	74	>75% Grass cover, Good, HSG C
3,090	98	Roofs, HSG C
4,318	91	Weighted Average
1,228		28.44% Pervious Area
3,090		71.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	34	0.0890	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 12: 12



Summary for Subcatchment 13: 13

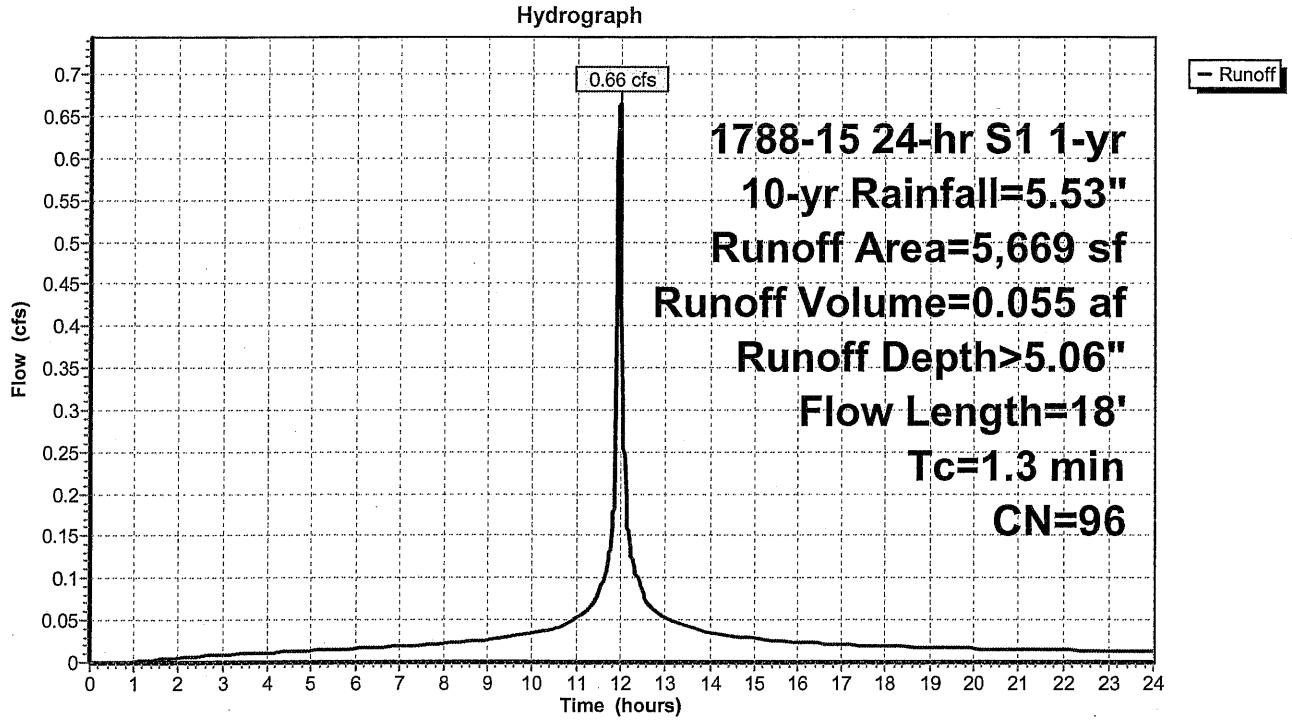
Runoff = 0.66 cfs @ 11.99 hrs, Volume= 0.055 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
552	74	>75% Grass cover, Good, HSG C
5,117	98	Paved parking, HSG C
5,669	96	Weighted Average
552		9.74% Pervious Area
5,117		90.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	11	0.0750	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
0.0	7	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	18	Total			

Subcatchment 13: 13



Summary for Subcatchment 14: 14

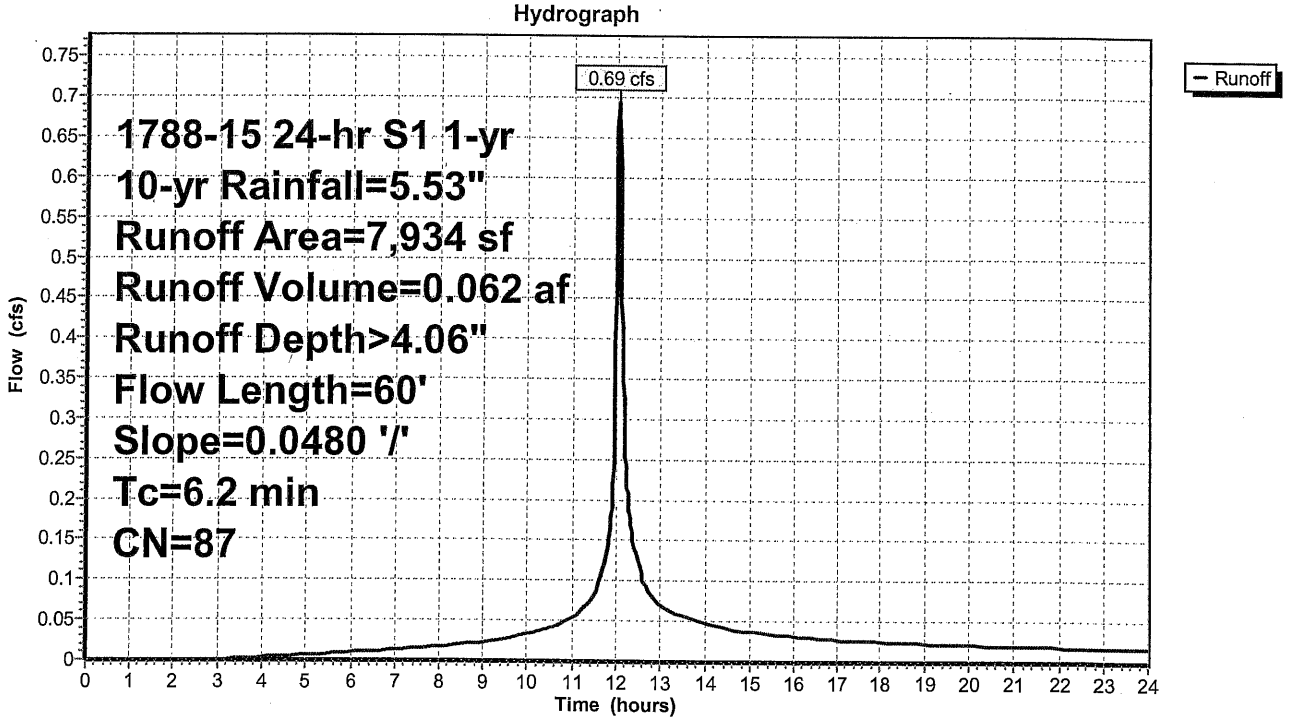
Runoff = 0.69 cfs @ 12.04 hrs, Volume= 0.062 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
3,638	74	>75% Grass cover, Good, HSG C
176	98	Paved parking, HSG C
4,120	98	Roofs, HSG C
7,934	87	Weighted Average
3,638		45.85% Pervious Area
4,296		54.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	60	0.0480	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 14: 14



Summary for Subcatchment 15: 15

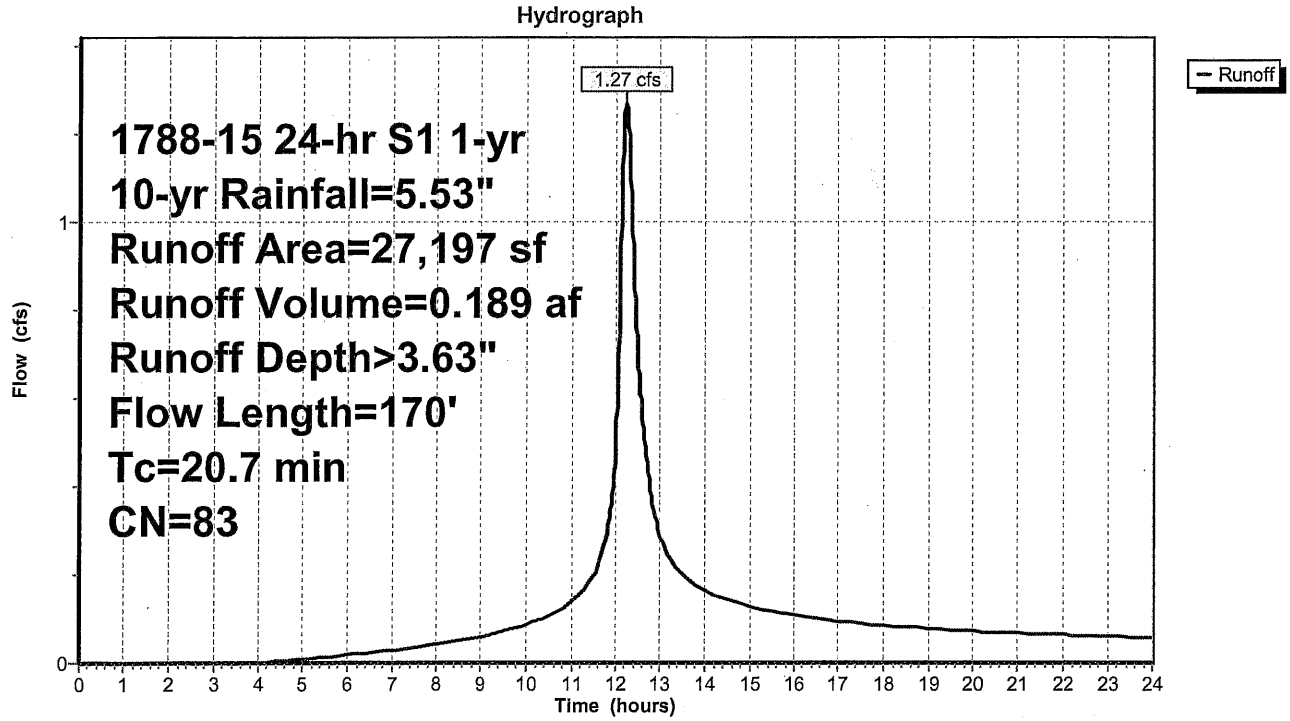
Runoff = 1.27 cfs @ 12.23 hrs, Volume= 0.189 af, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
3,284	70	Woods, Good, HSG C
13,004	74	>75% Grass cover, Good, HSG C
10,909	98	Paved parking, HSG C
27,197	83	Weighted Average
16,288		59.89% Pervious Area
10,909		40.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	28	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.66"
10.3	72	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"
0.8	70	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	170	Total			

Subcatchment 15: 15



Summary for Subcatchment 16: 16

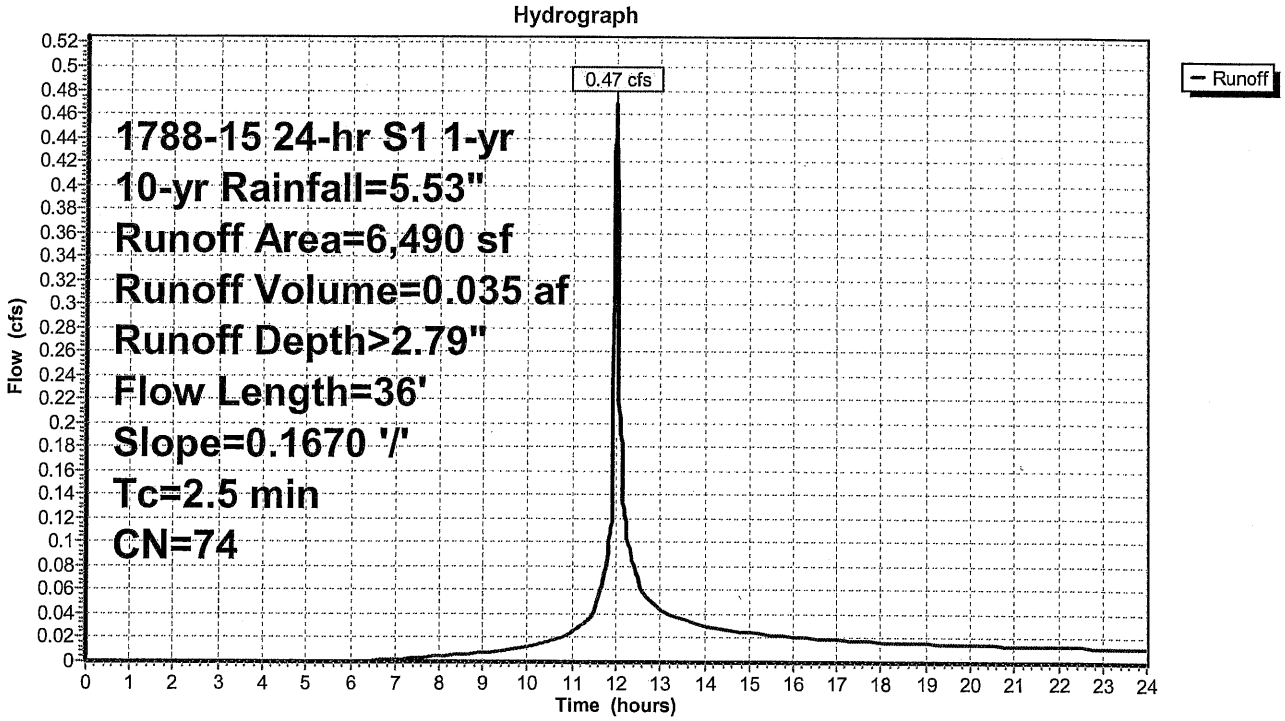
Runoff = 0.47 cfs @ 12.01 hrs, Volume= 0.035 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
1788-15 24-hr S1 1-yr 10-yr Rainfall=5.53"

Area (sf)	CN	Description
6,490	74	>75% Grass cover, Good, HSG C
6,490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	36	0.1670	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.66"

Subcatchment 16: 16



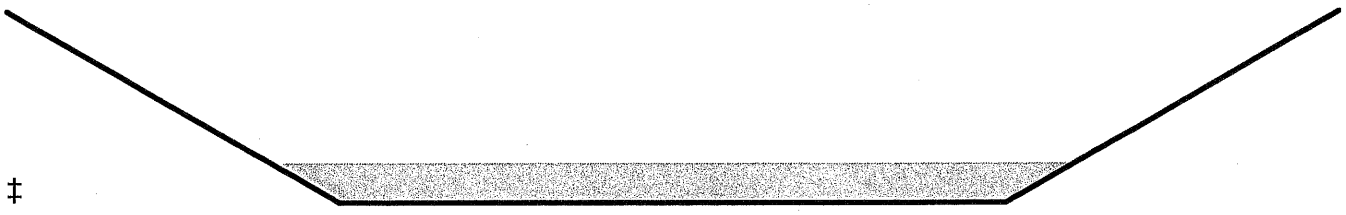
Summary for Reach R1: R1

Inflow Area = 0.155 ac, 30.82% Impervious, Inflow Depth > 3.45" for 10-yr event
Inflow = 0.43 cfs @ 12.08 hrs, Volume= 0.044 af
Outflow = 0.42 cfs @ 12.10 hrs, Volume= 0.044 af, Atten= 2%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.31 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 4.4 min

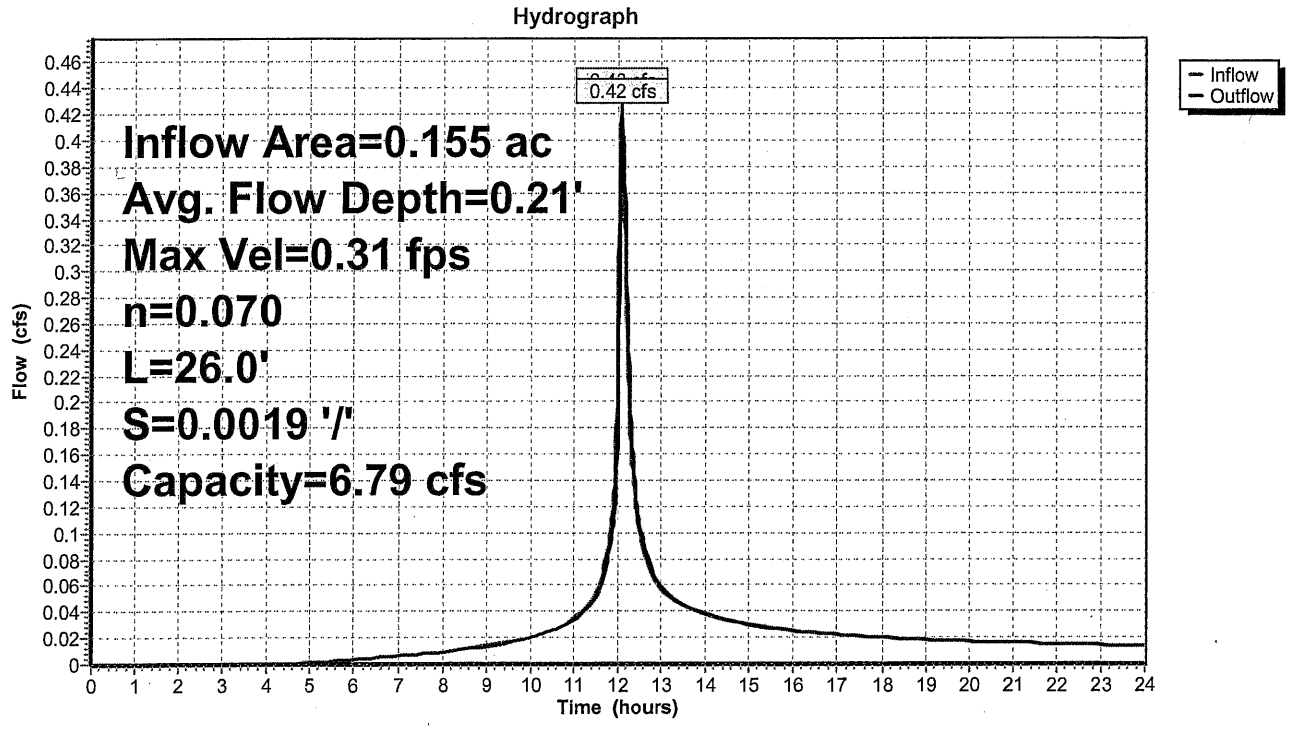
Peak Storage= 36 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 6.79 cfs

6.00' x 1.00' deep channel, n= 0.070
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 26.0' Slope= 0.0019 '/'
Inlet Invert= 3.95', Outlet Invert= 3.90'



‡

Reach R1: R1



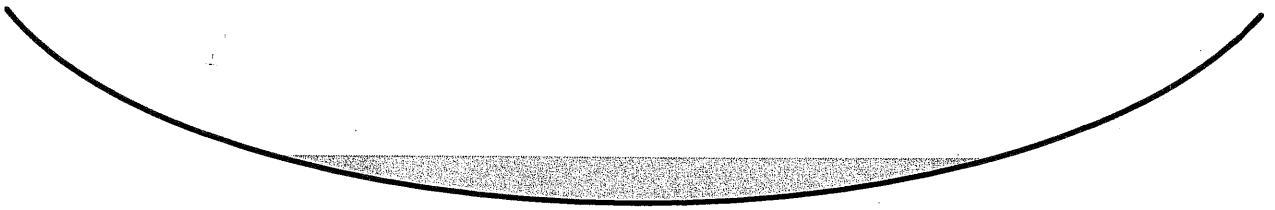
Summary for Reach R2: R2

Inflow Area = 0.183 ac, 83.44% Impervious, Inflow Depth > 4.71" for 10-yr event
Inflow = 0.52 cfs @ 12.05 hrs, Volume= 0.072 af
Outflow = 0.52 cfs @ 12.05 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 0.2 min

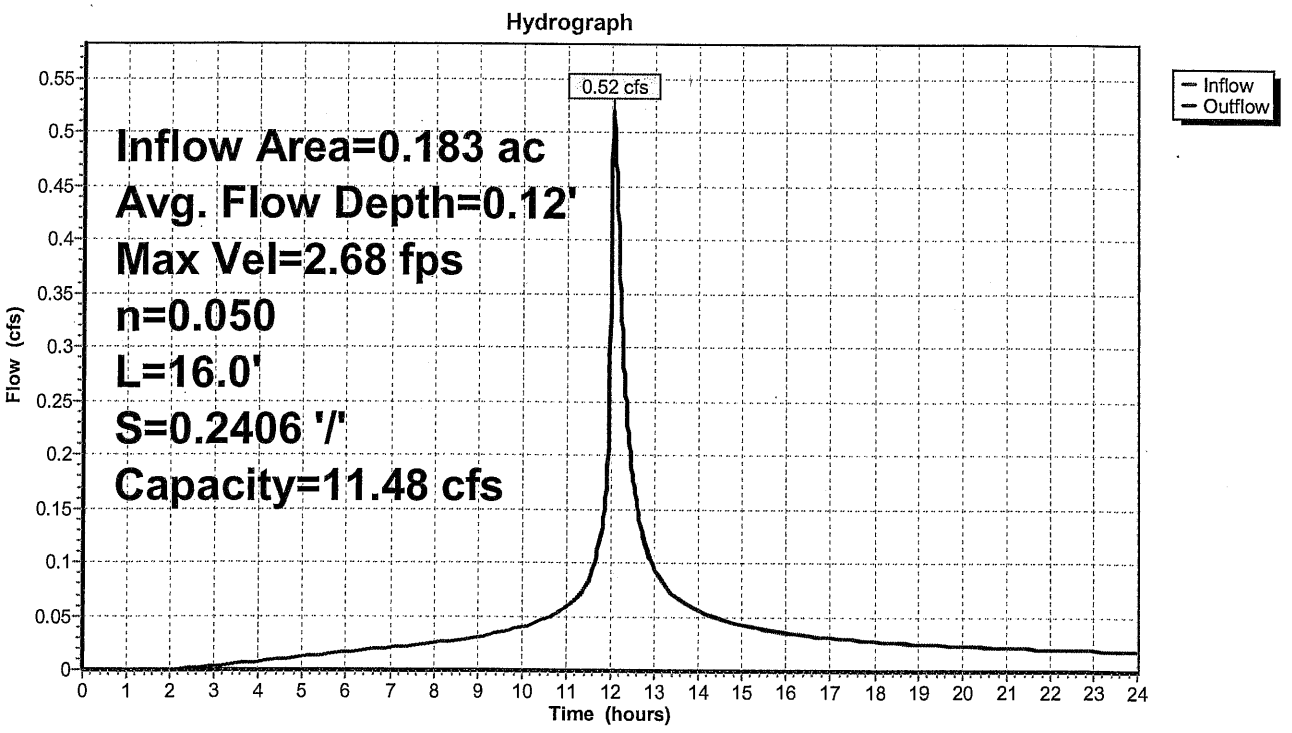
Peak Storage= 3 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 11.48 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.050 Earth, long dense weeds
Length= 16.0' Slope= 0.2406 '/'
Inlet Invert= 7.75', Outlet Invert= 3.90'



‡

Reach R2: R2



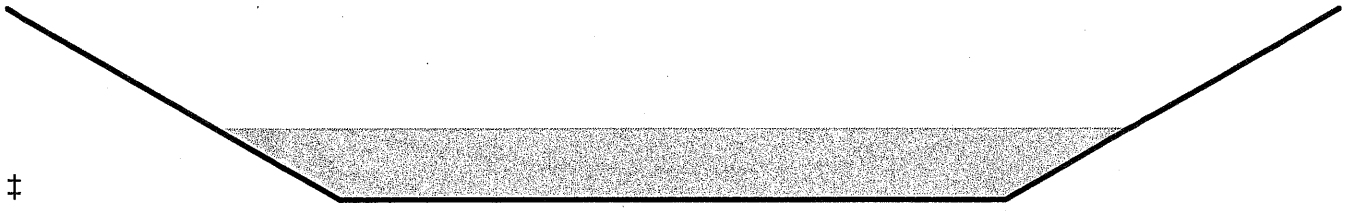
Summary for Reach R3: R3

Inflow Area = 0.338 ac, 59.35% Impervious, Inflow Depth > 4.13" for 10-yr event
Inflow = 0.91 cfs @ 12.08 hrs, Volume= 0.116 af
Outflow = 0.89 cfs @ 12.11 hrs, Volume= 0.116 af, Atten= 3%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.33 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 6.6 min

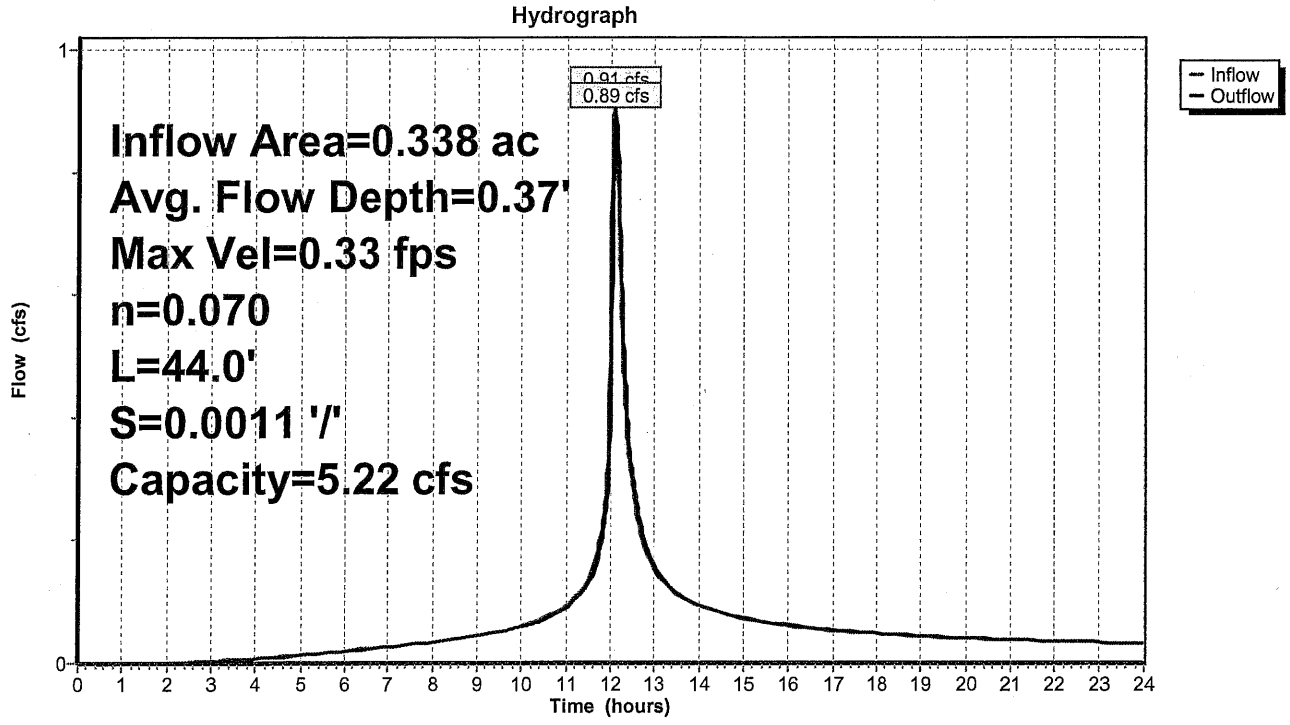
Peak Storage= 117 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 5.22 cfs

6.00' x 1.00' deep channel, n= 0.070
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 44.0' Slope= 0.0011 '/'
Inlet Invert= 3.90', Outlet Invert= 3.85'



‡

Reach R3: R3



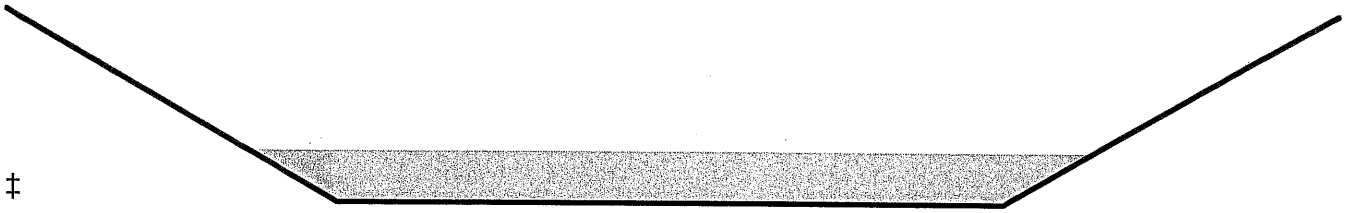
Summary for Reach R4: R4

Inflow Area = 0.716 ac, 54.31% Impervious, Inflow Depth > 4.03" for 10-yr event
Inflow = 1.54 cfs @ 12.11 hrs, Volume= 0.240 af
Outflow = 1.53 cfs @ 12.12 hrs, Volume= 0.240 af, Atten= 1%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.83 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 4.4 min

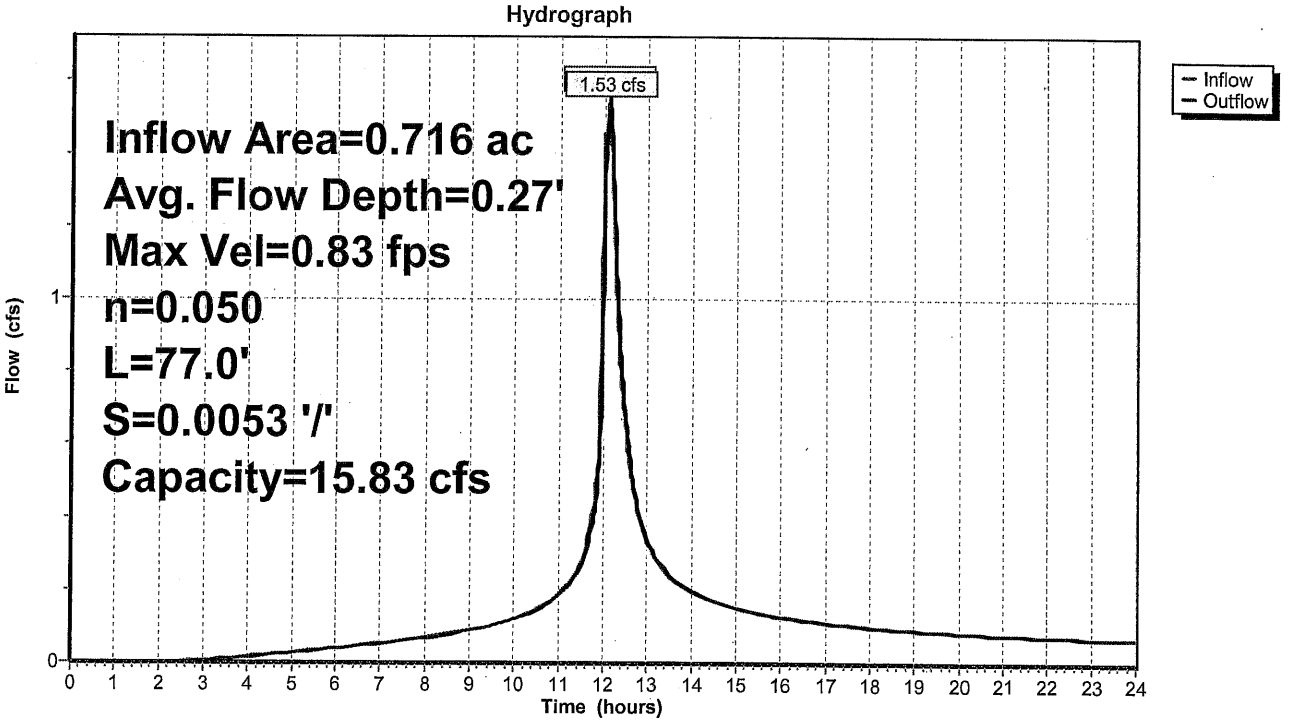
Peak Storage= 141 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 15.83 cfs

6.00' x 1.00' deep channel, n= 0.050 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 77.0' Slope= 0.0053 '/'
Inlet Invert= 3.80', Outlet Invert= 3.39'



‡

Reach R4: R4



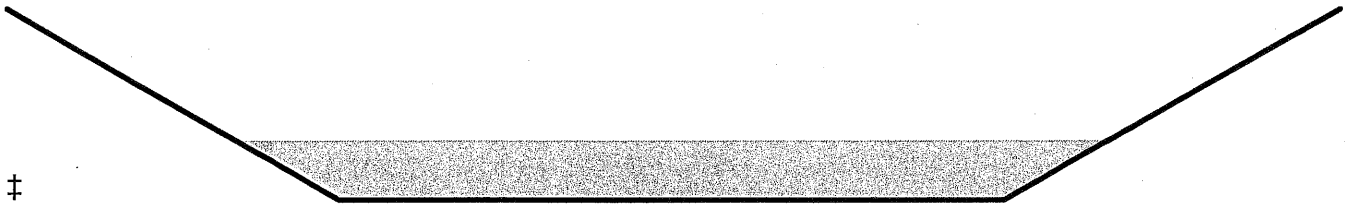
Summary for Reach R5: R5

Inflow Area = 0.716 ac, 54.31% Impervious, Inflow Depth > 4.02" for 10-yr event
Inflow = 1.53 cfs @ 12.12 hrs, Volume= 0.240 af
Outflow = 1.45 cfs @ 12.16 hrs, Volume= 0.239 af, Atten= 5%, Lag= 2.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.67 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 12.7 min

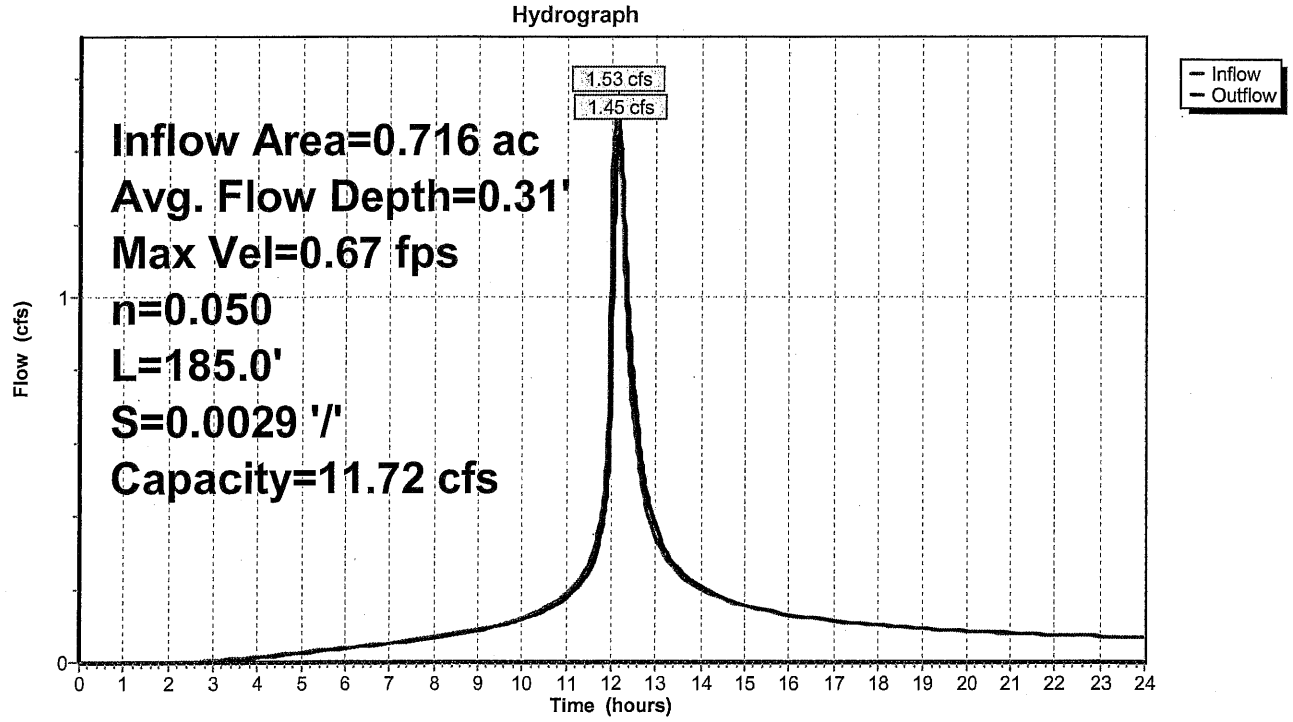
Peak Storage= 399 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 11.72 cfs

6.00' x 1.00' deep channel, n= 0.050 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 185.0' Slope= 0.0029 '/'
Inlet Invert= 3.39', Outlet Invert= 2.85'



‡

Reach R5: R5



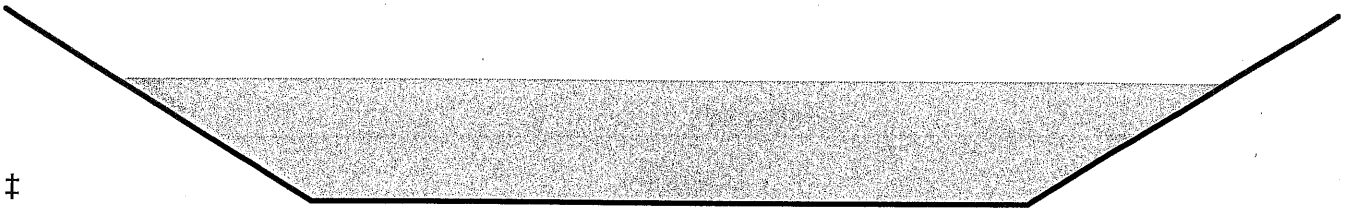
Summary for Reach TS1: TS1

Inflow Area = 0.182 ac, 54.15% Impervious, Inflow Depth > 4.06" for 10-yr event
Inflow = 0.69 cfs @ 12.04 hrs, Volume= 0.062 af
Outflow = 0.57 cfs @ 12.08 hrs, Volume= 0.061 af, Atten= 18%, Lag= 2.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.40 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 13.8 min

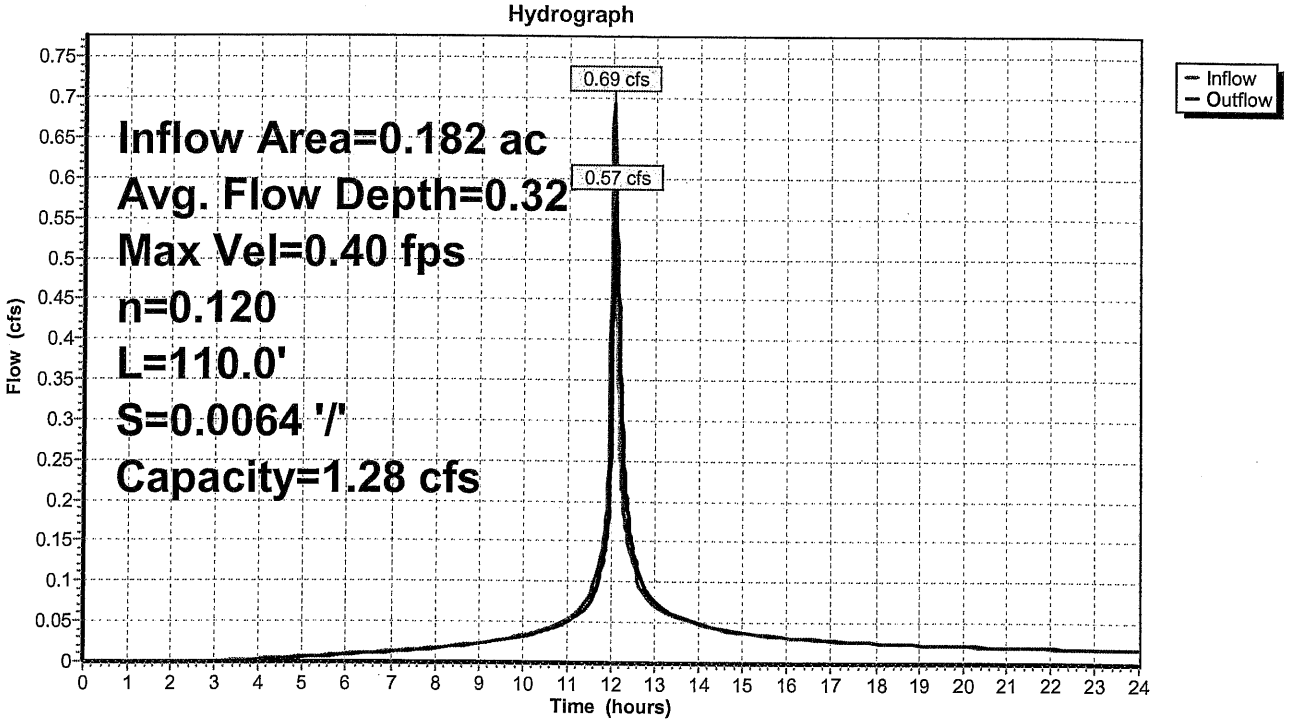
Peak Storage= 157 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 0.50' Flow Area= 2.5 sf, Capacity= 1.28 cfs

3.50' x 0.50' deep channel, n= 0.120
Side Slope Z-value= 3.0 '/' Top Width= 6.50'
Length= 110.0' Slope= 0.0064 '/'
Inlet Invert= 5.50', Outlet Invert= 4.80'



‡

Reach TS1: TS1



Summary for Pond DMH1: DMH1

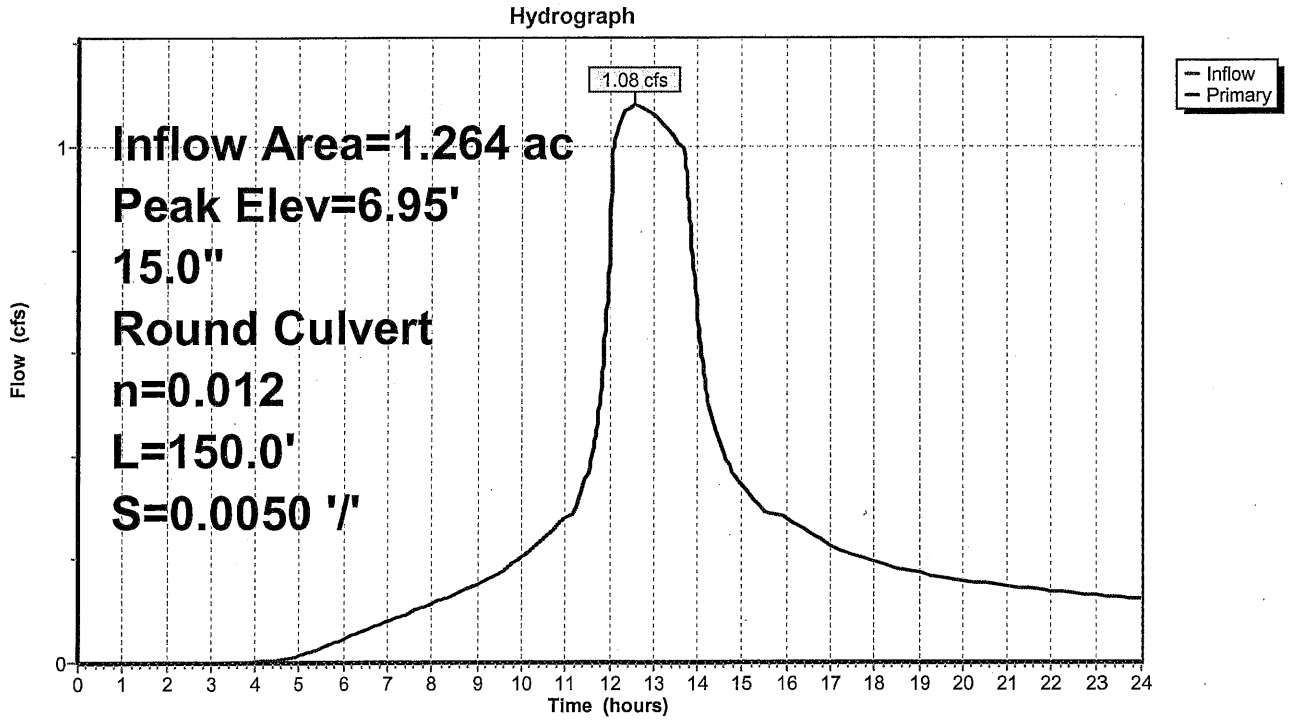
Inflow Area = 1.264 ac, 41.31% Impervious, Inflow Depth > 4.14" for 10-yr event
Inflow = 1.08 cfs @ 12.56 hrs, Volume= 0.436 af
Outflow = 1.08 cfs @ 12.56 hrs, Volume= 0.436 af, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.56 hrs, Volume= 0.436 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6.95' @ 12.28 hrs
Flood Elev= 12.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.35'	**15.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.35' / 5.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.08 cfs @ 12.56 hrs HW=6.94' TW=6.28' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.08 cfs @ 2.76 fps)

Pond DMH1: DMH1



Summary for Pond DMH2: DMH2

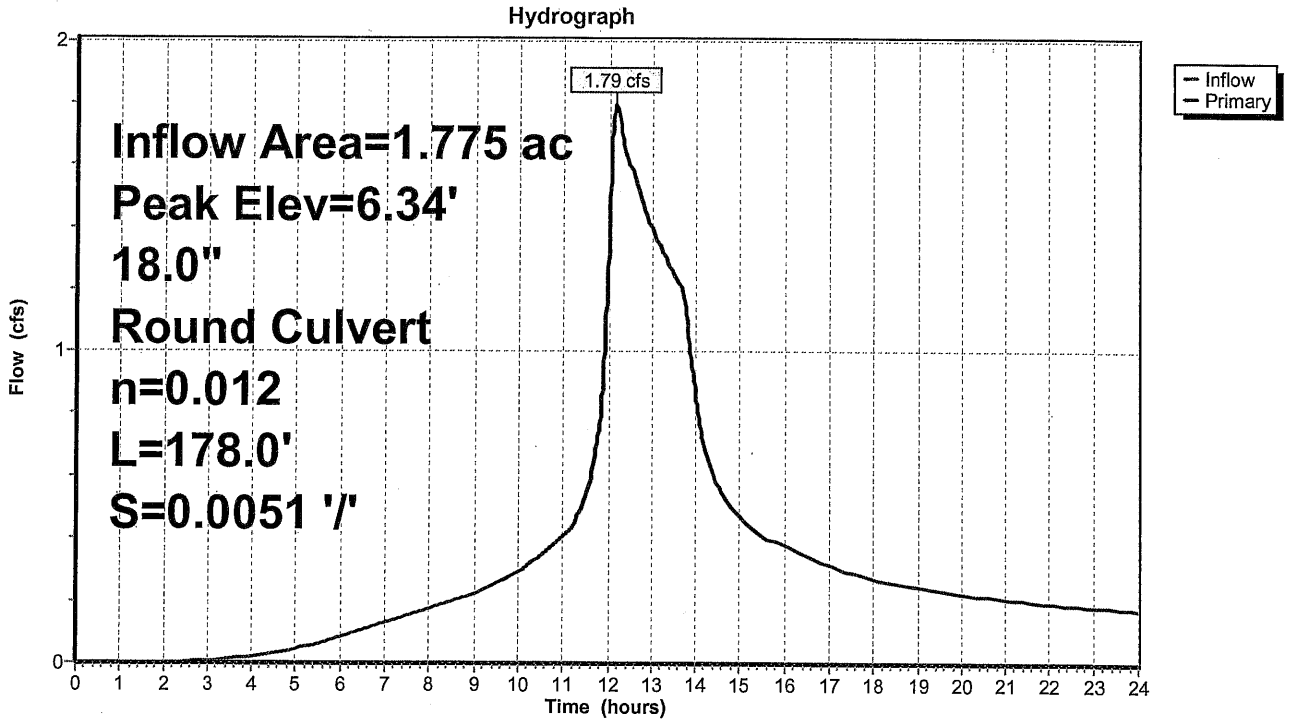
Inflow Area = 1.775 ac, 51.36% Impervious, Inflow Depth > 4.19" for 10-yr event
Inflow = 1.79 cfs @ 12.17 hrs, Volume= 0.620 af
Outflow = 1.79 cfs @ 12.17 hrs, Volume= 0.620 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.17 hrs, Volume= 0.620 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6.34' @ 12.19 hrs
Flood Elev= 12.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.60'	**18.0" Round Culvert** L= 178.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.60' / 4.70' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.79 cfs @ 12.17 hrs HW=6.34' TW=5.60' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.79 cfs @ 3.03 fps)

Pond DMH2: DMH2



Summary for Pond DMH3: DMH3

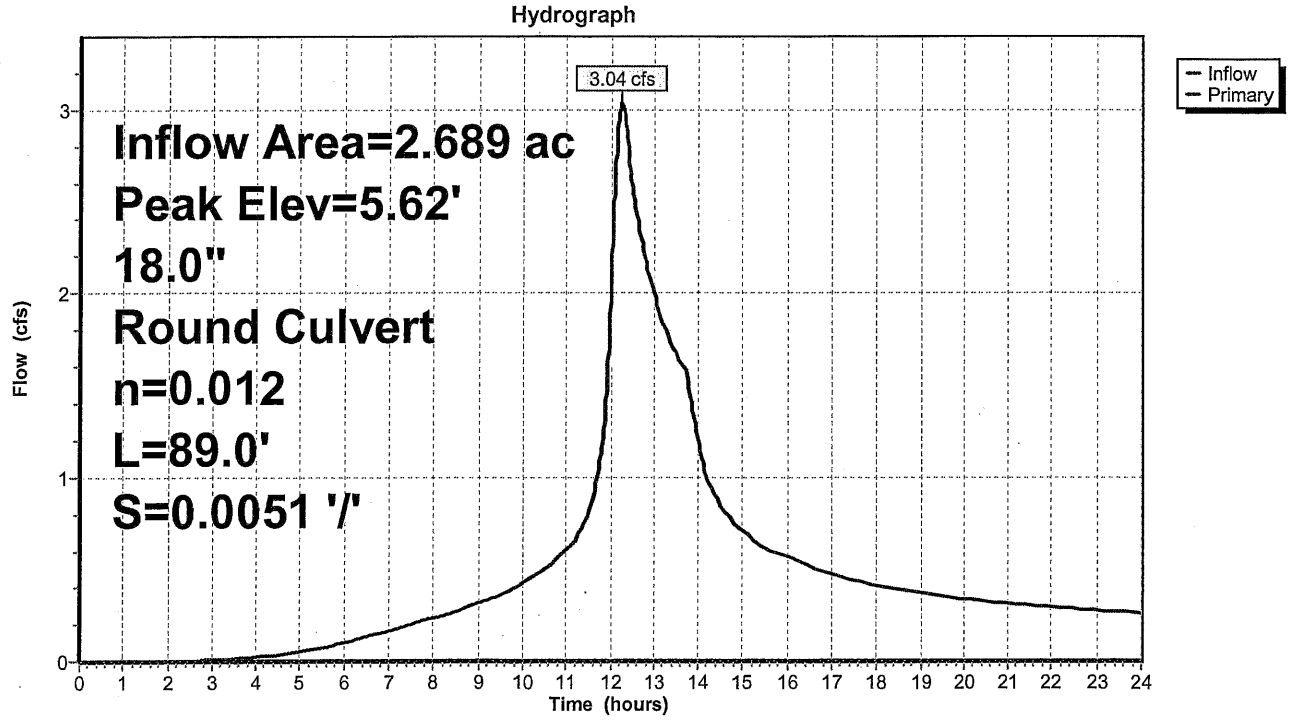
Inflow Area = 2.689 ac, 52.95% Impervious, Inflow Depth > 4.07" for 10-yr event
Inflow = 3.04 cfs @ 12.25 hrs, Volume= 0.912 af
Outflow = 3.04 cfs @ 12.25 hrs, Volume= 0.912 af, Atten= 0%, Lag= 0.0 min
Primary = 3.04 cfs @ 12.25 hrs, Volume= 0.912 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 5.62' @ 12.25 hrs
Flood Elev= 9.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	4.70'	**18.0" Round Culvert** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.70' / 4.25' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.04 cfs @ 12.25 hrs HW=5.62' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 3.04 cfs @ 3.83 fps)

Pond DMH3: DMH3



Summary for Pond DP1: DP1

Inflow Area = 0.081 ac, 1.02% Impervious, Inflow Depth > 2.78" for 10-yr event
Inflow = 0.18 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.04 cfs @ 12.58 hrs, Volume= 0.012 af, Atten= 78%, Lag= 30.0 min
Primary = 0.04 cfs @ 12.58 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.22' @ 12.58 hrs Surf.Area= 1,550 sf Storage= 328 cf
Flood Elev= 12.00' Surf.Area= 1,939 sf Storage= 1,688 cf

Plug-Flow detention time= 266.8 min calculated for 0.012 af (62% of inflow)
Center-of-Mass det. time= 119.5 min (994.7 - 875.2)

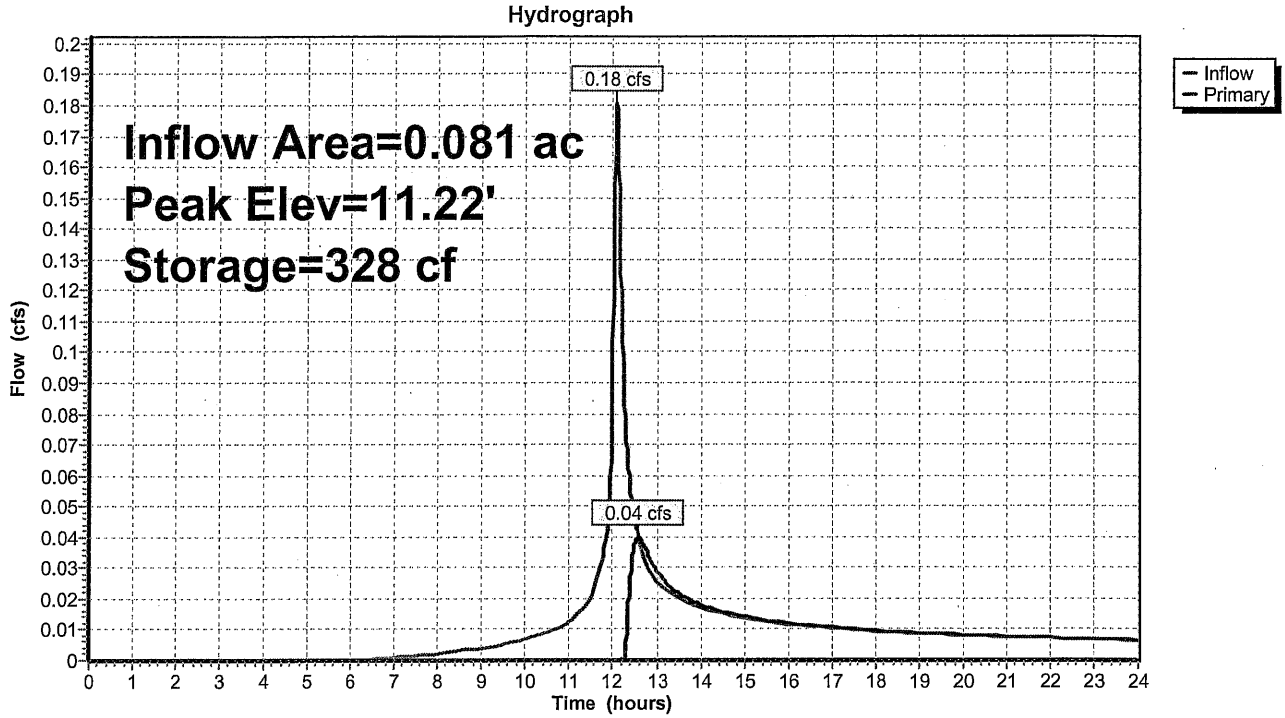
Volume	Invert	Avail.Storage	Storage Description
#1	11.00'	1,688 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
11.00	1,449	153.9	0	0	1,449
12.00	1,939	172.8	1,688	1,688	1,967

Device	Routing	Invert	Outlet Devices
#1	Primary	8.00'	**12.0" Round Culvert** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 8.00' / 7.50' S= 0.0109 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	11.20'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.58 hrs HW=11.22' TW=8.05' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.04 cfs of 6.24 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 0.04 cfs @ 0.45 fps)

Pond DP1: DP1


Hydrograph
Inflow Area=0.081 ac
Peak Elev=11.22'
Storage=328 cf
0.18 cfs
0.04 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond OS-RG3: OS-RG3

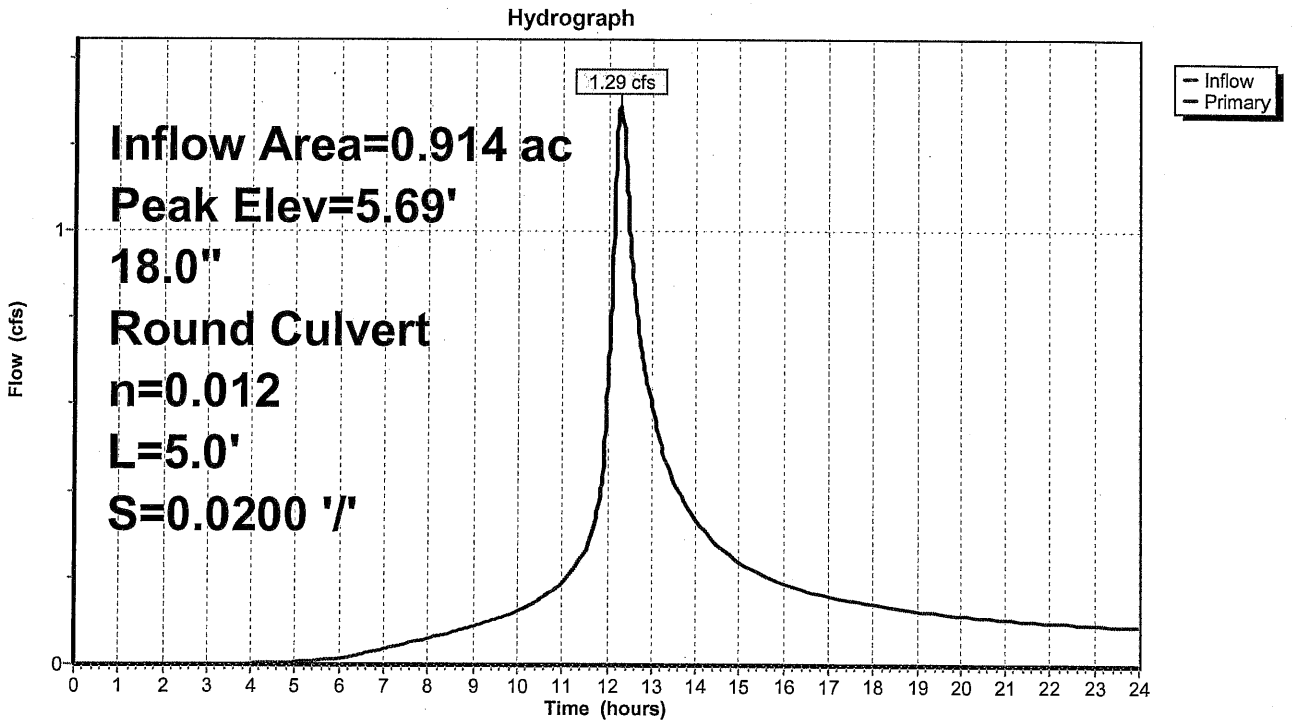
Inflow Area = 0.914 ac, 56.04% Impervious, Inflow Depth > 3.82" for 10-yr event
Inflow = 1.29 cfs @ 12.29 hrs, Volume= 0.291 af
Outflow = 1.29 cfs @ 12.29 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.29 hrs, Volume= 0.291 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 5.69' @ 12.27 hrs
Flood Elev= 8.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	4.80'	**18.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.80' / 4.70' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.31 cfs @ 12.29 hrs HW=5.69' TW=5.62' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.31 cfs @ 1.72 fps)

Pond OS-RG3: OS-RG3



Summary for Pond PP1: Porous Pave 1

Inflow Area = 0.305 ac, 96.31% Impervious, Inflow Depth > 5.18" for 10-yr event
Inflow = 1.57 cfs @ 11.99 hrs, Volume= 0.132 af
Outflow = 0.41 cfs @ 12.11 hrs, Volume= 0.125 af, Atten= 74%, Lag= 7.2 min
Primary = 0.41 cfs @ 12.11 hrs, Volume= 0.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.81' Surf.Area= 6,674 sf Storage= 771 cf
Peak Elev= 10.36' @ 12.11 hrs Surf.Area= 6,674 sf Storage= 2,065 cf (1,294 cf above start)
Flood Elev= 12.55' Surf.Area= 6,674 sf Storage= 4,812 cf (4,041 cf above start)

Plug-Flow detention time= 217.3 min calculated for 0.108 af (82% of inflow)
Center-of-Mass det. time= 57.6 min (810.0 - 752.4)

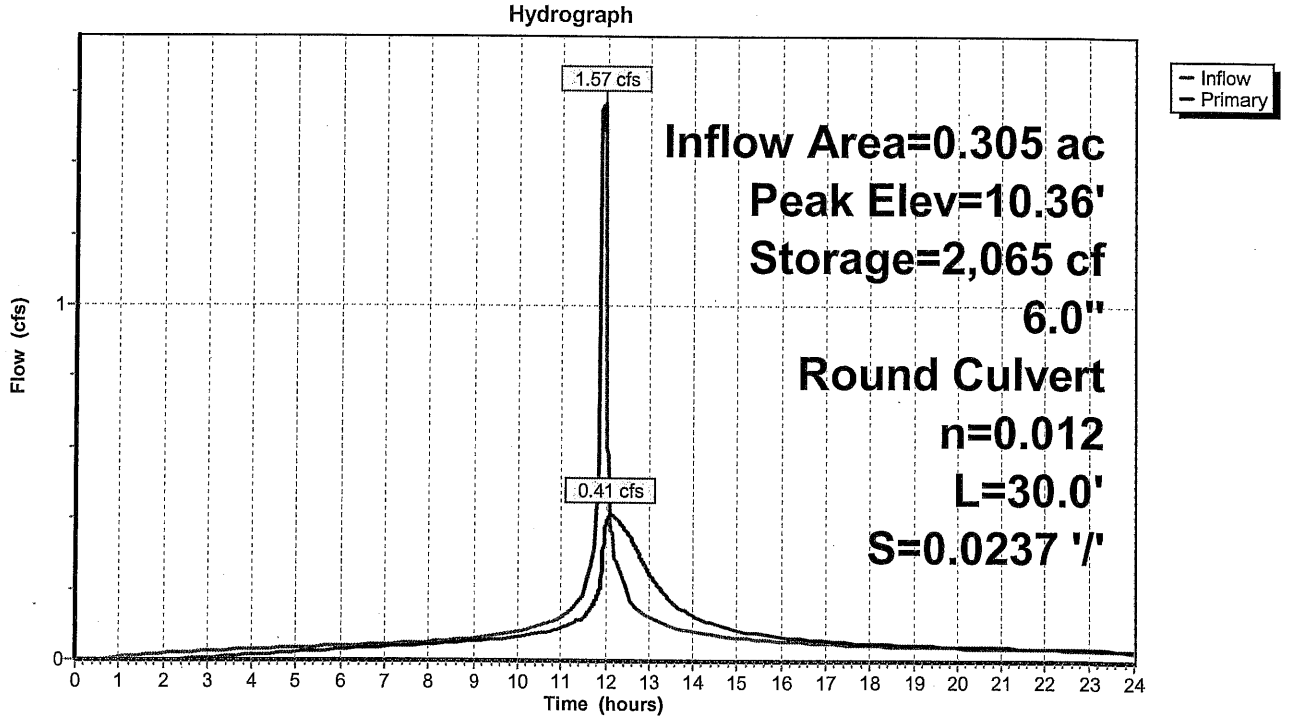
Volume	Invert	Avail.Storage	Storage Description
#1	9.48'	4,812 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
9.48	6,674	591.7	0.0	0	0	6,674
10.64	6,674	591.7	35.0	2,710	2,710	7,360
10.89	6,674	591.7	20.0	334	3,043	7,508
11.89	6,674	591.7	10.0	667	3,711	8,100
12.22	6,674	591.7	20.0	440	4,151	8,295
12.55	6,674	591.7	30.0	661	4,812	8,491

Device	Routing	Invert	Outlet Devices
#1	Primary	9.81'	**6.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.81' / 9.10' S= 0.0237 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.41 cfs @ 12.11 hrs HW=10.36' TW=6.31' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.41 cfs @ 2.10 fps)

Pond PP1: Porous Pave 1



Summary for Pond PP2: Porous Pave 2

Inflow Area = 0.295 ac, 88.41% Impervious, Inflow Depth > 4.94" for 10-yr event
Inflow = 1.50 cfs @ 12.00 hrs, Volume= 0.122 af
Outflow = 0.27 cfs @ 12.27 hrs, Volume= 0.110 af, Atten= 82%, Lag= 16.4 min
Primary = 0.27 cfs @ 12.27 hrs, Volume= 0.110 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 5.42' Surf.Area= 7,034 sf Storage= 788 cf
Peak Elev= 6.10' @ 12.27 hrs Surf.Area= 7,034 sf Storage= 2,461 cf (1,673 cf above start)
Flood Elev= 8.20' Surf.Area= 7,034 sf Storage= 5,135 cf (4,347 cf above start)

Plug-Flow detention time= 270.5 min calculated for 0.092 af (76% of inflow)
Center-of-Mass det. time= 94.9 min (864.4 - 769.5)

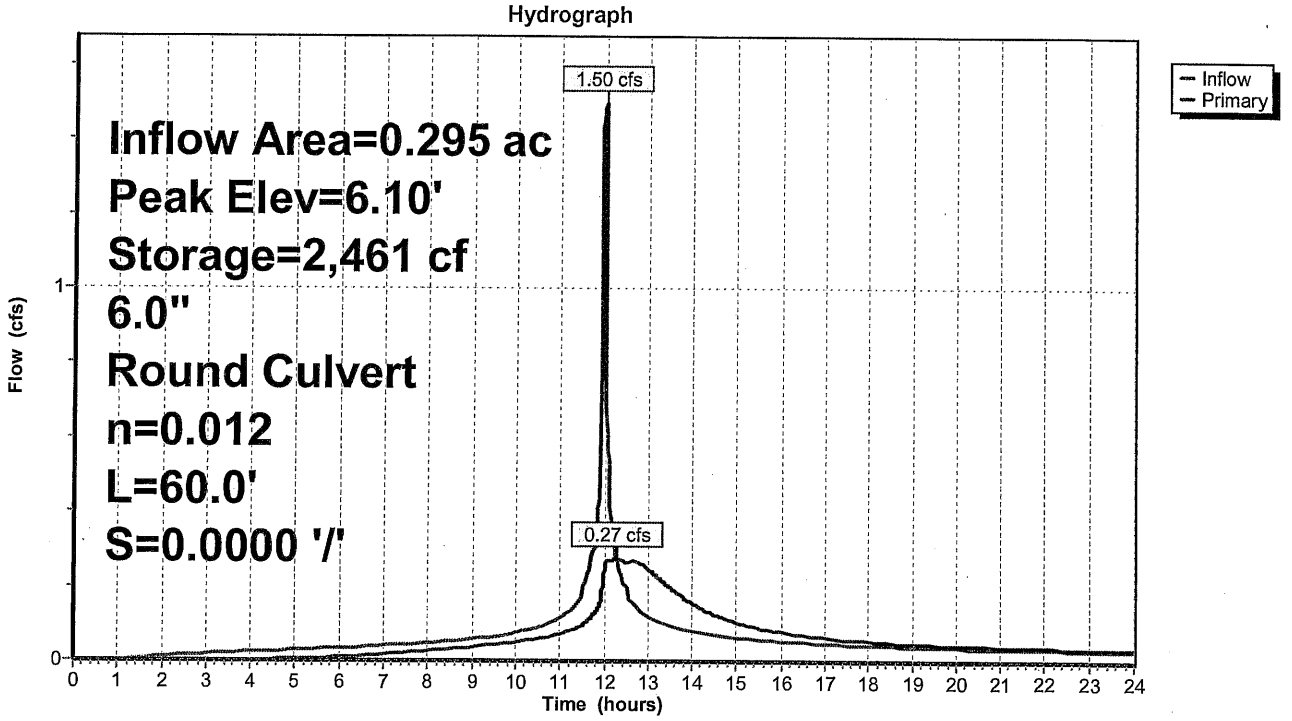
Volume	Invert	Avail.Storage	Storage Description
#1	5.10'	5,135 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
5.10	7,034	869.8	0.0	0	0	7,034
6.26	7,034	869.8	35.0	2,856	2,856	8,043
6.51	7,034	869.8	20.0	352	3,208	8,260
7.51	7,034	869.8	10.0	703	3,911	9,130
7.84	7,034	869.8	20.0	464	4,375	9,417
8.20	7,034	869.8	30.0	760	5,135	9,730

Device	Routing	Invert	Outlet Devices
#1	Primary	5.42'	**6.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.42' / 5.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.27 cfs @ 12.27 hrs HW=6.10' TW=5.69' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.27 cfs @ 1.40 fps)

Pond PP2: Porous Pave 2



Summary for Pond PP3: Porous Pave 3

Inflow Area = 0.138 ac, 89.13% Impervious, Inflow Depth > 4.94" for 10-yr event
Inflow = 0.69 cfs @ 12.01 hrs, Volume= 0.057 af
Outflow = 0.20 cfs @ 12.15 hrs, Volume= 0.053 af, Atten= 71%, Lag= 8.5 min
Primary = 0.20 cfs @ 12.15 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 5.42' Surf.Area= 3,624 sf Storage= 406 cf
Peak Elev= 5.92' @ 12.15 hrs Surf.Area= 3,624 sf Storage= 1,046 cf (640 cf above start)
Flood Elev= 8.20' Surf.Area= 3,624 sf Storage= 2,646 cf (2,240 cf above start)

Plug-Flow detention time= 250.1 min calculated for 0.043 af (76% of inflow)
Center-of-Mass det. time= 71.6 min (841.9 - 770.3)

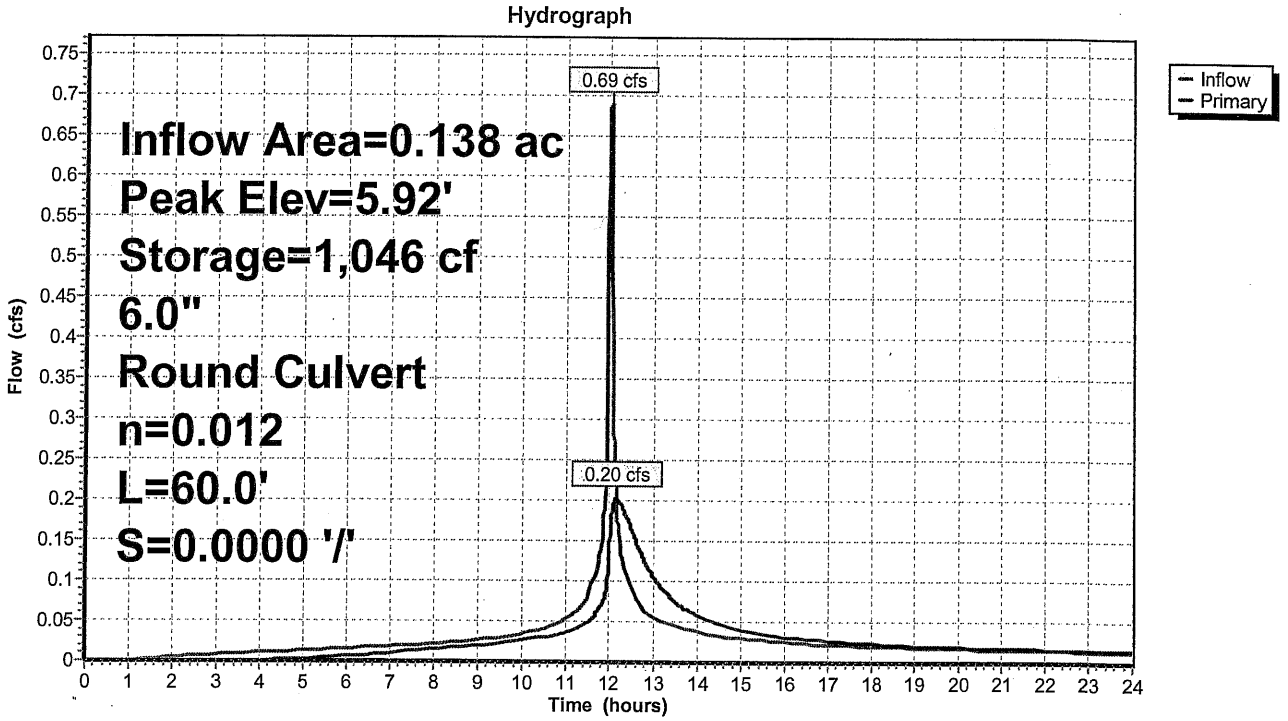
Volume	Invert	Avail.Storage	Storage Description
#1	5.10'	2,646 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
5.10	3,624	612.4	0.0	0	0	3,624
6.26	3,624	612.4	35.0	1,471	1,471	4,334
6.51	3,624	612.4	20.0	181	1,653	4,487
7.51	3,624	612.4	10.0	362	2,015	5,100
7.84	3,624	612.4	20.0	239	2,254	5,302
8.20	3,624	612.4	30.0	391	2,646	5,522

Device	Routing	Invert	Outlet Devices
#1	Primary	5.42'	**6.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.42' / 5.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.20 cfs @ 12.15 hrs HW=5.92' TW=5.62' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.20 cfs @ 1.27 fps)

Pond PP3: Porous Pave 3



Summary for Pond PP4: Porous Pave 4

Inflow Area = 0.028 ac, 67.63% Impervious, Inflow Depth > 4.38" for 10-yr event
Inflow = 0.13 cfs @ 12.01 hrs, Volume= 0.010 af
Outflow = 0.07 cfs @ 12.06 hrs, Volume= 0.010 af, Atten= 43%, Lag= 2.9 min
Primary = 0.07 cfs @ 12.06 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.45' Surf.Area= 810 sf Storage= 94 cf
Peak Elev= 9.64' @ 12.06 hrs Surf.Area= 810 sf Storage= 148 cf (54 cf above start)
Flood Elev= 12.20' Surf.Area= 810 sf Storage= 586 cf (492 cf above start)

Plug-Flow detention time= 205.9 min calculated for 0.008 af (77% of inflow)
Center-of-Mass det. time= 21.5 min (823.1 - 801.6)

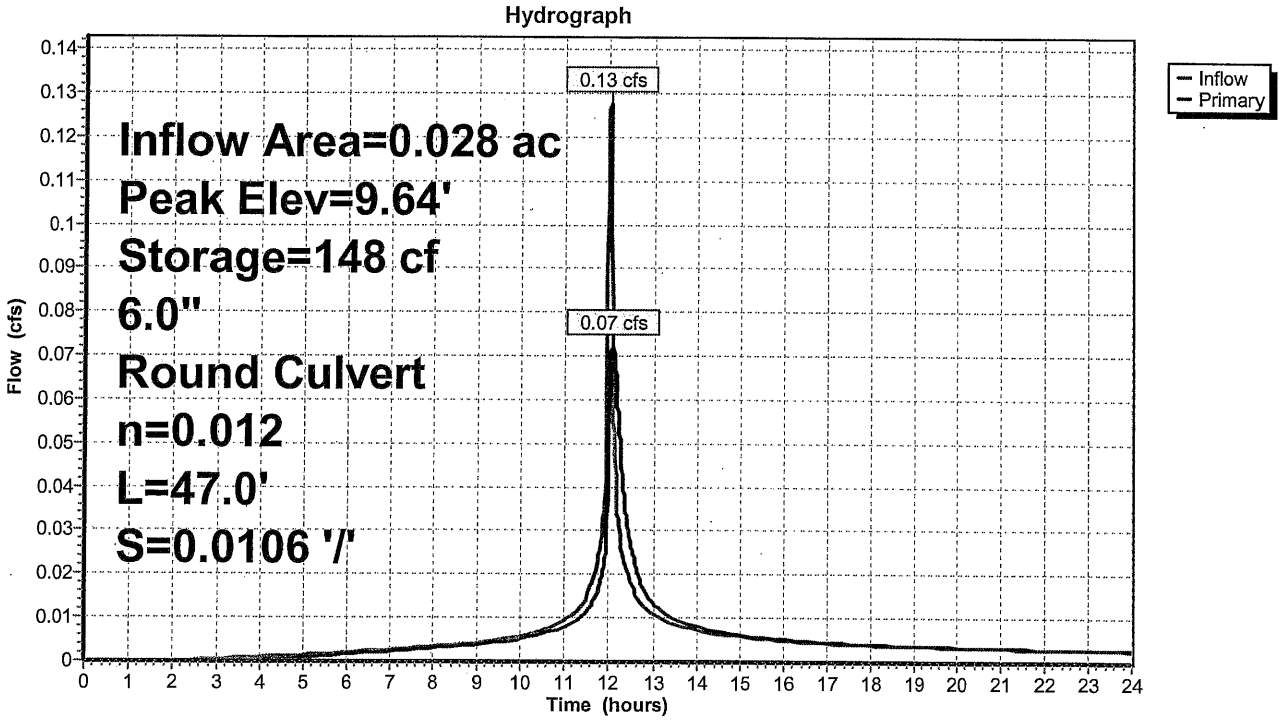
Volume	Invert	Avail.Storage	Storage Description
#1	9.12'	586 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
9.12	810	126.0	0.0	0	0	810
10.28	810	126.0	35.0	329	329	956
10.53	810	126.0	20.0	41	369	988
11.53	810	126.0	10.0	81	450	1,114
11.87	810	126.0	20.0	55	505	1,157
12.20	810	126.0	30.0	80	586	1,198

Device	Routing	Invert	Outlet Devices
#1	Primary	9.45'	**6.0" Round Culvert** L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.45' / 8.95' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.07 cfs @ 12.06 hrs HW=9.64' TW=9.37' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.07 cfs @ 1.55 fps)

Pond PP4: Porous Pave 4



Summary for Pond PP5: Porous Pave 5

Inflow Area = 0.098 ac, 83.09% Impervious, Inflow Depth > 4.76" for 10-yr event
Inflow = 0.41 cfs @ 12.01 hrs, Volume= 0.039 af
Outflow = 0.30 cfs @ 12.05 hrs, Volume= 0.038 af, Atten= 25%, Lag= 2.3 min
Primary = 0.30 cfs @ 12.05 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 8.95' Surf.Area= 810 sf Storage= 94 cf
Peak Elev= 9.37' @ 12.05 hrs Surf.Area= 810 sf Storage= 212 cf (118 cf above start)
Flood Elev= 11.70' Surf.Area= 810 sf Storage= 586 cf (492 cf above start)

Plug-Flow detention time= 80.7 min calculated for 0.036 af (93% of inflow)
Center-of-Mass det. time= 12.0 min (796.1 - 784.1)

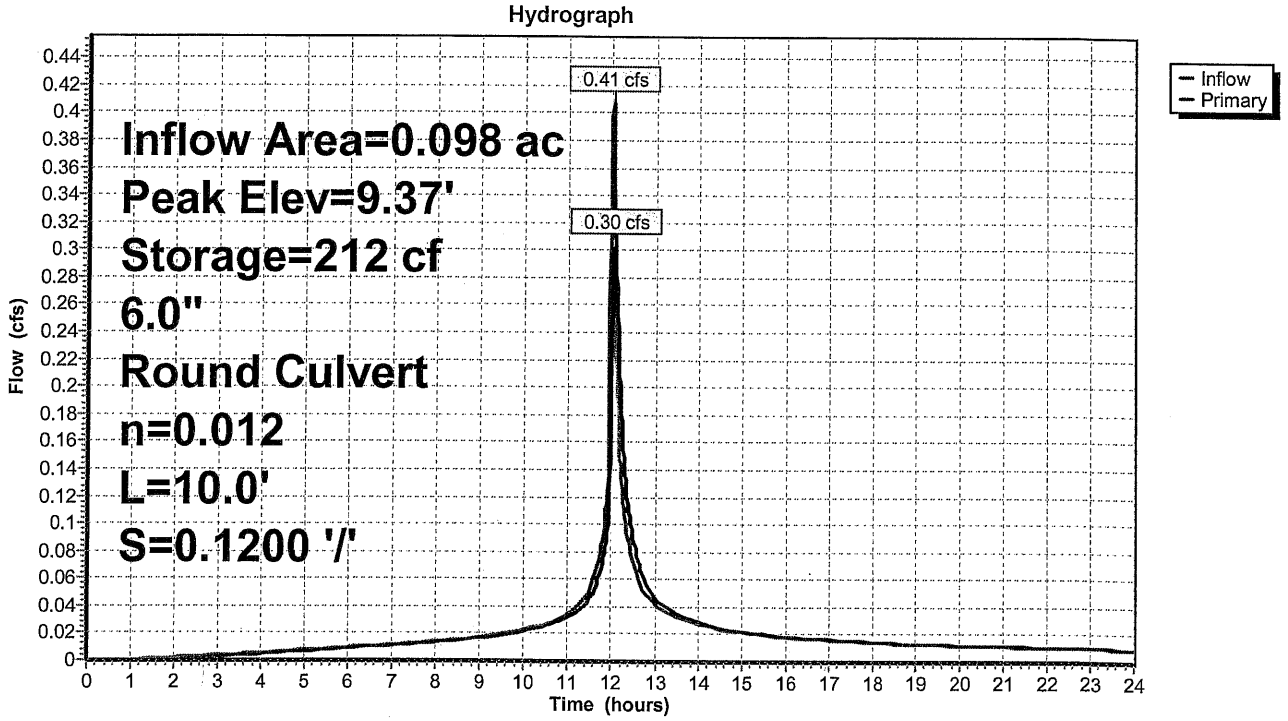
Volume	Invert	Avail.Storage	Storage Description
#1	8.62'	586 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.62	810	126.0	0.0	0	0	810
9.78	810	126.0	35.0	329	329	956
10.03	810	126.0	20.0	41	369	988
11.03	810	126.0	10.0	81	450	1,114
11.37	810	126.0	20.0	55	505	1,157
11.70	810	126.0	30.0	80	586	1,198

Device	Routing	Invert	Outlet Devices
#1	Primary	8.95'	**6.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.95' / 7.75' S= 0.1200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.30 cfs @ 12.05 hrs HW=9.37' TW=7.87' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.30 cfs @ 1.73 fps)

Pond PP5: Porous Pave 5



Summary for Pond PP6: Porous Pave 6

Inflow Area = 0.086 ac, 83.84% Impervious, Inflow Depth > 4.83" for 10-yr event
Inflow = 0.42 cfs @ 12.00 hrs, Volume= 0.034 af
Outflow = 0.22 cfs @ 12.05 hrs, Volume= 0.034 af, Atten= 49%, Lag= 3.1 min
Primary = 0.22 cfs @ 12.05 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.05' Surf.Area= 1,826 sf Storage= 211 cf
Peak Elev= 9.38' @ 12.05 hrs Surf.Area= 1,826 sf Storage= 425 cf (214 cf above start)
Flood Elev= 11.80' Surf.Area= 1,826 sf Storage= 1,320 cf (1,109 cf above start)

Plug-Flow detention time= 176.1 min calculated for 0.029 af (83% of inflow)
Center-of-Mass det. time= 28.0 min (805.1 - 777.1)

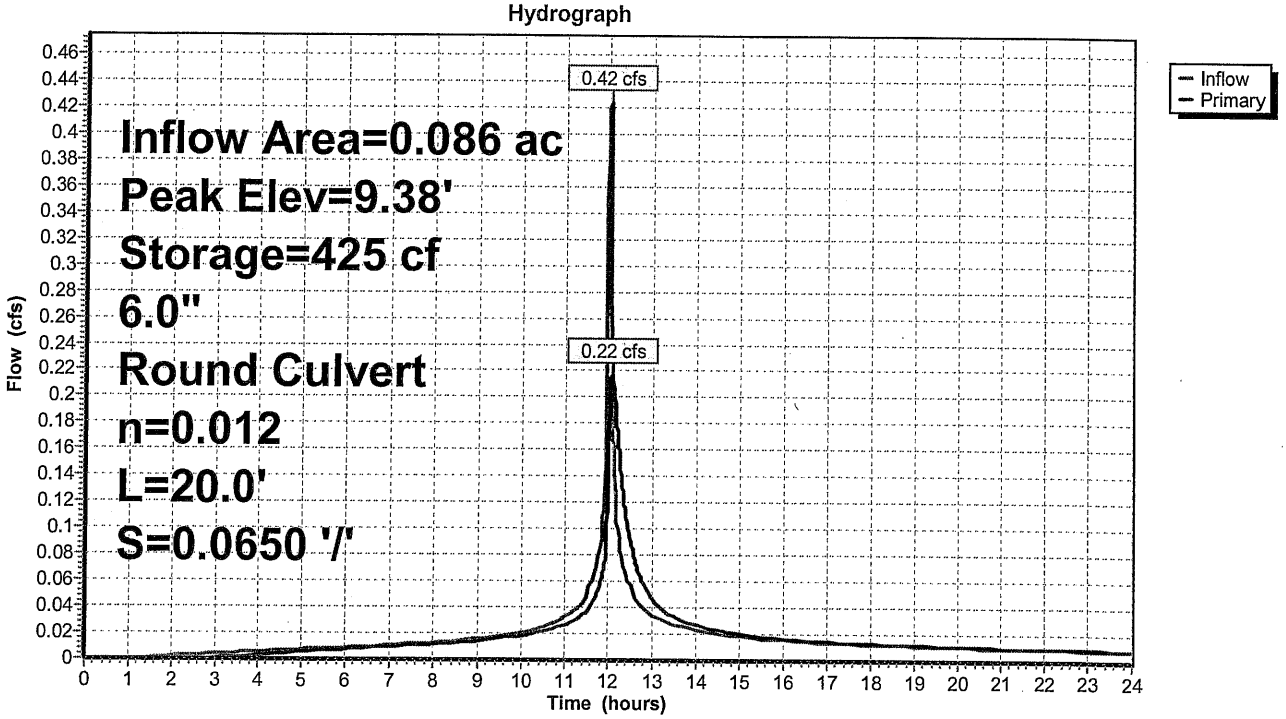
Volume	Invert	Avail.Storage	Storage Description
#1	8.72'	1,320 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.72	1,826	191.7	0.0	0	0	1,826
9.88	1,826	191.7	35.0	741	741	2,048
10.13	1,826	191.7	20.0	91	833	2,096
11.13	1,826	191.7	10.0	183	1,015	2,288
11.47	1,826	191.7	20.0	124	1,139	2,353
11.80	1,826	191.7	30.0	181	1,320	2,416

Device	Routing	Invert	Outlet Devices
#1	Primary	9.05'	**6.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.05' / 7.75' S= 0.0650 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.22 cfs @ 12.05 hrs HW=9.38' TW=7.87' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.22 cfs @ 1.55 fps)

Pond PP6: Porous Pave 6



Summary for Pond PP7: Porous Pave 7

Inflow Area = 0.229 ac, 82.18% Impervious, Inflow Depth > 4.81" for 10-yr event
Inflow = 1.06 cfs @ 12.00 hrs, Volume= 0.092 af
Outflow = 0.47 cfs @ 12.11 hrs, Volume= 0.090 af, Atten= 56%, Lag= 6.5 min
Primary = 0.47 cfs @ 12.11 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 6.55' Surf.Area= 2,298 sf Storage= 265 cf
Peak Elev= 7.23' @ 12.11 hrs Surf.Area= 2,298 sf Storage= 815 cf (550 cf above start)
Flood Elev= 9.30' Surf.Area= 2,298 sf Storage= 1,661 cf (1,396 cf above start)

Plug-Flow detention time= 110.1 min calculated for 0.084 af (91% of inflow)
Center-of-Mass det. time= 25.0 min (802.3 - 777.3)

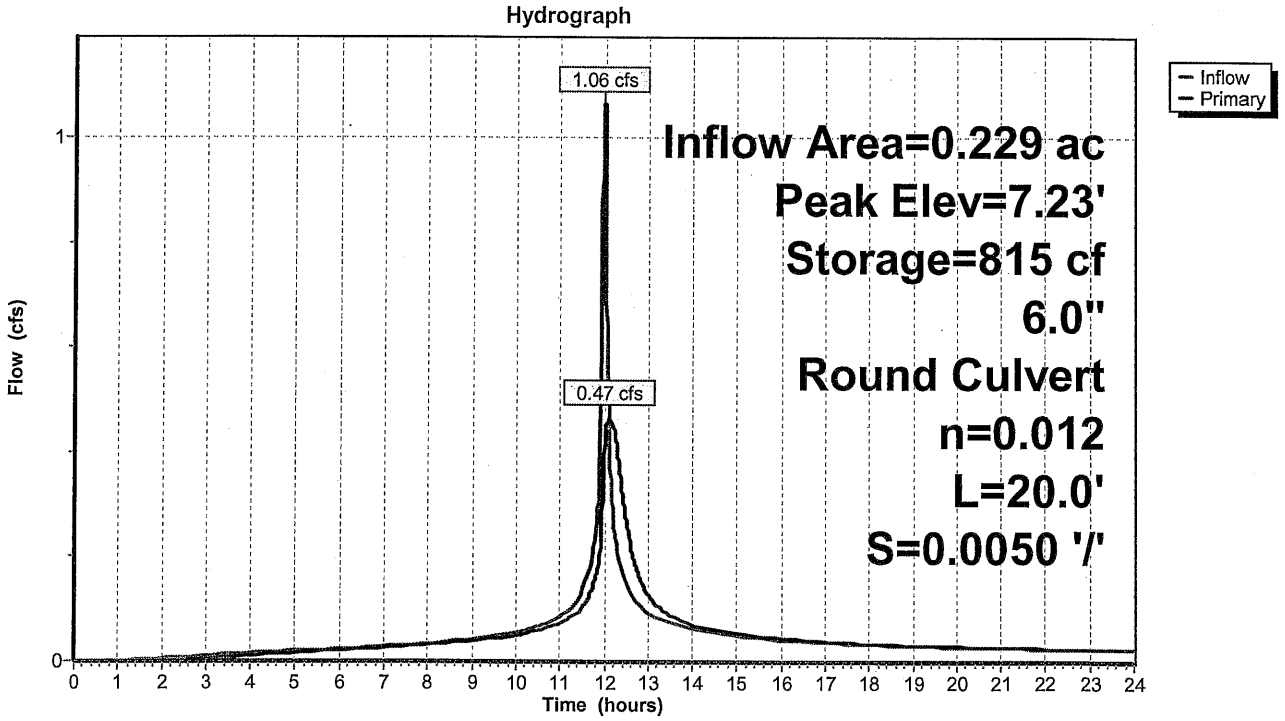
Volume	Invert	Avail.Storage	Storage Description
#1	6.22'	1,661 cf	**Porous Pave 1 (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.22	2,298	239.8	0.0	0	0	2,298
7.38	2,298	239.8	35.0	933	933	2,576
7.63	2,298	239.8	20.0	115	1,048	2,636
8.63	2,298	239.8	10.0	230	1,278	2,876
8.97	2,298	239.8	20.0	156	1,434	2,957
9.30	2,298	239.8	30.0	228	1,661	3,037

Device	Routing	Invert	Outlet Devices
#1	Primary	6.55'	**6.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.55' / 6.45' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.47 cfs @ 12.11 hrs HW=7.23' TW=4.07' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.47 cfs @ 2.37 fps)

Pond PP7: Porous Pave 7



Summary for Pond RG1: Rain Garden 1

Inflow Area = 1.264 ac, 41.31% Impervious, Inflow Depth > 4.26" for 10-yr event
Inflow = 3.52 cfs @ 12.14 hrs, Volume= 0.449 af
Outflow = 1.08 cfs @ 12.56 hrs, Volume= 0.436 af, Atten= 69%, Lag= 24.8 min
Primary = 1.08 cfs @ 12.56 hrs, Volume= 0.436 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 6.42' Surf.Area= 4,313 sf Storage= 498 cf
Peak Elev= 9.43' @ 12.54 hrs Surf.Area= 5,158 sf Storage= 4,630 cf (4,132 cf above start)
Flood Elev= 10.10' Surf.Area= 6,034 sf Storage= 8,417 cf (7,918 cf above start)

Plug-Flow detention time= 84.4 min calculated for 0.424 af (95% of inflow)
Center-of-Mass det. time= 40.1 min (855.0 - 814.9)

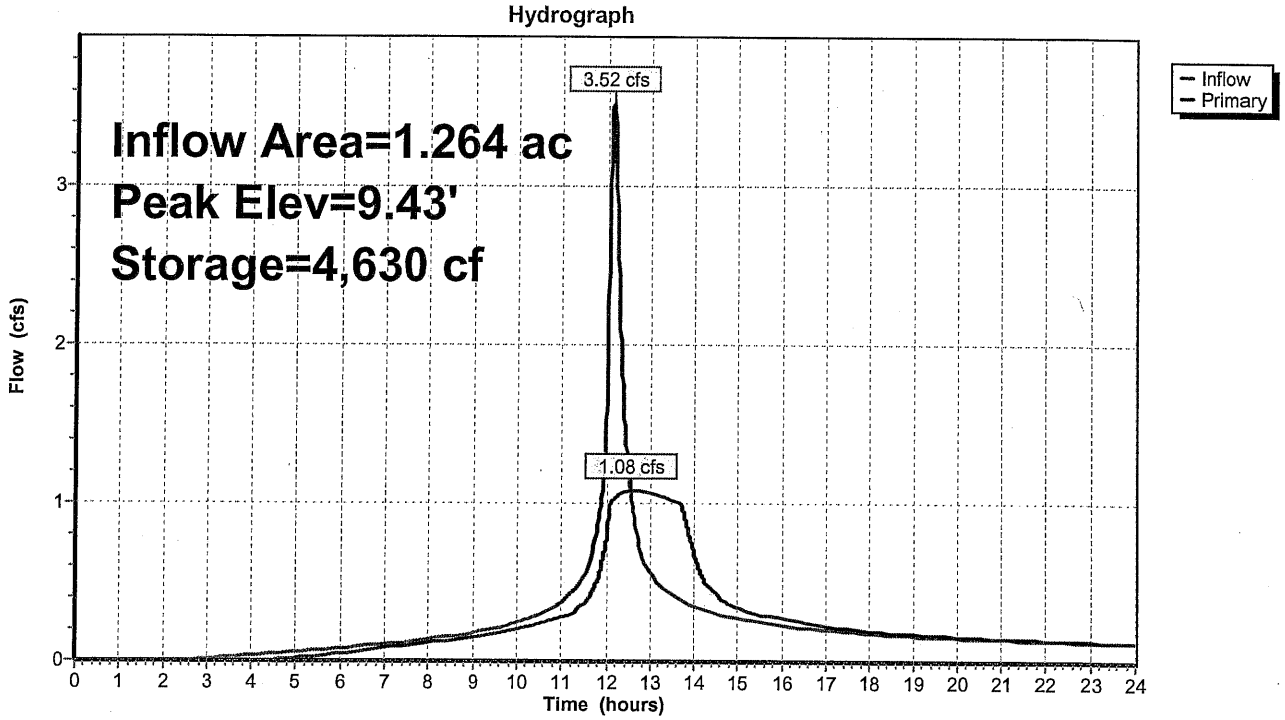
Volume	Invert	Avail.Storage	Storage Description
#1	6.09'	8,417 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.09	4,313	341.3	0.0	0	0	4,313
7.25	4,313	341.3	35.0	1,751	1,751	4,709
7.50	4,313	341.3	20.0	216	1,967	4,794
9.00	4,313	341.3	10.0	647	2,614	5,306
9.50	5,311	481.6	100.0	2,402	5,015	14,496
10.10	6,034	489.4	100.0	3,401	8,417	15,165

Device	Routing	Invert	Outlet Devices
#1	Primary	6.42'	**12.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.42' / 6.35' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	6.42'	**6.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.42' / 6.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#3	Device 1	9.50'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	10.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.08 cfs @ 12.56 hrs HW=9.43' TW=6.94' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.08 cfs of 4.70 cfs potential flow)
  ├**2=Culvert** (Outlet Controls 1.08 cfs @ 5.51 fps)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG1: Rain Garden 1



Summary for Pond RG2: Rain Garden 2

Inflow Area = 0.205 ac, 46.44% Impervious, Inflow Depth > 3.47" for 10-yr event
Inflow = 0.40 cfs @ 12.11 hrs, Volume= 0.059 af
Outflow = 0.36 cfs @ 12.16 hrs, Volume= 0.059 af, Atten= 9%, Lag= 2.9 min
Primary = 0.36 cfs @ 12.16 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 7.67' Surf.Area= 338 sf Storage= 39 cf
Peak Elev= 8.39' @ 12.16 hrs Surf.Area= 338 sf Storage= 124 cf (85 cf above start)
Flood Elev= 11.00' Surf.Area= 594 sf Storage= 551 cf (512 cf above start)

Plug-Flow detention time= 28.3 min calculated for 0.058 af (98% of inflow)
Center-of-Mass det. time= 6.3 min (841.9 - 835.6)

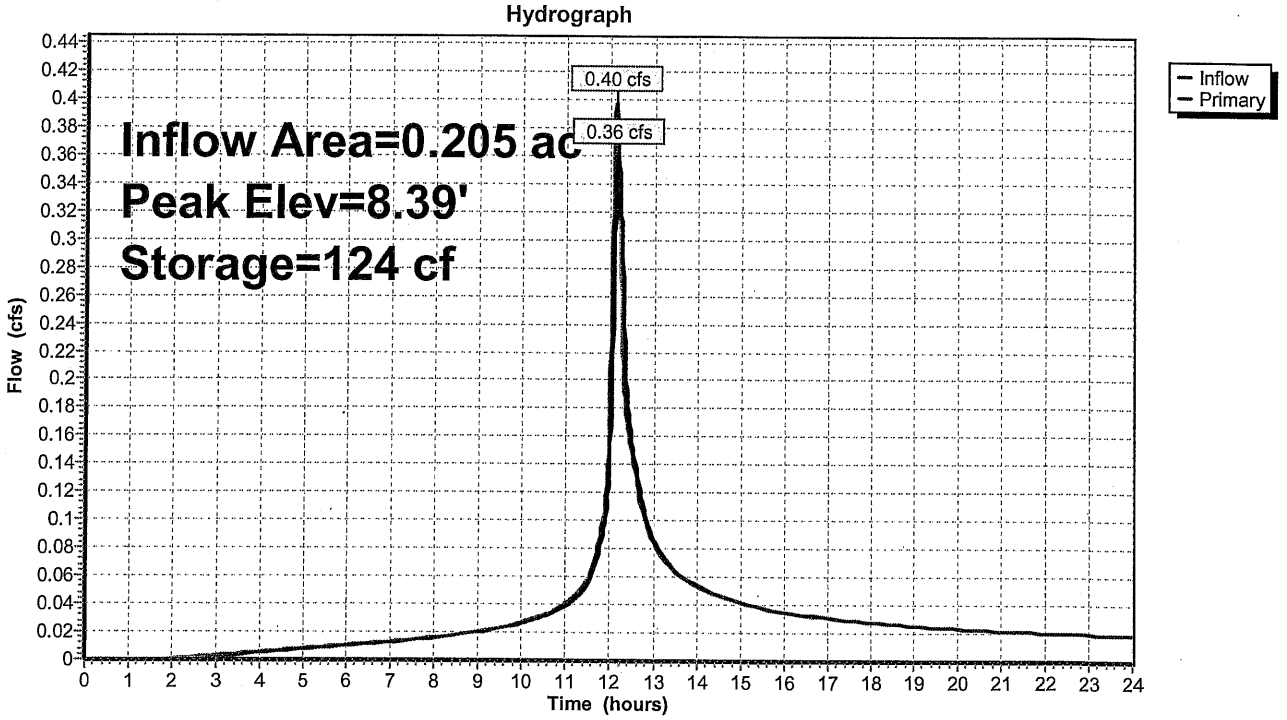
Volume	Invert	Avail.Storage	Storage Description
#1	7.34'	551 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.34	338	106.9	0.0	0	0	338
8.50	338	106.9	35.0	137	137	462
8.75	338	106.9	20.0	17	154	489
10.25	338	106.9	10.0	51	205	649
10.75	505	116.3	100.0	209	414	825
11.00	594	121.0	100.0	137	551	919

Device	Routing	Invert	Outlet Devices
#1	Primary	6.55'	**12.0" Round Culvert** L= 116.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.55' / 5.70' S= 0.0073 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	7.67'	**6.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.67' / 7.67' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#3	Device 1	10.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.16 hrs HW=8.39' TW=6.33' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.36 cfs of 3.82 cfs potential flow)
  ├─**2=Culvert** (Barrel Controls 0.36 cfs @ 1.83 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG2: Rain Garden 2



Summary for Pond RG3: Rain Garden 3

Inflow Area = 0.481 ac, 26.66% Impervious, Inflow Depth > 3.24" for 10-yr event
Inflow = 0.87 cfs @ 12.23 hrs, Volume= 0.130 af
Outflow = 0.82 cfs @ 12.29 hrs, Volume= 0.129 af, Atten= 6%, Lag= 3.9 min
Primary = 0.82 cfs @ 12.29 hrs, Volume= 0.129 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 5.42' Surf.Area= 631 sf Storage= 73 cf
Peak Elev= 7.55' @ 12.29 hrs Surf.Area= 631 sf Storage= 354 cf (281 cf above start)
Flood Elev= 9.00' Surf.Area= 1,049 sf Storage= 1,217 cf (1,144 cf above start)

Plug-Flow detention time= 25.7 min calculated for 0.127 af (98% of inflow)
Center-of-Mass det. time= 7.6 min (871.2 - 863.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5.09'	1,217 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

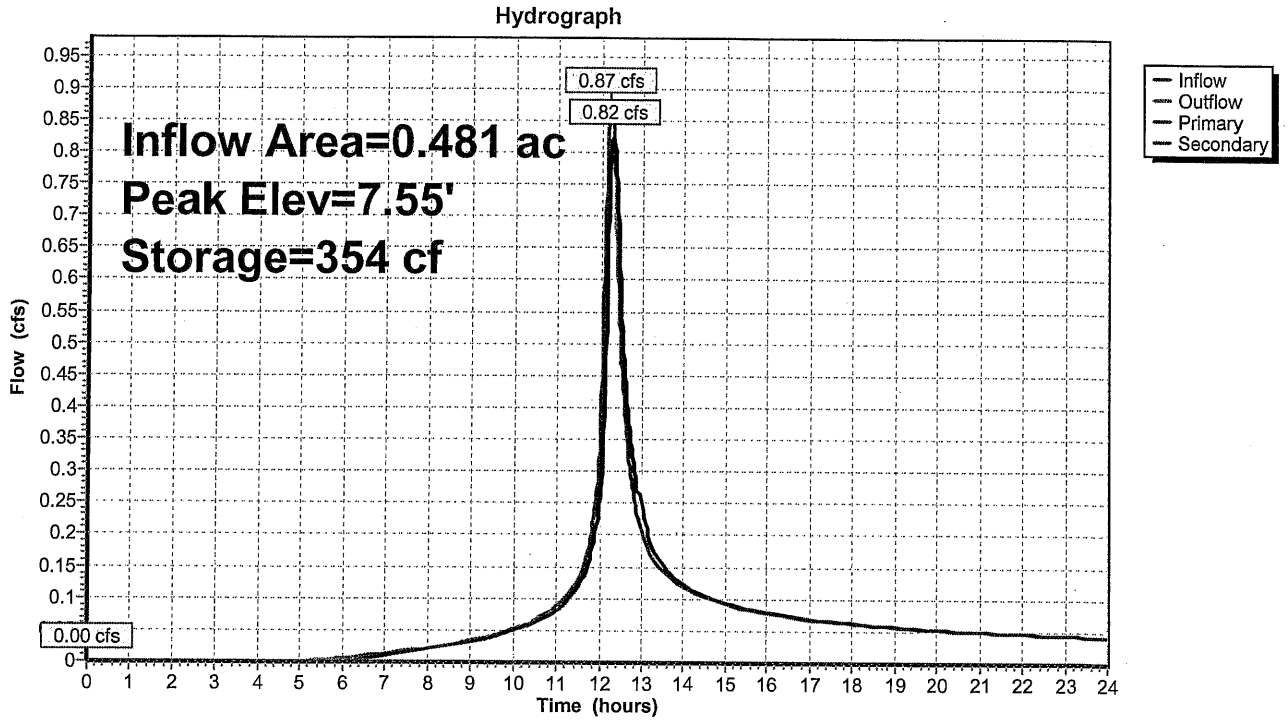
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
5.09	631	129.7	0.0	0	0	631
6.25	631	129.7	35.0	256	256	781
6.50	631	129.7	20.0	32	288	814
8.00	631	129.7	10.0	95	382	1,008
8.50	833	139.2	100.0	365	747	1,223
9.00	1,049	148.6	100.0	469	1,217	1,450

Device	Routing	Invert	Outlet Devices
#1	Primary	5.42'	**6.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.42' / 5.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Secondary	8.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.82 cfs @ 12.29 hrs HW=7.55' TW=5.69' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.82 cfs @ 4.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.42' TW=4.80' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond RG3: Rain Garden 3



Summary for Pond RG4: Rain Garden 4

Inflow Area = 0.099 ac, 71.56% Impervious, Inflow Depth > 4.49" for 10-yr event
Inflow = 0.47 cfs @ 12.01 hrs, Volume= 0.037 af
Outflow = 0.43 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 7%, Lag= 1.1 min
Primary = 0.43 cfs @ 12.03 hrs, Volume= 0.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 7.17' Surf.Area= 193 sf Storage= 5 cf
Peak Elev= 7.99' @ 12.03 hrs Surf.Area= 193 sf Storage= 61 cf (56 cf above start)
Flood Elev= 10.75' Surf.Area= 438 sf Storage= 271 cf (265 cf above start)

Plug-Flow detention time= 11.8 min calculated for 0.037 af (99% of inflow)
Center-of-Mass det. time= 4.6 min (800.6 - 796.0)

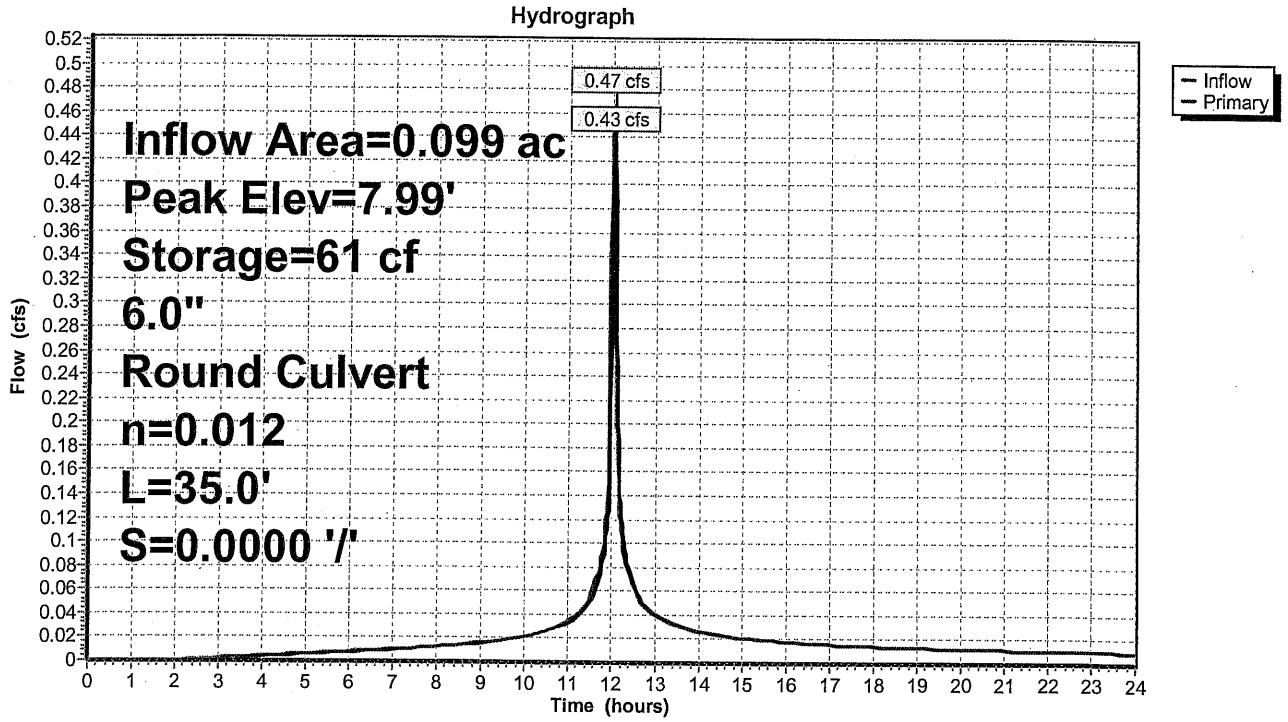
Volume	Invert	Avail.Storage	Storage Description
#1	7.09'	271 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.09	193	74.0	0.0	0	0	193
8.25	193	74.0	35.0	78	78	279
8.50	193	74.0	20.0	10	88	297
10.00	193	74.0	10.0	29	117	408
10.50	438	104.3	100.0	154	271	841

Device	Routing	Invert	Outlet Devices
#1	Primary	7.17'	**6.0" Round Culvert**
			L= 35.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 7.17' / 7.17' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.43 cfs @ 12.03 hrs HW=7.99' TW=7.18' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.43 cfs @ 2.20 fps)

Pond RG4: Rain Garden 4

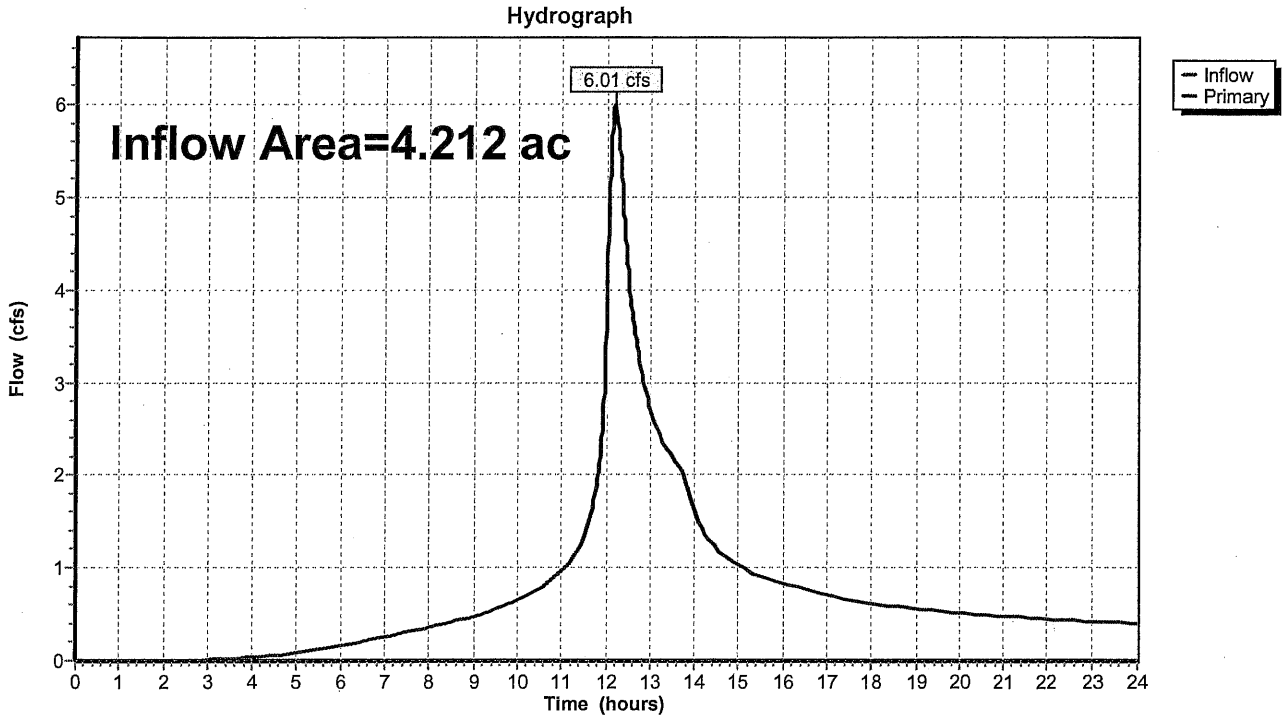


Summary for Link LB: Little Bay

Inflow Area = 4.212 ac, 51.33% Impervious, Inflow Depth > 3.99" for 10-yr event
Inflow = 6.01 cfs @ 12.20 hrs, Volume= 1.400 af
Primary = 6.01 cfs @ 12.20 hrs, Volume= 1.400 af, Atten= 0%, Lag= 0.0 min

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

Link LB: Little Bay



A – 2

NODE LISTING – 25-YR

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

Subcatchment 1: 1 Runoff Area=55,061 sf 41.31% Impervious Runoff Depth>5.70"
Flow Length=126' Tc=14.4 min CN=89 Runoff=4.64 cfs 0.601 af

Subcatchment 2: 2 Runoff Area=13,289 sf 96.31% Impervious Runoff Depth>6.66"
Flow Length=27' Slope=0.0100 '/' Tc=0.2 min CN=97 Runoff=2.00 cfs 0.169 af

Subcatchment 3: 3 Runoff Area=3,525 sf 1.02% Impervious Runoff Depth>4.04"
Flow Length=81' Slope=0.0290 '/' Tc=9.7 min CN=74 Runoff=0.26 cfs 0.027 af

Subcatchment 4: 4 Runoff Area=5,425 sf 75.94% Impervious Runoff Depth>6.05"
Flow Length=68' Slope=0.0120 '/' Tc=12.0 min CN=92 Runoff=0.52 cfs 0.063 af

Subcatchment 5: 5 Runoff Area=20,950 sf 26.66% Impervious Runoff Depth>4.57"
Flow Length=359' Tc=20.7 min CN=79 Runoff=1.23 cfs 0.183 af

Subcatchment 6: 6 Runoff Area=12,870 sf 88.41% Impervious Runoff Depth>6.42"
Flow Length=15' Slope=0.0750 '/' Tc=1.7 min CN=95 Runoff=1.92 cfs 0.158 af

Subcatchment 7: 7 Runoff Area=6,009 sf 89.13% Impervious Runoff Depth>6.42"
Flow Length=27' Slope=0.0200 '/' Tc=2.9 min CN=95 Runoff=0.88 cfs 0.074 af

Subcatchment 8: 8 Runoff Area=6,740 sf 30.82% Impervious Runoff Depth>4.81"
Flow Length=161' Slope=0.0500 '/' Tc=9.8 min CN=81 Runoff=0.59 cfs 0.062 af

Subcatchment 9: 9 Runoff Area=1,205 sf 67.63% Impervious Runoff Depth>5.84"
Flow Length=12' Slope=0.0100 '/' Tc=3.2 min CN=90 Runoff=0.17 cfs 0.013 af

Subcatchment 10: 10 Runoff Area=3,052 sf 89.19% Impervious Runoff Depth>6.42"
Flow Length=16' Slope=0.0160 '/' Tc=3.4 min CN=95 Runoff=0.44 cfs 0.037 af

Subcatchment 11: 11 Runoff Area=3,725 sf 83.84% Impervious Runoff Depth>6.30"
Flow Length=18' Slope=0.0390 '/' Tc=2.6 min CN=94 Runoff=0.55 cfs 0.045 af

Subcatchment 12: 12 Runoff Area=4,318 sf 71.56% Impervious Runoff Depth>5.95"
Flow Length=34' Slope=0.0890 '/' Tc=3.1 min CN=91 Runoff=0.61 cfs 0.049 af

Subcatchment 13: 13 Runoff Area=5,669 sf 90.26% Impervious Runoff Depth>6.54"
Flow Length=18' Tc=1.3 min CN=96 Runoff=0.85 cfs 0.071 af

Subcatchment 14: 14 Runoff Area=7,934 sf 54.15% Impervious Runoff Depth>5.49"
Flow Length=60' Slope=0.0480 '/' Tc=6.2 min CN=87 Runoff=0.92 cfs 0.083 af

Subcatchment 15: 15 Runoff Area=27,197 sf 40.11% Impervious Runoff Depth>5.01"
Flow Length=170' Tc=20.7 min CN=83 Runoff=1.73 cfs 0.261 af

Subcatchment 16: 16 Runoff Area=6,490 sf 0.00% Impervious Runoff Depth>4.06"
Flow Length=36' Slope=0.1670 '/' Tc=2.5 min CN=74 Runoff=0.68 cfs 0.050 af

Reach R1: R1 Avg. Flow Depth=0.25' Max Vel=0.34 fps Inflow=0.59 cfs 0.062 af
n=0.070 L=26.0' S=0.0019 '/' Capacity=6.79 cfs Outflow=0.58 cfs 0.062 af

Reach R2: R2 Avg. Flow Depth=0.13' Max Vel=2.90 fps Inflow=0.67 cfs 0.094 af
n=0.050 L=16.0' S=0.2406 '/' Capacity=11.48 cfs Outflow=0.67 cfs 0.094 af

Reach R3: R3 Avg. Flow Depth=0.44' Max Vel=0.37 fps Inflow=1.23 cfs 0.156 af
n=0.070 L=44.0' S=0.0011 '/' Capacity=5.22 cfs Outflow=1.20 cfs 0.156 af

Reach R4: R4 Avg. Flow Depth=0.32' Max Vel=0.92 fps Inflow=2.06 cfs 0.324 af
n=0.050 L=77.0' S=0.0053 '/' Capacity=15.83 cfs Outflow=2.05 cfs 0.323 af

Reach R5: R5 Avg. Flow Depth=0.37' Max Vel=0.74 fps Inflow=2.05 cfs 0.323 af
n=0.050 L=185.0' S=0.0029 '/' Capacity=11.72 cfs Outflow=1.96 cfs 0.322 af

Reach TS1: TS1 Avg. Flow Depth=0.38' Max Vel=0.44 fps Inflow=0.92 cfs 0.083 af
n=0.120 L=110.0' S=0.0064 '/' Capacity=1.28 cfs Outflow=0.78 cfs 0.083 af

Pond DMH1: DMH1 Peak Elev=7.10' Inflow=1.57 cfs 0.586 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.57 cfs 0.586 af

Pond DMH2: DMH2 Peak Elev=6.47' Inflow=2.32 cfs 0.831 af
18.0" Round Culvert n=0.012 L=178.0' S=0.0051 '/' Outflow=2.32 cfs 0.831 af

Pond DMH3: DMH3 Peak Elev=5.77' Inflow=3.88 cfs 1.227 af
18.0" Round Culvert n=0.012 L=89.0' S=0.0051 '/' Outflow=3.88 cfs 1.227 af

Pond DP1: DP1 Peak Elev=11.25' Storage=374 cf Inflow=0.26 cfs 0.027 af
Outflow=0.17 cfs 0.020 af

Pond OS-RG3: OS-RG3 Peak Elev=5.84' Inflow=1.58 cfs 0.396 af
18.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.58 cfs 0.396 af

Pond PP1: Porous Pave 1 Peak Elev=10.49' Storage=2,370 cf Inflow=2.00 cfs 0.169 af
6.0" Round Culvert n=0.012 L=30.0' S=0.0237 '/' Outflow=0.49 cfs 0.162 af

Pond PP2: Porous Pave 2 Peak Elev=6.25' Storage=2,822 cf Inflow=1.92 cfs 0.158 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.37 cfs 0.145 af

Pond PP3: Porous Pave 3 Peak Elev=6.02' Storage=1,173 cf Inflow=0.88 cfs 0.074 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.26 cfs 0.069 af

Pond PP4: Porous Pave 4 Peak Elev=9.68' Storage=160 cf Inflow=0.17 cfs 0.013 af
6.0" Round Culvert n=0.012 L=47.0' S=0.0106 '/' Outflow=0.09 cfs 0.013 af

Pond PP5: Porous Pave 5 Peak Elev=9.46' Storage=238 cf Inflow=0.53 cfs 0.051 af
6.0" Round Culvert n=0.012 L=10.0' S=0.1200 '/' Outflow=0.38 cfs 0.050 af

Pond PP6: Porous Pave 6 Peak Elev=9.45' Storage=468 cf Inflow=0.55 cfs 0.045 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0650 '/' Outflow=0.29 cfs 0.044 af

Pond PP7: Porous Pave 7 Peak Elev=7.43' Storage=956 cf Inflow=1.37 cfs 0.120 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.59 cfs 0.118 af

Pond RG1: Rain Garden 1 Peak Elev=9.67' Storage=5,963 cf Inflow=4.64 cfs 0.601 af
Outflow=1.57 cfs 0.586 af

Pond RG2: Rain Garden 2 Peak Elev=8.81' Storage=156 cf Inflow=0.64 cfs 0.083 af
Outflow=0.61 cfs 0.083 af

Pond RG3: Rain Garden 3 Peak Elev=8.19' Storage=511 cf Inflow=1.23 cfs 0.183 af
Primary=0.97 cfs 0.182 af Secondary=0.00 cfs 0.000 af Outflow=0.97 cfs 0.182 af

Pond RG4: Rain Garden 4 Peak Elev=8.20' Storage=75 cf Inflow=0.61 cfs 0.049 af
6.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/' Outflow=0.56 cfs 0.049 af

Link LB: Little Bay Inflow=7.83 cfs 1.892 af
Primary=7.83 cfs 1.892 af

Total Runoff Area = 4.212 ac Runoff Volume = 1.947 af Average Runoff Depth = 5.55"
48.67% Pervious = 2.050 ac 51.33% Impervious = 2.162 ac

A – 2

NODE LISTING – 50-YR

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

Subcatchment 1: 1 Runoff Area=55,061 sf 41.31% Impervious Runoff Depth>7.05"
Flow Length=126' Tc=14.4 min CN=89 Runoff=5.67 cfs 0.742 af

Subcatchment 2: 2 Runoff Area=13,289 sf 96.31% Impervious Runoff Depth>8.04"
Flow Length=27' Slope=0.0100 '/' Tc=0.2 min CN=97 Runoff=2.40 cfs 0.204 af

Subcatchment 3: 3 Runoff Area=3,525 sf 1.02% Impervious Runoff Depth>5.27"
Flow Length=81' Slope=0.0290 '/' Tc=9.7 min CN=74 Runoff=0.34 cfs 0.036 af

Subcatchment 4: 4 Runoff Area=5,425 sf 75.94% Impervious Runoff Depth>7.41"
Flow Length=68' Slope=0.0120 '/' Tc=12.0 min CN=92 Runoff=0.62 cfs 0.077 af

Subcatchment 5: 5 Runoff Area=20,950 sf 26.66% Impervious Runoff Depth>5.84"
Flow Length=359' Tc=20.7 min CN=79 Runoff=1.56 cfs 0.234 af

Subcatchment 6: 6 Runoff Area=12,870 sf 88.41% Impervious Runoff Depth>7.80"
Flow Length=15' Slope=0.0750 '/' Tc=1.7 min CN=95 Runoff=2.30 cfs 0.192 af

Subcatchment 7: 7 Runoff Area=6,009 sf 89.13% Impervious Runoff Depth>7.79"
Flow Length=27' Slope=0.0200 '/' Tc=2.9 min CN=95 Runoff=1.06 cfs 0.090 af

Subcatchment 8: 8 Runoff Area=6,740 sf 30.82% Impervious Runoff Depth>6.10"
Flow Length=161' Slope=0.0500 '/' Tc=9.8 min CN=81 Runoff=0.74 cfs 0.079 af

Subcatchment 9: 9 Runoff Area=1,205 sf 67.63% Impervious Runoff Depth>7.19"
Flow Length=12' Slope=0.0100 '/' Tc=3.2 min CN=90 Runoff=0.20 cfs 0.017 af

Subcatchment 10: 10 Runoff Area=3,052 sf 89.19% Impervious Runoff Depth>7.79"
Flow Length=16' Slope=0.0160 '/' Tc=3.4 min CN=95 Runoff=0.53 cfs 0.046 af

Subcatchment 11: 11 Runoff Area=3,725 sf 83.84% Impervious Runoff Depth>7.67"
Flow Length=18' Slope=0.0390 '/' Tc=2.6 min CN=94 Runoff=0.66 cfs 0.055 af

Subcatchment 12: 12 Runoff Area=4,318 sf 71.56% Impervious Runoff Depth>7.31"
Flow Length=34' Slope=0.0890 '/' Tc=3.1 min CN=91 Runoff=0.74 cfs 0.060 af

Subcatchment 13: 13 Runoff Area=5,669 sf 90.26% Impervious Runoff Depth>7.92"
Flow Length=18' Tc=1.3 min CN=96 Runoff=1.02 cfs 0.086 af

Subcatchment 14: 14 Runoff Area=7,934 sf 54.15% Impervious Runoff Depth>6.83"
Flow Length=60' Slope=0.0480 '/' Tc=6.2 min CN=87 Runoff=1.14 cfs 0.104 af

Subcatchment 15: 15 Runoff Area=27,197 sf 40.11% Impervious Runoff Depth>6.32"
Flow Length=170' Tc=20.7 min CN=83 Runoff=2.16 cfs 0.329 af

Subcatchment 16: 16 Runoff Area=6,490 sf 0.00% Impervious Runoff Depth>5.28"
Flow Length=36' Slope=0.1670 '/' Tc=2.5 min CN=74 Runoff=0.88 cfs 0.066 af

Reach R1: R1 Avg. Flow Depth=0.29' Max Vel=0.37 fps Inflow=0.74 cfs 0.079 af
n=0.070 L=26.0' S=0.0019 '/' Capacity=6.79 cfs Outflow=0.73 cfs 0.079 af

Reach R2: R2 Avg. Flow Depth=0.14' Max Vel=3.05 fps Inflow=0.79 cfs 0.115 af
n=0.050 L=16.0' S=0.2406 '/' Capacity=11.48 cfs Outflow=0.79 cfs 0.115 af

Reach R3: R3 Avg. Flow Depth=0.50' Max Vel=0.39 fps Inflow=1.50 cfs 0.193 af
n=0.070 L=44.0' S=0.0011 '/' Capacity=5.22 cfs Outflow=1.47 cfs 0.193 af

Reach R4: R4 Avg. Flow Depth=0.36' Max Vel=0.99 fps Inflow=2.54 cfs 0.402 af
n=0.050 L=77.0' S=0.0053 '/' Capacity=15.83 cfs Outflow=2.53 cfs 0.402 af

Reach R5: R5 Avg. Flow Depth=0.42' Max Vel=0.80 fps Inflow=2.53 cfs 0.402 af
n=0.050 L=185.0' S=0.0029 '/' Capacity=11.72 cfs Outflow=2.44 cfs 0.400 af

Reach TS1: TS1 Avg. Flow Depth=0.43' Max Vel=0.47 fps Inflow=1.14 cfs 0.104 af
n=0.120 L=110.0' S=0.0064 '/' Capacity=1.28 cfs Outflow=0.97 cfs 0.103 af

Pond DMH1: DMH1 Peak Elev=7.31' Inflow=2.31 cfs 0.726 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=2.31 cfs 0.726 af

Pond DMH2: DMH2 Peak Elev=6.67' Inflow=3.26 cfs 1.028 af
18.0" Round Culvert n=0.012 L=178.0' S=0.0051 '/' Outflow=3.26 cfs 1.028 af

Pond DMH3: DMH3 Peak Elev=5.95' Inflow=4.99 cfs 1.523 af
18.0" Round Culvert n=0.012 L=89.0' S=0.0051 '/' Outflow=4.99 cfs 1.523 af

Pond DP1: DP1 Peak Elev=11.27' Storage=406 cf Inflow=0.34 cfs 0.036 af
Outflow=0.28 cfs 0.028 af

Pond OS-RG3: OS-RG3 Peak Elev=6.01' Inflow=1.74 cfs 0.495 af
18.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.74 cfs 0.495 af

Pond PP1: Porous Pave 1 Peak Elev=10.62' Storage=2,655 cf Inflow=2.40 cfs 0.204 af
6.0" Round Culvert n=0.012 L=30.0' S=0.0237 '/' Outflow=0.56 cfs 0.197 af

Pond PP2: Porous Pave 2 Peak Elev=6.46' Storage=3,132 cf Inflow=2.30 cfs 0.192 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.47 cfs 0.178 af

Pond PP3: Porous Pave 3 Peak Elev=6.12' Storage=1,298 cf Inflow=1.06 cfs 0.090 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0000 '/' Outflow=0.29 cfs 0.085 af

Pond PP4: Porous Pave 4 Peak Elev=9.73' Storage=172 cf Inflow=0.20 cfs 0.017 af
6.0" Round Culvert n=0.012 L=47.0' S=0.0106 '/' Outflow=0.11 cfs 0.016 af

Pond PP5: Porous Pave 5 Peak Elev=9.55' Storage=264 cf Inflow=0.63 cfs 0.062 af
6.0" Round Culvert n=0.012 L=10.0' S=0.1200 '/' Outflow=0.44 cfs 0.061 af

Pond PP6: Porous Pave 6 Peak Elev=9.51' Storage=507 cf Inflow=0.66 cfs 0.055 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0650 '/' Outflow=0.35 cfs 0.054 af

Pond PP7: Porous Pave 7 Peak Elev=7.75' Storage=1,076 cf Inflow=1.65 cfs 0.146 af
6.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.73 cfs 0.144 af

Pond RG1: Rain Garden 1 Peak Elev=9.83' Storage=6,841 cf Inflow=5.67 cfs 0.742 af
Outflow=2.31 cfs 0.726 af

Pond RG2: Rain Garden 2 Peak Elev=9.44' Storage=178 cf Inflow=0.89 cfs 0.105 af
Outflow=0.86 cfs 0.105 af

Pond RG3: Rain Garden 3 Peak Elev=8.53' Storage=775 cf Inflow=1.56 cfs 0.234 af
Primary=1.03 cfs 0.232 af Secondary=0.09 cfs 0.001 af Outflow=1.12 cfs 0.233 af

Pond RG4: Rain Garden 4 Peak Elev=8.48' Storage=87 cf Inflow=0.74 cfs 0.060 af
6.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/' Outflow=0.69 cfs 0.060 af

Link LB: Little Bay Inflow=9.49 cfs 2.355 af
Primary=9.49 cfs 2.355 af

Total Runoff Area = 4.212 ac Runoff Volume = 2.414 af Average Runoff Depth = 6.88"
48.67% Pervious = 2.050 ac 51.33% Impervious = 2.162 ac

APPENDIX B

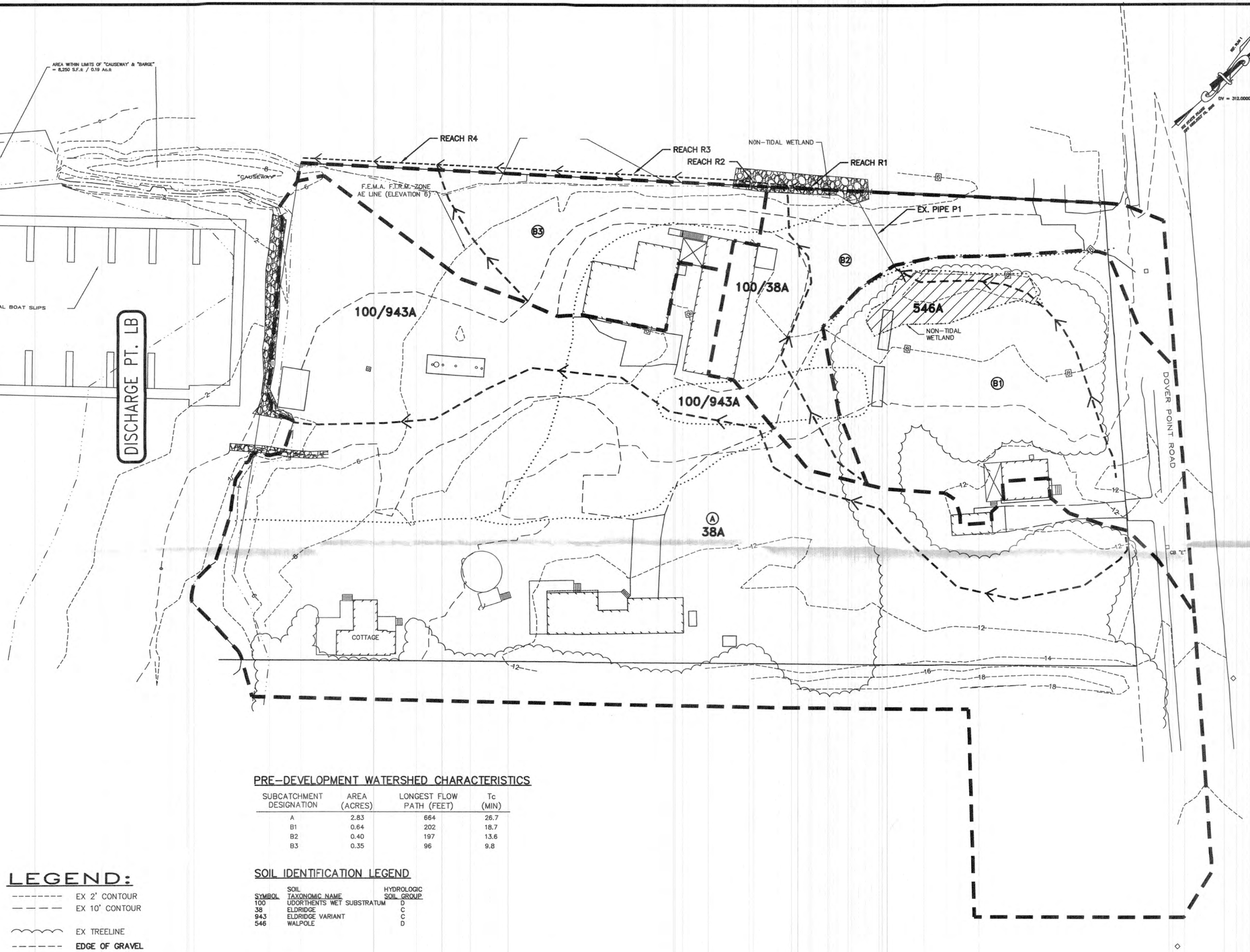
MAPS

B – 1

PRE-DEVELOPED CONDITIONS

B – 2

POST-DEVELOPED CONDITIONS



PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A	2.83	664	26.7
B1	0.64	202	18.7
B2	0.40	197	13.6
B3	0.35	96	9.8

SOIL IDENTIFICATION LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
100	UDORTHENTS WET SUBSTRATUM	D
38	ELDRIDGE	C
943	ELDRIDGE VARIANT	C
546	WALPOLE	D

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- EX TREELINE
- EDGE OF GRAVEL
- PROPERTY LINE
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (5) SUBCATCHMENT DESIGNATION
- SSSS BOUNDARY
- BzB SSSS DESIGNATION

NOTES:

1. SOILS DATA FROM SITE-SPECIFIC SOIL SURVEY REPORT AND MAP, LITTLE BAY MARINA, DOVER, NH, DATED JANUARY 16, 2019, PRODUCED BY GOVE ENVIRONMENTAL SERVICES, INC.
2. TOPOGRAPHIC INFORMATION TAKEN FROM "PLAN OF LAND" PREPARED FOR LITTLE BAY MARINA & DEVELOPMENT, LLC AND RICHARD J.C. & VICTORIA BENN, TAX MAP 8, LOT NOS. 9, 10, 11, & 12 DOVER POINT ROAD & LITTLE BAY, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE, DATED APRIL 1, 2019 PREPARED BE MCENEANEY SURVEY ASSOCIATES, INC.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-9443

NO.	REVISION	APP'D	DATE

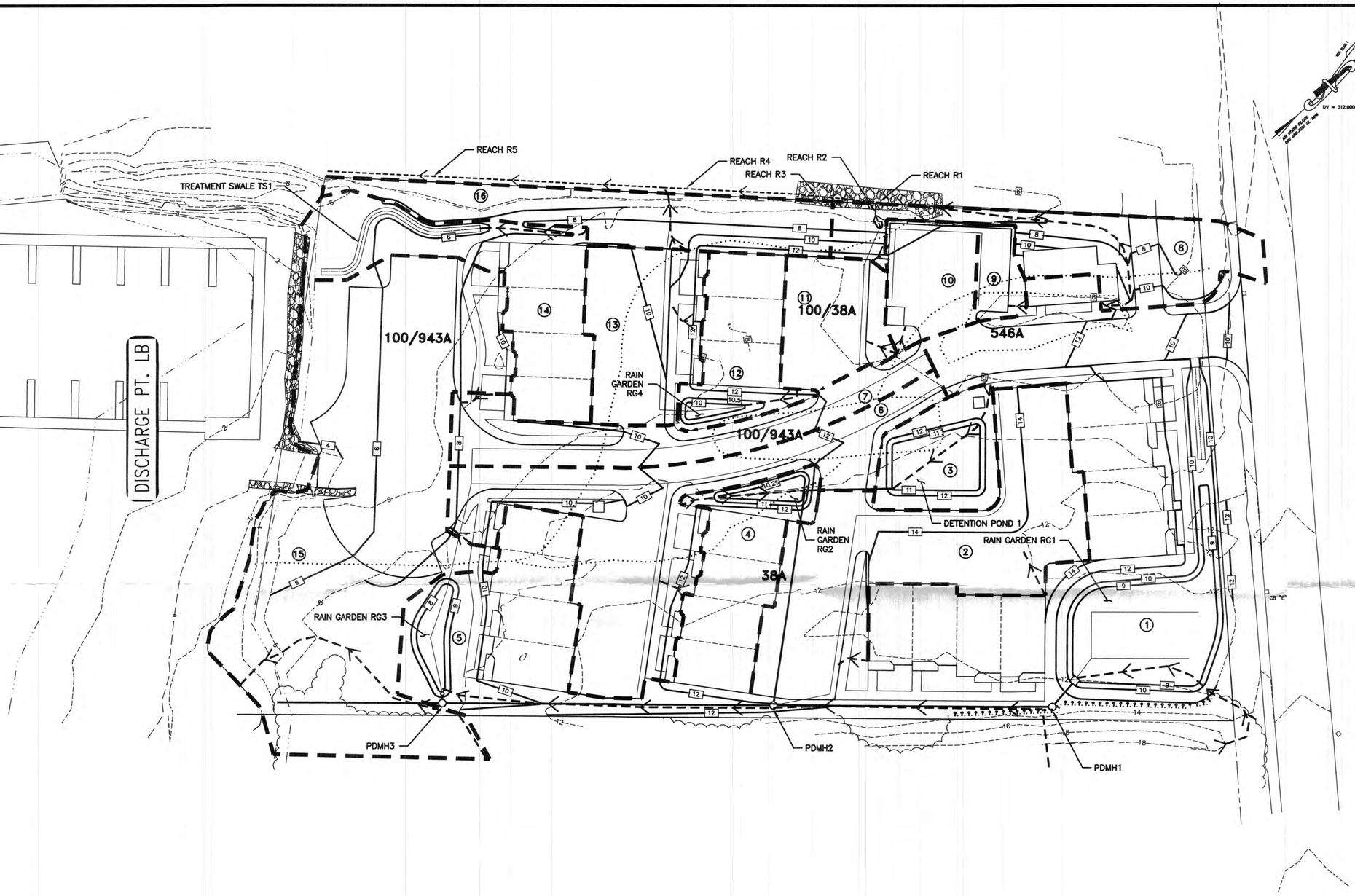
DATE: 6-18-18
SCALE: 1"=30'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:17788
FILE: Dm.DWG

PRE DEVELOPMENT WATERSHED PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

W-1



LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- EX TREELINE
- PROPOSED TREELINE
- PROPERTY LINE
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (5) SUBCATCHMENT DESIGNATION
- SSSS BOUNDARY
- BzB SSSS DESIGNATION

POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
1	1.26	126	14.4
2	0.31	27	0.2
3	0.08	81	9.7
4	0.12	68	12.0
5	0.48	359	20.7
6	0.30	15	1.7
7	0.14	27	2.9
8	0.15	161	9.8
9	0.03	12	3.2
10	0.07	16	3.4
11	0.09	18	2.6
12	0.10	34	3.1
13	0.13	18	1.3
14	0.18	60	6.2
15	0.62	170	20.7
16	0.15	36	2.5

SOIL IDENTIFICATION LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
100	UDORTHENTS WET SUBSTRATUM	D
38	ELDRIDGE	C
943	ELDRIDGE VARIANT	C
546	WALPOLE	D

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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILENO.: P18-____

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1186
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE

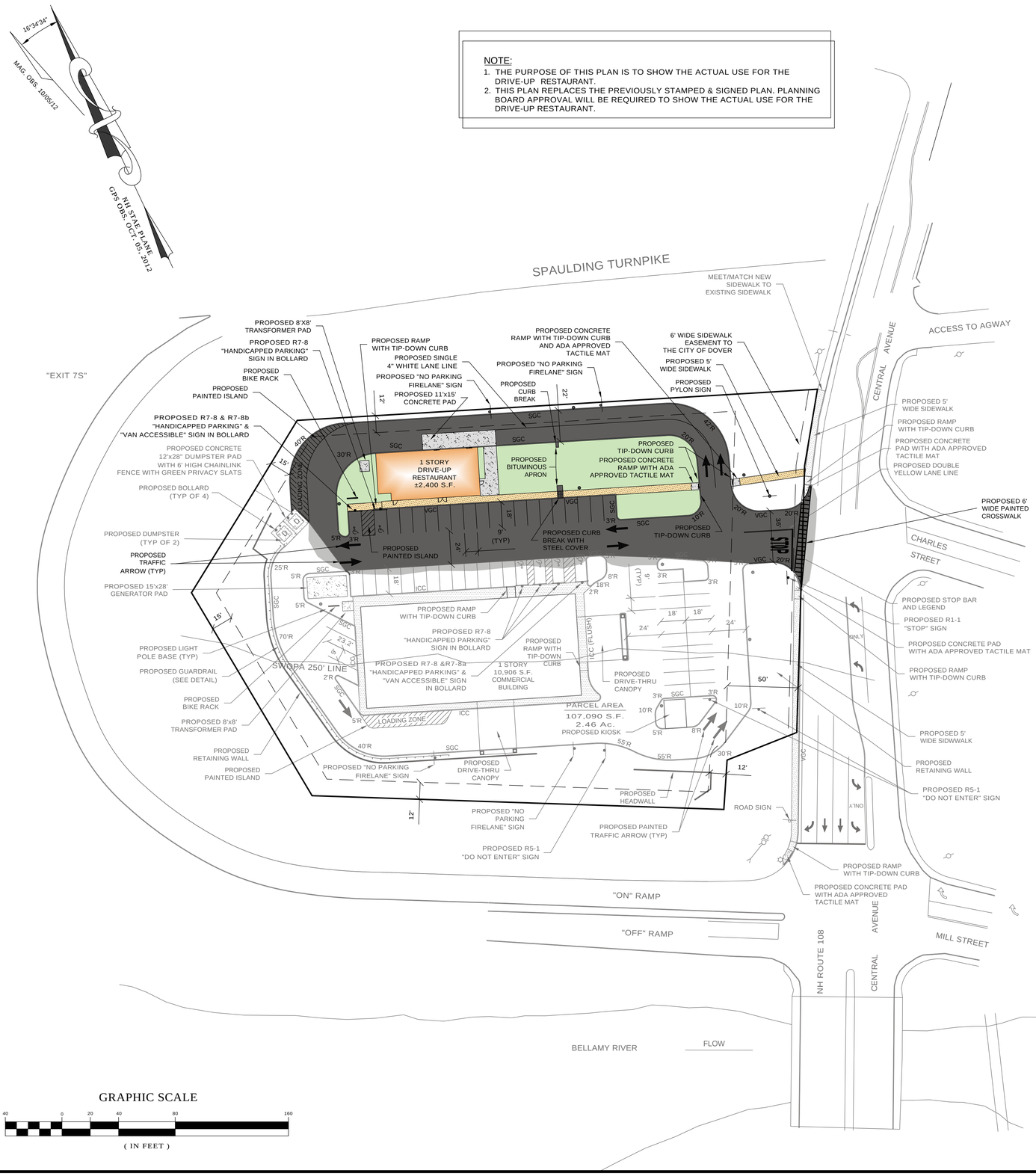
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DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1788
FILE: Drn.DWG

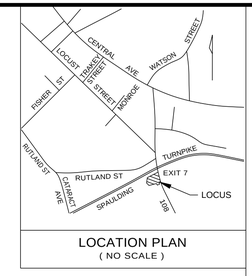
POST DEVELOPMENT WATERSHED PLAN

LITTLE BAY MARINA & DEVELOPMENT, LLC
111 LOUDON ROAD
CONCORD, NH 03301

LITTLE BAY MARINA
DOVER POINT ROAD
DOVER, NH

W-2





LOCATION PLAN
(NO SCALE)

SITE DATA:

1. THE PARCEL IS SHOWN AS LOT 4 ON MAP 15 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
2. THE PROJECT PARCEL CONTAINS 2.46 ACRES OR 107,090 SF.
3. THE PARCEL IS LOCATED IN THE B-5 GATEWAY DISTRICT AND IS SUBJECT TO THE FOLLOWING ZONING DIMENSIONAL AND DENSITY REQUIREMENTS:

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	20,000 S.F.	107,090 S.F
MINIMUM FRONTAGE	125 FT	>243 FT
MINIMUM YARD SETBACKS		
COMMERCIAL BUILDING		
FRONT	50 FT	>121 FT
SIDE	15 FT	>32 FT
REAR	25 FT	>64 FT
RESTAURANT DRIVE-UP BUILDING		
FRONT	50 FT	>215 FT
SIDE	15 FT	26 FT
REAR	25 FT	>67 FT
UNMANNED KIOSK BUILDING		
FRONT	75 FT	75 FT
SIDE	10 FT	>34 FT
REAR	10 FT	>256 FT
MINIMUM OPENSPACE	15%	36.8%
MAXIMUM LOT COVERAGE	50%	13.3%
MAXIMUM BUILDING HEIGHT	40 FT	16 FT

LAND USE CALCULATIONS

	REQUIRED	PROPOSED(%)
BUILDINGS	50% (MAX)	14,208 SF (13.3%)
GREEN SPACE	15% (MIN)	39,422 SF (36.8%)
PAVEMENT/SIDEWALKS	33% (MAX)	53,460 SF (49.9%)

PARKING CALCULATIONS:

	MAX ALLOWED	PROPOSED
10,906 S.F. MEDICAL SPACE 10 EMPLOYEES AND 12 EXAM ROOMS	45@ 88% OF PEAK (51)	40 (4 HANDICAP)
3,000 S.F. RESTAURANT DRIVE-UP	20@100% OF PEAK (18)	20 (2 HANDICAP)
300 S.F. UNMANNED KIOSK	0	0
TOTAL	63	60 (6 HANDICAP)

SITE NOTES:

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A PLAN REFERENCED 1 PREPARED BY MCENEANEY SURVEY ASSOCIATES INC. (SEE EXISTING CONDITIONS SURVEY PLAN THIS PLAN SET)
2. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON A REPRODUCIBLE MYLAR MEDIUM AND IN A DIGITAL DXF FORMAT ON DISK 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.
3. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
4. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
5. ALL ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
7. 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.
8. 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.
9. STRIPE PARKING AREAS AS SHOWN INCLUDING HANDICAP SYMBOLS AND PAINTED ISLANDS. ALL MARKINGS SHALL BE CONSTRUCTED USING WHITE TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M-248-TYPE N.
10. 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.
11. PAINTED ISLANDS SHALL BE 4 INCHES WIDE DIAGONAL LINES 3 FEET ON CENTER.
12. ON-SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
13. LAYOUT OF BUILDING CORNERS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AND SHALL BE BASED UPON THE ARCHITECT'S FINAL FOUNDATION PLAN AND ALL SITE LAYOUT SHALL BE PERFORMED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.
14. SEE DETAILS FOR SIGN LEGENDS.
15. 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 OWNERS 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.
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20. HOURS OF OPERATION FOR DRIVE-THRU 6AM - 9PM.
21. THE PARCEL AND NHDOT SHARE LANDSCAPE/DRAINAGE/ACCESS EASEMENTS AS RECORDED IN SCRD BK 4379 PG 678.
22. THE SITE DESIGN IS IN COMPLIANCE WITH THE APPLICABLE ACCESSIBILITY REGULATIONS 2009 IBC AND ANSI STANDARDS.
23. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.

LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP.)	TYPICAL
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TBR	TO BE REMOVED
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CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

	DATE	APP'D	REVISION	NO.

DATE: 9-12-18
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 1207A
FILE: CONSTRUCTION

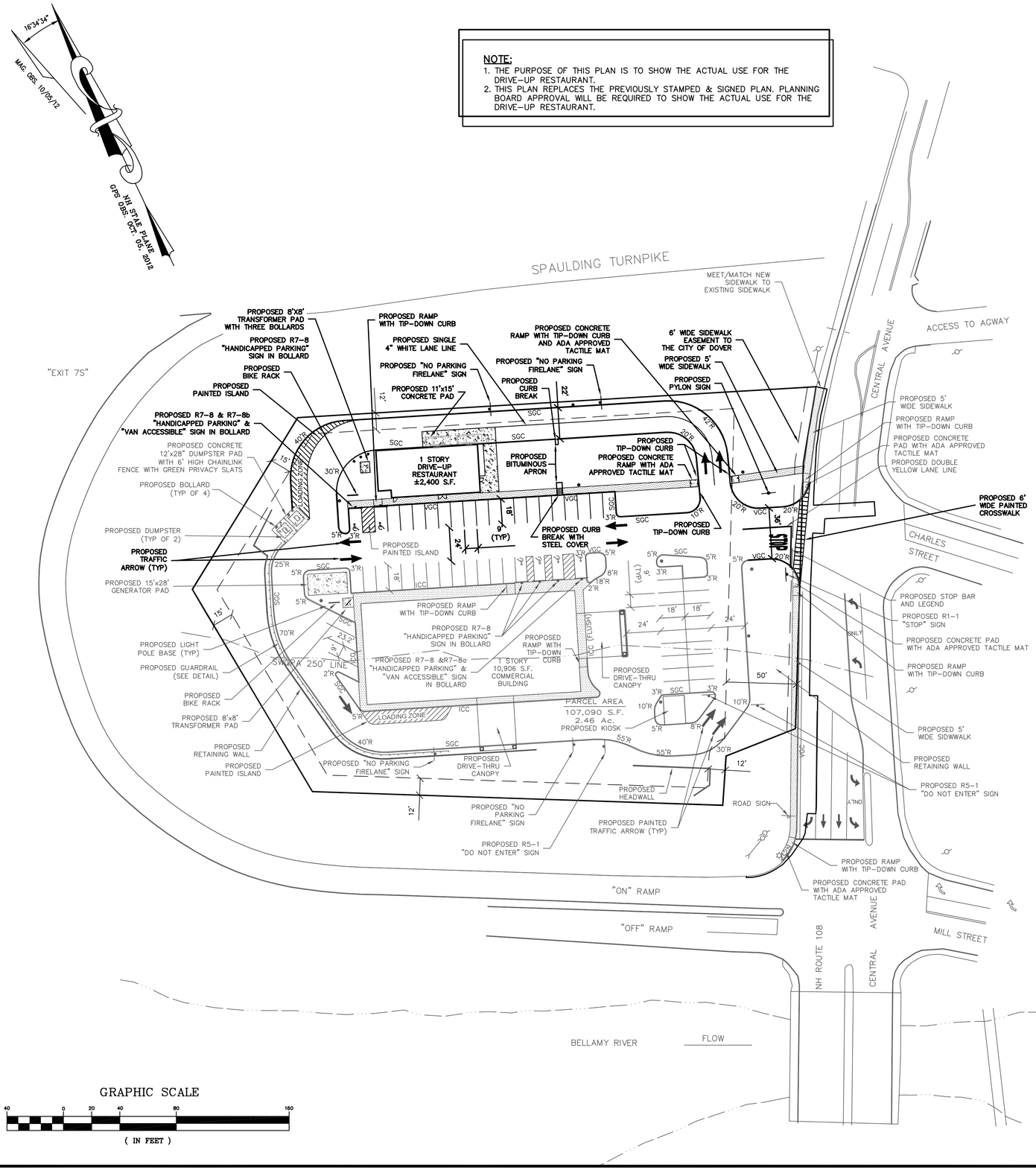
PLANNING FILE NO.: P16-24B

AMMENDED SITE PLAN

7TH SOUTH LLC
340 CENTRAL AVE. SUITE 202
DOVER, NH 03820

EXIT 7
COMMERCIAL CENTER
DOVER, NH

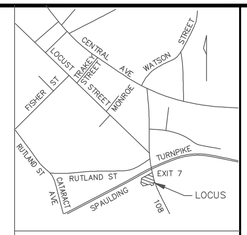
4



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CIVIL ENGINEERING
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Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	REFLECT TENANT FOR REST. BLD	SJH	1/15/19

DATE: 9-12-18
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:1207A
FILE: CONSTRUCTION

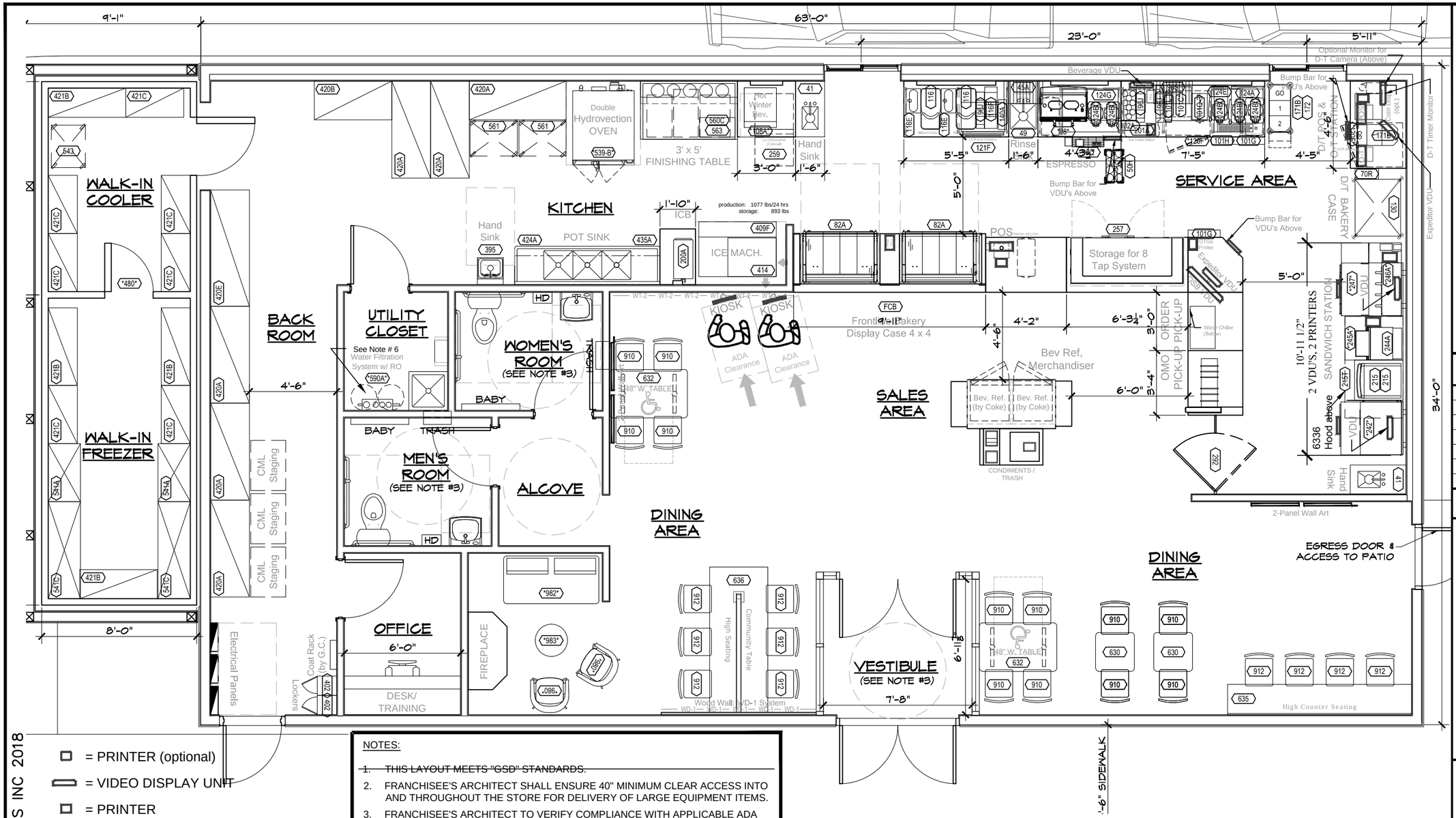
PLANNING FILE NO.: P16-24B

AMMENDED SITE PLAN

7TH SOUTH LLC
340 CENTRAL AVE.
SUITE 202
DOVER, NH 03820

EXIT 7
COMMERCIAL CENTER
DOVER, NH

4



= PRINTER (optional)

= VIDEO DISPLAY UNIT

= PRINTER

2,142 SF (Building)
216 SF (Exterior Walk-In Box)
2 DRY DELIVERIES per WK.
2 REF'D DELIVERIES per WK.
26 SEATS
40 LF Dry Storage Shelving

0 5' 10'

NOTES:

1. ~~THIS LAYOUT MEETS "GSD" STANDARDS.~~
2. FRANCHISEE'S ARCHITECT SHALL ENSURE 40" MINIMUM CLEAR ACCESS INTO AND THROUGHOUT THE STORE FOR DELIVERY OF LARGE EQUIPMENT ITEMS.
3. FRANCHISEE'S ARCHITECT TO VERIFY COMPLIANCE WITH APPLICABLE ADA AND CODE REQUIREMENTS FOR RESTROOM(S) AND ENTRANCE(S).
4. FRANCHISEE'S ARCHITECT SHALL DETERMINE MENUBOARD SIZE AND CONFIGURATION BASED ON FIELD CONDITIONS AND MENU CHOICES.
5. ~~WINDOW(S) TO BE IN-FILLED, TINTED, OR BLOCKED OUT WITH APPROVED DBI WINDOW GRAPHICS.~~
6. IF A D/T STAGING CART IS PROVIDED, THE STAGING MAT SHOWN AT D/T POS STATION IS NOT REQUIRED.
7. UNSIGHTLY UTILITIES:

   TO ENHANCE THE D/T EXPERIENCE PLAN ACCORDINGLY TO EITHER REMOVE OR SCREEN WHEN POSSIBLE.
8. ~~DEFAULT WATER FILTRATION SYSTEM SHOWN. ARCHITECT TO HAVE WATER TESTED TO VERIFY ACTUAL SYSTEM REQUIRED. BOOSTER PUMP CAN BE ELIMINATED IF INCOMING WATER PRESSURE TO THE BUILDING IS 65PSI OR HIGHER.~~

1 PROPOSED FLOOR PLAN
SCALE: 3/16" = 1'-0"

N PLAN

©AHARONIAN & ASSOCIATES INC 2018

AHARONIAN & ASSOCIATES INC.
ARCHITECTS
310 George Washington Highway
Suite 100
Smithfield, Rhode Island
0 2 9 1 7
T 401-232-5010
F 401-232-5080
WWW.ARCH-ENG.COM

REVISIONS

NUMBER	REMARKS	DATE
1	OWNER COMMENTS	11/1/2018
2	STORE PLANNING	11/2/2018
3	OM COMMENTS	11/2/2018
4	OWNER COMMENTS	11/6/2018
5	SITE COORD	1/3/2019
6	SITE COORD	1/15/2019

FOR REVIEW

PROJECT TITLE

DUNKIN' BRANDS [eatdrinkthink]
PC# 358769

14 CENTRAL AVE
DOVER, NH 03820
STRAFFORD COUNTY

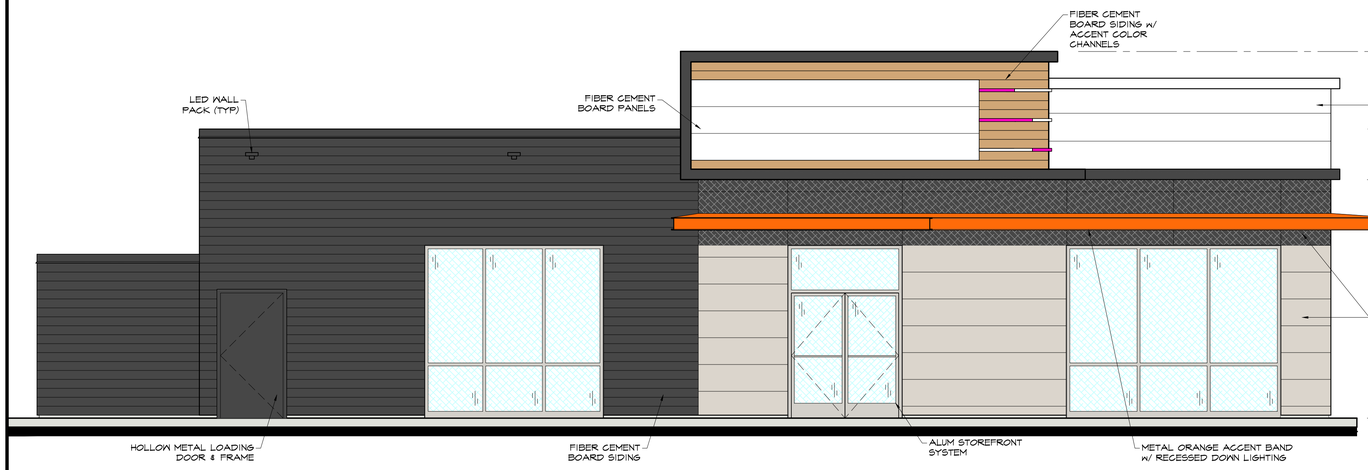
DRAWING TITLE

PROPOSED FLOOR PLAN

DATE	PROJ NO
OCT 09, 2018	18136
DRAWN BY: ECM	CHECKED BY: JB

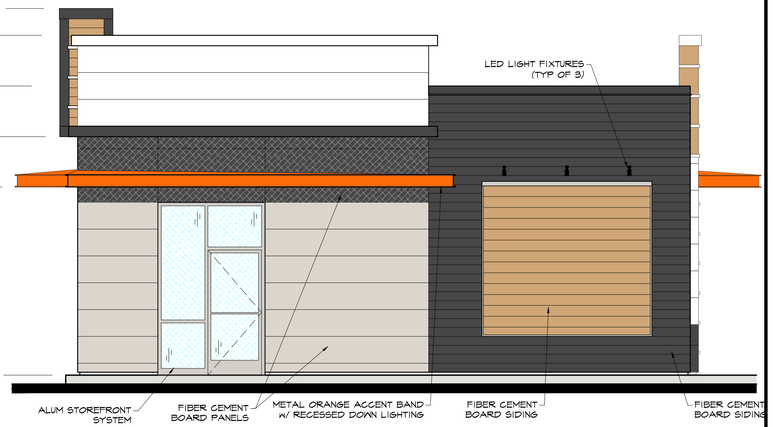
DRAWING NUMBER

K1.1



5 PROPOSED SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



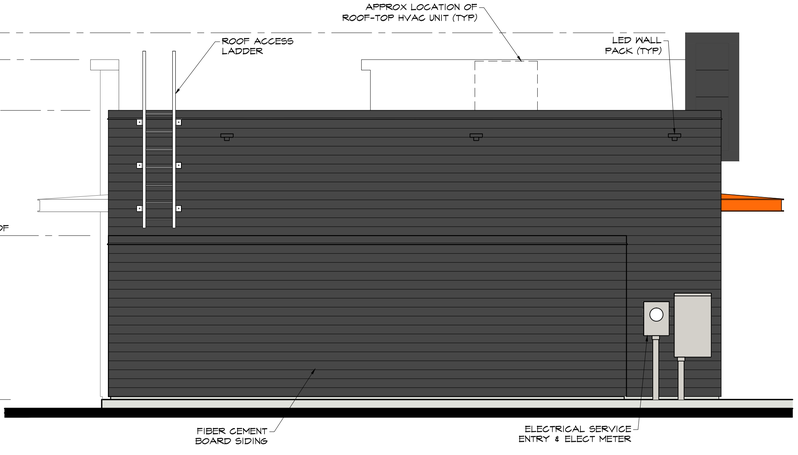
4 PROPOSED EAST ELEVATION

SCALE: 1/4" = 1'-0"



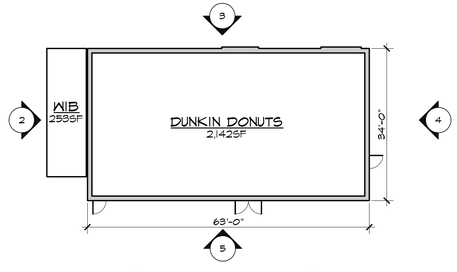
3 PROPOSED NORTH ELEVATION

SCALE: 1/4" = 1'-0"



2 PROPOSED WEST ELEVATION

SCALE: 1/4" = 1'-0"



1 KEYPLAN

SCALE: 1/16" = 1'-0"

N
PLAN

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