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, July 25, 2019**
Meeting Time: **10:30 am**

1. 10:30 AM – 11:15 AM: Site Review for Wentworth-Douglass Hospital, Assessor's Map K, Lot 30-N, zoned B-3, and located at Dover Point Road. (Proposal is to construct a 4,500 sq. ft. Urgent Care Facility with paved parking.) A related CUP application will also appear before the Planning Board. *(P19-56)

2. 11:15 AM – 12:00 AM: Site Review White Birch Ammo, LLC, (Owners: White Birch Ammo, LLC, dba:White Birch Armory, and 74 Industrial Park, LLC), Assessor's Map G, Lot 3A-1, zoned I-2, and located at Industrial Park Road. (Proposal is to construct a 24,100 sq. ft. commercial building with retail, office, warehouse space and an indoor shooting range with a parking lot with 61 parking spaces). A related CUP application will also appear before the Planning Board. *(P19-57)

CITY OF DOVER

DOVER PLANNING BOARD – MINUTES

Meeting Type:	Regular Meeting
Meeting Location:	City Council Chamber's 288 Central Avenue
Meeting Date:	**Tuesday, June 25, 2019**
Meeting Time:	**7:00 pm**

Members Present: Gina Cruikshank (Chair), Dave Landry, Frank Torr, Tom Clark, Lee Skinner, Ellen Brooks (Alternate), Matt Sullivan (Alternate), Dave White, Dennis Ciotti (Councilor)

Members Not Present (excused): Hayley Harmon (Vice Chair), James Burdin (Alternate), Jackson Kaspari

Members Not Present (un-excused): None

Staff Present: Christopher Parker, Assistant City Manager

The Chair called the meeting to order at 7:00 pm and stated M. Sullivan will sit for H. Harmon.

1. CITIZENS' FORUM

Citizens Forum Open
Mike Lessard 18 Chapel St is concerned about Dover's character changing- people from outside Dover purchasing buildings and tearing them down for redevelopment.

Gerard Nielsen 26 Hillcrest Dr is concerned about the number of apartments going up in Dover especially with the lack of parking available. New growth should be new businesses and they shouldn't receive tax breaks historically given.

Nancy Gauthier 162 Henry Law Ave expressed her support for updating the setbacks for the waterfront district.

Pam Lessard 62 Glenwood Ave is appreciative of Dover's heritage. She's now concerned about new structures being built too close to sidewalks and changing the landscape of the town.

Lisa Stacy 75 Long Hill Rd agreed with Ms. Lessard regarding setbacks. She is also concerned with the zoning change at Little North Rd for the baseball project which has fallen through. She is worried that no parameters were set in the instance the baseball project didn't go on that property.

C. Parker responded to several of the public comments explaining City ordinances and regulations when applicable.

Citizens Forum Closed.

2. APPROVAL OF THE PRIOR MINUTES

- June 11, 2019 Regular Meeting Minutes

Motion: F. Torr made a motion to approve the minutes. Seconded by D. Landry. Vote: U/A.

3. OLD BUSINESS

A. Public hearing and possible vote on an amendments to Chapter 170, entitled "Zoning Ordinance" of the code of the City of Dover. Amendments include revising terminology, references, footnotes, fees, height of fences, and architectural and streetscape standards including solar. The full text of the amendments is available in Planning Department & at www.dover.nh.gov located under City Documents & View Current City Reports. *

C. Parker gave background of the project and briefly reviewed each amendment. He noted comments were received from the Arts Commission whom he will ask to speak during public comment. Comments were also received requesting information about the solar panels and green roofs. C. Parker explained where in the regulations authority is given for these amendments.
Comments were also received regarding the tables. If the amendments are adopted, the tables will also be adopted. C. Parker reviewed the changes that have been proposed.

Public hearing opened.
Linnea Nemeth 21 Taylor Rd, Vice Chair of the Arts Commission explained the language the Arts Commission is suggesting for approval.
Item 3A in Streetscape is fine as written but she suggested it doesn't need to be the first item.
For item B they suggest a broader definition of what public art is rather than listing specific mediums. "Public Art: works of art in any media that have been planned and executed with a specific intention of being sited or staged in the physical public domain, usually outside and accessible to all." Examples could be sited.

Article C- Maritime Heritage: Prefer to expand this rather than pinpoint just the Maritime theme. There are other heritage themed projects planned that are not maritime-themed. "Public art is a part of our public history and heritage, part of our evolving culture, reflects and reveals our society and adds meaning to our cities. Public art should create a chronicle of public experiences through a variety of genres and mediums."

Street Furniture: "We encourage public art and innovative design to be incorporated into the street furniture, waste bins and bike racks."

Public Hearing closed.

L. Skinner suggested the document is not ready for vote tonight. There are sections missing and a portion the board just heard some suggested changes audibly.

C. Parker suggested the board discuss their opinions of the suggested changes by the Arts Commission so the Planning Department can work with them on the language. He also suggested voting on removing Item 7 from the amendments since there are no changes suggested for that section.

D. Ciotti agreed with L. Skinner.

Motion: T. Clark moved to remove amendment 7 and table the amendments for further conversation. Seconded by F. Torr. Vote U/A

D. Landry commented that there is differing language between paragraphs: shall be, can be, should be and the board should review that language along with content.

4. NEW BUSINESS

A. Consideration and acceptance of a Minor Subdivision for Thomas E. Allen, Assessor's Map J, Lot 8, zoned R-40, and located at 232 Spruce Lane Ext. (1 new lot) *(P19-43)

C. Parker stated that the applicant wishes to subdivide their 8-acre parcel into two. The new lots would be 6.02 acres and 2.01 acres. The new lots meet the frontage and area requirements and will be served by private well and septic systems. As this is a minor subdivision, it did not go before the Technical Review Committee.

Steve Haight, Civilworks NE, and McEneany Survey represented the applicant, discussed the proposal and presented the application. It has been submitted to the state for approval. It meets all zoning and soil regulations.

D. Ciotti asked if the existing well is 150 feet from the existing structure. S. Haight confirmed it is.

T. Clark wondered about the topography and if the driveway will meet grading regulations. S. Haight confirmed it will and explained the driveway plan.

L. Skinner asked about the wetlands boundary and where the symbols are located on the plan. S. Haight will look into it and fix the symbols if necessary.

Motion: F. Torr made a motion to accept the application. Seconded by D. Ciotti. Vote U/A.

Public hearing opened.
Matt Gentile 230 Spruce Ln Ext expressed concern for the well being placed too close to the property line and drawing too much water.

C. Parker and S. Haight clarified that the well will be hundreds of feet deep drawing its own water supply. The 75' well radius is protection from septic systems.
Public Hearing closed.

STAFF RECOMMENDATION:
Chapter 155-15 of the City Code provides for subdivision of land. The plan meets the criteria laid out. Planning Department recommends that the Planning Board approve the minor subdivision with the following condition:

Conditions to Be Met Prior to Signing of Plans:

1. The applicant shall revise the plat to:
    a. Include the Licensed Land Surveyor signature and stamp
    b. Add the owner's signatures to the final plat submitted for signature to be recorded at the Strafford County Registry of Deeds
    c. Add Planning File #P19-43
    d. Add NHDES Subdivision number to note 11
    e. Indicate proposed drive or not if using the existing paved drive
    f. Show electrical utilities and indicate future utilities will be underground

Conditions to Be Met Prior to Occupancy:

2. Issuance of a Certificate of Occupancy.
3. Impact fees for new dwelling unit shall be paid per the invoice included with the Notice of Decision.

Motion: D. White made a motion that the Planning Board approve the application with staff recommended conditions. Seconded by L. Skinner. Vote U/A

B. Consideration and acceptance of a Minor Lot Line Adjustment for Bean Family Trust, (Owners: Bean Family Trust, Nora E. Stead, Trustee, Daniel P. Irish and Kristopher & Elizabeth M. Reischer), Assessor's Map A, Lots 45-2, 45A-2-1 & 45A-2-3, zoned R-40, and located at 12, 22, & 32 Olive Meadow Lane. *(P19-44)

C. Parker stated that the applicant is proposing to adjust the lot line between the three subject lots. Parcel A of 3,906 s.f. will be conveyed from lot 45-2 to 45A-2-1. Parcel B of 10,887 s.f. will be conveyed from lot 45-2 to 45A-2-3. The new lots would meet the zoning requirements as part of the original open space subdivision. This application appeared before the Board in 2018, but expired, and the Board needs to approve it again.

Steve Haight, Civilworks NE, represented the applicant, discussed the proposal and presented the application. This was previously reviewed and approved by the board last year, but the applicant never followed through.

Motion: D. White made a motion to accept the application. Seconded by E. Brooks. Vote U/A.

Public hearing opened. No one spoke. *Public Hearing closed.*

STAFF RECOMMENDATION:
Chapter 155-18 of the City Code provides for transfer of land between adjacent land owners. This plan meets the requirements outlined. Planning Department recommends that the Planning Board approve the sale of two units with the following condition:

Conditions to Be Met Prior to Signing of Plans:

1. The applicant shall provide the Planning Department with a digital version of the final plat.
2. Provide proof of compliance with requirements of prior subdivisions for these parcels.
3. Provide the Planning Department with drafts of deed language for Parcel A that will be transferred from lot 45-2 to lot 45A-2-1 and Parcel B which will be transferred from lot 45-2 to 45A-2-3.
4. The applicant shall revise the plat to:
    a. Add Planning file number P19-44
    b. Add signature and stamp of LLS
    c. Add owners' signatures
    d. Revise lot area calculation table to include acres as well
    e. Indicate driveway location to lot 45-2.

Conditions to Be Met After Signing of Plans:

5. The applicant will record the deeds referenced in #3 above and provide the Planning Department with the Book and page numbers of the recorded deeds.

D. Ciotti asked about a driveway showing over another lot line. S. Haight explained that is not one of the lots under review tonight but clarified there are documents for that property where that issue is explained.

Motion: F. Torr made a motion that the Planning Board approve the application with staff recommended conditions. Seconded by L. Skinner. Vote U/A

C. Consideration and acceptance of a Conditional Use Permit for Jason Franklin, (Owner: Matthew Carroll), Assessor's Map A, Lot 39-29, zoned R-40, and located at 28 Fieldstone Drive. (Proposal is to replace a failed septic system with a new septic system 42 feet from wetlands, where 75 feet is required). *(P19-42)

C. Parker stated that the applicant is requesting a Conditional Use Permit to install a new septic system within 42' of a wetland whereas 75' is required. The Conservation Commission reviewed this item at their June 10, 2019 meeting and endorsed it.

Jason Franklin, Franklin Associates, representing the property owner, discussed the proposal and presented the application. The septic system was installed in 2003 and now needs replacement. Over those 16 years a small wetland has developed between the road and the leach field from road run-off and a foundation drain. They are proposing to replace the septic in that same place rather than dig up another area of the property.

Motion: F. Torr made a motion to accept the application. Seconded by D. White. Vote U/A.

Public hearing opened.
FX Bruton, 37 Fieldstone Drive, announced his support of the project and stated the wetland is barely noticeable.
Public Hearing closed.

STAFF RECOMMENDATION:
Chapter 170-27.1 of the Zoning Ordinance of the City Code provides for Conditional Use Permits to allow impacts to wetlands and wetland buffers if standards related to demonstration of need, avoidance, minimization, and mitigation are met. This proposal is consistent with those standards.
Planning Department recommends that the Planning Board approve the sale of two units with the following condition:

Condition to Be Met Prior to the Issuance of a Conditional Use Permit:
1. Provide NHDES Septic System Permit

M. Sullivan asked for clarification on whether the buffer is 50' or 75'. C. Parker explained it is normally 50', but for a septic it is 75'.

D. Ciotti wondered if the DES permit has been submitted. Yes, they applied and received approval on Monday.

Motion: M. Sullivan made a motion that the Planning Board issue the permit with staff recommended condition. Seconded by D. White. Vote U/A

The Vice Chair noted the next two items would be heard together.

D. Consideration and acceptance of a Request to use Transfer of Development Rights to purchase units for Princeton Dover LLC, Assessor's Map D, Lots 79-1 & 81, zoned RM-U and located at 306 Plaza Drive. (Proposal is to buy 24 units) *(P19-45)

E. Consideration and acceptance of a Site Review using Transfer of Development Rights Princeton Dover LLC, Assessor's Map D, Lots 79-1 & 81, zoned RM-U located at 306 Plaza Drive. (Proposal is to construct a 10,551 sq. ft. 24 unit garden style multifamily building and associated surface parking by parking by purchasing TDR units). *(P19-30)

C. Parker stated that the applicant is requesting to purchase 24 units to add a new multi-family building to a multi-family complex which has existed since the 1970s on Plaza Drive/Northway Circle. The new building would be next to its offices and pool area. The applicant is using the non-restricted style of TDR.

The new building would be placed where part of the existing recreation amenities are provided. In order to meet the recreational component, the applicant has worked with staff to meet the required calculation of

26,900 s.f. of recreational space on site by both providing active and passive recreation on site and by paying in lieu of providing the remaining required.

The units would be serviced by public water and sewer and are intended as rentals. The Technical Review Committee reviewed this application at their April 11, 2019 meeting.

Dan Endyke, Princeton Properties, the applicant, discussed the proposal and presented the application. They purchased the property in 2014 and have improved the property since then. The building will have 18 2-bedroom units and 6 1-bedroom units.

Engineer Stuart Moncrieff with Howard Stein Hudson presented the technical aspects of the plan. The lot is pretty flat, and the soils are good. The building fits nicely on the property. There will be 28 new parking spaces for the 24 units.

Mr. Moncrieff discussed the buffer to the homes nearby. There is a berm there.

D. Ciotti wondered if there is a maintenance plan on record and where all the snow will go. Mr. Moncrieff pointed out a particular page reference and C. Parker explained it has to be in the plan they submit.

Motion: F. Torr made a motion to accept the application. Seconded by D. White. Vote U/A.

Public hearing opened.
Lisa Stacy 75 Long Hill Rd is concerned about the number of parking spaces per units on site as well as how the school would handle the influx of children.
Public Hearing closed.

C. Parker noted communication occurs between the City and the school systems though these types of units rarely add many children to the system. He also noted the 28 parking spaces will be in addition to what is already on site now.

D. Endyke noted his best guess is that three to four additional children may join the school system from these new units.

C. Parker summarized an email to the Board from Matt Bradley of Glenwood expressing concerns about traffic on Glenwood.

STAFF RECOMMENDATION - TDR:
Chapter 170-27.2 of the Zoning Ordinance of the City Code provides for transfer of development rights via two processes, this uses the original process, not the affordable single-family process. Planning Department recommends that the Planning Board approve the sale of 24 units with the following condition:

Conditions to be Met Prior to Granting the TDR:
1. Payment of the TDR fee ($321,648)

Motion: F. Torr made a motion that the Planning Board determine the proposal is consistent with the neighborhood and approve the TDR with staff recommended condition. Seconded by T. Clark. Vote U/A

STAFF RECOMMENDATION – Site Plan:

Chapter 149-4 of the Site Review Regulations of the City Code provides for site review by the Planning Board of new construction of various types. This plan is consistent with those regulations.
Planning Department recommends that the Planning Board approve with the following conditions:

Conditions to Be Met Prior to the Signing of Plans:

1. The TDR (P19-45) shall be approved by the Planning Board.
2. The applicant shall provide a digital version of plan set
3. Applicant to provide a revised letter from Eversource from the Engineering team.
4. The applicant must revise final plan set to:
   a. Add the owner's signatures to the final plat
   b. Add LLS, PE, Architect, and LLA signatures and stamps to final plan
   c. Replace note 33 on sheet 6 with a note to the Assistant City Manager's satisfaction
   d. Revise note 23 to eliminate Sunday hours for construction.
   e. Add common notes: 12, 14, 17, 18, 19, 28, 29, & 37

Conditions to Be Met Prior to any Construction Activity:

5. A site construction sign with the contact information for the general contractor must be located and approved by the City Engineer or Assistant City Manager.
6. Applicant shall complete Land Use Development Tracking Form, most recently revised version, utilizing the online Pollution Tracking and Accounting Pilot Project (PTAPP) portal. https://www.unh.edu/unhsc/ptapp

Conditions to Be Met Prior to Issuance of a Building Permit:

7. The new building shall be assessed and pay the current water and sewer investment fees in place at the time of application for service.

Conditions to Be Met Prior to Occupancy:

8. Issuance of a certificate of occupancy.
9. Impact fees shall be paid per the invoice included with the Notice of Decision.
10. The applicant shall provide a letter of credit or other form of security acceptable to the City for any unfinished work.
11. The applicant shall pay the recreation in-lieu fees.

D. Landry asked about the exterior materials. The brick buildings in the area look really good and he would like this building to blend well. The siding will be a concrete fiber substance and has been well received at another location they've constructed this design.

Motion: F. Torr made a motion that the Planning Board approve the plan with staff recommended condition. Seconded by M. Sullivan. Vote U/A

F. Consideration and acceptance of an Amendment to the conditions for a previously approved Subdivision Plan for TDAK & Company LLC, Assessor's Map M, Lot 61, zoned R-20, located at 146 Dover Point Road. (Proposal is to remove the note requiring a fence along the southerly boundary line). *(P18-14A)

C. Parker stated that the applicant's subdivision request was approved at the August 28, 2018 Planning Board meeting. During the review, the abutting farmer requested fencing be installed. This was added as a condition of approval. The abutter no longer wishes to have the fence, and has asked that the applicant not install it, as

documented in the email in the packets. The applicant is asking for that note requiring the fence to be removed from the plan.

Christopher Berry, Berry Surveying and Engineering represented the applicant Troy Thibideaux, discussed the proposal and presented the application.

D. Ciotti asked if a letter had been sent by the abutter confirming the new request to not install a fence. C. Parker confirmed the abutter made this request to the City by phone and by email but refused to send a letter after it had been requested several times. The abutter is also not present tonight. D. Ciotti is concerned that an email is not an official legal document. C. Parker said there is a 30-day appeal period and more action can be taken if the City's legal counsel believes it's needed.

L. Skinner agreed with D. Ciotti and wondered who initiated the change. C. Parker said it was the abutter who requested the fence at the hearing. Then they did not come to the on-site meeting to look at options. They reached out to the City to express they made an error in requesting the fence and no longer wanted it installed.

M. Sullivan suggested a conditional approval subject to a letter of authorization being submitted by the abutter within 30 days of approval.

Motion: D. Ciotti made a motion to accept the application. Seconded by E. Brooks. Vote U/A.

Public hearing opened.
Lisa Stacey 75 Long Hill Rd agreed with D. Ciotti that a letter on letterhead should be submitted and email should not be accepted.
Public Hearing closed.

STAFF RECOMMENDATION:
Chapter 155-15 of the Land Subdivision Regulations of the City Code provides for subdivisions of existing lots and amendments to those subdivisions. The Applicant has the right to request an amendment to an approved plan from the Planning Board. Planning Department recommends that the Planning Board approve with the following conditions:

Conditions to be Met Prior to Signing of the Plans:

1. All previous conditions of approval remain in place.
2. The applicant shall provide a digital version of the plan to the Planning Department.
3. The applicant shall revise the plat to:
    a. Add the owners' signatures
    b. Add the Licensed Land Surveyor, Professional Engineer, Landscape Architect, and Wetland Soil Scientist stamps and signatures
    c. Revise Planning file number to be P18-14A
    d. Within 30 days the applicant shall provide a signed letter on letter head from the owner of Tendercrop Farm acknowledging the change.

Motion: D. White made a motion that the Planning Board approve the amendment to the plan and remove the condition with staff recommended conditions. Seconded by D. Landry. Vote U/A

5. STAFF COMMENTS

- TRC item since the last meeting: Additions to 333 Central Ave project
- Arts Commission would like to collaborate more, and invites a PB member to attend their meetings
- Regarding emails received, C. Parker will speak with City Counsel. The board agreed they are ok with general abutter email, but for authorization issues they want a signed letter.

6. MEMBER COMMENTS

D. Landry asked the board to do a survey from Strafford Regional Planning Commission about the transportation needs in the greater Strafford region. It will help shape the transportation plan through 2045.

C. Parker mentioned J. Kaspari did notify him of his absence tonight.
Also, he showed the Chair a Notice of Merger that the board needs to authorize her to sign.

The Chair read the notice of merger to the board.
The board agreed the Chair can sign the document and she did.

7. ADJOURNMENT

Motion: T. Clark made a motion to adjourn at 9 pm. Seconded by L. Skinner. Vote U/A

www.vhb.com

July 3, 2019

Ref: 52572.00

Ms. Donna Benton, AICP
City of Dover, NH
288 Central Avenue
Dover, NH 03820-4169

Re: Technical Review Committee Submission
Proposed Urgent Care Facility
Dover Point Road
Dover, NH

Ms. Benton,

On behalf of the applicant, Wentworth-Douglass Hospital, VHB is pleased to submit the Site Review Application for the Proposed Urgent Care Facility to be located on Dover Point Road, Map K, Lot 30-N. Included are eight copies of the following materials, unless otherwise indicated, associated with the application:

- Site Review Application,
- CUP Application,
- Application Fees ($876.87 check payable to "City of Dover),
- List of Professionals,
- Checklist,
- Site Rendering,
- Letters to Serve (Gas, Electric, Telecommunications),
- Sewer and Water Flow Calculations,
- Stormwater Analysis Memorandum with Operation and Maintenance Manual,
- Traffic Impact Assessment and Analysis Memorandum,

Engineers | Scientists | Planners | Designers

2 Bedford Farms Drive
Suite 200
Bedford, New Hampshire 03110
P 603.391.3900
F 603.518.7495

- Permitting Site Plans, Dated July 2, 2019 (8 - Full size, 1 - 11x17, folded),
- CD with all documents listed above.

VHB would like to thank the City of Dover for their review of the project. Please feel free to contact me if you have any questions of comments on the enclosed materials.

Sincerely,

Vanasse Hangen Brustlin, Inc.

David Fenstermacher

Senior Project Manager
dfenstermacher@vhb.com

SITE PLAN APPLICATION

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: Wentworth-Douglass Hospital Telephone # (603) 740-6581

Address of Applicant: 789 Central Avenue, Dover, NH 03820

E-Mail Address: david.soares@wdhospital.com

Name of Property Owner (*if different from applicant*): Weathervane Seafood Telephone # 207.475.7078

Address of Property Owner: 306 US Rte 1, Kittery, ME 03904

PROPERTY INFORMATION

Address of Property: 2 Dover Point Road, Dover, NH 03820

Assessor's Map # K Lot(s) # 30-N

Zoning District(s) B-3 Thoroughfare Business Overlay District(s) _____

Size of Parcel: 20,298 sq. ft. 0.466 ac. Property Deed: Book 1045 Page: 48

Existing Use of Property: Parking Lot

SITE PLAN INFORMATION

Describe Proposed Use: Medical Office

Area of Parcel to be Developed: 20,298 sq. ft.

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

Number of Parking Spaces: Existing 72 (for both lots) Proposed 64 (for both lots)

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

Number of Employees Total: 10+ (supported by WDH staff) In Maximum Shift: 10

Disposition of Parcel:

Building Footprint 4,500 sq. ft.

Total Building Area 4,500 sq. ft.

Paved Area 7,410 sq. ft.

Building Setbacks:

Front Yard 30 ft.

Rear Yard 15 ft.

Side Yard: Right 12 ft. Left 12 ft.

City Water? X Yes ___ No How far is city water from the property? 40 feet

City Sewer? X Yes ___ No How far is city sewer from the property? 38 feet

BUILDING INFORMATION

Type of Building to be Built: 2-B

Height of Building: 16 ft Finished Floor Elevation: 92.8'

Number of Seats (where applicable) ___

Estimated value of construction: $1.5m 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.) Glen Johnson, VHB

Address 2 Bedford Farms Drive, Suite 200, Bedford, NH 03110 Telephone #: (603) 391-3930

Professional License #: 898 E-mail address: gjohnson@vhb.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) David Fenstermacher, VHB

Address 2 Bedford Farms Drive, Suite 200, Bedford, NH 03110 Telephone #: (603) 391-3929

Professional License #: 13382 E-mail address: dfenstermacher@vhb.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: Per Date: 7-2-19

Signature of Applicant (*if different from owner*): Date: 7-2-19

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 7/02/2019

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: 7-2-19

Signature of Applicant (*if different from owner*): _____ Date: 7-2-19

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: 7-2-19

Signature of Applicant (*if different from owner*): _____ Date: 7-2-19

CUP APPLICATION

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: Wentworth-Douglass Hospital Telephone # (603) 740-6581

Address of Applicant: 789 Central Avenue, Dover, NH 03820

E-Mail Address: david.soares@wdhospital.com

Name of Property Owner (if different from applicant): Weathervane Seafood Telephone # 207.475.7078

Address of Property Owner: 306 US Rte 1, Kittery, ME 03904

PROPERTY INFORMATION

Assessor's Map # K Lot(s) # 30-N

Address of Property: 2 Dover Point Road, Dover, NH 03820

Zoning District(s) B-3 Thoroughfare Business Overlay District(s) _____

Existing Use of Property: Parking Lot

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:

Paved parking is within wetland buffer.

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

_____

Name of Professional That Prepared Plans: David Fenstermacher

Address 2 Bedford Farms Drive, Suite 200, Bedford, NH 03110 Telephone #: (603) 391-3929

Professional License #: 13382 E-mail address: dfenstermacher@vhb.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: 7-2-19

Signature of Applicant (if different from owner): _____ Date: 7-2-19

Signature of Agent: _____ Date: 7-2-19

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: 7-2-19

APPLICATION FEES CALCULATION

PLANNING BOARD
ESTIMATED FEE SCHEDULE

This is only provided to give you an estimate of the application fees. *After you submit an application, staff will invoice you a total.* All fees must be paid two weeks before the Planning Board meeting. **If the Fee has not been paid, the item will not be placed upon the agenda.**

A. TOTAL FEE paid by cash or check made payable to "City of Dover"

1. Application fee for the following:
   - SUBDIVISION $150.00 x # _____ new lots created = $ _____
   - LOT LINE ADJUSTMENT $200.00 (if more than two lots involved, add $100.00 per lot) =
   - SITE REVIEW – TRANSFER OF DEVELOPMENT RIGHTS Application fee $150.00 = $ _____
   - SITE REVIEW - RESIDENTIAL $100.00 x # ____ per dwelling unit = $ _____
   - SITE REVIEW – NON-RESIDENTIAL (not to exceed $10,000)
     New construction $.15 sq. ft. x # 4,500 sq. ft. = $ 675
     Additions (new floor space) $.10 per sq. ft. x # 0 sq. ft. = $ _____
   - IMPERVIOUS PAVED AREA (for new development) OR IMPERVIOUS PARKING LOT ADDITIONS (not to exceed $10,000) $.07 sq. ft. x # 741 = $ 51.87
   - MOTEL/HOTEL $35.00 x # ___ per lodging unit = $ _____
   - CHANGE OF USE (not to exceed $5,000)
     Existing floor space $.10 per sq. ft. x # 0 sq. ft. = $ _____
   - CONDITIONAL USE PERMIT $150.00 x # 1 per application = $ 150
   - GRAVEL PIT/ EXCAVATIONS - Application fee $50.00 & Permit fee $75.00 = $ _____
   - EXTENSIONS OF/AMENDMENTS TO/WAIVERS FOR AN APPROVED PLAN ($150.00 minimum) $50.00 x # ____ per hour of review $ _____
   - REQUEST FOR REZONING $150.00 = $ _____
   - DRIVEWAY WAIVER – $100.00 application fee =
     Letter of rejection from Engineering Department, diagram & letter from owner $ _____

$876.87

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will need to provide to this office the engineer, architect, land surveyor or soil scientist whose professional seal appears on the plan with names and addresses for notices. You will be notified with the amount due, once this has been completed.

1. Applicant & Owner, engineer, architect, land surveyor or soil scientist Certified letters fee # 5 of x $8.00 =
2. Certified letters fee: # of abutters 10 X $8.00 = $ 120
3. First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters 10 X $1.00 = $ 10
4. Creating/Printing Abutter Labels in triplicate per sheet 3 x $10.00 = $ 30

C. Foster's newspaper public notice fee **$ 80.00**

(Revised October 2, 2018)

TOTAL FEE $ 1,116.87

LIST OF PROFESSIONALS

CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
K	30-N	Weathervane Seafoods	306 US Rte 1, Kittery, ME 03904

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
David Soares	Wentworth-Douglass Hospital	789 Central Avenue, Dover, NH 03820

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Glen Johnson	VHB	2 Bedford Farms Dr, Suite 200, Bedford, NH 03110
David Fenstermacher	VHB	2 Bedford Farms Dr, Suite 200, Bedford, NH 03110
Dale Taglienti	Environments for Health Architecture	21 Drydock Ave, Suite 630w, Boston, MA 02210

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

SITE PLAN CHECKLIST

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: Wentworth-Douglass Hospital File Number: _____

PROJECT TITLE: Proposed Urgent Care Facility

PROPERTY LOCATION: Dover Point Road Tax Map: K Lot: 30-N

	Explain How Provided	Reviewed
1. Completed and signed Application form	Application Packet	
2. Electronic copy of the engineered/surveyed plan layout	CD	
3. Electronic copy of supplementary materials and application	CD	
4. Traffic Impact Assessment and Analysis (Standard or Advanced)	Application Packet	
5. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
6. Conditional Use Permit applications	Application Packet	
7. A colored rendering of the streetscape that will be created along the existing public right-of-way	Application Packet	
8. A colored architectural plan showing all sides of buildings	Site Plans - Reference Sheet	
9. List of all professional agents to be notified for Planning Board	Application Packet	
10. Letter to Serve from Public and Private Utilities	Application Packet	
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	Site Plans - Cover Sheet	
Proposed Project name and title and Planning File #	Site Plans - Cover Sheet	
Date, north arrow and scale	Site Plans - All Sheets	
Names of all abutting property owners	Site Plans - All Sheets	
Name and address of owners and/or applicants	Site Plans - Reference Sheet Sv-1	
Signature & stamp of NH licensed land surveyor and/or engineer	Site Plans - All Sheets	
Zoning District boundaries, including any special or overlay districts	Site Plans - Reference Sheet NP-1	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Site Plans - Sheet C-2	
Location and widths of existing & proposed easements & right of ways	Site Plans - Sheet C-2 & Sv-1	
Depict pedestrian walkways and accessible access	Site Plans - Sheet C-2	
Location and width of existing and proposed access/egress ways	Site Plans - Sheet C-2	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Site Plans - Reference Sheet Sv-1	
	Explain How Provided	**Reviewed**

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

REVIEWED BY: _____ DATE_____ TRC DATE_____

SITE RENDERING

\\vhb\gbl\proj\Bedford\52572.00 WDH Urgent Care Concept\cad\ld\Planmisc\52572 Rendering.dwg



Site Rendering

Dover Point Urgent Care
Dover, New Hampshire

Source: **VHB**
Prepared for: **Permitting**
Date: **July 2, 2019**

From: Beaulieu, David <beaulieu@unitil.com>
Sent: Wednesday, June 19, 2019 1:53 PM
To: Dubois, Emily
Subject: RE: [External] RE: Dover Point Road Will Serve Request

Hi Emily,

Looks good!

Dave

David Beaulieu
Business Development Executive
Unitil |325 West Road |Portsmouth, NH 03801
o: 603-294-5144 f: 603-294-5244
Beaulieu@unitil.com | www.unitil.com

From: Dubois, Emily [mailto:edubois@vhb.com]
Sent: Wednesday, June 19, 2019 8:37 AM
To: Beaulieu, David
Subject: RE: [External] RE: Dover Point Road Will Serve Request

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

Hi Dave,

Could you please review the attached utility plan and confirm that the shown connection is feasible?

Thank you,

Emily Dubois

P 603.391.3889
www.vhb.com

From: Beaulieu, David <beaulieu@unitil.com>
Sent: Tuesday, June 18, 2019 2:58 PM
To: Dubois, Emily <edubois@vhb.com>
Subject: [External] RE: Dover Point Road Will Serve Request [Filed 18 Jun 2019 15:18]

Hi Emily,

Unitil confirms the existing 4-inch gas main on Dover Point Road is adequate to supply the proposed facility with a demand of 750 cfh. Service installation is pending to necessary permits required to access the town right-of-way.

Please contact with me additional questions as the project progresses.

Dave

David Beaulieu
Business Development Executive
Unitil |325 West Road |Portsmouth, NH 03801
o: 603-294-5144 f: 603-294-5244
Beaulieu@unitil.com | www.unitil.com

From: Dubois, Emily [mailto:edubois@vhb.com]
Sent: Thursday, June 13, 2019 4:14 PM
To: Beaulieu, David
Subject: Dover Point Road Will Serve Request

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

Good Afternoon Dave,

As mentioned in our call earlier, VHB is preparing site plans for an approximately 4,500 SF medical office building in Dover, New Hampshire. There is currently no address for the project but the site is the paved lot that abuts 2 Dover Point Road (see attached location map). We are requesting confirmation that Unitil can supply service, from the 4" gas main, to the proposed development with an anticipated load of 750 CFH.

Please feel free to contact me with any questions or concerns.

Thank you,

Emily Dubois

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110-6532
P 603.391.3889 **| F** 603.518.7495
edubois@vhb.com

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From: Heather Maxwell <hmaxwell@firstlight.net>
Sent: Wednesday, June 19, 2019 2:56 PM
To: Dubois, Emily
Subject: [External] RE: FirstLight Fiber - Note from Heather about New Building Dover, NH

Hi Emily,

I was assigned to work on this project for you. I noticed that we can service the below site, as well as, a few others. I would like to schedule a call with you and my engineer to discuss needs. Please let me know your availability.

Thank you,

Heather

Heather Maxwell
Senior Account Executive
FirstLight
41 State Street 10th Floor | Albany, NY 12207
Direct 518-694-8765 | Cell 518-649-3230
hmaxwell@firstlight.net | www.firstlight.net

For Repair or Technical Questions - 1-833-484-0404 or repair@firstlight.net
For Billing Questions - 1-855-339-1996 or billing@firstlight.net

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From: Dubois, Emily <edubois@vhb.com>
Sent: Wednesday, June 19, 2019 1:57 PM
To: Nicole Martin <nmartin@firstlight.net>
Subject: Dover Utility Will Serve Request

Hi Nicole,

As mentioned on our call earlier, VHB is preparing plans for an approximately 4,500 SF medical office building in Dover, New Hampshire. There is currently no address for the project but the site is the paved lot that abuts 2 Dover Point Road (see attached location map). We are requesting confirmation that First Light can supply service to the proposed project.

Please feel free to contact me with any questions or concerns.

Thank you,

Emily Dubois

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110-6532
P 603.391.3889 **| F** 603.518.7495
edubois@vhb.com

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From: Mills, Jared Mccollum (Mac) <jared.mills@verizon.com>
Sent: Monday, June 17, 2019 4:32 PM
To: Dubois, Emily
Subject: [External] Re: [E] Dover Utility Will Serve Request [Filed 18 Jun 2019 08:16]

Hi Emily -

Yes, we can provide you with any speed variety and voice quality you prefer. I just need to know what services you are looking for and I can prepare a quote for you. Also, when is the projected move in date?

On Mon, Jun 17, 2019 at 10:26 AM Dubois, Emily <edubois@vhb.com> wrote:

> Good Morning Jared,
>
> As discussed on our call earlier, VHB is preparing site plans for an approximately 4,500 SF medical office building in Dover, New Hampshire. There is currently no address for the project but the site is the paved lot that abuts 2 Dover Point Road (see attached location map). We are requesting confirmation that the phone service in Dover Point Road has adequate capacity to service the proposed project and that Verizon will provide service to the proposed building. I have attached a utility plan with the proposed telephone line connecting to an existing pole.
>
> Please feel free to contact me with any questions or concerns.
>
> Thank you,
>
> **Emily Dubois**
>
> 2 Bedford Farms Drive
> Suite 200
> Bedford, NH 03110-6532
> **P** 603.391.3889 | **F** 603.518.7495
> edubois@vhb.com
>
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verizon business ready

Jared "Mac" Mills
Senior Sales Specialist
Verizon Wireline - Medium Business

22001 Loudoun County Parkway
Ashburn, VA 20147

O 703-694-6359
jared.mills@verizon.com

From: Collins, Mark T <mark.collins@eversource.com>
Sent: Wednesday, June 26, 2019 8:57 AM
To: Dubois, Emily
Subject: RE: [External] Lot 30N Dover Point Rd [Filed 26 Jun 2019 08:57]

OK, I will mark up the plan and send it back with the letter. It needs approval from engineering so it may be a few days.

Mark Collins
Field Technician Specialist
Eversource Energy
74 Old Dover Rd
Rochester, NH 03867
603-332-7525

From: Dubois, Emily <edubois@vhb.com>
Sent: Wednesday, June 26, 2019 8:55 AM
To: Collins, Mark T <mark.collins@eversource.com>
Subject: RE: [External] Lot 30N Dover Point Rd

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Hi Mark,

We are still in the design phase and have not submitted plans yet to the planning board. We are looking to coordinate utilities now during the design before approval from the City of Dover and the plan I sent was just a preliminary site design.

Thanks,

Emily Dubois

P 603.391.3889
www.vhb.com

From: Collins, Mark T <mark.collins@eversource.com>
Sent: Wednesday, June 26, 2019 7:06 AM
To: Dubois, Emily <edubois@vhb.com>
Subject: RE: [External] Lot 30N Dover Point Rd [Filed 20 Jun 2019 11:35]

Hi Emily,

I can design it that way and it is perfectly acceptable, it is the same set up as the car wash next door. However, if the plan you sent was something approved/stamped by the City of Dover planning board they will need to approve the new design.
Do you think there would be an issue with that?

Mark Collins
Field Technician Specialist
Eversource Energy
74 Old Dover Rd
Rochester, NH 03867
603-332-7525

From: Dubois, Emily <edubois@vhb.com>
Sent: Tuesday, June 25, 2019 4:46 PM
To: Collins, Mark T <mark.collins@eversource.com>
Subject: RE: [External] Lot 30N Dover Point Rd [Filed 20 Jun 2019 11:35]

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Hi Mark,

My apologies for the delayed response. That is great news, we will continue with the pole mounted transformer. Please let me know if you have any other questions or concerns.

Thank you,

Emily Dubois

P 603.391.3889
www.vhb.com

From: Collins, Mark T <mark.collins@eversource.com>
Sent: Thursday, June 20, 2019 11:28 AM
To: Dubois, Emily <edubois@vhb.com>
Subject: RE: [External] Lot 30N Dover Point Rd [Filed 20 Jun 2019 11:35]

Hi Emily,

I visited the site today. Since you only need a 400 Amp service, it is possible do the job with pole mounted transformers. It does not matter to Eversource, we can go either way. It would be less expensive to go with the pole mount and you wouldn't need the pad mount transformer on your property. If you wish to stay with the original plan I will forward the design to engineering. Please let me know.

Thanks,

Mark Collins
Field Technician Specialist
Eversource Energy
74 Old Dover Rd
Rochester, NH 03867
603-332-7525

From: Dubois, Emily <edubois@vhb.com>
Sent: Wednesday, June 19, 2019 4:13 PM
To: Collins, Mark T <mark.collins@eversource.com>
Subject: RE: [External] Lot 30N Dover Point Rd

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Hi Mark,

I attached the updated letter as well as our utility plan for the proposed site. Please contact me with any questions or concerns.

Thank you,

Emily Dubois

P 603.391.3889
www.vhb.com

From: Collins, Mark T <mark.collins@eversource.com>
Sent: Tuesday, June 18, 2019 7:50 AM
To: Dubois, Emily <edubois@vhb.com>
Subject: [External] Lot 30N Dover Point Rd [Filed 18 Jun 2019 08:16]

Please forward a site plan and fill out your portion of the attached letter. We will update our portion of the letter and return it with a job design. Any questions, please call

Thanks,

Mark Collins
Field Technician Specialist
Eversource Energy
74 Old Dover Rd
Rochester, NH 03867
603-332-7525

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SEWER AND WATER FLOW CALCULATIONS

Computations

Project:	Urgent Care Facility	Project #	52602.00
Location:	Dover, NH	Sheet	1 of 1
Calculated by:	MEO	Date:	7/2/2019
Checked by:		Date:	
Title	Sewer & Water Flow Calculations		

Sewer Flow Calculation

Description	Use	Unit	Flowrate	Estimated Flow
Urgent Care Facility	Unspecified Office	4500 SF	5 gpd/ 100 SF	225 gpd
			Total	**225 gpd**
Water Capacity		1.1 times the sewer Flow		**250 gpd**

STORMWATER MEMORANDUM
(SEPARATE COVER)

TRAFFIC MEMORANDUM
(SEPARATE COVER)

SITE PLANS
(SEPARATE COVER)

Memorandum

To: David Soares
Wentworth-Douglass Hospital
789 Central Avenue
Dover, New Hampshire 03820

Date: July 2, 2019

Project #: 52602.00

From: David Fenstermacher, PE

Re: Stormwater Memorandum
Proposed Urgent Care Facility
Dover Point Road
Dover, New Hampshire

Project Summary

The proposed redevelopment project includes the construction of a 4,500 square-foot medical office building, including associated parking, utilities, stormwater infrastructure, and landscaping (the Project). The Project is located on a 0.47-acre parcel of land, identified as City of Dover Map K, Lot 30-N and located on Dover Point Road in Dover, New Hampshire (the Site) (see Figure 1). The Site is bounded by a car wash to the north, a restaurant to the south, Dover Point Road/Stark Avenue to the west, and undeveloped land to the east. The Site is located within the surface watershed of the Piscataqua River.

Wetland Resources include a wetland in the northeast portion of the Site classified as palustrine, emergent, phragmites australis / persistent, seasonally flooded/saturated (PEM5/1E). A VHB Certified Wetland Scientist performed a site visit and delineation of wetland boundaries in February 2019. The notes and classification of on-site wetlands are shown on the Existing Conditions Plan of Land, included in the Site Plans.

The Project is located in Zone X (unshaded), areas outside of the 500-year floodplain, as shown in the FIRM Flood Insurance Rate Map for the City of Dover, NH Map Number 33017C0340E, effective date September 30, 2015 (see Supporting Data). Underlying soils have been mapped by the Natural Resource Conservation Service (NRCS) as Buxton silt loam, 3 to 8 percent slopes, HSG C (see Supporting Data).

Existing Conditions

The overall drainage study area consists of the Site and a portion of the abutting parcel, Lot 30-C. The area is currently developed and consists of a paved parking lot and associated landscaping currently utilized as overflow parking for the car dealership across the street.

Under existing conditions, stormwater runoff from the parking field is primarily collected in catch basins and connected to a 15-inch pipe bisecting the Site that discharges to the wetland complex to the northeast of the parking lot. Offsite runoff from a catch basin in Dover Point Road is also routed into the onsite 15" pipe.

The existing conditions Project drainage area characteristics are summarized in Table 1 below.

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110-6532
P 603.391.3900

Table 1 Existing Conditions: Drainage Area Characteristics Summary

Discharge Point	Subcatchments	Area (Acres)	Tc (Min.)	CN
DP-1 - Wetland	Project Area	0.74	6.0	94

*Weighted CN Value

Proposed Conditions

The Project includes the construction of a 4,500 square-foot medical office building, including associated parking, utilities, stormwater infrastructure, and landscaping. A portion of the parking field will be located in the abutting restaurant parcel. Minor layout changes and repaving will also be located in the abutting parcel and are included as part of the Project Area. Overall there is a slight reduction in impervious area. Under proposed conditions, stormwater runoff from the roof will drain into a bioretention system. Stormwater runoff from paved areas will be collected into off-line catch basins that are connected to a relocated pipe that connects the existing catch basin in Dover Point Road to the northeast wetland area. Existing drainage and grading patterns were maintained in the proposed design.

The proposed conditions drainage area characteristics are summarized in Table 2 below.

Table 2 Proposed Conditions: Drainage Area Characteristics Summary

Discharge Point	Subcatchments	Area (Acres)	Tc (Min.)	CN
DP-1 - Wetland	Project Area	0.74	6.0	93

*Weighted CN Value

Stormwater Management

The proposed development results in a decrease in impervious area and a reduction in the weighted curve number for the proposed project area than under existing conditions. As a result, peak discharge rates between pre- and post-development conditions will not increase for the 2-, 10-, 25- and 50-year storm events.

As a redevelopment site, per the City of Dover Site Review Regulations, Chapter 149, 30% of the existing impervious area and 50% of the additional proposed impervious area (existing permeable surfaces converted to impervious surfaces) should be mitigated and treated through low impact development (LID) techniques. A bioretention system (rain garden) will be utilized to collect, detain and treat stormwater runoff from the proposed roof. The water quality volume from the roof (1" x 4,500 sf = 355 cubic-feet) will be detained and infiltrated into the underlying soils (see Supporting Calculations). The following table provides design criteria associated with this treatment.

Table 3 Stormwater Treatment Parameters

		Treatment	
	Area (sf)	Required	Provided
Existing Impervious	13,289	3,987 sf (30%)	4,126 sf (31%)
Additional Proposed Impervious	741	371 sf (50%)	374 sf (50%)
Total		4,358 sf	4,500 sf

A hydrologic model, using TR-20 methodology, was developed to evaluate the existing and proposed drainage conditions on the Site. The rainfall events are based on 24-hour storm durations, using a Type III distribution curve. Rainfall amounts used for this analysis were based on the Northeast Regional Climate Center (NRCC) Extreme Precipitation Tables at the location of the Site for the 2-, 10-, 25- and 50-year storm events. The 24-hour duration rainfall is 3.15 inches, 4.76 inches, 6.02 inches and 7.19 inches, respectively.

Table 4 provides a summary of the peak stormwater runoff rates from the Project.

Table 4 Peak Stormwater Runoff Rate Summary

Discharge Point	Condition	Peak Flow for Given Storm (cfs)			
		2-year	10-year	25-year	50-year
DP-1 - Wetland	Existing	2.0	3.2	4.2	5.0
	Proposed	1.7	2.7	3.8	4.9

Stormwater Best Management Practices (BMP's)

Detention will be achieved by allowing water to pond temporarily in a surface bioretention area. The stormwater that discharges from the bioretention system will be filtered through a specified filter media to treat the stormwater runoff. An area drain set 6-inches above the bottom of the bioretention system will provide an overflow outlet for the larger storm events that is connected to the pipe network and discharge to the existing wetlands.

Stormwater from the paved surfaces on-site will be collected in off-line deep sump (4-foot) catch basins. Catch basin sumps are effective pollution control devices for removal of large particulate and adsorbed pollutants. Catch basins with sumps are designed to collect sediment particles that are the largest constituents of the pollutant load in urban runoff. Providing disconnected, off-line, catch basins reduces resuspension of sediments in the closed drainage system. Regular maintenance and cleaning of catch basins is required to assure adequate performance of these structures. An Operation and Maintenance Manual has been included as part of this memorandum.

Temporary Erosion Control

During construction of the proposed development, the contractor shall be responsible for installation and maintenance of temporary sedimentation and erosion control measures to prevent off-site tracking and waterborne loss of earth sediment and debris. The specific measures proposed as a part of the project plan are shown in the Site Plan Package on the Grading, Drainage, and Erosion Control Plan and the Site Details.

Removal of temporary erosion control measures will be prohibited until paving has been installed and vegetation (grass) is well established.

Permanent Erosion Control

At the completion of construction, all soils will be permanently stabilized by one or more of the following measures:

- Parking/Access: Driveways, parking areas and access roads will be stabilized with bituminous concrete pavement.
- Landscaped Areas: All disturbed areas, not permanently stabilized by pavement or buildings, will be covered with bark mulch, stone, sod or a minimum of six (6) inches of topsoil and seeded.

Additionally, all catch basins will be constructed with deep sumps to collect sediment from parking areas and access roads.

Conclusion

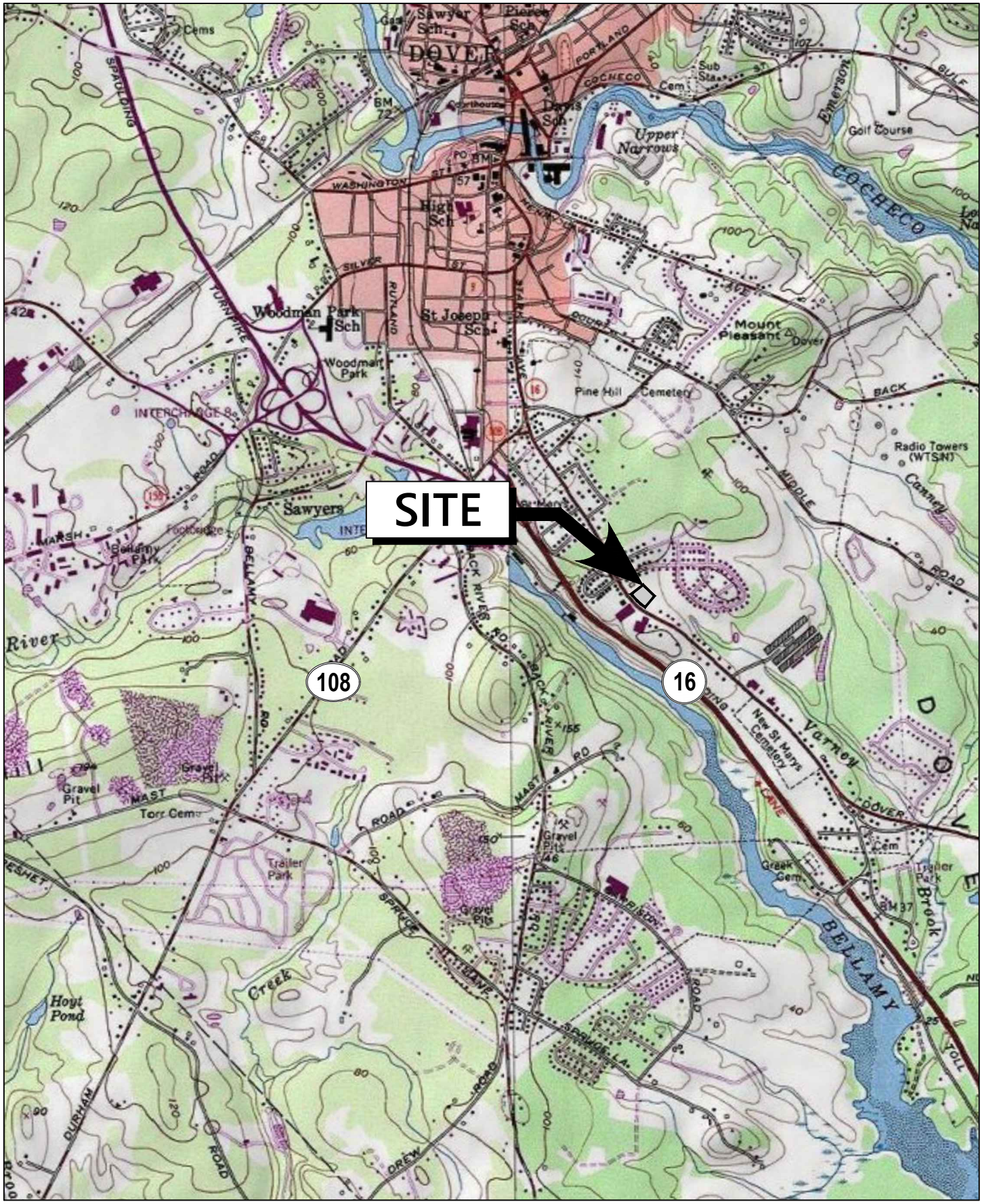
By implementing standard stormwater management techniques and low impact development, the proposed Project can successfully mitigate its impacts on peak stormwater runoff rates. Furthermore, stormwater quality can be addressed through the proposed implementation of standard practices (i.e. deep sump catch basins and a bioretention basin) based on New Hampshire Department of Environmental Services regulations. The Project has been designed to meet the Stormwater Management requirements for a redevelopment per the City of Dover Site Review Regulations, Chapter 149, where 30% of the existing impervious area and 50% of the additional proposed impervious area should be treated through the use of LID.

Figures

Figure 1: Site Location Map (USGS)

C-3 Grading, Drainage and Erosion Control Plan (Reduced)

C-7 Site Details 3 (Reduced)



vhb

Site Location Map

Figure 1

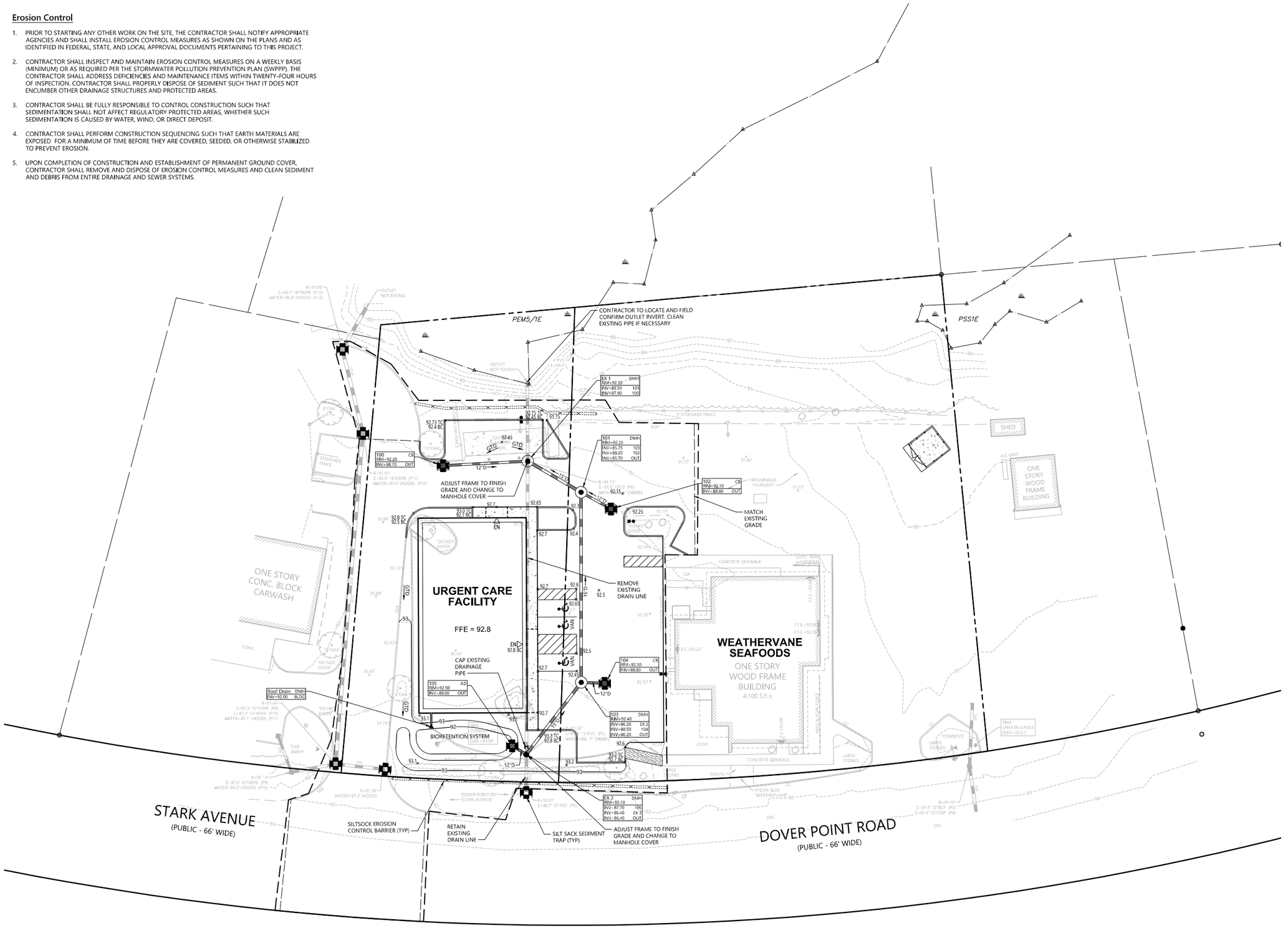
Urgent Care
Dover, New Hampshire

June 2019

0 1000 2000 Feet

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.



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Suite 200
Bedford, NH 03110
603.391.3900

0 10 20 40 Feet

Proposed Urgent Care Facility

Dover Point Road
Dover, New Hampshire

No.	Revison	Date	Appvd.

Designed by | Checked by

Issued for: **Permitting** — Date: July 2, 2019

Not Approved for Construction

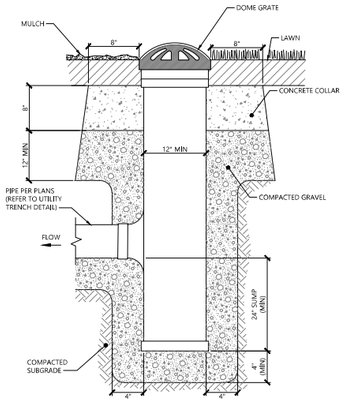
Drawing Title
Grading, Drainage and Erosion Control Plan

Drawing Number
C-3

Sheet 3 of 9

Project Number
52602.00

Saved Tuesday, July 2, 2019 2:27:32 PM EDUBOIS Plotted Tuesday, July 2, 2019 3:38:43 PM DuBois, Emily

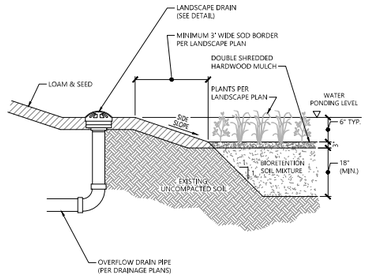


NOTES:

1. LANDSCAPE DRAINS SHALL BE NYLOPLAST 12" DRAIN BASIN, OR APPROVED EQUAL.
2. GRATES SHALL BE NYLOPLAST, 12" DOME GRATE MODEL 1299CGD, OR APPROVED EQUAL AS SHOWN ON PLANS.

Area Drain (AD) 9/17

N.T.S. Source: VHB LD_197

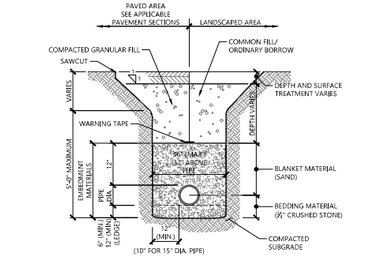


NOTES

1. SURFACE SIDE SLOPES SHALL BE 3:1 MAX. 2% MIN.
2. FILTER MEDIA SHALL CONSIST (BY VOLUME) OF:
   - 50% TO 55% SAND (ASTM C-33 CONCRETE SAND)
   - 20% TO 30% LOAMY SAND TOPSOIL WITH 15% TO 25% PASSING THE #200 SIEVE; AND
   - 20% TO 30% MODERATELY FINE SHREDDED BARK MULCH OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.
   - FILTER MEDIA SHALL BE FIELD TESTED FOR PERMEABILITY RATE PRIOR TO PLACING IN BASIN. GRADATION SHALL BE ADJUSTED, IF REQUIRED, TO MEET THE DESIGN PERMEABILITY RATE OF 2.5 IN/HR (±0.5 IN/HR). ADJUSTED GRADATIONS AND PERMEABILITY RATES SHALL BE SUBMITTED TO DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ORGANIC CONTENT SHALL MEET REQUIREMENTS ABOVE.

Bioretention System 1/16

N.T.S. Source: VHB REV LD_351

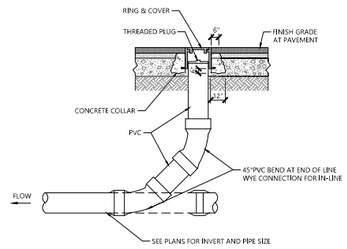


NOTES

1. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.
2. EMBEDMENT MATERIALS:
   A. PIPE BEDDING MATERIAL SHALL EXTEND FROM A HORIZONTAL PLANE THROUGH THE PIPE AXIS TO 6 INCHES BELOW THE BOTTOM OF THE PIPE'S OUTSIDE SURFACE.
   B. PIPE BLANKET MATERIAL SHALL COVER THE PIPE A MINIMUM OF 12 INCHES ABOVE THE CROWN OF THE PIPE'S OUTSIDE SURFACE.
   C. COMPACTION SHALL BE IN 6 INCH (MAX) LAYERS FOR BEDDING MATERIALS MATERIALS AND 12 IN (MAX) LAYERS FOR BLANKET MATERIALS.
3. MAXIMUM ALLOWABLE TRENCH WIDTH AT A PLANE 12 INCHES ABOVE THE PIPE SHALL BE 36 INCHES (PIPE DIAMETERS UP TO 15 INCHES)
4. WATER LINES SHALL BE LOCATED AT LEAST 10-FT HORIZONTALLY FROM SEWER LINES. A MINIMUM VERTICAL SEPARATION OF 18-IN SHALL BE PROVIDED WHERE SEWER AND WATER LINES CROSS AND THE WATER LINE SHALL BE LOCATED ABOVE THE SEWER LINE.
5. INSTALL INSULATION ABOVE SEWER LINES WHEN THEY CROSS UNDER DRAIN LINES WITHIN 10-FT OF A DRAINAGE STRUCTURE. INSULATION SHALL BE 2-IN (MIN) RIGID INSULATION PLACED 30-IN (MIN.) ACROSS THE TRENCH AND SHALL EXTEND 5-FT ON EITHER SIDE OF THE CROSSING.

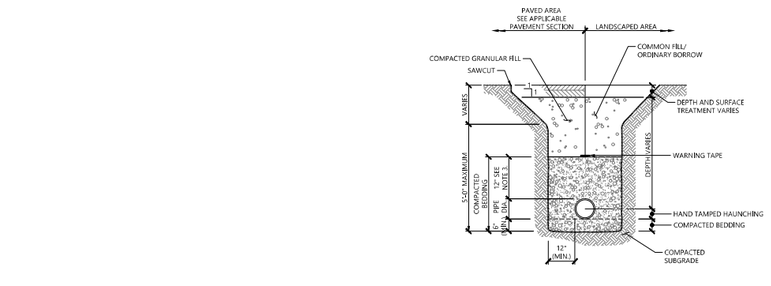
Sewer Trench 1/16

N.T.S. Source: VHB LD_300S-NH



Cleanout - Paved Area 1/16

N.T.S. Source: VHB LD_303

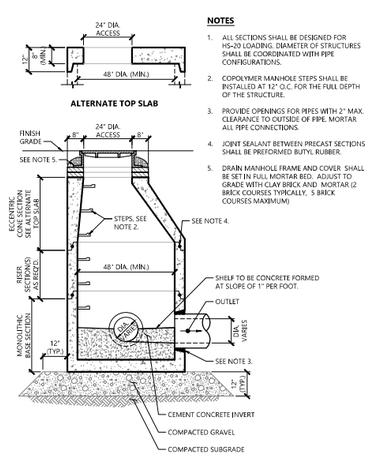


NOTES

1. WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
2. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.
3. FOR HDPE PIPE, DIMENSION IS 24 INCHES.
4. MINIMUM COVER REQUIREMENTS:
   A. WATER: 5-FT
   C. DRAIN: AS SPECIFIED ON PLANS
5. EMBEDMENT MATERIALS:
   A. WATER: GRAVEL (NHDOT 304.2-MODIFIED FOR 1-1/2 IN MAX. STONE SIZE)
   C. DRAIN: GRAVEL (NHDOT 304.2-MODIFIED FOR 1-1/2 IN MAX. STONE SIZE)
6. WITHIN RIGHT OF WAY BACKFILL MUST BE PLACED IN 12" LIFTS AND COMPACTED.

Utility Trench (Water & Drain) 1/16

N.T.S. Source: VHB LD_300-NH

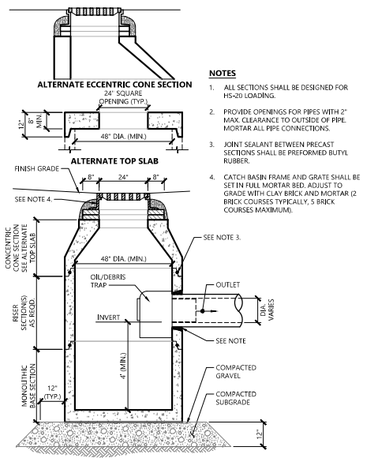


NOTES

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATED WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).

Drain Manhole (DMH) 1/16

N.T.S. Source: VHB LD_115



NOTES

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).

Catch Basin (CB) With Oil/Debris Trap 1/16

N.T.S. Source: VHB LD_101

PLAN VIEW

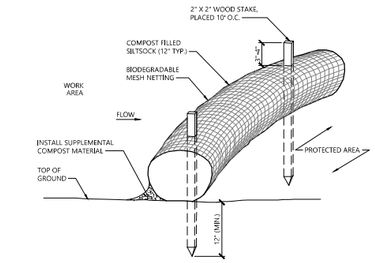
SECTION VIEW

NOTES

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

Siltsack Sediment Trap 1/16

N.T.S. Source: VHB LD_674

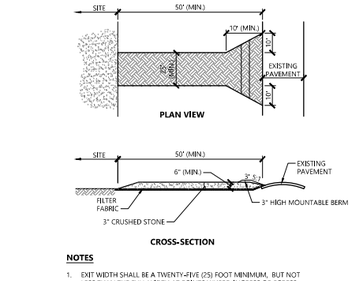


NOTES

1. SILTSOCK SHALL BE FILTREXX SILTSOXX, OR APPROVED EQUAL.
2. SILTSOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. SILTSOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Siltsock - Erosion Control Barrier 1/16

N.T.S. Source: VHB LD_658



CROSS-SECTION

NOTES

1. EXIT WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR 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. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.
4. CONTRACTOR TO COORDINATE FINAL LOCATION AND/OR RELOCATION BASED ON CONSTRUCTION CONDITIONS.

Stabilized Construction Exit 5/17

N.T.S. Source: VHB REV LD_682-NH

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Suite 200
Bedford, NH 03110
603.391.3900

Proposed Urgent Care Facility

Dover Point Road
Dover, New Hampshire

No.	Revision	Date	Apprvd.

Designed by | Checked by

Issued for | Date

Permitting July 2, 2019

Not Approved for Construction

Drawing Title
Site Details 3

Drawing Number
C-7

Sheet 7 of 9

Project Number
52602.00

Saved Monday, July 1, 2019 3:38:14 PM EDUBOIS Plotted Tuesday, July 2, 2019 12:35:46 PM DuBois, Emily

Support Data

Flood Insurance Rate Map

NRCS Soil Survey Map

NRCC Rainfall Data

Water Quality Volume (WQV) Calculations

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

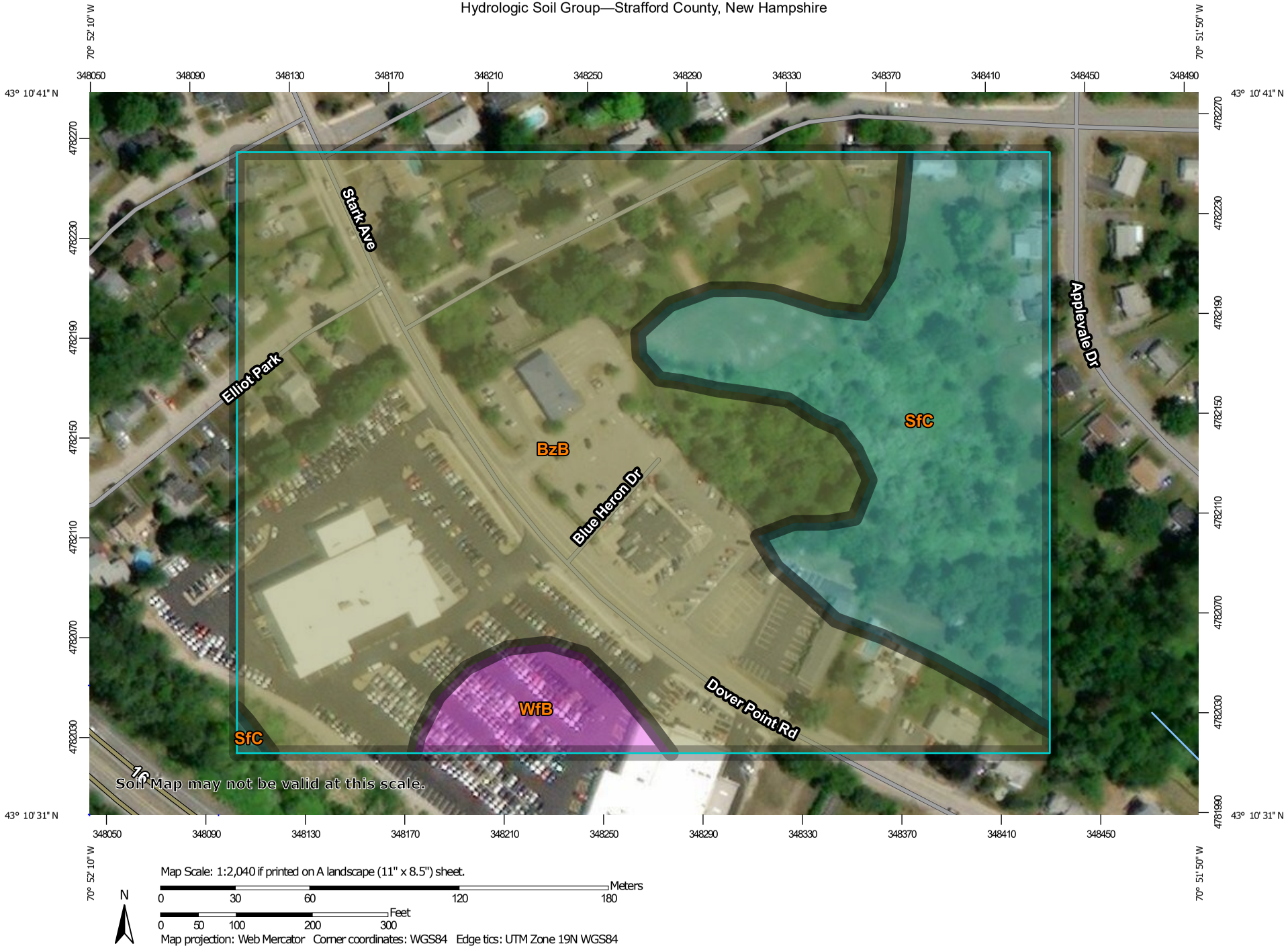
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/10/2019 at 1:19:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Map Scale: 1:2,040 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Strafford County, New Hampshire
Survey Area Data: Version 18, Sep 5, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BzB	Buxton silt loam, 3 to 8 percent slopes	C/D	13.8	70.9%
SfC	Suffield silt loam, 8 to 15 percent slopes	C	4.9	25.2%
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	A	0.8	4.0%
Totals for Area of Interest			**19.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.867 degrees West
Latitude	43.176 degrees North
Elevation	0 feet
Date/Time	Thu, 30 May 2019 10:26:01 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.55	2.00	2.61	2.87	**1yr**	2.31	2.76	3.16	3.88	4.45	**1yr**
2yr	0.32	0.49	0.61	0.81	1.01	1.29	**2yr**	0.88	1.17	1.50	1.91	2.45	3.15	3.51	**2yr**	2.79	3.37	3.87	4.60	5.24	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.39	3.08	3.98	4.49	**5yr**	3.53	4.32	4.94	5.81	6.57	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.83	3.67	4.76	5.42	**10yr**	4.21	5.21	5.95	6.94	7.81	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.70	3.53	4.62	6.02	6.96	**25yr**	5.33	6.69	7.61	8.78	9.82	**25yr**
50yr	0.52	0.83	1.06	1.48	2.00	2.67	**50yr**	1.73	2.46	3.18	4.19	5.50	7.19	8.40	**50yr**	6.37	8.08	9.18	10.50	11.67	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.00	2.89	3.75	4.96	6.54	8.60	10.16	**100yr**	7.61	9.77	11.07	12.55	13.89	**100yr**
200yr	0.64	1.05	1.36	1.95	2.70	3.67	**200yr**	2.33	3.40	4.43	5.90	7.81	10.29	12.28	**200yr**	9.11	11.80	13.35	15.02	16.53	**200yr**
500yr	0.76	1.24	1.62	2.36	3.30	4.54	**500yr**	2.85	4.22	5.50	7.39	9.84	13.05	15.78	**500yr**	11.55	15.17	17.11	19.04	20.83	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.26	1.59	2.14	2.46	**1yr**	1.90	2.36	2.87	3.33	4.01	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.36	3.04	3.40	**2yr**	2.69	3.27	3.75	4.47	5.04	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.77	3.72	4.13	**5yr**	3.29	3.97	4.61	5.42	6.12	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.28	4.79	**10yr**	3.79	4.60	5.32	6.25	7.03	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.91	**25yr**	1.34	1.86	2.11	2.84	3.64	4.91	5.79	**25yr**	4.34	5.57	6.49	7.57	8.44	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.18	**50yr**	1.52	2.13	2.35	3.19	4.09	5.59	6.68	**50yr**	4.95	6.42	7.53	8.73	9.69	**50yr**
100yr	0.53	0.81	1.01	1.46	2.00	2.50	**100yr**	1.73	2.44	2.63	3.57	4.56	6.36	7.70	**100yr**	5.62	7.41	8.74	10.08	11.11	**100yr**
200yr	0.59	0.89	1.13	1.63	2.28	2.86	**200yr**	1.97	2.79	2.93	3.99	5.08	7.22	8.88	**200yr**	6.39	8.54	10.14	11.65	12.75	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.44	**500yr**	2.35	3.36	3.40	4.62	5.89	8.52	10.70	**500yr**	7.54	10.29	12.33	14.12	15.26	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.24	1.74	2.22	2.89	3.09	**1yr**	2.56	2.97	3.44	4.24	4.83	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.48	1.96	2.51	3.30	3.63	**2yr**	2.92	3.49	4.00	4.75	5.46	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.59	**5yr**	1.13	1.55	1.86	2.50	3.21	4.25	4.86	**5yr**	3.76	4.67	5.28	6.24	7.00	**5yr**
10yr	0.46	0.70	0.87	1.22	1.57	1.92	**10yr**	1.36	1.88	2.24	3.05	3.87	5.22	6.07	**10yr**	4.62	5.83	6.66	7.66	8.54	**10yr**
25yr	0.56	0.85	1.05	1.50	1.98	2.48	**25yr**	1.71	2.43	2.89	3.98	4.98	7.14	8.15	**25yr**	6.32	7.84	8.91	10.08	11.14	**25yr**
50yr	0.64	0.98	1.22	1.75	2.36	3.00	**50yr**	2.03	2.93	3.50	4.85	6.05	8.83	10.21	**50yr**	7.82	9.82	11.13	12.40	13.62	**50yr**
100yr	0.75	1.13	1.42	2.05	2.81	3.63	**100yr**	2.42	3.55	4.25	5.94	7.36	10.93	12.80	**100yr**	9.68	12.30	13.90	15.28	16.67	**100yr**
200yr	0.87	1.31	1.66	2.40	3.34	4.40	**200yr**	2.89	4.30	5.17	7.27	8.95	13.57	16.05	**200yr**	12.01	15.44	17.37	18.82	20.42	**200yr**
500yr	1.06	1.58	2.04	2.96	4.21	5.66	**500yr**	3.63	5.54	6.68	9.52	11.61	18.07	21.67	**500yr**	15.99	20.84	23.34	24.81	26.73	**500yr**

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General Calculations - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP that does not fit into one of the specific worksheets already provided (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

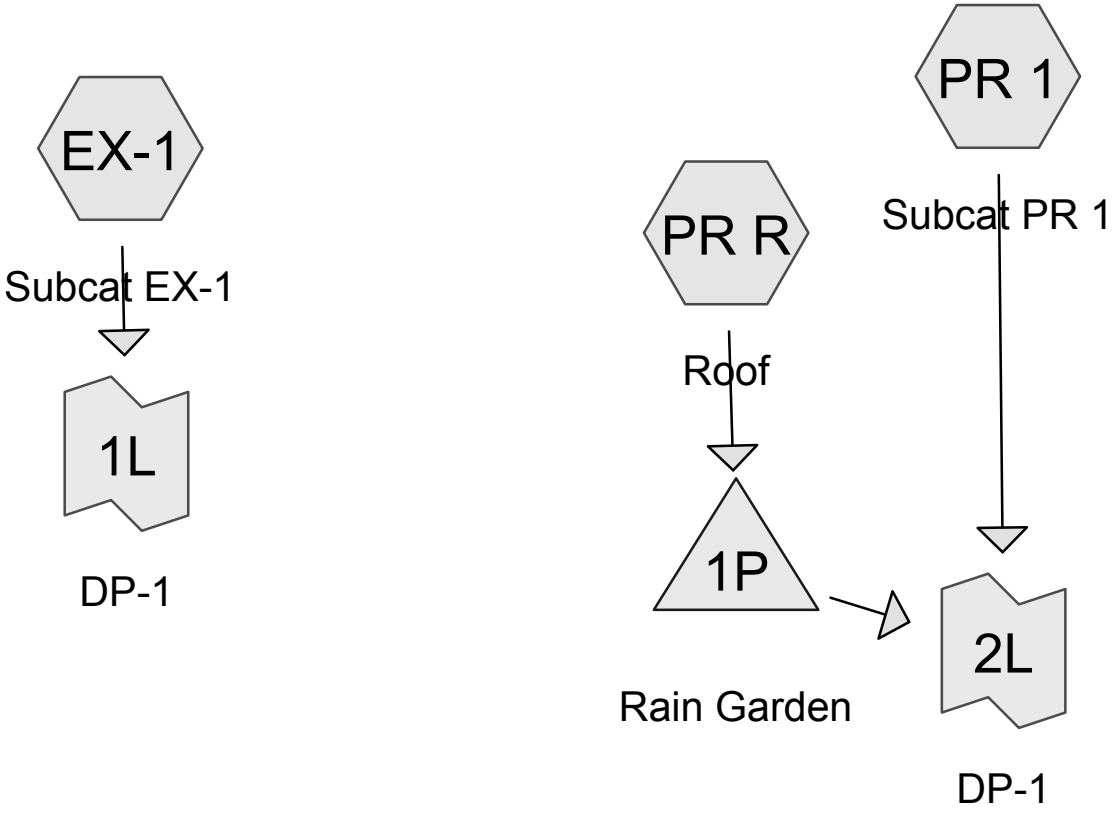
0.10	ac	A = Area draining to the practice
0.10	ac	A_I = Impervious area draining to the practice
1.00	decimal	I = percent impervious area draining to the practice, in decimal form
0.95	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.10	ac-in	WQV= 1" x Rv x A
355	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = amount of rainfall. For WQF in NH, P = 1".
0.95	inches	Q = water quality depth. Q = WQV/A
100	unitless	CN = unit peak discharge curve number. $CN = 1000/(10+5P+10Q-10*[Q^2 + 1.25*Q*P]^{0.5})$
0.0	inches	S = potential maximum retention. S = (1000/CN) - 10
0.009	inches	Ia = initial abstraction. Ia = 0.2S
	minutes	T_c = Time of Concentration
	$cfs/mi^2/in$	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
-	cfs	WQF = q_u x WQV. Conversion: to convert "$cfs/mi^2/in$ * ac-in" to "cfs" multiply by $1mi^2/640ac$

Designer's Notes:

Hydrologic Calculations



Subcat Reach Pond Link

Routing Diagram for 52572.00 HydroCAD Analysis
Prepared by VHB, Printed 7/2/2019
HydroCAD® 10.00-22 s/n 01038 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=0.744 ac 82.47% Impervious Runoff Depth=2.50"
Tc=6.0 min CN=94 Runoff=2.04 cfs 0.155 af

Subcatchment PR 1: Subcat PR 1 Runoff Area=0.641 ac 75.82% Impervious Runoff Depth=2.30"
Tc=6.0 min CN=92 Runoff=1.65 cfs 0.123 af

Subcatchment PR R: Roof Runoff Area=0.103 ac 100.00% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.025 af

Pond 1P: Rain Garden Peak Elev=92.50' Storage=980 cf Inflow=0.31 cfs 0.025 af
Discarded=0.00 cfs 0.005 af Primary=0.00 cfs 0.001 af Outflow=0.00 cfs 0.006 af

Link 1L: DP-1 Inflow=2.04 cfs 0.155 af
Primary=2.04 cfs 0.155 af

Link 2L: DP-1 Inflow=1.65 cfs 0.124 af
Primary=1.65 cfs 0.124 af

Total Runoff Area = 1.488 ac Runoff Volume = 0.303 af Average Runoff Depth = 2.44"
19.18% Pervious = 0.285 ac 80.82% Impervious = 1.203 ac

Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 2.04 cfs @ 12.09 hrs, Volume= 0.155 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (ac)	CN	Description
0.128	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.614	98	Paved parking, HSG C
0.744	94	Weighted Average
0.130		17.53% Pervious Area
0.614		82.47% Impervious Area

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

Summary for Subcatchment PR 1: Subcat PR 1

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.123 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (ac)	CN	Description
0.153	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.486	98	Paved parking, HSG C
0.641	92	Weighted Average
0.155		24.18% Pervious Area
0.486		75.82% Impervious Area

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

Summary for Subcatchment PR R: Roof

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (ac)	CN	Description
0.103	98	Roofs, HSG C
0.103		100.00% Impervious Area

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

Summary for Pond 1P: Rain Garden

Inflow Area = 0.103 ac,100.00% Impervious, Inflow Depth = 2.92" for 2-Year event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 0.025 af
Outflow = 0.00 cfs @ 18.58 hrs, Volume= 0.006 af, Atten= 98%, Lag= 389.7 min
Discarded = 0.00 cfs @ 18.58 hrs, Volume= 0.005 af
Primary = 0.00 cfs @ 18.58 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Peak Elev= 92.50' @ 18.58 hrs Surf.Area= 1,096 sf Storage= 980 cf

Plug-Flow detention time= 1,644.5 min calculated for 0.006 af (25% of inflow)
Center-of-Mass det. time= 1,439.2 min (2,196.0 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	628 cf	**Surface Pond Area (Irregular)** Listed below (Recalc)
#2	90.50'	707 cf	**Filter Media (Irregular)** Listed below (Recalc)
		1,335 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
92.00	471	100.0	0	0	471
93.00	800	119.0	628	628	820

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
90.50	471	100.0	0	0	471
92.00	471	100.0	707	707	621

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.50'	**0.030 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 87.00'
#2	Primary	92.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 18.58 hrs HW=92.50' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 18.58 hrs HW=92.50' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.11 fps)

Summary for Link 1L: DP-1

Inflow Area = 0.744 ac, 82.47% Impervious, Inflow Depth = 2.50" for 2-Year event
Inflow = 2.04 cfs @ 12.09 hrs, Volume= 0.155 af
Primary = 2.04 cfs @ 12.09 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Summary for Link 2L: DP-1

Inflow Area = 0.744 ac, 79.17% Impervious, Inflow Depth = 2.01" for 2-Year event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 0.124 af
Primary = 1.65 cfs @ 12.09 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=0.744 ac 82.47% Impervious Runoff Depth=4.07"
Tc=6.0 min CN=94 Runoff=3.24 cfs 0.252 af

Subcatchment PR 1: Subcat PR 1 Runoff Area=0.641 ac 75.82% Impervious Runoff Depth=3.86"
Tc=6.0 min CN=92 Runoff=2.70 cfs 0.206 af

Subcatchment PR R: Roof Runoff Area=0.103 ac 100.00% Impervious Runoff Depth=4.52"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Pond 1P: Rain Garden Peak Elev=92.54' Storage=1,005 cf Inflow=0.47 cfs 0.039 af
Discarded=0.00 cfs 0.005 af Primary=0.17 cfs 0.015 af Outflow=0.17 cfs 0.020 af

Link 1L: DP-1 Inflow=3.24 cfs 0.252 af
Primary=3.24 cfs 0.252 af

Link 2L: DP-1 Inflow=2.70 cfs 0.221 af
Primary=2.70 cfs 0.221 af

Total Runoff Area = 1.488 ac Runoff Volume = 0.497 af Average Runoff Depth = 4.01"
19.18% Pervious = 0.285 ac 80.82% Impervious = 1.203 ac

Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 3.24 cfs @ 12.09 hrs, Volume= 0.252 af, Depth= 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.76"

Area (ac)	CN	Description
0.128	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.614	98	Paved parking, HSG C
0.744	94	Weighted Average
0.130		17.53% Pervious Area
0.614		82.47% Impervious Area

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

Summary for Subcatchment PR 1: Subcat PR 1

Runoff = 2.70 cfs @ 12.09 hrs, Volume= 0.206 af, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.76"

Area (ac)	CN	Description
0.153	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.486	98	Paved parking, HSG C
0.641	92	Weighted Average
0.155		24.18% Pervious Area
0.486		75.82% Impervious Area

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

Summary for Subcatchment PR R: Roof

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.76"

Area (ac)	CN	Description
0.103	98	Roofs, HSG C
0.103		100.00% Impervious Area

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

Summary for Pond 1P: Rain Garden

Inflow Area = 0.103 ac,100.00% Impervious, Inflow Depth = 4.52" for 10-Year event
Inflow = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af
Outflow = 0.17 cfs @ 12.35 hrs, Volume= 0.020 af, Atten= 63%, Lag= 15.9 min
Discarded = 0.00 cfs @ 12.35 hrs, Volume= 0.005 af
Primary = 0.17 cfs @ 12.35 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Peak Elev= 92.54' @ 12.35 hrs Surf.Area= 1,109 sf Storage= 1,005 cf

Plug-Flow detention time= 659.4 min calculated for 0.020 af (52% of inflow)
Center-of-Mass det. time= 536.3 min (1,285.2 - 748.8)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	628 cf	**Surface Pond Area (Irregular)** Listed below (Recalc)
#2	90.50'	707 cf	**Filter Media (Irregular)** Listed below (Recalc)
		1,335 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
92.00	471	100.0	0	0	471
93.00	800	119.0	628	628	820

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
90.50	471	100.0	0	0	471
92.00	471	100.0	707	707	621

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.50'	**0.030 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 87.00'
#2	Primary	92.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.35 hrs HW=92.54' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.35 hrs HW=92.54' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.17 cfs @ 0.66 fps)

Summary for Link 1L: DP-1

Inflow Area = 0.744 ac, 82.47% Impervious, Inflow Depth = 4.07" for 10-Year event
Inflow = 3.24 cfs @ 12.09 hrs, Volume= 0.252 af
Primary = 3.24 cfs @ 12.09 hrs, Volume= 0.252 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Summary for Link 2L: DP-1

Inflow Area = 0.744 ac, 79.17% Impervious, Inflow Depth = 3.56" for 10-Year event
Inflow = 2.70 cfs @ 12.09 hrs, Volume= 0.221 af
Primary = 2.70 cfs @ 12.09 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=0.744 ac 82.47% Impervious Runoff Depth=5.32"
Tc=6.0 min CN=94 Runoff=4.16 cfs 0.330 af

Subcatchment PR 1: Subcat PR 1 Runoff Area=0.641 ac 75.82% Impervious Runoff Depth=5.09"
Tc=6.0 min CN=92 Runoff=3.50 cfs 0.272 af

Subcatchment PR R: Roof Runoff Area=0.103 ac 100.00% Impervious Runoff Depth=5.78"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.050 af

Pond 1P: Rain Garden Peak Elev=92.59' Storage=1,036 cf Inflow=0.59 cfs 0.050 af
Discarded=0.00 cfs 0.005 af Primary=0.54 cfs 0.026 af Outflow=0.54 cfs 0.031 af

Link 1L: DP-1 Inflow=4.16 cfs 0.330 af
Primary=4.16 cfs 0.330 af

Link 2L: DP-1 Inflow=3.77 cfs 0.298 af
Primary=3.77 cfs 0.298 af

Total Runoff Area = 1.488 ac Runoff Volume = 0.651 af Average Runoff Depth = 5.25"
19.18% Pervious = 0.285 ac 80.82% Impervious = 1.203 ac

Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 4.16 cfs @ 12.09 hrs, Volume= 0.330 af, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.02"

Area (ac)	CN	Description
0.128	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.614	98	Paved parking, HSG C
0.744	94	Weighted Average
0.130		17.53% Pervious Area
0.614		82.47% Impervious Area

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

Summary for Subcatchment PR 1: Subcat PR 1

Runoff = 3.50 cfs @ 12.09 hrs, Volume= 0.272 af, Depth= 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.02"

Area (ac)	CN	Description
0.153	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.486	98	Paved parking, HSG C
0.641	92	Weighted Average
0.155		24.18% Pervious Area
0.486		75.82% Impervious Area

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

Summary for Subcatchment PR R: Roof

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.02"

Area (ac)	CN	Description
0.103	98	Roofs, HSG C
0.103		100.00% Impervious Area

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

Summary for Pond 1P: Rain Garden

Inflow Area = 0.103 ac,100.00% Impervious, Inflow Depth = 5.78" for 25-Year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.050 af
Outflow = 0.54 cfs @ 12.16 hrs, Volume= 0.031 af, Atten= 8%, Lag= 4.2 min
Discarded = 0.00 cfs @ 12.16 hrs, Volume= 0.005 af
Primary = 0.54 cfs @ 12.16 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Peak Elev= 92.59' @ 12.16 hrs Surf.Area= 1,125 sf Storage= 1,036 cf

Plug-Flow detention time= 479.2 min calculated for 0.031 af (62% of inflow)
Center-of-Mass det. time= 371.3 min (1,116.4 - 745.1)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	628 cf	**Surface Pond Area (Irregular)** Listed below (Recalc)
#2	90.50'	707 cf	**Filter Media (Irregular)** Listed below (Recalc)
		1,335 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
92.00	471	100.0	0	0	471
93.00	800	119.0	628	628	820

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
90.50	471	100.0	0	0	471
92.00	471	100.0	707	707	621

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.50'	**0.030 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 87.00'
#2	Primary	92.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.16 hrs HW=92.59' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.52 cfs @ 12.16 hrs HW=92.59' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.52 cfs @ 0.96 fps)

Summary for Link 1L: DP-1

Inflow Area = 0.744 ac, 82.47% Impervious, Inflow Depth = 5.32" for 25-Year event
Inflow = 4.16 cfs @ 12.09 hrs, Volume= 0.330 af
Primary = 4.16 cfs @ 12.09 hrs, Volume= 0.330 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Summary for Link 2L: DP-1

Inflow Area = 0.744 ac, 79.17% Impervious, Inflow Depth = 4.80" for 25-Year event
Inflow = 3.77 cfs @ 12.10 hrs, Volume= 0.298 af
Primary = 3.77 cfs @ 12.10 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=0.744 ac 82.47% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=94 Runoff=5.02 cfs 0.402 af

Subcatchment PR 1: Subcat PR 1 Runoff Area=0.641 ac 75.82% Impervious Runoff Depth=6.24"
Tc=6.0 min CN=92 Runoff=4.25 cfs 0.333 af

Subcatchment PR R: Roof Runoff Area=0.103 ac 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=98 Runoff=0.71 cfs 0.060 af

Pond 1P: Rain Garden Peak Elev=92.60' Storage=1,046 cf Inflow=0.71 cfs 0.060 af
Discarded=0.00 cfs 0.005 af Primary=0.69 cfs 0.036 af Outflow=0.69 cfs 0.041 af

Link 1L: DP-1 Inflow=5.02 cfs 0.402 af
Primary=5.02 cfs 0.402 af

Link 2L: DP-1 Inflow=4.93 cfs 0.369 af
Primary=4.93 cfs 0.369 af

Total Runoff Area = 1.488 ac Runoff Volume = 0.795 af Average Runoff Depth = 6.41"
19.18% Pervious = 0.285 ac 80.82% Impervious = 1.203 ac

Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 5.02 cfs @ 12.09 hrs, Volume= 0.402 af, Depth= 6.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=7.19"

Area (ac)	CN	Description
0.128	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.614	98	Paved parking, HSG C
0.744	94	Weighted Average
0.130		17.53% Pervious Area
0.614		82.47% Impervious Area

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

Summary for Subcatchment PR 1: Subcat PR 1

Runoff = 4.25 cfs @ 12.09 hrs, Volume= 0.333 af, Depth= 6.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=7.19"

Area (ac)	CN	Description
0.153	74	>75% Grass cover, Good, HSG C
0.002	70	Woods, Good, HSG C
0.486	98	Paved parking, HSG C
0.641	92	Weighted Average
0.155		24.18% Pervious Area
0.486		75.82% Impervious Area

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

Summary for Subcatchment PR R: Roof

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=7.19"

Area (ac)	CN	Description
0.103	98	Roofs, HSG C
0.103		100.00% Impervious Area

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

Summary for Pond 1P: Rain Garden

Inflow Area = 0.103 ac,100.00% Impervious, Inflow Depth = 6.95" for 50-Year event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.69 cfs @ 12.10 hrs, Volume= 0.041 af, Atten= 2%, Lag= 1.1 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.005 af
Primary = 0.69 cfs @ 12.10 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Peak Elev= 92.60' @ 12.11 hrs Surf.Area= 1,130 sf Storage= 1,046 cf

Plug-Flow detention time= 392.0 min calculated for 0.041 af (69% of inflow)
Center-of-Mass det. time= 295.8 min (1,038.4 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	628 cf	**Surface Pond Area (Irregular)** Listed below (Recalc)
#2	90.50'	707 cf	**Filter Media (Irregular)** Listed below (Recalc)
		1,335 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
92.00	471	100.0	0	0	471
93.00	800	119.0	628	628	820

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
90.50	471	100.0	0	0	471
92.00	471	100.0	707	707	621

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.50'	**0.030 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 87.00'
#2	Primary	92.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=92.60' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.68 cfs @ 12.10 hrs HW=92.60' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.68 cfs @ 1.05 fps)

Summary for Link 1L: DP-1

Inflow Area = 0.744 ac, 82.47% Impervious, Inflow Depth = 6.48" for 50-Year event
Inflow = 5.02 cfs @ 12.09 hrs, Volume= 0.402 af
Primary = 5.02 cfs @ 12.09 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Summary for Link 2L: DP-1

Inflow Area = 0.744 ac, 79.17% Impervious, Inflow Depth = 5.96" for 50-Year event
Inflow = 4.93 cfs @ 12.09 hrs, Volume= 0.369 af
Primary = 4.93 cfs @ 12.09 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Stage-Area-Storage for Pond 1P: Rain Garden

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
90.50	471	0
90.55	471	24
90.60	471	47
90.65	471	71
90.70	471	94
90.75	471	118
90.80	471	141
90.85	471	165
90.90	471	188
90.95	471	212
91.00	471	236
91.05	471	259
91.10	471	283
91.15	471	306
91.20	471	330
91.25	471	353
91.30	471	377
91.35	471	400
91.40	471	424
91.45	471	447
91.50	471	471
91.55	471	495
91.60	471	518
91.65	471	542
91.70	471	565
91.75	471	589
91.80	471	612
91.85	471	636
91.90	471	659
91.95	471	683
92.00	942	707
92.05	956	730
92.10	971	755
92.15	986	780
92.20	1,001	807
92.25	1,016	833
92.30	1,032	861
92.35	1,047	889
92.40	1,063	919
92.45	1,079	949
92.50	1,096	980
92.55	1,112	1,011
92.60	1,129	1,044
92.65	1,146	1,077
92.70	1,163	1,111
92.75	1,181	1,146
92.80	1,198	1,182
92.85	1,216	1,219
92.90	1,234	1,257
92.95	1,252	1,295
93.00	**1,271**	**1,335**

Operation and Maintenace Manual

OPERATION & MAINTENANCE MANUAL
(Stormwater Management System)

Proposed Urgent Care Facility

Dover Point Road
Dover, New Hampshire

PREPARED FOR

Wentworth-Douglass Hospital
789 Central Avenue
Dover, NH 03820

PREPARED BY

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.391.3900

July 2019

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Introduction

VHB has prepared the following Stormwater Management System Operation & Maintenance Manual for the Proposed Urgent Care Facility located on Dover Point Road in Dover, New Hampshire. The intent of this plan is to provide the applicant/owner with a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this development.

The following operation and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. By following the enclosed procedures, the applicant will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Responsible Party

The oversight of the operation and maintenance program will be provided by:

Wentworth-Douglass Hospital
789 Central Avenue
Dover, NH 03820

Stormwater Management System Components

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

Non-Structural BMP's

Non-structural best management practices (BMP's) are designed to minimize and/or remove contaminants before they enter the stormwater collection system. Several of these BMP's have been incorporated into the Stormwater Management System including reduced used of road deicing agents, and litter/trash removal. These types of BMP's are a highly effective initial treatment measure for reducing stormwater pollutant loading.

Bioretention Basin

The Bioretention Basin will function as filtration system to treat stormwater runoff from the roof of the proposed development. The Bioretention Basin will utilize vegetation and a filter soil media to provide stormwater treatment for the first flush, 1-inch of runoff, known as the Water Quality Volume.

Catch Basins

The proper removal of sediments and associated pollutants and trash occurs only when catch basin inlets and sumps are cleaned out regularly. The more frequent the cleaning, the less likely sediments will be re-suspended and subsequently discharged. In addition, frequent cleaning also results in more volume available for future deposition and enhances the overall performance.

Operation & Maintenance Plan

By implementing the following procedures, the applicant will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff.

Source Control

- Routinely empty all outside waste receptacles provided for public use.
- Clearing litter from the parking area, islands and perimeter landscape areas.

Winter Operator Certification

All employed or contracted winter maintenance operators shall be New Hampshire Certified Green SnowPro or equivalent. Green SnowPro training is provided by the University of New Hampshire. It is preferred that operators also have NHDES Salt Applicator Certification. Information on these certifications can be found at the links below:

https://www.des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/categories/faq.htm
https://t2.unh.edu/green-snowpro-training-and-nhdes-certification

Deicing Agents

Deicing agents should be used in accordance with the following:

- Use sand as the primary agent for parking lot safety during ice and snow conditions.
- Use deicing or anti-caking agents, added to enhance performance and application characteristics of sand mixtures, only as necessary and at minimum application rates.
- Deicing materials shall be stores under cover or located such that no direct discharge to receiving water are possible.
- Maintain a Deicing Log to track the amount and type of deicing materials applied to the site.

Snow Management

Snow storage areas shall be maintained as follows:

- Snow storage areas will be managed to prevent blockage of storm drain catch basins. Snow combined with sand and debris may block a storm drainage system, diminishing the infiltration capacity of the system and causing localized flooding.
- Sand and debris deposited on vegetated or paved areas shall be cleared from the site and properly disposed of at the end of the snow season, no later than May 15.
- Snow shall not be dumped into any water body, pond, wetland resource area or stormwater detention basin.
- Snow shall be removed from the site as needed to make space for snow fall from future storms.

Catch Basins

The proposed catch basins are constructed with sumps (minimum 4 feet) and oil/debris traps to collect debris, sediments, and floating contaminants. Disposal of all sediments must be in accordance with applicable local, state, and federal guidelines.

- Inspect catch basins at least two times per year (in the spring and fall) and clean a minimum of once per year.
- Sediment greater than half the sump depth and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations.

- Any structural damage or other indication of malfunction will be reported to the site manager and repaired as necessary.
- During colder periods, the catch basin grates must be kept free from snow and ice.
- During warmer periods, the catch basin grates must be kept free of leaves, litter, sand and debris.

Stormwater Outfalls

- Inspect outfalls annually. Remove and dispose of any trash or debris at the outfall and repair areas that have settled or eroded as necessary.
- Annual inspections should be supplemented after large storms, when washouts may occur.
- Maintain/ cut vegetation around outfalls to prevent blockages at the outfall.
- Maintain rip rap pad below each outfall and repair any washouts or other damage immediately.

Bioretention Basin

- Inspect the Bioretention Basin and surrounding area at least twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period. Maintain and/or repair basin if warranted by the inspection(s).
- Inspect Bioretention Basin for failure or erosion of side slopes. Repair and revegetate all damaged areas.
- Inspect the outlet control structure accumulated sediment/debris around and within the structures.
- Remove trash and debris from basin.
- Maintain vegetation in a healthy condition, including pruning, removal and replacement of dead or diseased vegetation, and removal of invasive species.
- At least once annually, the system should be inspected for drawdown time. If the Bioretention Basin does not drain within 72 hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore filtration function, including but not limited to removal of accumulated sediments or reconstruction of the filter media.

Record Keeping

- Inspections of the stormwater management system shall be conducted in accordance with the Operation & Maintenance Checklist provided in this Manual.

- An Operation & Maintenance Log shall be completed for each inspection and maintenance activity.
- All record keeping required by the O&M manual shall be maintained by the Responsible Party.
- A deicing log shall be maintained that tracks the amount and type of deicing materials applied to the site.
- Operation & Maintenance Logs shall be submitted to the City of Dover, Community Services Department on an annual basis, no later than December 15th of each year.

  City of Dover
  Community Services
  271 Mast Road
  Dover, NH 03820

Operation & Maintenance Checklist/Log

The following pages contain an Operation & Maintenance Checklist, a blank copy of the Stormwater Management System's Operation & Maintenance Log, and a reduced copy of the Grading and Utility Plans. These forms/plans are provided to assist the applicant with the inspection and maintenance of the Stormwater Management System.

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Stormwater Management System

Operation & Maintenance Checklist

BMP/System Component	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance/Cleanout Threshold
Source Control	Routinely	Inspect outdoor waste receptacles areas for spillage. Inspect and clear litter from parking area, islands and perimeter landscape areas.	Clean as required.
Closed Drainage System			
Catch Basins	2 times per year (in spring and fall)	Check for sediment accumulation. Check for floatable contaminants.	≥ 2 ft. sediment depth. ≥ 3 in. floatable depth.
Drain Manholes	1 time per 2 years	Check for sediment accumulation.	≥ 3 in. sediment depth.
Drainage Pipes	1 time per 2 years	Check for sediment accumulation/clogging.	≥ 2 in. sediment depth.
Stormwater Outfalls	Annually and additionally after a rainfall even exceeding 2.5 inches in 24 hours	Check for sediment, trash and debris accumulation. Check for vegetation blocking outfall. Inspect rip rap for washout and settling.	Clean as required.
Bioretention Basin	2 times per year, and after >2.5in rainfall (24 hr)	Inspect bioretention basin and surrounding area. Inspect basin for failure or erosion of side slopes. Inspect the over flow catch basin for accumulated sediment/debris around and within the structures.	Maintain and /or repair basin if warranted by inspection Repair and revegetate all damaged areas. Remove trash and debris. Maintain vegetation in a healthy condition, including pruning, removal and replacement of dead or diseased vegetation, and removal of invasive species.
	1 time per year	Inspect system for drawdown time.	If the bioretention basin does not drain within 72 hours following a rainfall event, then: A qualified professional should assess the condition of the facility to determine measures required to restore filtration function, including but not limited to removal of accumulated sediments or reconstruction of the filter media.

Stormwater Management System

Operation & Maintenance Checklist

BMP/System Component	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance/Cleanout Threshold
Deicing Agents	N/A	N/A	Use sand as primary agent for site roadway and parking safety during winter.

Operation & Maintenance Log

BMP/System Component	**Date Inspected**	**Inspector**	**Cleaning/Repair Needed** *(List Items/Comments)*	**Date of Cleaning/Repair**	**Performed By**
Bioretention Basin					
Catch Basin 100					
Drainage Manhole EX 1					
Drainage Manhole 101					
Catch Basin 102					
Drainage Manhole 103					
Catch Basin 104					
Drainage Manhole EX 2					
Area Drain 105					
Roof Drain					
Outfall					

Notes:

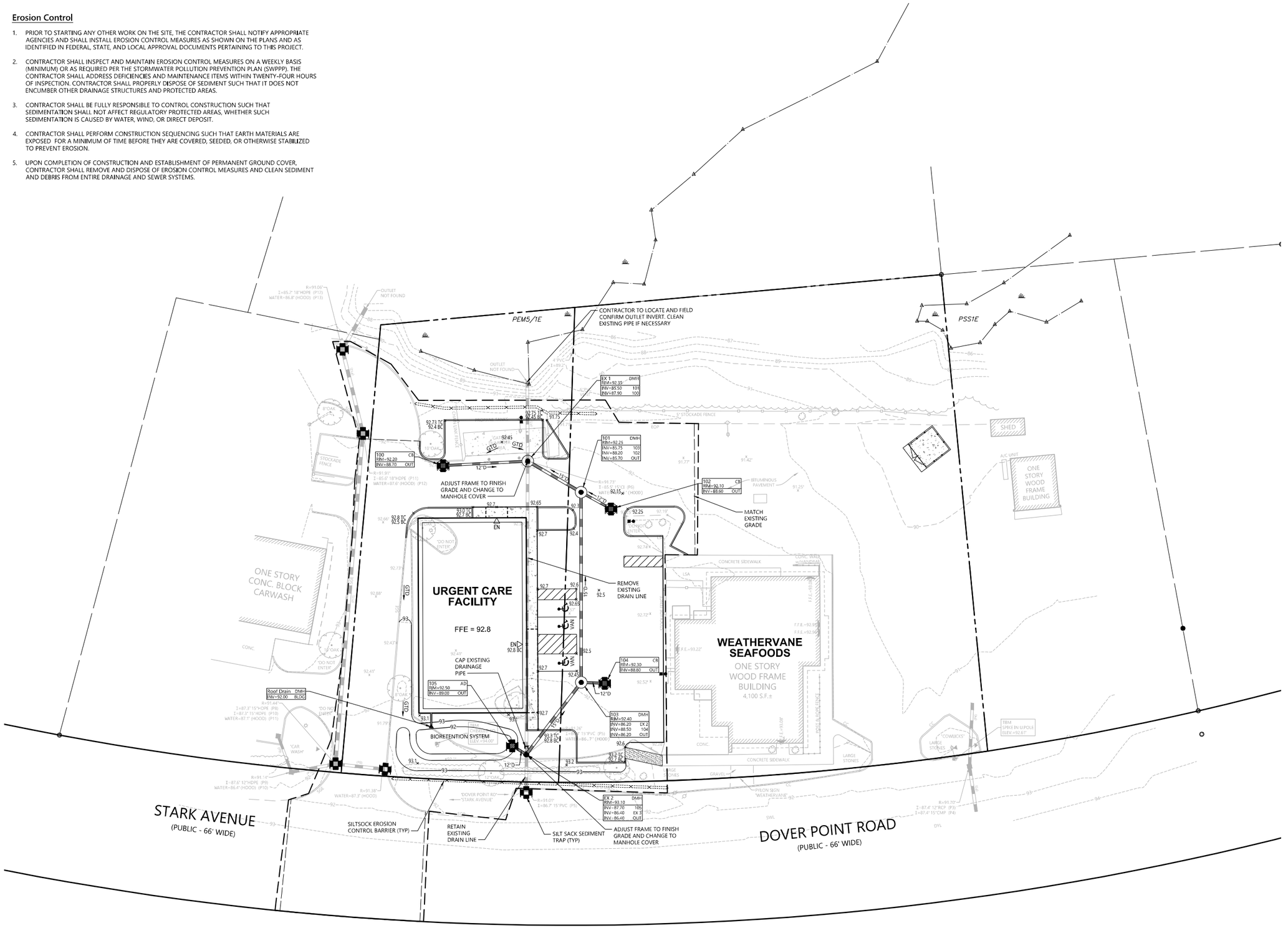
Stormwater Management System

Deicing Log

Date	Type	Location/Amount	Name(s) of Maintenance Personnel

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.



vhb.com
vhb
2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.391.3900

0 10 20 40 Feet

Proposed Urgent Care Facility

Dover Point Road
Dover, New Hampshire

No.	Revison	Date	Appvd.

Designed by | Checked by

Issued for: **Permitting** — Date: July 2, 2019

Not Approved for Construction

Drawing Title
Grading, Drainage and Erosion Control Plan

Drawing Number
C-3

Sheet 3 of 9

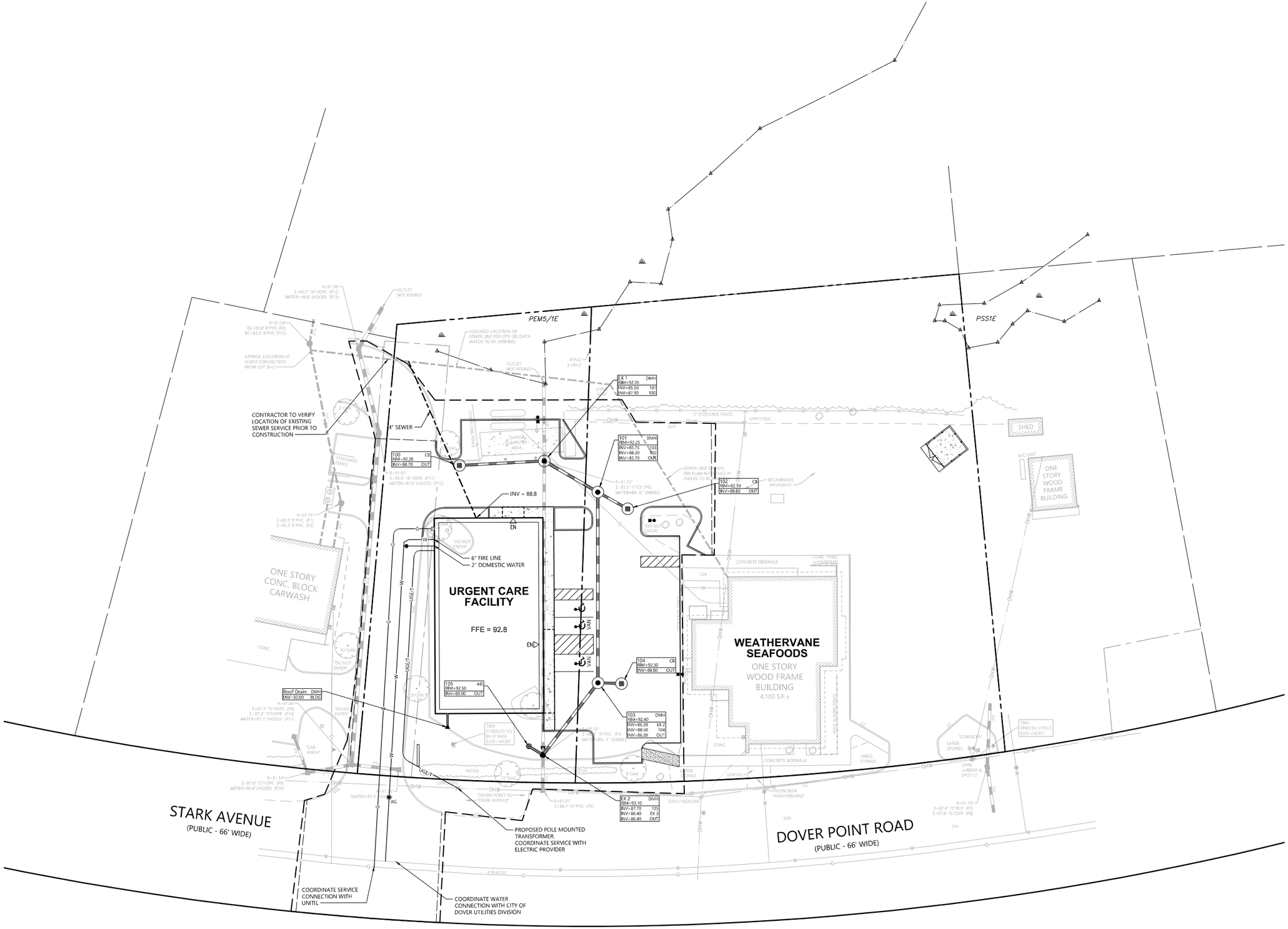
Project Number
52602.00

Saved Tuesday, July 2, 2019 2:27:32 PM EDUBOIS Plotted Tuesday, July 2, 2019 3:38:43 PM DuBois, Emily

vhb.com

vhb

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.391.3900



0 10 20 40 Feet

Proposed Urgent Care Facility

Dover Point Road
Dover, New Hampshire

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

Permitting July 2, 2019

Not Approved for Construction

Drawing Title

Utility Plan

Drawing Number

C-4

Sheet 4 of 9

Project Number
52602.00

Saved Tuesday, July 2, 2019 2:41:42 PM EDUBOIS Plotted Tuesday, July 2, 2019 3:30:17 PM DuBois, Emily

Memorandum

To: Mr. David Soares
Wentworth-Douglas Hospital
789 Central Avenue
Dover, NH 03820

Date: June 27, 2019

Project #: 52572.00

From: Jason R. Plourde, P.E., PTP
Transportation Systems Team Lead

Re: Traffic Impact Assessment and Analysis
Urgent Care Facility
2 Dover Point Road, Dover, NH

Vanasse Hangen Brustlin, Inc. (VHB) has prepared this memorandum to summarize the anticipated transportation impacts associated with a proposed urgent care facility to be located on Dover Point Road in Dover, New Hampshire. As proposed, the development consists of constructing a 4,500 square foot medical building on the east side of Dover Point Road between the Weathervane Seafood Restaurant and the Dover Quick 'N Clean Car Wash. The adjacent roadway name changes from Dover Point Road (south) to Stark Avenue (north) adjacent to the approximate midpoint of the site. Access to the site is currently provided by way of an enter-only driveway south of the Weathervane Seafood Restaurant building on Dover Point Road and a full access driveway south of the Dover Quick 'N Clean Car Wash building on Stark Avenue. No modifications to the existing driveways are currently proposed.

In accordance with City of Dover's Traffic Impact Assessment and Analysis Standards, a "Standard" traffic analysis is required based on the projected site trips associated with the urgent care facility (i.e., ≤1,000 average daily trips and ≤100 peak hour trips). As such, this evaluation has been conducted to summarize the anticipated traffic impacts associated with the proposed project in conformance with the City of Dover's applicable standards satisfying the requirements of a Standard traffic analysis.

Existing Conditions

Site

The existing site contains Weathervane Seafood Restaurant at 2 Dover Point Road and Dover Quick 'N Clean Car Wash at 126 Stark Avenue. Land uses in the vicinity of the site include residences, Cowlicks Dairy Bar, and Dover Honda and Chevrolet. Cowlicks Dairy Bar abuts the site to the south at 4 Dover Point Road and a residence abuts the site to the north at 1 Middlebrook Road. The southern site driveway and the Cowlicks Dairy Bar driveway are separated by a striped parking area for the Weathervane Seafood Restaurant. Dover Honda and Chevrolet is located across from the subject site at 1 and 5 Dover Point Road.

Roadways

The subject site is located along the east side of Dover Point Road and Stark Avenue. Dover Point Road is a Legislative Class II – Secondary Highway and Stark Avenue is a Legislative Class IV – Compact Roadway that are both under City of Dover jurisdiction. Adjacent to the site, Dover Point Road and Stark Avenue provide a single northbound travel lane and a single southbound travel lane that are separated by way of with a double yellow centerline. The speed limit along Dover Point Road and Stark Avenue adjacent to the site and to the south is posted at 35 miles per hour (mph) for northbound travel that decreases to 30 mph north of the site. For southbound travel, the posted speed limit is 30 mph adjacent to the site and to the south that increases to 35 mph south of the site near the Dover Chevrolet southern driveway. Within the vicinity of the site, a sidewalk is provided along the west side of Dover Point Road and Stark

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110-6532
P 603.391.3900

Avenue. Middlebrook Road is located approximately 250 feet north of the north site driveway and Pointe Place is located approximately 1,675 feet south of south site driveway.

Sight Distance

To identify potential safety concerns associated with site access, sight distances have been evaluated at the site driveway locations to determine if the available sight lines for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. In accordance with Chapter 155-51-C of the City's Land Subdivision Regulations, an All-Season Sight Distance of 400 feet should be provided at driveways along the adjacent street in both directions to ensure that there are no visual obstructions between a motorist on the minor street approach and approaching vehicles along the mainline. The intent of the City's All-Season Sight Distance is for motorists on the minor street approach to have sufficient view of the major roadway to decide when to enter the mainline traffic stream.

To provide the safe and efficient flow of traffic to and from the site, existing and proposed plantings, vegetation, landscaping, and signing along the site frontage and at the site driveways are recommended to be kept low to the ground or set back sufficiently from the edge of the roadways so as not to inhibit the available sight lines. In accordance with Chapter 149-14-G(3)(d) of the City's Site Review Regulations, landscaping materials along the site frontage shall not cause a driving hazard. As such, a clear sight triangle must be provided at the site driveways. Ground cover landscaping and trees with a canopy of at least 8 feet can be provided with the sight distance triangle.

Based on field reconnaissance, sight lines were measured to exceed 450 feet both north and south of the existing southern (entrance-only) driveway. At the main site driveway, a sight distance of over 500 feet can be achieved with the raising of the tree canopy north of the site. As proposed, the developer will work with the City and abutting landowners as necessary to trim this vegetated area north of the main driveway to improve sight lines.

Although sight lines are limited to the south of the main driveway (130 feet measured), the All-Season Sight Distance can be achieved with the removal of existing vegetation. As proposed, a new landscaping plan shows that the existing vegetation to the south of the main driveway that is hindering sight lines will be removed and new plantings will be placed low to the ground or set back sufficiently from the edge of the roadways to allow for the City's All-Season Sight Distance to be met.



Sight Lines from Main Driveway to North



Sight Lines from Main Driveway to South

Public Transit

The Cooperative Alliance for Seacoast Transportation (COAST) provides fixed route bus service within the vicinity of the site in the form of Bus Route 2. This COAST service travels between Market Square in Portsmouth and Shoreyville Plaza in Rochester. Within ¼ miles of the site, Bus Route 2 northbound provides stops along the east side of Dover Point Road between the Cowlicks Dairy Bar driveway and the south site driveway, and along the east side of Stark Avenue north of Hawthorn Road. In addition, Bus Route 2 southbound provides stops along the west side of Stark Avenue at Elliot Park, and along the west side of Dover Point Road at the Dover Chevrolet northern driveway. The Bus Route 2 service runs between 5:27 AM and 10:24 PM on weekdays, and between 6:47 AM and 11:07 PM on Saturdays. The COAST schedules are provided in the Appendix.

Recently, COAST issued a temporary service suspension notice for the 5:46 PM Bus Route 2 northbound run from Market Square due to a shortage of bus operators. This temporary suspension will begin on July 17, 2019 and end once sufficient staffing levels have been reached.

Proposed Development

Site Trips

Trip-generation rates published by the Institute of Transportation Engineers (ITE)[1] were researched to determine the site trips to be generated by the proposed project. ITE Land Use Code 720 (Medical-Dental Office Building) was selected for the proposed 4,500 square foot urgent care facility. The trip-generation summary is provided in Table 1 with the trip-generation calculations provided in the Appendix.

As shown in Table 1, the proposed urgent care facility is estimated to generate 156 vehicular trips (78 entering and 78 exiting) during an average weekday and 38 vehicular trips (19 entering and 19 exiting) during a Saturday. In addition, the proposed development is projected to generate 14 vehicular trips (11 entering and 3 exiting) during the weekday morning peak hour, 17 vehicular trips (5 entering and 12 exiting) during the weekday evening peak hour, and 14 vehicular trips (8 entering and 6 exiting) during the Saturday peak hour.

ITE methodologies state, "In lieu of other locally preferred thresholds, it is suggested that a transportation impact study be conducted whenever a proposed development will generate 100 or more added (new) trips during the adjacent roadways' peak hour or the development's peak hour."[2] The rationale is that an increase of 100 vehicles per hour or more could impact the vehicular operations on an intersection approach (i.e., drop in level of service). Based on the site-generated traffic volumes shown in Table 1, the ITE methodologies suggest that the proposed development would be expected to result in negligible impacts to the adjacent roadway system.

1 *Trip Generation Manual*. 10th ed. Washington, DC: Institute of Transportation Engineers, 2017.

2 *Transportation Impact Analyses for Site Development: An ITE Proposed Recommended Practice*. Washington, DC: Institute of Transportation Engineers, 2010.

Table 1: Trip-Generation Summary

Time Period/Direction	Proposed Site Trips [a]
Weekday Daily:	
Enter	78
Exit	78
Total	156
Weekday AM Peak Hour:	
Enter	11
Exit	3
Total	14
Weekday PM Peak Hour:	
Enter	5
Exit	12
Total	17
Saturday Daily:	
Enter	19
Exit	19
Total	38
Saturday Peak Hour:	
Enter	8
Exit	6
Total	14

[a] ITE Land Use Code 720 (Medical-Dental Office Building) for 4,500 sf.

Since the proposed urgent care facility is estimated to generate less than 1,000 daily trips and less than 100 peak hour trips, this Standard traffic analysis is required in accordance with the Traffic Impact Assessment and Analysis Standards as detailed within Chapter 149-13-A(20) of the City's Site Review Regulations and Chapter 155-9-I of the City's Land Subdivision Regulations.

Trip Distribution

New Hampshire Department of Transportation (NHDOT) collects traffic volumes along Stark Avenue south of Middlebrook Road. The following provides a summary of these traffic volumes collected on weekdays between Tuesday, May 7, 2019, and Thursday, May 9, 2019, as well as on Saturday, May 11, 2019:

- The weekday morning peak hour occurred between 7-8 AM with the predominant traffic flow along Dover Point Road southbound (average of 62%).
- The weekday evening peak hour generally occurred between 4-5 PM with the predominant traffic flow along Dover Point Road northbound (average of 60%).

- The Saturday midday peak hour occurred between 2-3 PM with the predominant traffic flow along Dover Point Road northbound (53%).

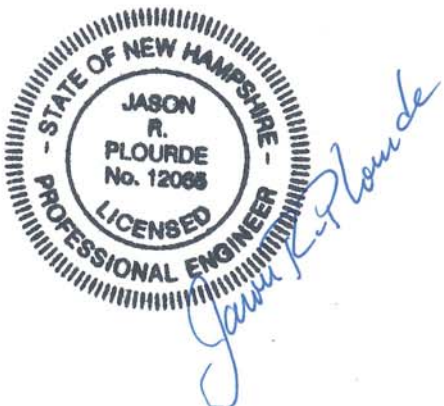
Based on the trip-generation and distribution estimates for the proposed urgent care development, the site-specific traffic volumes were assigned to the roadway network. As shown in Table 2, peak hour traffic volumes are estimated to increase in the range of 7 to 9 vehicles per hour north of the site and 6 to 8 vehicles per hour south of the site. These minimal increases represent, on average, 1 additional vehicle every 6.7 to 10 minutes.

Table 2: Trip Increase Summary

Time Period/Direction	North of the Site	South of the Site
Weekday AM Peak Hour:		
Enter	7	4
Exit	1	2
Total	8	6
Weekday PM Peak Hour:		
Enter	2	3
Exit	7	5
Total	9	8
Saturday Peak Hour:		
Enter	4	4
Exit	3	3
Total	7	7

Conclusion

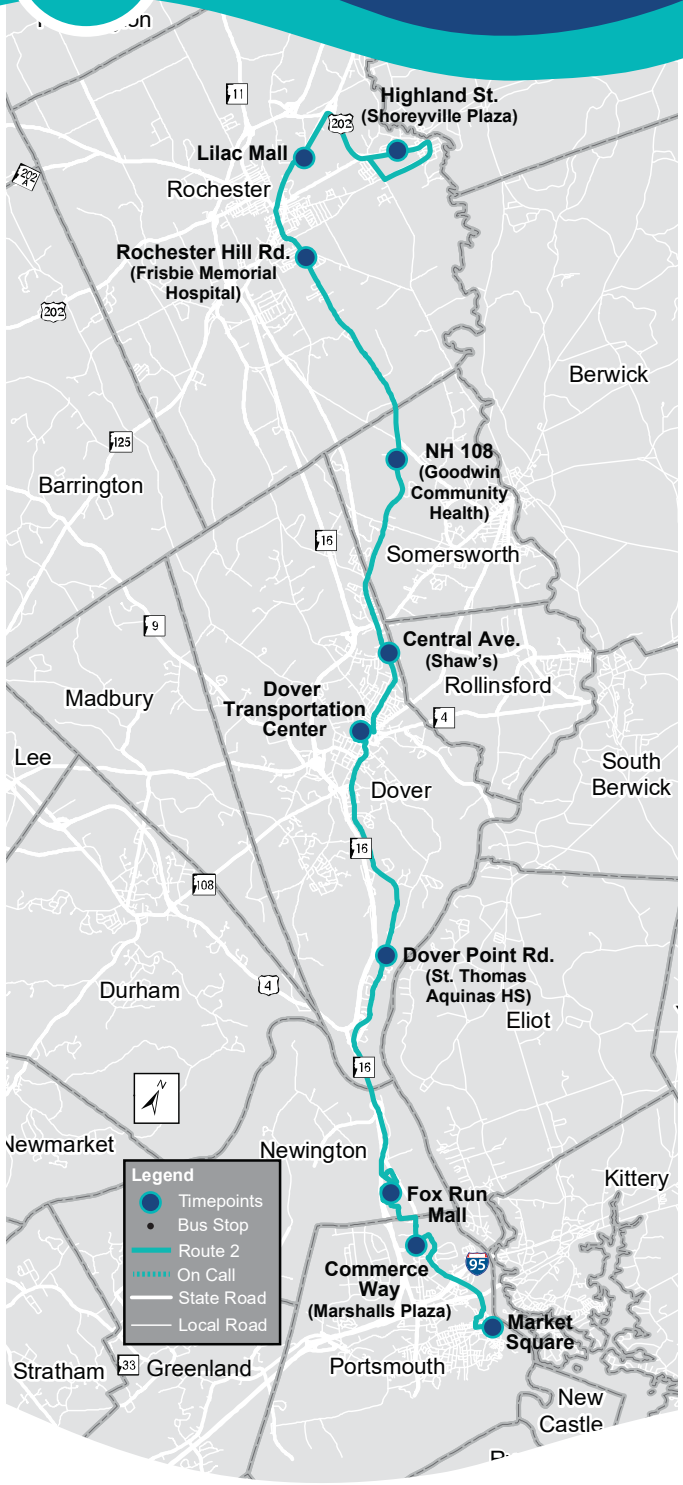
In summary, ITE *Trip Generation* methodologies anticipate that the additional vehicular trips associated with the proposed urgent care development would have negligible impacts to the adjacent roadway system during the weekday morning, weekday evening, and Saturday midday peak hours. For the existing site driveways, available sight lines to and from the south (enter-only) site driveway exceed the City's All-Season Sight Distance requirement. To increase available sight lines at the main (north) site driveway and meet the City's All-Season Sight Distance requirement, the developer has proposed to work with the City and abutters as required to raise the tree canopy as necessary. In addition, the developer proposes a new landscaping plan that would remove the existing vegetation south of the main site driveway that is currently limiting sight lines. To provide the safe and efficient flow of traffic to and from the site, plantings, vegetation, landscaping, and signing along the site frontage are proposed to be kept low to the ground or set back sufficiently from the edge of the roadways so as not to inhibit the available sight lines.



APPENDIX A:

COAST Bus Route 2 Information

2 Route 2 Map



NORTHBOUND
Route 2 Bus Stops

PORTSMOUTH

Market Square *(Connect to Routes 4, 40, 41)*
- Maplewood Ave./Hanover St.
- Russell St. (Sheraton Harborside)
- Market St./I-95
- Market St./Kearsarge Way
- Portsmouth Blvd./Shearwater Dr.
- 215 Commerce Way
- 175 Commerce Way

Commerce Way (Marshalls Plaza)
- Woodbury Ave. (Starbucks)

NEWINGTON
- Gosling Rd. (Gosling Meadows)
- The Crossings (Regal Cinema)

Fox Run Mall *(Connect to Routes 4, 40)*
- Shattuck Way/Piscataqua Dr. *ON CALL*
- Shattuck Way/Avery Rd. *ON CALL*
- Shattuck Way/Patterson Ln. *ON CALL*
- Shattuck Way/River Rd. *ON CALL*
- Shattuck Way (Sprague) *ON CALL*

DOVER

- Dover Point Rd. (Coastal Furniture)
- Dover Point Rd./Homestead Ln.
- Dover Point Rd./Pearson Dr.
- Dover Point Rd./Roberta Dr.
- Dover Point/Roberts Rds.
- Dover Point Rd./Riverside Dr.

Dover Point Rd. (St. Thomas Aquinas HS)
- Dover Point/Middle Rds.
- Dover Point Rd./Tuttle Ln.
- Dover Point Rd./Toftree Ln.
- Dover Point Rd./Constitution Way
- Dover Point Rd. (Dover Point Office Park)
- Dover Point Rd. (Bill Dube Ford)
- Dover Point Rd./Pointe Pl.
- Dover Point Rd. (Weathervane Restaurant)
- Stark Ave./Hawthorn Rd.
- Stark Ave./Beech Rd.
- Central Ave. (Pine Hill Cemetery)
- Central Ave./Union St.
- Central Ave. (Central Towers)
- Washington St./Central Ave.
- Green St. (Waldron Towers)
- Chestnut/Orchard Sts. (Cocheco Park)

Dover Transportation Center *(Connect to Routes 1, 3, 33, Downeaster)*
- Third St./Central Ave.
- Central Ave./New York St.
- Central Ave. (Tasker Funeral Home)
- Central Ave./Oak St. (Rite-Aid)
- Central Ave. (Wentworth-Douglass Hospital)

Central Ave. (Shaw's) *(Connect to Routes 1, 3)*
- New Rochester/Willand Pond Rds. (Applebee's)
- New Rochester Rd./Sherman St.
- New Rochester Rd. (Winchester Arms Apts.)

SOMERSWORTH
- NH 108 (Midway Buick)
- NH 108/Terrascape Pkwy.
- NH 108/Blackwater Rd. (Key Auto)
- NH 108 (Marsh Brook Professional Center)
- NH 108/Clark Way
- NH 108 (Keystone Dental)

NH 108 (Goodwin Community Health)
- NH 108 (Buster's Billiards)
- NH 108 (Kelley's Row)

ROCHESTER
- Rochester Hill/Haven Hill Rds.
- Rochester Hill Rd. (Profile Apts.)
- Rochester Hill Rd. (Granite State Business Park)
- Rochester Hill Rd. (Skyhaven Airport)
- Rochester Hill Rd./Windhaven Dr.
- Rochester Hill Rd. (Hi-Vu Motor Inn)
- Rochester Hill Rd. (Collonade Apts.)
- Rochester Hill Rd./Cornerstone Ct.
- Rochester Hill Rd. (Rochester Professional Park)

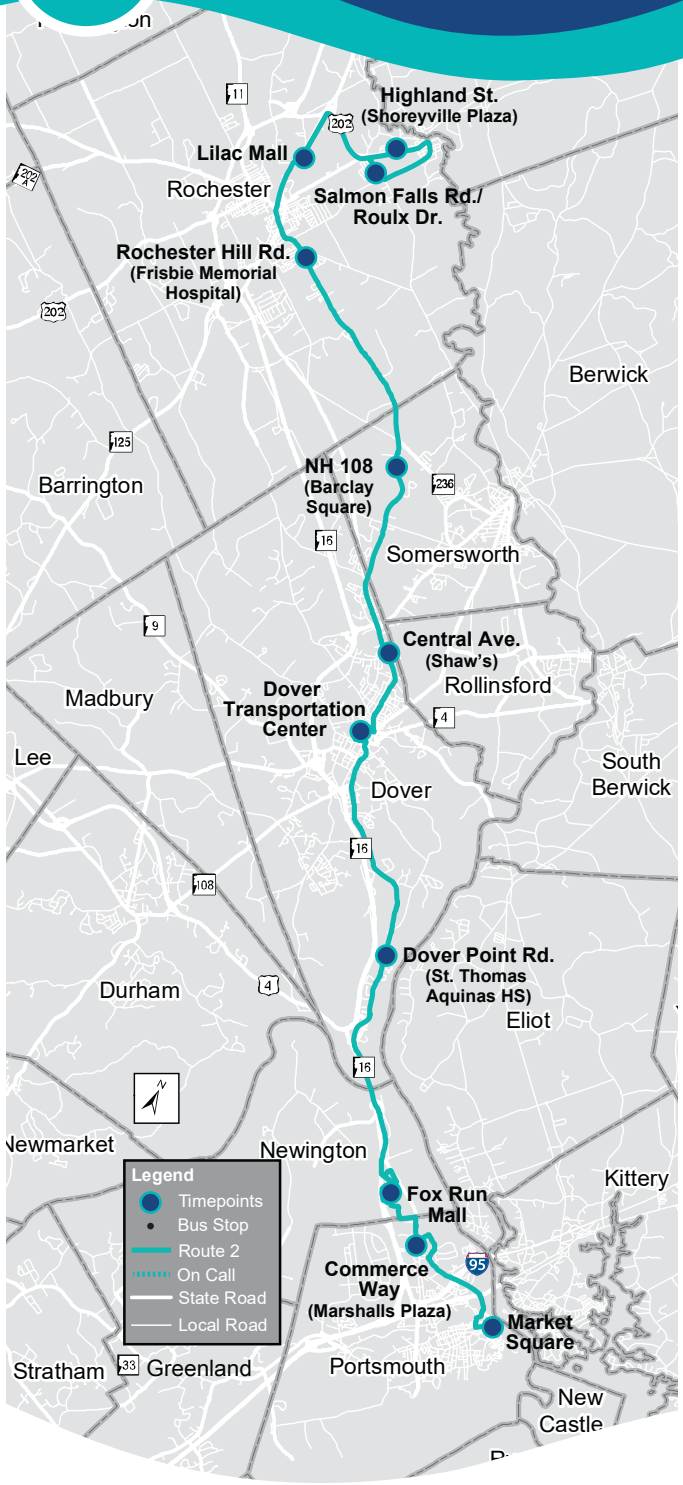
Rochester Hill Rd. (Frisbie Memorial Hospital)
- South Main/Linden Sts. (Autozone)
- South Main St. (Bank of America)
- Wakefield St. (Rochester City Hall)
- Wakefield St. (Spaulding High School)
- Wakefield St. (Lilac Plaza)

Lilac Mall *(Connect to Route 6)*
- Milton Rd. (Hannaford)
- Milton Rd./Jarvis Ave.
- Salmon Falls Rd./Roulx Dr.
- Portland St./Salmon Falls Rd.
- 733 Portland St.
- Portland St. (East Rochester School)
- Portland/Broadway Sts.
- Portland St./Crowhill Rd.
- Main St./Cocheco Ave.
- Main/Highland Sts.
- Highland St. (Rochester East Apartments)

Highland St. (Shoreyville Plaza)
- Milton Rd. (Dunkin' Donuts)

ON CALL stops are served drop-off only on Saturdays.

2 Route 2 Map



SOUTHBOUND
Route 2 Bus Stops

ROCHESTER
- **Salmon Falls Rd./Roulx Dr.**
- Portland St./Salmon Falls Rd.
- 733 Portland St.
- Portland St. (East Rochester School)
- Portland/Broadway Sts.
- Portland St./Crowhill Rd.
- Main St./Cocheco Ave.
- Main/Highland Sts.
- Highland St. (Rochester East Apartments
- **Highland St. (Shoreyville Plaza)**
- Milton Rd. (Dunkin' Donuts)
- Milton/Norway Plains Rds.ly
- **Lilac Mall *(Connect to Route 6)*** ⇄
- Wakefield St./Community Way
- Wakefield St. (Spaulding High School)
- Wakefield/Union Sts.
- South Main St. (Friendly's)
- South Main/Lincoln Sts.
- **Rochester Hill Rd. (Frisbie Memorial Hospital)**
- Rochester Hill Rd. (Rochester Professional Park)
- Rochester Hill Rd./Ryan Cir.
- Rochester Hill Rd./Nola Ave.
- Rochester Hill Rd. (Hi-Vu Motor Inn)
- Rochester Hill Rd./Windhaven Dr. (Rochester Hill Professional Bldg.)
- Rochester Hill Rd. (Skyhaven Airport)
- Rochester Hill Rd. (So'Field Apts.)
- Rochester Hill Rd. (Profile Apts.)
- Rochester Hill Rd./Quail Dr.

SOMERSWORTH
- NH 108 (Tire Warehouse)
- NH 108/Interstate Dr. (Industrial Park)
- **NH 108 (Barclay Square)**
- NH 108/Pinewood Dr.
- NH 108 (The Works)
- NH 108/Blackwater Rd.
- NH 108 (Women's Life Imaging Center)
- NH 108 (Coastal Neurology)

DOVER
- New Rochester Rd. (Strafford Farms Restaurant)
- New Rochester Rd./Hotel Dr. (Weeks Crossing Plaza)
- **Central Ave. (Shaw's)** ⇄
(Connect to routes 1, 3)
- Central Ave./Abbott St.
- Central Ave./Ash St.
- Central Ave./Hough St. (U-Haul)
- Chestnut/Lincoln Sts. (Carswell Auto Parts)
- **Dover Transportation Center** ⇄
(Connect to Routes 1, 3, 33, Downeaster)
- Chestnut St. (Riverview Apts./Post Office)
- Green St. (Waldron Towers)
- Central Ave. (Dover City Hall)
- Central Ave./Spring St.
- Central Ave. (CVS Pharmacy)
- Stark Ave./South Watson Ln.
- Stark/Renaud Aves.
- Dover Point Rd./Elliot Park Dr.
- Dover Point Rd. (Dover Chevrolet/Honda)
- Dover Point Rd./Sheffield Dr.
- Dover Point Rd. (St. Mary's Cemetery)
- Dover Point Rd./Constitution Way
- Dover Point Rd. (Nordic Stove Shoppe)
- Dover Point Rd. (Tendercrop Farm)
- Dover Point/Middle Rds.
- Dover Point Rd./Evan's Dr.
- **Dover Point Rd. (St. Thomas Aquinas High School**
- Dover Point Rd./New Bellamy Ln.
- Dover Point/Roberts Rds.
- Dover Point Rd./Baldwin Way
- Dover Point Rd./Pearson Dr.
- Dover Point Rd./Homestead Ln.
- Boston Harbor Rd. (DMV) *ON CALL*

NEWINGTON
- Shattuck Way/Nimble Hill Rd. *ON CALL*
- Shattuck Way (Custom Pools) *ON CALL*
- Shattuck Way/River Rd. *ON CALL*
- Shattuck Way/Patterson Ln. *ON CALL*
- Shattuck Way/Avery Rd. *ON CALL*
- Shattuck Way/Piscataqua Dr. *ON CALL*
- **Fox Run Mall** ⇄
(Connect to routes 4, 40)
- The Crossings (Regal Cinema)
- Gosling/Winsor Rds. (Gosling Meadows)

PORTSMOUTH
- Woodbury Ave. (Verizon Wireless)
- **Commerce Way (Marshalls Plaza)**
- 170 Commerce Way
- Commerce Way/Portsmouth Blvd.
- Market St. (Courtyard Marriott)
- Market St./I-95
- Russell/Deer Sts.
- Hanover St. (Vaughan Mall)
- Hanover St. (High-Hanover Parking Facility)
- **Market Square** ⇄
(Connect to routes 4, 40, 41)

ON CALL stops are served drop-off only on Saturdays.

2 NORTHBOUND
Route 2N Weekday • Portsmouth • Newington • Dover • Somersworth • Rochester

PORTSMOUTH										
• Market Square	--	--	6:41am	7:55am	8:57am	10:01am	10:58am	11:58am	1:05pm	2:02pm
• Commerce Way (Marshalls Plaza)	--	--	6:50am	8:04am	9:06am	10:10am	11:07am	12:07pm	1:14pm	2:11pm
NEWINGTON										
• Fox Run Mall	--	--	--	8:20am	9:22am	10:26am	11:23am	12:23pm	1:30pm	2:27pm
DOVER										
• Dover Point Rd. (St. Thomas Aquinas High School)	--	--	7:03am	8:29am	9:31am	10:35am	11:32am	12:32pm	1:39pm	2:36pm
• Dover Transportation Center	5:49am	6:47am	7:31am	8:45am	9:45am	10:51am	11:49am	12:48pm	1:54pm	2:55pm
• Central Ave. (Shaw's)	5:59am	6:59am	7:41am	9:01am	9:57am	11:05am	12:03pm	1:00pm	2:08pm	3:09pm
SOMERSWORTH										
• NH 108 (Goodwin Community Health)	6:07am	7:07am	7:49am	9:09am	10:05am	11:13am	12:11pm	1:08pm	2:16pm	3:17pm
ROCHESTER										
• Rochester Hill Rd. (Frisbie Memorial Hospital)	6:13am	7:13am	7:55am	9:15am	10:11am	11:19am	12:17pm	1:14pm	2:22pm	3:23pm
• Lilac Mall	6:23am	7:24am	8:09am	9:26am	10:26am	11:34am	12:30pm	1:32pm	2:40pm	3:38pm
• Highland St. (Shoreyville Plaza)	--	--	--	--	--	--	--	--	--	--

• --: No Service
• The 5:49am run starts service at Central Avenue (Central Towers) at 5:46am.
•The 6:47am run starts service at Central Avenue (Central Towers) at 6:44am.

continued on next page

603.743.5777

2 NORTHBOUND *continued*
Route 2N Weekday • Portsmouth • Newington • Dover • Somersworth • Rochester

PORTSMOUTH										
• Market Square	3:02pm	3:30pm	4:11pm	4:42pm	5:11pm	5:46pm	6:21pm	7:07pm	8:02pm	9:08pm
• Commerce Way (Marshalls Plaza)	3:11pm	3:39pm	4:20pm	4:51pm	5:20pm	5:55pm	6:30pm	7:16pm	8:11pm	9:17pm
NEWINGTON										
• Fox Run Mall	3:27pm	3:53pm	4:34pm	5:05pm	5:34pm	6:11pm	6:44pm	7:32pm	8:29pm	9:31pm
DOVER										
• Dovaer Point Rd. (St. Thomas Aquinas High School)	3:36pm	4:02pm	4:43pm	5:14pm	5:43pm	6:20pm	6:53pm	7:41pm	8:38pm	9:40pm
• Dover Transportation Center	3:55pm	4:21pm	5:02pm	5:33pm	6:02pm	6:36pm	7:07pm	7:52pm	8:47pm	9:48pm
• Central Ave. (Shaw's)	4:09pm	4:35pm	5:16pm	5:47pm	6:12pm	6:46pm	7:17pm	8:05pm	8:57pm	9:58pm
SOMERSWORTH										
• NH 108 (Goodwin Community Health)	4:17pm	4:43pm	5:24pm	5:55pm	6:20pm	6:54pm	7:25pm	8:13pm	9:05pm	10:06pm
ROCHESTER										
• Rochester Hill Rd. (Frisbie Memorial Hospital)	4:23pm	4:49pm	5:30pm	6:01pm	6:26pm	7:00pm	7:31pm	8:19pm	9:11pm	10:12pm
• Lilac Mall	4:36pm	5:01pm	5:43pm	6:15pm	6:39pm	7:13pm	7:44pm	8:30pm	9:24pm	10:24pm
• Highland St. (Shoreyville Plaza)	--	5:11pm	--	6:25pm	--	7:23pm	--	--	9:34pm	--

• --: No Service

2 SOUTHBOUND

Route 2S Weekday • Rochester • Somersworth • Dover • Newington • Portsmouth

ROCHESTER										
• Salmon Falls Rd./Roulx Dr.	--	--	5:45am	--	6:45am	--	7:45am	8:22am	--	--
• Highland St. (Shoreyville Plaza)	--	--	5:50am	--	6:50am	--	7:50am	8:27am	--	--
• Lilac Mall	--	5:25am	5:55am	6:25am	6:55am	7:25am	7:55am	8:32am	9:28am	10:28am
• Rochester Hill Rd. (Frisbie Memorial Hospital)	--	5:34am	6:04am	6:34am	7:04am	7:34am	8:04am	8:41am	9:37am	10:37am
SOMERSWORTH										
• NH 108 (Barclay Square)	--	5:40am	6:10am	6:40am	7:10am	7:40am	8:10am	8:47am	9:43am	10:43am
DOVER										
• Central Ave. (Shaw's)	--	5:53am	6:23am	6:55am	7:25am	7:55am	8:23am	9:00am	9:58am	10:58am
• Dover Transportation Center	5:27am	6:00am	6:30am	7:03am	7:33am	8:03am	8:31am	9:08am	10:06am	11:06am
• Dover Point Rd. (St. Thomas Aquinas High School)	5:39am	6:12am	6:42am	7:15am	7:45am	8:15am	8:43am	9:20am	10:18am	11:18am
NEWINGTON										
• Fox Run Mall	5:47am	6:21am	6:56am	7:33am	8:03am	8:33am	9:01am	9:38am	10:34am	11:34am
PORTSMOUTH										
• Commerce Way (Marshalls Plaza)	--	6:27am	7:02am	7:39am	8:09am	8:39am	9:07am	9:44am	10:40am	11:40am
• Market Square	--	6:38am	7:14am	7:52am	8:23am	8:54am	9:23am	9:59am	10:55am	11:55am

• --: No Service
• The 5:27am run from the Dover Transportation Center continues from the Fox Run Mall as the Route 40 Inbound. It does not continue as 2S.

continued on next page

603.743.5777

2 SOUTHBOUND *continued*

Route 2S Weekday • Rochester • Somersworth • Dover • Newington • Portsmouth

ROCHESTER										
• Salmon Falls Rd./Roulx Dr.	--	--	--	--	--	--	--	--	--	--
• Highland St. (Shoreyville Plaza)	--	--	--	--	--	--	--	--	--	--
• Lilac Mall	11:35am	12:32pm	1:34pm	2:42pm	3:40pm	4:38pm	5:45pm	6:41pm	7:45pm	8:31pm
• Rochester Hill Rd. (Frisbie Memorial Hospital)	11:44am	12:41pm	1:43pm	2:51pm	3:49pm	4:47pm	5:54pm	6:50pm	7:54pm	8:40pm
SOMERSWORTH										
• NH 108 (Barclay Square)	11:50am	12:47pm	1:49pm	2:57pm	3:55pm	4:53pm	6:00pm	6:56pm	8:00pm	8:46pm
DOVER										
• Central Ave. (Shaw's)	12:07pm	1:04pm	2:06pm	3:14pm	4:12pm	5:10pm	6:15pm	7:09pm	8:13pm	8:58pm
• Dover Transportation Center	12:15pm	1:12pm	2:14pm	3:22pm	4:20pm	5:18pm	6:23pm	7:17pm	8:21pm	9:06pm
• Dover Point Rd. (St. Thomas Aquinas High School)	12:27pm	1:24pm	2:26pm	3:34pm	4:32pm	5:30pm	6:35pm	7:29pm	8:33pm	--
NEWINGTON										
• Fox Run Mall	12:43pm	1:40pm	2:42pm	3:50pm	4:48pm	5:43pm	6:48pm	7:42pm	8:46pm	--
PORTSMOUTH										
• Commerce Way (Marshalls Plaza)	12:49pm	1:46pm	2:48pm	3:56pm	4:54pm	5:49pm	6:54pm	7:48pm	8:52pm	--
• Market Square	1:04pm	1:59pm	2:59pm	4:09pm	5:09pm	6:04pm	7:05pm	7:59pm	9:04pm	--

• --: No Service
• The 8:31pm run from the Lilac Mall ends service at Dover City Hall.

2 NORTHBOUND

Route 2N Saturday • Portsmouth • Newington • Dover • Somersworth • Rochester

PORTSMOUTH									
• Market Square	--	8:54am	10:12am	12:14pm	1:50pm	3:21pm	4:58pm	6:58pm	9:46pm
• Commerce Way (Marshalls Plaza)	--	9:03am	10:21am	12:23pm	1:59pm	3:30pm	5:07pm	7:07pm	9:55pm
NEWINGTON									
• Fox Run Mall	--	9:19am	10:37am	12:38pm	2:15pm	3:44pm	5:21pm	7:23pm	10:11pm
DOVER									
• Dover Point Rd. (St. Thomas Aquinas High School)	--	9:28am	10:46am	12:47pm	2:24pm	3:53pm	5:30pm	7:32pm	10:20pm
• Dover Transportation Center	6:47am	9:42am	11:02am	1:03pm	2:39pm	4:10pm	5:47pm	7:43pm	10:29pm
• Central Ave. (Shaw's)	6:59am	9:51am	11:16am	1:15pm	2:53pm	4:24pm	5:57pm	7:57pm	10:39pm
SOMERSWORTH									
• NH 108 (Goodwin Community Health)	7:07am	9:59am	11:24am	1:23pm	3:01pm	4:32pm	6:05pm	8:05pm	10:47pm
ROCHESTER									
• Rochester Hill Rd. (Frisbie Memorial Hospital)	7:13am	10:05am	11:30am	1:29pm	3:07pm	4:38pm	6:11pm	8:11pm	10:53pm
• Lilac Mall	7:24am	10:15am	11:46am	1:48pm	3:26pm	4:52pm	6:25pm	8:25pm	11:07pm

• *--: No Service*
• *The 6:47am run starts service at Central Ave. (Central Towers) at 6:44am.*

2 SOUTHBOUND

Route 2S Saturday • Rochester • Somersworth • Dover • Newington • Portsmouth

ROCHESTER								
• Lilac Mall	7:25am	8:45am	10:16am	11:48am	1:50pm	3:28pm	4:53pm	8:26pm
• Rochester Hill Rd. (Frisbie Memorial Hospital)	7:34am	8:54am	10:25am	11:57am	1:59pm	3:37pm	5:02pm	8:35pm
SOMERSWORTH								
• NH 108 (Barclay Square)	7:40am	9:00am	10:31am	12:03pm	2:05pm	3:43pm	5:08pm	8:41pm
DOVER								
• Central Ave. (Shaw's)	7:55am	9:13am	10:47am	12:20pm	2:22pm	4:00pm	5:25pm	8:54pm
• Dover Transportation Center	8:03am	9:21am	10:52am	12:28pm	2:30pm	4:08pm	5:33pm	9:02pm
• Dover Point Rd. (St. Thomas Aquinas High School)	8:15am	9:33am	11:04am	12:40pm	2:42pm	4:20pm	5:45pm	9:14pm
NEWINGTON								
• Fox Run Mall	8:31am	9:49am	11:18am	12:56pm	3:00pm	4:36pm	5:58pm	9:27pm
PORTSMOUTH								
• Commerce Way (Marshalls Plaza)	8:37am	9:55am	11:24am	1:02pm	3:06pm	4:42pm	6:04pm	9:33pm
• Market Square	8:53am	10:11am	11:38am	1:18pm	3:20pm	4:56pm	6:18pm	9:45pm

APPENDIX B:

Trip-Generation Calculations

ITE TRIP GENERATION WORKSHEET
(10th Edition, Updated 2017)

LANDUSE: Medical-Dental Office Building
LANDUSE CODE: 720
SETTING/LOCATION: General Urban/Suburban
JOB NAME:
JOB NUMBER:

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

FLOOR AREA (KSF): 4.5

WEEKDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	28	0.95	34.80	9.14	100.75	24	2	111	50%	50%
AM PEAK OF GENERATOR										
PM PEAK OF GENERATOR										
AM PEAK (ADJACENT ST)	44	0.80	2.78	0.85	14.30	32	2	112	78%	22%
PM PEAK (ADJACENT ST)	65	0.73	3.46	0.25	8.86	28	2	112	28%	72%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	157	78	78	85	43	43
AM PEAK OF GENERATOR						
PM PEAK OF GENERATOR						
AM PEAK (ADJACENT ST)	13	10	3	14	11	3
PM PEAK (ADJACENT ST)	16	4	11	17	5	12

SATURDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	6	--	8.57	1.10	21.93	41	18	111	50%	50%
PEAK OF GENERATOR	4	0.78	3.10	1.33	4.02	28	18	43	57%	43%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	39	19	19	NA	NA	NA
PEAK OF GENERATOR	14	8	6	-29	-16	-12

SUNDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	5	--	1.42	0.39	5.11	44	18	111	50%	50%
PEAK OF GENERATOR	3	--	0.32	0.12	0.63	31	24	43	52%	48%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	6	3	3	NA	NA	NA
PEAK OF GENERATOR	1	1	1	NA	NA	NA

APPENDIX C:

NHDOT Traffic Volumes

NHDOT Transportation Data Management System
Dover Point Road/Stark Avenue South of Middlebrook Road
Location ID: 02125001

	5/7/2019, Tue			5/8/2019, Wed			5/9/2019, Thu			5/11/2019, Sat		
Start Time	**Northbound**	**Southbound**	**Total**	**Northbound**	**Southbound**	**Total**	**Northbound**	**Southbound**	**Total**	**Northbound**	**Southbound**	**Total**
12:00 AM	73	14	87	76	12	88	65	14	79	85	29	114
1:00 AM	27	9	36	24	14	38	36	14	50	51	19	70
2:00 AM	11	3	14	10	2	12	16	7	23	18	8	26
3:00 AM	20	16	36	16	9	25	12	16	28	11	12	23
4:00 AM	19	60	79	22	62	84	12	60	72	14	27	41
5:00 AM	60	193	253	54	188	242	62	177	239	25	53	78
6:00 AM	151	367	518	156	369	525	167	377	544	83	126	209
7:00 AM	386	683	1,069	392	636	1,028	395	609	1,004	190	206	396
8:00 AM	307	496	803	317	456	773	304	476	780	242	278	520
9:00 AM	294	398	692	259	373	632	304	389	693	317	391	708
10:00 AM	300	392	692	303	364	667	281	334	615	365	417	782
11:00 AM	391	353	744	351	361	712	345	333	678	413	496	909
12:00 PM	382	386	768	388	375	763	397	424	821	406	466	872
1:00 PM	396	365	761	330	374	704	393	359	752	455	425	880
2:00 PM	486	376	862	516	391	907	520	387	907	524	469	993
3:00 PM	566	384	950	593	415	1,008	616	419	1,035	527	408	935
4:00 PM	578	405	983	611	409	1,020	585	411	996	475	365	840
5:00 PM	576	391	967	618	377	995	610	379	989	443	460	903
6:00 PM	395	264	659	440	335	775	452	293	745	610	304	914
7:00 PM	279	180	459	373	246	619	344	229	573	420	249	669
8:00 PM	219	141	360	303	172	475	237	155	392	289	185	474
9:00 PM	169	85	254	171	82	253	196	103	299	239	134	373
10:00 PM	91	52	143	107	63	170	114	58	172	135	83	218
11:00 PM	87	29	116	96	20	116	96	42	138	120	61	181
Total	6,263	6,042	12,305	6,526	6,105	12,631	6,559	6,065	12,624	6,457	5,671	12,128

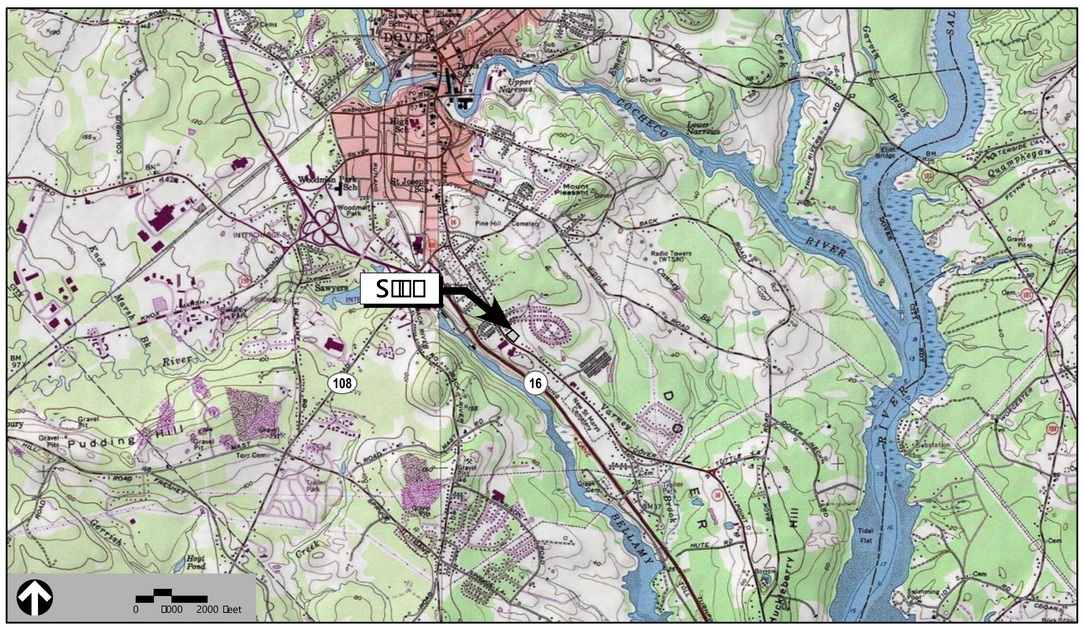
AM Peak (12-10 AM)	7-8 AM = 1,069 vph --> 64% SB	7-8 AM = 1,028 vph --> 62% SB	7-8 AM = 1,004 --> 61% SB	--
Midday Peak (10 AM-3 PM)	--	--	--	2-3 PM = 993 vph --> 53% NB
PM Peak (3 PM-12 AM)	4-5 PM = 983 vph --> 59% NB	4-5 PM = 1,020 vph --> 60% NB	3-4 PM = 1,035 vph --> 60% NB	--

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Dover, New Hampshire



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STATE OF NEW HAMPSHIRE
DAVID H. PENSTERMACHER
No. 19382
LICENSED PROFESSIONAL ENGINEER
7-2-2019

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SP–1	24"	18"	EXIT

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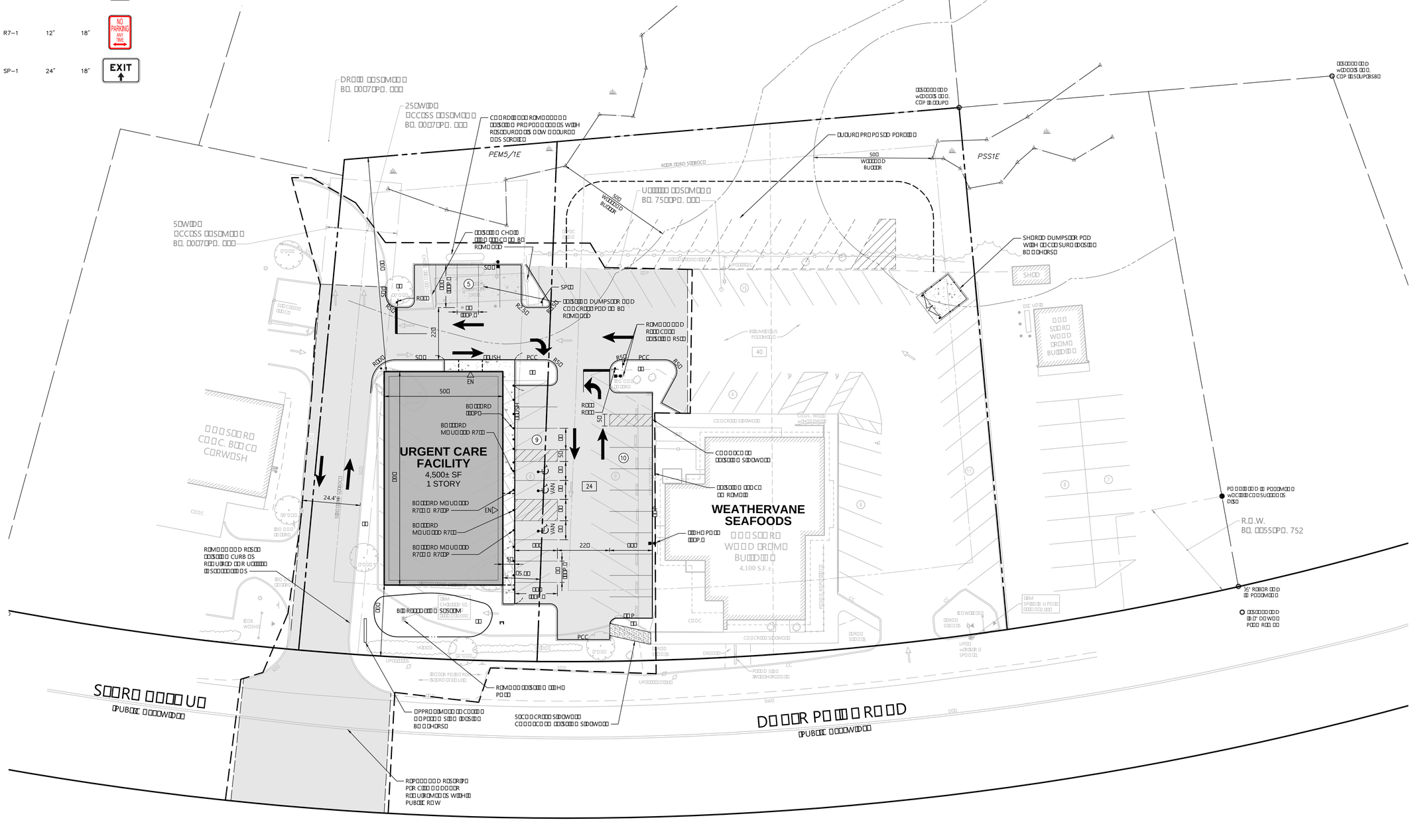
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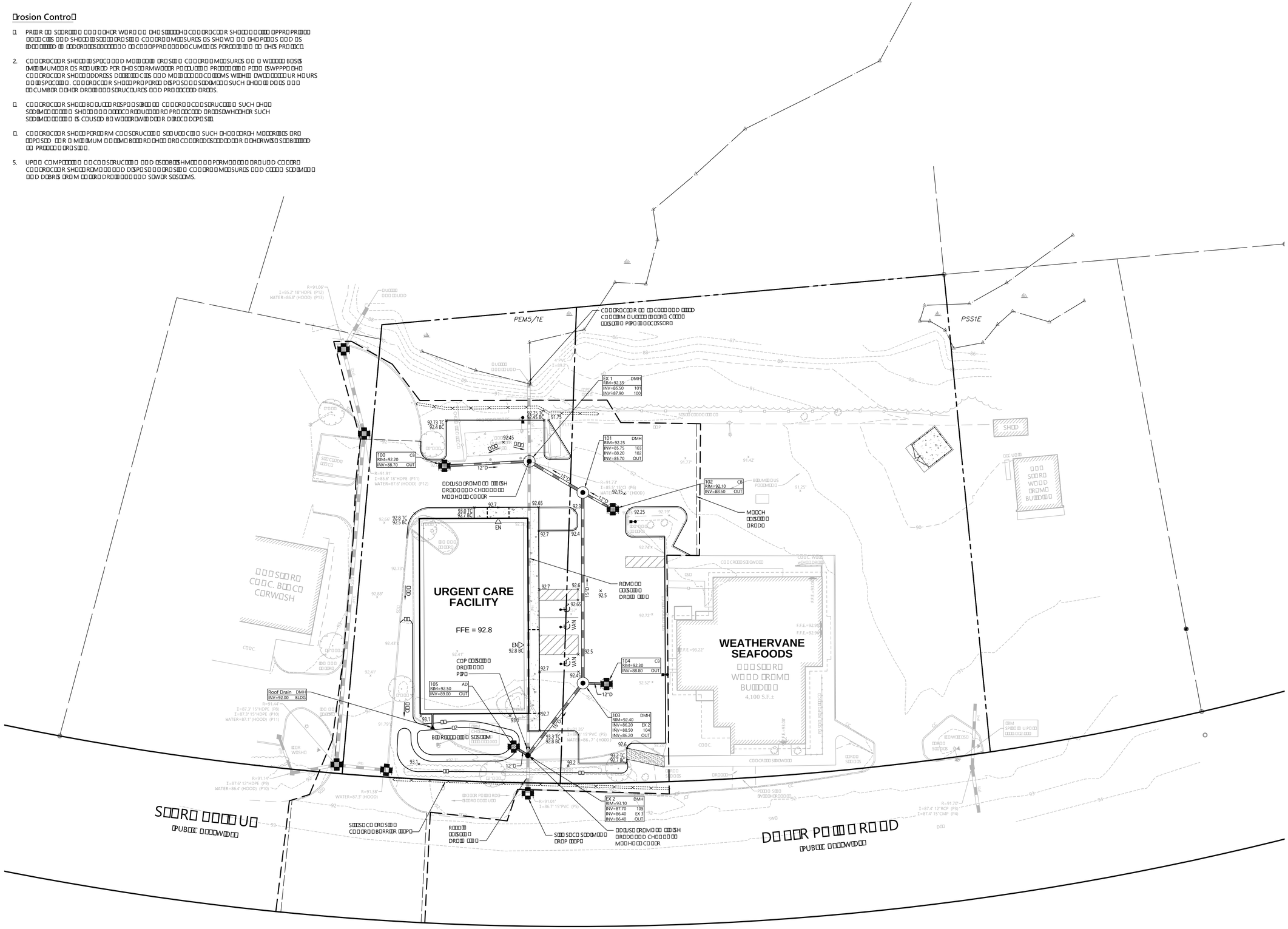
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Proposed Urgent Care □a□□it□

Dover Point Road
Dover, New Hampshire

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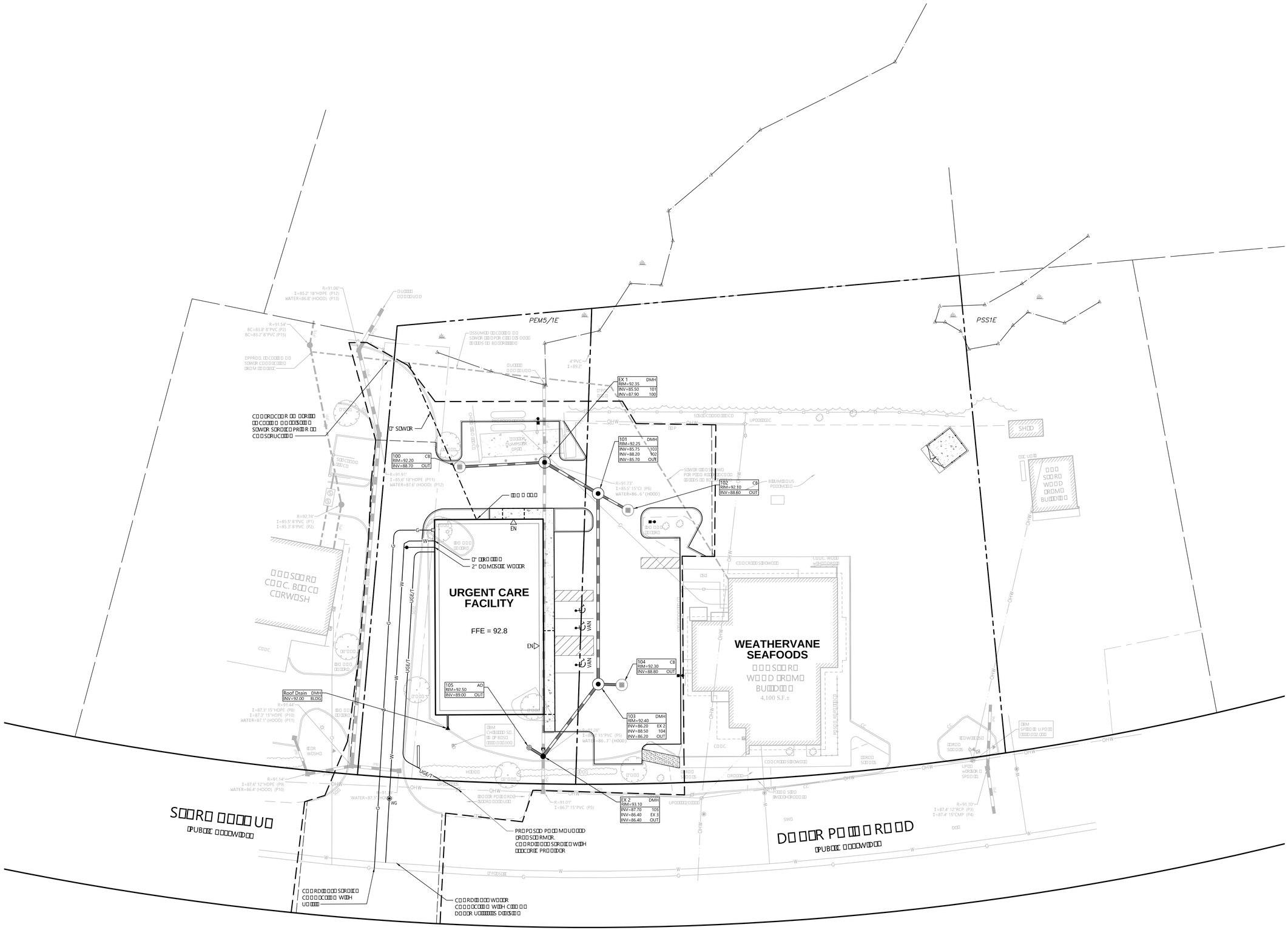
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STATE OF NEW HAMPSHIRE
DAVID H. FENSTERMACHER
No. 13382
LICENSED PROFESSIONAL ENGINEER
7-2-2019

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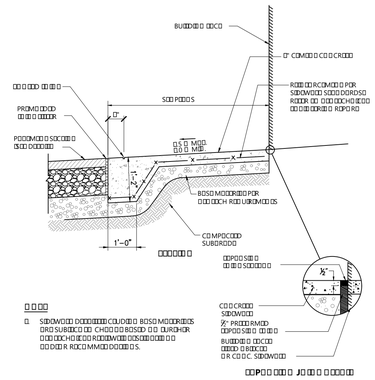
vhb
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PEM5/1E
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CDRWDSH
SHD□
EX 1 DMH
RIM=92.35
INV=85.50 101
INV=87.90 100
100 CB
RIM=92.20
INV=88.70 OUT
101 DMH
RIM=92.25
INV=85.75 103
INV=88.20 102
INV=85.70 OUT
102 CB
RIM=92.10
INV=88.60 OUT
103 DMH
RIM=92.40
INV=86.20 EX 2
INV=88.50 104
INV=86.20 OUT
104 CB
RIM=92.30
INV=88.80 OUT
105 AD
RIM=92.50
INV=89.00 OUT
Roof Drain DMH
INV=92.00 BLDG
EX 2 DMH
RIM=93.10
INV=87.70 105
INV=86.40 EX 3
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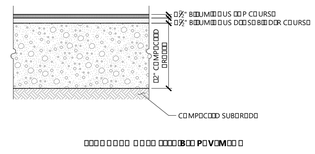
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vhb
2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.627.7775



CONCRETE SIDEWALK DETAIL

NOTES:
1. SIDEWALK SHALL BE CLEAN, FREE OF DEBRIS AND MORTAR DROPPINGS. CHISEL JOINTS AND REMOVE LOOSE CONCRETE. FLUSH WITH WATER AND REMOVE EXCESS WATER.



BITUMINOUS CONCRETE CURB DETAIL

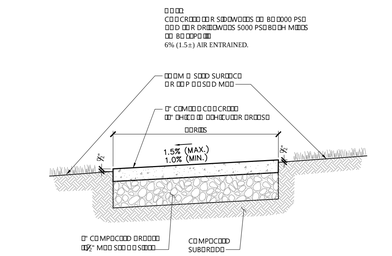
NOTES:

PROVIDE SCORE JOINTS AT CHANGE OF DIRECTION WITH RADIUS LESS THAN 100'.

Curb Side Ramp Building Transition Detail

Detail No.

Notes: Source: Date:



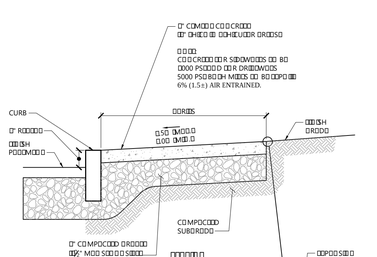
Section

NOTES:

1. PROVIDE EXPANSION JOINTS AT 10' O.C. WITH PREMOLDED FILLER.
2. PROVIDE SCORE JOINTS AT 5' O.C.
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO SIDEWALK DIRECTION.

Concrete Sidewalk in Underdrain Area

Notes: Source: Detail No.



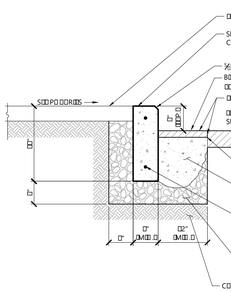
CONCRETE SIDEWALK DETAIL

NOTES:

1. PROVIDE EXPANSION JOINTS AT 10' O.C. MAX.
2. 10' MAX. OR AT 5' O.C. WITH PREMOLDED FILLER.
3. PROVIDE EXPANSION JOINTS AT 5' O.C.
4. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

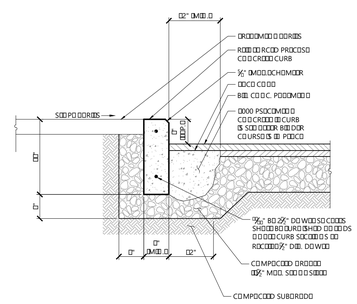
Concrete Sidewalk

Notes: Source: Detail No.



Precast Concrete Curb Ramp Detail for Existing Pavement

Notes: Source: Detail No.

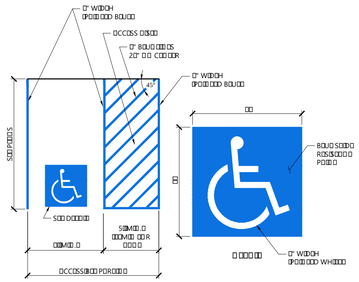


Precast Concrete Curb Ramp

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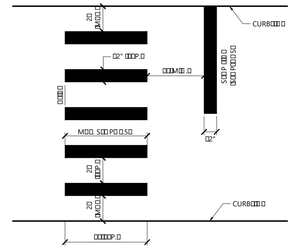
SURFACE DRAINAGE PATTERN
SLOPE
SLOPE
12" EXPANSION JOINT
6" CONCRETE CURB
45°
6" CONCRETE SIDEWALK
6"
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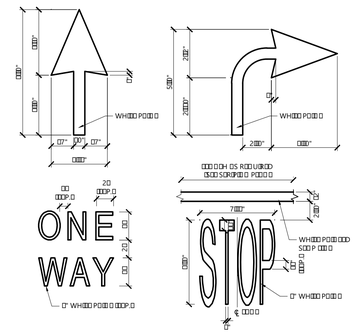
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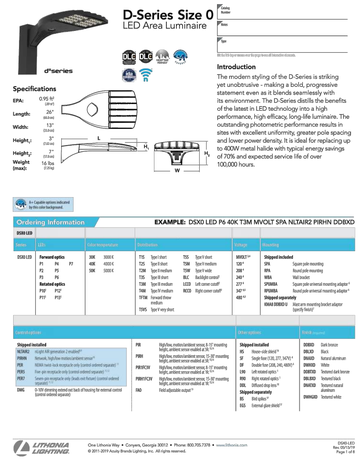
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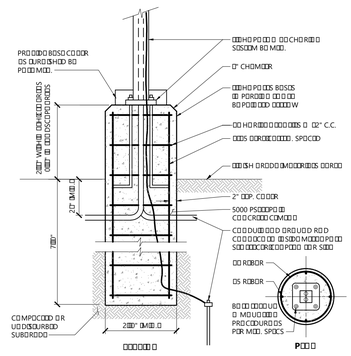
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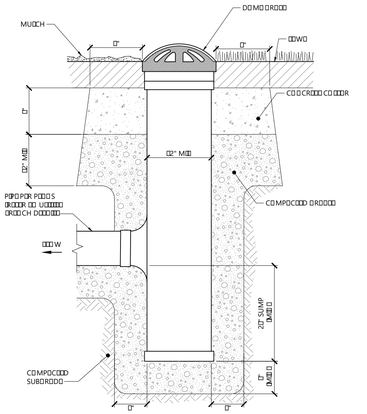
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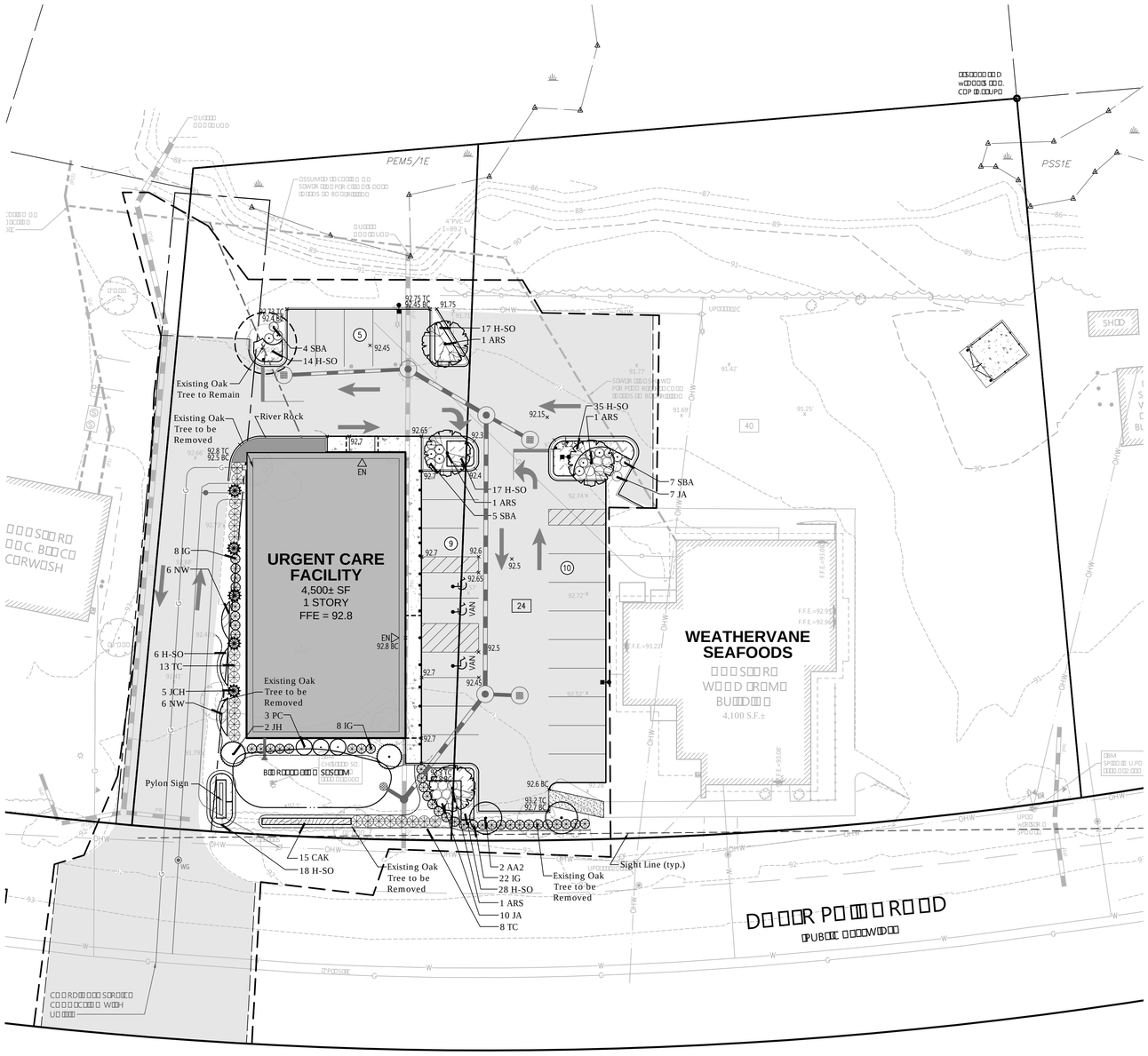
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PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
	ARS	4	Acer rubrum `Red Sunset` Straight, Single Trunk, Full	Red Sunset Maple	3.5" Cal. Min.
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
	JCH	5	Juniperus chinensis `Hetzii Columnaris` Straight, Closely Matching, Full to Base	Hetzi Columnar Juniper	5 - 6` HT.
	JH	2	Juniperus virginiana `Hillspire` Straight, Closely Matching, Full to Base	Hillspire Juniper	6`-7` HT./B&B
	PC	3	Picea glauca `Conica` Straight, Closely Matching, Full to Base	Dwarf Alberta Spruce	5` ht., BB
ORNAMENTAL TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
	AA2	2	Amelanchier canadensis `Autumn Brilliance` 2" cal. min., Straight, Single Trunk	Autumn Brilliance Serviceberry	10` HT
SHRUBS	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**
	IG	38	Ilex glabra `Shamrock`	Shamrock Inkberry	24" HT	36" o.c.
	JA	17	Juniperus horizontalis plumosa `Andorra`	Andorra Juniper	18 - 24" SPD	36" o.c.
	SBA	16	Spiraea bumalda `Anthony Waterer`	Anthony Waterer Spirea	18 - 24" HT.	36" o.c.
	TC	21	Taxus cuspidata `Greenwave`	Greenwave Yew	24" HT	42" o.c.
GROUNDCOVER	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
	H-SO	135	Hemerocallis x `Stella de Oro` 10"-12" ht. x 10" x 12" spr., Full, 24" O.C.	Stella de Oro Daylily	1 GAL.
	NW	12	Nepeta x faassenii `Walkers Low` 24" O.C.	Walkers Low Catmint	2 GAL.
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
	CAK	15	Calamagrostis x acutiflora `Karl Foerster` 24" O.C.	Karl Foerster Feather Reed Grass	3 GAL.

Plant Maintenance Note

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Planting Note

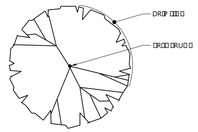
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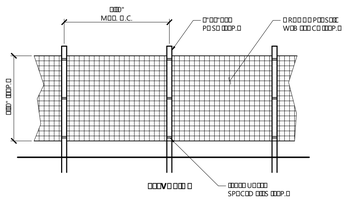
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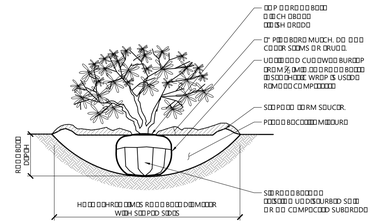
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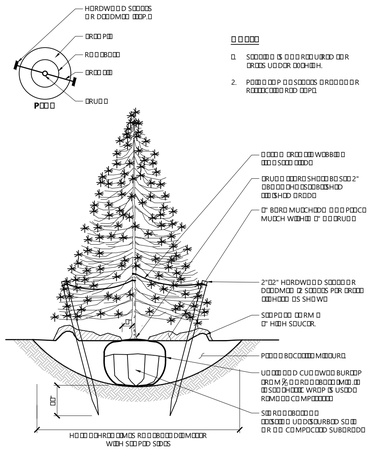
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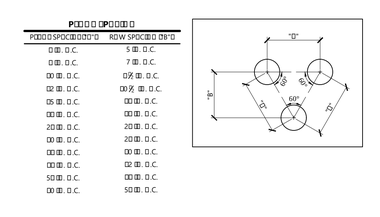
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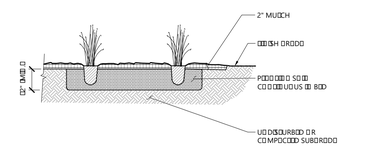

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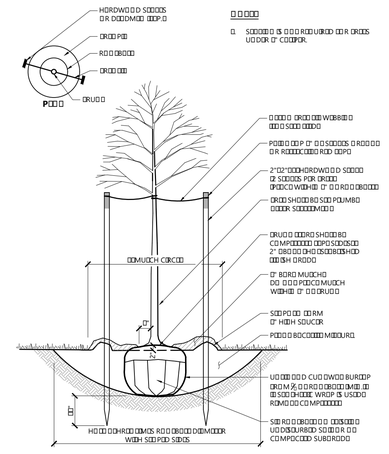
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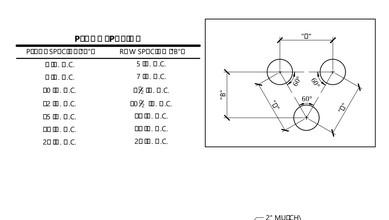
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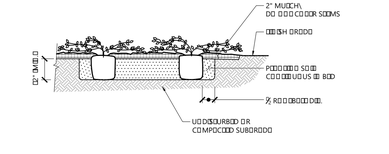

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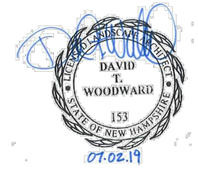
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Dover Point Road
Dover, New Hampshire

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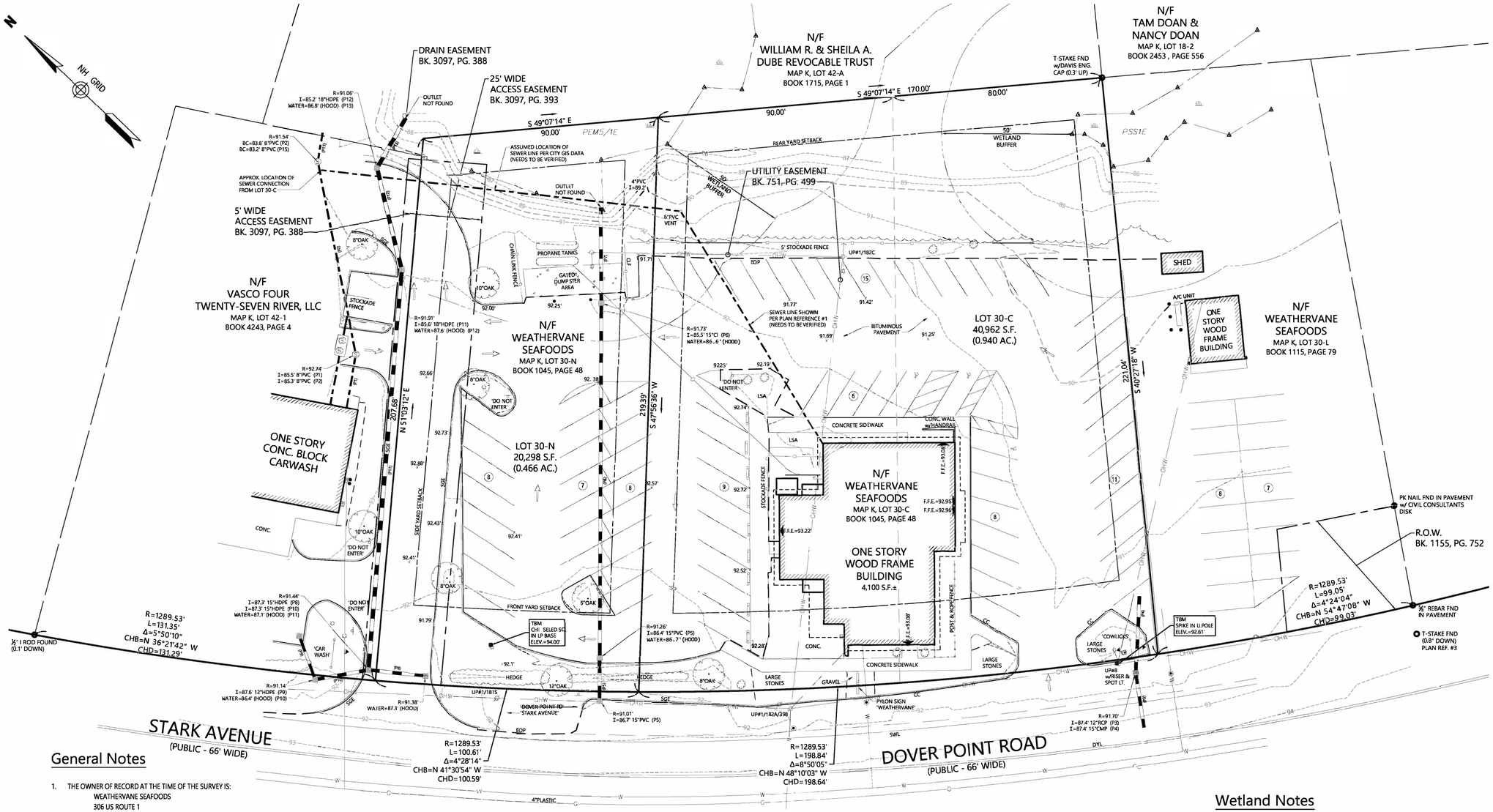
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General Notes

1. THE OWNER OF RECORD AT THE TIME OF THE SURVEY IS:
   WEATHERVANE SEAFOODS
   306 US ROUTE 1
   KITTERY, ME 03904-5504
   BOOK 1045, PAGE 48

2. THE PROPERTY LINES SHOWN WERE DETERMINED BY ACTUAL FIELD SURVEY CONDUCTED IN MAY, 2019 WITH AN ERROR OF CLOSURE BETTER THAN 1:10,000 AND PLANS AND DEEDS OF RECORD.

3. THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC IN MAY 2019.

4. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.

5. HORIZONTAL DATUM IS N.A.D. 1983 (2011); EPOCH-2010.

6. CONTOURS AND SPOT ELEVATIONS SHOWN ARE BASED UPON N.A.V.D. 1988.

7. MAP K-30 LOT N-0 LIES ENTIRELY WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF DOVER, NH MAP NUMBER _33017C0340E, EFFECTIVE DATE SEPTEMBER 30, 2015.

8. MAP K-30 LOT N-0 LIES ENTIRELY WITHIN THE THOROUGHFARE BUSINESS (B-3) ZONING DISTRICT AS DEFINED BY THE DOVER ZONING ORDINANCE, DIMENSIONAL REQUIREMENTS FOR THE B-3 DISTRICT AT THE TIME OF THE SURVEY ARE AS FOLLOWS:

MINIMUM LOT AREA	20,000 SF
MAXIMUM COVERAGE	50%
MINIMUM FRONTAGE	125 FEET
MINIMUM FRONT YARD SETBACK	30 FEET
MINIMUM SIDE YARD SETBACK	12 FEET
MINIMUM REAR YARD SETBACK	15 FEET
MAXIMUM BUILDING HEIGHT	40 FEET

9. 23 PARKING SPACES WERE OBSERVED ON LOT 30-N, AND 49 PARKING SPACES ON LOT 30-C.

Plan References

1. PLAN ENTITLED, "ALTA/ACSM LAND TITLE SURVEY - WEATHERVANE SEAFOODS, 2 DOVER POINT ROAD (AKA STARK AVENUE)" PREPARD FOR SULLOWAY AND HOLLIS, PLLC. DATED: JANUARY 5, 1998 BY CIVIL CONSULTANTS. RECORDED AT THE S.C.R.D. AS PLAN NO. 51-68.

2. PLAN ENTITLED, "PLAN AND PROFILE OF PROPOSED U.S. PUBLIC WORKS PROJECT N.R.M. 262, EAST SIDE ROAD", SHEET 21 OF 70. DATED: 1933. ON RECORD AT NHDOT, CONCORD, NH.

3. PLAN ENTITLED, "MIDDLEBROOK FARM - STARK AVENUE LOTS - DOVER, NH". DATED: APRIL 1960 BY G. L. DAVIS & ASSOCIATES. RECORDED AT THE S.C.R.D. AS PLAN #7, POCKET #15, FOLDER #1.

4. PLAN ENTITLED, "MINOR SUBDIVISION OF LAND" PREPARED FOR WILLIAM AND SHEILA DUBE REVOCABLE TRUST, WILLIAM AND SHEILA DUBE, TRUSTEES. DATED: DECEMBER 30, 2003 BY McENEANEY SURVEY ASSOCIATES, INC. RECORDED AT THE S.C.R.D. AS PLAN NO. 76-20.

5.

6. PLAN ENTITLED, "MAP K LOTS 31, 40, 408, 40C ALTA SURVEY PLAN, DOVER POINT ROAD - DOVER, NH" PREPARED FOR ED BYRNES CHEVROLET. DATED: SEPTEMBER 21, 1994. RECORDED AT THE S.C.R.D. AS PLAN NO. 45-37.

Wetland Notes

1. WETLANDS WERE DELINEATED ON FEBRUARY 12, 2019 BY VHB SENIOR ENVIRONMENTAL SCIENTIST, KRISTOPHER WILKES (NH CWS #288).

2. WETLAND FLAGS WERE LOCATED IN THE FIELD UTILIZING A TRIMBLE GEO7X HANDHELD GPS UNIT CAPABLE OF SUBMETER ACCURACY"

3. WETLAND DELINEATION WAS PERFORMED TO THE STANDARDS IN THE *"1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL"* AND THE *"REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0"* (JANUARY 2012).

4. HYDRIC SOILS WERE DETERMINED IN ACCORDANCE WITH THE *"FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2"* PUBLISHED BY THE NATURAL RESOURCES CONSERVATION SERVICE, AND THE *"FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4.0"* PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.

5. DOMINANCE OF WETLAND \VEGETATION WAS ASSESSED USING THE *"NORTHCENTRAL AND NORTHEAST REGIONAL WETLAND PLANT LIST"* PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS.

6. WETLANDS AND SURFACE WATERS WERE CLASSIFIED USING THE USFWS METHODOLOGY
7. *"CLASSIFICATION OF WETLAND AND DEEPWATER HABITATS OF THE UNITED STATES"*
8. (COWARDIN ET. AL. 1979, REVISED 1985).

Wetland Classification Codes

CODE	CODE DESCRIPTION
PEM5/1E	PALUSTRINE, EMERGENT, PHRAGMITES AUSTRALIS / PERSISTENT, SEASONALLY FLOODED/SATURATED
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HH - HANDHOLE
- BOLLARD
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- WELL
- F.F.E.=45.27' FINISHED FLOOR ELEVATION
- EDGE OF PAVEMENT
- CONCRETE CURB
- VERTICAL GRANITE CURB
- SLOPED GRANITE EDGE
- BITUMINOUS BERM
- BITUMINOUS CURB
- GUARD RAIL-STEEL POST
- GUARD RAIL-WOOD POST
- CHAIN LINK FENCE
- STOCKADE FENCE
- DRAINAGE LINE
- SEWER LINE
- OVERHEAD WIRE
- UNDERGROUND ELECTRIC
- TELEPHONE LINE
- GAS LINE
- WATER LINE
- STONE WALL
- TREE LINE
- LIMIT OF BANK
- WETLAND BOUNDARY

vhb.com
vhb
2 Bedford Farms Drive
Suite 200
Bedford, NH 03110
603.391.3900

Wentworth-Douglass Hospital Urgent Care

Dover Point Road
Dover, New Hampshire

No.	Revision	Date	Appvd.

Designed by | Checked by
Issued for | Date
June 4, 2019

Drawing Title
Existing Conditions Plan of Land

Drawing Number
Sv-1

Sheet 1 of 1

Project Number
52572

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 888 GLEN E. JOHNSON

Saved Tuesday, June 25, 2019 9:37:47 AM PGUERTIN Plotted Tuesday, July 2, 2019 10:02:12 AM Guertin, Paul

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2 Bedford □arms Drive
Suite 200
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Proposed Urgent Care □a□i□it□

Dover Point Road
Dover, New Hampshire

Revision	Date	□ppvd.

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Permitting

Date
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SOUTH/FRONT ELEVATION - DOVER POINT ROAD



EAST/SIDE ELEVATION



WEST/SIDE ELEVATION



NORTH/BACK ELEVATION

Urgent Care Facility
Elevations

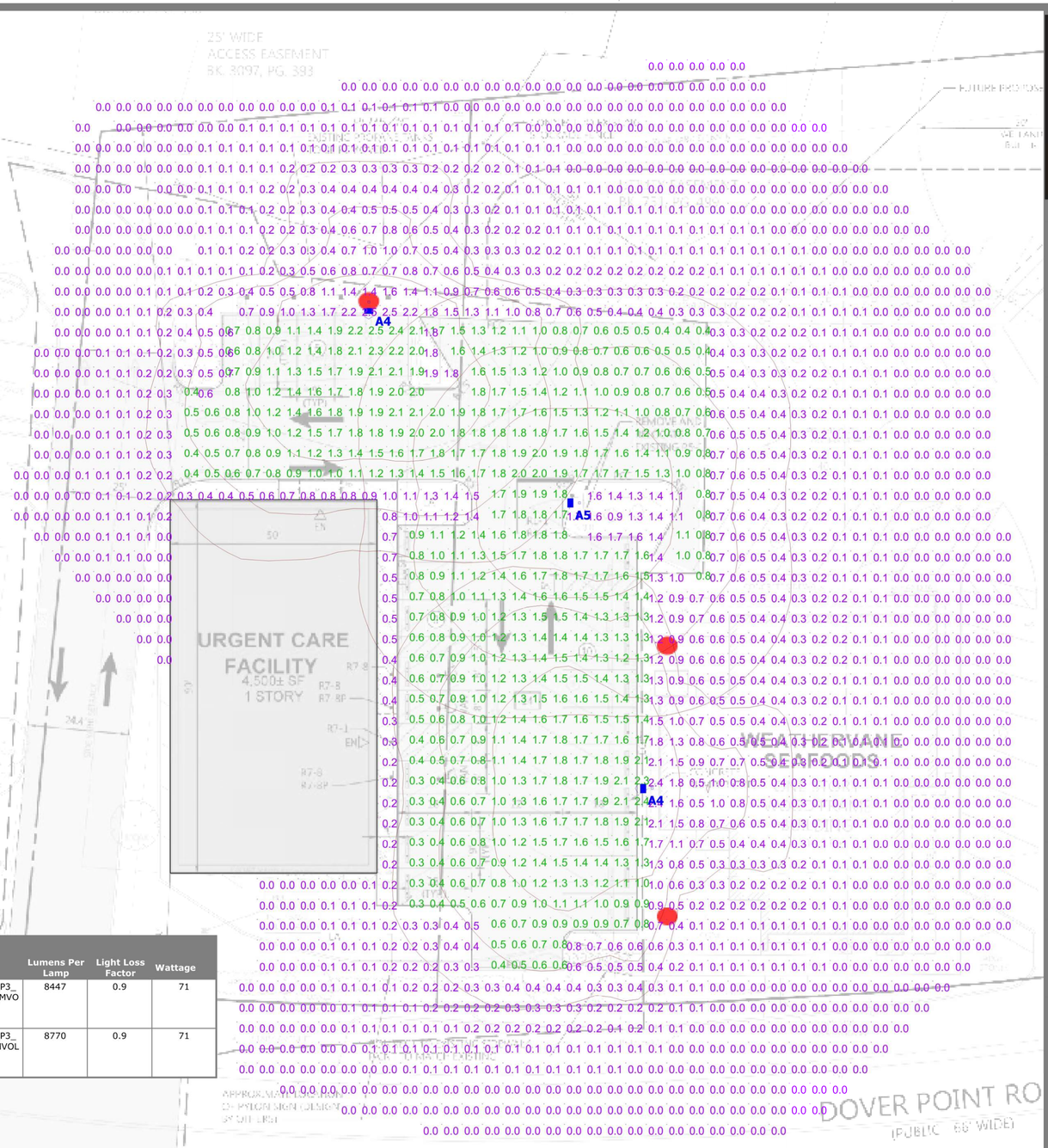
2 July 2019

Wentworth Douglass Hospital
Dover, NH

morrisswitzer
ENVIRONMENTS
FOR HEALTH
ARCHITECTURE

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.2 fc	2.5 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.2 fc	2.5 fc	0.3 fc	8.3:1	4.0:1



Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	A4	2	Lithonia Lighting	DSX0 LED P3 40K TFTM MVOLT SPA DDBXD with SSS 20 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 20ft	LED	1	DSX0_LED_P3_40K_TFTM_MVOLT.ies	8447	0.9	71
	A5	1	Lithonia Lighting	DSX0 LED P3 40K T5M MVOLT SPA DDBXD with SSS 20 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 20ft	LED	1	DSX0_LED_P3_40K_T5M_MVOLT.ies	8770	0.9	71

VISUAL

WDH URGENT CARE
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842

Date
7/1/2019

Scale
1"=30'

Drawing No.

Summary

CIVILWORKS NEW ENGLAND

181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: 603.749.0443 FAX: 603.749.7348

July 2, 2019

City of Dover
288 Central Ave
Dover, NH 03820

Christopher G. Parker, Assistant City Manager/Director of Planning

Subject: Site Review & Conditional Use Permit Applications
Industrial Park Road - Tax Map G, Lot 3A-1
Civilworks New England Reference No. 1795

Dear Mr. Parker:

On behalf of our clients, White Birch Armory, we are pleased to submit the following application(s) and associated materials. Eight (8) copies of all material listed are attached, excluding the supporting Drainage Report. Two (2) Copies of the Drainage Report are attached, and all materials will be provided electronically (PDF) to the Planning Board:

1) Cover Letter
2) Site Review Application & Checklist
3) Conditional Use Permit Application
4) Project Narrative
5) Utilities to Serve Letters/Requests
6) Covenant Release of Restrictions
7) Traffic Impact Analysis
8) Wetland Report
9) Landscaping Operation and Maintenance Plan
10) Stormwater Inspection and Maintenance Plan
11) Site Plans
12) Drainage Report & Plans

We look forward to discussing this application with the Planning Board after having been reviewed and endorsed by the Technical Review Committee and Conservation Commission. In the meantime, if you have any questions that we might be able to answer, please do not hesitate to contact our office.

Sincerely,



Stephen J Haight, PE
CIVILWORKS NEW ENGLAND
SJH

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: June 4, 2019]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: WHITE BIRCH AMMO, LLC dba White Birch Armory Telephone #

Address of Applicant: 50 CROSBY ROAD DOVER, NH 03820

E-Mail Address: SEAN MANNING sean@wbarmory.com

Name of Property Owner (*if different from applicant*): 74 INDUSTRIAL PARK, LLC Telephone #

Address of Property Owner: 273 CORPORATE DR, STE 150 PORTSMOUTH, NH 03801

PROPERTY INFORMATION

Address of Property: INDUSTRIAL PARK ROAD

Assessor's Map # G Lot(s) # 3A-1

Zoning District(s) I - 2 Overlay District(s) NONE

Size of Parcel: 325,425 sq. ft. 8.09 ac. Property Deed: Book 3073 Page: 131

Existing Use of Property: VACANT

SITE PLAN INFORMATION

Describe Proposed Use: CONSTRUCTION OF A 24,1000 S.F. INDOOR SHOOTING FACILITY

Area of Parcel to be Developed: 325,425 sq. ft.

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

Number of Parking Spaces: Existing 0 Proposed 60

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

Number of Employees Total: 12 In Maximum Shift: 1

Disposition of Parcel:

Building Footprint 24,100 sq. ft.

Total Building Area 24,100 sq. ft.

Paved Area 37,360 sq. ft.

Building Setbacks:

Front Yard 35 (min) ft.

Rear Yard 10 ft.

Side Yard: Right 10 ft. Left 10 ft.

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

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

BUILDING INFORMATION

Type of Building to be Built: STEEL & MASONRY CONSTRUCTION

Height of Building: 28 ft. Finished Floor Elevation: 112'

Number of Seats (where applicable) N/A

Estimated value of construction: $300,000 Refuse removal: ~~Public~~ / Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: NONE

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

Address 24 CHESTNUT STREET DOVER, NH 03820 Telephone #: 603-742-0911

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

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) STEPHEN J. HAIGHT P.E. - CIVILWORKS NEW ENGLAND

Address P.O. BOX 1166 DOVER, NH 03821 Telephone #: 603-749-0443

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

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) JOHN M. TUTTLE, AIA - TW DESIGNS

Address P.O. BOX 69 STRAFFORD, NH 03884 Telephone #: 603-664-2181

Professional License #: NH #4015 E-mail address: john@tw-designs.com

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) JEFF HYLAND - IRONWOOD DESIGN GROUP, LLC

Address 55 MAIN STREET, SUITE 129 NEWMARKET, NH 03857 Telephone #: 603-772-0590

Professional License #: NH #026 E-mail address: jhyland@fewood.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) MARK WEST - WEST ENVIRONMENTAL, INC.

Address 48 STEVENS HILL ROAD NOTTINGHAM, NH 03290 Telephone #: 603-734-4298

Professional License #: NH CWS #10 E-mail address: mark@westenv.net

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 6/27/19

Signature of Applicant (*if different from owner*): _____ Date: 6/26/19

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6/27/19

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: _____

Signature of Applicant (*if different from owner*): _____ Date: 6/26/19

CERTIFICATION OF FEES

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

Signature of Property Owner: _____ Date: 6/27/19

Signature of Applicant (*if different from owner*): _____ Date: 6/26/19

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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.

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

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

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan Review Regulations for full details.

APPLICANT: WHITE BIRCH AMMO, LLC dba White Birch Armory File Number: P19-

PROJECT TITLE: WHITE BIRCH ARMORY

PROPERTY LOCATION: INDUSTRIAL PARK ROAD Tax Map: G Lot: 3A-1

	Where/How Provided	Reviewed
1. Completed and signed Application form	ATTACHED	
2. Plan Review Fees are provided	ATTACHED	
3. Electronic copy of the engineered/surveyed plan layout	PROVIDED BY EMAIL	
4. Electronic copy of supplementary materials and application	PROVIDED BY EMAIL	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)		
6. Waiver requests to the Site Plan Review Regulations, with written justification	NONE REQUESTED	
7. Conditional Use Permit applications	ATTACHED	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	ATTACHED	
9. A colored architectural plan showing all sides of buildings	ATTACHED	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	ATTACHED	
Location map at appropriate scale	LOCATED ON SHEET #1	
Proposed Project name and title and Planning File #	LOCATED ON SHEET #1	
Date, north arrow and scale	LOCATED ON SHEET #3,5,6,7,14,16,17	
Names of all abutting property owners	LOCATED ON SHEET #3	
Name and address of owners and/or applicants	LOCATE ON SHEET #1, 3	
Signature & stamp of NH licensed land surveyor and/or engineer	LOCATED ON SHEET #1, 3	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	LOCATED ON SHEET #3, 5, 6, 7	
Location and widths of existing & proposed easements & right of ways	LOCATED ON SHEET #3, 5, 6, 7	
Location and width of existing and proposed access/egress ways	LOCATED ON SHEET #3, 5, 6, 7	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	LOCATED ON SHEET #5	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	LOCATED ON SHEET #3	
Existing and proposed topographic information at two foot intervals	LOCATED ON SHEET #3	
Existing and proposed buildings and structure locations	LOCATED ON SHEET #5,6,7,14,16,17	
Minimum building setbacks or build to lines on all lots	LOCATED ON SHEET #3, 5, 6, 7	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	LOCATED ON SHEET #3, 5, 6, 7	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	LOCATED ON SHEET #3, 5, 6, 7	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	LOCATED ON SHEET # 5	
Existing and proposed stormwater lines and facilities	LOCATED ON SHEET #3, 5, 6	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	LOCATED ON SHEET #14	
Location of Flood Hazard Zone	SEE NOTE 7 ON SHEET #3	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	LOCATED ON SHEET #3, 5, 6, 7	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	LOCATED ON SHEET #2	
Existing natural features and/or significant vegetation on property	N/A	
Depict existing contours up to 100 ft. beyond project limits	LOCATE ON SHEET #3	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	LOCATED ON SHEET #17	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	LOCATED ON SHEET #5	
Location, material and size of existing and proposed pavement area	LOCATED ON SHEET #5, 6, 7, 10, 11	
Location of proposed fire lanes	LOCATED ON SHEET #5	
Specify finished floor elevations of buildings	LOCATED ON SHEET #6, 7	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	N/A	
Depict all service, storage, loading bays and utility areas	LOCATED ON SHEET # 5	
All applicable Dover Common Site Plan notes	LOCATED ON SHEET #4	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	COPY ATTACHED	
Stormwater Management System Operation and Maintenance Plan	COPY ATTACHED	
Letter to Serve from Public and Private Utilities	LETTERS/REQUESTS ATTACHED	
Erosion and Sedimentation Control Plan	LOCATED ON SHEET #4, 5	
Landscape Operation and Maintenance Plan	COPY ATTACHED	
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	PENDING	
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	TBD	

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: WHITE BIRCH AMMO, LLC dba White Birch Armory Telephone #

Address of Applicant: 50 CROSBY ROAD DOVER, NH 03820

E-Mail Address: Sean Manning sean@wbarmory.com

Name of Property Owner (if different from applicant): 74 INDUSTRIAL PARK, LLC Telephone #

Address of Property Owner: 273 CORPORATE DRIVE, SUITE 150 PORTSMOUTH, NH 03801

PROPERTY INFORMATION

Assessor's Map # G Lot(s) # 3A-1

Address of Property: INDUSTRIAL PARK ROAD

Zoning District(s) I - 2 Overlay District(s) NONE

Existing Use of Property: VACANT

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:

For construction of an access road with associated grading and drainage within a wetland buffer.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: NONE

Name of Professional That Prepared Plans: STEPHEN J. HAIGHT P.E. - CIVILWORKS NEW ENGLAND

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

Professional License #: STEPHEN J. HAIGHT P.E. #7978 E-mail address: shaight@civilworksne.com

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 6/27/19

Signature of Applicant (if different from owner): _____ Date: 6/26/19

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 6/27/19

PROJECT NARRATIVE

for
White Birch Armory
Industrial Park Road, Dover, NH
Tax Map G-1, Lot G-3-A-1

PROJECT OVERVIEW

The project applicant is proposing a commercial building on an undeveloped lot. The proposed site will include a commercial building with retail, office, and warehouse space, and an indoor shooting range, a driveway layout to accommodate tractor trailer trucks, and a parking lot for customers. The driveway layout allows for a through way to the abutting property owned by Fred E. Riley 1991 Trust and Ruth K. Riley Trust. The project will not impact the wetlands directly however, 23,932 square feet of the 50 foot wetland buffer zone will be impacted.

The project consists of the following general construction:

- Log and clear the site for construction;
- Construction of (1) new commercial building;
- Construction of storm water treatment structures, grading, and other drainage requirements;
- Site utility construction;
- Construct new 30’ wide driveway, and access ways to parking lot with 24’ wide drive aisle;
- Stabilize remaining areas with loam and seed.

PROJECT LOCATION AND SITE CHARACTERISTICS

The project site is located within the Rural Restricted Industrial District. The project area consists of (1) parcel of land containing +/- 8.09 acres, currently undeveloped, shown on Tax Map G-3-A-1. The project site is accessed from Industrial Park Road.

DRIVEWAY AND PARKING LOT

The proposed driveway will be 30’ with curbing that will act as a through way from Industrial Park Road to an abutter. There are three proposed entrances to our site, each entrance will be accessed from the through way. Two entrances will be 24’ wide and used for customer parking, one entrance will be 30’ and used for shipping and receiving, and employee parking. 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:

- Retail/Service (20,000 SF)/(275 SF) = 72.72 Spaces Maximum
- Office (4,100 SF)/(300 SF) = 13.67 Spaces Maximum
    - Total for Site = **86 Spaces Maximum (Surface)**
    - Total proposed = **61 Spaces (3 Accessible Space)**

WETLAND IMPACT TYPE

The project work requires a Conditional Use Permit Application. The 50' buffer area to be impacted by approximately 23,932.

DRAINAGE

The proposed development of the site includes land clearing and grubbing within the limits of work, one commercial building with space for future expansion, a parking lot for customer and employees, and access for tractor trailers.

The development also includes the construction of, utilities, drainage structures including the storm water quality treatment structures of a fore-bay and detention pond. The onsite drainage improvements have been designed to provide mitigation of both stormwater quantity and quality. All runoff from the proposed impervious portions of the site will be conveyed to the detention basin through roof drains, catchbasins, sheet flow, and rip rap swales. The system has been designed to capture, treat and attenuate storm water flows from the full build out of the developed site prior to discharge to the wetlands in the south of the site. The analysis indicates that with the mitigation measures proposed and implemented there will be no measurable impact to the watershed as a result of the proposed development of the site.

TRAFFIC

A traffic study was completed for the project and is attached as a report to this submittal. Overall and as expected, there is minimal increase in traffic due to the proposed facility.

UTILITIES

The proposed project expects to connect to City of Dover water and sewer as well as Unitil natural gas and Eversource electric. All utilities are located within the Industrial Park Road right-of-way which is the anticipated location for this connection. Internal water services will be 6" mains with a 1" connection to the building. The building 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 line in Industrial Park Road. Electricity for the site is proposed to be provided by the existing electric lines located along Industrial Park Road.

DAVE WHITE, P.E.
City Engineer
d.white@dover.nh.gov

288 Central Avenue
Dover, New Hampshire 03820-4169
(603) 516-6450
www.dover.nh.gov

City of Dover, New Hampshire

COMMUNITY SERVICES DEPARTMENT

June 10, 2019

McEneaney Survey Associates
P.O. Box 681, 24 Chestnut Street
Dover, New Hampshire 03820

RE: Tax Map G Lot 3A1 Industrial Park Road

To Whom It May Concern:

This letter is written confirmation that the City of Dover is able to serve the above referenced development with water and sanitary sewer service. Water and sanitary sewer work shall conform to the City's Water and Sewer Ordinances, as well as the requirements of Dover's Community Services Utilities Division. There is also adequate supply and capacity in the water and sewer system. If you have any questions, please feel free to call me at 516-6450.

Sincerely,

Dave White

Dave White, PE
City Engineer

Steve Haight

From: Steve Haight
Sent: Thursday, June 27, 2019 1:03 PM
To: Busby, Michael J
Cc: Cheryl Andreason
Subject: 19003 White Birch Armory Industrial Park Drive Dover Ability to Serve
Attachments: 2019-06-25-WHite Birch Armory Load Calcs.pdf; 19003 White Birch CONCEPT-SITE DRAFT (6-27-19).pdf

Good afternoon Mike

As part of the Site Planning process in the City of Dover they require that we reach out to the Utility providers and request an acknowledgment of an ability to serve.

Attached is a sketch plan showing the location of the property and load calculations for the projected electric loads for the building?

If you have any questions for require and additional information please do not hesitate to contact me directly

Best regards

Steve

Stephen J. Haight, P.E.
President
Civilworks New England/Haight Engineering, PLLC
181 Watson Road
P.O. Box 1166
Dover, New Hampshire 03821
O: 603.750.4266
C: 603.817.6651
F: 603.749.7348
shaight@civilworksne.com
www.civilworksne.com

Feeder/Service Load Calcualtion for:
277/480 Volt, 3-Phase, 60 Hertz Service
White Birch Armory
Rochester, NH
6/25/2019

Analysis Completed by:
Lee Consavage, PE
Seacoast Consulting Engineers
261 Jennie Lane
Eliot, Maine 03903
207-475-7054

Note: Calculations Based on 2017 NEC

Calculate feeder size:	sq ft	VA/sq ft	Load (Volt-Amps)
Lighting			
Lighting - Range 1 (280' x 25')	7000	4	28,000 VA
Lighting - Range 2 (114' x 34')	2850	4	11,400 VA
Lighting - Range 2 (114' x 34')	2850	4	11,400 VA
Remaining 1st Floor	8700	3	26,100 VA
2nd Floor	6000	3	18,000 VA
Total Lighting Load:			102,900 VA
Lighting Demand (%):		80%	
Lighting Demand Load:			**82,320 VA**
Range Loads			
Range System 1 (325 FLA @ 208V, 3-Phase)(Use 480V System):			117086.6 VA
Range System 2 (194 FLA @ 208V, 3-Phase)(Use 480V System):			69,892 VA
Total Range Loads:			186,978 VA
Range Demand (%):		65%	
Range Demand Load:			**121,536 VA**
Miscellaneous Loads	14,700	3	44,100 VA
Miscellaneous Demand (%):		65%	
Miscellaneous Demand Load:			**28,665 VA**
HVAC Loads (Air Condictioning Loads at 100% Demand)			
RTU-1 (12.5 Tons)			30,000 VA
RTU-2 (7.5 Tons)			22,000 VA
RTU-3 (3 Tons)			12,500 VA
RTU-4 (5 Tons)			14,200 VA
Total Air Conditioning Loads:			**78,700 VA**
Total Demand Load:			**311,221** VA
Demand Load (Amps @ 480V, 3ϕ):			**374 Amps**
Main Breaker Size (Amps @ 480V, 3ϕ):			**500 Amps**
Demand Load (Amps @ 208V, 3ϕ):			**864 Amps**
Main Breaker Size (Amps @ 208V, 3ϕ):			**1,000 Amps**

NH STATE PLANE
GPS OBS.NOVEMBER 30, 2018

INDUSTRIAL PARK ROAD
PUBLIC 60' WIDE R.O.W. - 743/244 & 759/141

C / 3B
85 INDUSTRIAL PARK II LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NH 03801
2390 / 453

C / 3A
JUMAJA SEACOAST, LLC
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820
3828 / 796

BITUMINOUS CONCRETE DRIVEWAY AND PARKING AREA

C / 4E
WILLMANCH CORPORATION
c/o TAX DEPT.
P.O. Box 28606
ATLANTA, GA 30358-0606
1118 / 392

C / 3A-1
PARCEL AREA
352,425 S.F.
8.09 Ac.

C / 41
BT-NEWYO, LLC
P.O. Box 28606
ATLANTA, GA 30358-0606
2710 / 956

"LOT 4C"
N/F INDUSTRIAL PARK AUTHORITY
(AN AGENCY OF THE STATE OF NH)
CONCORD, NH
825 / 305

C / 2
FRED E. RILEY 1991 TRUST, FRED E. RILEY, TRUSTEE
RUTH K. RILEY 1991 TRUST, RUTH K. RILEY, TRUSTEE
201 TOLEND ROAD
BARRINGTON, NH 03825-3708
1553 / 181

BITUMINOUS CONCRETE DRIVEWAY
CITY WATER MAIN EASEMENT - REF. 510 / 315 & 288 / 203
20' WIDE WATER MAIN EASEMENT 743/244 & 759/141
EDGE OF PAVEMENT (TYP.)
50' WETLAND BUFFER (TYP.)
EDGE OF WETLAND (TYP.)
50' REAR COVENANT SETBACK LINE
10' SIDE/REAR ZONING SETBACK LINE (TYP.)
50' R.O.W EASEMENT

PROPOSED HANDICAP PARKING SYMBOL (TYP)
PROPOSED R7-8 "HANDICAP PARKING" SIGN
PROPOSED PAINTED ISLAND
PROPOSED R7-8 "HANDICAP PARKING" SIGN
PROPOSED PAINTED ISLAND
PROPOSED R7-8 "HANDICAP PARKING" SIGN AND R7-8A "VAN ACCESSIBLE SIGN &
PROPOSED R1-1 "STOP" SIGN, STOP BAR AND LEGEND
BEGIN SGC
END SGC BEGIN CCB
PROPOSED 24,100 S.F. BUILDING
PROPOSED5'x5' CONCRETE PAD
END CCB BEGIN ICC
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PROPOSED LOADING DOCKS (12' OHD)
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PROPOSED 12'x15' CONCRETE PAD WITH FENCE, GATES & PRIVACY SLATS
PROPOSED PAINTED ISLAND
PROPOSED RIP-RAP
END CCB
PROPOSED LIGHT POLE BASE (TYP)
PROPOSED PAVED APRON
PROPOSED 5'x5' CONCRETE PAD
30' SIDE COVENANT SETBACK LINE (TYP.)

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

LOCATION PLAN
(NO SCALE)
COLUMBUS AVE
NH RTE. 9
ROAD
INDUSTRIAL
PARK
ROAD
LITTLEWORTH
CROSBY RD
LOCUS
B & M RR

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-9413

NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: XX
DRAWN BY: XX
DESIGN BY: XX
APPROVED BY:XX
PROJECT NO:XX
FILE: XXX

WHITE BIRCH ARMORY
9 GREAT FALLS AVE.
SUITE 2
ROCHESTER, NH

WHITE BIRCH ARMORY
INDUSTRIAL PARK
DOVER, NH

SITE PLAN

5

Steve Haight

From: Steve Haight
Sent: Thursday, June 27, 2019 1:44 PM
To: Beaulieu, David
Cc: Cheryl Andreason
Subject: 19003 White Birch Armory 74 Industrial Park Road Ability to Serve
Attachments: 19003 White Birch NAT GAS Ability to Serve Request.pdf

Good afternoon David

As part of the Site Planning process in the City of Dover they require that we reach out to the Utility providers and request an acknowledgment of an ability to serve.

Attached is a sketch plan showing the location of the property and load calculations for the projected gas load for the building.

If you have any questions for require and additional information please do not hesitate to contact me directly

Best regards

Steve

Stephen J. Haight, P.E.
President
Civilworks New England/Haight Engineering, PLLC
181 Watson Road
P.O. Box 1166
Dover, New Hampshire 03821
O: 603.750.4266
C: 603.817.6651
F: 603.749.7348
shaight@civilworksne.com
www.civilworksne.com

CIVILWORKS NEW ENGLAND

P.O. BOX 1166, 181 WATSON ROAD
DOVER, NH
TEL: (603) 750-4266, FAX: (603)749-7348

June 27, 2019

David Beaulieu
Unitil – Northern Utilities
325 West Road
Portsmouth, NH 03802-0508

Re: **Natural Gas Service Request**
Patterson Lane Project
Tax Map G Lot 3A-1
74 Industrial Park Road
Dover NH, NH 03820

Dear Mr. Beaulieu,

On behalf of the project proponent, White Birch Armory., we are requesting natural gas service for a proposed total of 26,000 sf of commercial buildings with offices and high-bay storage areas to be located at 74 Industrial Park Road, Dover , NH.

The client provided the expected usage for the facility and determined the following total usage for the site:

Existing: None…this is a vacant industrial lot

Proposed (Total): MBH

775 (4) HVAC RTU
1,000 Range (System 1)
800 Range (System 2)

2,575 TOTAL MBH*

Total estimated usage for the site: 1863 CCF

Please let me know if you need any additional information.

Sincerely,
CIVILWORKS NEW ENGLAND



Stephen J. Haight
c.c. File

Unitil
New Construction Project Information

Project Name: WHITE BIRCH ARMORY	Owner and Owner Address: Little Bay Marina & Development, LLC 111 Louden Road, Concord NH 03301
Project Street Address: 74 industrial Park21 Dover Point, Dover NH 03820 Project Town: Dover, NH	Owner Contact (s): Anthony Aversa - 603-224-2251 Steve Haight (Civilworks Rep) - Matt Randall (Civilworks Rep) -
General Description of Project: PROPOSED 24,000 SF INDOOR SHOOTING RANGE, WITH RETAIL AND OFFICES	Contact Phone numbers: Office: 603-749-0443 (Civilworks) Cell: 603-817-6651 (Civilworks) Fax Email Address: shaight@civilworksne.com
	Construction Contact: Steve Haight
Number of units to be built Year 1: ALL Year 2 Year 3 Year 4	Construction phone numbers Office: 603-749-0443 Cell: 603-817-6651 Fax Email Address shaight@civilworksne.com
Gas Equipment (input rating) **MBH** 775 (4) HVAC RTU 1,000 Range (System 1) 800 Range (System 2) 2,575 TOTAL MBH* (*any future addition requirements NOT included) Our plumbing plans will size the gas piping in the building based on the longest run from the meter to the furthest gas-fired appliance, once we know the gas-fired equipment locations and the gas meter/regulator location at the building. The gas company sizes the gas pipe from street to building.	Fireplace_____ Generator_____ Other _____ _____ Elevated Pressure _____

Heat _____ **Hot Water _____** **Cooking_____** **Dryer_____**	
Square footage of building: total = 27,000	
Building setback (s) 35’ front 10’ side & rear	Meter locations approved by local code enforcement? Pending-

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GPS OBS.NOVEMBER 30, 2018

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NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: XX
DRAWN BY: XX
DESIGN BY: XX
APPROVED BY:XX
PROJECT NO:XX
FILE: XXX

WHITE BIRCH ARMORY
9 GREAT FALLS AVE.
SUITE 2
ROCHESTER, NH

WHITE BIRCH ARMORY
INDUSTRIAL PARK
DOVER, NH

SITE PLAN

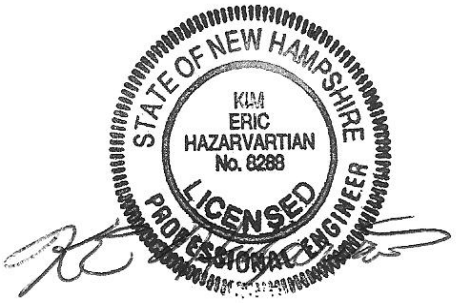
5

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: 1476
Subject: Traffic Assessment
74 Industrial Park Drive
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Date: July 1, 2019



INTRODUCTION

Civilworks New England has retained TEPP LLC to prepare this traffic-assessment memorandum (TAM). This TAM regards 74 Industrial Park Drive in the City of Dover, New Hampshire.

This TAM includes:

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

This TAM concludes that:

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

EXISTING SITE DESCRIPTION

The site:

- is along the west side of Industrial Park Drive
- has an area of about eight acres
- is wooded
- has proximate industrial development and open land

PROPOSED PROJECT DESCRIPTION

The project will provide one building with a total floor area of about 24,100 square feet (sf) including:

- about 2,500 sf of floor area as warehouse
- about 2,573 sf of floor area as office
- about 2,956 sf of floor area as a showroom
- a 20-lane firing range

The project will provide one unsignalized driveway intersecting the west side of Industrial Park Drive.

ROAD DESCRIPTION

Industrial Park Drive:

- is under the jurisdiction of the City
- is a loop collector street
- at either end of the loop, connects with Littleworth Road, an arterial highway
- includes a horizontal curve along the site frontage
- has minor vertical grades near the site
- has asphalt-cement-concrete pavement in overall good condition
- has one travel lane per direction
- includes no sidewalk near the site

- has unmarked pavement
- includes utility poles along the west side near the site

PUBLIC TRANSIT

A public transit route is not available within one-quarter mile of the site.

SIGHT DISTANCES

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for sight distances at unsignalized intersections in terms of:

- stopping sight distance (SSD)
- optional intersection sight distance (ISD)[1]

SSD:

- provides for safety
- enables a driver, on the major road, to perceive and react accordingly to a vehicle entering the major road from a minor road
- is conservative because it encompasses a wide range of brake-reaction times and deceleration rates[2]

Optional ISD:

- is ordinarily greater than SSD and may enhance traffic operations
- is not required for safety

Table 1 shows that relevant available sight distances for the Industrial Park Drive/proposed driveway intersection will be adequate.

[1] AASHTO, *A Policy on Geometric Design of Highways and Streets*, 6th Edition (Washington, DC, 2011), pages 9-28 to 9-29.

[2] AASHTO, pages 3-2 to 3-6.

Table 1. Sight distances.

Intersection and View	Sight Distance (feet)[a]	Provide for Speeds (miles per hour) SSD	ISD
Industrial Park Drive/Proposed Driveway			
Industrial Park Drive to/from North	400+	50+	36+
Industrial Park Drive to/from South	400±	50+	36+

[a] Provided by Civilworks New England. With roadside and vegetation maintenance.

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*.[3] This authoritative guide for calculating site traffic includes information for:

- warehousing, land use 150, based on floor area[4]
- small office building, land use 712, based on floor area[5]

Calculations for the showroom were based on customer transactions at a retail gun shop in the Town of Windham, New Hampshire. The transactions were over a three-day period in January 2012. The gun shop had a floor area of about 1,500 sf, with trip generation prorated to reflect the proposed 2,956 sf.

ITE information was not available for indoor firing ranges. For the 20 proposed stations, the calculations used:

- 20 vehicle-trips (total of in and out) for each peak hour
- 120 vehicle-trips (total of in and out) per day

Table 2 shows calculated vehicle trips due to the proposed development as:

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

[4] ITE, *Trip Generation Manual,* Volume 2, Data, Industrial (Land Uses 100-199), pages 67 to 81.

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

Table 2. Trip generation.

Period	Uses[b]				
	Warehouse[a]	Office[b]	Showroom[c]	Firing Range[d]	Total
Weekday Daily	4	42	154	120	320
Weekday AM Street-Peak Hour					
In	0	4	0	10	14
Out	0	1	0	10	11
Total	0	5	0	20	25
Weekday PM Street-Peak Hour					
Enter	0	2	9	10	21
Exit	0	4	8	10	22
Total	0	6	17	20	43
Saturday Daily	0	42	154	120	316
Saturday Peak Hour					
Enter	0	1	9	10	19
Exit	0	0	8	10	18
Total	0	1	17	20	37

[a] ITE, *Trip Generation Manual*, warehousing, land use 150, 2,500-sf floor area.

[b] ITE, *Trip Generation Manual*, small office building, land use 712, 2,573-sf floor area. Weekday daily used as estimate for Saturday daily.

[c] Calculations for the showroom were based on customer transactions at a retail gun shop in the Town of Windham, New Hampshire. The transactions were over a three-day period in January 2012. The gun shop had a floor area of about 1,500 sf, with trip generation prorated to reflect the proposed 2,956 sf.

[d] ITE information was not available for indoor firing ranges.

- weekday daily, 320 (total of in and out)
- weekday AM-street-peak hour, 25 (14 in and 11 out)
- weekday PM-street-peak hour, 43 (21 in and 22 out)
- Saturday daily, 316 (total of in and out)
- Saturday peak hour, 37 (19 in and 18 out)

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 east may predominate largely due to connections with central Dover and the Spaulding Turnpike.

POTENTIAL TRAFFIC IMPACTS

The calculations show less than 100 peak-hour primary vehicle-trips, due to the proposed project. More specifically, calculated peak-hour trip generation is:

- 25 to 43 vehicle-trips
- split entering versus exiting the site
- further split by orientation to and from the north and south

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

CONCLUSION

In conclusion:

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

WEST ENVIRONMENTAL INC.
48 Stevens Hill Road, Nottingham, NH 03290
603-734-4298 ♦ mark@westenv.net

Stephen J. Haight, P.E./President
Civilworks New England/Haight Engineering, PLLC
181 Watson Road
Dover, New Hampshire 03821

July 3, 2019

RE: 74 Industrial Park LLC Site Dover, NH

SUBJ: Wetland Delineation Report

Dear Steve:
West Environmental, Inc. flagged the wetland boundary at the above referenced property in May of 2019 at your request. The wetlands were delineated according to the following standards:

- **US Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (January 1987).**
- **Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (October 2012).**
- **National List of Plant Species That Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service (May 1988).**
- **Code of Administrative Rules. Wetlands Board, State of New Hampshire (Current).**
- **Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish & Wildlife Service (1979).**

We evaluated soil probes and plant communities to determine the edge of wetland. This wetland includes a scrub-shrub wetland with poorly drained soils connected to an off-site wet meadow east of the site. The northern portion of the wetland includes shallow marsh and shrub-shrub plant communities associated with a drainage stream flowing east from Industrial Park Road. Portions of this wetland have very poorly drained soils. These wetlands are depicted on the Existing Conditions Plan prepared by McEneaney Survey dated May 20, 2019.

This completes our report and we hope that it meets your needs. Please call our office if you have any questions or require additional information.

Sincerely,
West Environmental, Inc.

Mark C. West,
NH Certified Wetland Scientist #10

Stormwater Management System Inspection & Maintenance Plan

For

WHITE BIRCH ARMORY
MAP G-3, LOT A-1

INDUSTRIAL DRIVE
Dover, New Hampshire
Strafford County

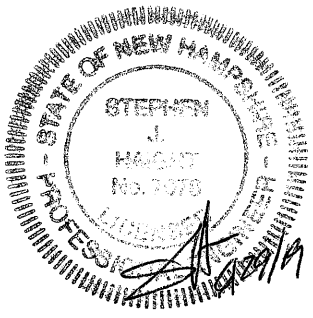
JUNE 2019

Prepared For:

WHITE BIRCH ARMORY
50 Crosby Road
Unit 2
Dover, New Hampshire 03820

Prepared By:

CIVILWORKS NE
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03820



Introduction

Civilworks NE, has prepared the following Stormwater Management System Inspection & Maintenance Plan for **White Birch Armory, Dover, NH**. The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff while at the same time ensuring the recharge of groundwater resources through continued infiltration.

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

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

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

Owner

White Birch Armory
Sean Manning
50 Crosby Road, Unit 2
Dover, New Hampshire 03820

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party; transfer shall be documented to NH DES in writing.

Contact / Responsible Party

White Birch Armory
Sean Manning
50 Crosby Road, Unit 2
Dover, New Hampshire 03820

Phone: 603-330-0146
Email: sean@wbarmory.com

The contact information for the Contact / Responsible Party shall be kept current; transfer shall be documented to NH DES in writing.

Management Company

White Birch Armory
50 Crosby Road, Unit 2
Dover, New Hampshire 03820

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

Inspection Schedule / Record Retention

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

Stormwater Management System Components

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

- Culverts
- Detention Ponds
- Energy Dissipation Structures (Rip Rap)
- Treatment Swales
- Catch Basins
- Pavement
- Outlet Structures
- Litter / Trash Removal

Structure callouts in ( ) correlate to the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

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

Inspection and Maintenance Plan

By implementing the following procedures, the owners will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff and to effectively recharge the underlying groundwater resources.

CULVERTS:

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

DETENTION POND:

- Inspection, by a **qualified professional**, of detention ponds at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Embankments and spillways should be inspected by a **qualified professional** for settlement, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected by a **qualified professional**, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- The bottoms, interior and exterior side slopes, and crest of earthen detention basins should be mowed, and the vegetation maintained in healthy condition, as appropriate to the function of the facility and type of vegetation.
- Vegetated embankments that serve as "berms" or "dams" that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Trash and debris should be removed from the pond and any inlet or outlet structures whenever observed.
- Accumulated sediment should be removed when it significantly affects pond capacity.

ENERGY DISSIPATION STRUCTURES (RIP RAP): As Applicable

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- If stones become displaced from the riprap areas they should be replaced immediately and chinked in to assure stability. Add additional riprap as needed. Vegetation growing through the riprap should be eliminated at least yearly.

TREATMENT SWALES:

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

OUTLET STRUCTURE(S):

- Inspect once per year.
- Inspect for clogging and sediment accumulation.

- Remove all debris immediately and sediment accumulations ≥ 2 inches.

CATCH BASIN(S):

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

PAVEMENT:

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

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick up.

DE-ICING AGENTS

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

ANTI-ICING AND SALT MINIMIZATION

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

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Culverts	Annually	Check for sediment accumulation and clogging	≥ 2 in. sediment depth
Detention Ponds • Outlet Structure • Inlet/Outlet Piping • Embankments • Pond Sediment • Trash/Debris • Vegetation (Veg.)	Bi-Annually “ “ “ “ Periodically “ “ “ “	See Catch Basin (CB) Requirements (Req.) See Outlet Structure (OS) Req. Check for erosion, settlement, seepage, etc. Check for sediment accumulation in pond Check for trash (in pond and structures) • Maintain 95% veg. (pond & slopes) • Maintain healthy stand of veg.	See CB Req. See OS Req. Repair immediately ≥ 2 in. sediment Remove all trash/debris Restore veg. in-kind Mow when ≥ 6 in
Energy Dissipation (ED) Structures (RipRap)	Annually	Check for displaced stones Check for woody vegetation	Replace immediately Remove annually
Treatment Swales	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4” minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore veg. in-kind Mow twice per year Remove/Dispose of accordingly
Outlet Structure(s)	Annually	• Inspect once per year. • Inspect for clogging and sediment accumulation. • Remove all debris immediately and sediment accumulations ≥ 2 inches.	≥ 2 in. sediment Remove immediately
Catch Basins	Annually	• Check for sediment accumulation • Check for floatable contaminants	≥ 1 ft. sediment depth Remove all floatables
Pavement • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	Limit use As Req. 1 - 2 x’s Year Periodically	Minimize use to prevent tracking issues RECORD APPLICATION RATES Sweep or vacuum to prevent tracking issues Check for trash/debris	Sweep to prevent issues Minimize as Req. Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

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

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance: _____ Inspector: _____

System Component / BMP	Cleaning / Repair Needed (List Items / Comments)	Date of Cleaning/Repair	Performed By

Deicing Salt Quantity Use Log

Date	Amount of Material Applied	Comments

Landscape Operation & Maintenance Plan for White Birch Armory

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 bed, 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 plant beds. 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 plant beds. 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 plant beds 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.

NH STATE PLANE
GPS OBS:NOVEMBER 30, 2018

INDUSTRIAL PARK ROAD
PUBLIC 60' WIDE R.O.W. - 743/244 & 759/141

LOCATION PLAN
(NO SCALE)
COLUMBUS AVE
NH RTE. 9
LITTLEWORTH
CROSBY RD
INDUSTRIAL PARK ROAD
B & M RR
LOCUS

UP\10T
305/15A
949/6

SMH A
RIM = 115.2

RADIAL
S50°00'34"W

UP 305/13
TBM NAIL SET
ELEV. 114.86

IRON ROD FOUND
N - 250,812.901
E - 1,187,241.155
(SEE NOTE 8)

G / 3B
85 INDUSTRIAL PARK II LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NH 03801
2390 / 453

NHHD
BOUND
FOUND

W 8"AC

UP
305/15

UP
305/14

G / 3A
JUMAJA SEACOAST, LLC
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820
3828 / 796

SC E-1

IRON ROD
FOUND

SC E-4

20' WIDE WATER MAIN EASEMENT
743/244 & 759/141

G / 3A-1
PARCEL AREA
352,425 S.F.
8.09 Ac.

SC E-2

SC E-3

IRON
PIPE
FOUND

G / 41
T-NEWYO, LLC
O. Box 28606
A, GA 30358-0606
2710 / 956

"LOT 4C"
IAL PARK AUTHORITY
OF THE STATE OF NH)
NCORD, NH
425 / 305

W 12"AC

IRON PIPE FOUND
N - 251,367.676
E - 1,186,699.120
(SEE NOTE 8)

POA-3

POA-2

POA-1

G / 2
FRED E. RILEY 1991 TRUST, FRED E. RILEY, TRUSTEE
RUTH K. RILEY 1991 TRUST, RUTH K. RILEY, TRUSTEE
201 TOLEND ROAD
BARRINGTON, NH 03825-3708
1553 / 181

PRE DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (SF)	LONGEST FLOW PATH (FT)	Tc (MIN)
SC E-1	83,768	525.0	21.3
SC E-2	53,096	408	20.3
SC E-3	69,840	239.4	10.4
SC E-4	14,667	101.4	11.7

SOILS DATA

SOIL GROUP	NRCS SYMBOL & NAME
C/D	BzB - BUXTON SILT LOAM
C/D	ScA - SCANTIC SILT LOAM

NOTES:
1. SOILS INFORMATION TAKEN FROM NATIONAL COOPERATIVE SOIL SURVEY (NRCS) FOR STRAFFORD COUNTY, NH.
2. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

NO.	REVISION	APP'D	DATE

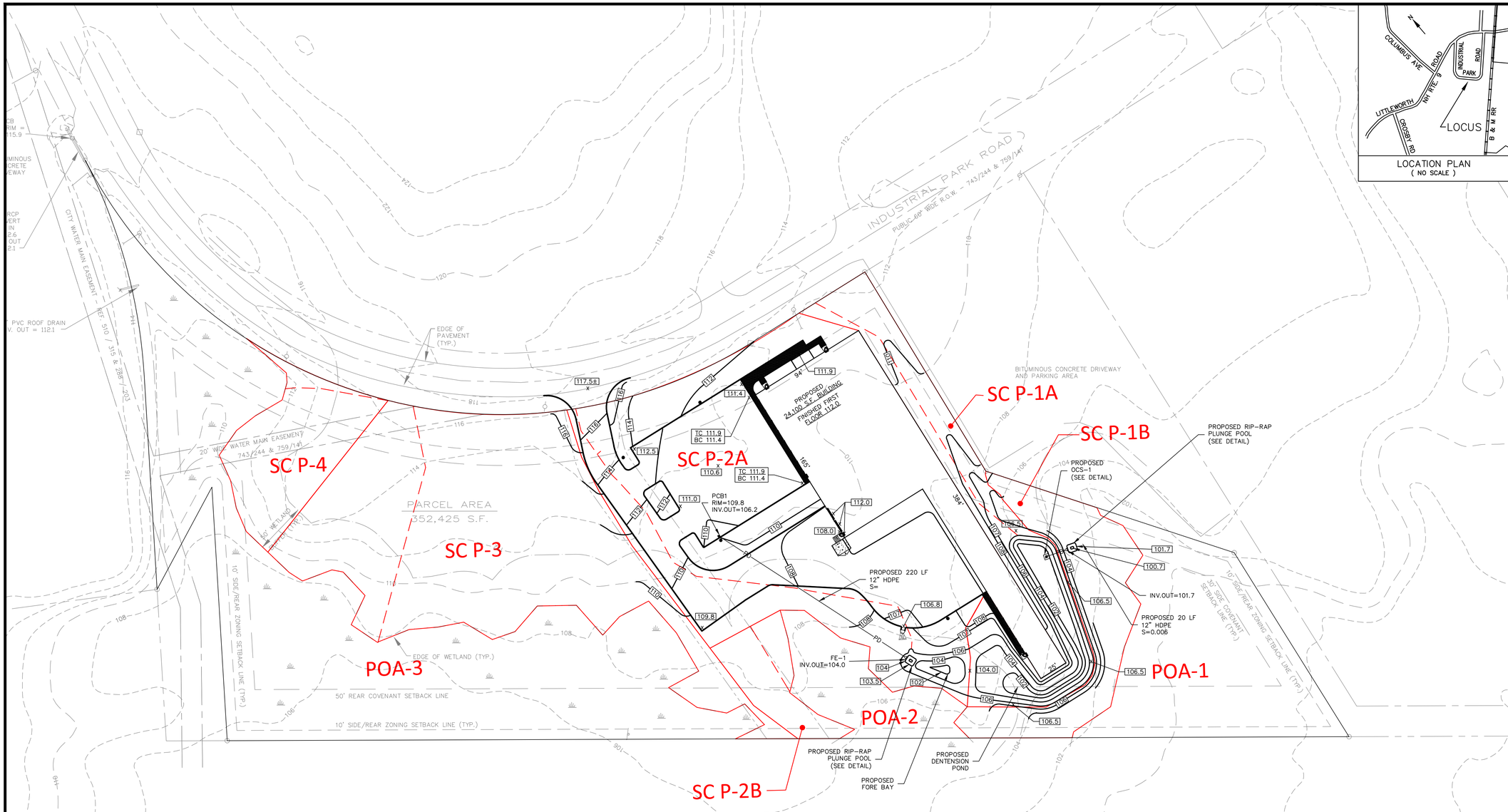
DATE: 6-20-2019
SCALE: 1"=50'
DRAWN BY: JW
DESIGN BY: JW
APPROVED BY: XX
PROJECT NO: XX
FILE: XXX

CIVILWORKS NEW ENGLAND
181 Watson Road, P.O. Box 1165
Dover, New Hampshire 03820
(603) 749-0443

PRE-DEVELOPMENT DRAINAGE PLAN

WHITE BIRCH ARMORY
INDUSTRIAL PARK DRIVE
DOVER, NH

WS-1



LOCATION PLAN
(NO SCALE)

PRE DEVELOPMENT WATERSHED CHARACTERISTICS			
SUBCATCHMENT DESIGNATION	AREA (SF)	LONGEST FLOW PATH (FT)	Tc (MIN)
SC P-1A	24,450	310.0	11.0
SC P-1B	16,334	217.0	6.7
SC P-2A	96,241	561.0	4.1*
SC P-2B	6,662	75.0	10.6
SC P-3	63,021	239.4	11.7
SC P-4	14,667	101.5	10.4

*MINIMUM Tc OF 6 MIN (0.1 HR) USED FOR ANALYSIS OF SC P-2A

SOILS DATA	
SOIL GROUP	NRCS SYMBOL & NAME
C/D	BzB - BUXTON SILT LOAM
C/D	ScA - SCANTIC SILT LOAM

NOTES:
1. SOILS INFORMATION TAKEN FROM NATIONAL COOPERATIVE SOIL SURVEY (NRCS) FOR STRAFFORD COUNTY, NH.
2. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

CIVILWORKS NEW ENGLAND
Civil Engineering & Land Surveying
180 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	DATE	APP'D

DATE: 6-20-2019
SCALE: 1"=50'
DRAWN BY: JW
DESIGN BY: JW
APPROVED BY: XX
PROJECT NO: XX
FILE: XXX

POST-DEVELOPMENT DRAINAGE PLAN

WHITE BIRCH ARMORY
INDUSTRIAL PARK DRIVE
DOVER, NH

WS-2

DRAINAGE ANALYSIS

WHITE BIRCH ARMORY
MAP D, LOT 11-7

INDUSTRIAL DRIVE
Dover, New Hampshire
Strafford County

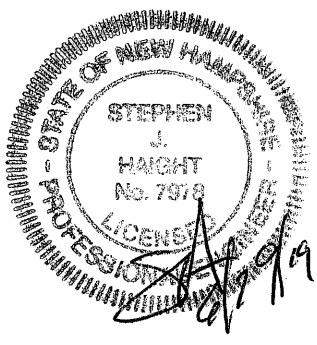
JUNE 2019

Prepared For:

White Birch Armory
50 Crosby Road
Unit 2
Dover NH 03820

Prepared By:

Civilworks NE
PO Box 1166
181 Watson Road
Dover, NH 03820



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- Area and Soil Listings
- Node Listing – 2-yr
- 10-yr Storm Summary Hydrographs
- Node Listing – 25-yr
- Node Listing – 50-yr

A-2 Developed Watersheds

- Drainage Diagram
- Area and Soil Listings
- Node Listing – 2-yr
- 10-yr Storm Summary Hydrographs
- Node Listing – 25-yr
- Node Listing – 50-yr

1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel Map G/3A-1 (8.09 AC). The site is currently undeveloped, consisting primarily of wooded areas with wetlands in the north, south, and west. The site generally slopes east to west from Industrial Park Drive to the rear property line and a series of wetlands along the southwesterly corner, with a small portion sloping towards wetlands in the north. The proposed development of the site will include the development of a 24,000 sf +/- building housing an indoor rifle range and accompanying parking area and walkways. The development will result in approximately 3 acres of disturbance. To account for this increase, stormwater management measures and associated site grading are proposed.

To effectively analyze the pre-development watershed and subject parcels, the watershed has been divided into three (3) points of analysis (POA-1, POA-2, and POA-3), and four (4) sub-catchments (sub-watersheds SC E-1, SC E-2, SC E-3, and SC E-4). Sub-watershed SC E-1 discharges to the southernmost wetlands (POA-1). Sub-watershed SC E-2 discharges to the southwest, ultimately draining to wetlands on the southwest border of the property (POA-2). Sub-watersheds SC E-3 and SC-E4 drain to the west and north portions of the site, respectively. Both sub-watersheds discharge to a large wetland which occupies the north and west borders of the property (POA-3).

The post development analysis is modeled using the same three (3) points of analysis developed for the pre-development model. The developed watershed has been further divided into sub-catchments to accurately model post-development conditions, the drainage channels and the stormwater storage areas. Under proposed conditions, sub-watersheds SC P-1A and SC P-2A will be directed to the proposed detention basin which discharges to POA-1. SC P-2A, which contains all of the proposed impervious area, will be directed through a forebay prior for pre-treatment and then to the detention basin. SC P-1B will discharge directly overland to the wetlands in the south (POA-1). SC P-2B will continue to discharge overland to the wetlands on the southwest border (POA-2). To provide for a conservative design, SC P-1B and SC P-2B were modelled with a ground cover of grass as opposed to woods, which is characteristic of the other ungraded sub-watersheds. SC P-3 and SC P-4 will continue to drain to the wetlands in the north and west (POA-3). SC P-3 is smaller under proposed conditions as a small portion of this sub-watershed is redirected into SC P-2A. SC P-4 will remain unaltered.

The model represents the drainage design and the mitigation measures utilized while allowing direct comparison between pre and post development.

The onsite drainage improvements have been designed to provide mitigation of both stormwater quantity and quality. All runoff from the proposed impervious portions of the site will be conveyed to the detention basins through roof drains, catchbasins, sheet flow, and rip rap swales. The system has been designed to capture, treat and attenuate storm water flows from the full build out of the developed site prior to discharge to the wetlands in the south of the site. The analysis indicates that with the mitigation measures proposed

and implemented there will be no measurable impact to the watershed as a result of the proposed development of the site.

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 sub-catchment areas were delineated using wetland data provided by West Environmental and on-site topographic survey data from a survey performed by McEneaney Survey Associates, Inc. during April and May 2019.

2.1.2 Soils

Onsite soil information used to estimate the runoff curve numbers was provided by National Cooperative Soil Survey for Strafford County, New Hampshire:

Hydrologic Drainage Class C/D: Buxton Silt Loam

Hydrologic Drainage Class C/D: Scantic Silt Loam

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center were utilized in this analysis. The analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.14", 4.73", 5.99", and 7.15" rainfall depths respectively. The detention basin 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 discharging to 3 points of analysis.

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)**			
Point of Analysis	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
POA-1	0.11	0.85	1.99	2.92	3.78
POA-2	0.07	0.55	1.29	1.90	2.45
POA-3	0.11	1.15	2.63	3.85	4.94

2.3 DEVELOPED CONDITIONS

The post development watershed was analyzed with 5 sub-watershed areas. Post development watersheds have the same summing points 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)**			
Point of Analysis	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
POA-1	0.25	0.44	1.70	2.78	3.54
POA-2	0.01	0.13	0.26	0.36	0.45
POA-3	0.12	1.06	2.42	3.54	4.55

Comparison Chart

Watershed	Pre**/Post-Development Volume (af)**	Pre/**Post Development Peak Flows (cfs)**			
	2-yr	**2-yr**	**10-yr**	**25-yr**	**50-yr**
POA-1	0.11/**0.25**	0.85/**0.44**	1.99/**1.70**	2.92/**2.78**	3.78/**3.54**
POA-2	0.07/**0.1**	0.55/**0.13**	1.29/**0.26**	1.90/**0.36**	2.45/**0.45**
POA-3	0.11/**0.12**	1.15/**1.06**	2.63/**2.42**	3.85/**3.54**	4.94/**4.55**

APPENDIX A

HYDROLOGIC CALCULATIONS

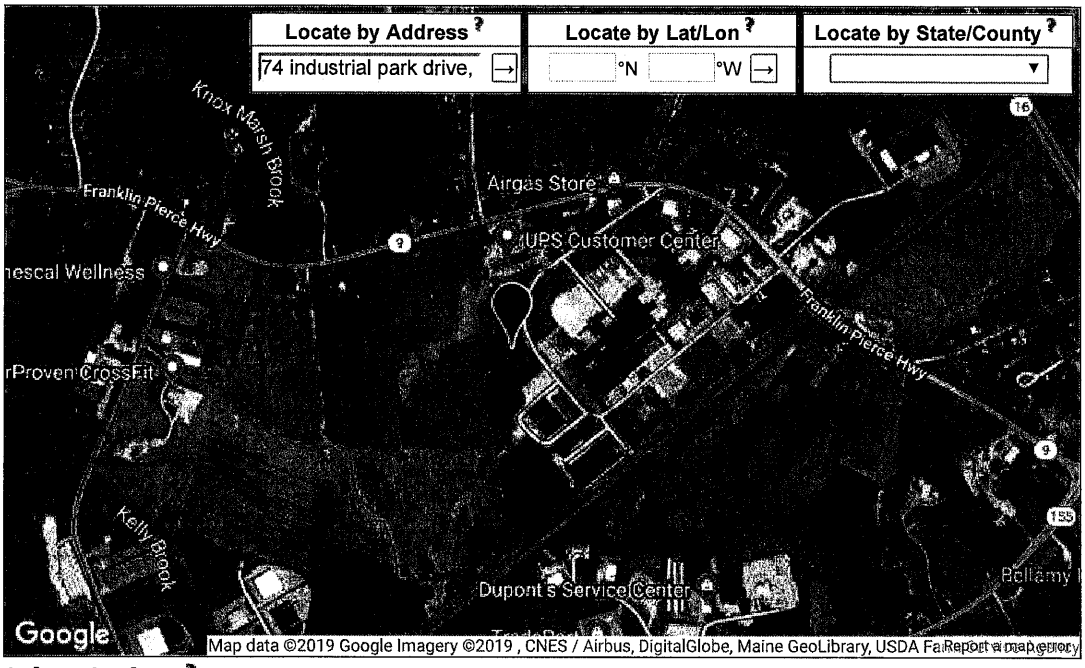
About this Project **Data & Products** **Daily Monitoring** **Documentation**

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 *Double-click the map to place a marker, or enter address or latitude/longitude.*

Locate by Address	Locate by Lat/Lon	Locate by State/County
74 industrial park drive, →	°N °W →	



Select Options

Smoothing	Delivery
No	Download

Submit

Version 1.12 Copyright 2010-2019.
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	No
State	New Hampshire
Location	
Longitude	70.906 degrees West
Latitude	43.186 degrees North
Elevation	0 feet
Date/Time	Wed, 19 Jun 2019 14:20:00 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.49	0.66	0.81	1.00	**1yr**	0.70	0.98	1.13	1.59	2.03	2.60	2.85	**1yr**	2.30	2.74	3.14	3.87	4.44	**1yr**
2yr	0.32	0.49	0.61	0.82	1.01	1.19	**2yr**	0.87	1.17	1.39	1.86	2.41	3.14	3.49	**2yr**	2.78	3.35	3.85	4.58	5.22	**2yr**
5yr	0.37	0.57	0.70	0.96	1.23	1.47	**5yr**	1.06	1.44	1.72	2.32	2.96	3.96	4.47	**5yr**	3.51	4.30	4.91	5.79	6.54	**5yr**
10yr	0.41	0.63	0.78	1.10	1.42	1.73	**10yr**	1.22	1.69	2.02	2.73	3.46	4.73	5.39	**10yr**	4.19	5.18	5.92	6.91	7.77	**10yr**
25yr	0.48	0.74	0.91	1.31	1.72	2.14	**25yr**	1.48	2.09	2.51	3.39	4.27	5.99	6.91	**25yr**	5.30	6.65	7.56	8.73	9.76	**25yr**
50yr	0.54	0.83	1.03	1.48	1.99	2.51	**50yr**	1.72	2.45	2.95	4.00	5.00	7.15	8.35	**50yr**	6.33	8.03	9.11	10.44	11.61	**50yr**
100yr	0.62	0.93	1.17	1.69	2.31	2.95	**100yr**	2.00	2.88	3.47	4.72	5.86	8.55	10.09	**100yr**	7.57	9.70	10.98	12.47	13.81	**100yr**
200yr	0.70	1.05	1.33	1.93	2.69	3.47	**200yr**	2.32	3.39	4.09	5.57	6.86	10.23	12.19	**200yr**	9.05	11.72	13.23	14.92	16.43	**200yr**
500yr	0.83	1.24	1.59	2.31	3.29	4.30	**500yr**	2.84	4.21	5.08	6.94	8.47	12.97	15.67	**500yr**	11.48	15.06	16.95	18.91	20.70	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.61	0.74	0.90	**1yr**	0.64	0.88	0.91	1.25	1.55	2.07	2.47	**1yr**	1.83	2.38	2.92	3.36	4.05	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.83	2.36	3.04	3.39	**2yr**	2.69	3.26	3.74	4.46	5.06	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.78	3.70	4.12	**5yr**	3.28	3.96	4.59	5.40	6.10	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.82	2.45	3.13	4.26	4.78	**10yr**	3.77	4.59	5.31	6.24	7.00	**10yr**
25yr	0.44	0.67	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.85	3.66	5.02	5.79	**25yr**	4.44	5.57	6.48	7.55	8.41	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.19	**50yr**	1.52	2.14	2.35	3.20	4.12	5.75	6.68	**50yr**	5.09	6.42	7.53	8.72	9.65	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.51	**100yr**	1.74	2.46	2.63	3.59	4.60	6.58	7.71	**100yr**	5.82	7.41	8.75	10.06	11.05	**100yr**
200yr	0.60	0.90	1.14	1.65	2.30	2.88	**200yr**	1.98	2.81	2.93	4.02	5.15	7.52	8.89	**200yr**	6.65	8.55	10.16	11.62	12.67	**200yr**
500yr	0.70	1.04	1.34	1.94	2.76	3.46	**500yr**	2.38	3.39	3.40	4.66	5.99	8.93	10.73	**500yr**	7.91	10.31	12.39	14.07	15.13	**500yr**

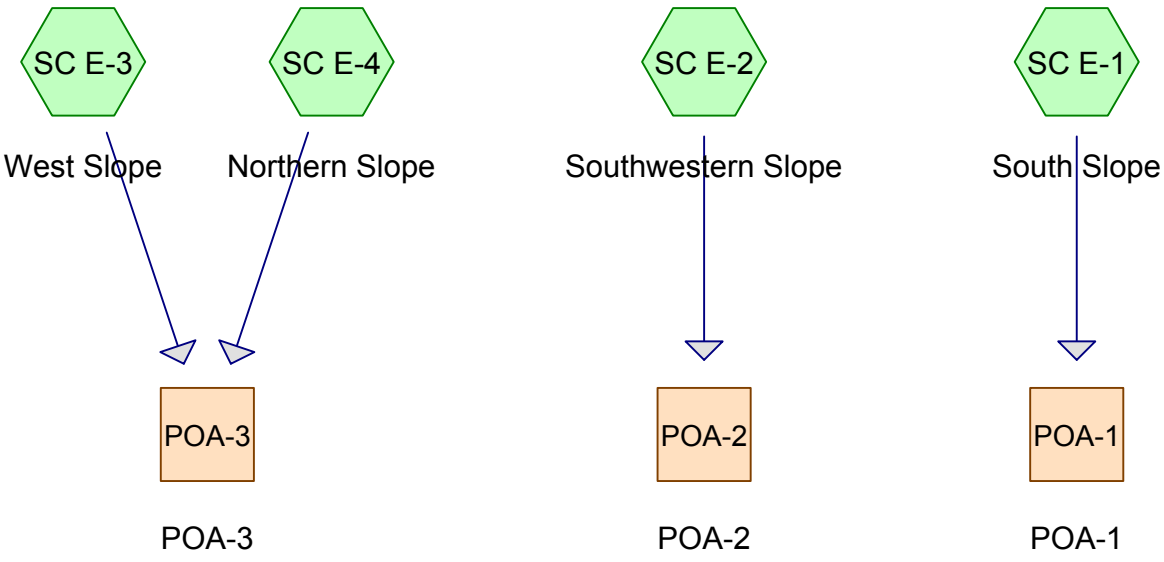
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.74	2.21	2.84	3.06	**1yr**	2.51	2.94	3.39	4.19	4.77	**1yr**
2yr	0.33	0.51	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.48	1.95	2.50	3.25	3.60	**2yr**	2.88	3.46	3.97	4.73	5.40	**2yr**
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.54	1.85	2.49	3.19	4.22	4.81	**5yr**	3.74	4.63	5.25	6.19	6.96	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.92	**10yr**	1.35	1.87	2.23	3.04	3.84	5.19	6.00	**10yr**	4.60	5.77	6.59	7.60	8.48	**10yr**
25yr	0.55	0.84	1.05	1.50	1.97	2.47	**25yr**	1.70	2.41	2.87	3.95	4.93	6.95	8.06	**25yr**	6.15	7.75	8.79	10.00	11.04	**25yr**
50yr	0.64	0.97	1.21	1.74	2.34	2.98	**50yr**	2.02	2.91	3.48	4.81	5.98	8.57	10.08	**50yr**	7.59	9.70	10.96	12.29	13.50	**50yr**
100yr	0.74	1.12	1.41	2.03	2.79	3.60	**100yr**	2.40	3.52	4.22	5.88	7.26	10.58	12.62	**100yr**	9.36	12.14	13.65	15.13	16.51	**100yr**
200yr	0.86	1.29	1.64	2.37	3.31	4.36	**200yr**	2.86	4.26	5.13	7.19	8.80	13.09	15.82	**200yr**	11.59	15.21	17.02	18.61	20.23	**200yr**
500yr	1.05	1.56	2.01	2.92	4.15	5.59	**500yr**	3.58	5.47	6.62	9.40	11.38	17.38	21.33	**500yr**	15.38	20.51	22.79	24.52	26.47	**500yr**

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A-1

EXISTING WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 19003_White Birch Existing Conditions
Prepared by Civilworks-NE, Printed 7/1/2019
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
221,371	70	Woods, Good, HSG C (SC E-1, SC E-2, SC E-3, SC E-4)
221,371	**70**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
221,371	HSG C	SC E-1, SC E-2, SC E-3, SC E-4
0	HSG D	
0	Other	
221,371		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	221,371	0	0	221,371	Woods, Good	SC E-1 SC E-2 SC E-3 SC E-4
0	**0**	**221,371**	**0**	**0**	**221,371**	**TOTAL AREA**	

A – 1

NODE LISTING – 2-YR

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

Subcatchment SC E-1: South Slope Runoff Area=83,768 sf 0.00% Impervious Runoff Depth>0.66"
Flow Length=525' Tc=21.3 min CN=70 Runoff=0.85 cfs 4,642 cf

Subcatchment SC E-2: Southwestern Slope Runoff Area=53,096 sf 0.00% Impervious Runoff Depth>0.67"
Flow Length=408' Tc=20.3 min CN=70 Runoff=0.55 cfs 2,944 cf

Subcatchment SC E-3: West Slope Runoff Area=69,840 sf 0.00% Impervious Runoff Depth>0.67"
Flow Length=239' Tc=11.7 min CN=70 Runoff=0.93 cfs 3,899 cf

Subcatchment SC E-4: Northern Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth>0.67"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.21 cfs 820 cf

Reach POA-1: POA-1 Inflow=0.85 cfs 4,642 cf
Outflow=0.85 cfs 4,642 cf

Reach POA-2: POA-2 Inflow=0.55 cfs 2,944 cf
Outflow=0.55 cfs 2,944 cf

Reach POA-3: POA-3 Inflow=1.15 cfs 4,719 cf
Outflow=1.15 cfs 4,719 cf

Total Runoff Area = 221,371 sf Runoff Volume = 12,305 cf Average Runoff Depth = 0.67"
100.00% Pervious = 221,371 sf 0.00% Impervious = 0 sf

A – 1

NODE LISTING – 10-YR

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

Subcatchment SC E-1: South Slope Runoff Area=83,768 sf 0.00% Impervious Runoff Depth>1.58"
Flow Length=525' Tc=21.3 min CN=70 Runoff=1.99 cfs 11,019 cf

Subcatchment SC E-2: Southwestern Slope Runoff Area=53,096 sf 0.00% Impervious Runoff Depth>1.58"
Flow Length=408' Tc=20.3 min CN=70 Runoff=1.29 cfs 6,989 cf

Subcatchment SC E-3: West Slope Runoff Area=69,840 sf 0.00% Impervious Runoff Depth>1.59"
Flow Length=239' Tc=11.7 min CN=70 Runoff=2.16 cfs 9,246 cf

Subcatchment SC E-4: Northern Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth>1.59"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.48 cfs 1,943 cf

Reach POA-1: POA-1 Inflow=1.99 cfs 11,019 cf
Outflow=1.99 cfs 11,019 cf

Reach POA-2: POA-2 Inflow=1.29 cfs 6,989 cf
Outflow=1.29 cfs 6,989 cf

Reach POA-3: POA-3 Inflow=2.63 cfs 11,189 cf
Outflow=2.63 cfs 11,189 cf

Total Runoff Area = 221,371 sf Runoff Volume = 29,196 cf Average Runoff Depth = 1.58"
100.00% Pervious = 221,371 sf 0.00% Impervious = 0 sf

A – 1

10-YR STORM SUMMARY

Summary for Subcatchment SC E-1: South Slope

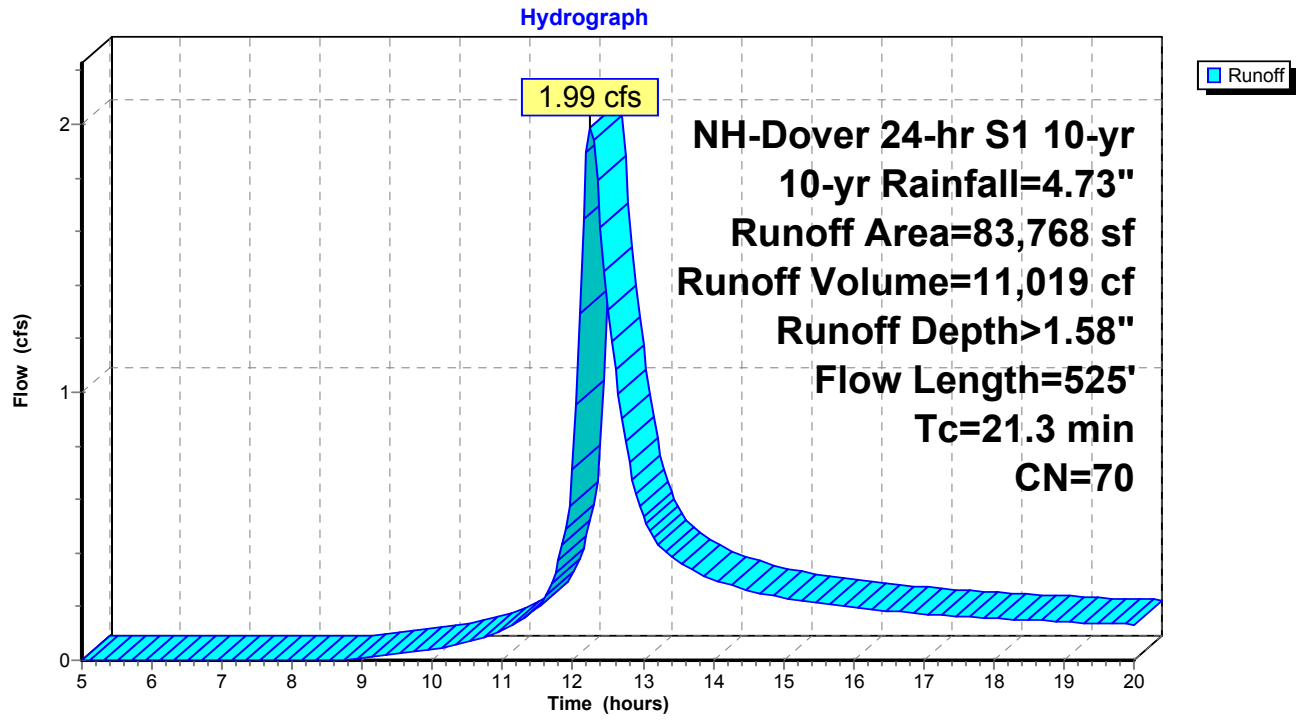
Runoff = 1.99 cfs @ 12.26 hrs, Volume= 11,019 cf, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
83,768	70	Woods, Good, HSG C
83,768		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	50	0.0280	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
6.4	258	0.0180	0.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.0	217	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.3	525	Total			

Subcatchment SC E-1: South Slope



Summary for Subcatchment SC E-2: Southwestern Slope

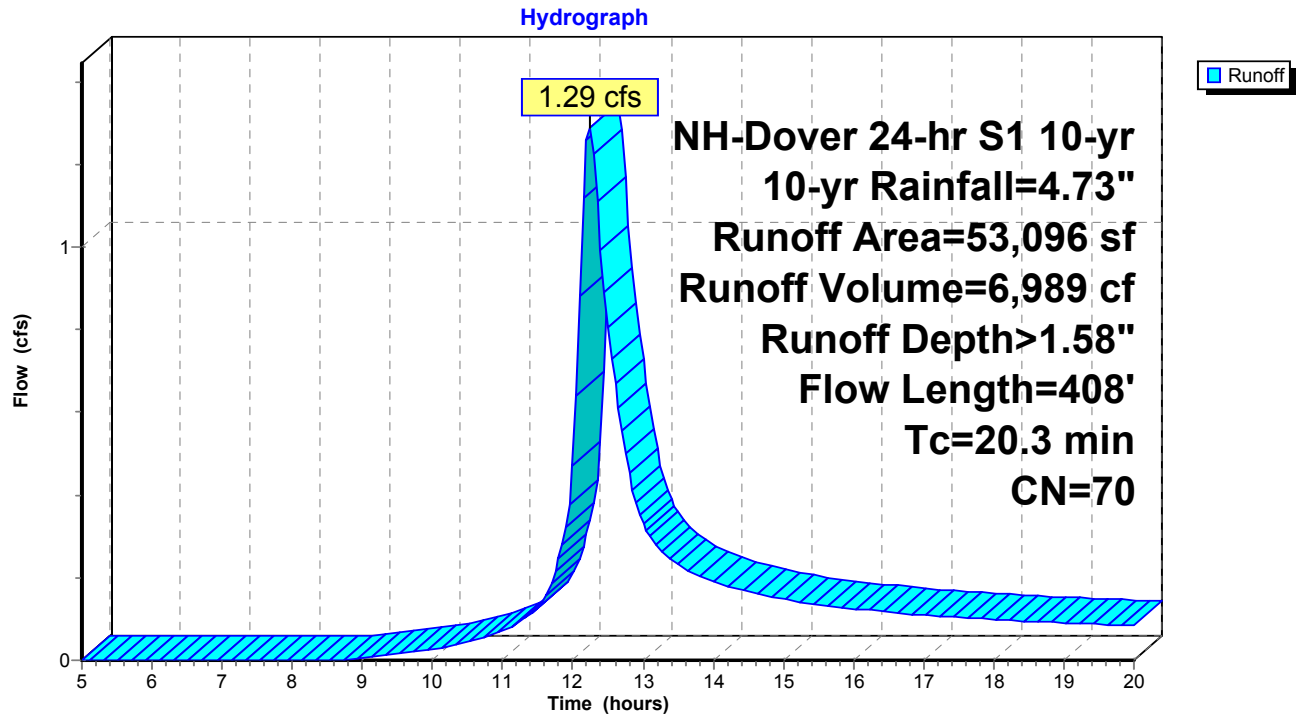
Runoff = 1.29 cfs @ 12.24 hrs, Volume= 6,989 cf, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
53,096	70	Woods, Good, HSG C
53,096		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	42	0.0430	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
3.4	8	0.0130	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
8.9	358	0.0180	0.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.3	408	Total			

Subcatchment SC E-2: Southwestern Slope



Summary for Subcatchment SC E-3: West Slope

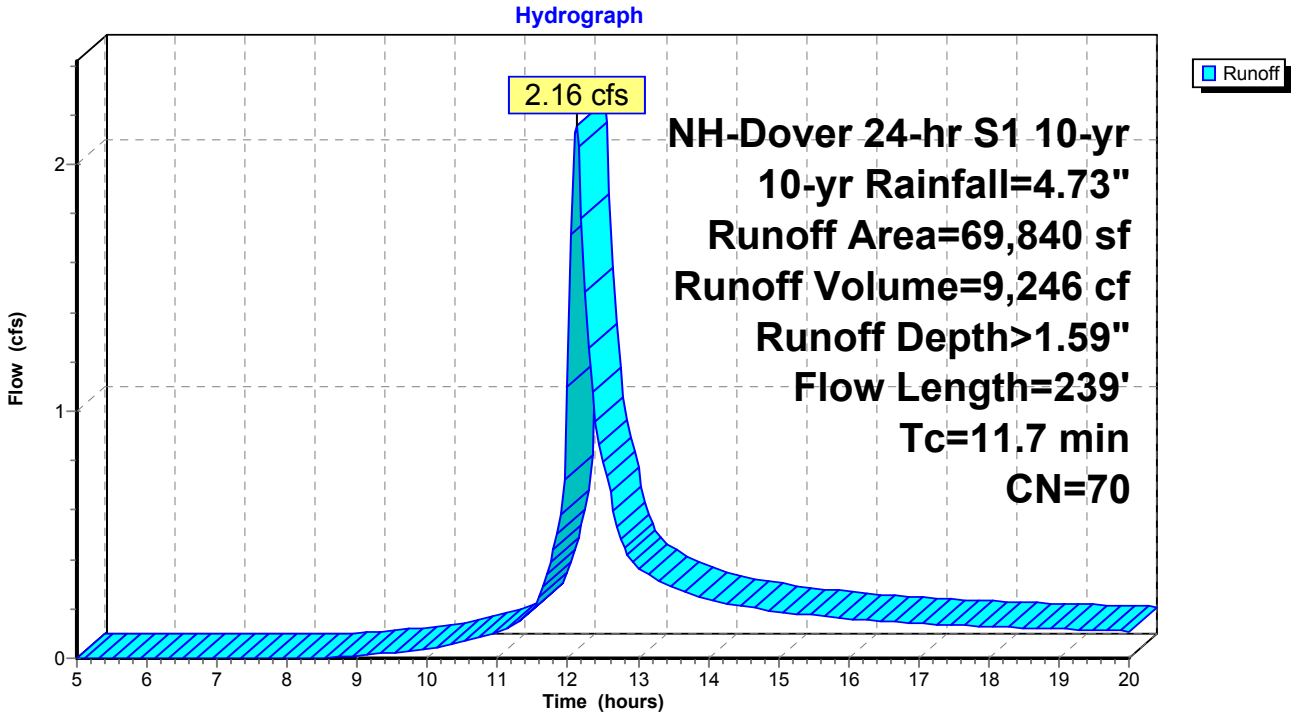
Runoff = 2.16 cfs @ 12.12 hrs, Volume= 9,246 cf, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
69,840	70	Woods, Good, HSG C
69,840		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0520	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
3.1	189	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.7	239	Total			

Subcatchment SC E-3: West Slope



Summary for Subcatchment SC E-4: Northern Slope

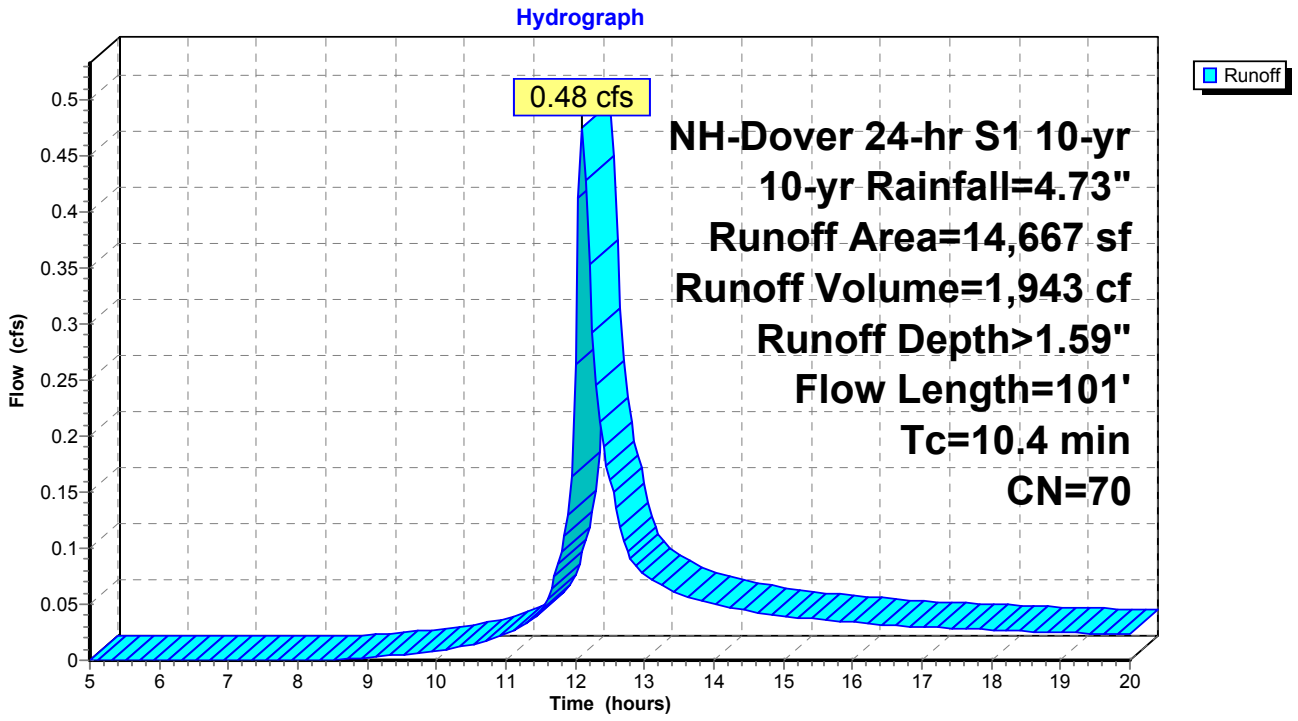
Runoff = 0.48 cfs @ 12.10 hrs, Volume= 1,943 cf, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
14,667	70	Woods, Good, HSG C
14,667		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0370	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
0.3	19	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.4	101	Total			

Subcatchment SC E-4: Northern Slope



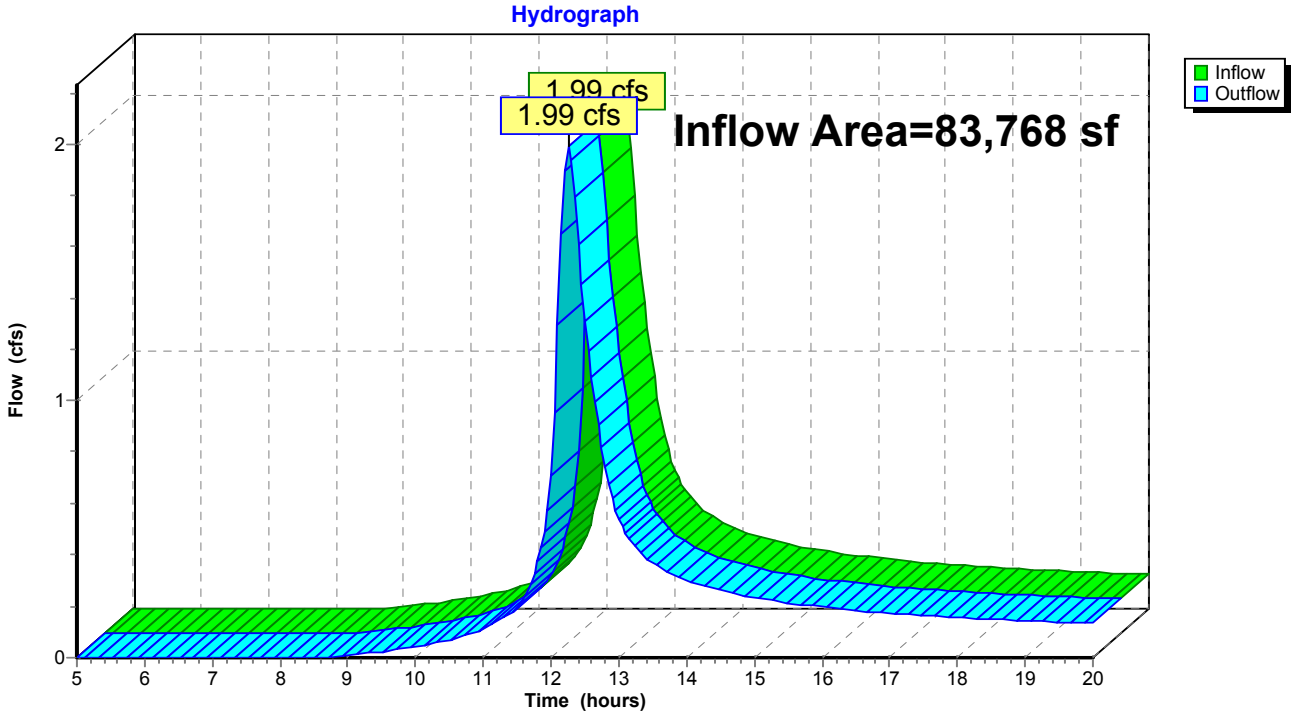
Summary for Reach POA-1: POA-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 83,768 sf, 0.00% Impervious, Inflow Depth > 1.58" for 10-yr event
Inflow = 1.99 cfs @ 12.26 hrs, Volume= 11,019 cf
Outflow = 1.99 cfs @ 12.26 hrs, Volume= 11,019 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach POA-1: POA-1



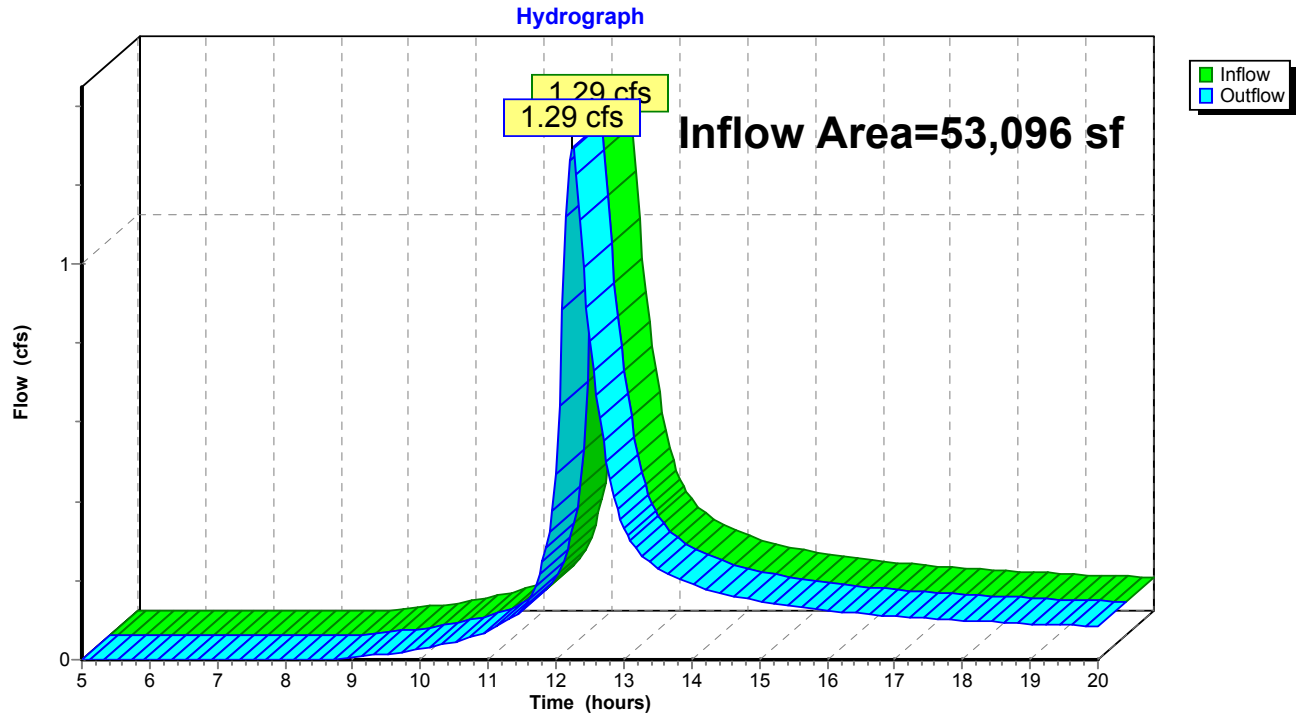
Summary for Reach POA-2: POA-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 53,096 sf, 0.00% Impervious, Inflow Depth > 1.58" for 10-yr event
Inflow = 1.29 cfs @ 12.24 hrs, Volume= 6,989 cf
Outflow = 1.29 cfs @ 12.24 hrs, Volume= 6,989 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach POA-2: POA-2



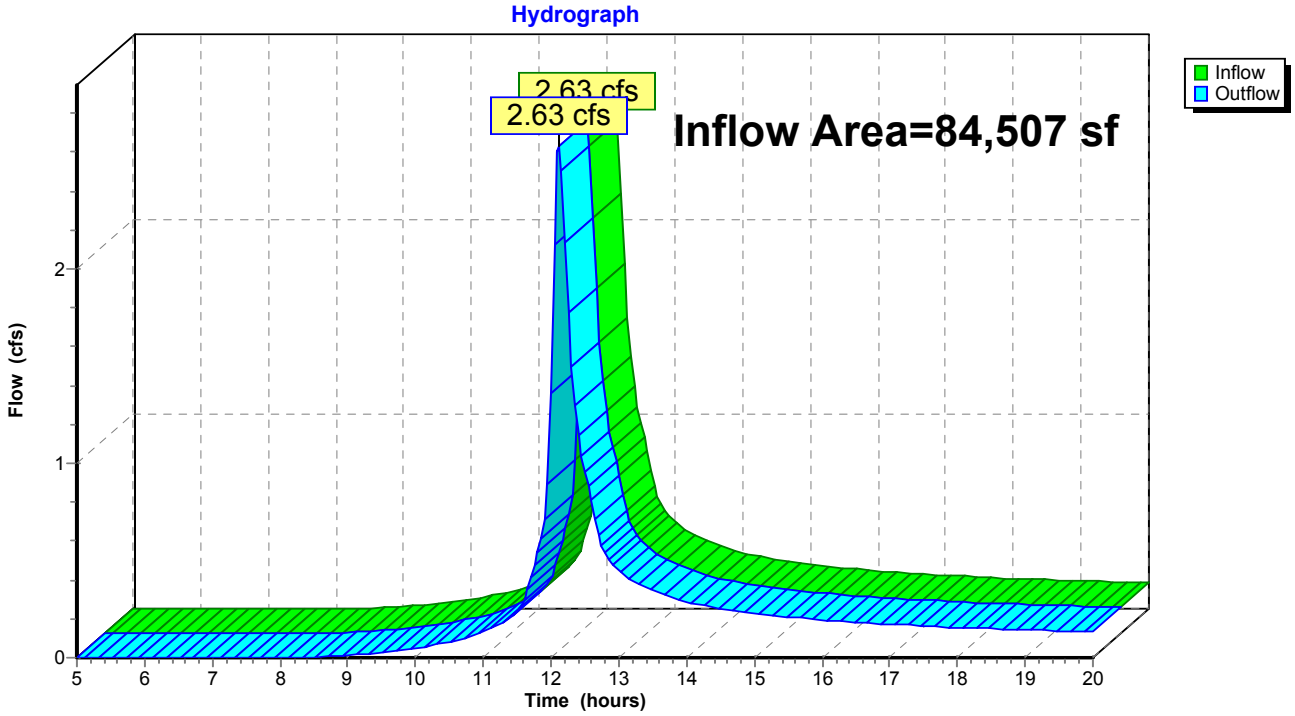
Summary for Reach POA-3: POA-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 84,507 sf, 0.00% Impervious, Inflow Depth > 1.59" for 10-yr event
Inflow = 2.63 cfs @ 12.12 hrs, Volume= 11,189 cf
Outflow = 2.63 cfs @ 12.12 hrs, Volume= 11,189 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach POA-3: POA-3



A – 1

NODE LISTING – 25-YR

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

Subcatchment SC E-1: South Slope Runoff Area=83,768 sf 0.00% Impervious Runoff Depth>2.42"
Flow Length=525' Tc=21.3 min CN=70 Runoff=2.92 cfs 16,914 cf

Subcatchment SC E-2: Southwestern Slope Runoff Area=53,096 sf 0.00% Impervious Runoff Depth>2.42"
Flow Length=408' Tc=20.3 min CN=70 Runoff=1.90 cfs 10,728 cf

Subcatchment SC E-3: West Slope Runoff Area=69,840 sf 0.00% Impervious Runoff Depth>2.44"
Flow Length=239' Tc=11.7 min CN=70 Runoff=3.16 cfs 14,187 cf

Subcatchment SC E-4: Northern Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth>2.44"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.69 cfs 2,982 cf

Reach POA-1: POA-1 Inflow=2.92 cfs 16,914 cf
Outflow=2.92 cfs 16,914 cf

Reach POA-2: POA-2 Inflow=1.90 cfs 10,728 cf
Outflow=1.90 cfs 10,728 cf

Reach POA-3: POA-3 Inflow=3.85 cfs 17,169 cf
Outflow=3.85 cfs 17,169 cf

Total Runoff Area = 221,371 sf Runoff Volume = 44,810 cf Average Runoff Depth = 2.43"
100.00% Pervious = 221,371 sf 0.00% Impervious = 0 sf

A – 1

NODE LISTING – 50-YR

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

Subcatchment SC E-1: South Slope Runoff Area=83,768 sf 0.00% Impervious Runoff Depth>3.26"
Flow Length=525' Tc=21.3 min CN=70 Runoff=3.78 cfs 22,760 cf

Subcatchment SC E-2: Southwestern Slope Runoff Area=53,096 sf 0.00% Impervious Runoff Depth>3.26"
Flow Length=408' Tc=20.3 min CN=70 Runoff=2.45 cfs 14,435 cf

Subcatchment SC E-3: West Slope Runoff Area=69,840 sf 0.00% Impervious Runoff Depth>3.28"
Flow Length=239' Tc=11.7 min CN=70 Runoff=4.06 cfs 19,086 cf

Subcatchment SC E-4: Northern Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth>3.28"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.89 cfs 4,011 cf

Reach POA-1: POA-1 Inflow=3.78 cfs 22,760 cf
Outflow=3.78 cfs 22,760 cf

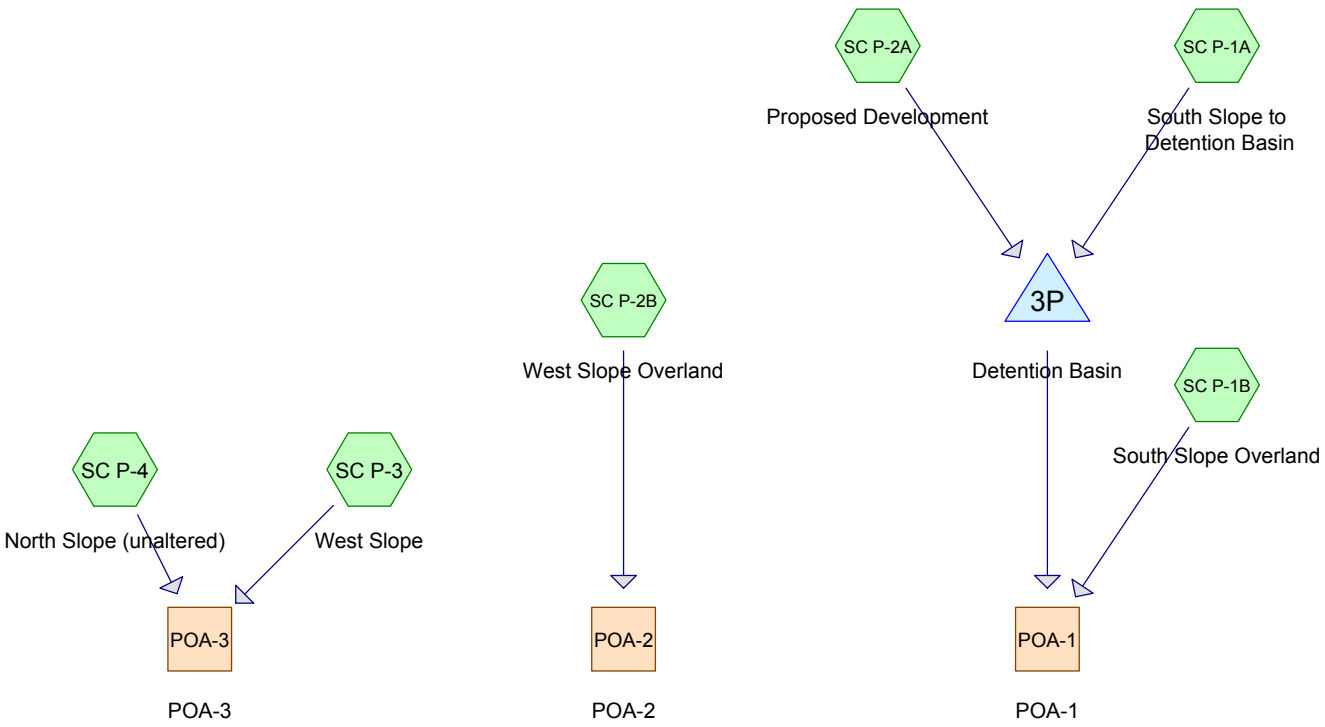
Reach POA-2: POA-2 Inflow=2.45 cfs 14,435 cf
Outflow=2.45 cfs 14,435 cf

Reach POA-3: POA-3 Inflow=4.94 cfs 23,097 cf
Outflow=4.94 cfs 23,097 cf

Total Runoff Area = 221,371 sf Runoff Volume = 60,293 cf Average Runoff Depth = 3.27"
100.00% Pervious = 221,371 sf 0.00% Impervious = 0 sf

A-2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 19003_White Birch Proposed
Prepared by Civilworks-NE, Printed 7/1/2019
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
77,688	70	Woods, Good, HSG C (SC P-3, SC P-4)
66,545	74	>75% Grass cover, Good, HSG C (SC P-1A, SC P-1B, SC P-2A, SC P-2B)
77,142	98	Buildings, Parking, Walkways (SC P-2A)
221,375	**81**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
144,233	HSG C	SC P-1A, SC P-1B, SC P-2A, SC P-2B, SC P-3, SC P-4
0	HSG D	
77,142	Other	SC P-2A
221,375		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	66,545	0	0	66,545	>75% Grass cover, Good
0	0	0	0	77,142	77,142	Buildings, Parking, Walkways
0	0	77,688	0	0	77,688	Woods, Good
0	**0**	**144,233**	**0**	**77,142**	**221,375**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3P	102.00	101.70	40.0	0.0075	0.013	12.0	0.0	0.0

A – 2

NODE LISTING – 2-YR

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC P-1A: South Slope to Runoff Area=24,450 sf 0.00% Impervious Runoff Depth=1.00"
Flow Length=310' Tc=11.0 min CN=74 Runoff=0.46 cfs 2,034 cf

Subcatchment SC P-1B: South Slope Runoff Area=16,334 sf 0.00% Impervious Runoff Depth=1.00"
Flow Length=233' Slope=0.0370 '/' Tc=6.7 min CN=74 Runoff=0.37 cfs 1,359 cf

Subcatchment SC P-2A: Proposed Runoff Area=96,241 sf 80.16% Impervious Runoff Depth=2.39"
Tc=6.0 min CN=93 Runoff=5.66 cfs 19,153 cf

Subcatchment SC P-2B: West Slope Overland Runoff Area=6,662 sf 0.00% Impervious Runoff Depth=1.00"
Flow Length=75' Slope=0.0120 '/' Tc=10.6 min CN=74 Runoff=0.13 cfs 554 cf

Subcatchment SC P-3: West Slope Runoff Area=63,021 sf 0.00% Impervious Runoff Depth=0.79"
Flow Length=239' Tc=11.7 min CN=70 Runoff=0.84 cfs 4,167 cf

Subcatchment SC P-4: North Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth=0.79"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.21 cfs 970 cf

Reach POA-1: POA-1 Inflow=0.44 cfs 10,892 cf
Outflow=0.44 cfs 10,892 cf

Reach POA-2: POA-2 Inflow=0.13 cfs 554 cf
Outflow=0.13 cfs 554 cf

Reach POA-3: POA-3 Inflow=1.06 cfs 5,136 cf
Outflow=1.06 cfs 5,136 cf

Pond 3P: Detention Basin Peak Elev=103.97' Storage=11,818 cf Inflow=6.01 cfs 21,187 cf
Discarded=0.03 cfs 6,215 cf Primary=0.40 cfs 9,533 cf Outflow=0.43 cfs 15,748 cf

Total Runoff Area = 221,375 sf Runoff Volume = 28,237 cf Average Runoff Depth = 1.53"
65.15% Pervious = 144,233 sf 34.85% Impervious = 77,142 sf

A – 2

NODE LISTING – 10-YR

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC P-1A: South Slope to Runoff Area=24,450 sf 0.00% Impervious Runoff Depth=2.15"
Flow Length=310' Tc=11.0 min CN=74 Runoff=0.93 cfs 4,382 cf

Subcatchment SC P-1B: South Slope Runoff Area=16,334 sf 0.00% Impervious Runoff Depth=2.15"
Flow Length=233' Slope=0.0370 '/' Tc=6.7 min CN=74 Runoff=0.74 cfs 2,928 cf

Subcatchment SC P-2A: Proposed Runoff Area=96,241 sf 80.16% Impervious Runoff Depth=3.93"
Tc=6.0 min CN=93 Runoff=7.85 cfs 31,543 cf

Subcatchment SC P-2B: West Slope Overland Runoff Area=6,662 sf 0.00% Impervious Runoff Depth=2.15"
Flow Length=75' Slope=0.0120 '/' Tc=10.6 min CN=74 Runoff=0.26 cfs 1,194 cf

Subcatchment SC P-3: West Slope Runoff Area=63,021 sf 0.00% Impervious Runoff Depth=1.84"
Flow Length=239' Tc=11.7 min CN=70 Runoff=1.95 cfs 9,655 cf

Subcatchment SC P-4: North Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth=1.84"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.48 cfs 2,247 cf

Reach POA-1: POA-1 Inflow=1.70 cfs 26,938 cf
Outflow=1.70 cfs 26,938 cf

Reach POA-2: POA-2 Inflow=0.26 cfs 1,194 cf
Outflow=0.26 cfs 1,194 cf

Reach POA-3: POA-3 Inflow=2.42 cfs 11,902 cf
Outflow=2.42 cfs 11,902 cf

Pond 3P: Detention Basin Peak Elev=104.67' Storage=17,057 cf Inflow=8.60 cfs 35,926 cf
Discarded=0.03 cfs 6,413 cf Primary=1.53 cfs 24,010 cf Outflow=1.56 cfs 30,424 cf

Total Runoff Area = 221,375 sf Runoff Volume = 51,949 cf Average Runoff Depth = 2.82"
65.15% Pervious = 144,233 sf 34.85% Impervious = 77,142 sf

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment SC P-1A: South Slope to Detention Basin

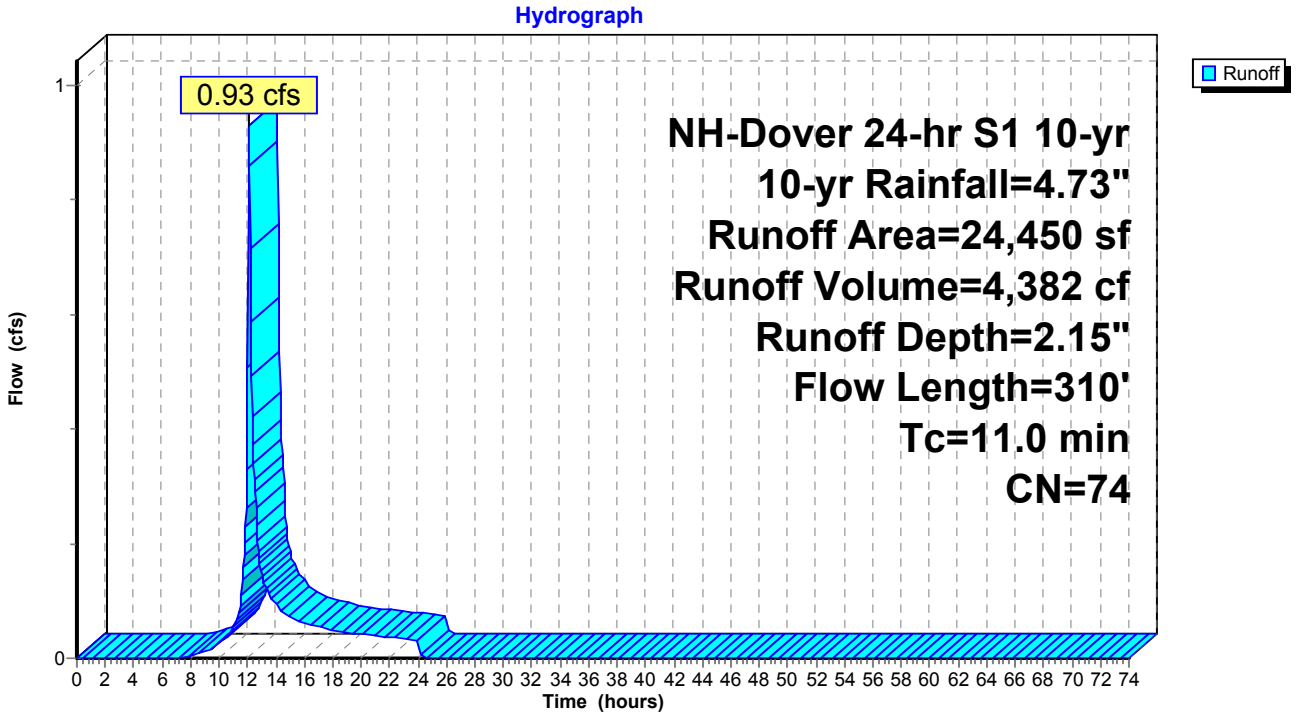
Runoff = 0.93 cfs @ 12.11 hrs, Volume= 4,382 cf, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
24,450	74	>75% Grass cover, Good, HSG C
24,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0152	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.14"
4.7	260	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.0	310	Total			

Subcatchment SC P-1A: South Slope to Detention Basin



Summary for Subcatchment SC P-1B: South Slope Overland

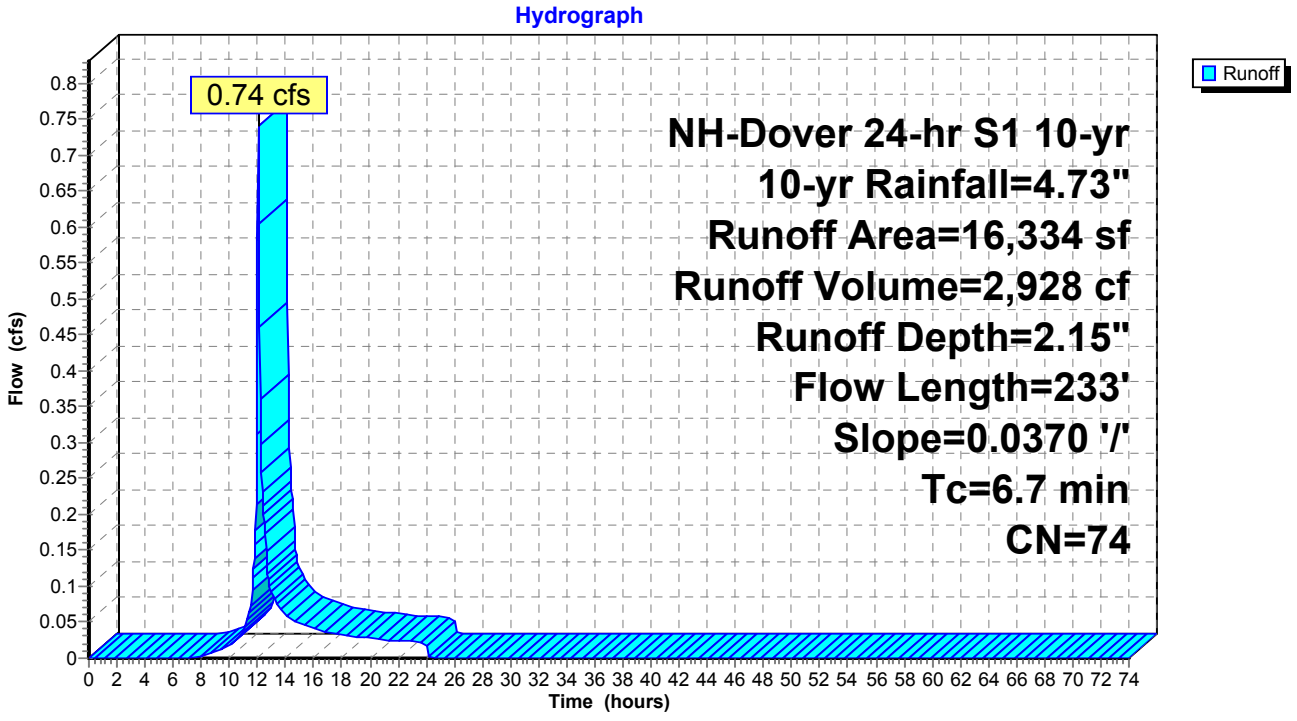
Runoff = 0.74 cfs @ 12.05 hrs, Volume= 2,928 cf, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
16,334	74	>75% Grass cover, Good, HSG C
16,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0370	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.14"
2.3	183	0.0370	1.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	233	Total			

Subcatchment SC P-1B: South Slope Overland



Summary for Subcatchment SC P-2A: Proposed Development

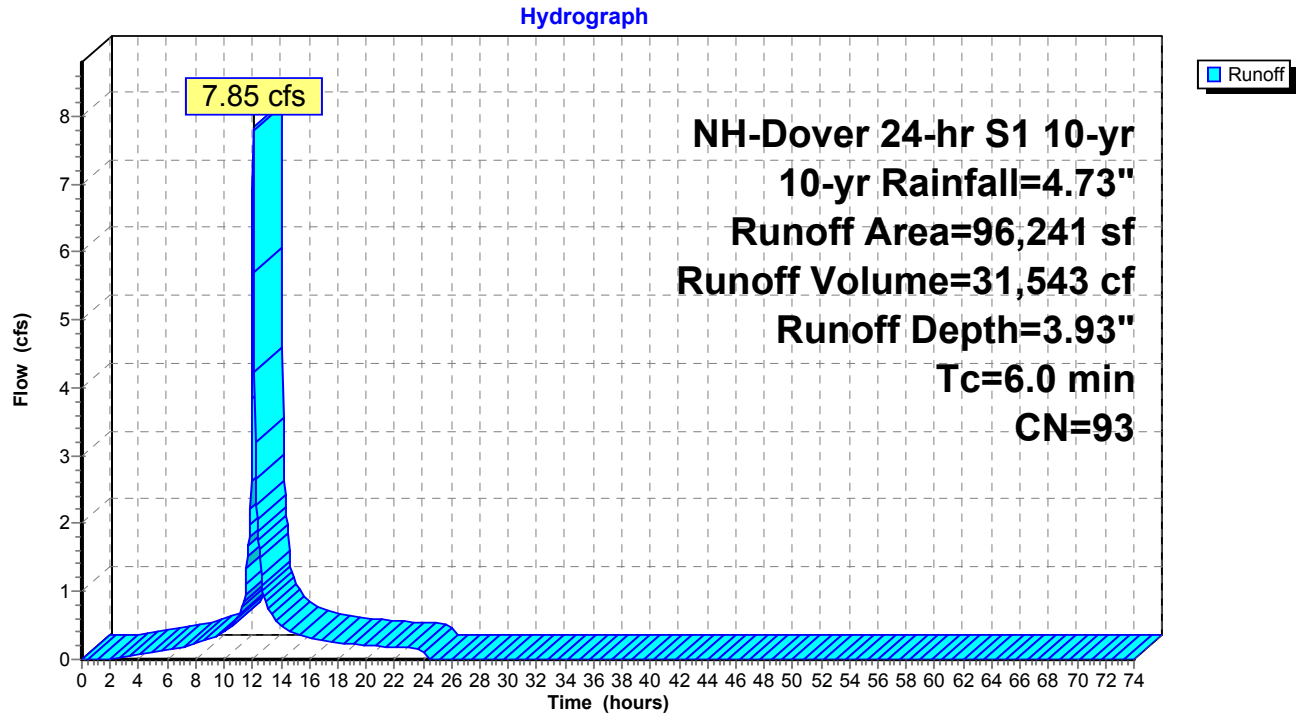
Runoff = 7.85 cfs @ 12.04 hrs, Volume= 31,543 cf, Depth= 3.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

	Area (sf)	CN	Description
*	77,142	98	Buildings, Parking, Walkways
	19,099	74	>75% Grass cover, Good, HSG C
	96,241	93	Weighted Average
	19,099		19.84% Pervious Area
	77,142		80.16% Impervious Area

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

Subcatchment SC P-2A: Proposed Development



Summary for Subcatchment SC P-2B: West Slope Overland

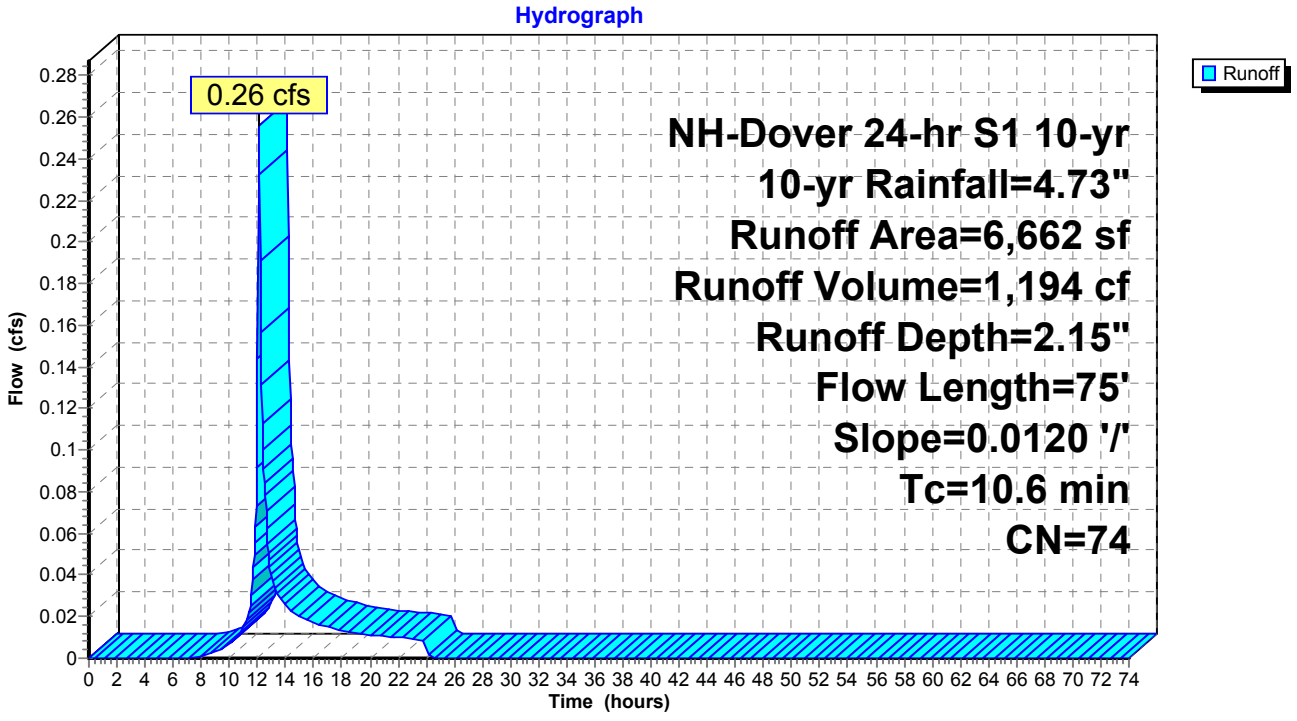
Runoff = 0.26 cfs @ 12.10 hrs, Volume= 1,194 cf, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
6,662	74	>75% Grass cover, Good, HSG C
6,662		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	50	0.0120	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.14"
0.5	25	0.0120	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.6	75	Total			

Subcatchment SC P-2B: West Slope Overland



Summary for Subcatchment SC P-3: West Slope

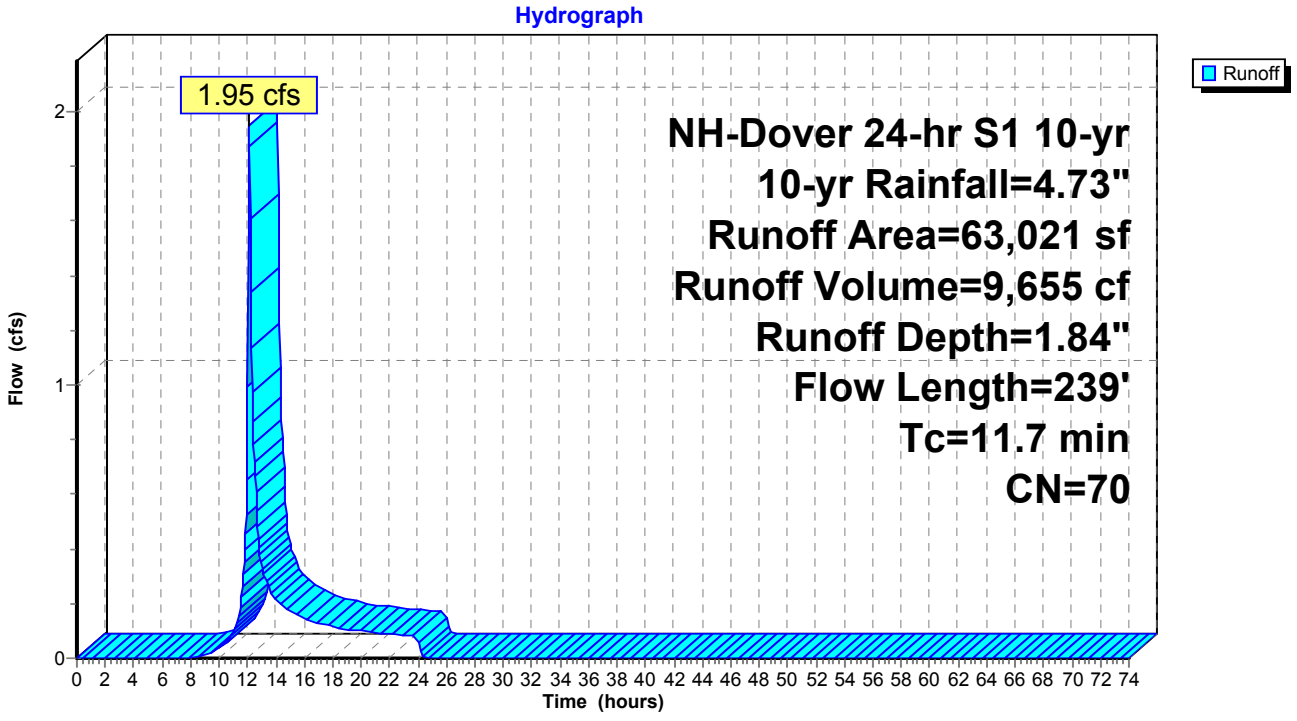
Runoff = 1.95 cfs @ 12.12 hrs, Volume= 9,655 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
63,021	70	Woods, Good, HSG C
63,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0520	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
3.1	189	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.7	239	Total			

Subcatchment SC P-3: West Slope



Summary for Subcatchment SC P-4: North Slope (unaltered)

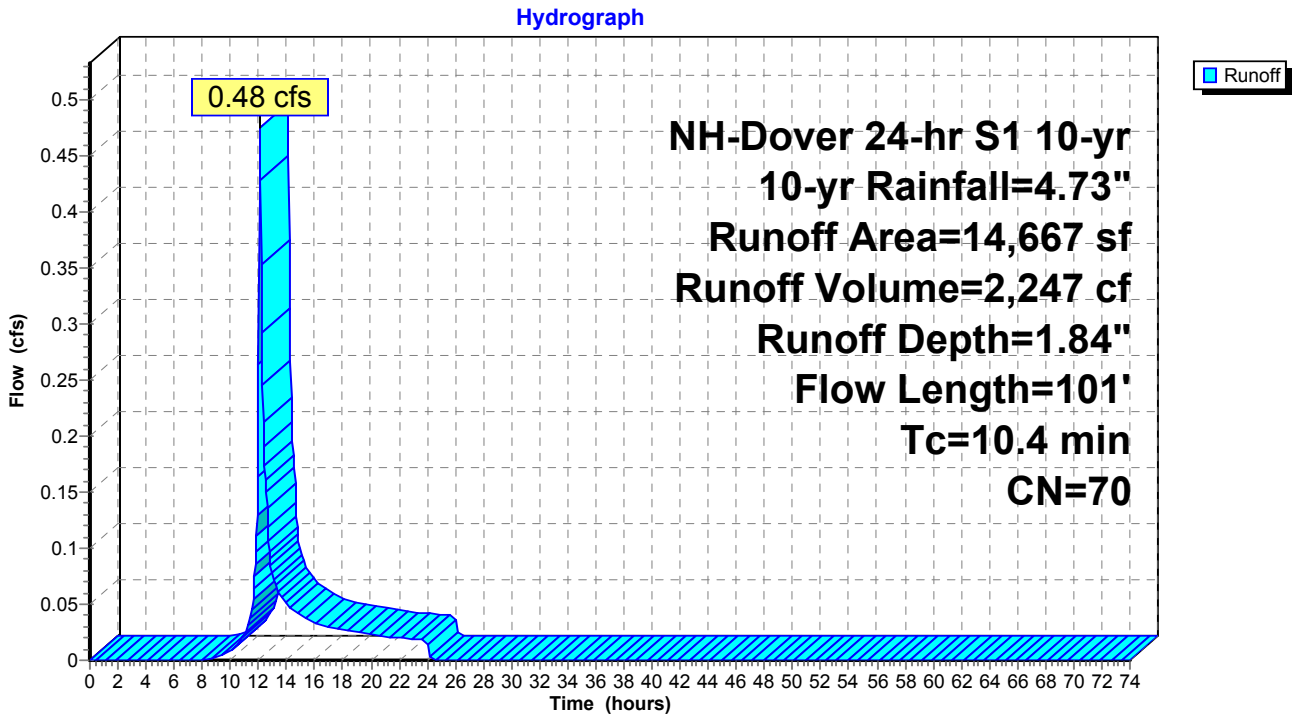
Runoff = 0.48 cfs @ 12.10 hrs, Volume= 2,247 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
NH-Dover 24-hr S1 10-yr 10-yr Rainfall=4.73"

Area (sf)	CN	Description
14,667	70	Woods, Good, HSG C
14,667		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0370	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.14"
0.3	19	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.4	101	Total			

Subcatchment SC P-4: North Slope (unaltered)



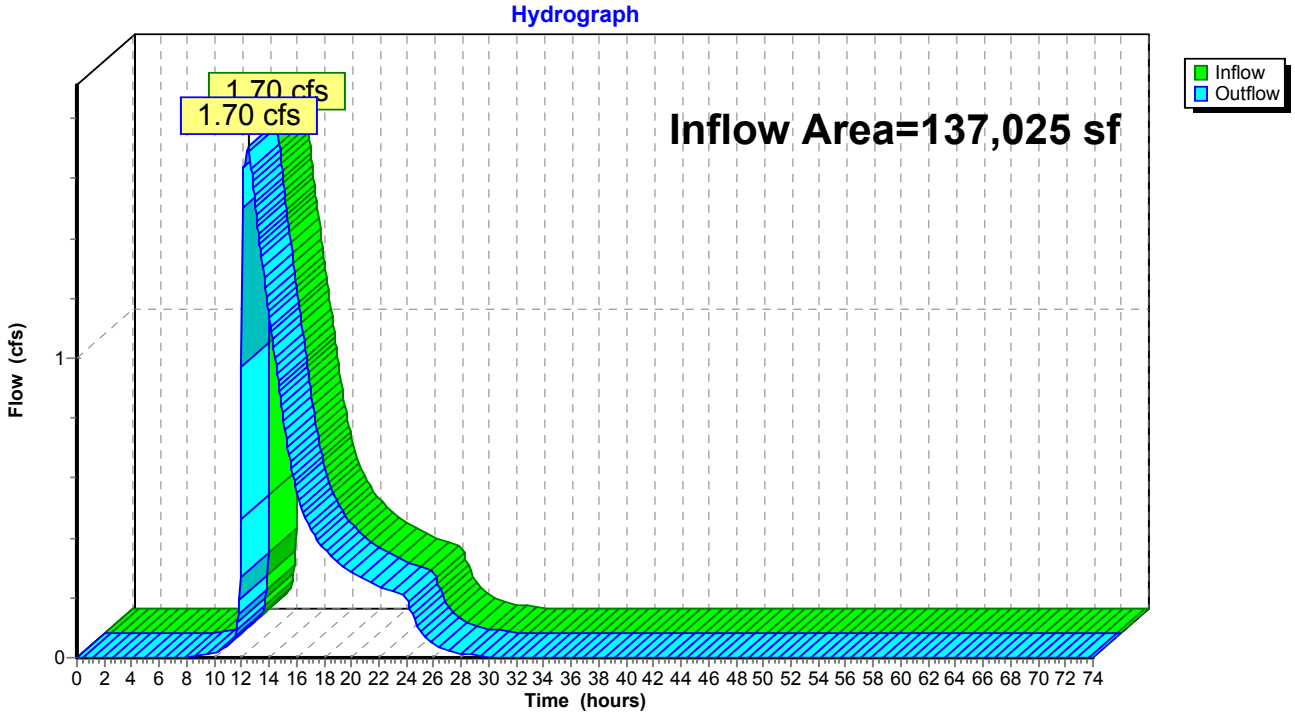
Summary for Reach POA-1: POA-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 137,025 sf, 56.30% Impervious, Inflow Depth = 2.36" for 10-yr event
Inflow = 1.70 cfs @ 12.53 hrs, Volume= 26,938 cf
Outflow = 1.70 cfs @ 12.53 hrs, Volume= 26,938 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Reach POA-1: POA-1



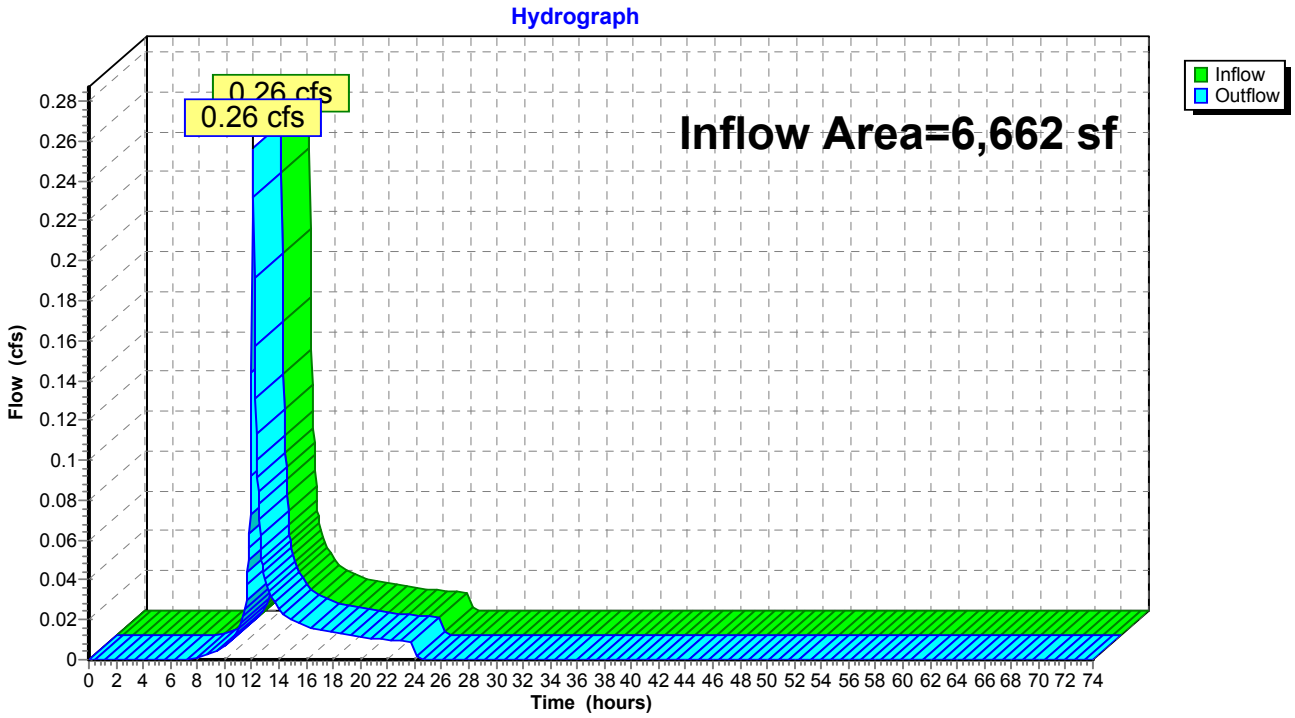
Summary for Reach POA-2: POA-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6,662 sf, 0.00% Impervious, Inflow Depth = 2.15" for 10-yr event
Inflow = 0.26 cfs @ 12.10 hrs, Volume= 1,194 cf
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 1,194 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Reach POA-2: POA-2



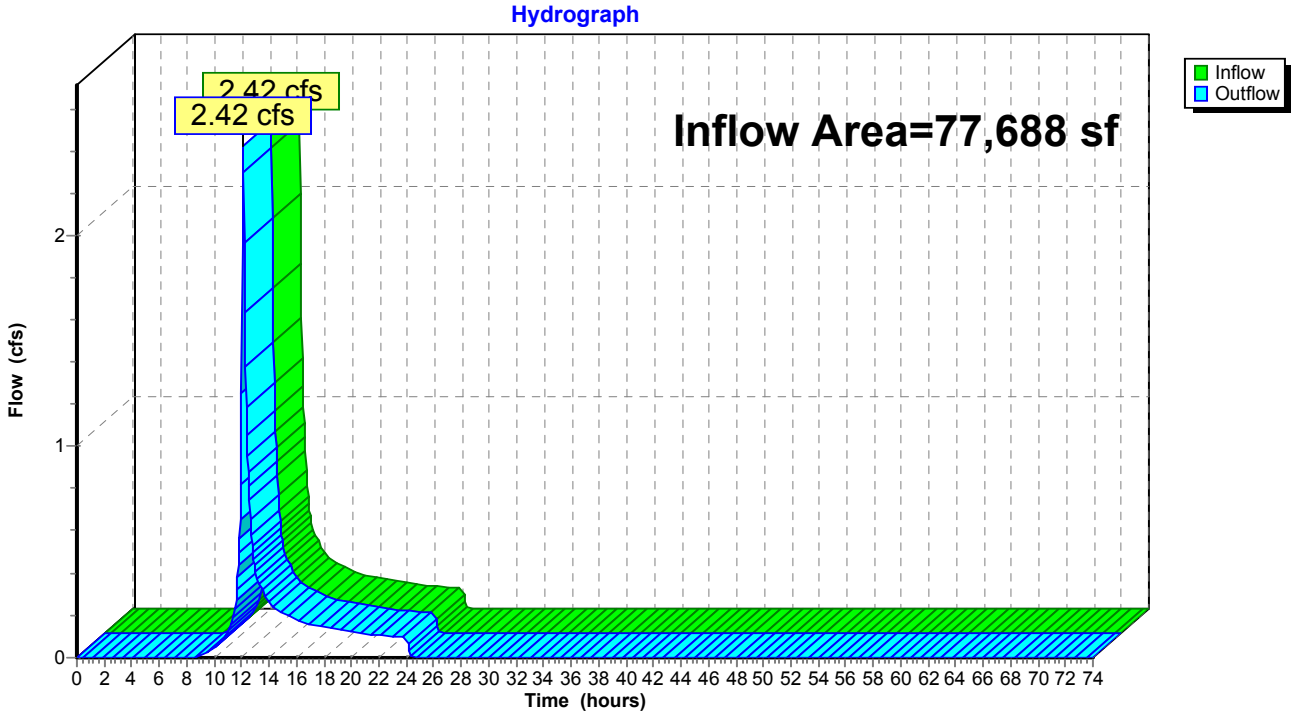
Summary for Reach POA-3: POA-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 77,688 sf, 0.00% Impervious, Inflow Depth = 1.84" for 10-yr event
Inflow = 2.42 cfs @ 12.12 hrs, Volume= 11,902 cf
Outflow = 2.42 cfs @ 12.12 hrs, Volume= 11,902 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs

Reach POA-3: POA-3



Summary for Pond 3P: Detention Basin

Inflow Area = 120,691 sf, 63.92% Impervious, Inflow Depth = 3.57" for 10-yr event
Inflow = 8.60 cfs @ 12.04 hrs, Volume= 35,926 cf
Outflow = 1.56 cfs @ 12.59 hrs, Volume= 30,424 cf, Atten= 82%, Lag= 33.0 min
Discarded = 0.03 cfs @ 12.59 hrs, Volume= 6,413 cf
Primary = 1.53 cfs @ 12.59 hrs, Volume= 24,010 cf

Routing by Stor-Ind method, Time Span= 0.00-74.00 hrs, dt= 0.05 hrs
Peak Elev= 104.67' @ 12.59 hrs Surf.Area= 7,788 sf Storage= 17,057 cf
Flood Elev= 106.00' Surf.Area= 9,286 sf Storage= 28,374 cf

Plug-Flow detention time= 521.7 min calculated for 30,403 cf (85% of inflow)
Center-of-Mass det. time= 444.3 min (1,246.9 - 802.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	33,179 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

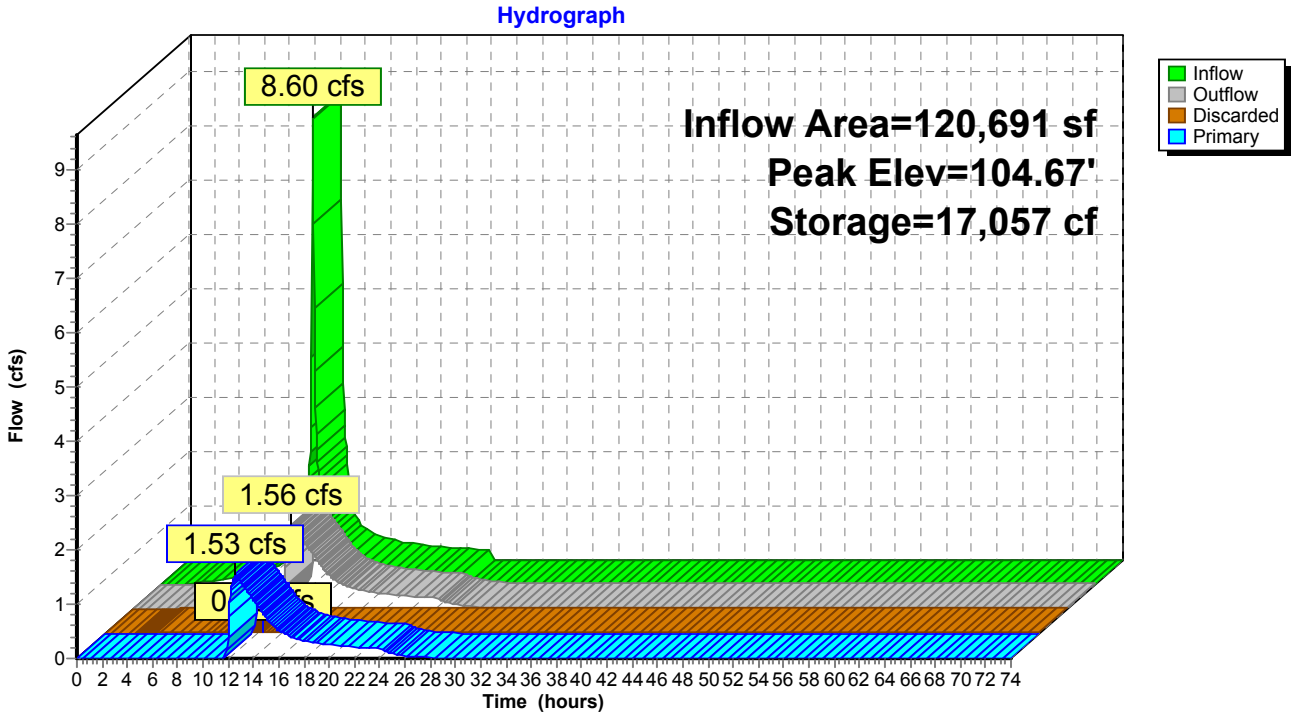
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	5,038	502.0	0	0	5,038
104.00	7,079	527.3	12,059	12,059	7,352
106.00	9,286	556.3	16,315	28,374	10,077
106.50	9,937	574.8	4,805	33,179	11,766

Device	Routing	Invert	Outlet Devices
#1	Discarded	102.00'	**0.170 in/hr Exfiltration over Surface area**
#2	Primary	102.00'	**12.0" Round Culvert** L= 40.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 102.00' / 101.70' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	103.60'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 2	104.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#5	Primary	105.54'	**12.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.59 hrs HW=104.67' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.53 cfs @ 12.59 hrs HW=104.67' (Free Discharge)
└**2=Culvert** (Passes 1.53 cfs of 5.33 cfs potential flow)
  └**3=Orifice/Grate** (Orifice Controls 1.44 cfs @ 4.14 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.08 cfs @ 1.41 fps)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Detention Basin



A – 2

NODE LISTING – 25-YR

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC P-1A: South Slope to Runoff Area=24,450 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=310' Tc=11.0 min CN=74 Runoff=1.30 cfs 6,472 cf

Subcatchment SC P-1B: South Slope Runoff Area=16,334 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=233' Slope=0.0370 '/' Tc=6.7 min CN=74 Runoff=1.03 cfs 4,324 cf

Subcatchment SC P-2A: Proposed Runoff Area=96,241 sf 80.16% Impervious Runoff Depth=5.17"
Tc=6.0 min CN=93 Runoff=9.46 cfs 41,486 cf

Subcatchment SC P-2B: West Slope Overland Runoff Area=6,662 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=75' Slope=0.0120 '/' Tc=10.6 min CN=74 Runoff=0.36 cfs 1,763 cf

Subcatchment SC P-3: West Slope Runoff Area=63,021 sf 0.00% Impervious Runoff Depth=2.80"
Flow Length=239' Tc=11.7 min CN=70 Runoff=2.85 cfs 14,691 cf

Subcatchment SC P-4: North Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth=2.80"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.69 cfs 3,419 cf

Reach POA-1: POA-1 Inflow=2.78 cfs 40,222 cf
Outflow=2.78 cfs 40,222 cf

Reach POA-2: POA-2 Inflow=0.36 cfs 1,763 cf
Outflow=0.36 cfs 1,763 cf

Reach POA-3: POA-3 Inflow=3.54 cfs 18,109 cf
Outflow=3.54 cfs 18,109 cf

Pond 3P: Detention Basin Peak Elev=105.15' Storage=20,930 cf Inflow=10.53 cfs 47,958 cf
Discarded=0.03 cfs 6,527 cf Primary=2.46 cfs 35,899 cf Outflow=2.49 cfs 42,426 cf

Total Runoff Area = 221,375 sf Runoff Volume = 72,154 cf Average Runoff Depth = 3.91"
65.15% Pervious = 144,233 sf 34.85% Impervious = 77,142 sf

A – 2

NODE LISTING – 50-YR

Time span=0.00-74.00 hrs, dt=0.05 hrs, 1481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC P-1A: South Slope to Runoff Area=24,450 sf 0.00% Impervious Runoff Depth=4.17"
Flow Length=310' Tc=11.0 min CN=74 Runoff=1.63 cfs 8,503 cf

Subcatchment SC P-1B: South Slope Runoff Area=16,334 sf 0.00% Impervious Runoff Depth=4.17"
Flow Length=233' Slope=0.0370 '/' Tc=6.7 min CN=74 Runoff=1.29 cfs 5,680 cf

Subcatchment SC P-2A: Proposed Runoff Area=96,241 sf 80.16% Impervious Runoff Depth=6.32"
Tc=6.0 min CN=93 Runoff=10.83 cfs 50,686 cf

Subcatchment SC P-2B: West Slope Overland Runoff Area=6,662 sf 0.00% Impervious Runoff Depth=4.17"
Flow Length=75' Slope=0.0120 '/' Tc=10.6 min CN=74 Runoff=0.45 cfs 2,317 cf

Subcatchment SC P-3: West Slope Runoff Area=63,021 sf 0.00% Impervious Runoff Depth=3.74"
Flow Length=239' Tc=11.7 min CN=70 Runoff=3.66 cfs 19,660 cf

Subcatchment SC P-4: North Slope Runoff Area=14,667 sf 0.00% Impervious Runoff Depth=3.74"
Flow Length=101' Tc=10.4 min CN=70 Runoff=0.89 cfs 4,575 cf

Reach POA-1: POA-1 Inflow=3.54 cfs 52,704 cf
Outflow=3.54 cfs 52,704 cf

Reach POA-2: POA-2 Inflow=0.45 cfs 2,317 cf
Outflow=0.45 cfs 2,317 cf

Reach POA-3: POA-3 Inflow=4.55 cfs 24,235 cf
Outflow=4.55 cfs 24,235 cf

Pond 3P: Detention Basin Peak Elev=105.52' Storage=24,074 cf Inflow=12.18 cfs 59,188 cf
Discarded=0.03 cfs 6,614 cf Primary=2.95 cfs 47,024 cf Outflow=2.98 cfs 53,637 cf

Total Runoff Area = 221,375 sf Runoff Volume = 91,420 cf Average Runoff Depth = 4.96"
65.15% Pervious = 144,233 sf 34.85% Impervious = 77,142 sf

NH STATE PLANE
GPS OBS:NOVEMBER 30, 2018

INDUSTRIAL PARK ROAD
PUBLIC 60' WIDE R.O.W. - 743/244 & 759/141

UP\10T
305/15A
949/6

SMH A
RIM = 115.2

RADIAL
S50°00'34"W

UP 305/13
TBM NAIL SET
ELEV. 114.86

IRON ROD FOUND
N – 250,812.901
E – 1,187,241.155
(SEE NOTE 8)

NHHD
BOUND
FOUND

W 8"AC

G / 2B
85 INDUSTRIAL PARK II LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NH 03801
2390 / 453

G / 2A
JUMAJA SEACOAST, LLC
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820
3828 / 796

UP
305/15

UP
305/14

SC E-1

SC E-4

20' WIDE WATER MAIN EASEMENT
743/244 & 759/141

W 8"AC

IRON ROD
FOUND

G / 2A-1
PARCEL AREA
352,425 S.F.
8.09 Ac.

SC E-2

SC E-3

POA-3

POA-1

POA-2

IRON
PIPE
FOUND

W 12"AC

G / 41
T-NEWYO, LLC
O. Box 28606
A, GA 30358-0606
2710 / 956

"LOT 4C"
IAL PARK AUTHORITY
OF THE STATE OF NH)
NCORD, NH
425 / 305

W 12"AC

IRON PIPE FOUND
N – 251,367.676
E – 1,186,699.120
(SEE NOTE 8)

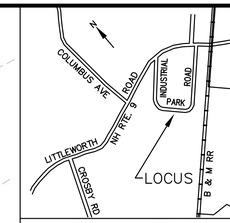
W 12"AC

G / 2
FRED E. RILEY 1991 TRUST, FRED E. RILEY, TRUSTEE
RUTH K. RILEY 1991 TRUST, RUTH K. RILEY, TRUSTEE
201 TOLEND ROAD
BARRINGTON, NH 03825-3708
1553 / 181

ORATION
PT.
306
58-0606
2

SEMENT - REF. 510 / 315 & 288 / 203

LOCATION PLAN
(NO SCALE)



PRE DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (SF)	LONGEST FLOW PATH (FT)	Tc (MIN)
SC E-1	83,768	525.0	21.3
SC E-2	53,096	408	20.3
SC E-3	69,840	239.4	10.4
SC E-4	14,667	101.4	11.7

SOILS DATA

SOIL GROUP	NRCS SYMBOL & NAME
C/D	BzB - BUXTON SILT LOAM
C/D	ScA - SCANTIC SILT LOAM

NOTES:
1. SOILS INFORMATION TAKEN FROM NATIONAL COOPERATIVE SOIL SURVEY (NRCS) FOR STRAFFORD COUNTY, NH.
2. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

NO.	REVISION	APP'D	DATE

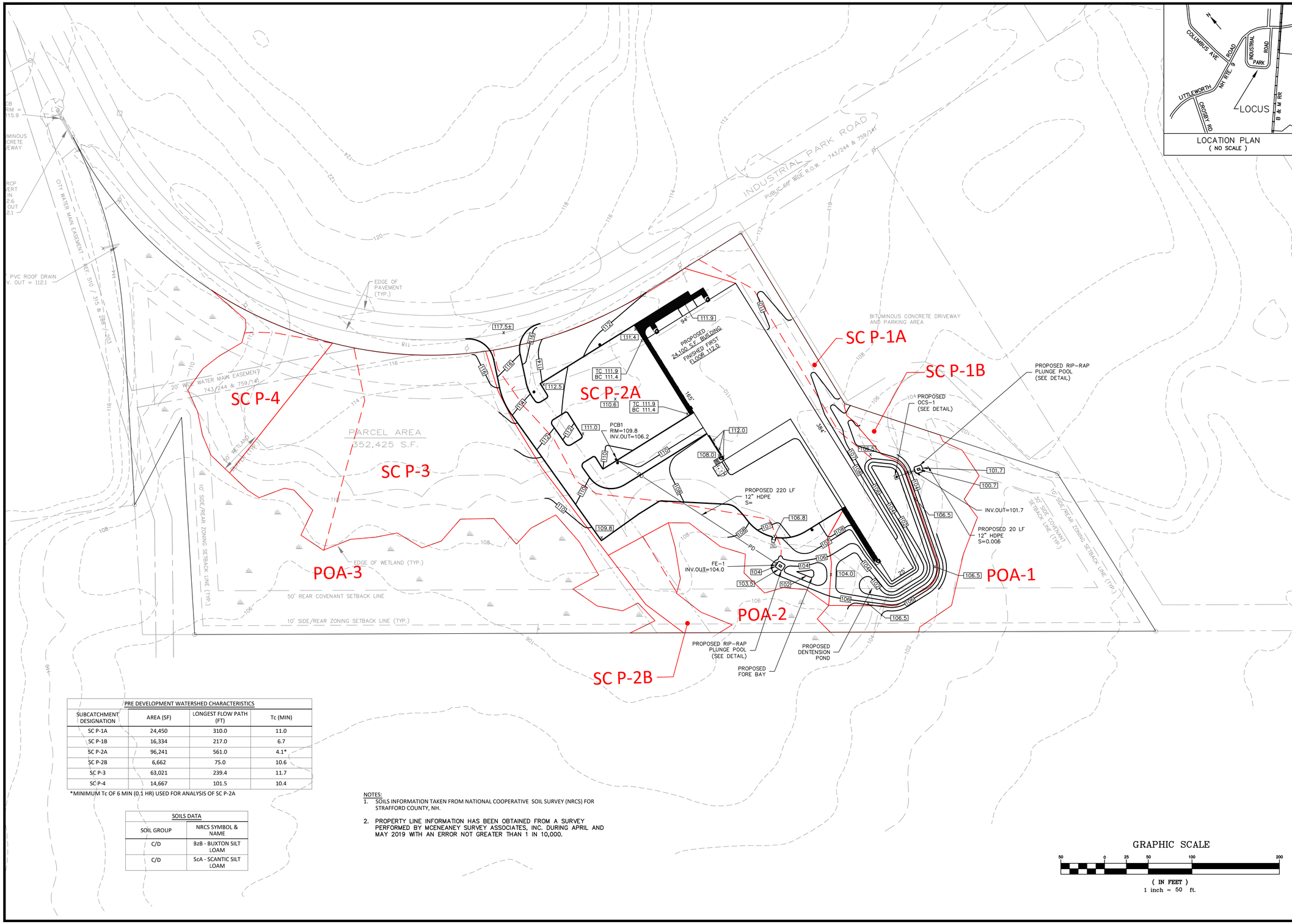
DATE: 6-20-2019
SCALE: 1"=50'
DRAWN BY: JW
DESIGN BY: JW
APPROVED BY: XX
PROJECT NO: XX
FILE: XXX

CIVILWORKS NEW ENGLAND
181 Watson Road, P.O. Box 1165
Dover, New Hampshire 03820
(603) 749-0443

PRE-DEVELOPMENT DRAINAGE PLAN

WHITE BIRCH ARMORY
INDUSTRIAL PARK DRIVE
DOVER, NH

WS-1



LOCATION PLAN
(NO SCALE)

PRE DEVELOPMENT WATERSHED CHARACTERISTICS			
SUBCATCHMENT DESIGNATION	AREA (SF)	LONGEST FLOW PATH (FT)	Tc (MIN)
SC P-1A	24,450	310.0	11.0
SC P-1B	16,334	217.0	6.7
SC P-2A	96,241	561.0	4.1*
SC P-2B	6,662	75.0	10.6
SC P-3	63,021	239.4	11.7
SC P-4	14,667	101.5	10.4

*MINIMUM Tc OF 6 MIN (0.1 HR) USED FOR ANALYSIS OF SC P-2A

SOILS DATA	
SOIL GROUP	NRCS SYMBOL & NAME
C/D	BzB - BUXTON SILT LOAM
C/D	ScA - SCANTIC SILT LOAM

NOTES:
1. SOILS INFORMATION TAKEN FROM NATIONAL COOPERATIVE SOIL SURVEY (NRCS) FOR STRAFFORD COUNTY, NH.
2. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

NO.	REVISION	APP'D	DATE

DATE: 6-20-2019
SCALE: 1"=50'
DRAWN BY: JW
DESIGN BY: JW
APPROVED BY: XX
PROJECT NO: XX
FILE: XXX

CIVILWORKS NEW ENGLAND
181 Watson Road, P.O. Box 1165
Dover, New Hampshire 03820
(603) 749-0443

POST-DEVELOPMENT DRAINAGE PLAN

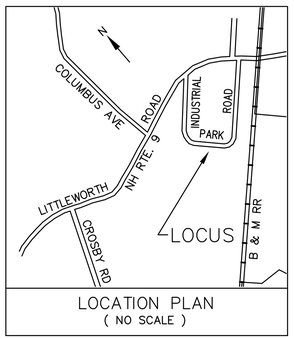
WHITE BIRCH ARMORY
INDUSTRIAL PARK DRIVE
DOVER, NH

WS-2

SITE PLAN
WHITE BIRCH ARMORY
74 INDUSTRIAL PARK

TAX MAP G, LOT 3A-1

INDUSTRIAL PARK ROAD
DOVER, NH
JULY 1, 2019



LOCATION PLAN
(NO SCALE)

White Birch ARMORY

OWNER
74 INDUSTRIAL PARK, LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NEW HAMPSHIRE 03801

_____ FOR:_____ DATE

APPLICANT
WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

_____ 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 OF NEW ENGLAND
P.O. BOX 681
24 CHESTNUT STREET
DOVER, NH 03820
(603) 742-0911

LANDSCAPE ARCHITECT
IRONWOOD DESIGN GROUP LLC
55 MAIN STREET
NEWMARKET, NH 03857

SHEET INDEX	SHEET
COVER SHEET	1
NEIGHBORHOOD PLAN	2
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	3
NOTE SHEET	4
SITE PLAN	5
GRADING, DRAINAGE & EROSION CONTROL PLAN	6
UTILITY PLAN	7
EROSION CONTROL NOTES	8
EROSION CONTROL DETAILS	9
DETAIL SHEET	10 - 13
LIGHTING PLAN	14
LIGHTING DETAILS	15
DOVER LADDER TRUCK MOVEMENT PLAN	16
LANDSCAPE PLAN	17
STREET SCAPE PLAN	-
ARCHITECTURAL ELEVATIONS & FLOOR PLANS	-

PLANNING FILE NO.: P19-__



ABUTTERS LIST
(WITHIN 200 FT)

TAX MAP	LOT NO.	NAME & ADDRESS
G-1	G-3-A-0	JUMAJA SEACOAST 74 INDSTRIAL PARK ROAD DOVER, NH 03820
G-1	G-3-B-0	85 INDUSTRIAL PARK II LLC 4273 CORPORATE DRIVE, SUITE 150 PORTSMOUTH, NH 03801
G-1	G-4-E-0	WILLMANCH CORP % TAX DEPT PO BOX 28606 ATLANTA, GA 30358-0606
G-1	G-41-0-0	BT-NEWYO LLC PO BOX 28606 ATLANTA, GA 30358-0606
G-1	G-2-0-0	RILEY FRED E. TRUST 1991 RILEY RUTH K. TRUST 1991 201 TOLEND ROAD BARRINGTON, NH 03825-3708

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 FILE
NO.: P19-__

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: 7-1-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19003
FILE: SITE.DWG

NEIGHBORHOOD PLAN

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

2

REFERENCE PLANS:

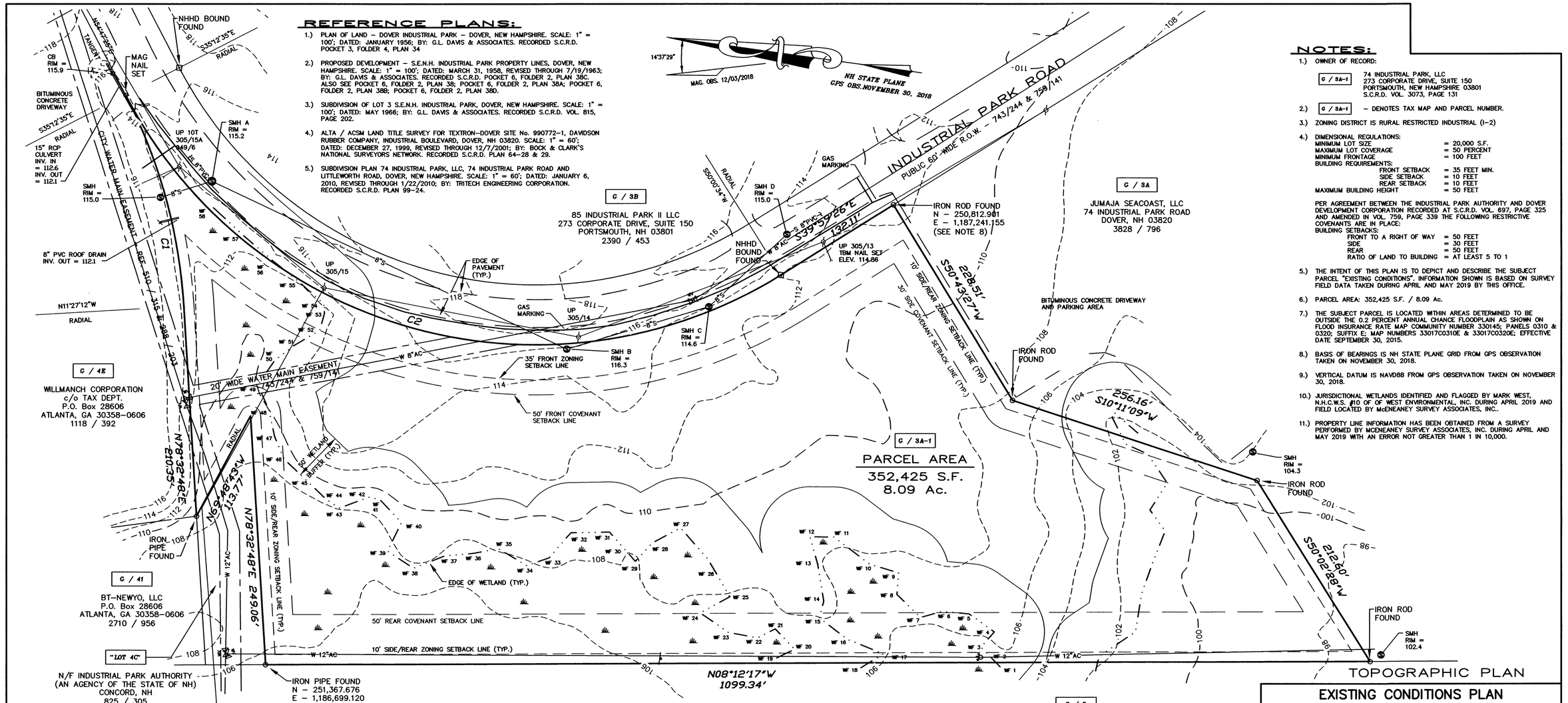
1.) PLAN OF LAND – DOVER INDUSTRIAL PARK – DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: JANUARY 1956; BY: G.L. DAVIS & ASSOCIATES. RECORDED S.C.R.D. POCKET 3, FOLDER 4, PLAN 34

2.) PROPOSED DEVELOPMENT – S.E.N.H. INDUSTRIAL PARK PROPERTY LINES, DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: MARCH 31, 1958, REVISED THROUGH 7/19/1963; BY: G.L. DAVIS & ASSOCIATES. RECORDED S.C.R.D. POCKET 6, FOLDER 2, PLAN 38C. ALSO SEE POCKET 6, FOLDER 2, PLAN 38; POCKET 6, FOLDER 2, PLAN 38A; POCKET 6, FOLDER 2, PLAN 38B; POCKET 6, FOLDER 2, PLAN 38D.

3.) SUBDIVISION OF LOT 3 S.E.N.H. INDUSTRIAL PARK, DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: MAY 1966; BY: G.L. DAVIS & ASSOCIATES. RECORDED S.C.R.D. VOL. 815, PAGE 202.

4.) ALTA / ACSM LAND TITLE SURVEY FOR TEXTRON–DOVER SITE No. 990772–1, DAVIDSON RUBBER COMPANY, INDUSTRIAL BOULEVARD, DOVER, NH 03820. SCALE: 1" = 60'; DATED: DECEMBER 27, 1999, REVISED THROUGH 12/7/2001; BY: BOCK & CLARK'S NATIONAL SURVEYORS NETWORK. RECORDED S.C.R.D. PLAN 64–28 & 29.

5.) SUBDIVISION PLAN 74 INDUSTRIAL PARK, LLC, 74 INDUSTRIAL PARK ROAD AND LITTLEWORTH ROAD, DOVER, NEW HAMPSHIRE. SCALE: 1" = 60'; DATED: JANUARY 6, 2010, REVISED THROUGH 1/22/2010; BY: TRITECH ENGINEERING CORPORATION. RECORDED S.C.R.D. PLAN 99–24.



14°37'29" MAG. OBS. 12/03/2018 — NH STATE PLANE GPS OBS. NOVEMBER 30, 2018

TOPOGRAPHIC PLAN

NOTES:

1.) OWNER OF RECORD:
C / 3A-1 — 74 INDUSTRIAL PARK, LLC, 273 CORPORATE DRIVE, SUITE 150, PORTSMOUTH, NEW HAMPSHIRE 03801, S.C.R.D. VOL. 3073, PAGE 131

2.) C / 3A-1 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) ZONING DISTRICT IS RURAL RESTRICTED INDUSTRIAL (I–2)

4.) DIMENSIONAL REGULATIONS:

MINIMUM LOT SIZE	= 20,000 S.F.
MAXIMUM LOT COVERAGE	= 50 PERCENT
MINIMUM FRONTAGE	= 100 FEET
BUILDING REQUIREMENTS:	
FRONT SETBACK	= 35 FEET MIN.
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 10 FEET
MAXIMUM BUILDING HEIGHT	= 50 FEET

PER AGREEMENT BETWEEN THE INDUSTRIAL PARK AUTHORITY AND DOVER DEVELOPMENT CORPORATION RECORDED AT S.C.R.D. VOL. 697, PAGE 325 AND AMENDED IN VOL. 759, PAGE 339 THE FOLLOWING RESTRICTIVE COVENANTS ARE IN PLACE:
BUILDING SETBACKS:

FRONT TO A RIGHT OF WAY	= 50 FEET
SIDE	= 30 FEET
REAR	= 50 FEET
RATIO OF LAND TO BUILDING	= AT LEAST 5 TO 1

5.) THE INTENT OF THIS PLAN IS TO DEPICT AND DESCRIBE THE SUBJECT PARCEL "EXISTING CONDITIONS". INFORMATION SHOWN IS BASED ON SURVEY FIELD DATA TAKEN DURING APRIL AND MAY 2019 BY THIS OFFICE.

6.) PARCEL AREA: 352,425 S.F. / 8.09 Ac.

7.) 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 NUMBER 330145; PANELS 0310 & 0320; SUFFIX E; MAP NUMBERS 33017C0310E & 33017C0320E; EFFECTIVE DATE SEPTEMBER 30, 2015.

8.) BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON NOVEMBER 30, 2018.

9.) VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON NOVEMBER 30, 2018.

10.) JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY MARK WEST, N.H.C.W.S. #10 OF OF WEST ENVIRONMENTAL, INC. DURING APRIL 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC..

11.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

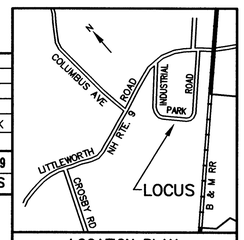
No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	23°45'23"	531.09	220.20	218.63	N66°40'06"E
C2	94°46'51"	459.43	760.01	676.27	S07°23'59"W

ATTENTION:

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

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		

19–2227	EXIST COND	19–03	23–40, 66–69
PROJECT NO	TYPE	FIELDBOOK & PAGES	



LOCATION PLAN (NO SCALE)

LEGEND

MAG NAIL SET o – MAGNETIC NAIL SET
I.R.(fnd) o – IRON ROD (FOUND)
NHHD – NEW HAMPSHIRE HIGHWAY DEPARTMENT
S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
W/ – WITH
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
(S) SMH – SEWER MANHOLE
-O- UP – UTILITY POLE
R.O.W. – RIGHT OF WAY
ELEV – ELEVATION
INV. – INVERT
– WETLAND
WF 18 – WETLAND FLAG IDENTIFICATION NUMBER
– EDGE OF WETLAND
126 – EXISTING CONTOUR

EXISTING UTILITY NOTES:

1.) GAS MAIN SHOWN IS AS TAKEN FROM LIMITED MARKINGS ON SITE, AND FROM GOOGLE EARTH IMAGES WITH MORE MARKINGS. GAS MAIN SIZE IS UNKNOWN AT THIS TIME.

2.) WATER MAINS SHOWN ARE APPROXIMATE LOCATIONS BASED ON WATER GATE VALVES FOUND. WATER MAIN SIZES ARE AS GIVEN ON INFORMATION FOUND ON THE CITY OF DOVER, NH WEBSITE WWW.DOVER.NH.GOV/....

SANITARY SEWER STRUCTURE SCHEDULE

SMH A
RIM = 115.2
INV. IN 8" PVC = 110.0 (ROADWAY NORTH)
INV. IN 8" PVC = 110.0 (U.P.S. SMH)
INV. OUT 8" PVC = 110.0 SMH B

SMH B
RIM = 116.3
INV. IN 8" PVC = 108.7 SMH A
INV. OUT 8" PVC = 108.7 SMH C

SMH C
RIM = 114.6
INV. IN 8" PVC = 108.1 SMH B
INV. OUT 8" PVC = 108.0 SMH D

SMH D
RIM = 115.0
INV. IN 8" PVC = 107.5 SMH C
INV. OUT 8" PVC = 107.4 (ROADWAY SOUTH)

"I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION, BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS."

"I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN." (RSA 676:18)

DATE: / KEVIN M. McENEANEY LLS # 661

EXISTING CONDITIONS PLAN
PREPARED FOR
74 INDUSTRIAL PARK, LLC
TAX MAP G, LOT No. 3A–1
INDUSTRIAL PARK ROAD
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 19–__

DRAWN BY: RJM	FILE: W10 cP\2227\NAD–83
SCALE: 1" = 50'	DATE: MAY 20, 2019

50 25 0 25 50 100 150 200

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

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

GENERAL NOTES

1. OWNERS OF RECORD:
   74 INDUSTRIAL PARK LLC
   273 CORPORATE DRIVE SUITE 150
   PORTSMOUTH, NEW HAMPSHIRE 03801
   S.C.R.D. VOL. 3073, PAGE 131
2. G-1/G-3-A-1 – DENOTES TAX MAP AND PARCEL NUMBER.
3. ZONING DISTRICT: RURAL RESTRICTED INDUSTRIAL DISTRICT (I-2)

		REQUIRED	PROPOSED
MINIMUM LOT SIZE	=	20,000 S.F.	–
MAXIMUM COVERAGE	=	50%	–
MINIMUM FRONTAGE	=	100 FEET	–
FRONT SETBACK	=	35 FEET	–
ABUT A STREET SETBACK	=	35 FEET	–
SIDE SETBACK	=	10 FEET	–
REAR SETBACK	=	10 FEET	–
MAXIMUM BUILDING HEIGHT	=	40 FEET	–

4. THE PARCEL G-1/G-3-A-1 IS LOCATED WITHIN THE AREA OF MINIMAL FLOOD HAZARD, ZONE X AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0320; SUFFIX E; MAP NUMBER 33017C0320E; EFFECTIVE DATE SEPTEMBER 30, 2015.
5. BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON NOVEMBER 30, 2018.
6. VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON NOVEMBER 30, 2018.
7. JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY MARK WEST, N.H.C.W.S. #10 OF OF WEST ENVIRONMENTAL, INC. DURING APRIL 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC.
8. 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 NOTES:

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING APRIL AND MAY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
2. THE INTENT OF THIS PLAN IS TO SHOW SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 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. ALL LAYOUT SHALL BE PERFORMED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
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 LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
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, NO SATURDAY AND SUNDAY WORK HOURS. 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: N/A
30. CITY OF DOVER, CONDITIONAL USE PERMIT: PENDING
    NHDES AOT: 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)
    OFFICE SPACE/WITHOUT CAFETERIA =
    4,100 S.F. X 5 GALS./DAY/100 S.F = 205 GPD
    PLUS
    STORES/DRY GOODS =
    20,000 S.F. X 5 GALS./DAY/100 S.F. = 1000 GPD
    PLUS
    10 GPD/EMPLOYEE (15) = 150 GPD
    TOTAL = 1355 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. APPROVED 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	OHW	OVERHEAD WIRES
Ac.	ACRE	E	EXISTING ELECTRIC
±	MORE OR LESS	W	EXISTING WATER LINE
(TYP.)	TYPICAL	S	EXISTING SEWER LINE
S.C.R.D.	STRAFFORD REGISTRY OF DEEDS	D	EXISTING DRAINAGE LINE
NHHD	NEW HAMPSHIRE HIGHWAY DEPT.	G	EXISTING GAS LINE
TBR	TO BE REMOVED		PROPOSED SIGN
ELEV.	ELEVATION	74	PROPOSED FINISH GRADE
INV.	INVERT	x 74.00	PROPOSED SPOT GRADE
R.O.W.	RIGHT-OF-WAY	PD	PROPOSED DRAIN LINE
TBR	TO BE REMOVED		PAVEMENT WITH CURB
	EXISTING UTILITY POLE		SILT BARRIER
	EXISTING SIGN	PG	PROPOSED GAS
	EXISTING WATER SHUT-OFF	PW	PROPOSED WATER
	EXISTING WATER VALVE		PROPOSED FENCE
	EXISTING GAS VALVE	PE	PROPOSED ELECTRIC
	EXISTING HYDRANT	PD	PROPOSED DRAIN LINE
	EXISTING LIGHT/SIGNAL POLE	RD	PROPOSED ROOF DRAIN
S	EXISTING SEWER MANHOLE	PUD	PROPOSED UNDERDRAIN LINE
D	EXISTING DRAINAGE MANHOLE		PROPOSED CATCHBASIN
	EXISTING CATCHBASIN		INLET PROTECTION
5'R	PAVEMENT RADIUS		HANDICAP PARKING SYMBOL
SGC	SLOPE GRANITE CURB		PROPOSED CONCRETE
VGC	VERTICAL GRANITE CURB		PROPOSED SIDEWALK
x 74.00	EXISTING SPOT GRADE		
94	EXISTING GRADE		

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-__

NO.	REVISION	APP'D	DATE

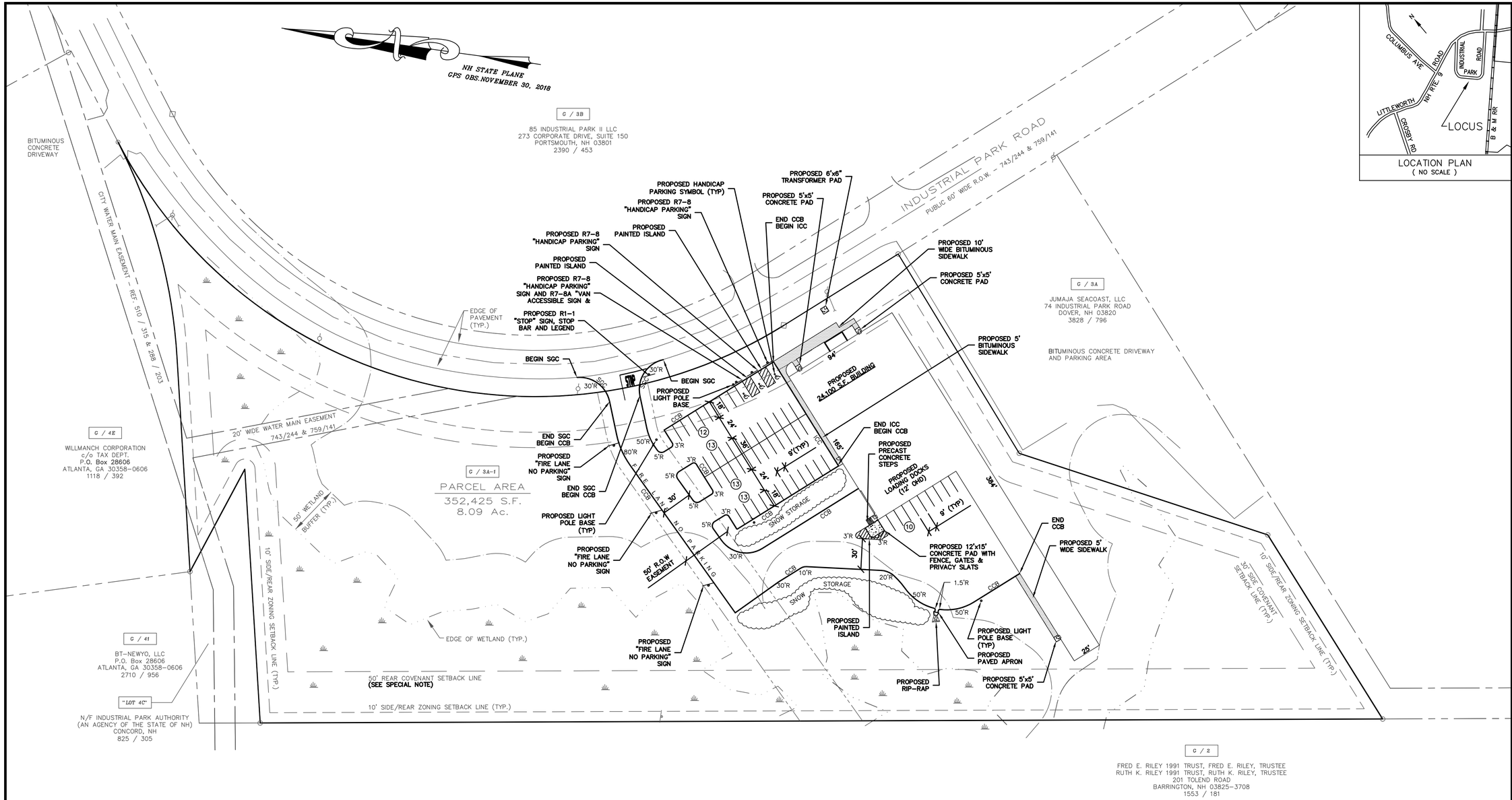
DATE: 7-1-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:S.H
PROJECT NO:19003
FILE: SITE.DWG

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

NOTE SHEET

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH



LOCATION PLAN
(NO SCALE)

GENERAL NOTES
1. SEE NOTE SHEET #3 FOR ADDITIONAL SITE RELATED NOTES.

GENERAL NOTES
ZONING DISTRICT: RURAL RESTRICTED INDUSTRIAL DISTRICT (I-2)

		REQUIRED	PROPOSED
MINIMUM LOT SIZE	=	20,000 S.F.	352,425 S.F.
MAXIMUM COVERAGE	=	50%	7.3%
MINIMUM FRONTAGE	=	100 FEET	±892 FEET
FRONT SETBACK	=	35 FEET	35.5 FEET
ABUT A STREET SETBACK	=	35 FEET	35.5 FEET
SIDE SETBACK	=	10 FEET	35 FEET
REAR SETBACK	=	10 FEET	58 FEET
MAXIMUM BUILDING HEIGHT	=	40 FEET	<40 FEET

PARKING CALCULATIONS

	MAX ALLOWED	PROPOSED
OFFICE 300 S.F./GFL 4,100 S.F.	13.6	–
RETAIL 275 S.F./GFL 20,000	72.7	–
TOTAL PARKING	86	61

SPECIAL NOTE:
THE COVENANT SETBACKS HAVE BEEN RELEASED BY THE STATE OF NH BUSINESS FINANCE AUTHORITY THE ENTITY THAT CONTROLS THE DISPOSITION OF THE INDUSTRIAL PARK SETBACK COVENANTS. SAID RELEASE IS ON FILE WITH THE CITY OF DOVER PLANNING DEPARTMENT.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY
PLANNING FILE
NO.: P19-__

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

NO.	REVISION	APP'D	DATE

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WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

SITE PLAN

5

NH STATE PLANE
GPS OBS: NOVEMBER 30, 2018

CB RIM = 115.9

BITUMINOUS CONCRETE DRIVEWAY

15" RCP CULVERT INV. IN = 112.6 INV. OUT = 112.1

8" PVC ROOF DRAIN INV. OUT = 112.1

CITY WATER MAIN EASEMENT - REF. 501 / 315 & 285 / 203

20' WIDE WATER MAIN EASEMENT 743/244 & 759/141

INDUSTRIAL PARK ROAD
PUBLIC 66' WIDE R.O.W. - 743/244 & 759/141

EDGE OF PAVEMENT (TYP.)

PROPOSED CONSTRUCTION ENTRANCE

PROPOSED SILT SOXX

BM NAIL SET ELEV.=114.86

PROPOSED 24,100 S.F. BUILDING FINISHED FIRST FLOOR 112.0

TC 111.9
BC 111.4

PCB1
RIM=109.8
INV.OUT=106.2

PROPOSED ROOF DRAIN

PROPOSED SILT SOXX

PROPOSED 220 LF 12" HDPE S=

PROPOSED ROOF DRAIN

BITUMINOUS CONCRETE DRIVEWAY AND PARKING AREA

PROPOSED RIP-RAP PLUNGE POOL (SEE DETAIL)

PROPOSED OCS-1 (SEE DETAIL)

INV.OUT=101.7

PROPOSED 20 LF 12" HDPE S=0.008

PROPOSED SILT SOXX

FE-1
INV.OUT=104.0

PROPOSED RIP-RAP PLUNGE POOL (SEE DETAIL)

PROPOSED FORE BAY

PROPOSED DENTENSION POND

G / 3A-1

PARCEL AREA
352,425 S.F.

50' WETLAND BUFFER (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

EDGE OF WETLAND (TYP.)

50' REAR COVENANT SETBACK LINE

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

10' SIDE COVENANT SETBACK LINE (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

LOCATION PLAN
(NO SCALE)

COLUMBUS AVE
NH RTE. 9
LITTLEWORTH
CROSBY RD
INDUSTRIAL PARK ROAD
B & M RR
LOCUS

ATTENTION:

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

GENERAL NOTES

1. SEE NOTE SHEET #3 FOR ADDITIONAL GRADING, DRAINAGE NOTES.
2. WETLAND BUFFER IMPACT
3. SQUARE FEET OF IMPACT = 23,932 S.F.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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APPROVED BY:S.H
PROJECT NO:19003
FILE: SITE.DWG

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

GRADING, DRAINAGE & EROSION CONTROL PLAN

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

NH STATE PLANE
GPS OBS: NOVEMBER 30, 2018

C / 3B
85 INDUSTRIAL PARK II LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NH 03801
2390 / 453

INDUSTRIAL PARK ROAD
PUBLIC 60' WIDE R.O.W. - 743/244 & 759/141

BITUMINOUS CONCRETE DRIVEWAY

SMH A RIM = 115.2

UP 10T 305/15A 949/6

8" S

SMH RIM = 115.0

CITY WATER MAIN EASEMENT - REF. 500 / 315 & 288 / 203

UP 305/15

EDGE OF PAVEMENT (TYP.)

GAS MARKING

UP 305/14

SMH B RIM = 116.3

8" S

SMH C RIM = 114.6

W 8" AC

20' WIDE WATER MAIN EASEMENT 743/244 & 759/141

C / 4E
WILLMANCH CORPORATION
c/o TAX DEPT.
P.O. Box 28606
ATLANTA, GA 30358-0606
1118 / 392

C / 3A-1
PARCEL AREA
352,425 S.F.
8.09 Ac.

50' WETLAND BUFFER (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

W 12" AC

EDGE OF WETLAND (TYP.)

C / 41
BT-NEWYO, LLC
P.O. Box 28606
ATLANTA, GA 30358-0606
2710 / 956

"LOT 4C"
N/F INDUSTRIAL PARK AUTHORITY
(AN AGENCY OF THE STATE OF NH)
CONCORD, NH
825 / 305

50' REAR COVENANT SETBACK LINE

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

W 12" AC

PROPOSED 8"x6" TAP & TEE

SMH D RIM = 115.0

S 8" PVC

8" AC

PROPOSED TRANSFORMER

PROPOSED WATER SERVICE
PROPOSED SEWER LINE
6" PVC SDR35

PROPOSED 6" FIRE SERVICE

SEWER INV.=108.0

PROPOSED 1" DOMESTIC WATER SERVICE

PROPOSED 24,100 S.F. BUILDING F.F.=112.0

PROPOSED FIRE DEPARTMENT CONNECTION

PROPOSED UNDERGROUND UTILITIES

PROPOSED DENTENTION POND

C / 3A
JUMAJA SEACOAST, LLC
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820
3828 / 796

BITUMINOUS CONCRETE DRIVEWAY AND PARKING AREA

SMH RIM = 104.3

30' SIDE COVENANT SETBACK LINE (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

SMH RIM = 102.4

C / 2
FRED E. RILEY 1991 TRUST, FRED E. RILEY, TRUSTEE
RUTH K. RILEY 1991 TRUST, RUTH K. RILEY, TRUSTEE
201 TOLEND ROAD
BARRINGTON, NH 03825-3708
1553 / 181

LOCATION PLAN
(NO SCALE)

COLUMBUS AVE, NH RTE. 9, LITTLEWORTH, CROSBY RD, INDUSTRIAL PARK ROAD, B & M RR, LOCUS

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

ATTENTION:

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

GENERAL NOTES

1. SEE NOTE SHEET #3 FOR ADDITIONAL UTILITY NOTES.

SANITARY SEWER
STRUCTURE SCHEDULE

SMH A
RIM = 115.2
INV. IN 8" PVC = 110.0 (ROADWAY NORTH)
INV. IN 8" PVC = 110.0 (U.P.S. SMH)
INV. OUT 8" PVC = 110.0 SMH B

SMH B
RIM = 116.3
INV. IN 8" PVC = 108.7 SMH A
INV. OUT 8" PVC = 108.7 SMH C

SMH C
RIM = 114.6
INV. IN 8" PVC = 108.1 SMH B
INV. OUT 8" PVC = 108.0 SMH D

SMH D
RIM = 115.0
INV. IN 8" PVC = 107.5 SMH C
INV. OUT 8" PVC = 107.4 (ROADWAY SOUTH)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-__

NO.	REVISION	APP'D	DATE

DATE: 7-1-19
SCALE: 1"=50'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19003
FILE: SITE.DWG

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

UTILITY PLAN

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

DESCRIPTION

THE INTENT OF THIS PLAN IS TO SHOW THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF 26,186 S.F. COMMERCIAL BUILDING, 2,900 S.F. FUTURE EXPANSION BUILDING, SITE ACCESS DRIVE, PARKING AREAS, UTILITY INSTALLATION, AND DRAINAGE IMPROVEMENTS.

PROJECT NAME AND LOCATION

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820

LATITUDE N43°11'10"
LONGITUDE W70°54'24"

DISTURBED AREA

±125,106 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. CUTTING AND GRUBBING OF SITE.
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 1/4" 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 FOLLOWING HAS OCCURRED.
1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
3. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES OF EROSION AND SEDIMENT CONTROLS

A. 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. CLEARING AND GRUBBING OF SITE
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. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMP'S ARE STABILIZED.
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.

1. Silt BARRIER
   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 barrier 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 barriers 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 barrier, 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 barriers 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 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 barrier 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 barrier 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 barriers shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Areas where construction activity temporarily ceases for more than twenty one (21) days will be stabilized with a temporary seed and mulch within fourteen (14) days of the last disturbance. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established. All areas shall be stabilized within 72 hours of achieving finish grade.

WASTE DISPOSAL

A. WASTE MATERIALS

All waste materials will be collected and stored in securely lidded receptacles. All trash and construction debris from the site will be deposited in a dumpster. No construction waste materials will be buried on site. All 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.

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 FILE
NO.: P19–__

NO.	REVISION	APP'D	DATE

DATE: 7–1–19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:S.H
PROJECT NO: 19003
FILE: SITE.DWG

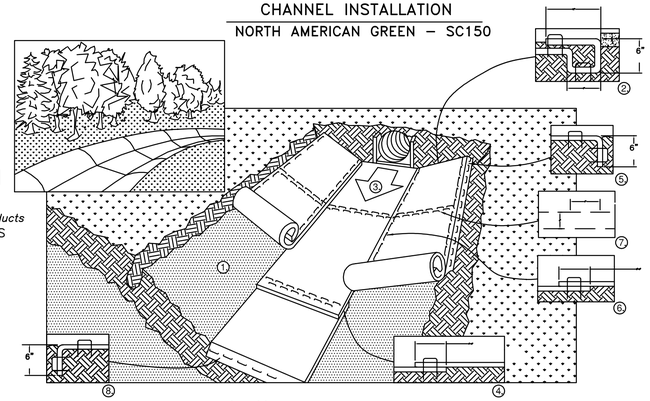
CIVILWORKS NEW ENGINEERING
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

EROSION CONTROL NOTES

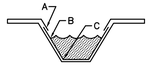
WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

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.



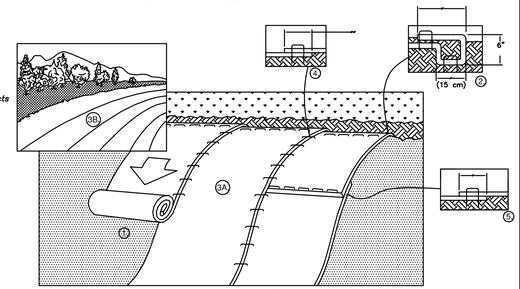
CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

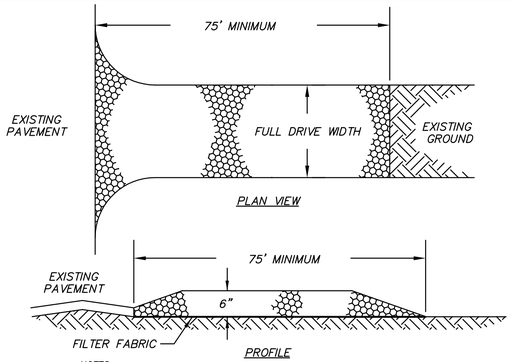
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



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.



NOTES:

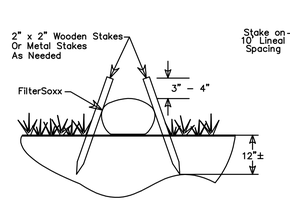
1. SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.

2. TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.

STABILIZED CONSTRUCTION ENTRANCE

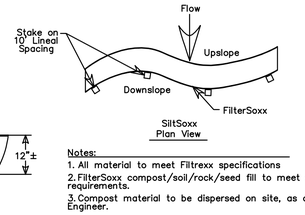
1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE THREE (3) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN SEVENTY–FIVE (75) 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



FilterSoxx Section

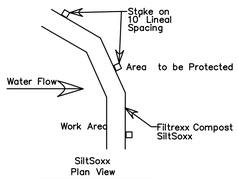
At Ends of Run Cross Stakes



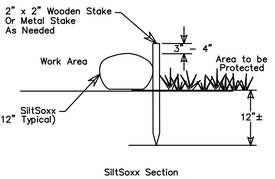
SiltSoxx Plan View

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.

FilterSoxx Staking Details



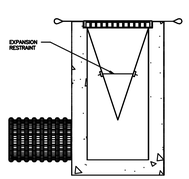
SiltSoxx Plan View



SiltSoxx Section

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



INSTALLATION DETAIL

SILTSACK®
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS. AS SUPPLIED BY AH HARRIS OF PORTSMOUTH OR APPROVED EQUAL

REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-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

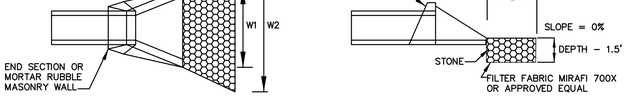
HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

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.

DETAIL OF INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE



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

OUTLET	*W1 (FT)*	*W2 (FT)*	*L (FT)*	*D50 (IN)*
DMH3	*5*	*20*	*16*	*6*
PP7	*2*	*6*	*10*	*6*
CURB CUT	*5*	*5*	*10*	*6*

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.
5. STONE APRON SHALL BE CONSTRUCTED ON A 6" THICK (MIN) GRAVEL BASE.

RIP RAP OUTLET PROTECTION
NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19–__

NO.	REVISION	APP'D	DATE

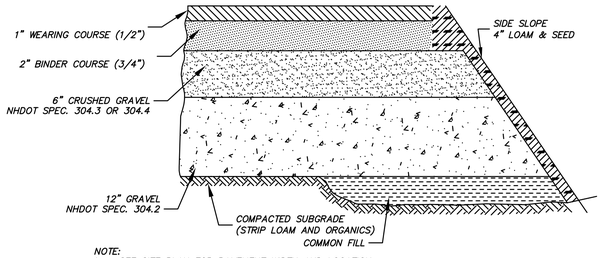
DATE: 7–1–19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:S.H
PROJECT NO:19003
FILE: SITE.DWG

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

EROSION COMTROL DETAILS

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

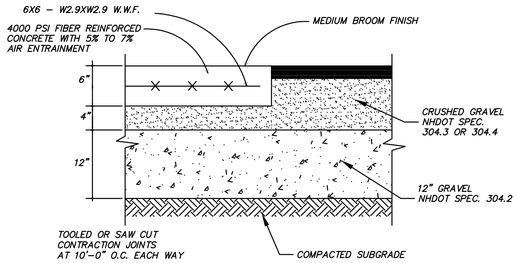
WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH



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

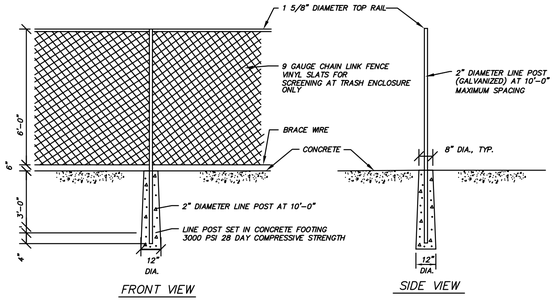
NOT TO SCALE



NOTE: PITCH CONCRETE PAD GRADING TO CENTER

DUMPSTER DETAIL

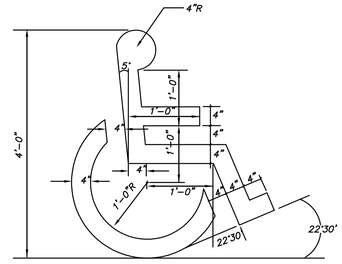
NOT TO SCALE



NOTES:
1. DUMPSTER CHAINLINK FENCE SHALL HAVE GREEN VINYL PRIVACY SLATS.

CHAINLINK FENCE DETAIL

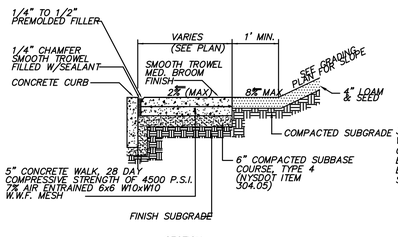
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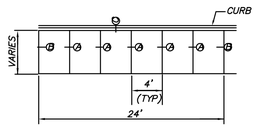
NOTE: SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES

PAINTED HANDICAP SYMBOL

NOT TO SCALE



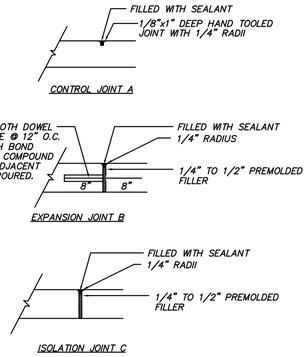
SECTION

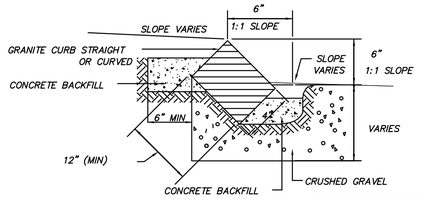


PLAN

CONCRETE SIDEWALK

NOT TO SCALE



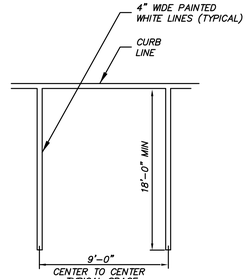


NOTES
1. ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH
2. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART

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'

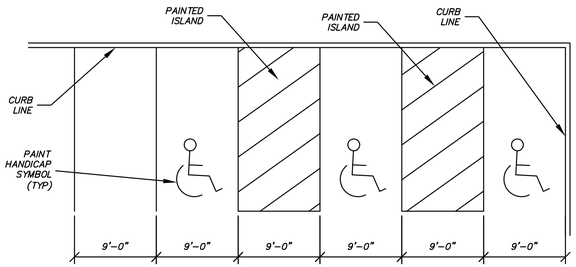
SLOPED GRANITE CURBING

NOT TO SCALE



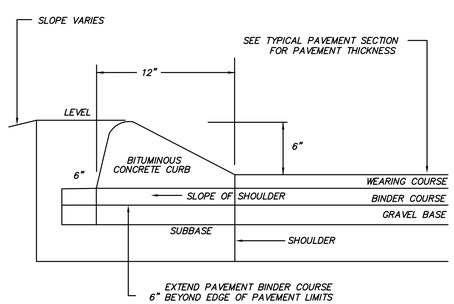
STANDARD PARKING STALL

NOT TO SCALE



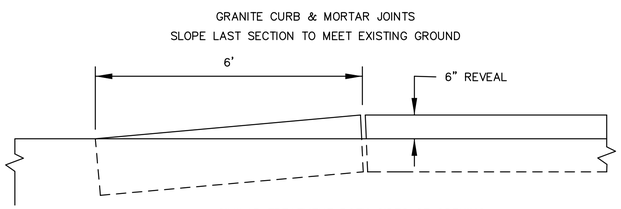
HANDICAP PARKING LAYOUT

NOT TO SCALE



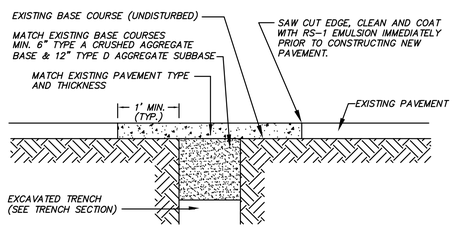
BITUMINOUS SLOPED CURB

NOT TO SCALE

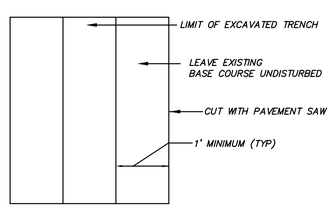


"TIP–DOWN" CURB DETAIL

NOT TO SCALE



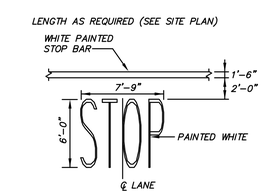
SECTION



PLAN

ROADWAY TRENCH PATCH DETAIL

NOT TO SCALE



NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS. APPLY TWO COATS.

STOP BAR & LEGEND

PAVEMENT MARKINGS

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19–__

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
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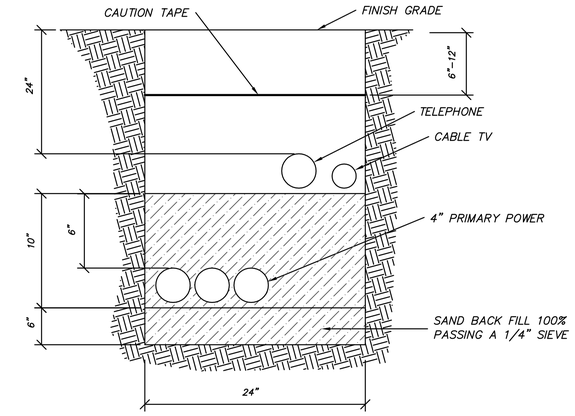
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DETAIL SHEET

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

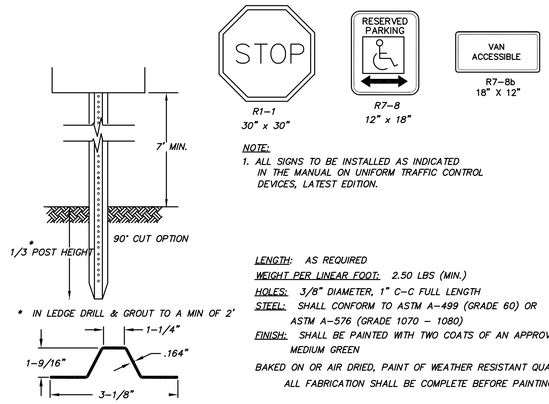
10



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

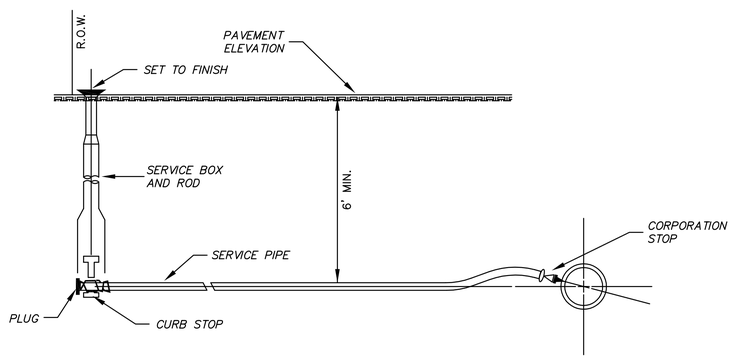


NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 – 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN
BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

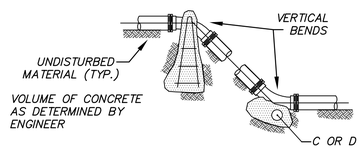
SIGN LEGEND & SIGN POST

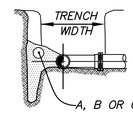
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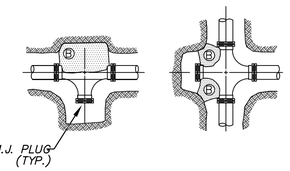


TYPICAL WATER SERVICE CONNECTION

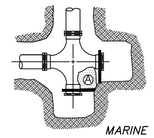
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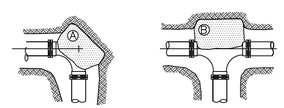




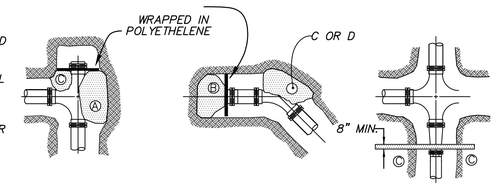


TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE		PIPE SIZE			
			4"	6"	8"	10"	12"
	A	90°	0.89	2.19	3.82	11.14	17.24
	B	180°	0.65	1.55	2.78	8.38	12.00
	C	45°	0.48	1.19	2.12	6.02	9.32
	D	22-1/2°	0.25	0.60	1.06	3.08	4.74
	E	11-1/4°	0.13	0.30	0.54	1.54	2.38



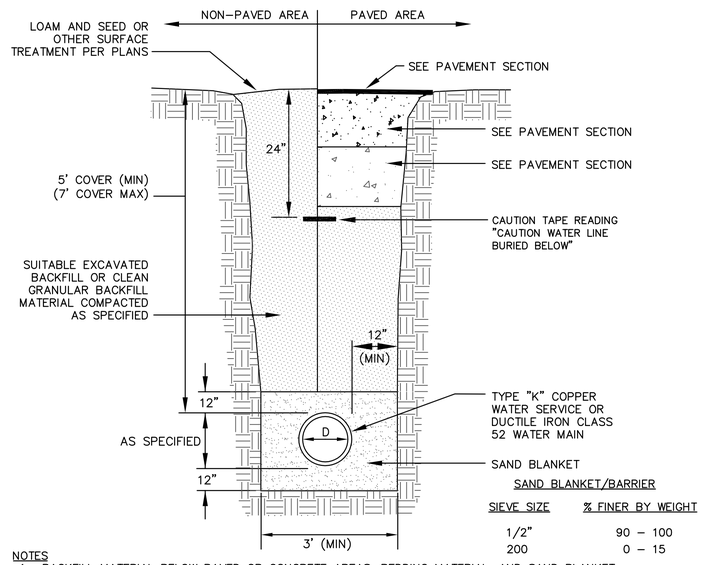


NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT 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



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

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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NO.: P19-__

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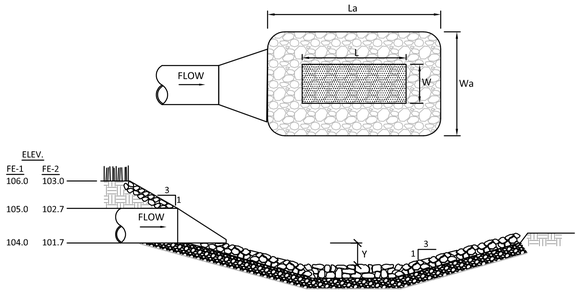
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DETAIL SHEET

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
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WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

11



DIMENSIONS TO BE USED AT BOTH FLARED ENDS

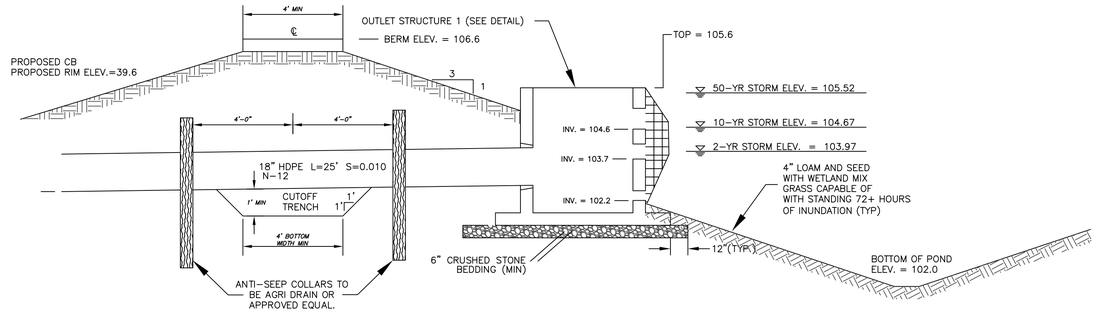
L	La	W	Wa	Y	D50	MAX STONE SIZE
3'	6'	2'	5'	0.5'	8"	12"

RIPRAP PLUNGE POOL AT CULVERT END

(NOT TO SCALE)

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 WELL 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.



DETENTION POND 1 (DP1)

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-__

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: 7-1-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:S.H
PROJECT NO:19003
FILE: SITE.DWG

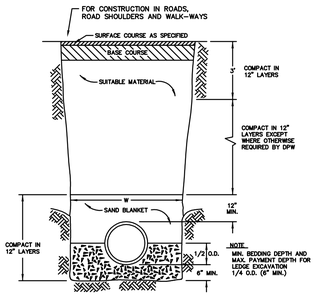
DETAIL SHEET

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

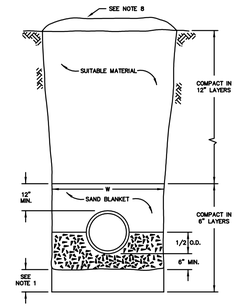
WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

12

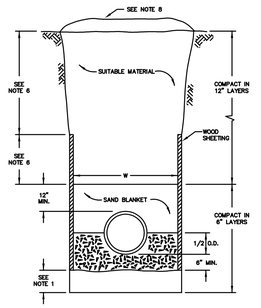
STANDARD TRENCH SECTION



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.

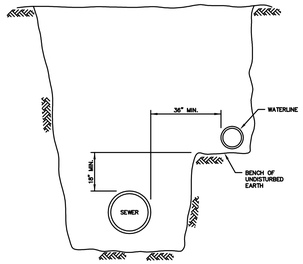
9.) CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:

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

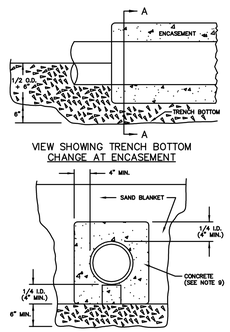
10.) NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION (NH DES) DESIGN STANDARDS REQUIRE 10 FT. SEPARATION. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FT. HORIZONTAL FROM THE PROPOSED SEWER INSTALLATION 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.



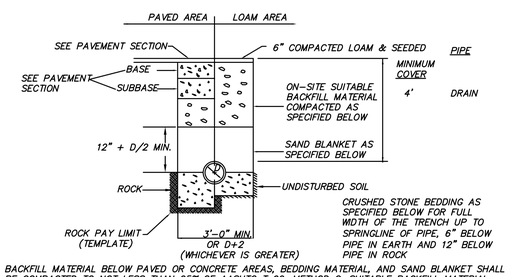
WATER AND SEWER IN SAME TRENCH



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

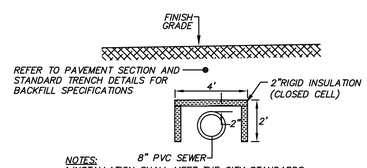
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15
(FOR WATER MAIN BEDDING)	

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 FILE NO.: P19–__

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: 7–1–19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19003
FILE: SITE.DWG

DETAIL SHEET

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

13

NH STATE PLANE
GPS OBS: NOVEMBER 30, 2018

BITUMINOUS CONCRETE DRIVEWAY

SMH A
RIM = 115.2

SMH
RIM = 115.0

EDGE OF PAVEMENT (TYP.)

INDUSTRIAL PARK ROAD

BITUMINOUS CONCRETE DRIVEWAY AND PARKING AREA

PROPOSED 24,100 S.F. BUILDING

PARCEL AREA
352,425 S.F.

50' WETLAND BUFFER (TYP.)

EDGE OF WETLAND (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

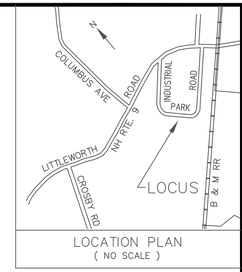
50' REAR COVENANT SETBACK LINE

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

10' SIDE COVENANT SETBACK LINE (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

SMH
RIM = 102.4



LOCATION PLAN
(NO SCALE)

StatArea_1

Illuminance (Fc)
Average = 1.50
Maximum = 4.1
Minimum = 0.4
Avg/Min Ratio = 3.75
Max/Min Ratio = 10.25

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	2	S4	SINGLE	GLEON-AF-02-LED-E1-T4FT/ SSS4A20SFN1 (20' AFG)
	1	S5-1	SINGLE	GLEON-AF-02-LED-E1-5WQ/ SSS4A20SFN1 (20' AFG)
	1	S5-2	BACK-BACK	GLEON-AF-02-LED-E1-5WQ/ SSS4A20SFN2 (20' AFG)
	1	W3	SINGLE	GWC-AF-01-LED-E1-SL3-600/ WALL MTD 16' AFG
	4	W4	SINGLE	GWC-AF-01-LED-E1-SL4/ WALL MTD 16' AFG

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE
NO.: P19-__

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: 7-1-19
SCALE: 1"=50'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19003
FILE: SITE.DWG

LIGHTING PLAN

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

14

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 applications 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.



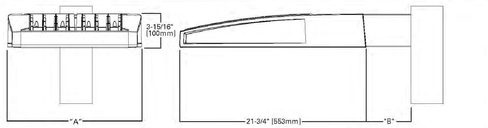
GLEON GALLEON LED

1-10 Light Squares
Solid State LED

AREA/SITE LUMINAIRE

LumenSafe Technology
QUICK HEFT

DIMENSIONS



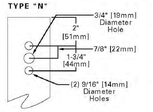
DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2](Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	10" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

DRILLING PATTERN

TYPE "N"



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
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-30°C Minimum Temperature
40°C Ambient Temperature Rating

SHIPPING DATA
Approximate Net Weight:
27 lbs. (12.2 kgs.)

*www.designlights.org

McGraw-Edison

DESCRIPTION

The Galleon™ Wall LED luminaire's appearance is complementary with the Galleon area and site luminaire bringing a modern architectural style to lighting applications. Flexible mounting options accommodate wall surfaces in both an upward and downward configuration. The Galleon family of LED products deliver exceptional performance with patented, high-efficiency AccuLED Optics™, providing uniform and energy conscious lighting for parking lots, building and security lighting applications.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Driver enclosure thermally isolated from optics for optimal thermal performance. Heavy wall aluminum housing die-cast with integral external heat sinks to provide superior structural rigidity and an IP66 rated housing. Overall construction passes a 1.5G vibration test to ensure mechanical integrity. UPLIGHTING: Specify with the UPL option for inverted mount uplight housing with additional protections to maintain IP rating.

Optics
Choice of thirteen patented, high-efficiency AccuLED Optics. The 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 and minimum 70 CRI. Optional 3000K, 5000K and 6000K CCT. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 1200mA, 800mA, and 600mA drive currents.

Electrical
LED drivers are mounted for ease of maintenance. 120-277V 50/60Hz, 347V or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Drivers are provided standard with 0-10V dimming. An optional Eaton proprietary surge protection module is available and designed to withstand 10kV of transient line surge. The Galleon Wall 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. Emergency egress options for -20°C ambient environments and occupancy sensor available.

Mounting
Gasketed and zinc plated rigid steel mounting attachment fits directly to 4" j-box or wall with the Galleon Wall "Hook-N-Lock" mechanism for quick installation. Secured with two captive corrosion resistant black oxide coated allen head set screws which are concealed but accessible from bottom of fixture.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

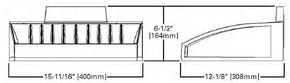


GWC GALLEON WALL

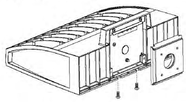
1-2 Light Squares
Solid State LED

WALL MOUNT LUMINAIRE

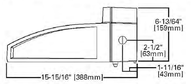
DIMENSIONS



HOOK-N-LOCK MOUNTING



BATTERY BACKUP AND THRU-BRANCH BACK BOX



CERTIFICATION DATA
UL/cUL Listed
LM79 / LM80 Compliant
IP66 Housing
ISO 9001
DesignLights Consortium® Qualified*

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-30°C Minimum Temperature
40°C Ambient Temperature Rating

SHIPPING DATA
Approximate Net Weight:
27 lbs. (12.2 kgs.)

*www.designlights.org

Steel Poles



SSS SQUARE STRAIGHT STEEL

Catalog #		Type
Project		
Comments		Date
Prepared by		

FEATURES
- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for non-grounded mounted installations (e.g., installations on bridges or buildings) are not included in this document. The information contained herein is for general guidance only and is not a replacement for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Eaton's Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Eaton or visit www.eaton.com/lighting for available options, accessories and ordering information.

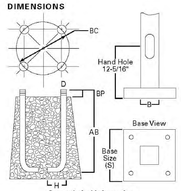
ORDERING INFORMATION

SAMPLE NUMBER: SSA5A20SFM1XG

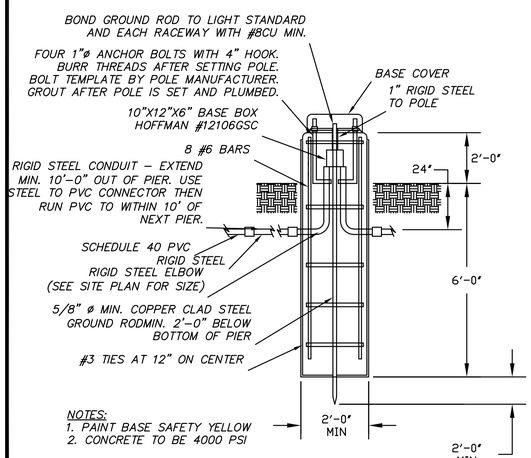
Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	**4**=4" **5**=5" **6**=6"	**A**=0.120" **M**=0.188" **X**=0.250"	**10**=10' **15**=15' **20**=20' **25**=25' **30**=30' **35**=35' **39**=39'	**S**=Square Steel Base	**F**=Dark Bronze **G**=Galvanized Steel **J**=Summit White **K**=Carbon Bronze **L**=Dark Platinum **R**=Hartford Green **S**=Silver **T**=Graphite Metallic **V**=Grey **W**=White **X**=Custom Color **Y**=Black	**2**=2-3/8" O.D. Tenon (4" Long) **3**=3-1/2" O.D. Tenon (5" Long) **4**=4" O.D. Tenon (6" Long) **9**=3" O.D. Tenon (4" Long) **6**=2-3/8" O.D. Tenon (6" Long) **7**=4" O.D. Tenon (10" Long) **A**=Type A Drilling **C**=Type C Drilling **E**=Type E Drilling **F**=Type F Drilling **G**=Type G Drilling **J**=Type J Drilling **K**=Type K Drilling **M**=Type M Drilling **N**=Type N Drilling **R**=Type R Drilling **S**=Standard Upsweep Arm **Z**=Type Z Drilling	**1**=Single **2**=2 at 180° **3**=Triple[2] **4**=4 at 90° **5**=2 at 90° **X**=None	**X**=None **2**=2' **3**=2.5' **4**=4' **6**=6' **8**=8'	**A**=1/2" Tapped Hub[3] **B**=3/4" Tapped Hub[3] **C**=Convenience Outlet[4] **E**=GFCI Convenience Outlet[4] **G**=Ground Lug **H**=Additional Hand Hole[5] **V**=Vibration Dampener

NOTES: 1. All shaft sizes nominal. 2. Square poles are 3 at 90°, round poles are 3 at 120°. 3. Tapped Hub is located 6" below the pole top and on the same side of pole as hand hole, unless specified otherwise. 4. Outlet is located 4" above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. 5. Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS

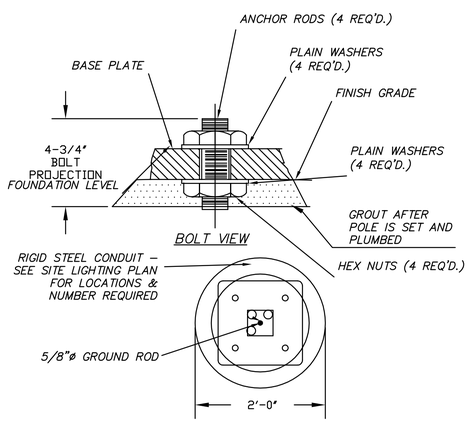


See technical information.



LIGHT POLE BASE

NOT TO SCALE



NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-__

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: 7-1-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:S.H
PROJECT NO: 19003
FILE: SITE.DWG

LIGHTING DETAILS

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

15

NH STATE PLANE
GPS OBS:NOVEMBER 30, 2018

C / 3B
85 INDUSTRIAL PARK II LLC
273 CORPORATE DRIVE, SUITE 150
PORTSMOUTH, NH 03801
2390 / 453

INDUSTRIAL PARK ROAD
PUBLIC 60' WIDE R.O.W. - 743/244 & 759/141

BITUMINOUS CONCRETE DRIVEWAY

SMH A
RIM = 115.2

SMH
RIM = 115.0

CITY WATER MAIN EASEMENT - REF. 510 / 315 & 288 / 203

EDGE OF PAVEMENT (TYP.)

Dover ladder

C / 3A
JUMAJA SEACOAST, LLC
74 INDUSTRIAL PARK ROAD
DOVER, NH 03820
3828 / 796

BITUMINOUS CONCRETE DRIVEWAY AND PARKING AREA

94'

PROPOSED
24,100 S.F. BUILDING
F.F.=112.0

105'

394'

20' WIDE WATER MAIN EASEMENT
743/244 & 759/141

C / 4E
WILLMANCH CORPORATION
c/o TAX DEPT.
P.O. Box 28606
ATLANTA, GA 30358-0606
1118 / 392

C / 3A-1
PARCEL AREA
352,425 S.F.
8.09 Ac.

50' WETLAND BUFFER (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

PROPOSED
DENTENTION
POND

25'

30' SIDE COVENANT SETBACK LINE (TYP.)

10' SIDE/REAR ZONING SETBACK LINE (TYP.)

EDGE OF WETLAND (TYP.)

50' REAR COVENANT SETBACK LINE

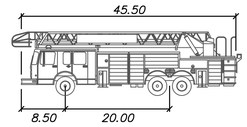
10' SIDE/REAR ZONING SETBACK LINE (TYP.)

C / 41
BT-NEWYO, LLC
P.O. Box 28606
ATLANTA, GA 30358-0606
2710 / 956

"LOT 4C"
N/F INDUSTRIAL PARK AUTHORITY
(AN AGENCY OF THE STATE OF NH)
CONCORD, NH
825 / 305

SMH
RIM = 102.4

C / 2
FRED E. RILEY 1991 TRUST, FRED E. RILEY, TRUSTEE
RUTH K. RILEY 1991 TRUST, RUTH K. RILEY, TRUSTEE
201 TOLEND ROAD
BARRINGTON, NH 03825-3708
1553 / 181



Dover ldder	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 44.0

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY
PLANNING FILE
NO.: P19-__

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: 7-1-19
SCALE: 1"=50'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO:19003
FILE: SITE.DWG

DOVER LADDER TRUCK MOVEMENT PLAN

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 2
DOVER, NH 03820

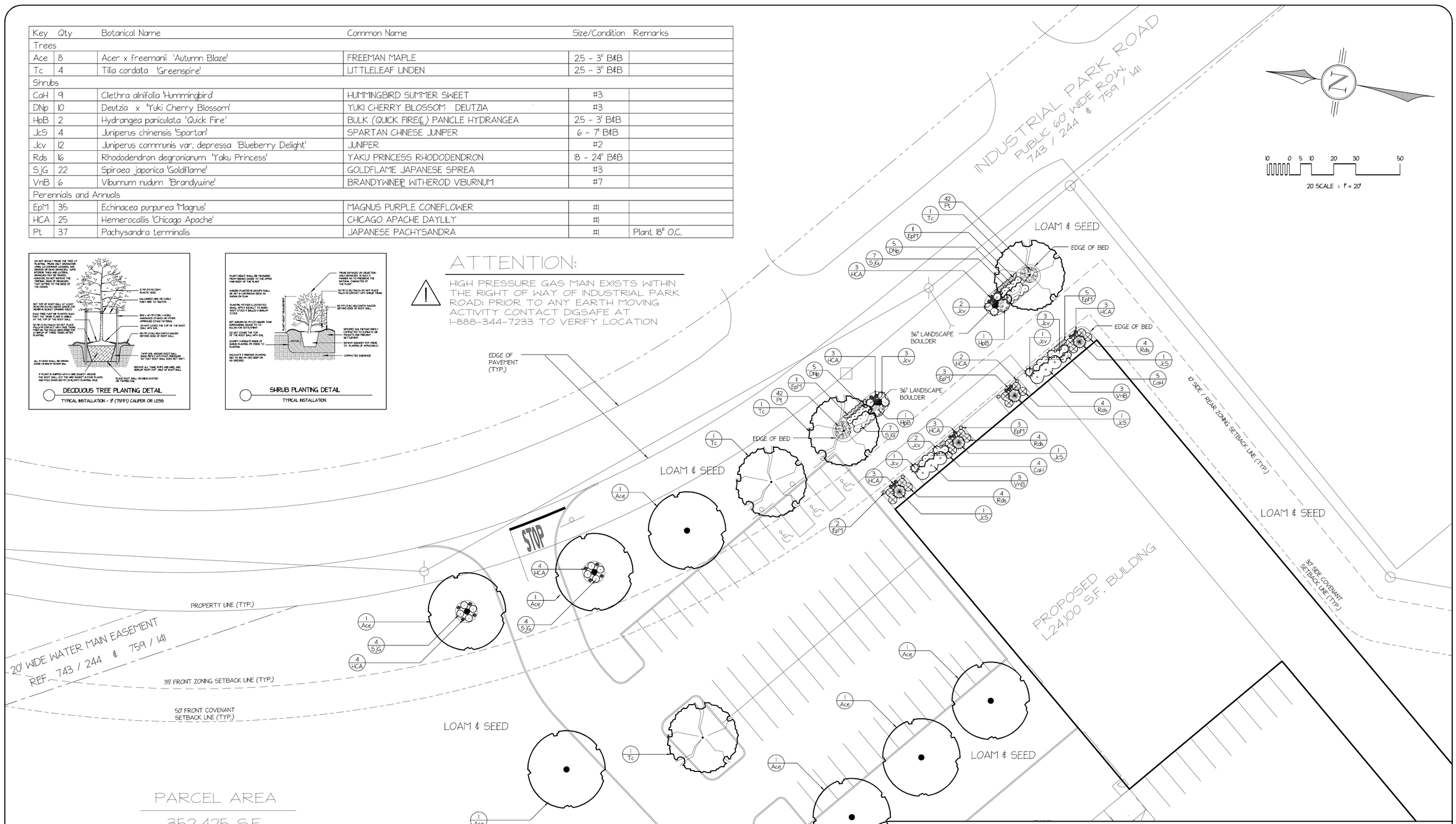
WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

16

Key	Qty	Botanical Name	Common Name	Size/Condition	Remarks
Trees					
Ace	8	Acer x freemanii 'Autumn Blaze'	FREEMAN MAPLE	2.5 - 3" B&B	
Tc	4	Tilia cordata 'Greenspire'	LITTLELEAF LINDEN	2.5 - 3" B&B	
Shrubs					
CaH	9	Clethra alnifolia 'Hummingbird'	HUMMINGBIRD SUMMER SWEET	#3	
DNp	10	Deutzia x 'Yuki Cherry Blossom'	YUKI CHERRY BLOSSOM DEUTZIA	#3	
HpB	2	Hydrangea paniculata 'Quick Fire'	BULK (QUICK FIRE®) PANICLE HYDRANGEA	2.5 - 3' B&B	
JcS	4	Juniperus chinensis 'Spartan'	SPARTAN CHINESE JUNIPER	6 - 7' B&B	
Jcv	12	Juniperus communis var. depressa 'Blueberry Delight'	JUNIPER	#2	
Rds	16	Rhododendron degronianum 'Yaku Princess'	YAKU PRINCESS RHODODENDRON	18 - 24" B&B	
SjG	22	Spiraea japonica 'Goldflame'	GOLDFLAME JAPANESE SPIREA	#3	
VnB	6	Viburnum nudum 'Brandywine'	BRANDYWINE® WITHEROD VIBURNUM	#7	
Perennials and Annuals					
EpM	35	Echinacea purpurea 'Magnus'	MAGNUS PURPLE CONEFLOWER	#1	
HCA	25	Hemerocallis 'Chicago Apache'	CHICAGO APACHE DAYLILY	#1	
Pt	37	Pachysandra terminalis	JAPANESE PACHYSANDRA	#1	Plant 18" O.C.

ATTENTION:

HIGH PRESSURE GAS MAIN EXISTS WITHIN THE RIGHT OF WAY OF INDUSTRIAL PARK ROAD: PRIOR TO ANY EARTH MOVING ACTIVITY CONTACT DIGSAFE AT 1-888-344-7233 TO VERIFY LOCATION



LANDSCAPE NOTES

- Contractor responsible for all final measurements.
- Design is for planning purposes only.
- All work to conform to the standards set by the City of Dover, NH
- The design is based on a plan provided by Civilworks NE and may require adjustment due to actual field conditions.
- The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
- The contractor shall locate and verify the existence of all utilities prior to starting work. Contractor shall obtain a Dig-Safe Ticket prior to the start of work.
- Owner/Contractor responsible for verifying location of all property lines, easements, right of ways, restrictive covenants, zoning matters, or engineering issues such as land support, geology, and hydrology.
- The contractor shall verify layout and grades and inform the client of any discrepancies or changes in layout and/or grade relationships prior to construction.
- The client shall procure any required permits prior to construction.
- Contractor shall notify owner immediately is 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 site and the plan.

  If a contractor is aware of a potential site issue and does not bring it to the attention of the owner immediately, they are responsible for the labor and material associated with correcting the problem.
- Substitutions and changes are not to be made without prior approval by the Owner or Designer.
- All material shall conform to the guidelines established by the current American Standard for Nursery Stock, published by the American Assoc. of Nurserymen.
- Landscaping beds shall have a minimum of 3" of shredded bark mulch applied, unless otherwise noted.
- All plants shall be installed as per details and the contract specified.
- All plants must be nursery grown.
- Plant material shall bear the same relationship to finished grade as to the original planting grade prior to digging.
- If a discrepancy exists between the number of plants on the supplied list and the number shown on the drawings, the greater number shall apply.
- All plants shall be watered thoroughly twice during the first 24 hour period after planting. All plants shall be watered weekly, or more often, if necessary during the first growing season.
- All daylilies and ornamental grasses shall be deadheaded and cut back every season.
- All disturbed areas will be dressed with a minimum of 4" of topsoil and planted as noted on the plans or seeded except plant beds.
- 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.
- Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
- Landscape Architect not responsible for the means and methods of the contractor.

Ironwood
Landscape Architecture • Planning

design by: SH / BSG
drawn by: BSG
checked by: JM
issue for review 7/2/19

WHITE BIRCH ARMORY
74 INDUSTRIAL PARK
DOVER, NH

WHITE BIRCH ARMORY
50 CROSBY ROAD
UNIT 1
DOVER, NH 03820

PLANTING PLAN

SCALE: 20 SCALE: 1" = 20'
DATE: 7/01/2019
DRAWING #: L - 1



TW DESIGNS

WHITE BIRCH ARMORY
DOVER, NH

White Birch ARMORY

White Birch Armory

Industrial Park Rd. Dover, NH

Planning Board Set

N.F.C.

T | W DESIGNS
254 Drake Hill Rd. Strafford, NH 03884 - P:603.664.2181

ABBREVIATION:

#	POUNDS / NUMBER	ELEV.	ELEVATOR	O.A.	OVERALL
&	AND	EMER.	EMERGENCY	OPNG.	OPENING
@	AT	EQUIP.	EQUIPMENT	O.H.	OVER HEAD
∅	DIAMETER	EST.	ESTIMATED	O/O	OUTSIDE TO OUTSIDE
°	DEGREE	EA.	EACH	O.C.	ON CENTER
±	PLUS OR MINUS	E.P.	ELECTRICAL PANEL	OPP.	OPPOSITE
℄	CENTER LINE	EQ.	EQUAL	O.D.	OUTSIDE DIAMETER
ℙ	WALL PLATE	E.W.C.	ELECTRIC WATER COOLER		
		E.J.	EXPANSION JOINT	PR.	PAIR
A.B.	ANCHOR BOLT			PVMT.	PAVEMENT
A/C	AIR CONDITIONING	FIN.	FINISH	PREF.	PREFORATED
ADJ.	ADJUST	F.E.C.	FIRE EXTINGUISHER CABINET	P.LAM.	PLASTIC LAMINATE
AGG.	AGGREGATE	F/F	FACE TO FACE	PLYWD.	PLYWOOD
ALT.	ALTERNATE	FL.	FLOOR	PTD.	PAINTED
A.P.	ACCESS PANEL	FLUOR.	FLUORESCENT	PERIM.	PERIMETER
ARCH.	DESIGN / BUILD CONTRACTOR (URAL)	F.T.	FIRE TREATED	PART.	PARTITION
A.F.F.	ABOVE FINISH FLOOR	FUT.	FUTURE	P.T.	PRESSURE TREATED
ALUM.	ALUMINUM	F.E.	FIRE EXTINGUISHER	PL.	PLATE
ANOD.	ANODIZED	F.F.	FINISH FLOOR	PLUMB.	PLUMBING
APP'D	APPROVED	F.G.	FIBERGLASS	PREFIN.	PREFINISHED
AUTO.	AUTOMATIC	F.D.	FLOOR DRAIN	PRELIM.	PRELIMINARY
A.C.T.	ACOUSTICAL CEILING TILE	FND.	FOUNDATION		
ASPH.	ASPHALT	FTG.	FOOTING	Q.T.	QUARRY TILE
AVG.	AVERAGE	F/O	FACE OF	QTY.	QUANTITY
		F.P.	FIRE PROOFING	QUAL	QUALITY
BD.	BOARD				
B.E.J.	BUILDING EXPANSION JOINT	GA.	GAUGE	REQ'D	REQUIRED
BLD.	BUILDING	G.C.	GENERAL CONTRACTOR	REF.	REFERENCE
B.M.	BENCH MARK	G.W.B.	GYPSUM WALL BOARD	REINF.	REINFORCE
BOT.	BOTTOM	GALV.	GALVANIZED	R.H.	RIGHT HAND
BRG.	BEARING	GL.	GLASS	RM.	ROOM
BSMT.	BASEMENT	GND.	GROUND	R	RADIUS
B.W.	BOTH WAYS	GR.	GRADE	REF.	REFRIGERATOR
BIT.	BITUMINOUS	GYP.	GYPSUM	REV.	REVISION
B.O.	BY OWNER / BY OTHER			R.D.	ROOF DRAIN
B.P.	BEARING PLATE	HDW.	HARDWARE	R.O.	ROUGH OPENING
B.S.	BOTH SIDES	H.D.	HEAVY DUTY	RND.	ROUND
		H.M.	HOLLOW METAL		
CAB.	CABINET	HDWD.	HARDWOOD	SHT.	SHEET
CPT.	CARPET	HVAC	HEATING VENTILATION A/C	SIM.	SIMILAR
C.B.	CATCH BASIN	HGT.	HEIGHT	SF.	SQUARE FEET
CEM.	CEMENT	H.C.	HOLLOW CORE	STL.	STEEL
C.L.	CENTER LINE	HORIZ.	HORIZONTAL	SUSP.	SUSPENDED
C.T.	CERAMIC TILE			STR.	STRUCTURAL
C.B.	CHALKBOARD	INCL.	INCLUDE	S.C.	SOLID CORE
C.M.U.	CEMENT MASONRY UNIT	INSUL.	INSULATION	SQ.	SQUARE
C.J.	CONTROL JOINT	INT.	INTERIOR	SPEC.	SPECIFICATION
C.F.	CUBIC FEET	I.D.	INSIDE DIAMETER	STD.	STANDARD
CLG.	CEILING	INV.	INVERT	STO.	STORAGE
C.H.	CEILING HEIGHT				
CIRC.	CIRCULAR	JAN.	JANITOR	T.B.	TACKBOARD
CLR.	CLEAR	JT.	JOINT	TELE.	TELEPHONE
COL.	COLUMN			THK.	THICKNESS
CONC.	CONCRETE	KIT.	KITCHEN	T.P.	TOILET PAPER
CONT.	CONTINUOUS	K.D.	KILN DRY / KNOCK DOWN	T.O.	TOP OF
CORR.	CORRUGATED / CORRIDOR	K.O.	KNOCK OUT	T&B	TOP & BOTTOM
CATV	CABLE AUDIO TELEVISION			T.S.	TRANSITION STRIP
C/C	CENTER TO CENTER	L.H.	LEFT HAND	T.V.	TELEVISION
C.P.	COAT PEGS	L.F.	LINER FOOT	T&G	TONGUE AND GROOVE
C.U.H.	CABINET UNIT HEATER	LAV.	LAVATORY	TEMP.	TEMPERED / TEMPERATURE
		LxWxD	LENGTH, WIDTH, DEPTH	TYP.	TYPICAL
D.S.	DOWN SPOUT	LT.	LIGHT	T.U.	TOUCH UP
DEMO	DEMOLISH / DEMOLITION	LTG.	LIGHTING	THRU.	THROUGH
DIA.	DIAMETER			T.O.M.	TOP OF MASONRY
DIV.	DIVIDE / DIVISION	MAS.	MASONRY	T.O.W.	TOP OF WALL
DR.	DOOR	MAX.	MAXIMUM	T.O.S.	TOP OF STEEL / TOP OF SLAB
D.F.	DRINKING FOUNTAIN	MIN.	MINIMUM		
DW	DISH WASHER	M.C.	MEDICINE CABINET	U.C.	UNDERCUT
DTL.	DETAIL	M.B.	MARKER BOARD	U.N.O.	UNLESS NOTED OTHERWISE
DIAG.	DIAGONAL	MFR.	MANUFACTURER	UTIL.	UTILITY
DIM.	DIMENSION	M.O.	MASONRY OPENING		
DBL.	DOUBLE	MECH.	MECHANICAL	VERT.	VERTICAL
DN.	DOWN	MED.	MEDIUM	VFY.	VERIFY
DWG.	DRAWING	MISC.	MISCELLANEOUS	V.I.F.	VERIFY IN FIELD
		MLD.	MOLDING	V.B.	VAPOR BARRIER
EXP.	EXPOSED / EXPANSION	MTL.	METAL	V.C.T.	VINYL COMPOSITE TILE
E.I.F.S.	EXTERIOR INSUL. FINISH SYSTEM	M.R.	MOISTURE RESISTANT	VEST.	VESTIBULE
EXT.	EXTERIOR	MACH.	MACHINE		
EXH.	EXHAUST	MAINT.	MAINTENANCE	W/	WITH
EX.	EXISTING	MOD.	MODIFY	W/O	WITHOUT
E.F.	EACH FACE	MTD.	MOUNTED	W.P.	WATER PROOF
E.W.	EACH WAY	MTG.	MOUNTING	W.C.	WATER CLOSET
ELEC.	ELECTRICAL			W.W.F.	WELDED WIRE FABRIC
EL.	ELEVATION	NAT.	NATIONAL	W.G.	WIRE GLASS
		N.T.S.	NOT TO SCALE	WD.	WOOD
		N.I.C.	NOT IN CONTRACT	WT.	WEIGHT
		NO.	NUMBER	WIN.	WINDOW

ANNOTATION LEGEND KEY:

ROOM NAME [101] = ROOM NAME & NUMBER TAG

(2) / A5 = KEY TO EXTERIOR ELEVATION (EXTERIOR ELEVATION)

(3) / A6 = KEY TO WALL / BUILDING SECTION

(A) = INDICATES GRID LINE

(101) = DOOR NUMBER TAG

(A) = WINDOW TYPE TAG

◇ = WALL TYPE TAG

(5) = TOILET LEGEND KEY

(1) / A7 = INTERIOR ELEVATION (ELEVATION)

G.W.B. 9'-0" = CEILING MATERIAL & HEIGHT

LOCUS MAP: (N.T.S.)

PROPOSED EXTERIOR ELEVATION:



DRAWING SHEET INDEX:

Sheet	Sheet Name	Issued
PCS	*Project Cover Sheet*	*N.F.C.*
A1.1	*Proposed First Floor Plan*	*N.F.C.*
A1.2	*Proposed Roof Plan*	*N.F.C.*
A2.1	*Enlarged Floor Plans*	*N.F.C.*
A2.2	*Enlarged Floor Plan*	*N.F.C.*
A3.1	*Exterior Elevations*	*N.F.C.*
A3.2	*Exterior Elevations*	*N.F.C.*
A4.1	*Building Sections*	*N.F.C.*
R1.1	*Exterior Views*	*N.F.C.*

GENERAL NOTES:

1) DO NOT SCALE DRAWING OR DIMENSIONS. FOR MISSING DIMENSIONS OR DIMENSIONS IN CONFLICT, CONTACT THE DESIGN / BUILD CONTRACTOR IMMEDIATELY BEFORE CONTINUING WITH WORK.
2) ANY DISCREPANCIES IN THESE PLANS WILL BE BROUGHT TO THE DESIGN / BUILD CONTRACTOR'S ATTENTION IN WRITING IMMEDIATELY
3) REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DESIGN-BUILD PLANS AND SPECIFICATION FOR LOCATIONS OF ALL BLOCK OUTS, INSERTS, OPENINGS, CURBS, BASES, & PADS THAT ARE NOT DIMENSIONED OR SHOWN ON DESIGN / BUILD CONTRACTOR OR STRUCTURAL.
4) STRUCTURAL STEEL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DESIGN-BUILD PLANS AND SPECIFICATION SHALL BE PROVIDED AND ARE THE RESPONSIBILITY OF THERE RESPECTIVE SUBCONTRACTORS AND THEIR DESIGN BUILD ENGINEER
5) ALL CONSTRUCTION SHALL CONFORM TO AND BE IN ACCORDANCE WITH THE REGULATOR REQUIREMENTS MANDATED BY ALL FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION OVER THE WORK. THIS INCLUDES BUT IS NOT LIMITED TO THE NEW HAMPSHIRE STATE BUILDING CODE, NEW HAMPSHIRE LIFE SAFETY & FIRE CODE.
6) THE CONTRACTOR SHALL REVIEW ALL DOCUMENTS AND VERIFY ALL DIMENSIONS AND FIELD CONDITIONS, AND SHALL CONFIRM WORK IS BUILDABLE AS SHOWN. ANY CONFLICTS OR OMISSIONS, ETC. SHALL BE IMMEDIATELY REPORTED TO THE DESIGN / BUILD CONTRACTOR FOR CLARIFICATION
7) DIMENSIONS ARE FROM EXTERIOR FACE OF FOUNDATION, VENEER, OR WALL STUD AND TO CENTER OF ALL INTERIOR STUD WALLS OR FACE OF INTERIOR MASONRY. UNLESS NOTED OTHERWISE.
8) CLEAR DIMENSIONS ARE FROM FACE TO FACE OF WALL FINISH. UNLESS NOTED OTHERWISE
9) REFER TO MECHANICAL DRAWINGS / SPEC. FOR ALL SIZES AND LOCATIONS OF MECHANICAL DUCT WORK.
10) UNLESS OBVIOUSLY SHOWN OTHERWISE, DOOR LOCATIONS NOT DESIGNATED BY WRITTEN DIMENSION SHALL BE CENTERED IN THE WALL OR SHALL BE LOCATED SIX (6) INCHES FROM FINISH WALL TO EDGE OF DOOR JAMB. PER PLAN.
11) PROVIDE METAL CORNER BEAD AT ALL OUTSIDE CORNERS OF PLASTERED OR DRYWALL SURFACES, UNLESS NOTED OTHERWISE.
12) PENETRATIONS OF ALL FIRE RATED ASSEMBLIES SHALL BE PROTECTED BY LIKE RATED CONSTRUCTION DAMPERS, SEALANTS, COLLARS, ETC., TYPICAL.
13) CONTRACTOR SHALL FURNISH, LOCATE AND INSTALL ALL ACCESS PANELS AS REQUIRED AFTER INSTALLATION OF MECHANICAL DUCTS, PLUMBING AND ELECTRICAL WORK, FIRE RATED AS REQUIRED.
14) FURNISH AND INSTALL SOLID BLOCKING BEHIND ALL WALL HUNG MILLWORK ITEMS, RAILS, FIXTURES,GRAB BARS, ETC. . WHERE INDICATED OR REQUIRED.
15) CONTRACTOR SHALL LAYOUT OR MARK, ALL EQUIPMENT, SYSTEMS AND MILLWORK ON THE FLOOR FOR DESIGN / BUILD CONTRACTOR'S APPROVAL PRIOR TO BEGINNING CEILING / OVER HEAD WORK.
16) ALL SPRINKLER HEAD LOCATIONS, MAINS, BRANCHES AND RISER PIPE LOCATIONS MUST BE COORDINATED WITH THE DESIGN / BUILD CONTRACTOR PRIOR TO WORK.
17) FURNISH AND INSTALL FIRE EXTINGUISHERS IN TYPE, QUANTITY, AND LOCATION PER LOCAL FIRE DEPARTMENT. TYPICAL
18) CONTRACTOR SHALL VERIFY, COORDINATE WITH THE DESIGN / BUILD CONTRACTOR ANY SMOKE, CARBON MONOXIDE DETECTOR OR FIRE ALARM DEVICE AS REQUIRED BY THE LOCAL FIRE DEPARTMENT.
19) FURNISH & INSTALL FIRE DAMPERS WITH FUSIBLE LOUVER WHEREVER DUCT WORK PENETRATES ONE OR TWO HOUR CEILINGS OR WALLS. TYPICAL UNLESS NOTED OTHERWISE.
20) PROVIDE PLASTER AND GYPSUM WALL BOARD CONTROL JOINTS AT 30'-0" ON CENTER FROM FLOOR TO CEILING, OR AS NOTED ON THE CONSTRUCTION DOCUMENTS.. VERIFY IN FEILD WITH ARCHITECT PRIOR TO WORK.

Revision Schedule

No.	Description	Date

Architect of Record:

T | W Designs, LLC
254 Drake Hill Rd.
Strafford, NH 03884
603-664-2181

Civil Engineer:

Civilworks New England
181 Watson Rd,
Dover, NH 03820
603-750-4266

Structural Engineer:

JSN Associates, Inc.
1 Autumn Street
Portsmouth, NH 03801
603-433-8639

Electrical Engineer:

Seacoast Consulting Engineers, LLC
261 Jennie Lane
Eliot, ME 03903
207-370-7230

Mechanical Engineer:

Design Day Mechanicals, Inc.
PO Box 447
New Ipswich, NH 03071
603-463-1086

Fire Protection Eng.:

Superior Fire Protection, Inc.
230 Londonderry Turnpike
Hooksett, NH 03106
603-644-4700

General Contractor:

T.B.D.

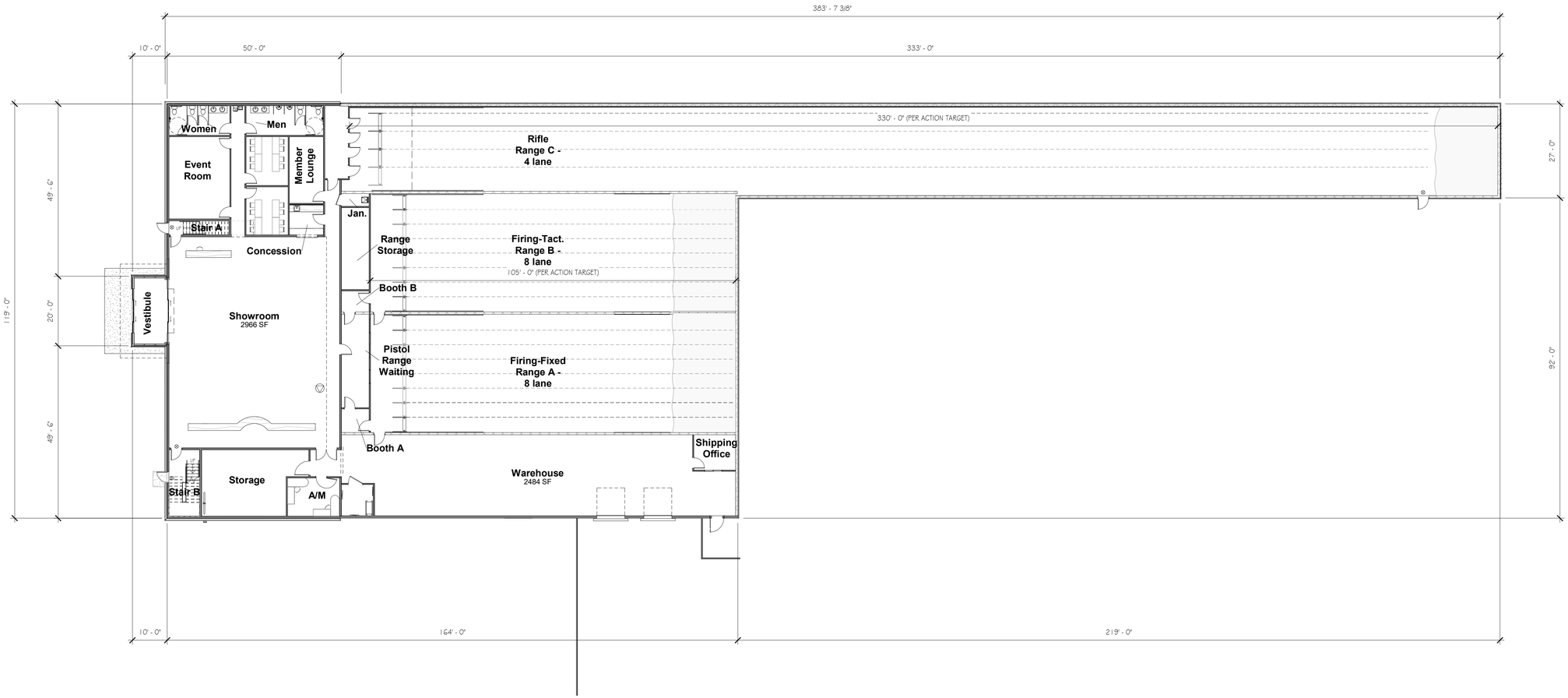
Project Info:

Owner
White Birch Armory
Industrial Park Rd. Dover, NH

19013
Project Cover Sheet

SHEET NUMBER
PCS

T|W DESIGNS LLC
P.O. BOX 69 STRAFFORD, NH 03884
P: 603.664.2181 | F: 603.664.9508



1 PROPOSED FIRST FLOOR PLAN
1/16" = 1'-0"

First Floor S.F.	= 25,683
Second Floor S.F.	= 3,174
Total	= 28,857

PLANNING BOARD SET
7/1/2019 12:57:42 PM

True
PROJECT NORTH

No. Description Date
Revision Schedule

Project Info:
White Birch Armory

Industrial Park Rd. Dover, NH

Sheet Status:
Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO: 19013
DRAFTED: MLN
CHECKED: JMT

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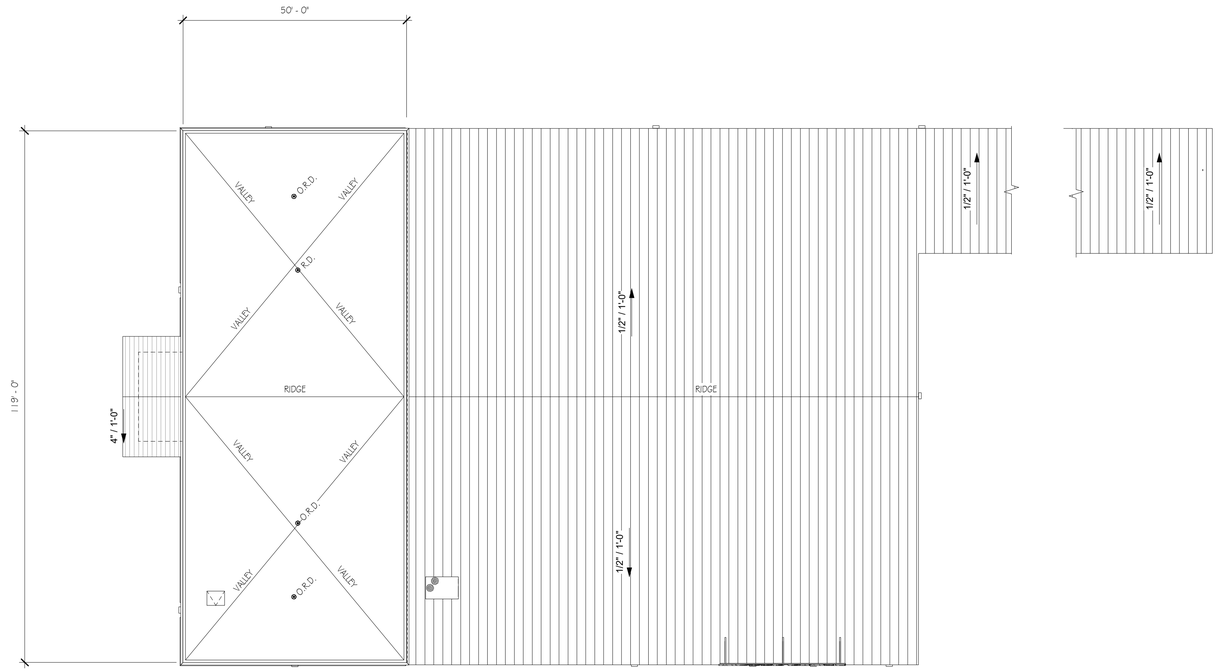
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Proposed First Floor Plan

Sheet Number:
A1.1

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1 ROOF PLAN
1/16" = 1'-0"

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No. Description Date

Revision Schedule

Project Info:

White Birch Armory

Industrial Park Rd. Dover, NH

Sheet Status:

Latest Release:

Issued For: Planning Board Set

Org. Issue Date: N.F.C.

JOB NO: 19013

DRAFTED: MLN

CHECKED: JMT

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Sheet Title:

Proposed Roof Plan

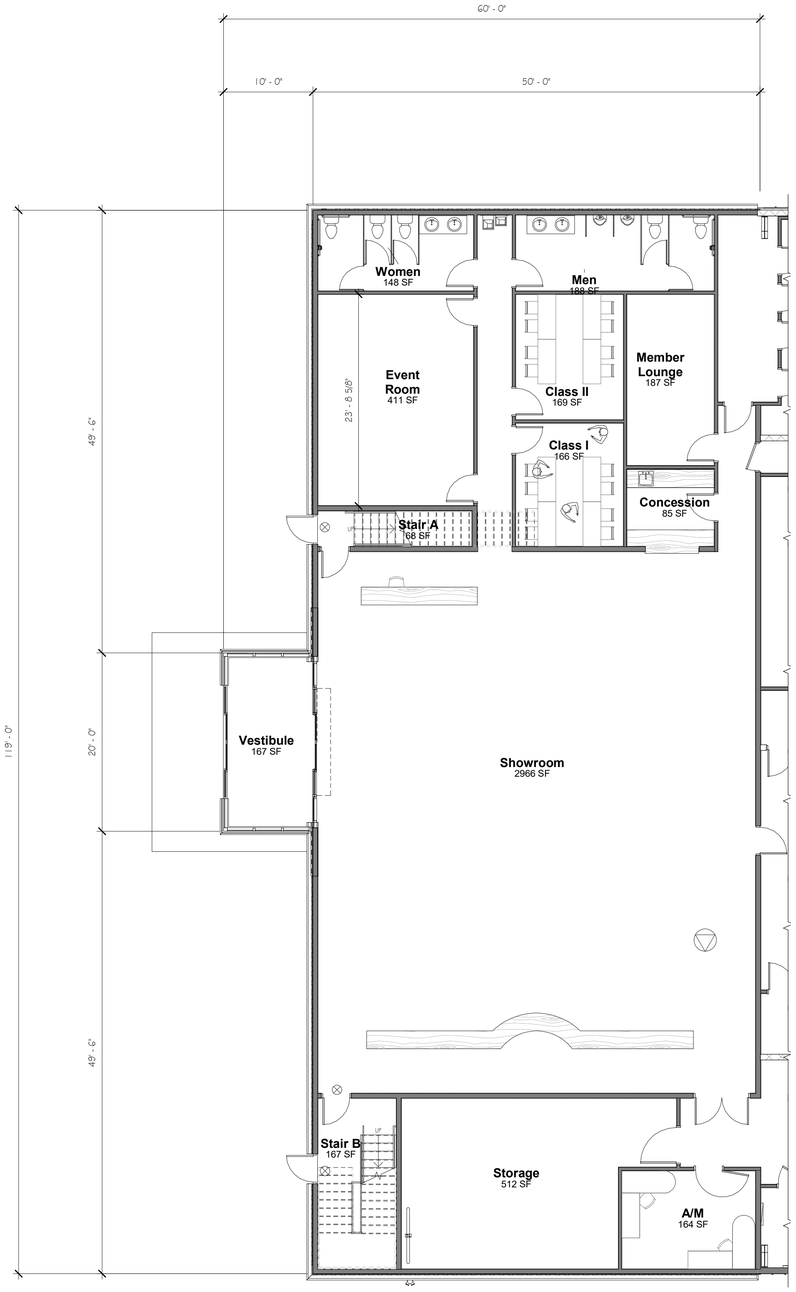
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1 ENLARGED SHOWROOM & OFFICE FLOOR PLAN
1/8" = 1'-0"



2 ENLARGED SECOND FLOOR PLAN
1/8" = 1'-0"

First Floor S.F. = 25,683
Second Floor S.F. = 3,174
Total = 28,857

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No. Description Date

Revision Schedule

Project Info:

White Birch Armory

Industrial Park Rd. Dover, NH

Sheet Status:

Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO: 19013
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CHECKED: JMT
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Sheet Title:

Enlarged Floor Plans

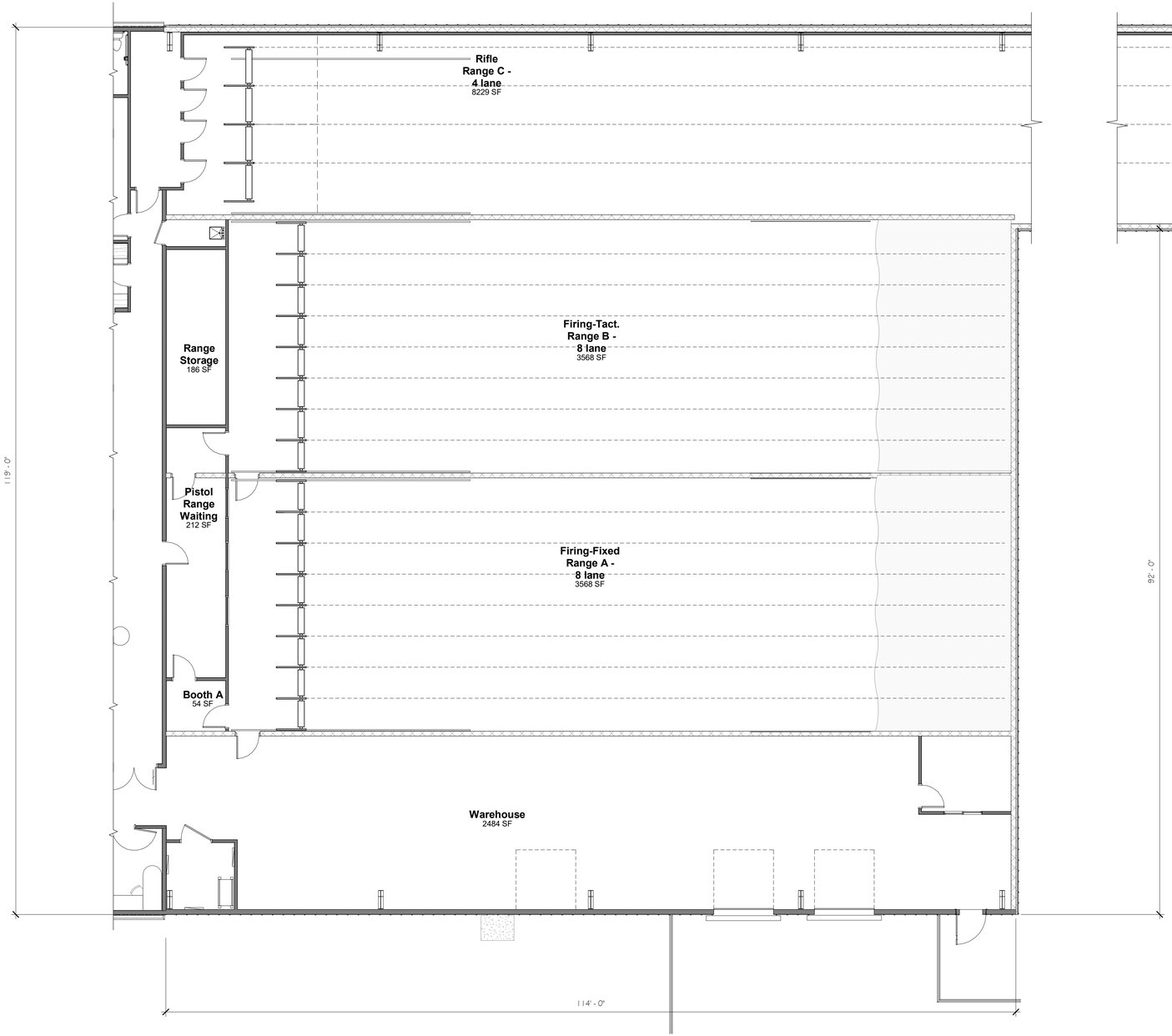
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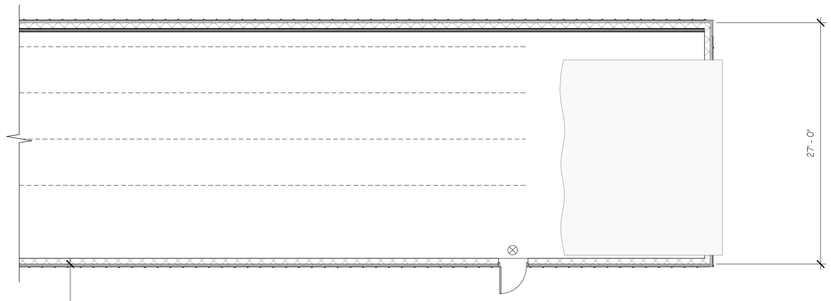
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1 ENLARGED FIRING RANGE & WAREHOUSE FLOOR PLAN
1/8" = 1'-0"

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7/1/2019 12:57:48 PM

No.	Description	Date

Revision Schedule

Project Info:

White Birch Armory

Industrial Park
Rd. Dover, NH

Sheet Status:

Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO.: 19013
DRAFTED: MLN
CHECKED: JMT

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

Sheet Title:

Enlarged Floor Plan

Sheet Number:

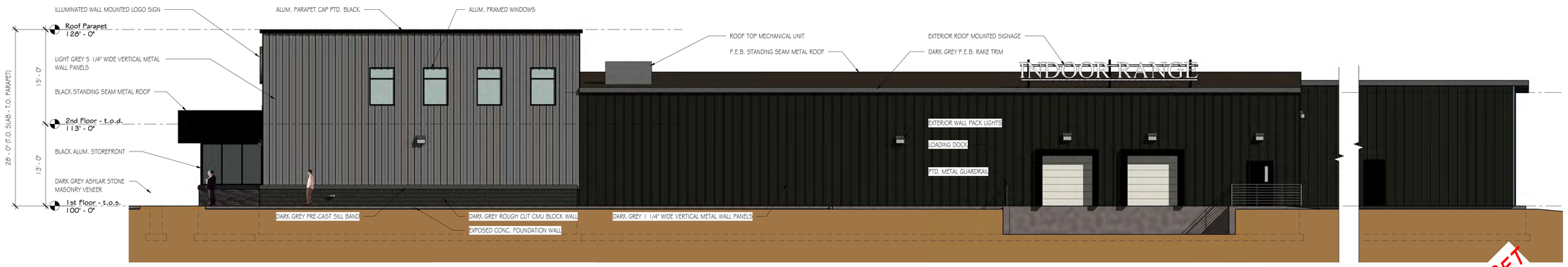
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A North Exterior Elevation
1/8" = 1'-0"



B West Exterior Elevation
1/8" = 1'-0"

PLANNING BOARD SET
7/1/2019 12:58:27 PM

No.	Description	Date

Revision Schedule

Project Info:
White Birch Armory

Industrial Park
Rd. Dover, NH

Sheet Status:
Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO: 19013
DRAFTED: MLN
CHECKED: JMT
SCALE: 1/8" = 1'-0"

Sheet Title:
Exterior Elevations

Sheet Number:
A3.1

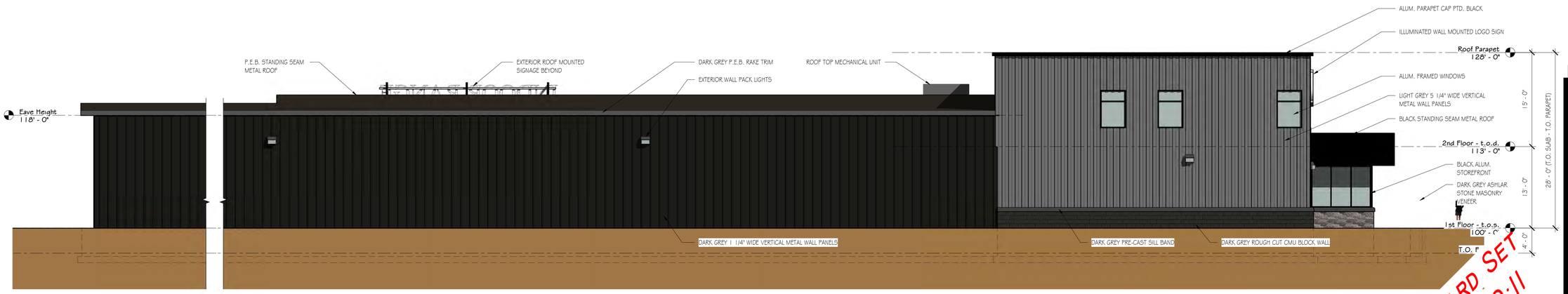
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1 South Exterior Elevation
1/8" = 1'-0"



2 East Exterir Elevation
1/8" = 1'-0"

PLANNING BOARD SET
7/1/2019 12:59:11 PM

No.	Description	Date

Revision Schedule

Project Info:
White Birch Armory

Industrial Park Rd. Dover, NH

Sheet Status:
Latest Release:
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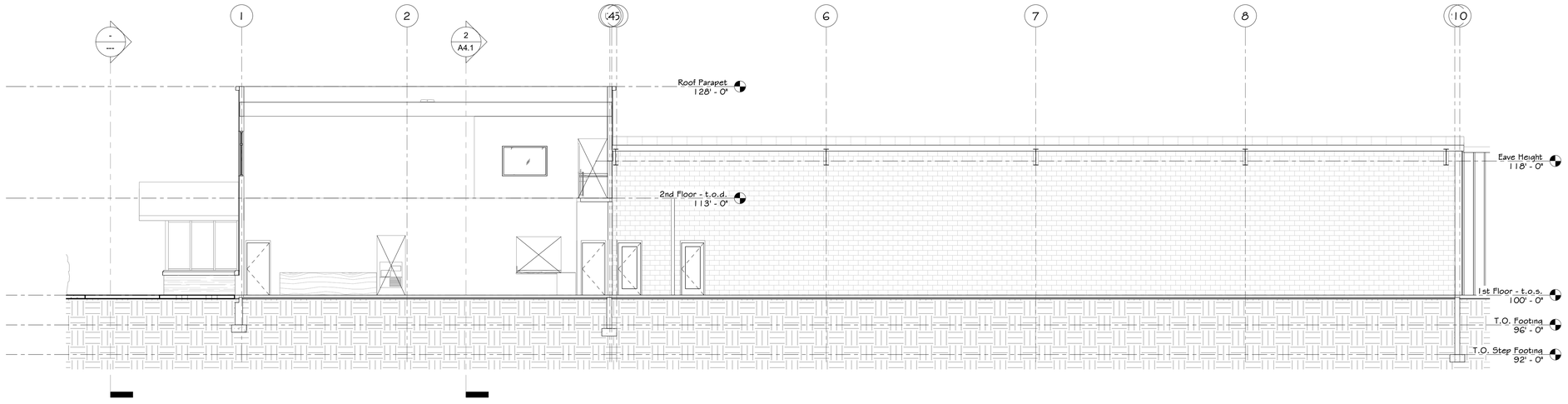
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Exterior Elevations

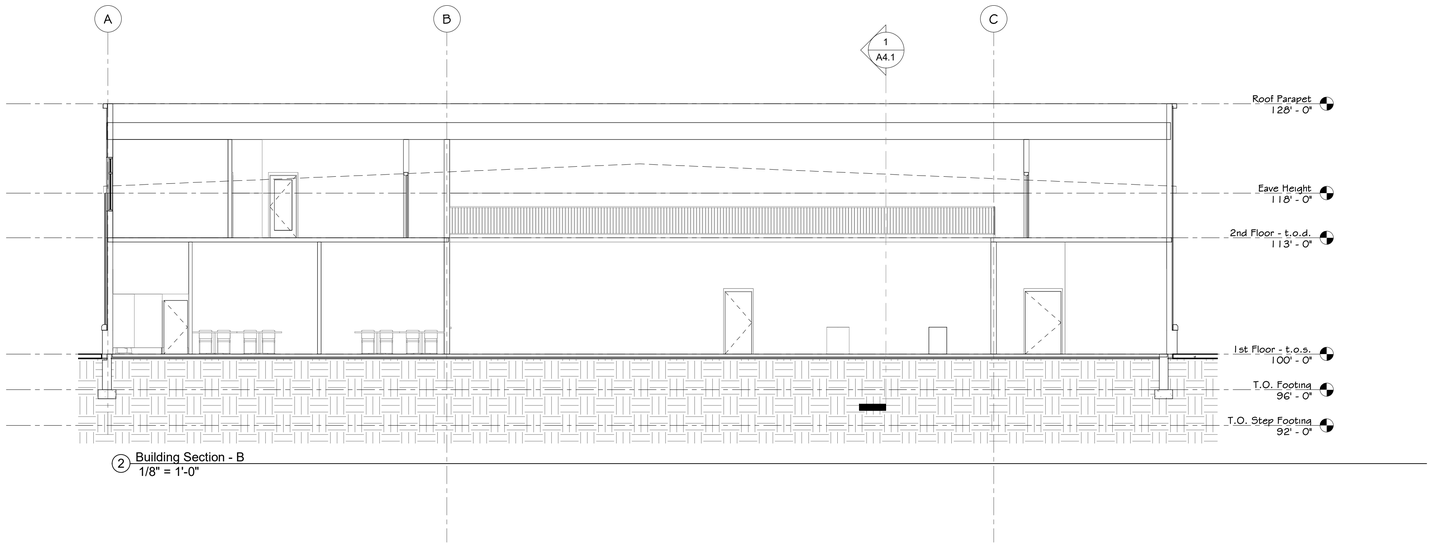
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Printed on: 7/1/2019 12:59:11 PM

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1 Building Section - A
1/8" = 1'-0"



2 Building Section - B
1/8" = 1'-0"

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PLANNING BOARD SET
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DESIGN | BUILD Architectural Document Set -
Prepared For Exclusive Use By :

WHITCHER BUILDERS

No.	Description	Date

Revision Schedule

Project Info:

White Birch Armory

Industrial Park Rd. Dover, NH

Sheet Status:

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Org. Issue Date: N.F.C.

JOB NO: 19013
DRAFTED: Author
CHECKED: Checker
SCALE: 1/8" = 1'-0"

Sheet Title:

Building Sections

Sheet Number:

A4.1

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