CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

REVISED

Meeting Type: Regular Meeting
Meeting Location: McConnell Center, Room 305, 61 Locust Street, Dover NH 03820
Meeting Date: **Thursday, November 18, 2021**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for Downtown Dover Storage, LLC., Assessor's Map 4, Lot 5, zoned CBD-General, located at 14 Broadway. (Proposal is to construct a 14,888 sq. ft. 4-story residential building with 24 units with parking and 3,450 s.f. of ground floor retail). A related CUP and Lot Line Adjustment application will also appear before the Planning Board. (P21-29) *[This item was previously heard on August 26, 2021]*

169 Ocean Boulevard/PO Box 249
Hampton, NH 03842
603.601.8154
TheEngineeringCorp.com
Create | Design | Innovate

Mr. Chris Parker
Assistant City Manager: Director of Planning and Strategic Initiatives
City of Dover Planning Department
288 Central Ave
Dover, NH 03820

October 28, 2021

Ref. N0946.02
Planning File # P21-29

Re: Technical Review Committee Narrative
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

On behalf of Downtown Dover Storage, LLC, The Owner and Applicant ("Applicant"), TEC, Inc. respectfully submits this letter to supplement the enclosed application with supporting documents for review by the Technical Review Committee (TRC) for the Proposed Residential Development at 14 Broadway in Dover, NH. The Applicant is proposing to redevelop the existing 1-story warehouse and gravel area located at 14 Broadway, Dover, NH (Assessors Map 4, Lot 5). The project will also include redeveloping the bituminous concrete parking area of 12 Broadway (Assessors Map 4, Lot 3). The Applicant is proposing to demolish the existing warehouse and construct a 4-story, 24-unit residential building with commercial use space on the first floor, parking areas totaling 68 spaces between Lot 4-3, Lot 4-5, and Broadway, and landscaped areas to beautify the site.

The purpose of the project is to rejuvenate an existing abandoned lot located in the heart of the City with a modern residential building with space for commercial uses along Broadway. This project will have a positive impact on the immediate area and the City in general by providing a source of housing in a fast-growing area. The project aims to increase the amount of greenspace on site, treat all stormwater runoff, provide sufficient off-street parking, and utilize municipal utilities along Broadway.

The project will require the following approvals and permits from the Planning Board:

Minor Lot Line Adjustment
A Minor Lot Line Adjustment between Lots 4-3 and 4-5 is being sought to provide the lot with feasibility to meet the required 75% minimum lot coverage. The existing shape of the lot presents a challenge with meeting this requirement while creating a development that will benefit the immediate area of influence and the City in terms of aesthetics and functionality. The proposed lot line will create a more traditional "block" style lot for Lot 4-5, allowing the dimensional requirements of the CBD General Sub-District to be more easily met. The areas of both lots will remain unchanged, Lot 4-3 being 20,592 SF and Lot 4-5 being 19,471 SF.

Conditional Use Permit
A Conditional Use Permit is being sought to grant relief to the required 20% minimum first floor commercial use space in the CBD General Sub-District. This relief complies with all standards established in the City of Dover Zoning Ordinance Chapter 170-20B(1)&(2).

Site Review
The project will require Site Review by the Planning Board.

Street Trees Waiver
A waiver is being sought to grant relief from the Streetscape Standards under Section 170-20(E)(3)(a)(i) of the City of Dover Zoning Code, which requires street trees to be planted at an average spacing of 25 to 30 feet on center.

Enclosed please find the following documents as part of the Application to the Technical Review Committee:

- Completed and Signed *"Site Review Application"* (8 copies)
- Completed and Signed *"Conditional Use Permit Application"* (8 copies)
- Completed and Signed *"Minor Lot Line Adjustment Application"* (8 copies)
- Responses to TRC Comments (8 copies)
- Conditional Use Permit Criteria Narrative (8 Copies)
- Street Trees Waiver Request Letter (8 Copies)
- Letters to Serve (8 Copies)
- Plans (8 copies)
- Drainage Report (8 copies)
- Traffic Analysis Memo (8 copies)
- Photographs of Site (8 copies)
- List of Abutters (8 copies)

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*



Christopher Raymond, PE
Civil Engineer – Design Engineer

CHRISTOPHER G. PARKER, AICP
Assistant City Manager
Planning & Strategic Initiatives
c.parker@dover.nh.gov

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City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

INSTRUCTIONS TO APPLICANTS TO THE DOVER PLANNING BOARD

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE FILLING OUT ATTACHED APPLICATION.
INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED FOR REVIEW.

Dear Applicant:

This will serve to briefly inform you regarding the process to have the Dover Planning Board (the Board) review a land use application. Please refer to the NH Statutes on Land Use and Regulation the Dover Code, and our Developer's Handbook for more specific information.

The Board primarily reviews 5 types of applications:

1. **Site Plans** - A site plan is a professionally rendered drawing which delineates the proposed development of a site. This plan is required for non-residential development, creation of multi-family residential structures, and for extensions of parking lots and alteration of an acre or more of land. These plans require meeting with the Technical Review Committee before Planning Board review.

2. **Subdivisions** - A subdivision is the division of the lot, tract, or parcel of land into two (2) or more lots, plats, sites or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. Major subdivision plans (4+) require meeting with the Technical Review Committee before Planning Board review.

3. **Lot Line Adjustments** - A lot line adjustment alters the size of two (2) or more lots, but does not create a new buildable lot.

4. **Conditional Use Permits** - A conditional use permit is required for any alteration of wetlands, wetland buffers or work within the City's conservation district. Additionally, a conditional use permit could be issued as to offer relief in the Central Business District, for plans in the Residential Mixed Use Overlay District, or parking relief. Environmental Conditional Use Permits are acted on after Conservation Commission review.

5. **Excavation Permits** – NH RSA Chapter 155-E grants municipalities the authority to regulate earth excavations within their borders. This authority rests with the Planning Board.

The Board cannot and will not review applications that do not meet zoning requirements. **Please review the need to apply to the Zoning Board of Adjustment prior to applying to the Board.**

Professional agents will prepare your application; however, you may represent yourself or authorize, in writing, someone else to represent you before the Planning Board.

In most cases, the first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, and a PDF, need to be provided, along with payment of plan review fees. These meetings occur on Thursday, and materials and payment must be submitted three (3) weeks prior to meeting. Meetings are scheduled, upon receipt of completed applications with the full checklist and payment.

The next step would be to provide, two weeks prior to Planning Board, the final plan sets (three (3) full size and twelve (12) half size (11x 17), folded, copies of the plan), and 15 copies, and a PDF, of all supporting materials, including response to TRC comments. Please print all materials on both sides of paper.

For projects not appearing before the Technical Review Committee, Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and 15 copies, plus a PDF, of plans and materials, 3 weeks prior to the Planning Board meeting. Please print all materials on both sides of paper.

Staff will generate an abutter list, and Abutter/Notice Fees will be invoiced. They are due 28 hours prior to Planning Board. If they are not paid, the application will not be heard.

Once an item is placed upon an agenda the following process is used:

- The Board will hold a public hearing on your application at a regularly scheduled meeting
    - Typically the second or fourth Tuesday of the Month.
- Public notice of the hearing will be posted at the City Clerk's office and the Planning Department office and printed in the newspaper.
- Certified letters will be mailed to you and to all abutters at least ten days before the date of the hearing.
- 28 hours prior to the meeting, abutter/notice fees must be paid
- At the meeting
    - Staff will introduce your project
    - You and all other parties will be invited to appear in person or by agent or counsel to present your application.
        - Your project will be pre-loaded onto a laptop for review by the Board and public
    - The Board may ask clarifying questions
    - The Board will vote to accept jurisdiction on the application
    - If accepted:
        - The Board will hold a public hearing
        - The Board may ask additional questions
        - The Board will deliberate on your application
            - Typically decisions are made the night of the presentation, but an application may be tabled
        - After deliberation, a decision will be made.
            - You will be sent a notice of the decision.

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Downtown Dover Storage, LLC Telephone #_____

Address of Applicant: 42 L Dover Point Road, Dover, NH 03820

E-Mail Address: _____

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 14 Broadway, Dover, NH 03820

Assessor's Map # 4 Lot(s) # 5

Zoning District(s) CBD General Sub-District Overlay District(s) _____

Size of Parcel: 19,471 sq. ft. 0.447 ac. Property Deed: Book 4719 Page: 976

Existing Use of Property: 1-story warehouse and parking lot

SITE PLAN INFORMATION

Describe Proposed Use: 4-story residential building with first floor commercial/retail space, and parking lot

Area of Parcel to be Developed: 19,471 sq. ft.

If Multi-family Residential: Number of Units 24 & Buildings Proposed 1

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

Number of Parking Spaces: Existing 40 Proposed 68

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

Number of Employees Total: _____ In Maximum Shift: _____

Disposition of Parcel:

Building Footprint 14,860 sq. ft.

Total Building Area 42,242 sq. ft.

Paved Area 11,691 sq. ft.

Building Setbacks:

Front Yard 1 ft.

Rear Yard 10 ft.

Side Yard: Right 10 ft. Left 10 ft.

City Water? ✓ Yes ___ No How far is city water from the property? 14 feet

City Sewer? ✓ Yes ___ No How far is city sewer from the property? 34 feet

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

□ Lot Size □ Frontage □ Setback □ 30' Buffer □ Increase by _____ units

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

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: 4-story residential building with first floor commercial/retail space.

Height of Building: 4-story Finished Floor Elevation: _____

Number of Seats (where applicable) _____

Estimated value of construction: _____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.) Hancock Associates

Address 185 Centre Street, Danvers, MA 01923 Telephone #: (978) 777-3050

Professional License #: _____ E-mail address: _____

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Chris Raymond, P.E. (TEC, Inc.)

Address 169 Ocean Boulevard, PO Box 249, Hampton, NH 03842 Telephone #: (603) 601-8154

Professional License #: 16305 E-mail address: craymond@theengineeringcorp.com

ARCHITECT INFORMATION

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

Address 370 Main Street, South Berwick, ME 03908 Telephone #: (207) 384-2049

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) John Turner Consulting, Inc.

Address 19 Dover Street, Dover, NH 03820 Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 10-28-2021

Signature of Applicant (*if different from owner*): _____ Date: 10-28-2021

Signature of Agent: Chris Reynard Date: 10-28-2021

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: 10-28-2021

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: 10-28-2021

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

CERTIFICATION OF FEES

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

Signature of Property Owner: _____ Date: 10-28-2021

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

CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
4	5	Downtown Dover Storage, LLC	42 L Dover Point Road, Dover, NH

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Chris Raymond	TEC, Inc.	169 Ocean Blvd., Hampton, NH 03824

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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

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

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

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

APPLICANT: Downtown Dover Storage, LLC File Number: _____

PROJECT TITLE: Proposed Residential Development

PROPERTY LOCATION: 14 Broadway, Dover, NH 03820 Tax Map: 4 Lot: 5

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

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

REVIEWED BY: _____ DATE_____ TRC DATE_____

CITY OF DOVER PLANNING DEPARTMENT
Revised August 10, 2020

APPLICANT: _____ FILE NUMBER: _____

List of Common Site Plan Notes

The following list of commonly required notes is intended to be used as a guide to applicants and should not be construed as a comprehensive note requirement list for all projects. A preapplication conference with the Planning Department is suggested to help determine the actual notes that may be required.

1. The intent of this plan is to *(describe the purpose of the plan).*

2. Owners of Record are: Name
   Street address
   Municipality, State, Zip Code
   _____
   Authorized Signature

3. The parcel(*s*) is (*are*) shown as Lot No. _____, Map ____ of the City of Dover Tax Assessor's Maps.

4. The subject parcel(s) contains ____ acres or _____ sq. ft. area of land.

5. Title reference for the project parcel(*s*) is the Strafford County Registry of Deeds, Book No. ___, Page No. ___.

6. Reference Plans: (*List all reference plans and their SCRD #)*

7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note.

8. Zoning dimensional and density requirements are as follows:

   Required: Provided:

   a. Zoning district _____ sub-district _____
   b. Minimum lot size: _____ acres (sq. ft.)
   c. Minimum lot frontage: _____ ft.
   d. Minimum yard setbacks/build-to-lines:
      Front _____ft.
      Side _____ft.
      Rear _____ft.
      Abut-a-street _____ ft.
   e. Maximum/minimum lot coverage _____ %
   f. Minimum/maximum bldg. height _____ ft./stories

   This property falls within the following zoning overlay districts: *(List districts)*

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the proposed use or structure, including the case number and date of decision and any conditions.

10. Property line information has been obtained from a survey performed by *(surveyor)* on (*date*) with an error not greater than 1 in 10,000 (*or has been obtained from* _____ *Plan, prepared by (surveyor)*).

11. Subject parcel is (*is not*) located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015).

12. Wetlands were delineated by _____, Certified Wetlands Scientist, Certification Number ____, in accordance with Chapter 170-27.1 of the Zoning Ordinance, on _____, 20___.

13. As-built plans of the subdivision shall be submitted on paper and in digital format AutoCAD DWG, AutoCAD DXF or ESRI format to the City of Dover Engineer's Office upon completion of project if a street is proposed for City acceptance. As-built plans shall be prepared and certified correct by a L.L.S. or P.E. Digital files shall be geo-referenced to New Hampshire State Plane Coordinates NAD83 and shall be expressed in feet.

14. The installation of electric power, cable television and telephone lines shall be underground throughout the site for which development is proposed.

15. The subject parcel(s) is (are) served by municipal water and sewer (*or is served by on-site well and septic system*).

16. All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT) "Standard Specifications for Road and Bridge Construction" and with the City of Dover Community Services Regulations and standard specification for construction. The more stringent specification shall apply.

17. All erosion control notes shall include provisions for construction sequencing, temporary erosion control measures, and permanent standards such as loam spread rate for disturbed areas, rates of lime, type and rates for fertilizer, and seed and mulch mixture with rates of application.

18. The limits of construction disturbance that are located in or within the 50 ft. of Conservation and Wetland Districts shall be staked, flagged and clearly identified prior any earth disturbing activity occurs.

19. All treatment swales to be constructed shall have sod bottoms.

20. A letter of credit for the cost of revegetating all disturbed areas on the site shall be submitted, and the approved construction sign installed prior to any earth disturbing activity occurs.

21. A pre-construction conference with the developer, the design engineer, the earthwork contractor and the City Engineer shall occur prior to any earth disturbing activity.

22. Site Construction hours shall be limited to Monday-Friday 7 AM-6 PM, Saturday and Sunday 9 AM-4 PM. Hours of construction must be documented on a site construction sign along with the contact information for the general contractor. Said signage must be located and approved by the City Engineer or Assistant City Manager.

23. Building addresses (including apt/unit numbers if applicable) shall be assigned by the Building Official at the time of issuance of a building permit.

24. The proposed use for the site (structure) is _____. (More specific uses are encouraged, such as single family, duplex, multi-family, restaurant, hotel, doctor's office, etc. Should more than one use be proposed, an indication of the percentage of each use is suggested.)

25. The following federal and state permits have been issued for the subject property: (*List permit type, number and date of issuance.)*

26. Commercial vehicle route during construction shall conform to Dover City Code or be coordinated with the Community Services Director.

27. Any retaining wall taller than four feet (4') requires issuance of a building permit from Inspection Services.

28. Any fence taller than seven feet (7') requires the issuance of a building permit from Inspection Services.

29. Applicant shall complete Land Use Development Tracking Form, most recently revised version, utilizing the online Pollution Tracking and Accounting Pilot Project (PTAPP) portal. https://www.unh.edu/unhsc/ptapp

30. The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons/entities that may acquire any property subject to the requirements and responsibilities described in the approved STORMWATER Management Plan. The notice shall comply with the applicable requirements for recording contained in RSA 477 and 478. The notice need not set forth the requirements at length, so long as it is sufficient to provide notice to prospective purchasers to the requirements for maintenance and reporting.

31. Fire department access road(s) shall be installed and maintained to support the imposed loads of fire apparatus in all weather conditions at all times.

32. The maximum parking space calculation is _____ (broken down) and ____ spaces are provided.

33. Exterior lighting shall be cut-off type fixtures per Chapter 153-14-E and shall provide lighting directed on-site only.

34. Topographic survey performed by _____ on *(dates)*.

35. Elevations are based on U.S.G.S. NVD 1988 datum. (**or** Elevations depicted are based on information obtained from the City Engineer's Office and was derived from coordinates for control stations _____ and _____. These coordinates have not been adjusted to 1983 datum).

36. A security system shall be installed as required by Chapter 45, Article I, section 45-2 of the Code of the City of Dover. (*If a business establishment or multi-family dwelling contained in a new, altered or repaired structure*)

37. Approved backflow preventers shall be provided for both fire and domestic water lines.

38. The (*existing or proposed*) structure shall be served by a sprinkler system as required by Chapter 81- 30 of the Code of the City of Dover and the adopted State of NH Building and Fire Codes.

39. Sprinkler connections must be flushed in accordance with NFPA 24 and a Contractor's Material and Test Certificate for Underground Piping form must be completed and approved by Inspection Services prior to connection of the backflow device.

40. Fire department connection(s) shall be located on the street side of the building per NFPA 13. Access to the FDC shall maintain a clear and unobstructed path at all times.

41. The site layout is designed in compliance with applicable accessibility regulations. The proposed structure will be also be designed in accordance with applicable accessibility regulations. (i.e. IBC, ANSI-117.1) and NH RSA 155-A:5.

REMARKS:

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Downtown Dover Storage, LLC Telephone #_____

Address of Applicant: 42 L Dover Point Road, Dover, NH 03820

E-Mail Address: _____

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

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # 4 Lot(s) # 5

Address of Property: 14 Broadway, Dover, NH 03820

Zoning District(s) CBD General Sub-District Overlay District(s) _____

Existing Use of Property: 1-story warehouse and parking lot

CONDITIONAL USE PERMIT INFORMATION

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

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

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

First floor commercial/retail space does not meet the required 20% minimum gross floor area.

This commercial/retail space is located along the frontage of the property as required, but increasing the area of this use would be detrimental to the required on site parking.

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: Chris Raymond, P.E. (TEC, Inc.)

Address 169 Ocean Boulevard, PO Box 249, Hampton, NH 03842 Telephone #: (603) 601-8154

Professional License #: 16305 E-mail address: _____

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: 10-28-2021

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

Signature of Agent: Chris Raymond Date: 10-28-2021

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: 10-28-2021

CITY OF DOVER CONDITIONAL USE
LIST OF ABUTTERS

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
4	5	Downtown Dover Storage, LLC	42 L Dover Point Road, Dover, NH

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Chris Raymond	TEC, Inc.	169 Ocean Blvd., Hampton, NH 03824

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

CHRISTOPHER G. PARKER, AICP
Assistant City Manager
Planning & Strategic Initiatives
c.parker@dover.nh.gov

288 Central Avenue
Dover, New Hampshire 03820-4169
(603) 516-6008
Fax: (603) 516-6049
www.dover.nh.gov

City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

INSTRUCTIONS TO APPLICANTS TO THE DOVER PLANNING BOARD

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE FILLING OUT ATTACHED APPLICATION.
INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED FOR REVIEW.

Dear Applicant:

This will serve to briefly inform you regarding the process to have the Dover Planning Board (the Board) review a land use application. Please refer to the NH Statutes on Land Use and Regulation the Dover Code, and our Developer's Handbook for more specific information.

The Board primarily reviews 5 types of applications:

1. **Site Plans** - A site plan is a professionally rendered drawing which delineates the proposed development of a site. This plan is required for non-residential development, creation of multi-family residential structures, and for extensions of parking lots and alteration of an acre or more of land. These plans require meeting with the Technical Review Committee before Planning Board review.

2. **Subdivisions** - A subdivision is the division of the lot, tract, or parcel of land into two (2) or more lots, plats, sites or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. Major subdivision plans (4+) require meeting with the Technical Review Committee before Planning Board review.

3. **Lot Line Adjustments** - A lot line adjustment alters the size of two (2) or more lots, but does not create a new buildable lot.

4. **Conditional Use Permits** - A conditional use permit is required for any alteration of wetlands, wetland buffers or work within the City's conservation district. Additionally, a conditional use permit could be issued as to offer relief in the Central Business District, for plans in the Residential Mixed Use Overlay District, or parking relief. Environmental Conditional Use Permits are acted on after Conservation Commission review.

5. **Excavation Permits** – NH RSA Chapter 155-E grants municipalities the authority to regulate earth excavations within their borders. This authority rests with the Planning Board.

The Board cannot and will not review applications that do not meet zoning requirements. **Please review the need to apply to the Zoning Board of Adjustment prior to applying to the Board.**

Professional agents will prepare your application; however, you may represent yourself or authorize, in writing, someone else to represent you before the Planning Board.

In most cases, the first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, and a PDF, need to be provided, along with payment of plan review fees. These meetings occur on Thursday, and materials and payment must be submitted three (3) weeks prior to meeting. Meetings are scheduled, upon receipt of completed applications with the full checklist and payment.

The next step would be to provide, two weeks prior to Planning Board, the final plan sets (three (3) full size and twelve (12) half size (11x 17), folded, copies of the plan), and 15 copies, and a PDF, of all supporting materials, including response to TRC comments. Please print all materials on both sides of paper.

For projects not appearing before the Technical Review Committee, Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and 15 copies, plus a PDF, of plans and materials, 3 weeks prior to the Planning Board meeting. Please print all materials on both sides of paper.

Staff will generate an abutter list, and Abutter/Notice Fees will be invoiced. They are due 28 hours prior to Planning Board. If they are not paid, the application will not be heard.

Once an item is placed upon an agenda the following process is used:

- The Board will hold a public hearing on your application at a regularly scheduled meeting
    - Typically the second or fourth Tuesday of the Month.
- Public notice of the hearing will be posted at the City Clerk's office and the Planning Department office and printed in the newspaper.
- Certified letters will be mailed to you and to all abutters at least ten days before the date of the hearing.
- 28 hours prior to the meeting, abutter/notice fees must be paid
- At the meeting
    - Staff will introduce your project
    - You and all other parties will be invited to appear in person or by agent or counsel to present your application.
        - Your project will be pre-loaded onto a laptop for review by the Board and public
    - The Board may ask clarifying questions
    - The Board will vote to accept jurisdiction on the application
    - If accepted:
        - The Board will hold a public hearing
        - The Board may ask additional questions
        - The Board will deliberate on your application
            - Typically decisions are made the night of the presentation, but an application may be tabled
        - After deliberation, a decision will be made.
            - You will be sent a notice of the decision.

City of Dover, New Hampshire
MINOR LOT LINE ADJUSTMENT APPLICATION

[Revision Date: June 4, 2019]

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

APPLICANT INFORMATION

Name of Applicant: Downtown Dover Storage, LLC Telephone #_____

Address of Applicant: 42 L Dover Point Road, Dover, NH 03820

FIRST PROPERTY OWNER AND PARCEL INFORMATION

Name of 1st Property Owner (*if different from applicant*): _____ Telephone #_____

Address of 1st Property Owner: _____

Address of Property: 14 Broadway, Dover, NH 03820

Assessor's Map # 4 Lot(s) # 5

Property Deed: Book 4719 Page: 976

Zoning District(s) CBD General Sub-District Overlay District(s) _____

Size of Existing Parcel (sq. ft.): 19,471 Size of Proposed Parcel (sq. ft.): 19,471

SECOND PROPERTY OWNER AND PARCEL INFORMATION

Name of 2nd Property Owner (*if different from applicant*): Clayton F. Randall Living Revocable Trust Telephone #_____

Address of 2nd Property Owner: 131 Clement Road, Rollinsford, NH 03869

Address of Property: 12 Broadway, Dover, NH 03820

Assessor's Map # 4 Lot(s) # 3

Property Deed: Book 2555 Page: 323

Zoning District(s) CBD General Sub-District Overlay District(s) _____

Size of Existing Parcel (sq. ft.): 20,621 Size of Proposed Parcel (sq. ft.): 20,621

THIRD PROPERTY OWNER AND PARCEL INFORMATION

Name of 3rd Property Owner (*if different from applicant*): _____ Telephone #_____

Address of 3rd Property Owner: _____

Address of Property: _____

Assessor's Map # _____ Lot(s) # _____

Property Deed: Book _____ Page: _____

Zoning District(s) _____ Overlay District(s) _____

Size of Existing Parcel (sq. ft.): _____ Size of Proposed Parcel (sq. ft.): _____

[Use additional application form if more than two lots are being adjusted]

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Hancock Associates

Address 185 Centre Street, Danvers, MA 01923 Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER (s)

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

Name of 2nd Easement Holder: _____ Telephone #_____

Address 2nd 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. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of First Property Owner: _____ Date: 10-28-2021

Signature of Second Property Owner: _____ Date: 10-28-2021

Signature of Applicant (*if different from owner*): _____ Date: 10-28-2021

Signature of Agent: Chris Berard Date: 10-28-2021

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I 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: 10-28-2021

CITY OF DOVER MINOR LOT LINE ADJUSTMENT
LIST OF ABUTTERS

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
4	5	Downtown Dover Storage, LLC	42 L Dover Point Road, Dover, NH

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Chris Raymond	TEC, Inc.	169 Ocean Blvd., Hampton, NH 03824

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
LOT LINE ADJUSTMENT SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This review checklist is intended to assist the applicant in the planning process of preparing a Subdivision 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.

Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, 3 weeks prior to the Planning Board meeting. Abutter/Notice Fees will be invoiced and are due 28 hours prior to Planning Board.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: Downtown Dover Storage, LLC File Number: _____

PROPERTY LOCATION: 14 Broadway, Dover, NH 03820 Tax Map: 4 Lot: 5 and Lot: 3

	Where/How Provided	Reviewed
1. Completed and signed Application form	Submission	
2. Plan Review Fees are provided	Submission	
3. Electronic copy of the surveyed plat layout	Submission	
4. Electronic copy of supplementary materials and application	Submission	
5. Fifteen copies of LLA plan w/scale of not less than 1"=50' or 1"=100' for larger adjustments. Plans shall contain the following items as appropriate:	Submission	
Location map at appropriate scale	Title Sheet	
Planning File #	Plans	
Date, north arrow and scale	Plans	
Names of all abutting property owners	Existing Conditions Plan	
Name and address of owners	Existing Conditions Plan	
Signature & stamp of NH licensed land surveyor	Existing Conditions Plan	
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 streets, including pavement widths, grades, curbs and crosswalks	Layout & Materials Plan	
Location and widths of existing & proposed easements & right of ways	Layout & Materials Plan	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Lot Line Adjustment Plan	
Existing and proposed lot areas in square feet	Lot Line Adjustment Plan	
Existing and proposed buildings and structure locations	Layout & Materials Plan	
Minimum building setbacks or build to lines on all lots	Layout & Materials Plan	
Map and lot numbers for existing and proposed lots as assigned by Tax Assessor	Plans	
Location, material and size of existing and proposed permanent monuments	N/A	
All applicable Dover Common Subdivision notes	Legend & General Notes	

REVIEWED BY: _____ DATE_____

CITY OF DOVER PLANNING DEPARTMENT
Created June 4, 2019

APPLICANT: _____ FILE NUMBER: _____

List of Common Lot Line Adjustment Plan Notes

The following list of commonly required notes is intended to be used as a guide to applicants and should not be construed as a comprehensive note requirement list for all projects. A preapplication conference with the Planning Department is suggested to help determine the actual notes that may be required.

1. The intent of this plan is to *(describe the purpose of the plan).*

2. Owners of Record are: Name
   Street address
   Municipality, State, Zip Code
   _____
   Authorized Signature

3. The parcels are shown as Lot Nos. _____, and _____ on Map ____ of the City of Dover Tax Assessor's Maps.

4. The subject parcels contains ____ acres or _____ sq. ft. area of land. *(existing and proposed)*

5. Title reference for the project parcels are the Strafford County Registry of Deeds, Book No. ___, Page No. ___ and Book No. ___, Page No. ___

6. Reference Plans: (*List all reference plans and their SCRD #)*

7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note.

8. Zoning dimensional and density requirements are as follows:

   Required: Provided:

   a. Zoning district _____ sub-district _____
   b. Minimum lot size: _____ acres (sq. ft.)
   c. Minimum lot frontage: _____ ft.
   d. Minimum yard setbacks/build-to-lines:
      Front _____ft.
      Side _____ft.
      Rear _____ft.
      Abut-a-street _____ ft.
   e. Maximum/minimum lot coverage _____ %
   f. Minimum/maximum bldg. height _____ ft./stories

   These properties falls within the following zoning overlay districts: *(List districts)*

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the subject parcels, including the case number and date of decision and any conditions.

10. Property line information has been obtained from a survey performed by *(surveyor)* on (*date*) with an error not greater than 1 in 10,000 (*or has been obtained from _____ Plan, prepared by (surveyor)*).

11. Subject parcels are (*are not*) located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015).

12. The subject parcels are served by municipal water and sewer (*or are served by on-site well and septic system*).

13. Basis of bearing is the City of Dover GIS system stations _____ and _____ which were used to determine location, orientation and vertical datum.

REMARKS:

_____

_____

_____

_____

_____

_____

_____

_____

Site Plans

Proposed Residential Development

14 Broadway, Dover, NH 03820

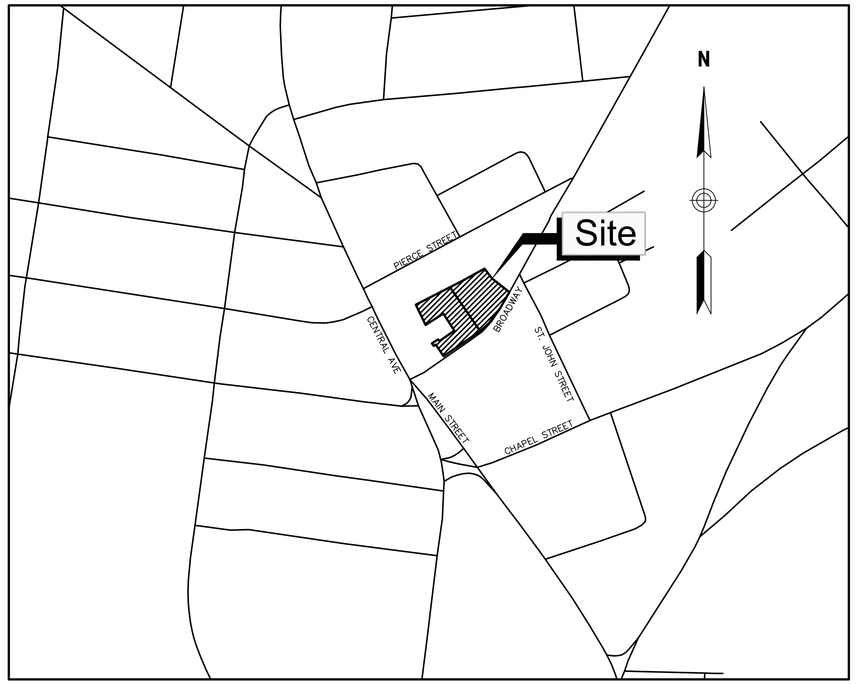
Assessor's Map 4, Lot 5

Site Plans Index

No.	Drawing Title	Latest Issue
C-1	Title & Index Sheet	October 28, 2021
C-2	Legend & General Notes	October 28, 2021
C-3	Neighborhood Plan	October 28, 2021
C-4	Existing Condition Plan (Hancock Associates)	February 19, 2021
C-5	Lot Line Adjustment Plan (Hancock Associates)	September 25, 2021
C-6	Demolition Plan	October 28, 2021
C-7	Layout & Materials Plan	October 28, 2021
C-8	Grading & Drainage Plan	October 28, 2021
C-9	Utility Plan	October 28, 2021
C-10	Erosion & Sediment Control Plan	October 28, 2021
C-11	Construction Details	October 28, 2021
C-12	Construction Details	October 28, 2021
C-13	Construction Details	October 28, 2021
C-14	Construction Details	October 28, 2021

Reference Plans Index

No.	Drawing Title	Latest Issue
1	Architectural Plan & Elevations (Lassel Architects)	October 27, 2021
2	Lighting Plan (SK & Associates)	August 26, 2021
3	Landscape Plan (Terra Firma)	October 27, 2021



LOCATION MAP

250 0 250 500

SCALE IN FEET

PLANNING BOARD FILE #: P21-29

TEC
The Engineering Corp
TEC, Inc.
146 Dascomb Road
Andover, MA 01810
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	As Noted

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1. TRC Revisions 10/28/2021

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Title & Index Sheet

STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02

TEC CAD FILE N0946.02_COV

DRAWING NO. C-1

SHEET 1 OF 14

GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6-FOOT TEMPORARY CHAINLINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
3. 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.
4. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY THROUGH FRIDAY BETWEEN 7 AM AND 6 PM, SATURDAY AND SUNDAY BETWEEN 9 AM AND 4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
5. HANDICAP ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT/ARCHITECTURAL ACCESS BOARD (AAB), AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
6. WORK WITHIN THE LOCAL RIGHT-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHT-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALK, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
8. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
9. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
10. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
11. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
12. THERE SHALL BE NO STORAGE OF HAZARDOUS MATERIALS OR HAZARDOUS WASTE WITHIN THE SUBJECT LOT.
13. 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 SPECIFICATIONS FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATIONS SHALL APPLY.
14. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
15. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
16. AS-BUILT PLANS OF THE SUBDIVISION SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT AUTOCAD DWG, AUTOCAD DXF OR ESRI FORMAT TO THE CITY OF COVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT IF A STREET IS PROPOSED FOR CITY ACCEPTANCE. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
17. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
18. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
19. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. HTTP://WWW.UNH.EDU/UNHSC/PTAPP
20. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASES TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
21. TOPOGRAPHIC SURVEY PERFORMED BY HANCOCK ASSOCIATES ON (DATE)
22. ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM. (OR ELEVATIONS DEPICTED ARE BASED ON INFORMATION OBTAINED FROM THE CITY ENGINEER'S OFFICE AND WAS DERIVED FROM COORDINATES FOR CONTROL STATIONS () AND (). THESE COORDINATES HAVE NOT BEEN ADJUSTED TO 1983 DATUM).
23. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
24. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
25. THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED BY CHAPTER 81-30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NH BUILDING AND FIRE CODES.
26. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.

GRADING, DRAINAGE AND UTILITY NOTES

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATION, SIZES, AND ELEVATION OF EXISTING UTILITIES.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT. FAILURE TO PROVIDE OR PERFORM THE ABOVE PRIOR TO PERFORMING ANY WORK SHALL NOT BE GROUNDS FOR EXTRA PAYMENTS TO THE CONTRACTOR.
3. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS, AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES, AND JOINTS.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED.
5. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED.
6. INSTALL ALL UTILITIES (INCLUDING CONCRETE PADS) PER UTILITY COMPANY AND DPW STANDARDS.
7. EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.
8. UNLESS OTHERWISE INDICATED, ABANDONED EXISTING UTILITY LINES SHALL BE CAPPED AND ABANDONED IN PLACE UNLESS THEY CONFLICT WITH PROPOSED IMPROVEMENTS, WHERE THEY SHALL THEN BE REMOVED. CAP REMAINING PORTIONS WHERE PARTIALLY REMOVED.
9. ALL WATER INFRASTRUCTURE SHALL CONFORM TO MUNICIPAL STANDARDS.
10. INSULATE SANITARY PIPES WHERE INVERT DEPTH IS LESS THAN FIVE (5) FEET BELOW FINISHED GRADE.
11. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER, AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION (AT NO ADDITIONAL COST TO THE OWNER) BY THE CONTRACTOR.
12. ALL WATER AND SEWER UTILITY WORK SHALL CONFORM TO LOCAL UTILITY DIVISION SPECIFICATIONS, DETAILS, RULES AND REGULATIONS AND HAVE FIVE (5) FEET OF MINIMUM COVER. GAS, ELECTRIC, AND TELEPHONE LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY THE APPROPRIATE UTILITY COMPANIES.
13. FIRE ALARM CONNECTION LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY THE FIRE DEPARTMENT.
14. THE CONTRACTOR SHALL REMOVE ALL EROSION CONTROL BARRIERS AFTER REVEGETATION OF DISTURBED AREAS AND AFTER APPROVAL BY THE LOCAL APPROVING AUTHORITY.
15. EXCAVATION REQUIRED IN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
16. STOCKPILED TOPSOIL SHALL BE PLACED NEATLY IN AN AREA APPROVED BY THE OWNER/REPRESENTATIVE.
17. THE CONTRACTOR SHALL SCHEDULE THEIR WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING.
18. THE APPLICANT SHOULD OBTAIN AN EXCAVATION PERMIT FROM THE CITY OF DOVER PRIOR TO THE START OF WORK ON THE SITE.
19. THE APPLICANT SHOULD OBTAIN ANY ADDITIONAL LOCAL UTILITY PERMITTING IF REQUIRED.
20. 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.
21. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
22. FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
23. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
24. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
25. FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CATCH BASIN
		GUTTER INLET
		DRAIN MANHOLE
		SEWER MANHOLE
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER GATE
		FIRE HYDRANT
		GAS GATE
		STREET SIGN
		LIGHT POLE
		WALL MOUNTED LIGHT
		UTILITY POLE
		GUY POLE
		GUY WIRE
		MONITORING WELL
TP		TEST PIT (W/ I.D.)
	EOP	EDGE OF PAVEMENT
VGC	VGC	GRANITE CURB
SGC	GE	GRANITE EDGING
	BB	BITUMINOUS BERM
		GUARD RAIL
		CHAINLINK FENCE
		DRAINAGE LINE
	S	SEWER LINE
		WATER LINE
G	G	GAS LINE
		UNDERGROUND ELECTRIC LINE
		UNDERGROUND TELEPHONE LINE
		ELEC., TELE., CATV, CONDUIT
OHW	OHW	OVERHEAD WIRE
		STONE WALL
		CHAIN LINK FENCE
		STOCKADE FENCE
		TREE LINE
		SHORELINE
		CONCRETE
		ENTRANCE/EXIT DOOR
PC 10 N00° 00' 00"E +57.59	PC 10 N00° 00' 00"E +57.59	BASELINE
N00° 00' 00"E	N00° 00' 00"E	TOWN LAYOUT
N00° 00' 00"E	N00° 00' 00"E	PROPERTY LINE
GB OR CB	BND	HIGHWAY/PROPERTY BOUND (TYPE NOTED)
		IRON PIPE/REBAR
		TREE (SIZE AND TYPE NOTED)

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED	
CW	CW	CROSSWALK, 12" WHITE LINE (WIDTH NOTED)
SL	SL	STOP LINE, 12" WHITE LINE 4' BEHIND CW (TYP.)
SL	SWL, SWLL	SOLID WHITE LINE/SOLID WHITE LANE LINE-4"
	BWLL	BROKEN WHITE LANE LINE-4"
	DWLL	DOTTED WHITE LANE LINE-4"
SYL	SYL	SOLID YELLOW LINE-4"
DYL	DYCL	DOUBLE YELLOW CENTER LINE- 2-4" LINES
		ADA-ACCESSIBLE PARKING SPACE

ABBREVIATIONS

GENERAL

AC	ACRES
ADJ	ADJUST
APPROX	APPROXIMATE
BLDG	BUILDING
BO	BY OTHERS
BIT	BITUMINOUS CONCRETE
BTM	BOTTOM
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
DIA	DIAMETER
ELEV	ELEVATION
EN	ENTRANCE/EXIT
ESHWT	ESTIMATED SEASONAL HIGH WATER TABLE
EOP	EDGE OF PAVEMENT
EXIST	EXISTING
EX	EXIT
FDC	FIRE DEPARTMENT CONNECTION
GE	GRANITE EDGING
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
LA	LANDSCAPE AREA
LD	LOADING DOCK
LF	LINEAR FEET
MAX	MAXIMUM
MCC	MONOLITHIC CONCRETE CURB
MIN	MINIMUM
MTD	MOUNTED
NTS	NOT TO SCALE
PROP	PROPOSED
PVMT	PAVEMENT
R	RADIUS
REM	REMOVE
RET	RETAIN
SGE	SLOPED GRANITE EDGING
SW	SIDEWALK
TYP	TYPICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

UTILITIES

CB	CATCH BASIN
CIT	CHANGE IN TYPE
CLDI	CEMENT LINED DUCTILE IRON PIPE
COND	CONDUIT
DMH	DRAINAGE MANHOLE
DOM	DOMESTIC WATER SERVICE
ETC	ELECTRIC, TELEPHONE, & CABLE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GV	GAS VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
INV	INVERT ELEVATION
OCS	OUTLET CONTROL STRUCTURE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III)
RD	ROOF DRAIN
SMH	SEWER MANHOLE
TEL	TELEPHONE
TSV	TAPPING SLEEVE AND VALVE
UP	UTILITY POLE
WV	WATER VALVE

PLANNING BOARD FILE #: P21-29

TEC The Engineering Corp
TEC, Inc.
146 Dascomb Road, Andover, MA 01810, (978) 794-1792
169 Ocean Boulevard, Unit 101, PO Box 249, Hampton, NH 03842, (603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	Not to Scale

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1.	TRC Revisions	10/28/2021

ISSUED FOR
Permitting

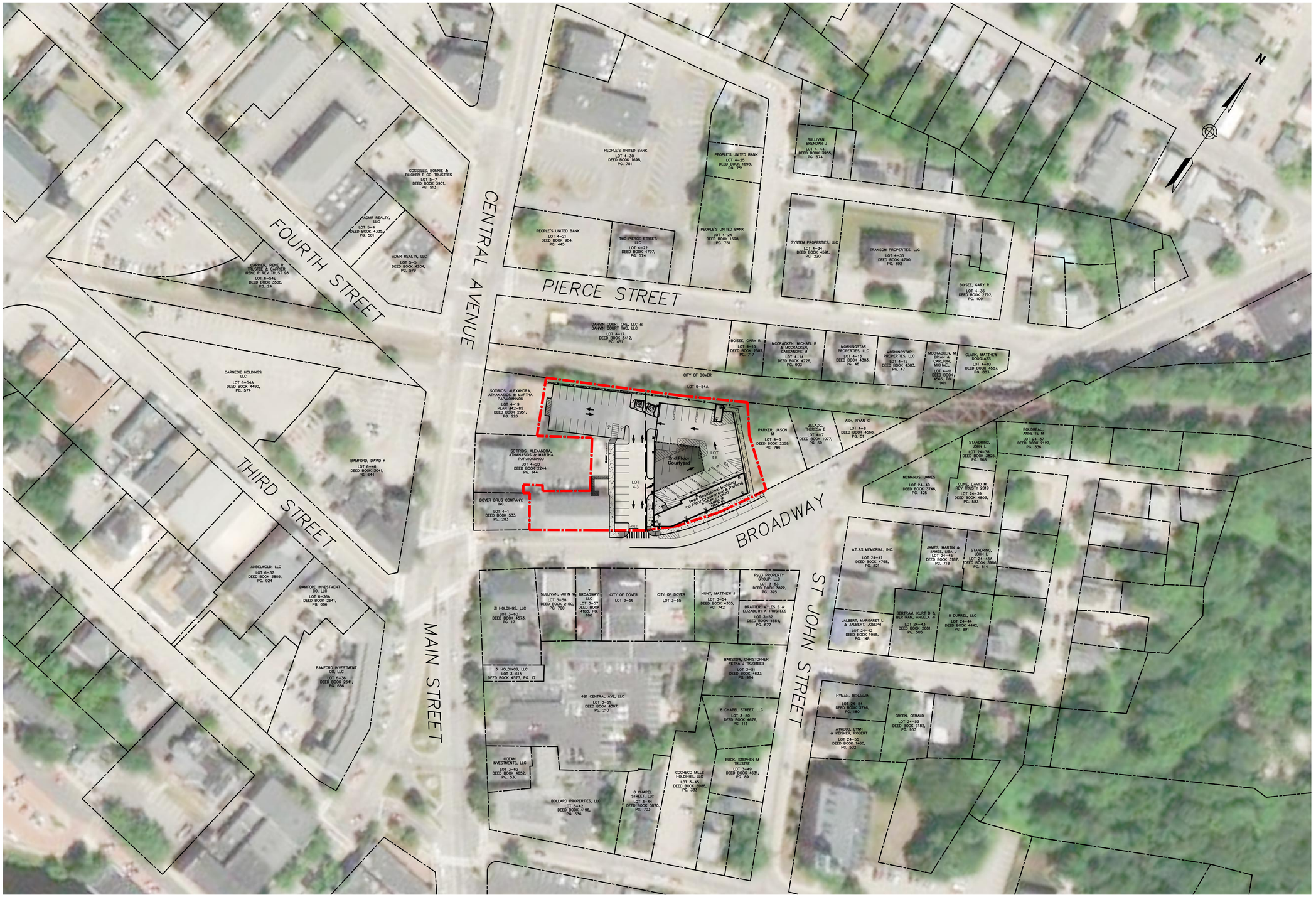
PROJECT TITLE
Proposed Residential Development

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Legend & General Notes

STATE OF NEW HAMPSHIRE — CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_LEG
DRAWING NO. C-2
SHEET 2 OF 14



60 0 60 120
SCALE IN FEET

PLANNING BOARD FILE #: P21-29

TEC, Inc.

146 Dascomb Road
Andover, MA 01810
(978) 794-1792

169 Ocean Boulevard
Unit 101, PO Box 249
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www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	1"=40'

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1.	TRC Revisions	10/28/2021

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Neighborhood Plan

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.
N0946.02

TEC CAD FILE
N0946.02_NBH

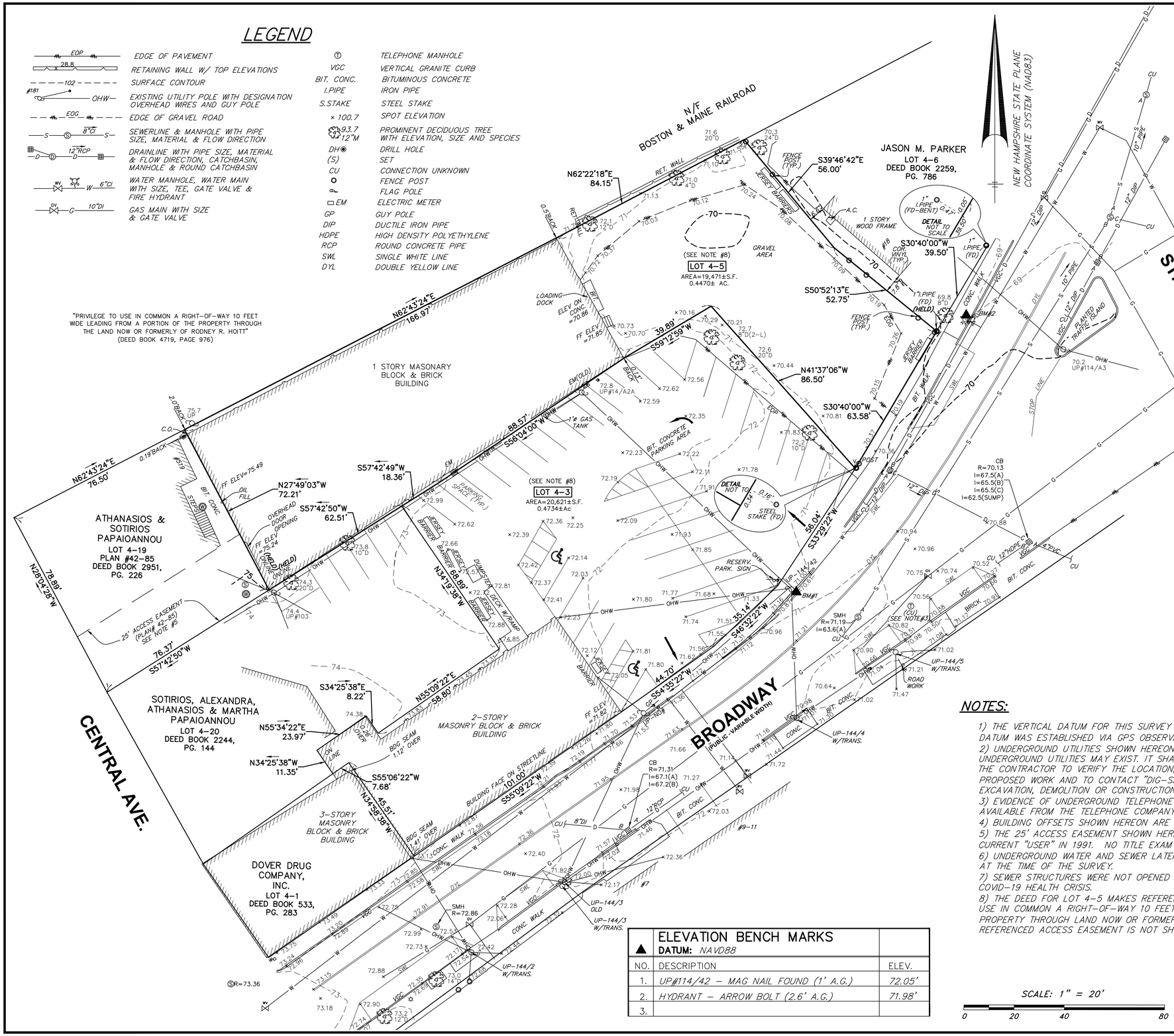
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C-3

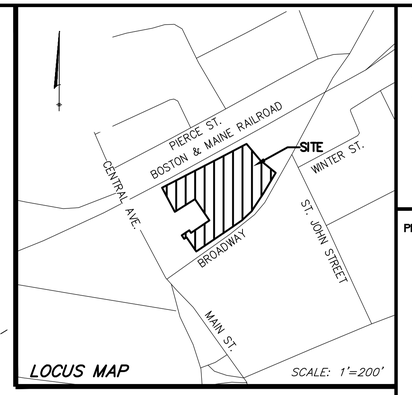
SHEET 3 OF 14

LEGEND

EOP	EDGE OF PAVEMENT
28.8	RETAINING WALL W/ TOP ELEVATIONS
102	SURFACE CONTOUR
#181 OHW	EXISTING UTILITY POLE WITH DESIGNATION OVERHEAD WIRES AND GUY POLE
EOG	EDGE OF GRAVEL ROAD
S 8"CI S	SEWERLINE & MANHOLE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION
D 12"RCP D	DRAINLINE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION, CATCHBASIN, MANHOLE & ROUND CATCHBASIN
WV W 6"CI	WATER MANHOLE, WATER MAIN WITH SIZE, TEE, GATE VALVE & FIRE HYDRANT
GV G 10"DI	GAS MAIN WITH SIZE & GATE VALVE

T	TELEPHONE MANHOLE
VGC	VERTICAL GRANITE CURB
BIT. CONC.	BITUMINOUS CONCRETE
I.PIPE	IRON PIPE
S.STAKE	STEEL STAKE
× 100.7	SPOT ELEVATION
93.7 12"M	PROMINENT DECIDUOUS TREE WITH ELEVATION, SIZE AND SPECIES
DH	DRILL HOLE
(S)	SET
CU	CONNECTION UNKNOWN
	FENCE POST
	FLAG POLE
EM	ELECTRIC METER
GP	GUY POLE
DIP	DUCTILE IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE
RCP	ROUND CONCRETE PIPE
SWL	SINGLE WHITE LINE
DYL	DOUBLE YELLOW LINE





ELEVATION BENCH MARKS DATUM: NAVD88		
NO.	DESCRIPTION	ELEV.
1.	UP#114/42 – MAG NAIL FOUND (1' A.G.)	72.05'
2.	HYDRANT – ARROW BOLT (2.6' A.G.)	71.98'
3.		

SCALE: 1" = 20'

0 20 40 80

ASSESSORS:

MAP 4, LOT 3 (RANDALL)
MAP 4, LOT 5 (DOWNTOWN DOVER)

ZONING:

MIXED USE – CBD (CENTRAL BUSINESS DISTRICT)

REFERENCES:

DEED BOOK 4719 PAGE 976 (LOT 4–5)
DEED BOOK 2555 PAGE 323 (LOT 4–3)
PLAN #42–85
PLAN IN POCKET #3, FOLDER #2, PLAN #55

RECORD OWNER:

CLAYTON F. RANDALL LIVING REVOCABLE TRUST OF 2002
131 CLEMENT ROAD
ROLLINSFORD, NH 03869

DOWNTOWN DOVER STORAGE, LLC
42 L DOVER POINT ROAD
DOVER, NH 03820

NOTES:

1) THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM (NAVD88). SAID DATUM WAS ESTABLISHED VIA GPS OBSERVATIONS UTILIZING REALIZATION NAD83(2011) AND GEOID 12A.
2) UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD LOCATIONS OF STRUCTURES. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG–SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
3) EVIDENCE OF UNDERGROUND TELEPHONE EXISTS WITHIN BROADWAY. NO INFORMATION WAS AVAILABLE FROM THE TELEPHONE COMPANY AT THE TIME OF THE SURVEY.
4) BUILDING OFFSETS SHOWN HEREON ARE TO CORNER CONCRETE BLOCK UNLESS OTHERWISE NOTED.
5) THE 25' ACCESS EASEMENT SHOWN HEREON MAY OR MAY NOT EXIST, AS IT WAS FOR THE CURRENT "USER" IN 1991. NO TITLE EXAM HAS BEEN CONDUCTED TO IDENTIFY CURRENT STATUS.
6) UNDERGROUND WATER AND SEWER LATERAL CONNECTIONS TO THE BUILDINGS WERE NOT AVAILABLE AT THE TIME OF THE SURVEY.
7) SEWER STRUCTURES WERE NOT OPENED AT THE TIME OF THE SURVEY DUE TO THE ONGOING COVID–19 HEALTH CRISIS.
8) THE DEED FOR LOT 4–5 MAKES REFERENCE TO A CONVEYANCE WHICH INCLUDES A PRIVILEGE TO USE IN COMMON A RIGHT–OF–WAY 10 FEET WIDE LEADING FROM A PORTION OF THE DESCRIBED PROPERTY THROUGH LAND NOW OR FORMERLY OF RODNEY R. HOITT (LOT 4–3) TO BROADWAY. THE REFERENCED ACCESS EASEMENT IS NOT SHOWN ON THE SURVEY.

14 BROADWAY

Dover, New Hampshire 03820

PREPARED FOR:

NEW SPACE REAL ESTATE, LLC

42 Dover Road, Unit L
Dover, New Hampshire 03820

HANCOCK ASSOCIATES

Civil Engineers

Land Surveyors

Landscape Architects

Wetland Scientists

185 CENTRE STREET, DANVERS, MA 01923
VOICE (978) 777–3050, FAX (978) 774–7816
WWW.HANCOCKASSOCIATES.COM

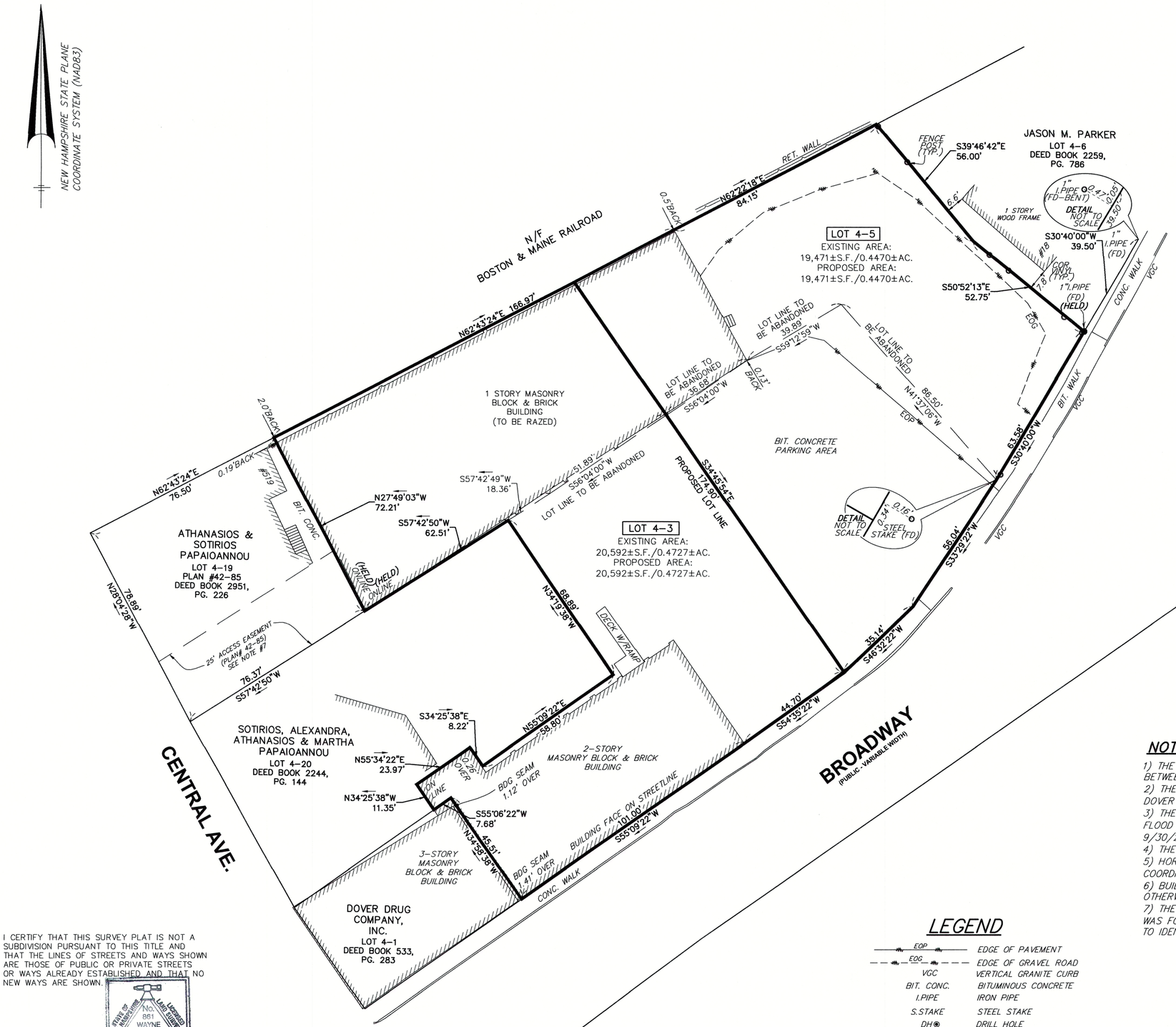
NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
1.	JML	JAE	2/19/21	UPDATED TOPO/BOUNDARY

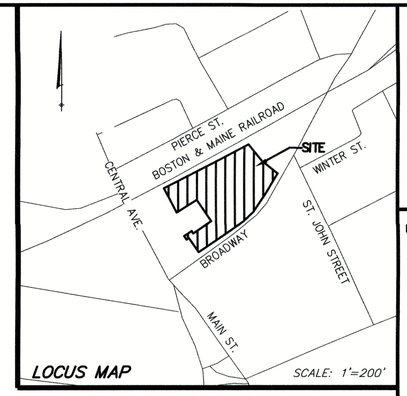
DATE: 4/18/20	DRAWN BY: JAE/JAH
SCALE: 1"=20'	CHECK BY: WCJ

EXISTING CONDITIONS PLAN OF LAND IN DOVER, NH

PLOT DATE: Feb 19, 2021 3:53 pm
PATH: O:\Civil 3D Projects\24569 – Cyr – Dover, NH\Surv\DWG\

DWG: 24569ec.dwg	
LAYOUT: EC	
SHEET: 1 OF 1	
PROJECT NO.:	24569





14 BROADWAY

Dover, New Hampshire 03820

PREPARED FOR:

NEW SPACE REAL ESTATE, LLC

42 Dover Road, Unit L
Dover, New Hampshire 03820

ASSESSORS:

MAP 4, LOT 3 (RANDALL)
MAP 4, LOT 5 (DOWNTOWN DOVER)

REFERENCES:

DEED BOOK 4719 PAGE 976 (LOT 4-5)
DEED BOOK 2555 PAGE 323 (LOT 4-3)
PLAN #42-85
PLAN IN POCKET #3, FOLDER #2, PLAN #55

RECORD OWNER:

CLAYTON F. RANDALL LIVING REVOCABLE TRUST OF 2002
131 CLEMENT ROAD
ROLLINSFORD, NH 03869

DOWNTOWN DOVER STORAGE, LLC
42 L DOVER POINT ROAD
DOVER, NH 03820

ZONING: CBD-G (GENERAL SUB-DISTRICT)

LOT 4-5	EXISTING	PROPOSED
LOT SIZE	19,471±S.F.	19,471±S.F.
LOT FRONTAGE	63.58'	154.76'
LOT 4-3	EXISTING	PROPOSED
LOT SIZE	20,592±S.F.	20,592±S.F.
LOT FRONTAGE	236.88'	145.70'

NOTES:

1) THE PURPOSE OF THIS PLAN IS TO PERFORM A LOT LINE ADJUSTMENT BETWEEN LOTS 4-3 AND 4-5.
2) THE PARCELS ARE SHOWN AS LOTS 3 & 5 ON MAP #4 OF THE CITY OF DOVER TAX ASSESSOR'S MAP.
3) THE SUBJECT PARCELS ARE NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA (COMMUNITY PANEL NUMBER 33017C0330E, EFFECTIVE DATE: 9/30/2015).
4) THE SUBJECT PARCELS ARE SERVED BY MUNICIPAL WATER AND SEWER.
5) HORIZONTAL DATUM IS BASED ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM (DOVER GIS).
6) BUILDING OFFSETS SHOWN HEREON ARE TO CORNER CONCRETE BLOCK UNLESS OTHERWISE NOTED.
7) THE 25' ACCESS EASEMENT SHOWN HEREON MAY OR MAY NOT EXIST, AS IT WAS FOR THE CURRENT "USER" IN 1991. NO TITLE EXAM HAS BEEN CONDUCTED TO IDENTIFY CURRENT STATUS.

LEGEND

EOP	EDGE OF PAVEMENT
EOG	EDGE OF GRAVEL ROAD
VGC	VERTICAL GRANITE CURB
BIT. CONC.	BITUMINOUS CONCRETE
I.PIPE	IRON PIPE
S.STAKE	STEEL STAKE
DH ⊙	DRILL HOLE
(S)	SET
(FD)	FOUND
o	FENCE POST

SCALE: 1" = 20'
0 20 40 80

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.

STATE OF NEW HAMPSHIRE — LICENSED LAND SURVEYOR — No. 861 — WAYNE C. JALBERT — SIGNATURE

9/30/21
DATE

LICENSED LAND SURVEYOR

HANCOCK ASSOCIATES

Civil Engineers
Land Surveyors
Landscape Architects
Wetland Scientists

185 CENTRE STREET, DANVERS, MA 01923
VOICE (978) 777-3050, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM

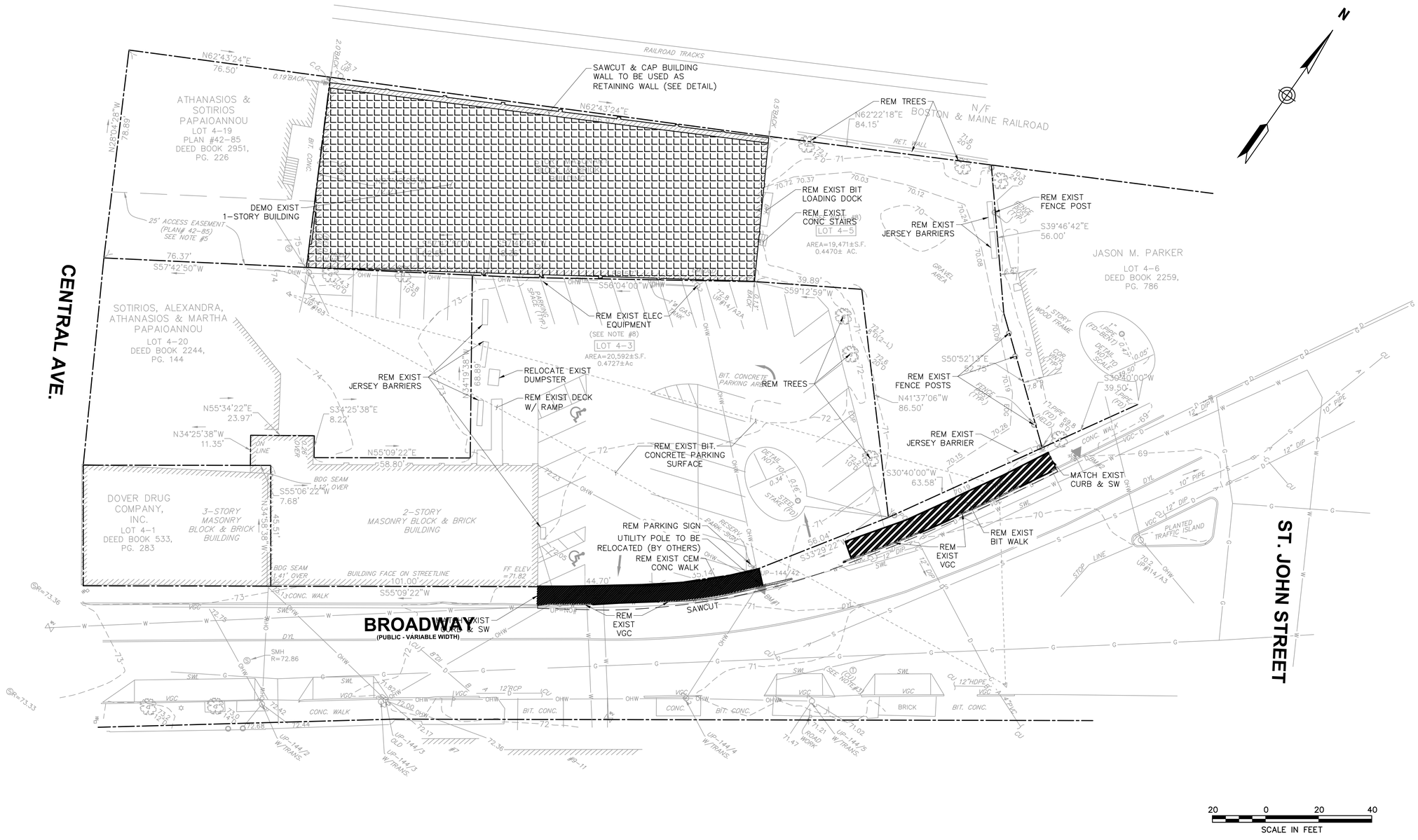
NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
1.				

DATE: 9/25/21 DRAWN BY: JAE/JAH
SCALE: 1"=20' CHECK BY: WCJ

LOT LINE ADJUSTMENT PLAN OF LAND IN DOVER, NH (STRAFFORD COUNTY)

PLOT DATE: Sep 29, 2021 10:56 am
PATH: Q:\Civil 3D Projects\24569 - Cyr - Dover, NH\Surv\DWG\

DWG: 24569a1.dwg
LAYOUT: LLA
SHEET: 1 OF 1
PROJECT NO.: 24569



NOTES:

1. ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EACH UTILITY PRIOR TO REMOVING OR RELOCATING. CONTRACTOR SHALL NOTIFY DIG–SAFE (1–888–344–7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
2. THE CONTRACTOR SHALL DISCONNECT ALL UTILITIES FROM THE BUILDING PRIOR TO DEMOLITION.
3. THE CONTRACTOR IS TO REMOVE AND TO DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMITS OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS, AND UNSUITABLE MATERIAL WITHIN THE PROPOSED BUILDING FOOTPRINT, TEN FEET BEYOND AND BENEATH PROPOSED EXTERIOR COLUMNS, AND CONFLICTING WITH ANY PROPOSED SITE WORK, PER DRAWINGS AND SPECIFICATIONS.
4. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE, AND INDIVIDUAL UTILITY COMPANIES' STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
5. THE CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES, AND STATUTES.
6. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED AND APPROVED PRIOR TO DEMOLITION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6–FOOT TEMPORARY CHAIN LINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
8. ALL EXISTING DRAINAGE STRUCTURES SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL THE PROPOSED DRAINAGE SYSTEM IS OPERATIONAL, UNLESS OTHERWISE NOTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 72 HOURS PRIOR TO BEGINNING ANY DEMOLITION.
10. THE LOCATION OF THE EXISTING SEWER SERVICE IS APPROXIMATE. THE EXISTING SERVICE SHALL BE REMOVED IN CONFORMANCE WITH STATE AND LOCAL REGULATIONS.
11. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.

LEGEND:

- BUILDING TO BE DEMOLISHED
- VGC TO BE REMOVED
- BIT WALK TO BE REMOVED
- CEM CONC WALK TO BE REMOVED

PLANNING BOARD FILE #: P21-29

TEC, Inc.
146 Dascomb Road, Andover, MA 01810 | (978) 794-1792
169 Ocean Boulevard, Unit 101, PO Box 249, Hampton, NH 03842 | (603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	1"=20'

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1. TRC Revisions 10/28/2021

ISSUED FOR
Permitting

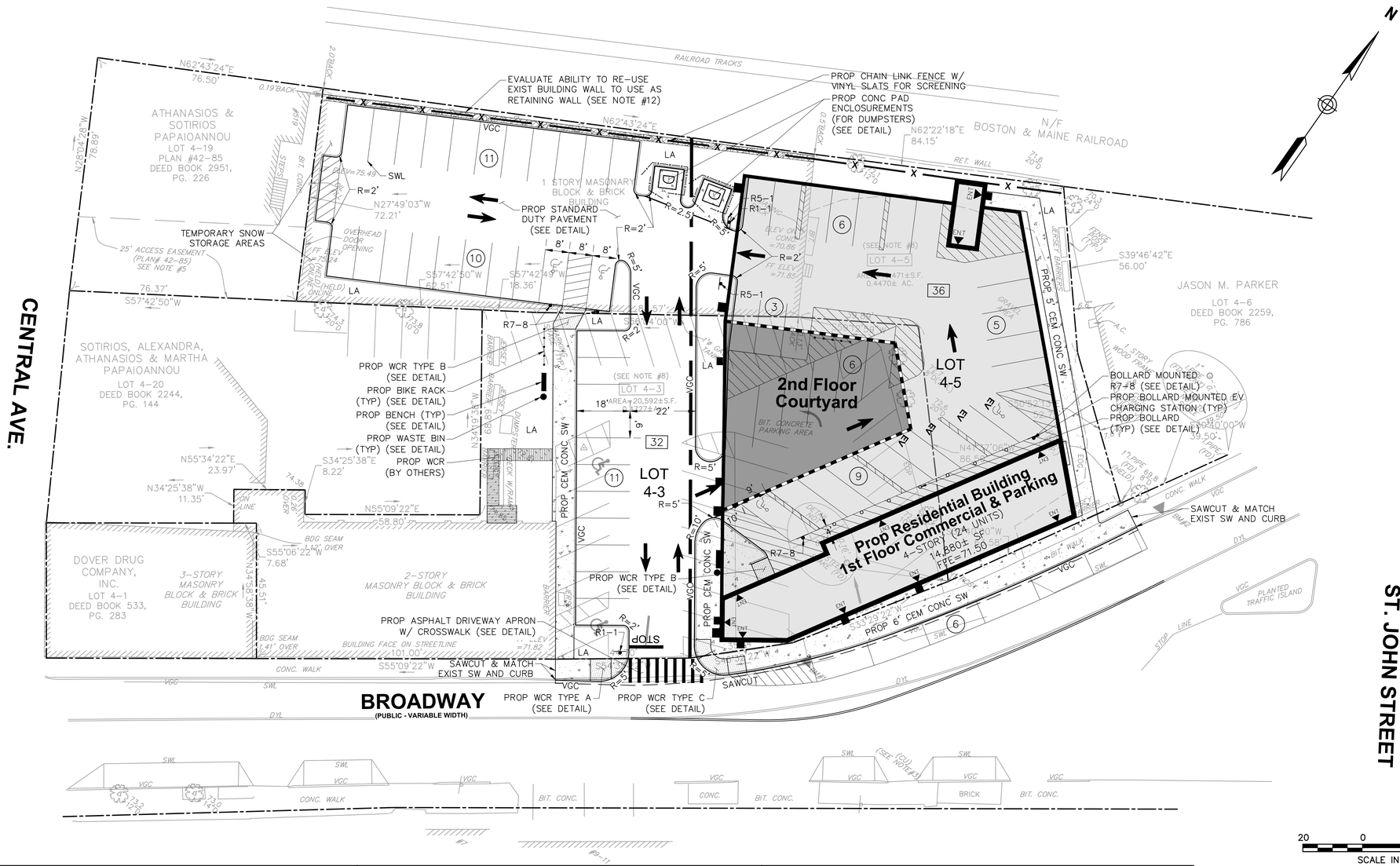
PROJECT TITLE
Proposed Residential Development

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Demolition Plan

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_DEMO
DRAWING NO. C-6
SHEET 6 OF 14



ZONING TABLE

ZONING DISTRICT	CBD GENERAL SUB-DISTRICT	
PROPOSED USES	1ST FLOOR: 3,176 SF COMMERCIAL & 11,684 SF PARKING 2ND FLOOR: 12,103 SF (8 UNITS) RESIDENTIAL & 2,757 SF COURTYARD 3RD FLOOR: 12,103 SF (8 UNITS) RESIDENTIAL 4TH FLOOR: 12,103 SF (8 UNITS) RESIDENTIAL	
PROPOSED USE ALLOWABLE BY	BY RIGHT	
DIMENSIONAL REQUIREMENTS	**REQUIRED**	**PROVIDED**
LOT SIZE	N/A	19,471 SF
MINIMUM LOT COVERAGE	75%	76.4%
MINIMUM FRONTAGE BUILD-OUT	70%	83%
FRONT PRIMARY BUILD TO LINE	6.7 FT*	1 FT
FRONT SECONDARY BUILD TO LINE	N/A	N/A
SIDE SETBACK	0 FT (MIN), 24 FT (MAX)	10 FT
REAR SETBACK	10 FT (MIN)	10 FT
BUILDING HEIGHT	5-STORY (MAX), 2-STORY (MIN)	4-STORY

* AVERAGE OF ALL FRONT SETBACKS OF LOTS WITHIN THE SAME ZONE LOCATED ON THE SAME SIDE OF THE STREET, 250 FT IN EACH DIRECTION FROM THE CENTER OF THE FRONT LOT LINE

PARKING TABLE

REQUIRED PARKING	LOT 4-1: 7 RESIDENTIAL UNITS & 3,241 SF RETAIL=21 SPACES (MAX), 18 SPACES (MIN) LOT 4-3: 4,692 SF OFFICE=16 SPACES (MAX), 11 SPACES (MIN) LOT 4-5: 24 RESIDENTIAL UNITS & 3,437 SF COMMERCIAL=43 SPACES (MAX), 38 SPACES (MIN) TOTAL REQUIRED PARKING (MAX)=80 SPACES TOTAL REQUIRED PARKING (MIN)=67 SPACES	
PROPOSED PARKING	LOT 4-3: 32 SPACES LOT 4-5: 30 SPACES (1/UNIT & 6 GUEST SPACES) BROADWAY: 6 SPACES TOTAL PROPOSED PARKING=68 SPACES	
PARKING REQUIREMENTS	**REQUIRED**	**PROVIDED**
HANDICAP ACCESSIBLE SPACES	4	4
AISLE WIDTH	22 FT	22 FT
STALL WIDTH	9 FT	9 FT
LENGTH OF SPACE	18 FT	18 FT

TRAFFIC SIGN SUMMARY

ID NUMBER	SIZE OF SIGN (in) WIDTH	SIZE OF SIGN (in) HEIGHT	LEGEND	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ROUTE MARKER	NUMBER OF SIGNS REQUIRED	NUMBER OF POSTS REQUIRED
R1-1	30	30	STOP	SEE MUTCD SIGN STANDARDS			2	2
R7-8	12	24	RESERVED PARKING				4	4
R5-1	30	30	DO NOT ENTER				2	2

* HANDICAP PARKING SIGNS SHALL BE IN ACCORDANCE WITH CITY OF DOVER STANDARDS, AND ADA REGULATIONS

** VAN SIGNS SHALL BE LOCATED AT ALL ADA SPACES. PER ADA ACCESSIBILITY GUIDELINES (AMENDED 2010) ANY SPACE WITH A VAN SIGN IS NOT INTENDED TO BE RESTRICTED ONLY TO VANS

NOTES:

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT A 14,880± SF RESIDENTIAL BUILDING WITH FIRST FLOOR COMMERCIAL AND PARKING ON LOT 4-5, AND REDEVELOP THE EXISTING PARKING AREA ON LOT 4-3.
2. THE PARCELS ARE SHOWN AS LOT NO. 3 & 5, MAP 4 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
3. TITLE REFERENCE FOR THE PROJECT PARCEL IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 4719, PAGE NO. 976.
6. CONDITIONAL USE PERMIT BEING SOUGHT TO PROVIDE RELIEF TO THE MINIMUM 20% FIRST FLOOR COMMERCIAL USE SPACE.
7. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY HANCOCK ASSOCIATES ON 4/18/2020 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
8. BUILDING ADDRESSES (INCLUDING APT/UNIT NUMBERS IF APPLICABLE) SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
9. SNOW TO BE TEMPORARILY STORED AT WEST EDGE OF LOT BEFORE BEING REMOVED.
10. 25' ACCESS EASEMENT (PLAN #42-85) TO EXPIRE.
11. SEE TRIP GENERATION ASSESSMENT FOR MINIMUM REQUIRED PARKING CALCULATIONS.
12. FINAL LOCATION OF BENCHES, BIKE RACKS, AND WASTE BINS TO BE COORDINATED PRIOR TO OCCUPANCY.
13. IF EXISTING WALL CAN BE REUSED, IT SHOULD BE SAWCUT AND CAPPED, SEE DETAIL. IF DETERMINED TO BE UNUSABLE FOR REUSE, A NEW CONCRETE BLOCK RETAINING WALL SHALL BE INSTALLED, SEE DETAIL.
14. ALL BUILDING SIGNAGE TO BE COORDINATED WITH BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.

PLANNING BOARD FILE #: P21-29

TEC
The Engineering Corp
TEC, Inc.
146 Dascomb Road
Andover, MA 01810
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	1"=20'

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1.	TRC Revisions	10/28/2021

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

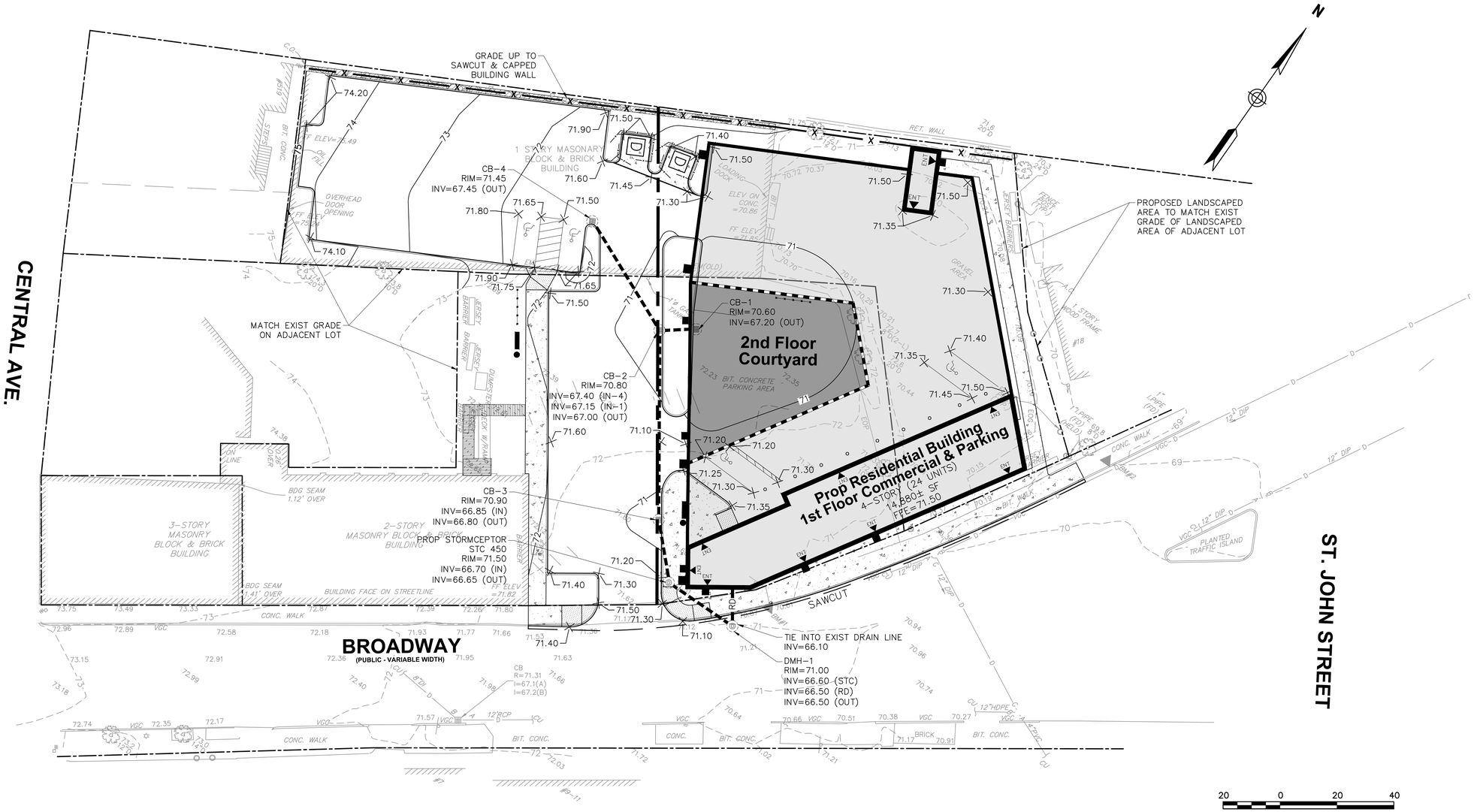
14 Broadway
Dover, NH 03820

DRAWING TITLE

Layout & Materials Plan

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_LM
DRAWING NO. C-7
SHEET 7 OF 14



LOT COVERAGE TABLE		
EXISTING USE	10,417 SF WAREHOUSE W/ PARKING AREA	
PROPOSED USE	14,900± SF RESIDENTIAL BUILDING W/ FIRST FLOOR COMMERCIAL USE SPACE AND PARKING	
LOT COVERAGE	EXISTING	PROPOSED
BUILDING	10,753 SF (30.7%)	14,860 SF (42.4%)
GRAVEL	6,761 SF (19.2%)	N/A (0.0%)
PAVEMENT	14,744 SF (42.2%)	11,691 SF (33.4%)
SIDEWALK	N/A (0.0%)	2,342 SF (6.7%)
SAWCUT BUILDING WALL	N/A (0.0%)	333 SF (0.9%)
TOTAL IMPERVIOUS AREA	**32,2581 SF (92.1%)**	**29,226 SF (83.4%)**
LANDSCAPING	2,774 SF (7.9%)	5,806 SF (16.6%)
TOTAL PERVIOUS AREA	**2,774 SF (7.9%)**	**5,806 SF (16.6%)**

NOTES:

1. SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA, COMMUNITY PANEL NUMBER 33017C0330E, EFFECTIVE DATE: SEPTEMBER 30, 2015.
2. ALL DRAINAGE PIPING TO BE 12" HDPE.
3. ALL CATCH BASINS TO INCLUDE SUMPS AND HOODS.

PLANNING BOARD FILE #: P21-29

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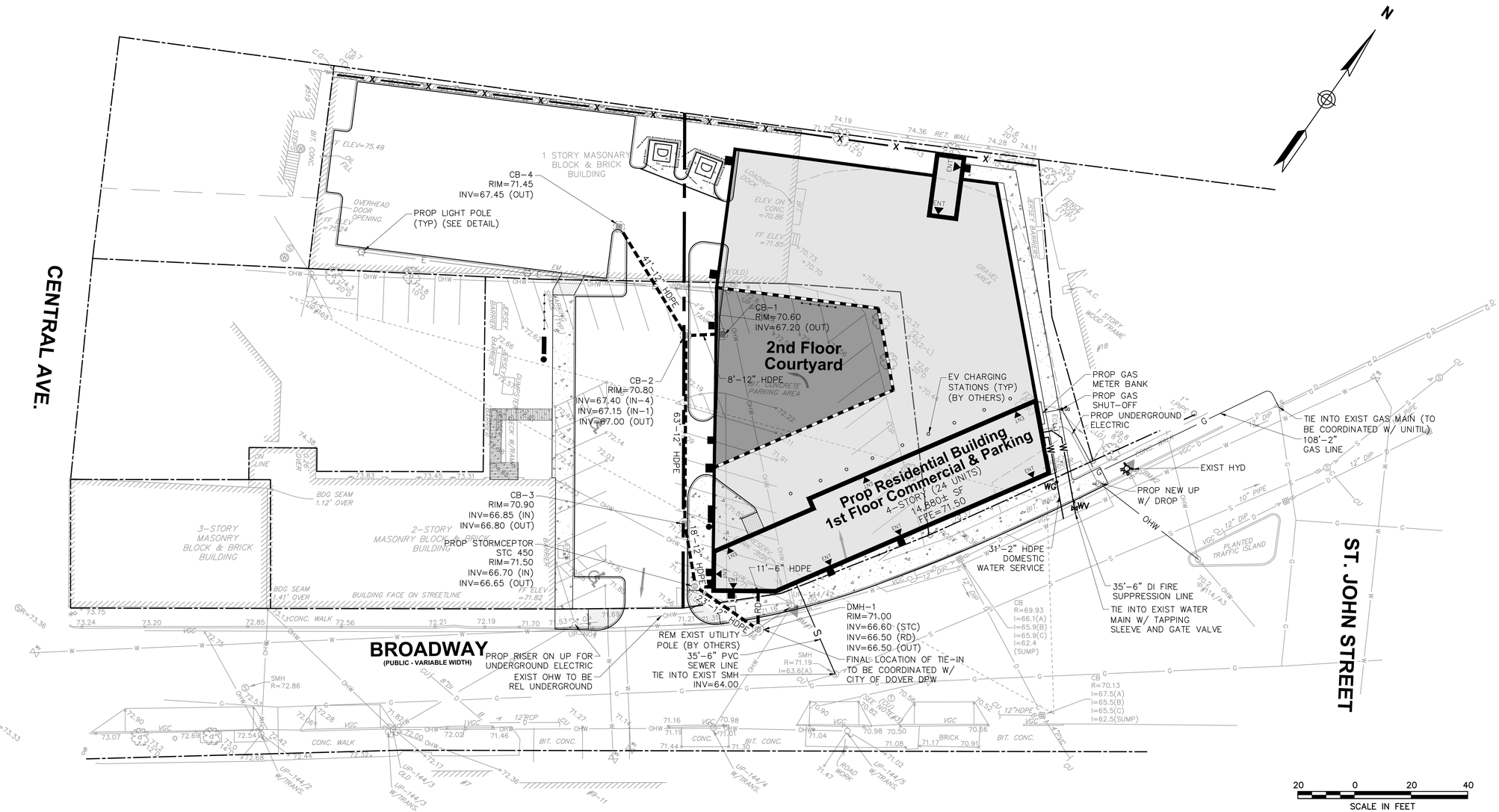
PROJECT TITLE
Proposed Residential Development

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Grading & Drainage Plan

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No. 16305 – LICENSED PROFESSIONAL ENGINEER

PROJECT NO.
N0946.02
TEC CAD FILE
N0946.02_GD
DRAWING NO.
C-8
SHEET 8 OF 14



UTILITY SERVICE PROVIDER	
WATER	CITY OF DOVER
SEWER	CITY OF DOVER
GAS	UNITIL
ELECTRIC	EVERSOURCE

NOTES:

1. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
2. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
3. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
4. LANDSCAPE ARCHITECT TO DETERMINE LAYOUT OF PROPOSED PLANTINGS.
5. REWORK SMH INVERT FOR NEW TIE-IN.
6. THE UTILITY POLE TO BE REMOVED AND RELOCATED WILL BE COORDINATED WITH UNITIL.
7. ALL PROPOSED UTILITY LOCATIONS ARE APPROXIMATE, FINAL TIE IN LOCATIONS TO BE COORDINATED WITH CITY OF DOVER MUNICIPAL SERVICES DEPARTMENT AND PRIVATE UTILITY COMPANIES.
8. UTILITIES TO EXISTING 2-STORY MASONRY STRUCTURE ON LOT 4-3 TO REMAIN IN PLACE.

PLANNING BOARD FILE #: P21-29

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PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Utility Plan

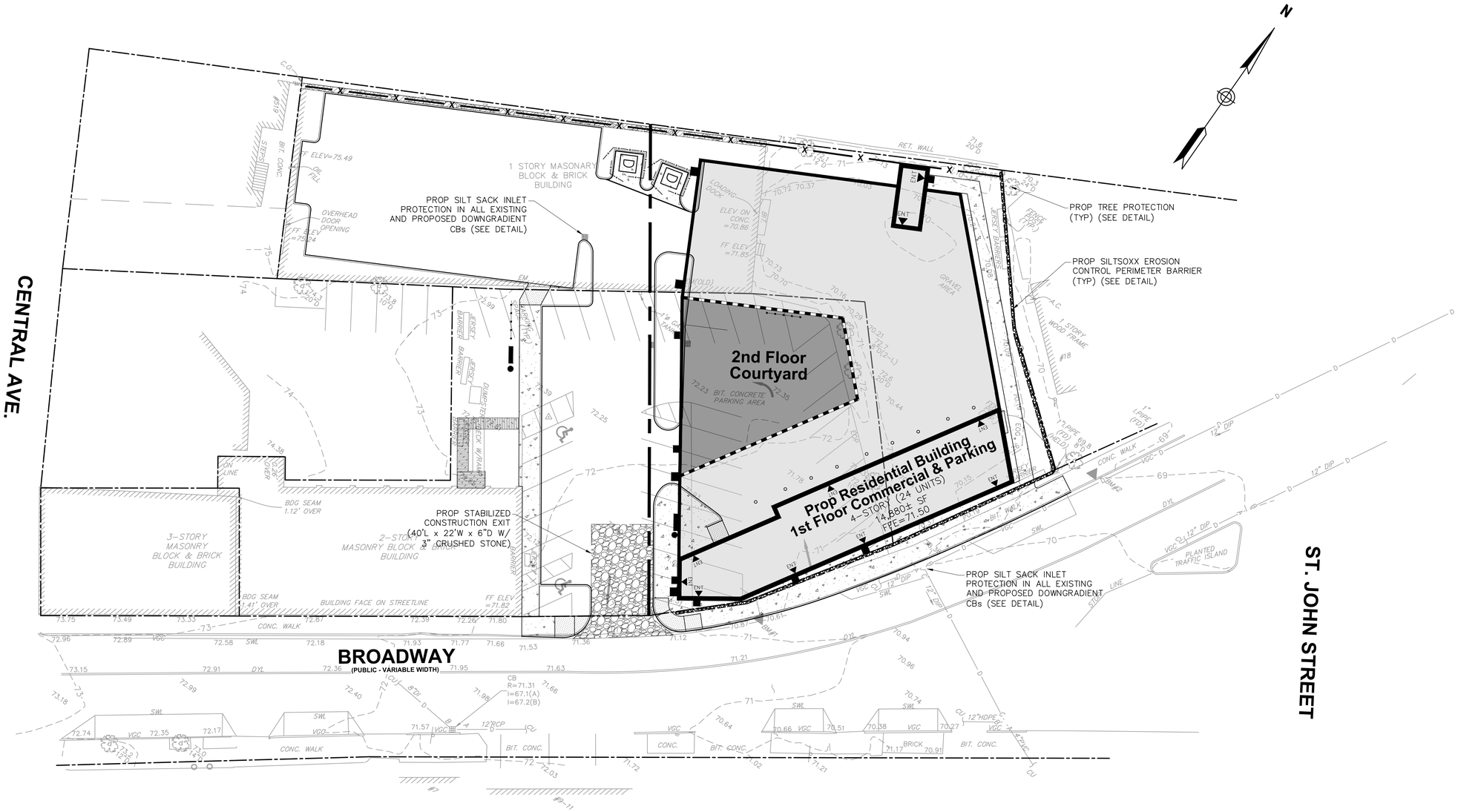
STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND
No. 16305
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.
N0946.02

TEC CAD FILE
N0946.02_UT

DRAWING NO.
C-9

SHEET 9 OF 14



NOTES:

1. THE CONDITION OF EROSION CONTROLS MUST BE CHECKED AFTER EVERY STORM EVENT. REPAIRS AND MAINTENANCE MUST BE PERFORMED WITHIN 24 HOURS AFTER A STORM EVENT.
2. THE SITE AND SURROUNDING AREA SHALL BE SWEPT REGULARLY TO CONTROL DUST AND DEBRIS.
3. LIMIT OF WORK IS THE PROPERTY LINES OF LOTS 4-3 & 4-5.
4. CONSTRUCTION FENCE TO BE ISNTALLED AROUND PERIMETER OR SITE PRIOR TO THE START OF CONSTRUCTION.

PLANNING BOARD FILE #: P21-29

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PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Erosion & Sediment Control Plan

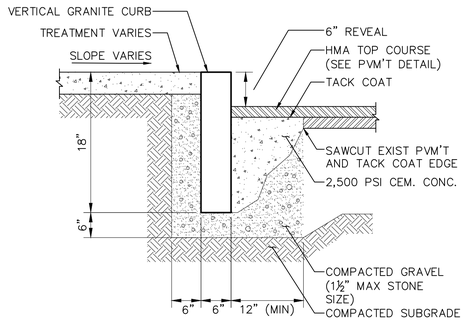
STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02

TEC CAD FILE N0946.02_ESED

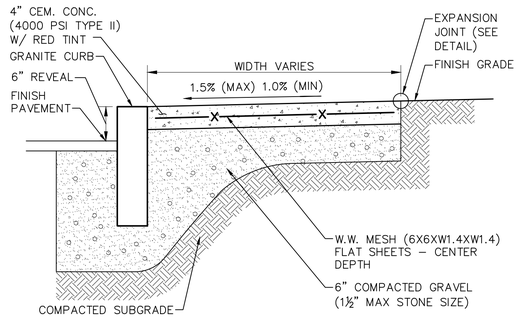
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SHEET 10 OF 14



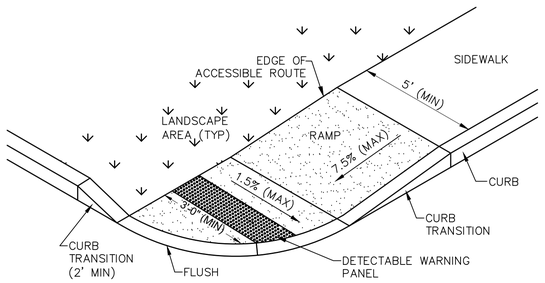
VERTICAL GRANITE CURB IN EXISTING PAVEMENT

N.T.S.



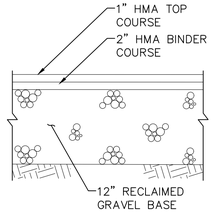
CONCRETE SIDEWALK

N.T.S.



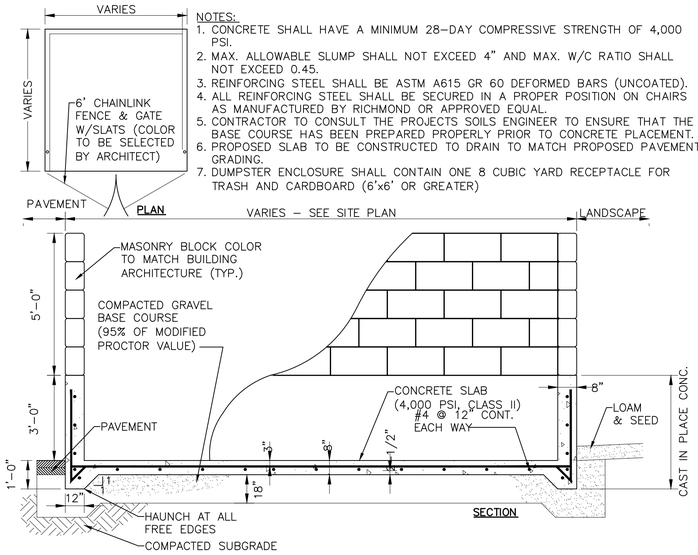
WHEELCHAIR RAMP TYPE A

N.T.S.



STANDARD DUTY PAVEMENT

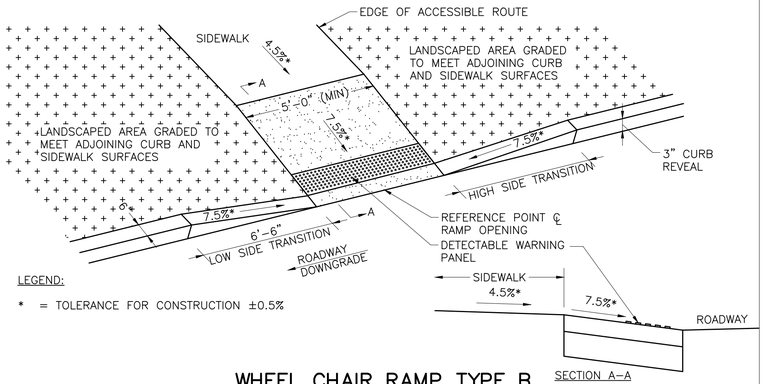
N.T.S.



NOTES:
1. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. MAX. ALLOWABLE SLUMP SHALL NOT EXCEED 4" AND MAX. W/C RATIO SHALL NOT EXCEED 0.45.
3. REINFORCING STEEL SHALL BE ASTM A615 GR 60 DEFORMED BARS (UNCOATED).
4. ALL REINFORCING STEEL SHALL BE SECURED IN A PROPER POSITION ON CHAIRS AS MANUFACTURED BY RICHMOND OR APPROVED EQUAL.
5. CONTRACTOR TO CONSULT THE PROJECTS SOILS ENGINEER TO ENSURE THAT THE BASE COURSE HAS BEEN PREPARED PROPERLY PRIOR TO CONCRETE PLACEMENT.
6. PROPOSED SLAB TO BE CONSTRUCTED TO DRAIN TO MATCH PROPOSED PAVEMENT GRADING.
7. DUMPSTER ENCLOSURE SHALL CONTAIN ONE 8 CUBIC YARD RECEPTACLE FOR TRASH AND CARDBOARD (6'x6' OR GREATER)

ENCLOSED DUMPSTER PAD

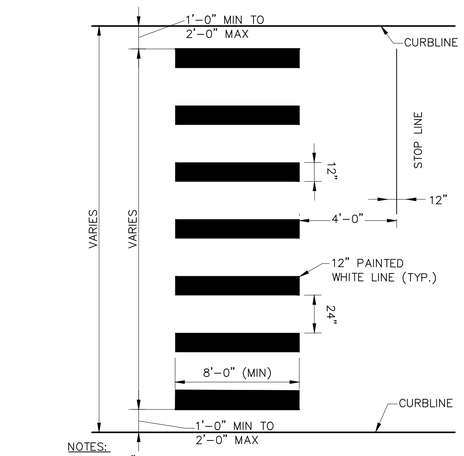
N.T.S.



LEGEND:

* = TOLERANCE FOR CONSTRUCTION ±0.5%

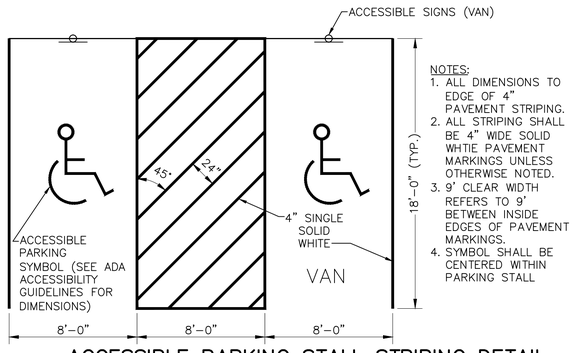
WHEEL CHAIR RAMP TYPE B



NOTES:
1. ALL 12" PAINTED LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO – 6" LINES) WILL BE ACCEPTED.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED THE ENGINEER PRIOR TO APPLICATION OF PAINT.
3. ALL CROSSWALKS INSTALLED SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGES" DATED 1988.
4. THE PAVEMENT MARKINGS FOR CROSSWALKS WITHIN THE PUBLIC WAY MAY VARY AND SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO THE APPLICATION OF PAINT.

CROSSWALK PAVEMENT MARKING

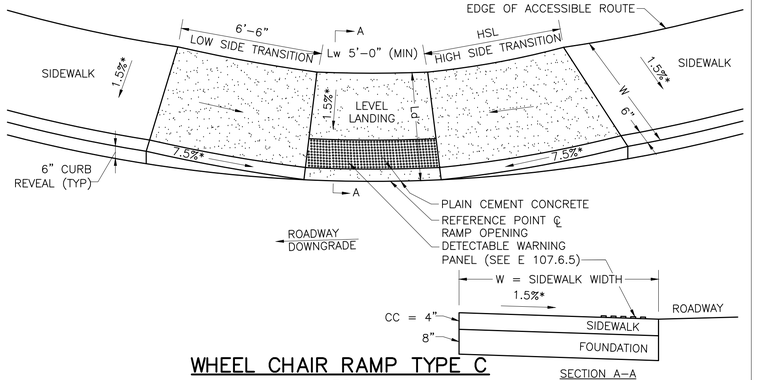
N.T.S.



NOTES:
1. ALL DIMENSIONS TO EDGE OF 4" PAVEMENT STRIPING.
2. ALL STRIPING SHALL BE 4" WIDE SOLID WHTIE PAVEMENT MARKINGS UNLESS OTHERWISE NOTED.
3. 9' CLEAR WIDTH REFERS TO 9' BETWEEN INSIDE EDGES OF PAVEMENT MARKINGS.
4. SYMBOL SHALL BE CENTERED WITHIN PARKING STALL

ACCESSIBLE PARKING STALL STRIPING DETAIL

N.T.S.



WHEEL CHAIR RAMP TYPE C

N.T.S.

PLANNING BOARD FILE #: P21-29

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OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1.	TRC Revisions	10/28/2021

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

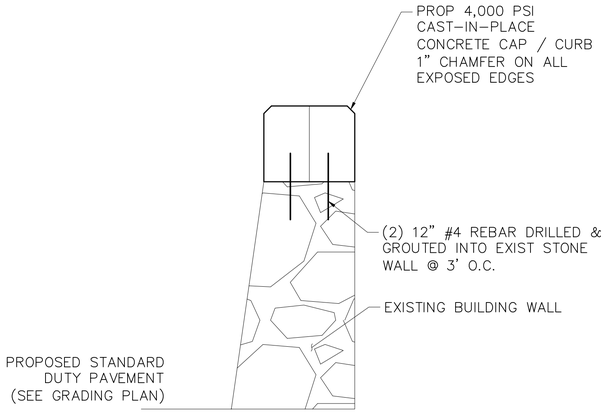
Construction Details

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 – PROFESSIONAL ENGINEER – LICENSED

PROJECT NO. N0946.02

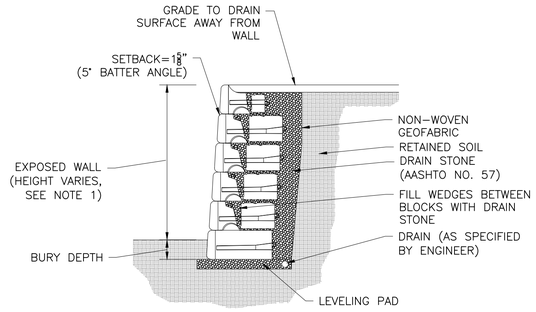
TEC CAD FILE N0946.02_DET

DRAWING NO. C-11



BUILDING WALL CAP

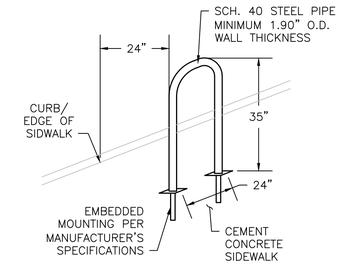
N.T.S.



NOTES:
1. WALL HEIGHTS OVER 4 FEET WILL REQUIRE A FINAL WALL DESIGN STAMPED BY A STRUCTURAL ENGINEER.
2. FINAL WALL DESIGN TO BE SUBJECT TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER INCLUDING DESIGN ON LATERAL EARTH PRESSURES, GLOBAL STABILITY, FILL MATERIALS ADJACENT TO THE WALLS AND REQUIRED GEOGRID REINFORCEMENT.

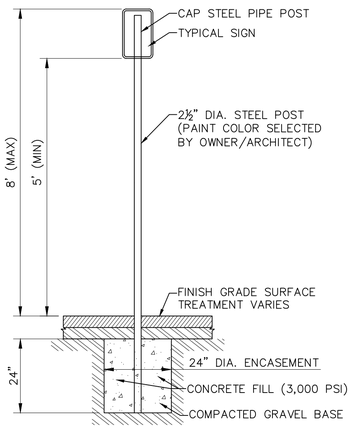
SEGMENTAL BLOCK RETAINING WALL

N.T.S.



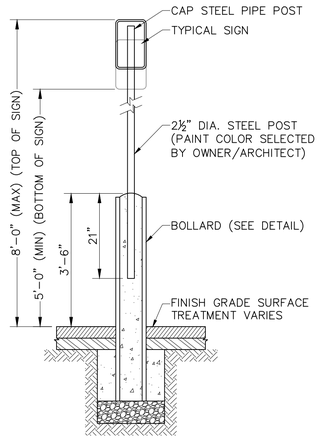
BIKE RACK

N.T.S.



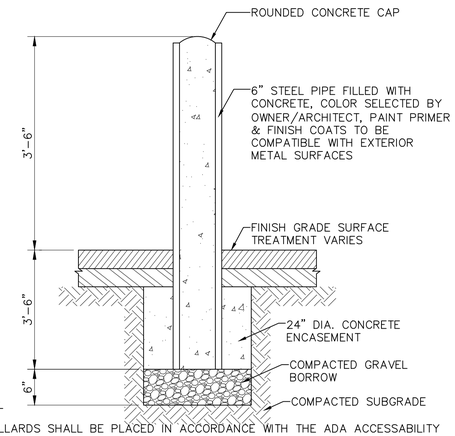
SIGN POST

N.T.S.



BOLLARD MOUNTED SIGN

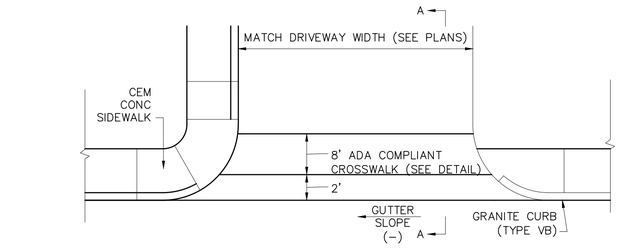
N.T.S.



NOTES:
1. BOLLARDS SHALL BE PLACED IN ACCORDANCE WITH THE ADA ACCESSABILITY GUIDELINES. A MINIMUM CLEAR WIDTH OF 36" SHALL BE PROVIDED TO MAINTAIN AN ACCESSIBLE PATH.
2. BOLLARDS SHALL BE INSTALLED TO PROTECT ALL SERVICE CONNECTIONS, METERS, AND REAR BUILDING CORNERS IN PROPOSED AREAS.

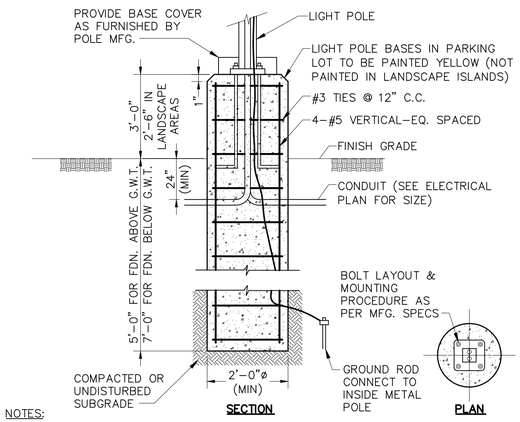
BOLLARD

N.T.S.



ASPHALT DRIVEWAY W/ CROSSWALK DETAIL

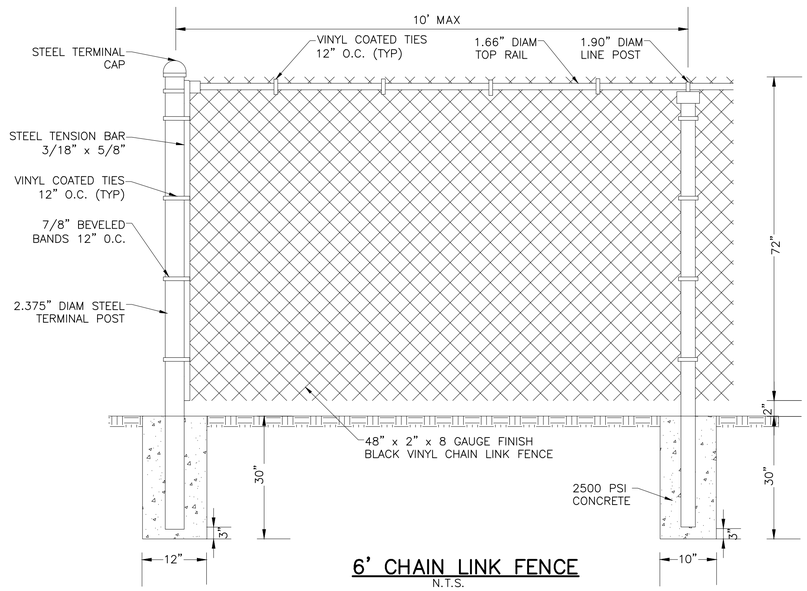
N.T.S.



NOTES:
1. LIGHT POLE FOUNDATION DESIGN IS SUBJECT TO CHANGE BASED ON FINAL POLE AND FIXTURE SELECTION AND GEOTECHNICAL SITE INVESTIGATION.

LIGHT POLE BASE

N.T.S.



6' CHAIN LINK FENCE

N.T.S.

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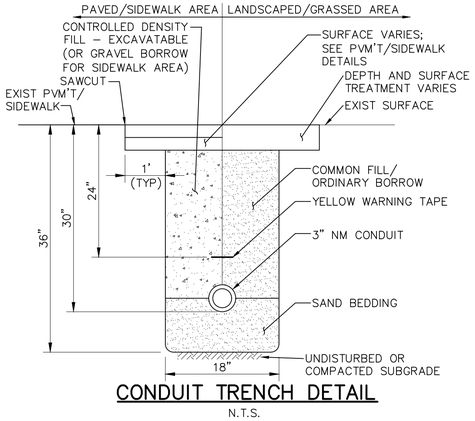
PROJECT TITLE
Proposed Residential Development

PROJECT LOCATION
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Dover, NH 03820

DRAWING TITLE
Construction Details

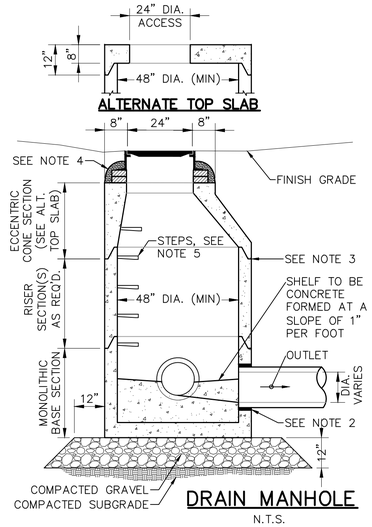
STATE OF NEW HAMPSHIRE — CHRISTOPHER P RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_DET
DRAWING NO. C-12
SHEET 12 OF 14



CONDUIT TRENCH DETAIL

N.T.S.

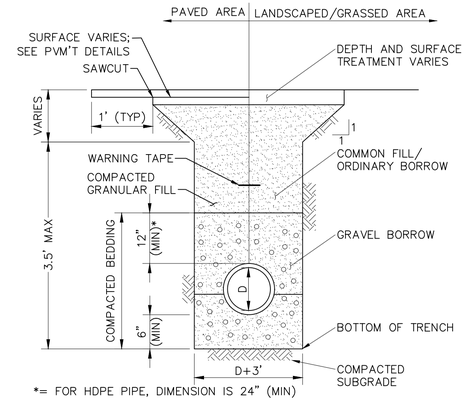


DRAIN MANHOLE

N.T.S.

NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS–20 LOADING.
2. PROVIDE "V" KNOCKOUTS 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. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.

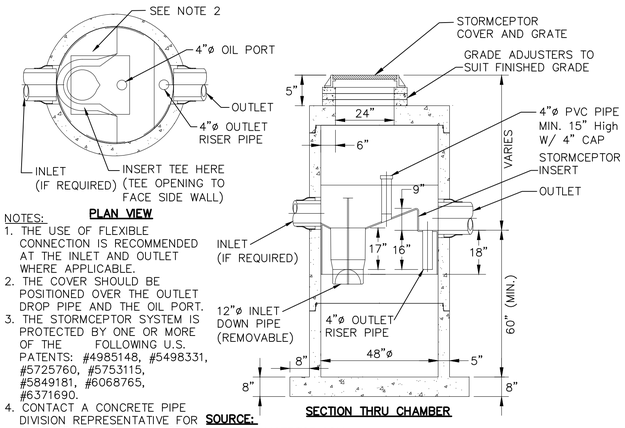


NOTE:
1. WATER LINE INSTALLATIONS MUST HAVE MINIMUM 5' COVER FOR FROST PROTECTION

*= FOR HDPE PIPE, DIMENSION IS 24" (MIN)

UTILITY TRENCH DETAIL

N.T.S.

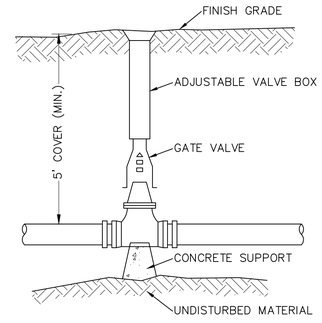


NOTES:
1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE OUTLET DROP PIPE AND THE OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THE DRAWING.

SOURCE: WWW.STORMCEPTOR.COM

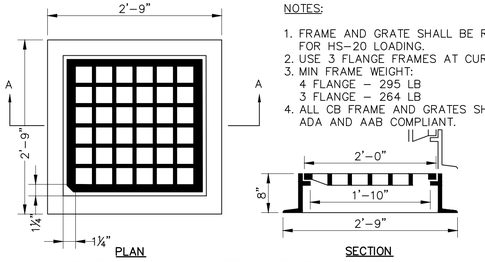
WATER QUALITY UNIT
STC 450 PRECAST CONCRETE INLET STORMCEPTOR®
(450 U.S. GALLON CAPACITY)

N.T.S.



WATER GATE VALVE

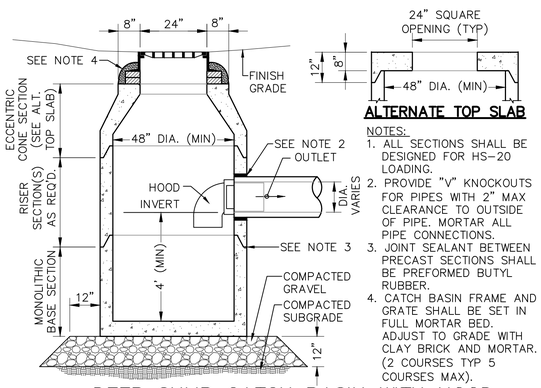
N.T.S.



NOTES:
1. FRAME AND GRATE SHALL BE RATED FOR HS–20 LOADING.
2. USE 3 FLANGE FRAMES AT CURB INLET.
3. MIN FRAME WEIGHT:
   4 FLANGE – 295 LB
   3 FLANGE – 264 LB
4. ALL CB FRAME AND GRATES SHALL BE ADA AND AAB COMPLIANT.

CATCH BASIN FRAME & GRATE

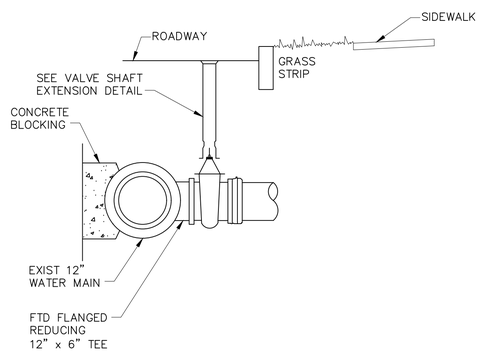
N.T.S.



NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS–20 LOADING.
2. PROVIDE "V" KNOCKOUTS 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 COURSES TYP 5 COURSES MAX).

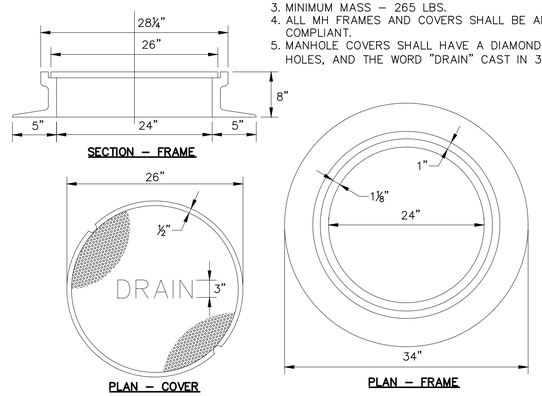
DEEP SUMP CATCH BASIN WITH HOOD

N.T.S.



FIRE SERVICE CONNECTION

N.T.S.



NOTES:
1. FRAME AND COVER SHALL BE RATED FOR HL–93 LOADING.
2. MATERIAL – CAST IRON.
3. MINIMUM MASS – 265 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" CAST IN 3–INCH LETTERS.

MANHOLE FRAME & COVER

N.T.S.

PLANNING BOARD FILE #: P21-29

TEC
The Engineering Corp
TEC, Inc.
146 Dascomb Road
Andover, MA 01810
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	Not to Scale

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1.	TRC Revisions	10/28/2021

ISSUED FOR
Permitting

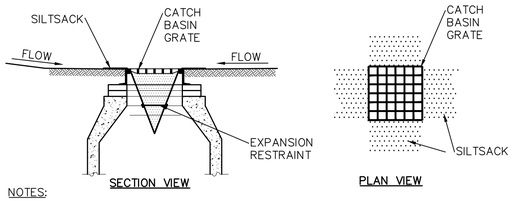
PROJECT TITLE
Proposed Residential Development

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Construction Details

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND
No. 16305
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_DET
DRAWING NO. C-13
SHEET 13 OF 14

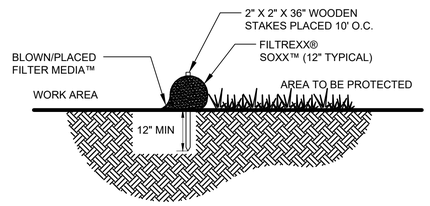


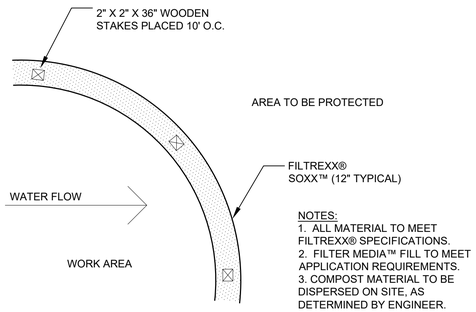
NOTES:

1. INSTALL SILTSACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
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.

INLET PROTECTION – SILT SACK IN CATCH BASIN

N.T.S.

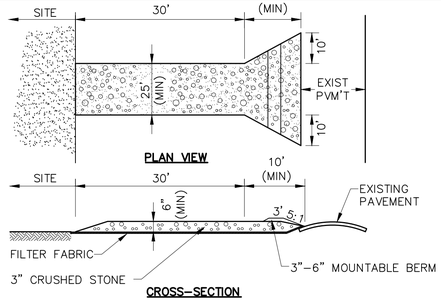




NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SILTSOXX PERIMETER EROSION BARRIER DETAIL

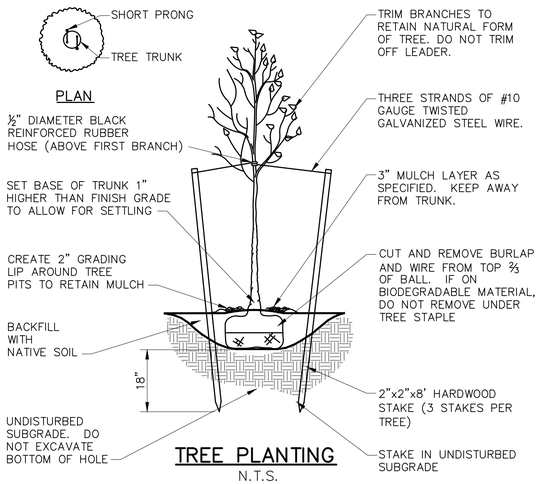
N.T.S.



1. ENTRANCE 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 ENTRANCE 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.

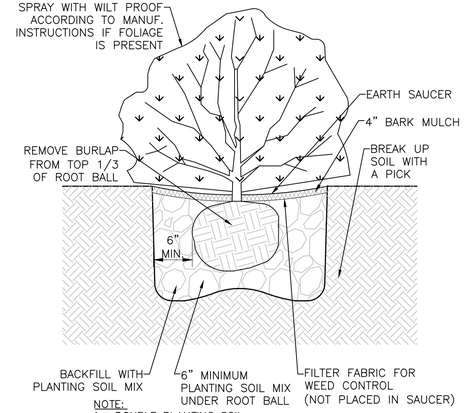
STABILIZED CONSTRUCTION EXIT

N.T.S.



TREE PLANTING

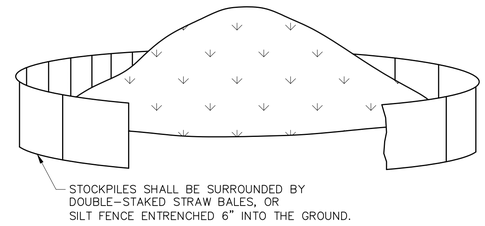
N.T.S.



NOTE:
1. DOUBLE PLANTING SOIL MIX DIMENSIONS IN LEDGE.

SHRUB PLANTING DETAIL

N.T.S.



SOIL STOCKPILE

N.T.S.

TEC The Engineering Corp
TEC, Inc.
146 Dascomb Road
Andover, MA 01810
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	8/5/2021
SCALE	Not to Scale

OWNER/APPLICANT

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

REVISIONS

1. TRC Revisions	10/28/2021

ISSUED FOR
Permitting

PROJECT TITLE
Proposed Residential Development

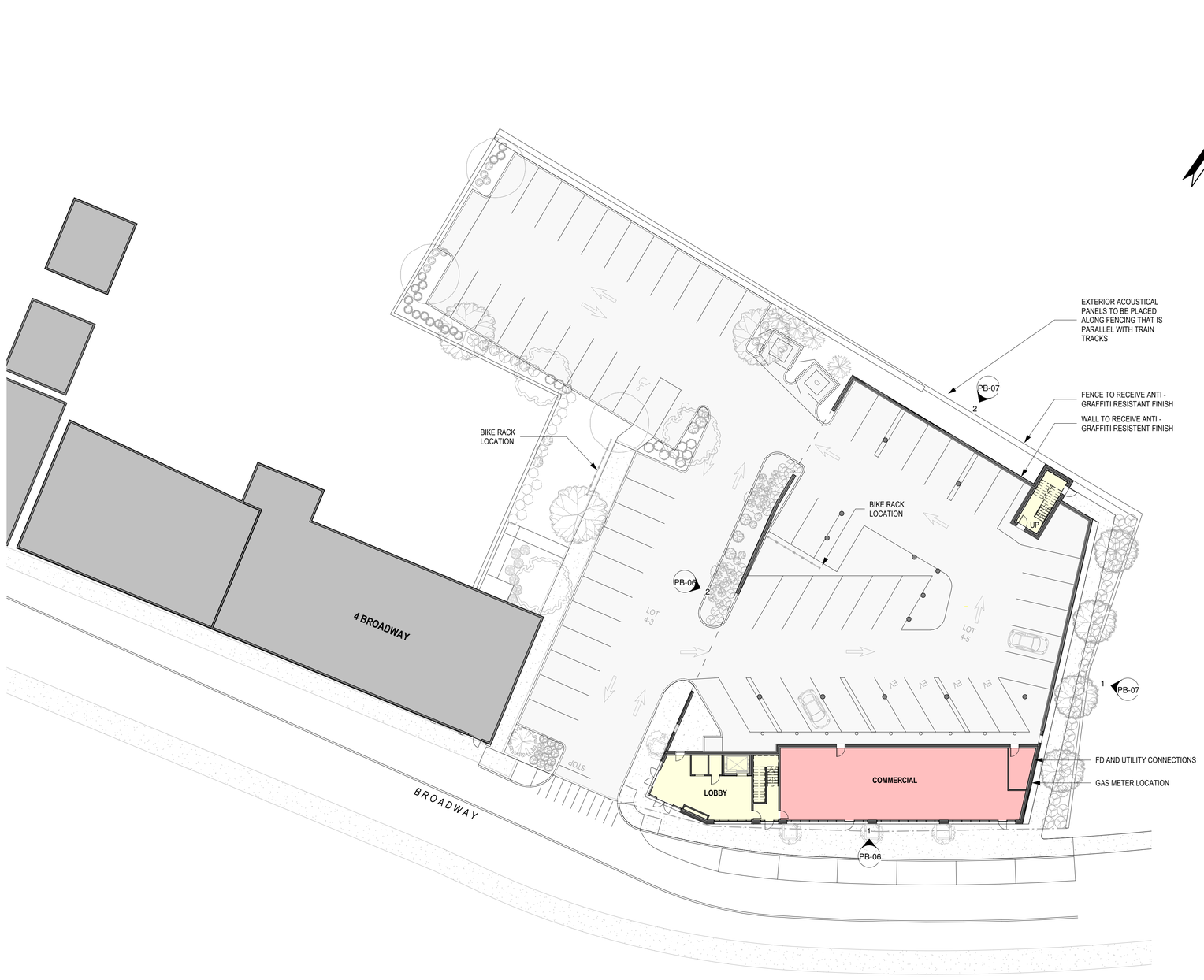
PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Construction Details

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER –

PROJECT NO. N0946.02
TEC CAD FILE N0946.02_DET
DRAWING NO. C-14
SHEET 14 OF 14

PLANNING BOARD FILE #: P21-29



1 SITE PLAN
1" = 20'-0"

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- AREA OF REFUGE IS NOT REQUIRED IN THIS BUILDING PER IBC 1009.3 EXCEPTION 5 AND NFPA A.30.2.12.2
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.
- 2 STORY MINIMUM BUILDING HEIGHT

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 250'
- DEAD END CORRIDOR DISTANCE: 50'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

GRAPHIC SCALE

0 20 40 60 80

P21 - P29

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

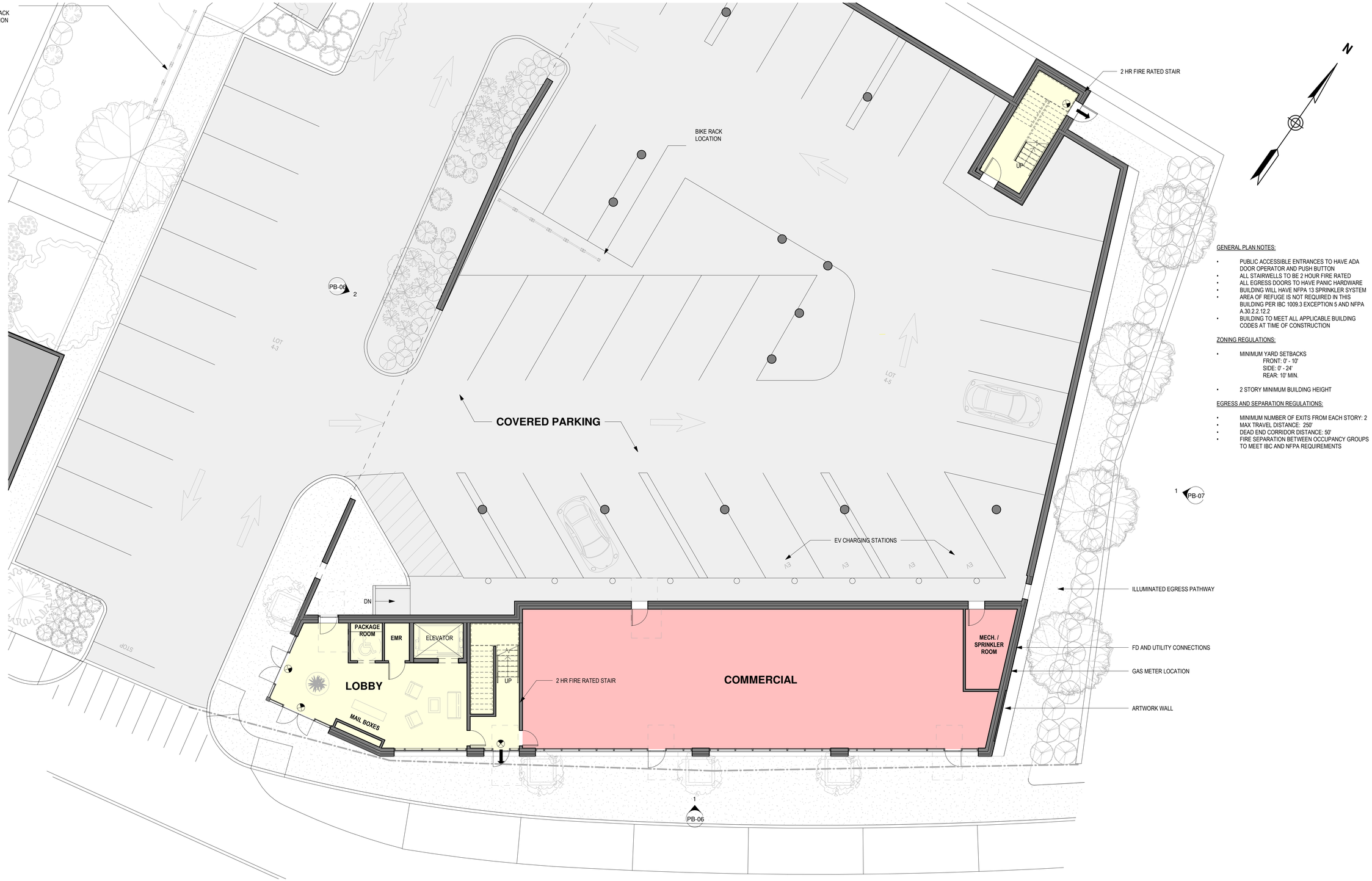
PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 / 21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
SITE PLAN

DRAWING NUMBER:
PB-01

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1 FLOOR PLAN - LEVEL 1
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- AREA OF REFUGE IS NOT REQUIRED IN THIS BUILDING PER IBC 1009.3 EXCEPTION 5 AND NFPA A.30.2.2.12.2
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

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  SIDE: 0' - 24'
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- 2 STORY MINIMUM BUILDING HEIGHT

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- MAX TRAVEL DISTANCE: 250'
- DEAD END CORRIDOR DISTANCE: 50'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 / 21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVEL 1

DRAWING NUMBER:
PB-02

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1 FLOOR PLAN - LEVEL 2
1/8" = 1'-0"

1
PB-07

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- AREA OF REFUGE IS NOT REQUIRED IN THIS BUILDING PER IBC 1009.3 EXCEPTION 5 AND NFPA A.30.2.2.12.2.
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.
- 2 STORY MINIMUM BUILDING HEIGHT

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 250'
- DEAD END CORRIDOR DISTANCE: 50'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 - P29

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 / 21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVEL 2

DRAWING NUMBER:
PB-03

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1 PB-07

APARTMENTS 17 - 25
ON FOURTH FLOOR

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- AREA OF REFUGE IS NOT REQUIRED IN THIS BUILDING PER IBC 1009.3 EXCEPTION 5 AND NFPA A.30.2.2.12.2
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  REAR: 10' MIN.
- 2 STORY MINIMUM BUILDING HEIGHT

EGRESS AND SEPARATION REGULATIONS:

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- MAX TRAVEL DISTANCE: 250'
- DEAD END CORRIDOR DISTANCE: 50'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

1 FLOOR PLAN - LEVELS 3 & 4
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 - P29

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 / 21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVELS 3 & 4

DRAWING NUMBER:
PB-04

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1 ROOF PLAN
1/8" = 1'-0"

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- AREA OF REFUGE IS NOT REQUIRED IN THIS BUILDING PER IBC 1009.3 EXCEPTION 5 AND NFPA A 30.2.2.12.2
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.
- 2 STORY MINIMUM BUILDING HEIGHT

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 250'
- DEAD END CORRIDOR DISTANCE: 50'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 - P29

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 / 21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ROOF PLAN

DRAWING NUMBER:
PB-05

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1 BROADWAY STREET ELEVATION
1/8" = 1'-0"



2 VIEW FROM 12 BROADWAY, LOT 4-3
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 - P29

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 /21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ELEVATIONS - SOUTH-EAST & SOUTH-WEST

DRAWING NUMBER:
PB-06

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1 VIEW FROM INTERSECTION OF BROADWAY AND ST JOHN
1/8" = 1'-0"



2 VIEW FROM ABUTTERS ON PIERCE STREET AND RAILROAD
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 - P29

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 /21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ELEVATIONS - EAST & NORTH

DRAWING NUMBER:
PB-07

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10/27/2021 3:50:38 PM Z:\FILES CURRENT\21.12_Cyr Dover Mixed Use\8. DRAWINGS\8.2 REVIT\Cyr Dover Apt Iteration - 10.21.rvt

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com



VIEW FROM BROADWAY LOOKING NORTH



VIEW FROM BROADWAY LOOKING SOUTH

PROJECT:

14 BROADWAY

ADDRESS:

14 BROADWAY
DOVER, NH

CLIENT:

Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

PROJECT NUMBER: 21.12

NORTH:

DATE: 10 / 28 /21

SCALE: AS NOTED

REVISION:

DRAWING NAME:

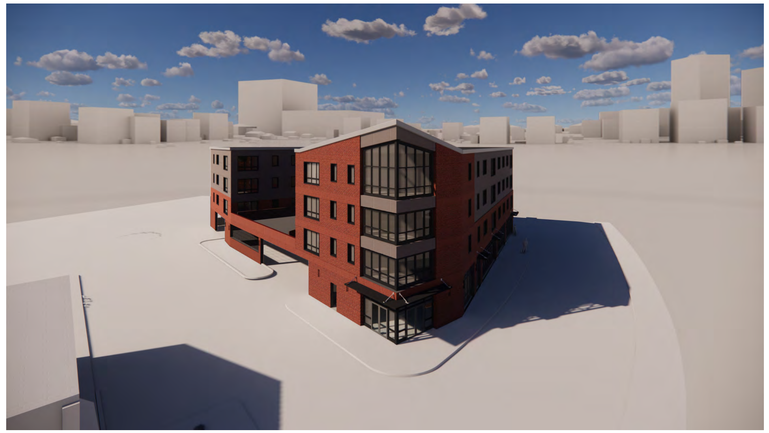
STREETSCAPE RENDERING

DRAWING NUMBER:

PB-08

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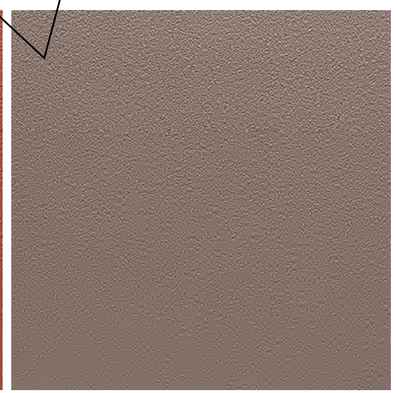








CEMENTITIOUS PANELING
BRICK COLOR



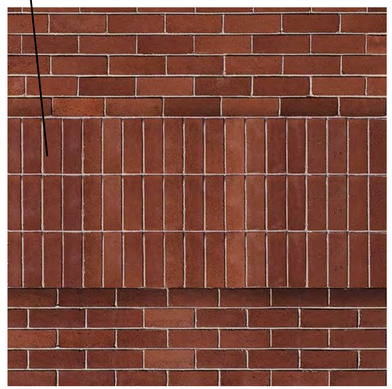
CEMENTITIOUS PANELING
TAUPE COLOR



MULLIONS
BLACK



BRICK
RECESSED COURSING PATTERN



BRICK
SOLIDER COURSE

P21-P29

LASSEL
ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
Downtown Dover Storage, LLC 42 L
Dover Point Road Dover, NH 03820

REV: DATE: NOTES:

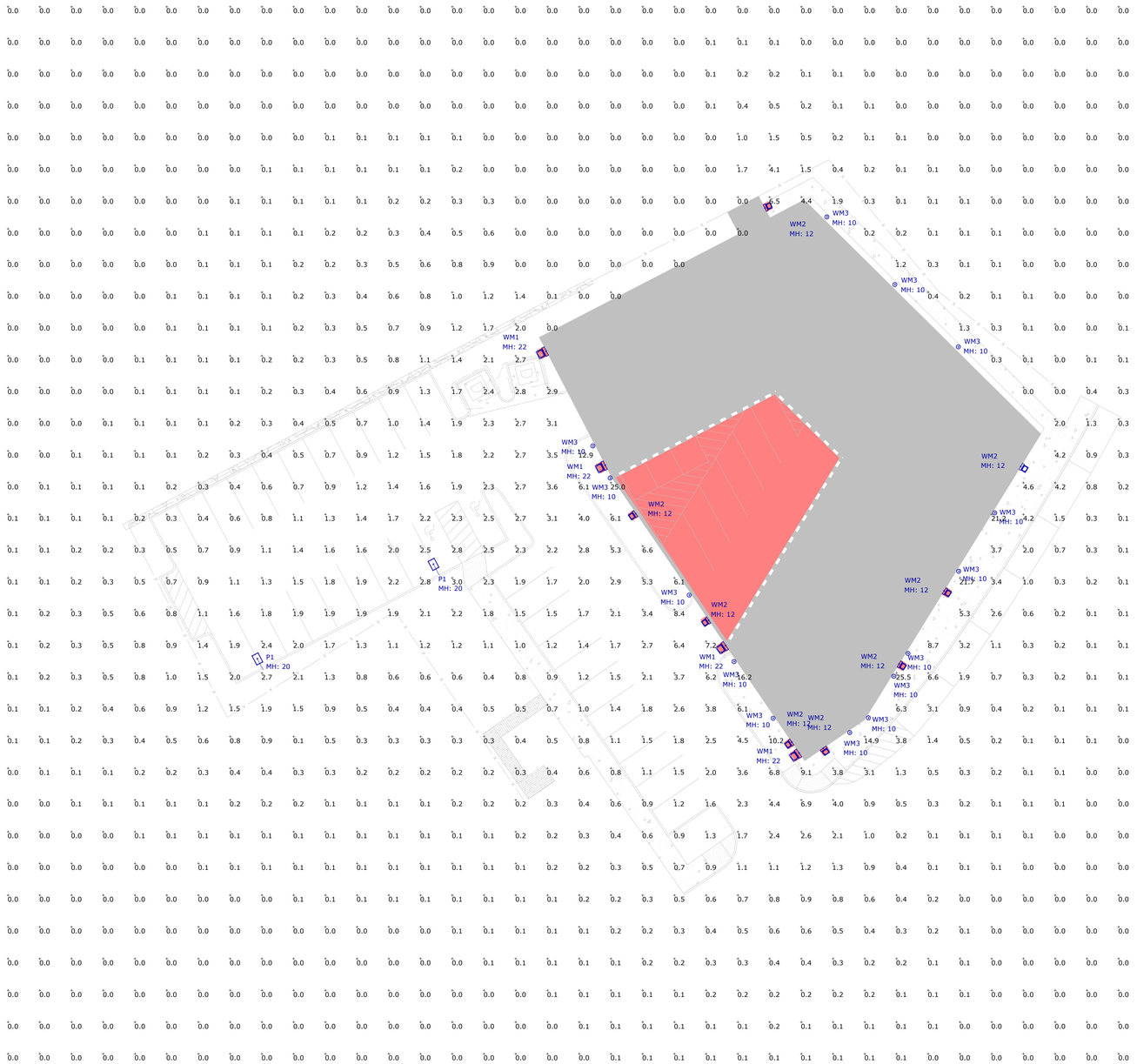
PROJECT NUMBER: 21.12
NORTH:
DATE: 10 / 28 /21
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ADDITIONAL VIEWS AND MATERIALS

DRAWING NUMBER:
PB-09

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1 Photometric Layout and Calculations

SCALE: 1:20

20' 0 10' 20' 40'

Luminaire Schedule						
Symbol	Label	Qty	Description	LLF	Lum. Watts	Lum. Lumens
	WM3	14	Peachtree # C6BLRUD-14-40K-80-W-RCA-TBD-WAL2-WL-120/277	0.900	17	2917
	P1	2	Visionaire # VSX-II-T4L-10L-4K-UNV-TBD-TBD	0.900	70	8888
	WM1	4	Visionaire # VSX-II-T4L-10L-4K-UNV-WM-TBD	0.900	70	8888
	WM2	8	Visionaire # VSC-II-T2-16LC-7-4K-UNV-WM-TBD	0.900	37	4138

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE CALC PTS	Illuminance	Fc	0.31	25.5	0.0	N.A.	N.A.
LOT 4-3	Illuminance	Fc	2.27	12.9	0.3	7.57	43.00

VSX-II Array LED Specifications



Project Name:

Catalog Number:

Type:

The new **VSX-II Array LED** Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines the latest in LED technology with proven optics to create a luminaire that provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate die cast aluminum housings.

The VSX-II Array LED fixture is offered with lumen packages ranging from 5,000 - 25,000. Two optical distribution patterns are available: Choices between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The **VSX-II Array LED** series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Ordering Information

MODEL	OPTICS	LUMENS	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS	OPTIONS
VSX-II	T1 Type 1	5L	3K 3000K	UNV 120/277V	AM Arm Mount	BZ Bronze	PCR-120 Photocell Sensor 120V	WSC-S Wireless Sensor Mounting Height	UPMA-S Universal Pole/Wall Mount Adaptor
	T2 Type 2	10L	4K 4000K	8 347V	SAM Straight Arm Mount for Two Back Plate Combinations	BK Black	PCR-208 Photocell Sensor 208V		
	T3 Type 3	15L	5K 5000K	5 480V	UAM Universal Arm/90° Arm Mount (Default)	SBK Smooth Black	PCR-240 Photocell Sensor 240V	WSC-20 Wireless Sensor 20' Mounting Height	UPMA-R Universal Pole/Wall Mount Adaptor
	T3L Type 3 Long	20L				WH White	PCR-277 Photocell Sensor 277V		
	T4 Type 4	25L			MAF Mast Arm Fitter	SWH Smooth White	PCR-347 Photocell Sensor 347V	WSC-40 Wireless Sensor 40' Mounting Height	BAWP Back Wall Plate
	T4L Type 4 Long				KM Knuckle Mount	GP Graphite	PCR-480 Photocell Sensor 480V		ROT-R Rotated Optics Right Side
	T4A Type 4 Automotive				WM Wall Mount *Requires BAWP	GY Grey	SPINPER 5 Pin Twist-Lock Photocell Receptacle		ROT-L Rotated Optics Left Side
	T5SR Type 5 Short Round				AWM Arckaringa Wall Mount	SL Silver Metallic	PER 7PINPER 7 Pin Twist-Lock Photocell Receptacle		CLS Backplate Cutoff Shield
	T5LR Type 5 Long Round				*Round Pole Plate Adaptors RPP) are required accessories	CC Custom Color	7PINPER 7 Pin Twist-Lock Photocell Receptacle with Wireless Sensor Mounting Bracket		
	T5LS Type 5 Long Square				*BAWP to be ordered separately		DIM 0-10V Dimming Driver	UMAP Universal Mast arm Slip	ECLS Backplate Cutoff Shield Extra Cutoff Louvre Shield
							RPP-3* Round Pole Plate Adaptor 3"		RCLS Backplate Cutoff Shield Reduced Cutoff Louvre Shield
							RPP-4* Round Pole Plate Adaptor 4"		
							RPP-5* Round Pole Plate Adaptor 5"	ADJLS Adjustable Louvre Light Shield	LCLS Lefthside cutoff Shield
							VWC Visionaire Wireless Sensor Controls *Consult Factory	BD Bird Deterrent Shield	HS Housetunnel

VISIONAIRE LIGHTING

2 Visionaire Type VSX II Specifications

V-Sconce-II LED Specifications



Project Name:

Catalog Number:

Type:

The **VSC-II LED** wall mount Series continues the unique contemporary design of the original VSC Series luminaire. However, it combines LED performance and advanced LED thermal management technology and provides lighting that is energy efficient and aesthetically pleasing.

The LED performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy access for mounting and maintenance.

The LED light assemblies come with 16, 32, or 48 LEDs.

Choices between 3000, 4000 or 5000 Kelvin temperature for the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The **VSC-II LED** Series is an exceptional choice for office complexes, schools, commercial buildings, and many architectural projects.

Ordering Information

MODEL	OPTICS	SOURCE	CURRENT	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS
VSC-II	T1 Type 1	16LC	3 350mA	3K 3000K	UNV 120/277V	WM Wall Mount	BZ Bronze	PC-120	UP Uplight (Specify Kelvin) *not available with 5000K.
	T2 Type 2	32LC	5 525mA	4K 4000K	8 347V	VCB Vertical Box Mount (Specify Conduit Entry) Standard Conduit Holes	BK Black	PC-208	
	T3 Type 3	48LC	7 700mA	5K 5000K	5 480V		SBK Smooth Black	PC-240	DIM 0-10v Dimming Driver
	T4 Type 4		10 1000mA *Not Available in 48LC				WH White	PC-277 Photocell	EBPL Emergency Battery Pack
	FM Flood Medium						SWH Smooth White	WSC-8 Wireless Sensor 8' Mounting Height	EBPL-CLD Cold Weather Emergency Battery Pack *Voltage only available for 120V, 208V & 277V. *Not available with 347V, 480V, Dimming or Controllers.
	FN Flood Narrow						GP Graphite	WSC-20 Wireless Sensor 20' Mounting Height	
							GY Grey	*Must specify 120, 208, 240, 277 or 347 for sensor to work properly.	
							SL Silver Metallic		
							CC Custom Color		
									BP Back Plate
									CLS Back Plate Cutoff Louver Shield

VISIONAIRE LIGHTING

3 Visionaire Type VSC II Specifications

C6BLRUD

6" LED Up & Down Cylinder
4" Aperture Up and 5" Aperture Down

1000 & 1400 Lumens (down)

PRODUCT SPECIFICATION DATA

MECHANICAL
- Powder Coated Extruded .063 Aluminum Cylinder
- Finish exceeds 1000 hr. ASTM salt spray
- Mounting canopy and stems (3/8" ips) for pendant mount matches cylinder color

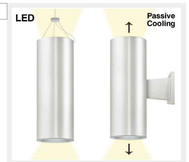
ELECTRICAL
- Serviceable and upgradeable light engine
- Power supply is overload and short circuit protected
- Single driver supplies power to both LED's
- 0-10V dimming to 1%

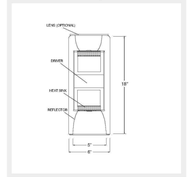
OPTICAL
- Self-flanged lower reflector
- 45° cutoff to source
- Medium distribution

PERFORMANCE
- CCT: 3000K, 3500K, 4000K @ 80+ CRI
- 70% lumen maintenance at 60,000 hours based on IESNA LM-79-2008

LISTINGS
- ANSI/UL1598 and CAN/CSA C22.2 No. 250.0-08
- Suitable for damp location / covered ceilings
- For wet location see -WL option

5 Year limited warranty.





Dimensions and specifications to the hardware are subject to change.

	BLURD LUMENS @ 4K	DIMMING	COLOR TEMP.	CRI	REFLECTOR	REFLECTOR OPTIONS	FIXTURE FINISH	MOUNTING	OPTIONS	VOLTAGE
C6BLRUD										
6" LED Round Up & Down Cylinder	-14 1400 lm 1400 Down -10 1000 lm 1000 Down	-DMV(F) 0-10v Dim *Standard	-30K 3000 K -35K 3500 K -40K 4000 K	-80 80+ CRI	-W White* -S Silver* -B Black* *Powder Coat Standard	-RC Reg Clear Temp. Haze Lens -RCA Reg Clear Amorphous Lens -RFR Reg Prismatic Temp. Haze Lens -RFRA Reg Prismatic Amorphous Lens -TFR Tint Temp. Haze Lens -TRA Tint Reg Back *prior to fixture ship date may be subject to change	Powdercoat Paints	-WH2 Wall, 0° Offset 4" -WH5 Wall, 0° Offset 6" Cable w/ straight cord -CAB-10-18 Cable Only Available 2' to 10' Stock cord use 2 Boxes of Wire	-E Ext'ng -TL Tab Lock -WL Wet Location (need dmv)	-120/277

Made in The USA

Peachtree Lighting

C6BLRUD

4 Peachtree C6BLRUD Speifications

NOTES:

A. A LIGHT LOSS FACTOR OF 0.900 HAS BEEN APPLIED TO FIXTURES UNLESS OTHERWISE NOTED. REFER TO LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR AND LUMEN INFORMATION.

B. SEE "MH" ON LIGHTING FIXTURE TAG LOCATED ON PLAN FOR MOUNTING HEIGHT INFORMATION.

C. CALCULATION POINTS ARE TAKEN AT GRADE.

D. CALCULATION RESULTS ARE BASED ON IES STANDARDS UNLESS OTHERWISE REQUESTED.

SK & Associates
Experience the light™
JACK SKWATT APPROVED
20/22 Carver Circle
Canton, MA 02021
T - 781-821-1700
www.skandassociates.com

TEC The Engineering Corp
146 Dascomb Rd
Andover, MA 01810

14 Broadway Site

Photometric Layout Calaculations Schedules and Specifications

DATE: 8/26/2021
PROJECT NUMBER: 211114
DRAWN BY: AM
CHECKED BY:AD
APPROVED BY:AD
SCALE: AS NOTED

REVISIONS	DESCRIPTION	DATE
1	Site Lighting & Plan Revisions	10/28/2021
2		
3		
4		
5		
6		
7		

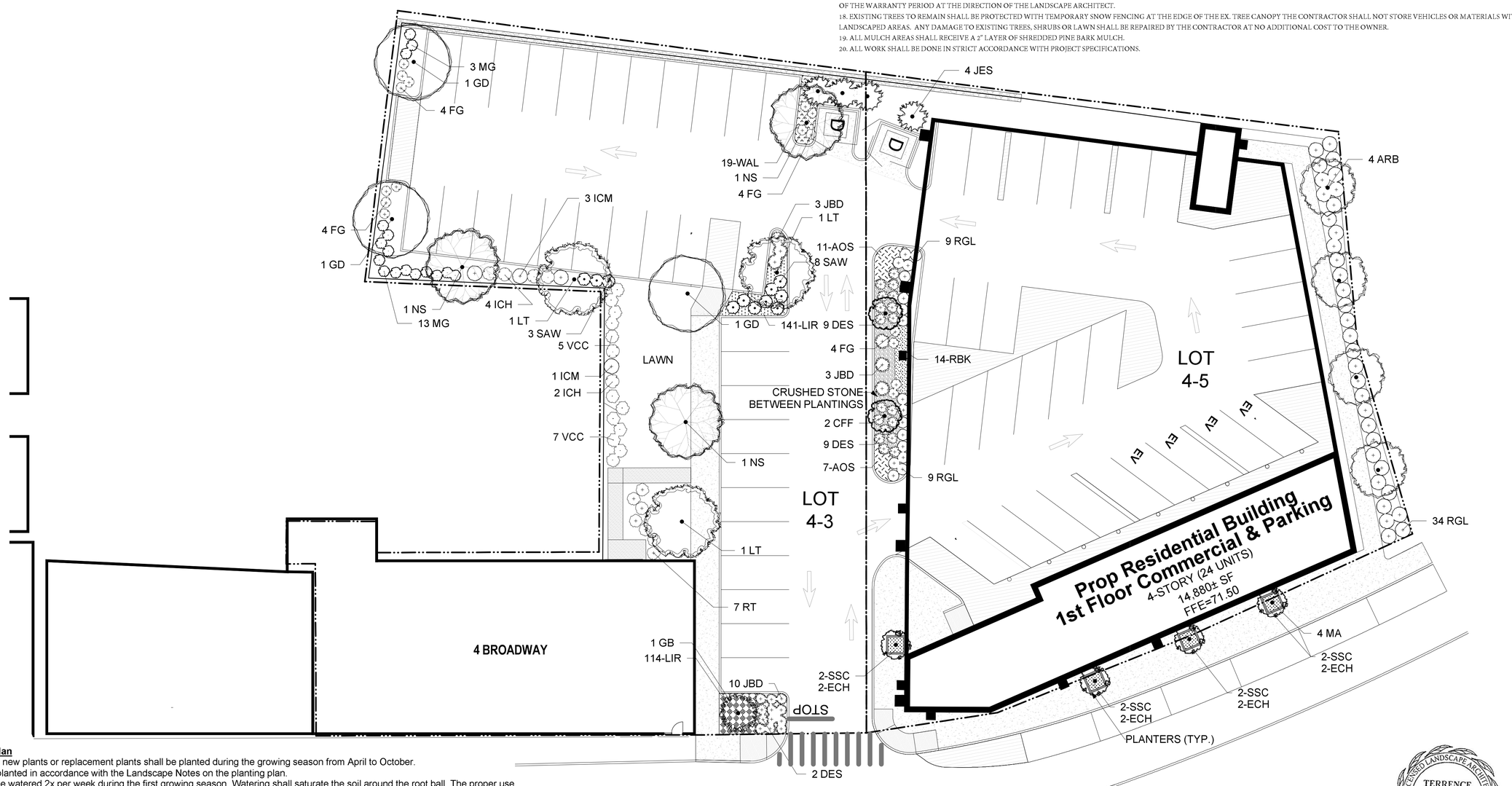
SL1

Plant List - Trees and Shrubs				
ID	Qty	Latin Name	Common Name	Scheduled Size
ARB	4	Acer rubrum 'Bowhall'	Bowhall Maple	3 1/2" Cal.
CFF	2	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	2 1/2" Cal.
FG	16	Fothergilla gardenii	Dwarf Fothergilla	24" HT.
GB	1	Ginkgo biloba 'Spring Grove'	Spring Grove Maidenhair Tree	3 1/2" Cal.
GD	3	Gymnocladus dioicus	Kentucky Coffeetree	3 1/2" Cal.
ICH	6	Ilex crenata 'Hetzii'	Japanese Holly	24" HT.
ICM	4	Ilex crenata 'Hoogendorn'	Hoogendorn Japanese Holly (Male)	24" HT.
JBD	16	Juniperus communis depressa 'AmiDak'	Blueberry Delight Juniper	5 Gal.
JES	4	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Red Cedar	8-10' HT.
LT	3	Liriodendron tulipifera	Tulip Tree	3 1/2" Cal.
MA	4	Malus 'Adirondack'	Adirondack Crabapple	5-6' Ht.
MG	16	Myrica gale	Sweetgale	24" HT.
NS	3	Nyssa sylvetica	Black Tupelo	3 1/2" Cal.
RGL	52	Rhus aromatica 'Gro Low'	Gro Low Sumac	24" HT.
RT	7	Rhododendron 'Towhead'	Towhead Rhododendron	24" HT.
SAW	11	Spiraea x bumalda 'Anthony Waterer'	Anthony Waterer Spirea	5 Gal.
VCC	12	Viburnum carlesii 'Compacta'	Compact Mayflower Viburnum	2' HT

Plant List - Perennials				
ID	Qty	Latin Name	Common Name	Scheduled Size
AOS	18	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
DES	20	Deschampsia cespitosa	Tussock Grass	2 QT
ECH	8	Echinacea purpurea 'Magnus'	Magnus Purple Coneflower	2 QT
LIR	255	Liriope spicata	Lily turf	2 QT
RBK	14	Rudbeckia fulgida 'Goldsturm'	Black-Eyed Susan	2 QT
SSC	8	Schizachyrium scoparium 'Carousel'	Carousel Little Bluestem	2 QT
WAL	19	Waldsteinia ternata	Siberian Barren Strawberry	2 QT

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. 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.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 2" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.



Maintenance Plan
Installation of all new plants or replacement plants shall be planted during the growing season from April to October.
Plants shall be planted in accordance with the Landscape Notes on the planting plan.
All plants shall be watered 2x per week during the first growing season. Watering shall saturate the soil around the root ball. The proper use and regular refilling of 'Gator' bags is acceptable.
Aged and organic compost mulch shall be used to a 2" depth shall be maintained around root ball. Do not stack mulch in mounds deeper than 2".
Planting beds shall be kept free of weeds on a biweekly schedule.
Bed edges shall be maintained to keep lawn mowers from damaging trees and shrubs.
Lawn areas shall be mowed on a weekly schedule.
Broken or dead limbs of all plant materials shall be removed close to trunk, but not damaging trunk of plant with clean sharp shears.
Severely injured, diseased, or dead plant material shall be replaced in kind in perpetuity.
Aged organic compost mulch is preferred, but an owner may use a low phosphorous and slow release nitrogen organic fertilizer as needed.

If ownership of a site is conveyed to a new property owner, the new owner shall be responsible for maintaining all landscaping in accordance with the approved final landscaping plan.

terra firma
landscape architecture
163.a court street portsmouth, nh 03801
office 603.430.8988 terrence@terrafirmalandarch.com



No.	Date	Issue Notes

Date 10/26/21
Revision Revision
Project ID 14 BROADWAY
Drawing Code Drawing Code
CAD Filename 14broadway92221
Plot Date 00/00/00

Designed By TP
Drawn By TC
Checked By TP
Reviewed By TP
Submitted By TP
Project Manager

Design Firm terra firma landscape architecture
163.a Court Street
Portsmouth, NH
Consultant

Project Title 14 BROADWAY
DOVER, NH

Sheet Title Landscape Plan

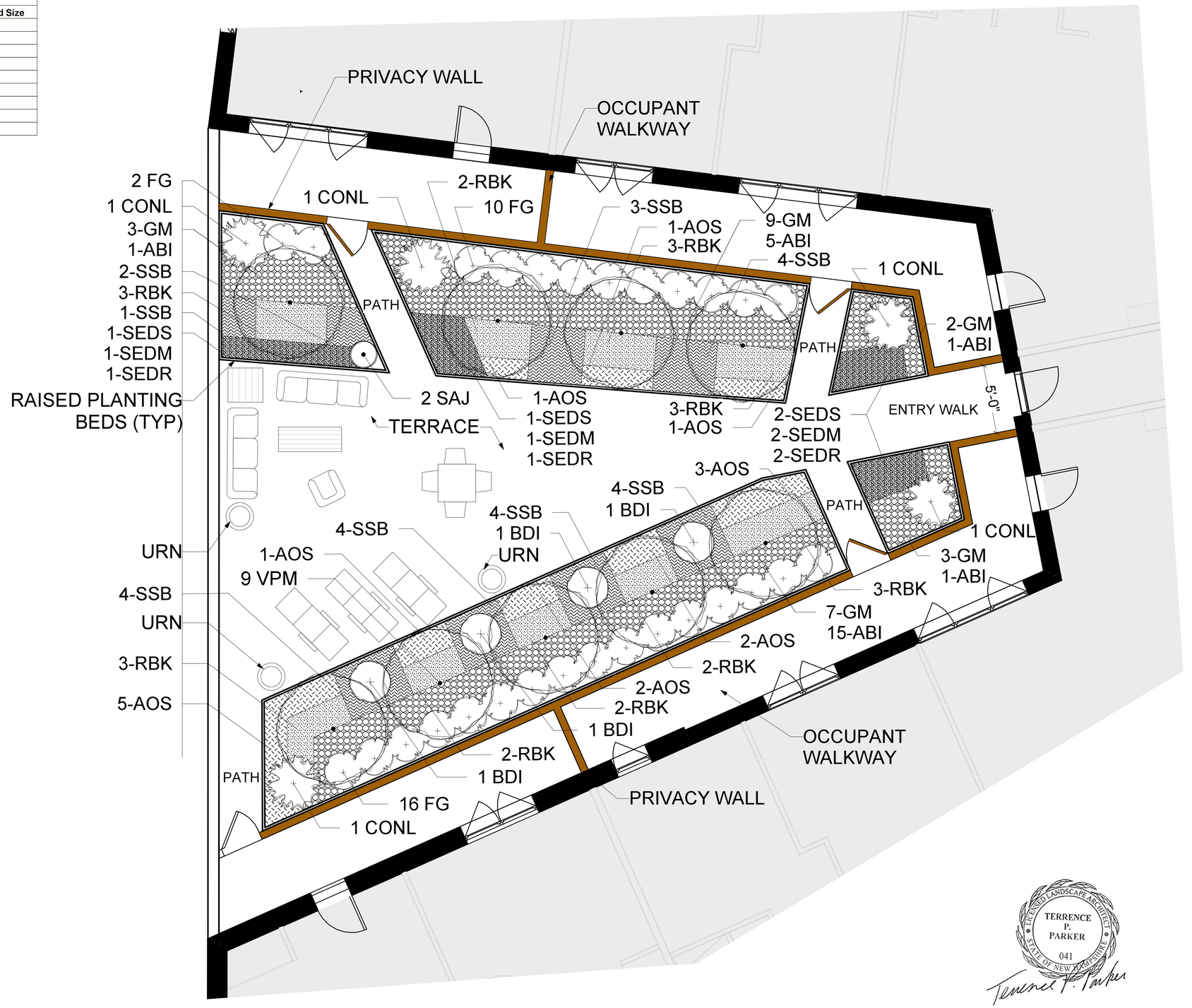
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Sheet No. L-1
of 1

TERRENCE P. PARKER
041
LICENSED LANDSCAPE ARCHITECT
STATE OF NEW HAMPSHIRE
Terrence P. Parker

Plant List - Courtyard Trees				
ID	Qty	Latin Name	Common Name	Scheduled Size
BDI	4	Buddlea 'Davidii'	Butterfly Bush	4-5'
CONL	5	Chamaecyparis obtusa 'Nana Lutea'	Compacvt Golden Hinoki False Cyp	5-6'
FG	28	Fothergilla gardenii	Dwarf Fothergilla	5 Gal.
VPM	9	Viburnum plicatum tom. 'Mariesii	Doublefile Viburnum	4'

Plant List - Courtyard Perennials				
ID	Qty	Latin Name	Common Name	Scheduled Size
ABI	23	Amsonia 'Blue Ice'	Blue Star Flower	2 QT
AOS	16	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
GM	24	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
RBK	23	Rudbeckia fulgida 'Goldsturm'	Black-Eyed Susan	2 QT
SAJ	2	Sedum 'Autumn Joy'	Stonecrop	2 QT
SEDM	4	Sedum 'Matrona'	Matrona Stonecrop	2 QT
SEDR	4	Sedum reflexum 'Angelina'	Stonecrop	2 QT
SEDS	4	Sedum sexangulare	Stonecrop	2 QT
SSB	26	Schizachyrium scoparium 'The Blues'	The Blues Little Bluestem	2 QT



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landscape architecture
163.a court street portsmouth, nh 03801
office 603.430.8988 | terrence@terrafirmalandarch.com



No.	Date	Issue Notes

Date 10/22/21
Revision Revision
Project ID 14 BROADWAY
Drawing Code Drawing Code
CAD File Name 14broadway02221
Plot Date 00/00/00

Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	TP

Design Firm: terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant:

Project Title: 14 BROADWAY
DOVER, NH

Sheet Title: Landscape Plan
COURTYARD

Scale: 1"=15'-0"

Sheet No.: L-2 of 1

LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip	Total Value	Land Value	Building Value	Deed Date	Last Sale Book/Page	State Class
03051-000000	14 ST JOHN ST	SAINT JOHN STREET LLC		103 BEANE LANE	NEWINGTON	NH	03801	377700	114400	263300	20201204	4840/1020	105
03052-000000	16 ST JOHN ST	BRATTER MYLES S & ELIZABETH A TRUSTEES	BRATTER FAMILY REVOCABLE TRUST	177 BARTLETT ST	PORTSMOUTH	NH	03801	375300	111800	263500	20190517	4654/677	105
03053-000000	17 19 BROADWAY	FSG3 PROPERTY GROUP LLC		10 SUMNER DR	DOVER	NH	03820	275600	111100	164500	20100329	3822/395	105
03054-000000	15 BROADWAY	HUNT MATTHEW J	CAMPBELL ALANA	35 NEW YORK ST	DOVER	NH	03820	283800	107800	176000	20201109	4830/805	105
03055-000000	13 BROADWAY	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820	206700	198800	7900	0	/	903
03056-000000	9 BROADWAY	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820	880200	117200	763000	0	/	903
03057-000000	7 BROADWAY	BROADWAY PROPERTIES LLC		7 BROADWAY	DOVER	NH	03820	168700	77500	91200	20210302	4876/473	303
03058-059000	3 5 BROADWAY	SULLIVAN JOHN W		82 ELIOT RD	KITTERY	ME	03904	349900	208800	141100	19991001	2150/700	303
03060-000000	495 503 CENTRAL AV	3L HOLDINGS LLC		1 SQUIRE WAY	STRATHAM	NH	03885	840900	211700	629200	20180604	4573/17	322
03061-000000	481 CENTRAL AV	481 CENTRAL AVE LLC		225 W SQUANTUM ST STE 200	QUINCY	MA	02171	1718000	266600	1451400	20160322	4367/210	302
03061-A00000	487 491 CENTRAL AV	3L HOLDINGS LLC		1 SQUIRE WAY	STRATHAM	NH	03885	390200	229700	160500	20180604	4573/17	326
04001-000000	505 CENTRAL AV	GARRISON PROPERTIES INC		131 CLEMENT RD	ROLLINSFORD	NH	03869	793600	231700	561900	0	0/0	303
04002-000000	4 BROADWAY	RANDALL MATTHEW		131 CLEMENT RD	ROLLINSFORD	NH	03869	417100	210100	207000	20191216	C319YR19/ET311	322
04003-000000	12 BROADWAY	RANDALL MATTHEW		131 CLEMENT RD	ROLLINSFORD	NH	03869	177100	159000	18100	20191216	C319YR19/ET311	337
04005-000000	14 BROADWAY	DOWNTOWN DOVER STORAGE LLC		42 L DOVER POINT RD	DOVER	NH	03820	258000	245300	12700	20191220	4719/976	401
04006-000000	18 BROADWAY	PARKER JASON M		18 BROADWAY	DOVER	NH	03820-3202	147400	97800	49600	20001222	2259/786	326
04007-000000	22 BROADWAY	ZELAZO THERESA E		23 BIRCH DRIVE	DOVER	NH	03820	262300	100200	162100	0	1077/69	13
04008-000000	26 BROADWAY	ASH RYAN C		26 BROADWAY	DOVER	NH	03820	192500	94300	98200	20180515	4568/51	101
04012-000000	23 25 PIERCE ST	MORNINGSTAR PROPERTIES LLC		101 PORTSMOUTH AVE	NEW CASTLE	NH	03854	379300	112000	267300	20160523	4383/47	111
04013-000000	21 PIERCE ST	MORNINGSTAR PROPERTIES LLC		101 PORTSMOUTH AVE	NEW CASTLE	NH	03854	377300	106400	270900	20160523	4383/46	111
04014-000000	17 19 PIERCE ST	MCCRACKEN MICHAEL B &	MCCRACKEN CASSANDRE M	28 HOUGH ST	DOVER	NH	03820	391000	112400	278600	20200116	4726/903	111
04015-000000	PIERCE ST	BOISSE GARY R		PO BOX 755	SOMERSWORTH	NH	03878-0755	25800	25800	0	20020926	2587/717	392
04017-000000	525 CENTRAL AV	DOVER NH CAR WASH LLC		24B LILY POND RD	BOXFORD	MA	01921	526000	238100	287900	20201223	4849/786	335
04019-000000	519 CENTRAL AV	PAPAIOANNOU ATHANASIOS &	PAPAIOANNOU SOTIRIOS	177 HENRY LAW AVENUE	DOVER	NH	03820-3816	426000	234300	191700	20040303	2951/226	326
04020-000000	511 CENTRAL AV	PAPAIONNOU SOTIRIOS & ALEXANDRA &	PAPAIONNOU ATHANASIOS AND MARTHA	1 BIRCH DR	SOUTH BERWICK	ME	03908	648300	242200	406100	20000328	2244/144	303
04021-000000	CENTRAL AV	PEOPLE'S UNITED BANK		850 MAIN ST	BRIDGEPORT	CT	06604	71900	59900	12000	0	984/445	337
04022-000000	2 10 PIERCE ST	TWO PIERCE STREET LLC		601 CENTRAL AVE	DOVER	NH	03820	363600	117000	246600	20200825	4797/574	13
04024-000000	12 PIERCE ST	PEOPLE'S UNITED BANK		850 MAIN ST	BRIDGEPORT	CT	06604	67100	60600	6500	19930922	1698/751	390
04034-000000	14 PIERCE ST	SYSTEM PROPERTIES LLC		PO BOX 297	DOVER	NH	03821	549400	115600	433800	20180810	4591/220	111
04035-000000	16 PIERCE ST	TRANSOM PROPERTIES LLC		PO BOX 1818	DOVER	NH	03821	517100	136500	380600	20191018	4700/892	104
05005-000000	526 CENTRAL AV	ADMR REALTY LLC		780 PORTSMOUTH AVE	GREENLAND	NH	03840-2121	442000	239400	202600	20140331	4204/579	326
06046-000000	488 490 CENTRAL AV	BAMFORD DAVID K		466 CENTRAL AVE SUITE 12	DOVER	NH	03820	1665800	307400	1358400	20040730	3041/644	303
24040-000000	4 WINTER ST	MCMANUS JAMES		PO BOX 1876	DOVER	NH	03820	364700	107800	256900	20090608	3746/425	111
24041-000000	15 ST JOHN ST	ATLAS MEMORIAL INC		84 BROAD ST	PORTSMOUTH	NH	03801	230200	106300	123900	20200608	4768/521	316
24042-000000	7 ST JOHN ST	CC 7 ST JOHN'S STREET LLC		PO BOX 571	GREENLAND	NH	03840	341100	112100	229000	20210108	4855/992	105

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Mr. Christopher Parker
Assistant City Manager: Director of Planning and Strategic Initiatives
City of Dover Planning Department
288 Central Ave
Dover, NH 03820

October 28, 2021

Ref. N0946.02
Planning File # P21-29

Re: Response to TRC Comments Letter
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

On behalf of Downtown Dover Storage, LLC, The Owner and Applicant ("Applicant"), TEC, Inc. respectfully submits this letter addressing the comments made by the Technical Review Committee (TRC) on August 26, 2021, for the Proposed Residential Development at 14 Broadway in Dover, NH. The Applicant is proposing to redevelop the existing 1-story warehouse and gravel area located at 14 Broadway, Dover, NH (Assessors Map 4, Lot 5) and the bituminous concrete parking area of 12 Broadway (Assessors Map 4, Lot 3). The Applicant is proposing to demolish the existing warehouse and construct a 4-story, 24-unit residential building with first floor commercial space and associated parking, landscaping, and utilities.

Below is a list of the outstanding original comments provided by each member of the Technical Review Committee (**in bold**) and TEC Inc.'s response (*in italics*):

Planning Comments:

1. **Will these be condos or rentals?**
   Discussions are still being had for the Proposed Residential Development at 14 Broadway on whether the units will be rentals or condos. This will be decided at a point prior to construction. Market conditions will be evaluated during final building design to determine whether condos or rentals will be more desirable at this location.

2. **Contact information needed on application pages.**
   Contact information has been added to the application pages.

3. **Owner signatures on plans.**
   Owner signature has been added to the Title & Index Sheet (C-1).

4. **Impact fees.**
   All necessary fees from the respective departments providing services to the Proposed Residential Development at 14 Broadway will be paid prior to the start of construction.

5. **W/S investment fees.**
   All required fees for the Proposed Residential Development at 14 Broadway will be paid prior to the start of construction.

6. **Might need architecture peer review to ensure it meets regulations.**
   The Architectural Plans have been designed in accordance with City of Dover Zoning Code Chapter 170 (CBD-G), City of Dover Architectural and Urban Design Guidelines, and all applicable building and fire codes.

7. **Do the units at 4-1 use the parking lot? If so, add that unit count to parking table.**
   The units at Lot 4-1 utilize the existing parking area located on Lot 4-3. The Parking Table as shown on the Layout & Materials Plan (C-7) has been revised to account for this increase in required parking.

8. **Provide:**

   - **Need CUP criteria narrative.**
     CUP Criteria Narrative has been provided.

   - **Letters to serve.**
     Letters to Serve will be coordinated with and obtained from City of Dover Municipal Services and private utility companies.

   - **Lot Line Adjustment Plan that meets regulations/registry regulations.**
     A Lot Line Adjustment Plan has been prepared by Hancock Associates, LLC that meets regulations of the City of Dover and Strafford County Registry of Deeds.

9. **Revise plan set to add:**

   - **Missing Common Site Plan Notes # 6, 13, 17, 19, 20, 25, 26, 29, 30, 31, 32, 34-41.**
     Missing Common Site Plan Notes have been added to the Legend & General Notes Sheet (C-2).

   - **Include Project Name and File #P21-29.**
     Project Name and Planning File #P21-29 has been added to the plan set.

   - **Date and North Arrow to the sheets that it is missing from.**
     Architectural Plans have been updated to include date and north arrow.

   - **Abutting Property Owners.**
     Abutting property owners have been added to the Neighborhood Plan (C-3).

   - **Professional Stamps and Signatures on each submission.**
     Professional Stamps and Signatures has been added to each submission item. Architectural drawings are schematic and are to be stamped at time of Building Permit submission.

   - **Existing and Proposed Topo info at two-foot intervals.**
     Existing and Proposed Topography at two-foot intervals has been added to the plan set.

- **Existing and proposed water lines / fire hydrant.**
  Existing and proposed water lines / fire hydrants are indicated on the Utility Plan (C-9).

- **Clear aerial for neighborhood plan, include proposed building.**
  The Neighborhood Plan has been updated with a clearer aerial, names of abutters, and the Proposed Residential Building.

- **Location, material, size of existing and proposed pavement areas.**
  The location, material, and size of existing and proposed pavement areas are provided in the Lot Coverage Table on the Grading & Drainage Plan (C-8).

- **Bring utilities to site and underground.**
  Utilities are proposed to be brought to site and underground as shown on the Utility Plan (C-9). Final location of utilities will be coordinated with City of Dover and private utility companies.

- **Streetscape from Broadway.**
  Streetscape views from Broadway have been provided.

- **Parking is shared in CBD. Revise parking table.**
  The Parking Table has been revised to include the minimum required parking considering that shared parking is utilized, as shown on the Layout & Materials Plan (C-7). Detailed parking calculations have been included in the Traffic Memo.

- **Add street trees, benches, waste bins, and bike racks.**
  Benches, waste bins, and bike racks have been added to the site plans per the Streetscape Standards. Final location of benches, waste bins, and bike racks will be coordinated prior to occupancy. The project is requesting a waiver for street trees in lieu of planters at the street level. Due to the width of the sidewalk, the design team feels planters would be better suited for this particular location. They would be more accessible to pedestrians and provide vibrancy along the building face. The proposed planter size is substantial enough that they would provide a good amount of plants along the street. They can be removed in the winter if needed for sidewalk plows or there is the opportunity to be used for seasonal plantings that could be festive different times of the year. We believe this meets the intent of the code and desire for the City to have plants along the sidewalk.

- **Landscape plan to meet regulations.**
  A Landscape Plan per Dover Code Site Plan Regulations has been added to the plan set.

- **Lighting plan to meet regulations.**
  A Lighting Plan per regulations has been added to the plan set.

- **No chain link fence. Needs to be solid stockade.**

Per the site development design criteria for fences, no chain link fence is being installed along the front or side yards. A chain link fence with vinyl slats for safety and screening has been proposed along the rear of the site.

- **Indicate streets on architectural elevations.**
  Street names have been indicated on the Architectural Elevations.

Engineering Comments:

1. **Provide more clarification of what happens along Lot 4-6 and Lot 4-20.**
   Along Lot 4-6, the grade of the proposed landscaped area will meet the grade of the existing landscaped area on Lot 4-6. Along Lot 4-20, the proposed landscaped area will end where the existing pavement starts on Lot 4-20. Along both property lines, there will be no permanent impacts to the adjacent lots.

2. **Add a catch basin in the upper lot at the throat.**
   A catch basin has been added that will capture stormwater runoff generated by the upper portion of the proposed parking lot, as shown on the Grading & Drainage Plan (C-8).

3. **Show more detail and grades along the RR.**
   The Base Plan has been updated to include spot grades along the railroad tracks' retaining wall.

4. **Investigate what drain line exists in Broadway and location before relying on it.**
   Final location of tie-in to existing drain line in Broadway to be coordinated with City of Dover DPW prior to construction.

5. **Plug the existing drain and sewer lines in the old building now. There is infiltration of stormwater into the sewer system.**
   Utilities leading to the existing building such as drainage, sewer, and water are to be terminated upon demolition of the structure, per Note #4 on the Demolition Plan (C-6).

6. **Note to rework the SMH invert for new tie in.**
   Note added to Utility Plan (C-9) to rework the SMH invert for new tie in.

7. **Spec a tapping sleeve and gate and separate the fire and domestic outside the building.**
   Details have been provided for tapping sleeve and gate. The domestic supply line and suppression line have been separated outside the building as shown on Utility Plan (C-9).

8. **What is the proposed water and sewer service type and size?**
   The proposed water and sewer service type and size is shown on the Utility Plan (C-9).

9. **Discuss where the electric will come into the building and OH vs UG.**

The electrical will enter the building via underground conduit at the southeast corner as shown on the Utility Plan (C-9).

10. **Will there be enough separation with the existing OH wires?**
The project proposes to remove and relocate Utility Pole 144-42 due to its existing location in relevance to the Proposed Residential Development. Removing this utility pole and relocating the existing wires leading to it will provide adequate separation between the existing and proposed overhead wires.

Fire/Inspection Comments:

1. **Prior to razing the existing structure and earth disturbances provide a hazardous materials mitigation plan and removal report.**
Prior to razing the existing structure and earth disturbance, a Hazardous Materials Mitigation Plan and Removal Report will be provided.

2. **Plan set does not appear to reference design compliance with applicable accessibility regulations (i.e. IBC, State of NH, etc.)**
The building has been designed to comply with all applicable accessibility codes. Reference to ADA compliance has been noted on Architectural plans. A full building code search, accessibility drawings and details, as well as all life-safety drawings will be included in the Construction Document set that will be submitted for building permit.

3. **Plan set to include site work hours and days of the week.**
Per General Note #4 on the Legend and General Notes Sheet (C-2), site construction hours shall be limited to Monday through Friday between 7 AM and 6 PM, Saturday and Sunday 9 AM and 4 PM.

4. **Sheet C-3 accessible parking area layout within the building does not appear to coincide with the accessible detail on sheet C-10.**
The accessible parking detail provided on Sheet C-11 applies to the accessible parking area layout in the upper portion of the parking lot. Dimensions have been added to the accessible parking area located within the building as shown on the Layout & Materials Plan (C-7). There are at a minimum two accessible access points to the commercial space. At least one of the access doors on Broadway will have an automatic door opener with push paddle. Both doors have all clearances required for ADA access. The second entry point is located on the Garage side. This door is accessed from an accessible sidewalk that meets all clearances required at door entry. The accessible entry to the residential space is through the lobby. At least one of the primary entry doors will have an automatic door opener with push button actuator. An elevator and fire rated stairs will provide access to the residential floors above.

5. **Sheet C-6 note ** references 2002 ADA – verify this is the most current referenced document or revise as required.**
*Note ** on the Layout & Materials Plan (C-7) has been revised to include the most recent ADA Accessibility Guidelines.*

6. **Sheet C-8 appears to have one water supply to the structure. Provide a suppression line and domestic supply line with separate water shut offs in an accessible location.**
   The Utility Plan (C-9) has been revised to include a separate suppression line and domestic supply line with shut-offs in an accessible location.

7. **Indicate the location of the FDC and sprinkler room.**
   A mechanical room on the east side of the building has been located on the first floor. This will be the location of the Fire Department Connection and sprinkler room.

8. **Sheet C-8 indicate location of the new service lateral for the existing two-story masonry structure.**
   A note has been added to the Utility Plan (C-9) that utilities to existing 2-story masonry structure on Lot 403 will remain in place.

9. **Sheet C-8 clarify the OH on the CD corner of the proposed structure.**
   The OH on the CD corner of the Proposed Residential Development has been revised to show underground electric as shown on the Utility Plan (C-9).

10. **Sheet C-8 clarify gas meter quantity and location (Exterior/interior). Correlate with architectural/elevation plans.**
    The location and quantity of gas meters has been provided on the Utility Plan (C-9) as well as on the Architectural Elevations.

11. **Sheet C-8 indicate accessible means for the electric car charging station.**
    An accessible electric vehicle charging space has been provided in the northeast corner of the Proposed Residential Building as shown on the Layout & Materials Plan (C-7).

12. **Sheet C-12 discuss dumpster detail and configuration to comply w/ applicable accessible regulations. Revise as required.**
    The dumpster detail and configuration has been revised to comply with applicable accessible regulations.

13. **Show a street scape from St. Johns Street.**
    A streetscape from St. Johns Street has been provided.

14. **Indicate building elevations for all sides or proposed structure.**
    All building elevations have been indicated for each side of the structure.

15. **Indicate the location of the area of refuge.**
    An area of refuge is not required in this building per IBC 1009.3.1.1 exception 5: Areas of refuge are not required at stairways in buildings equipped throughout with an automatic sprinkler system installed in accordance with section 903.3.1.1. or 903.3.1.2. Also, NFPA A.30.2.2.12.2 permits the entire floor to serve as an area of refuge where it is protected in accordance with 31.3.5.

Economic Development:

1. **Architectural Amenities.**
   Architectural amenities include:
   - *Human scale building forms and details at street level.*
   - *Building has been brought to the lot line on Broadway to encourage vibrancy.*
   - *Bicycle racks have been provided on site.*
   - *Green roof.*
   - *Electric vehicle charging stations.*
   - *Roof is PV ready.*
   - *80% windows/doors of the first-floor façade along Broadway.*
   - *Brick base and tower to reinforce relationship to building context and to celebrate Dover's history in brick making.*
   - *Tower form at corner of building facing downtown to create a prominent vista along the street and to create an architectural expression and interest at the corner.*
   - *Building edge has been brought to property line to define street edge.*
   - *A public art wall has been incorporated on East corner of building to provide visual interest upon entering the downtown core from further up Broadway. This will also be visible at the St.John's intersection.*
   - *Trees along the edge of the East property line help screen utilities and parking garage edge from adjacent lot.*
   - *Proposed planters at streetscape to provide pedestrians with plants at eye level.*
   - *Recessed brick banding at base of building to provide visual interest with pattern and depth. Brick banding around the building and change of material helps to break up the building massing.*
   - *Exterior building lighting at ground floor will wash walls and light up entry canopies. Lighting will be warm and ambient while providing a level of security. All lighting will be LED.*
   - *Dumpsters will be screened.*
   - *Acoustical panels have been added to the fence along the train tracks to mitigate train sound on site.*

2. **Colors – Motif should be similar to other downtown buildings.**
   Colors will be a rich blend of clay brick that is native to downtown Dover, black window frames, and taupe cement board panels. This color palette is harmonious with existing buildings in downtown Dover.

3. **Graffiti prevention.**
   As part of an effort to deter graffiti, we are proposing use of rich, darker color brick that will not show graffiti as prominently as lighter colors would. Where applicable, anti-graffiti coatings will be applied. Illuminating the building at the night will further prevent opportunities for graffiti.

Planning Board Comments:

1. **Landscaping index.**
   Landscape Plans and index have been included.

2. **Screening around dumpster and electric boxes and complete way by railroad tracks.**
   Vegetative screening has been provided around the proposed concrete pad for the dumpsters and the proposed electrical box.

3. **Mitigate graffiti.**
   As part of an effort to deter graffiti, we are proposing use of rich, darker color brick that will not show graffiti as prominently as lighter colors would. Where applicable, anti-graffiti coatings will be applied. Illuminating the building at the night will further prevent opportunities for graffiti.

4. **Snow storage.**
   A temporary snow storage area is provided at the west side of the proposed parking lot as shown on the Layout & Materials Plan (C-6).

5. **Maintenance plan for the grounds.**
   An Operation & Maintenance Plan has been provided within the Drainage Report.

6. **Market rate?**
   The Proposed Residential Development is intended to provide market rate units.

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Christopher Raymond, PE
Civil Engineer – Design Engineer

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Mr. Chris Parker
Assistant City Manager: Director of Planning and Strategic Initiatives
City of Dover Planning Department
288 Central Ave
Dover, NH 03820

October 28, 2021

Ref. N0946.02

Re: Conditional Use Permit Criteria Narrative
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

On behalf of Downtown Dover Storage, LLC, The Owner and Applicant ("Applicant"), TEC, Inc. respectfully submits this narrative outlining conformance to the Conditional Use Permit (CUP) Criteria for review by the Technical Review Committee (TRC) for the Proposed Residential Development at 14 Broadway in Dover, NH. A Conditional Use Permit is being sought to grant relief to the required 20% minimum first floor commercial use space in the CBD General Sub-District. Conformance with all standards established in the City of Dover Zoning Ordinance Chapter 170-20B(1)&(2) are justified below:

Conditional use approval for relief from the standards herein may be granted by the PLANNING BOARD (RSA 674:21 II) after proper public notice and public hearing provided that the proposed project complies with the following standards:

a. **That both public and private BUILDINGs and landscaping shall contribute to the physical definition of RIGHTs OF WAY as CIVIC SPACEs.**
The Proposed Residential Development contributes to the physical definition of RIGHTs OF WAY as CIVIC SPACEs

b. **That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.**
The Proposed Residential Development adequately accommodates automobiles by providing a total of 68 parking spaces to be shared between Lots 4-3 and 4-5. In order to achieve the goal of respecting the pedestrian and the spatial form of public areas, the development provides parking beneath the building to limit the amount of impervious surface on the site and provide ample landscaping to beautify site.

c. **That the design of STREETs and BUILDINGs shall reinforce safe environments, but not at the expense of accessibility.**
The Proposed Residential Development provides a balance between reinforcing safe environments and maintaining accessibility. The site contains wheelchair ramps where necessary, sidewalks for pedestrian access from Broadway, and adequate signage to make vehicles and pedestrians aware of their surroundings.

d. **That architecture and landscape design shall grow from local climate, topography, history, and BUILDING practice.**
The architectural features being utilized were influenced by the surrounding neighborhood, while upholding the overall goal of contributing towards a harmonious and orderly evolution of Dover, NH.

e. **That BUILDINGs shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods.**
The Proposed Residential Development will provide their inhabitants with a clear sense of geography and climate through energy efficient methods such as incorporating a green roof, solar panel and electric vehicle parking.

f. **That CIVIC BUILDINGs and public gathering places shall be provided as locations that reinforce community identity and activity.**
This standard is not applicable to this project.

g. **That CIVIC BUILDINGs shall be distinctive and appropriate to a role more important than the other BUILDINGs that constitute the fabric of the city.**
This standard is not applicable to this project.

h. **That the preservation and renewal of historic BUILDINGs shall be facilitated.**
This standard is not applicable to this project.

i. **That the harmonious and orderly evolution of urban areas shall be advanced by the proposed BUILDING and/or use.**
The Proposed Residential Development contributes towards the harmonious and orderly evolution of Dover, NH, utilizing aspects of strategic land planning and unique architectural features.

Conditional use approval for relief from the **use** standards herein may be granted by the PLANNING BOARD (RSA 674:21 II) after proper public notice and public hearing provided that the proposed project complies with the following standards:

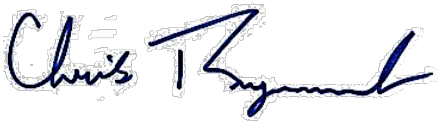
a. **The requested use shall be compatible with abutting uses and the surrounding NEIGHBORHOOD.**
The Proposed Residential Development compliments the abutting uses and surrounding neighborhood of the CBD-G Zoning District, with a wide variety of uses located within the neighborhood. It will develop a currently abandoned lot into a modern, 4-story residential building with first floor commercial space.

b. **The requested use will not create undue traffic congestion, or unduly impair pedestrian safety.**
Please see the Traffic Impact Analysis for the project.

c. **The requested use will not result in objectionable noise or odor which would constitute a NUISANCE.**
The requested use will not result in objectionable noise or odor which would constitute a nuisance.

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*



Christopher Raymond, PE
Civil Engineer – Design Engineer

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Mr. Chris Parker
Assistant City Manager: Director of Planning and Strategic Initiatives
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October 28, 2021

Ref. N0946.02

Re: Street Trees Waiver Request
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

On behalf of Downtown Dover Storage, LLC, The Owner and Applicant ("Applicant"), TEC, Inc. respectfully submits this letter to request a waiver seeking relief from the Streetscape Standards under Section 170-20(E)(3)(a)(i) of the City of Dover Zoning Code, which requires street trees to be planted at an average spacing of 25 to 30 feet on center. Due to the width of the sidewalk, the design team feels planters would be better suited for this particular location. They would be more accessible to pedestrians and provide vibrancy along the building face. The proposed planter size is substantial enough that they would provide a good amount of plants along Broadway. They can be removed in the winter if needed for sidewalk plows or there is the opportunity to be used for seasonal plantings that could be festive different times of the year. We believe this meets the intent of the code and desire for the City to have plants along the sidewalk.

Please do not hesitate to contact me directly if you have any questions concerning this waiver request at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Christopher Raymond, PE
Civil Engineer – Design Engineer

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

October 27, 2021

Chris Raymond TEC

RE: Tax Map 4 Lot 5-14 Broadway

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

Unitil
Northern Utilities, Inc.

October 28th, 2021

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

Natural Gas to Mixed-Use Development at 14 Broadway in Dover, NH

To Whom it May Concern,

Unitil/Northern Utilities Natural Gas Division has reviewed the requested site for natural gas service:

Unitil hereby confirms that natural gas is available to supply the proposed development known as '***Mixed-Use Development"*** *at 14 Broadway in Dover, NH 03820*.

Please note that this property will be served from our low-pressure gas system and our gas service pressure will not exceed 7" Water Column.

If you have any questions, please contact me at 603-534-2379.

Sincerely,

Dave MacLean
Senior Business Development Rep
Unitil
T 603.294.5261 **M** 603.534.2379 **F** 603.294.5264
Email macleand@unitil.com

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Create | Design | Innovate

Mr. Christopher Parker
Assistant City Manager: Director of Planning and Strategic Initiatives
City of Dover Planning Department
288 Central Ave
Dover, NH 03820

October 28, 2021

Ref. N0946.02
Planning File # P21-29

Re: Traffic Impact Assessment
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

TEC, Inc. (TEC) has been retained by Downtown Dover Storage to prepare a Traffic Impact Assessment (TIA) for the proposed change in use of the property located at 14 Broadway in Dover, New Hampshire. The site is currently comprised of a one-story ±10,417 square foot (SF) warehouse building with access provided along the north side of Broadway via an unpaved driveway. The Applicant proposed to raze the existing structure and construct a four-story building to include ±3,450 SF of ground floor retail with three upper floor residential space including 24 residential units. The site will include 68 off-street parking spaces including 29 podium parking spaces as part of the building's ground floor. The project will also formalize six (6) on-street parking spaces (5 new) along the northerly side of Broadway at the project's front door.

The existing site currently has two (2) driveways along the northerly side of Broadway. Both driveways are one-way flow with the easternmost driveway providing full-access and the westernmost driveway providing full-egress. The project seeks to remove the easternmost driveway and reconfigure the westernmost driveway as a full access/egress driveway.

This TIA has been prepared as a "Standard Analysis" in accordance with Chapter 149-13-A(20) of the Dover Site Review Regulations and Chapter 155-9-I of the Dover Land Subdivision Regulations, which outline the potential impacts to the existing traffic conditions and safety in the vicinity of the project. The proposed change in use is anticipated to result in an increase in overall traffic to/from the site and the adjacent Broadway corridor. The following letter summarizes the evaluation of traffic impact resulting from the proposed development.

Existing Conditions

The project site is located at #14 Broadway (Assessor's Map 4, Lot 14) which forms an L-shaped parcel around the adjacent #6 Broadway property and its parking. The north side of the parcel directly abuts the Boston & Maine Railroad Right of Way (ROW). The existing ±10,417 SF building footprint directly abuts the property line on both the north and south sides. The building front door faces east into the parcel's unpaved parking area and driveway, which accesses Broadway just east of the #6 Broadway parking field. The existing driveway is approximately 16-feet wide. The building structure was previously utilized as a warehousing use.

Broadway, the adjacent roadway, is a two-lane, north-south minor arterial roadway maintained by the City of Dover. The roadway provides regional connection between Main Street (Route 9) to the south and Rollins Road to the north. In the vicinity of the project site, Broadway is approximately 45 feet wide with 7 foot on-street parking stalls aligning portions of the north curb line. Directional flow along Broadway is separated by a double-yellow centerline. The posted speed limit along the corridor is 30 miles per hour (mph) adjacent to the proposed project. Sidewalks are provided along both sides of Broadway; however, no bicycle accommodations are provided. Land uses along Broadway generally include retail, commercial and residential uses.

Driveway Sight Distance Measurements

TEC measured the available sight distances at the existing site driveway along Broadway. The available sight lines were compared to minimum requirements established by the American Association of State Highway and Transportation Officials (AASHTO).

Sight distance represents the length of roadway that is visible to a driver traveling within the roadway. Two types of sight distance are typically evaluated for driveways and intersections: stopping sight distance (SSD) and intersection sight distance (ISD). SSD is the minimum distance required for a driver traveling along a roadway to perceive an object in the roadway and stop safely in advance of the object when traveling on a wet pavement surface. SSD is measured from an eye height of 3.5-feet to an object height of 2-feet above the ground, which is equivalent to a driver viewing the taillight of a vehicle ahead. SSD is measured along the centerline of the travel lane approaching the driveway or intersection.

ISD represents the length of the roadway visible to a driver waiting to exit a driveway or minor street. Minimum ISD requirements are based on the distance required for a driver to exit a minor street onto a major street without requiring an approaching vehicle to reduce its speed from the design speed to less than 70 percent of the design speed. ISD is measured from an eye height of 3.5-feet to an object height of 3.5-feet and is measured from a distance 14.5-feet beyond the edge of the travel-way of the major roadway to represent a driver waiting to exit a driveway or minor roadway.

SSD is typically considered the critical sight distance, as it represents the minimum distance required for safe stopping, while ISD represents an acceptable speed reduction for approaching vehicles. The ISD, however, must be at least equal to the minimum required SSD to prevent a driver from entering the roadway when an approaching vehicle is too close to safely stop. The guidance provided by AASHTO states:

> *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."*

Table 1 provide a summary of the available ISD at the intersection.

Table 1 – Existing Intersection Sight Distance Measurements

Approach / Direction	Posted Speed	AASHTO Recommended Minimum	Measured Stopping Sight Distance
Site Driveway at Broadway:			
East of Driveway	30 MPH	200 FT	110 FT (190 FT [a])
West of Driveway	30 MPH	200 FT	120 FT (280 FT [b])

[a] ISD if parking space in front of site and Papa Jay's Pizzeria were removed
[b] ISD if the adjacent private parking lot was removed

As shown in Table 1, the ISD along the existing site driveway / Broadway do not meet the AASHTO minimum recommendations based on the posted speed limit along Broadway.

To the east, the sight line is obstructed by existing on-street parking stalls along the north side of Broadway. This condition is currently present at the parcel's existing driveway and curb-cut. If the on-street parking stall directly abutting the subject parcel and the adjacent space at the Papa Jay's Pizzeria front door were removed, the sight line is extended to 190 feet. An additional on-street parking stall removal will further extend the sight line greater than AASHTO minimum recommendations. Should no vehicles be parked in these aforementioned spaces, the sight line from the #14 Broadway driveway would exceed AASHTO minimum recommendations.

To the west, the sight line is obstructed by existing off-street parking stalls on the #6 Broadway property. This condition is currently present at the parcel's existing driveway and curb-cut. Should no vehicles be parked in these aforementioned spaces, the sight line from the #14 Broadway driveway would exceed AASHTO minimum recommendations.

Site Generated Traffic

The site-generated traffic volumes for the 24 residential units and ±3,450 SF of commercial space were estimated based on standard trip rates published in the Institute of Transportation Engineers' (ITE) publication *Trip Generation, 10th Edition* for Land Use Code (LUC) LUC 221 – Multifamily Midrise Housing and LUC 820 – Shopping Center. Table 2 provides a summary of the site trip generation estimates.

Table 2 - Trip Generation Summary

Time Period	Multifamily House (LUC 221)	Shopping Center (LUC 820)	Total Trips
Weekday Daily			
IN	66	65	**131**
OUT	66	65	**131**
TOTAL	132	130	**262**
Weekday Morning			
IN	3	2	**5**
OUT	7	1	**8**
TOTAL	10	3	**13**
Weekday Evening			
IN	7	6	**13**
OUT	4	7	**11**
TOTAL	11	13	**24**

As shown in Table 2, the proposed multifamily house and shopping center are anticipated to generate a total of 262 *new* vehicle trips during the typical weekday, 13 *new* vehicle trips (5 entering and 8 exiting) during the weekday morning peak hour, and 24 *new* vehicle trips (13 entering and 11 exiting) during the weekday evening peak hour. This level of new traffic to the roadway is minimal including during the peak hours of the day where traffic would be expected to result in a maximum one new vehicle every two and a half minutes (weekday evening peak hour). This level of new traffic is generally unnoticeable.

The proposed 68 space commercial and residential development and parking lot does not generate 1,000 average daily trips or 100 peak hour trips therefore does not apply for an "Advanced" analysis. Site generated trip calculations are attached.

Public Transportation

The proposed parking facility is located approximately 0.25 miles from the Dover Transportation Center which serves as the hub for multiple Cooperative Alliance for Seacoast Transportation (COAST) bus routes and AMTRAK Downeaster rail service. Public transportation data is summarized below:

- COAST Route 1 [Dover / Somersworth / Berwick] – Service is provided from the Dover Transportation Center to Sullivan Street in Berwick with several designated stops within Dover, Somersworth, and Berwick, ME. The bus operates northbound from 5:19 AM to 7:05 PM over 13 daily runs at approximately 45 to 80-minute headways. The bus operates southbound from 5:51 AM to 7:52 PM over 13 daily runs at approximately 55 to 80-minute headways. Saturday services operates northbound from 6:30 AM to 6:45 PM over eight (8) daily runs at approximately 90 to 120-minute headways. The bus operates Saturday southbound from 7:12 AM to 7:34 PM over eight (8) daily runs at approximately 90 to 120-minute headways.
- COAST Route 2 [Rochester / Somersworth / Dover / Newington / Portsmouth] – Service is provided from Market Square in Portsmouth to Highland Street in Rochester; including the Dover Transportation Center. The bus operates northbound from 5:49 AM to 10:24 PM over 20 daily runs at approximately 40 to 80-minute headways. The bus operates southbound from 5:25 AM to 9:09 PM over 20 daily runs at approximately 30 to 90-minute headways. Saturday services operates northbound from 6:44 AM to 11:07 PM over nine (9) daily runs at approximately 90 to 180-minute headways. The bus operates Saturday southbound from 7:12 AM to 7:34 PM over nine (9) daily runs at approximately 80 to 210-minute headways.
- COAST Route 3 [UNH Wildcat Service] – Service is provided from UNH to Shaw's in Dover; including the Dover Transportation Center. The bus operates outbound from 6:40 AM to 8:06 PM over eight (8) daily runs at approximately 60 to 150-minute headways. The bus operates inbound from 7:11 AM to 8:34 PM over eight (8) daily runs at approximately 60 to 150-minute headways. Saturday and Sunday services operates outbound over three (3) runs at 9:05 AM, 2:05 PM, and 6:35 PM. Saturday and Sunday services operates inbound over three (3) runs at 9:36 AM, 2:36 PM, and 7:06 PM.
- COAST Route 33 [Dover Downtown / County Complex] – Service is provided Monday through Friday from the Dover Transportation Center to the Stafford County Courthouse in Dover. The bus operates inbound from 6:57 AM to 5:29 PM over nine (9) daily runs at

approximately 70-minute headways. The bus operates outbound from 6:25 AM to 5:06 PM over nine (9) daily runs at approximately 70-minute headways.

- COAST Route 101 [Dover - Kittery] – Service is provided Monday through Friday from Government Street in Kittery, ME to the Lilac Garden Apartments in Dover; including along Main Street near Broadway. The bus operates twice each weekday leaving the Lilac Garden Apartments in Dover at 5:51 AM and 4:12 PM.
- AMTRAK Downeaster – Service is provided between Boston's North Station and Brunswick, ME with five (5) northbound and southbound trips on a typical weekday and five (5) weekend trips. The Downeaster makes stops in Dover at the Dover Transportation Center in the southbound direction at 6:17 AM, 9:16 AM, 12:57 PM, 3:17 PM, and 7:13 PM and in the northbound direction at 10:35 AM, 2:35 PM, 6:30 PM, 7:51 PM, and 11:59 PM. On weekend days, the Downeaster makes stops in Dover at the Dover Transportation Center in the southbound direction at 7:17 AM, 9:17 AM, 2:07 PM, 4:17 PM, and 7:57 PM and in the northbound direction at 11:25 AM, 2:30 PM, 6:20 PM, 8:30 PM, and 11:59 PM.

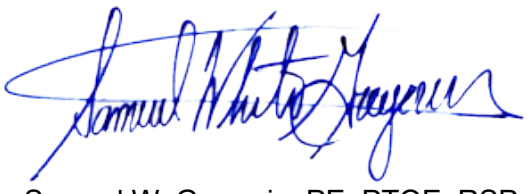
There is currently no direct public transportation service along Broadway or adjacent to the site. Bus stops for Routes 3, 33, and 101 are provided along Main Street 900 feet to the south of Broadway and Routes 2, 3, 33, and 101 along Main Street / 6Th Street 800 feet to the north of Broadway. Based on the type of uses, it is expected that a portion of residential and retail site generated traffic would travel to/from the site via public transportation; however, this has not been included in the previous site generated trip calculations.

Summary

The proposed site generated traffic to/from the site is anticipated to be minimal including during the peak hours of the day where traffic would be expected to result in a maximum one new vehicle every two and a half minute (weekday evening peak hour). This level of new traffic is generally unnoticeable. The anticipated traffic generated by the proposed development and parking lot can be safely and efficiently accommodated within the study area. The overall change in use of the site will have a negligible impact to traffic operations and safety.

Please do not hesitate to contact me directly if you have any questions concerning our evaluation at 978-794-1792.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*





Samuel W. Gregorio, PE, PTOE, RSP$_1$
Senior Design Engineer / Project Manager - Transportation Planning & ITS

Attachment A – Trip Generation Assessment

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Figure 1 – 14 Broadway – Facing Northwest from Broadway – 4/23/2021



Figure 2 – 14 Broadway – Existing 1-Story Warehouse Facing West from Site– 4/23/2021



Figure 3 – 14 Broadway – Facing Southeast from North Side of Site – 4/23/2021



Figure 4 – 14 Broadway – Facing Adjacent Parcel (12 Broadway) from Broadway – 4/23/2021



Figure 5 – 14 Broadway – Facing Adjacent Parcel (18 Broadway) from Site – 4/23/2021



Figure 6 – 14 Broadway – Site Entrance Facing West from Broadway – 4/23/2021

DRAINAGE REPORT

PROPOSED RESIDENTIAL DEVELOPMENT

Assessor's Map 4, Lot 5
14 Broadway
Dover, New Hampshire

Prepared for:

Downtown Dover Storage, LLC
42 L Dover Point Road
Dover, NH 03820

Prepared by:

TEC, Inc.
169 Ocean Boulevard
Unit 101 PO BOX 249
Hampton, NH 03842

October 28, 2021

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Narrative

Introduction

Downtown Dover Storage, LLC (the "Applicant") is proposing to redevelop the existing 1-story warehouse and gravel area located at 14 Broadway, Dover, NH (Assessors Map 4, Lot 5). The project will also include redeveloping the bituminous concrete parking area of 12 Broadway (Assessors Map 4, Lot 3). The total project area is 35,032 square feet (SF) situated between the Boston & Maine Railroad Tracks (northerly), Papa Jay's Pizzeria (easterly), Broadway (southerly), and Dover House of Pizza (westerly), located within the Central Business District, General Sub District overlay. The project is defined on the *Project Location Map* (Figure 1).

The Applicant is proposing to redevelop the site by demolishing the existing warehouse and constructing a 4-story residential building with associated parking and landscaped areas. A lot line adjustment is being proposed between Lot 4-5 and the adjacent Lot 4-3 to account for the proposed use, which requires a larger building footprint, increased parking count, and larger landscape areas to provide for methods of stormwater treatment.

This drainage study was performed in order to assess the potential impacts of the proposed improvements and to provide measures to mitigate any impacts of the Project. The Project will provide a stormwater management system incorporating traditional and Low Impact Design (LID) Best Management Practices (BMPs) elements. This analysis has been prepared to verify that the Project will not have an adverse effect on the stormwater conditions both on-site and off-site.

The Stormwater Management Plan has been designed to meet the Stormwater Standards identified in the New Hampshire Stormwater Manual. The proposed project reduces effective impervious area and peak runoff rates, decreases the risk of erosion and sedimentation, and improves stormwater runoff quality by removing total suspended solids (TSS).

Existing Conditions

The project area is 35,032 SF consisting of a total impervious area of 25,497 SF which includes the 1-story warehouse and the bituminous concrete parking area, and a total pervious area of 9,535 SF consisting of 6,761 SF of poorly graded, compacted gravel and 2,774 SF of poorly maintained landscape area. Topography at the site varies between the two lots, where on Lot 4-5 a low point exists near the center of the gravel area preventing stormwater from traveling with ease into the Broadway closed drainage system. Lot 4-3 grades easterly toward Broadway at a slope varying between 0.5-1.5%. Stormwater treatment on this site is nearly nonexistent based on the conditions of grading, surfaces, and landscape area. Refer to Appendix C to review the full Geotechnical Data provided by John Turner Consulting, Inc., dated December 7, 2020, for which depicts the various soils present at and around the Site.

According to the FEMA Flood Insurance Rate Maps (FIRM), map number 33017C0330E, dated September 30, 2015, the site lies entirely outside of the 100-year floodplain in an area of minimal flood hazard (Zone X). Refer to the attached FIRM Figure at the end of this section (Figure 3).

Proposed Conditions

The project proposes to construct a 4-story residential building with a footprint of 14,900+/- SF, new asphalt parking lot, and associated landscaping and means of stormwater treatment. Impervious asphalt surface will cover 11,691 SF, landscaped areas will occupy 5,806 SF of the site, sidewalk will occupy 2,342 SF, building coverage will occupy 14,860 SF, and the sawcut building wall will occupy 333 SF. There are 5 proposed sub-catchments between the 2 lots which are conveyed to a single design point, the Broadway closed drainage system. The Project is considered a redevelopment as it will decrease the impervious area of the site as compared to the existing conditions. The proposed stormwater management system has been designed in accordance with the NHDES Stormwater Manual and includes traditional and LID BMPs. BMPs proposed for the site include a reduction in impervious area, deep sump and hooded catch basins, and a Stormceptor Water Quality Units.

The stormwater management system has been designed to provide water quality treatment and water quantity control for 1" of runoff from the added impervious area. The drainage system on site will consist of a two deep sump catch basins, one located in the middle of the site to collect runoff from the majority of the asphalt parking lot and one located at the site entrance. These deep catch basins will be routed to a Stormceptor Water Quality Unit before tying into the Broadway drainage system. Roof drains will also collect all runoff created by the impervious building roof and be routed to the

Broadway Drainage System. The additional greenspace that will be provided by the project will beautify the site and will allow for a reduction in peak rates of stormwater runoff leaving the site.

Methodology

The Stormwater Management Plan, which will be implemented as part of this project, will provide adequate collection, management, and treatment of the stormwater runoff. The proposed stormwater management system will comply with the standards set forth in the New Hampshire Stormwater Manual.

Existing and proposed hydrologic conditions were analyzed using HydroCAD, an SCS TR-20 based program, to calculate existing and proposed peak discharge rates. This method takes into account existing and proposed pervious and impervious areas including soil types and hydrologic classifications. Peak rainfall data was based on Appendix A – New Hampshire Rainfall Tables from Volume 2 of the New Hampshire Stormwater Manual, published by the New Hampshire Department of Environmental Services (NHDES). The 2-, 10-, 25-, and 50-year, 24-hour storm frequencies were used in the analysis in accordance with the NHDES and City of Dover requirements.

The "Regulatory Compliance" portion of this report addresses the New Hampshire Department of Environmental Services Antidegradation requirements.

Pre-Development Runoff

In the Site's current condition, there are three existing subcatchment areas which flow towards Broadway. The *Pre-Development Drainage Areas* are depicted in Figure D-1 of this report. This figure presents the delineation of the existing subcatchment areas and the design points.

Existing Subcatchment Area 1 (EX-1) is comprised of the 1-story warehouse, gravel area, and landscaped areas, totaling 19,263 SF, where stormwater either pools and poorly infiltrates into the ground or sheet flows into the Broadway closed drainage system, Design Point 1 (DP-1).

Existing Subcatchment Area 2 (EX-2) is located at the southeast edge of the site and is comprised of the gravel area and landscape area totaling 1,013 SF, where stormwater poorly infiltrates into the ground or sheet flows into the Broadway closed drainage system, DP-1.

Existing Subcatchment Area 3 (EX-3) is located within Lot 4-3 is comprised of the bituminous concrete parking area totaling 14,756 SF, where stormwater sheet flows directly into the Broadway closed drainage system, DP-1.

Post-Development Runoff

The proposed stormwater management system is designed to mitigate the effects of the proposed development by reducing the peak rates of runoff as compared to the existing conditions. In the proposed conditions analysis, the same design points identified and analyzed under the existing conditions were analyzed. The post-development subcatchment areas are identified in Figure D-2, *Post Development Drainage Areas.*

Proposed Subcatchment Area 1 (PR-1) is comprised of 1,707 SF of pervious land area consisting of grass landscaping and 7,077 SF of impervious pavement, cement concrete sidewalk, and concrete building wall. Stormwater from PR-1 is captured by a catch basin (CB-4), routed to a Stormceptor Water Quality Unit, then discharged to the Broadway drainage (DP-1).

Proposed Subcatchment Area 2 (PR-2) is comprised of 1,974 SF of pervious land area consisting of grass landscaping and 3,410 SF of impervious pavement and cement concrete sidewalk. Stormwater from PR-2 is captured by a catch basin (CB-2), routed to a Stormceptor Water Quality Unit, then discharged to the Broadway drainage system (DP-1).

Proposed Subcatchment Area 3 (PR-3) is comprised of 490 SF of pervious land area consisting of grass landscaping and 3,030 SF of impervious pavement and cement concrete sidewalk. Stormwater from PR-3 is captured by a catch basin (CB-3), routed to a Stormceptor Water Quality Unit, then discharged to the Broadway drainage system (DP-1).

Proposed Subcatchment Area 4 (PR-4) is comprised of 1,634 SF of pervious land area consisting of grass landscaping and 849 SF of impervious cement concrete sidewalk and concrete building wall. Stormwater from PR-4 sheet flows into to the Broadway drainage system (DP-1).

Proposed Subcatchment Area 5 (PR-5) is comprised of 14,860 SF of impervious roof created by the Proposed Residential Building. Stormwater from PR-5 is collected via roof drains and conveyed to the Broadway drainage system (DP-1).

Table 1 (Peak Flow Summary)

	2-Year Storm		10-Year Storm		25-Year Storm		50-Year Storm	
Design Point	**Exist (cfs)**	**Prop (cfs)**	**Exist (cfs)**	**Prop (cfs)**	**Exist (cfs)**	**Prop (cfs)**	**Exist (cfs)**	**Prop (cfs)**
DP-1	1.82	1.79	2.96	2.94	3.87	3.86	4.71	4.71

The proposed project decreases peak runoff rates from the existing conditions for the 2-, 10-, 25-, and 50-Year storm events, in accordance with state and local regulations.

TSS Removal

Currently there are no TSS removal BMPs onsite; all of the site runoff is discharged directly into the Broadway drainage system without any treatment. The stormwater management plan for this project utilizes BMPs including street sweeping, deep hooded sump catch basins, and a water quality unit to minimize total suspended solids. All impervious area onsite will be captured by proposed deep sump catch basins and treated by a Stormceptor Water Quality Unit prior to discharge into the municipal system (see attached Stormceptor Sizing Detailed Report). The proposed project will greatly improve the quality of stormwater runoff from the site.

The proposed conditions of the project introduce no new sources of stormwater. To ensure there is no erosion or sedimentation during construction, compost filter tubes will be placed around the extents of the project and silt sacks will be placed in the existing and proposed catch basins. The project reduces the peak rate of runoff leaving the site as compared to the existing conditions with the addition of landscape area. The Rational Method was used to show the existing and proposed peak flows for the 2-year, 10-year, 25-year, and 50-year storm events, which can be seen in the attached HydroCAD Reports. Rainfall rates were taken from Appendix A of the New Hampshire Stormwater Manual.

Regulatory Compliance

Given that the project results in a contiguous land disturbance of approximately 35,000+/- SF and the site's existing impervious surface coverage was approximately 73%, the Stormwater Management for Redevelopment Standards shall apply as stated in Section 153-14(3)(c) of the City of Dover Site Review Regulations. Stormwater shall be managed in accordance with one or more of the following techniques:

- Implement measures on site that result in mitigation and treatment of at least 30% of the existing impervious cover as well as 50% of the additional proposed impervious surfaces and pavement areas through the application of LID; or
- Implement other LID techniques on site to the MEP to provide mitigation and treatment for at least 50% of the entire site area.

The proposed conditions of the site result in both of these techniques being employed through the use of deep sump catch basins and a Stormceptor

Water Quality Unit. All stormwater runoff generated by impervious surfaces will undergo treatment before being discharged into the Broadway drainage system. For further details on the treatment capacity of these LID techniques, please refer to Appendix B: Water Quality Data.

Conclusion

This proposed project will improve the site over existing conditions by reducing peak runoff rates and improving the quality of stormwater runoff created by the site. By providing additional landscaping, the project will improve the aesthetics and drainage capability of the site. The Applicant is enthusiastic to reinvest in this property, beautify a degraded site, and provide a benefit to the City of Dover.

Figure 1 – Project Location Map
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250 0 250 500

SCALE IN FEET

July 20, 2021

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

PROJECT LOCATION MAP

Location: 14 Broadway
Dover, NH 03820

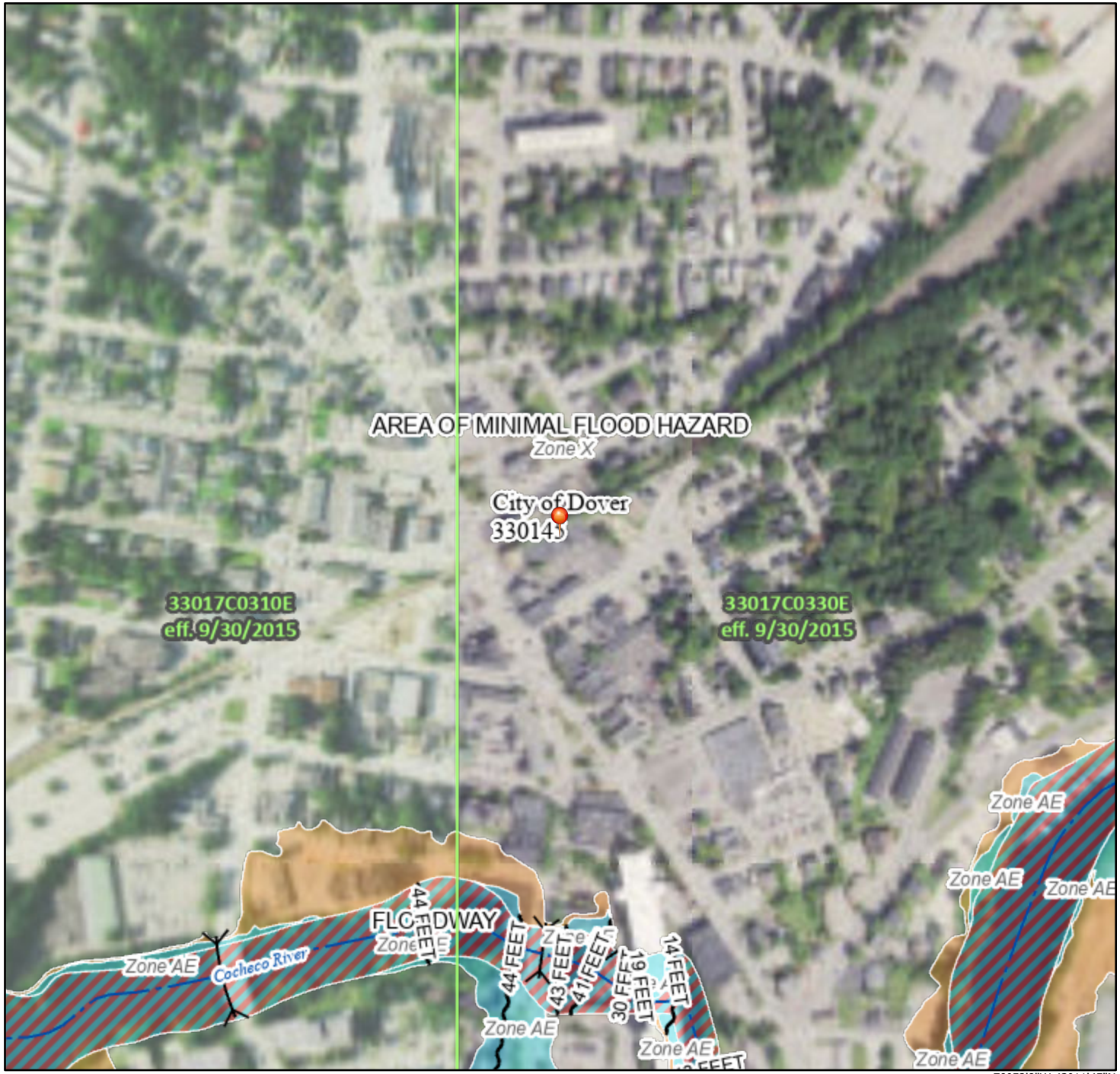
Prepared For: New Space Real Estate, LLC
42 Dover Point Road, Unit L
Dover, NH 03820

Figure 2 – FEMA FIRM
(Intentionally LEFT BLANK)

National Flood Hazard Layer FIRMette

FEMA

70°52'45"W 43°12'11"N



70°52'8"W 43°11'45"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 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.

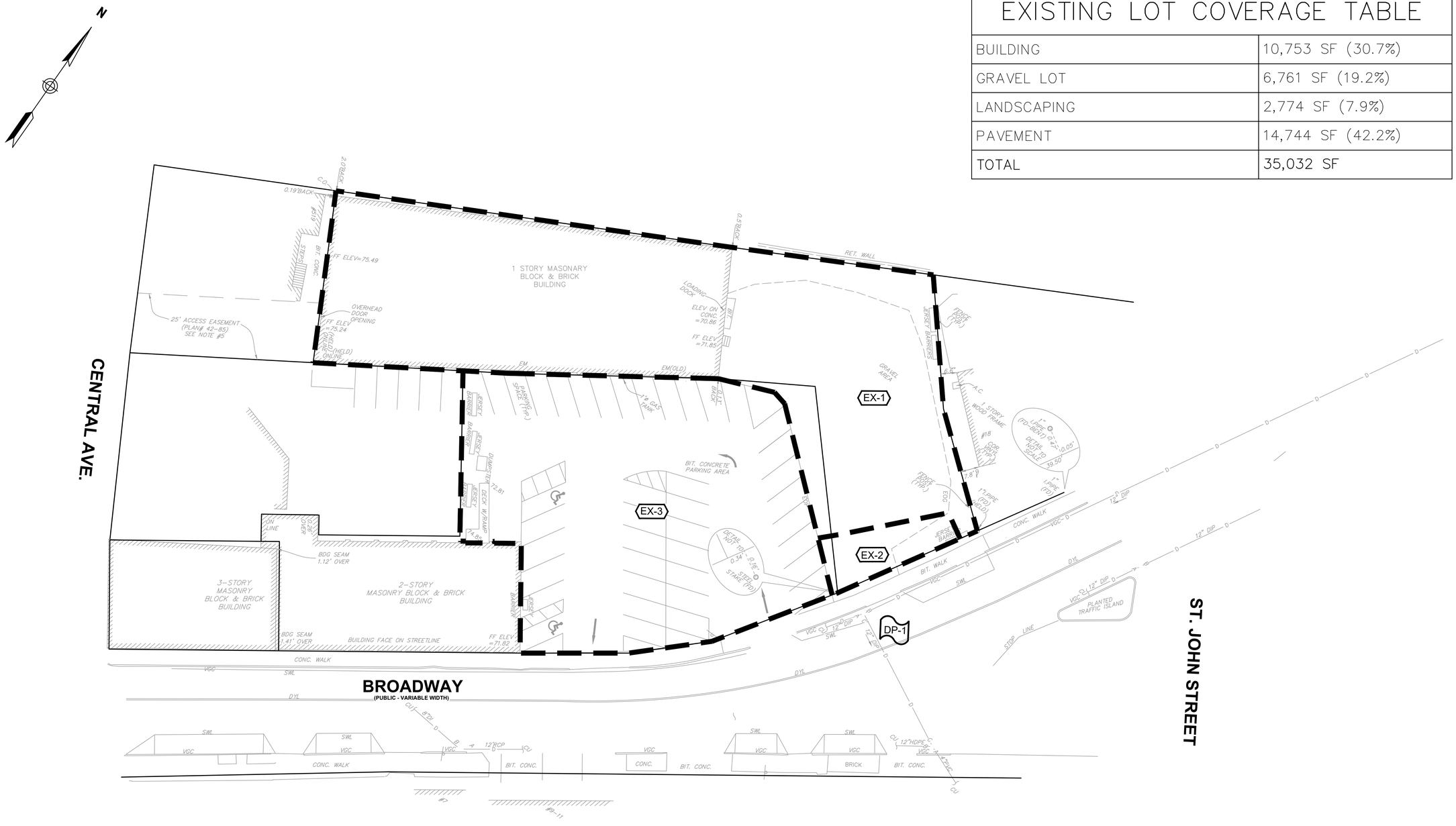
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/20/2021 at 3:27 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.

Figure D-1 Pre-Development Drainage Areas
(Intentionally LEFT BLANK)

EXISTING LOT COVERAGE TABLE	
BUILDING	10,753 SF (30.7%)
GRAVEL LOT	6,761 SF (19.2%)
LANDSCAPING	2,774 SF (7.9%)
PAVEMENT	14,744 SF (42.2%)
TOTAL	35,032 SF



146 Dascomb Road
Andover, MA 01810

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842

t: (978) 794-1792
TheEngineeringCorp.com

Scale: 1" = 20'

October 28, 2021

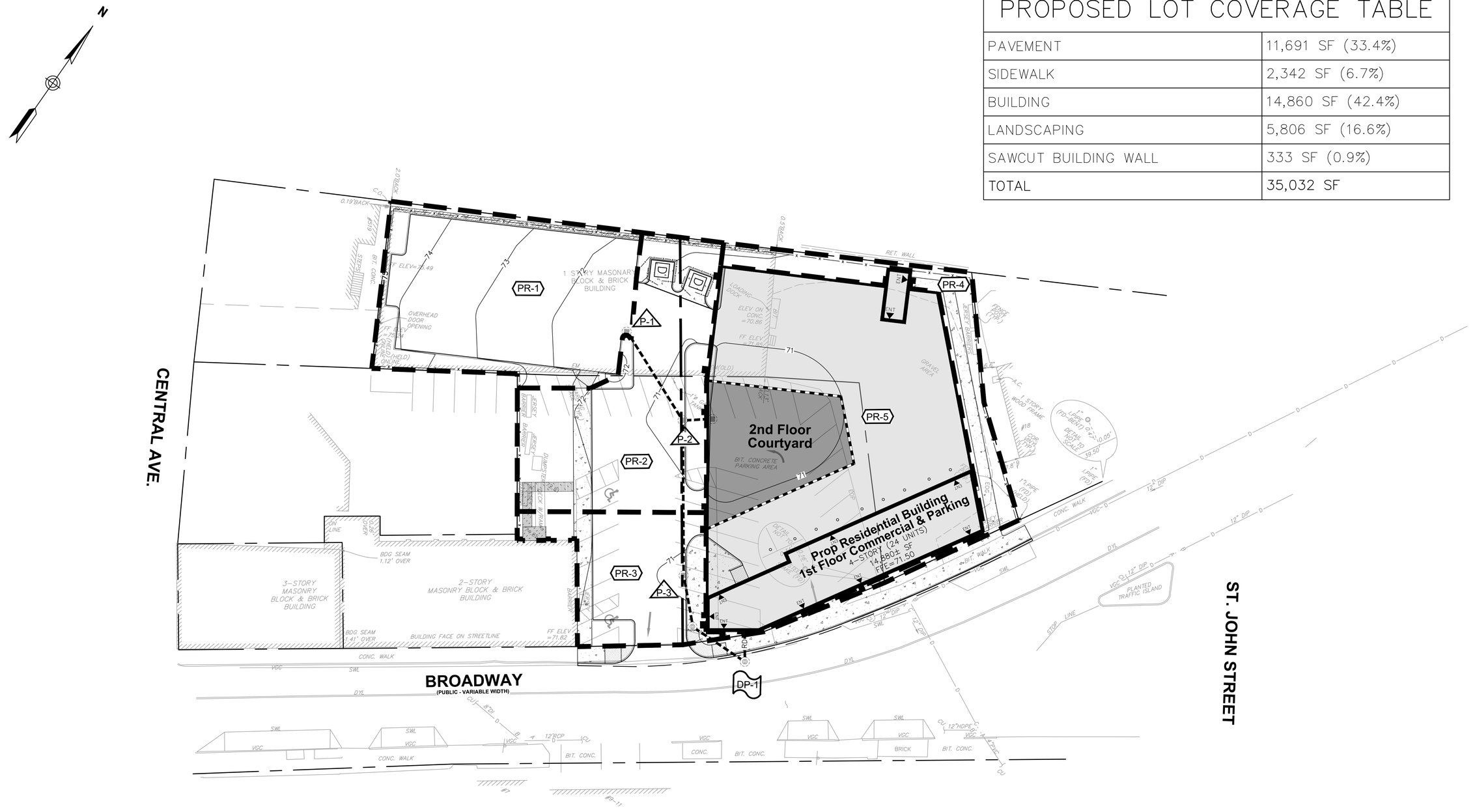
40 0 40 80
SCALE IN FEET

Pre-Development

14 Broadway
Dover, New Hampshire

Figure D-2 – Post Development Drainage Areas
(Intentionally LEFT BLANK)

PROPOSED LOT COVERAGE TABLE	
PAVEMENT	11,691 SF (33.4%)
SIDEWALK	2,342 SF (6.7%)
BUILDING	14,860 SF (42.4%)
LANDSCAPING	5,806 SF (16.6%)
SAWCUT BUILDING WALL	333 SF (0.9%)
TOTAL	35,032 SF



Scale: 1" = 20'

October 28, 2021

40 0 40 80
SCALE IN FEET

Post-Development

14 Broadway
Dover, New Hampshire

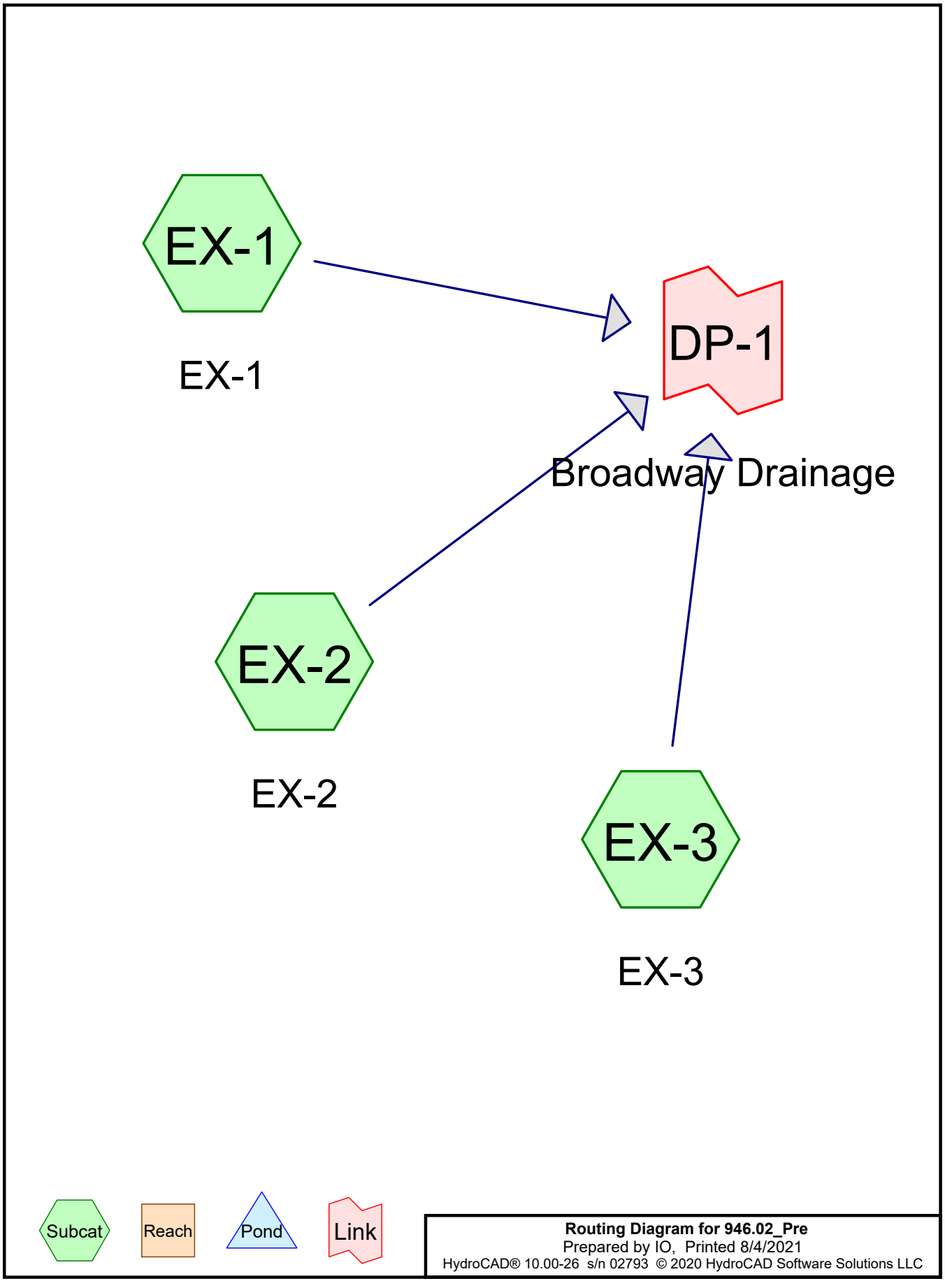
TEC
146 Dascomb Road
Andover, MA 01810
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
t: (978) 794-1792
TheEngineeringCorp.com

2

Appendix

A

Hydrologic Calculations



Routing Diagram for 946.02_Pre
Prepared by IO, Printed 8/4/2021
HydroCAD® 10.00-26 s/n 02793 © 2020 HydroCAD Software Solutions LLC

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6520 NH Strafford

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.064	79	<50% Grass cover, Poor, HSG B (EX-1, EX-2)
0.155	72	Dirt roads, HSG A (EX-1, EX-2)
0.339	98	Paved parking, HSG A (EX-3)
0.247	98	Roofs, HSG A (EX-1)
0.804	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.741	HSG A	EX-1, EX-2, EX-3
0.064	HSG B	EX-1, EX-2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.804		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.064	0.000	0.000	0.000	0.064	<50% Grass cover, Poor	EX-1, EX-2
0.155	0.000	0.000	0.000	0.000	0.155	Dirt roads	EX-1, EX-2
0.339	0.000	0.000	0.000	0.000	0.339	Paved parking	EX-3
0.247	0.000	0.000	0.000	0.000	0.247	Roofs	EX-1
0.741	**0.064**	**0.000**	**0.000**	**0.000**	**0.804**	**TOTAL AREA**	

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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: EX-1 Runoff Area=19,263 sf 55.76% Impervious Runoff Depth=1.78"
Tc=5.0 min CN=87 Runoff=0.87 cfs 0.066 af

Subcatchment EX-2: EX-2 Runoff Area=1,013 sf 0.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=75 Runoff=0.02 cfs 0.002 af

Subcatchment EX-3: EX-3 Runoff Area=14,756 sf 100.00% Impervious Runoff Depth=2.82"
Tc=5.0 min CN=98 Runoff=0.93 cfs 0.080 af

Link DP-1: Broadway Drainage Inflow=1.82 cfs 0.147 af
Primary=1.82 cfs 0.147 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.147 af Average Runoff Depth = 2.20"
27.22% Pervious = 0.219 ac 72.78% Impervious = 0.585 ac

Summary for Subcatchment EX-1: EX-1

[49] Hint: Tc<2dt may require smaller dt

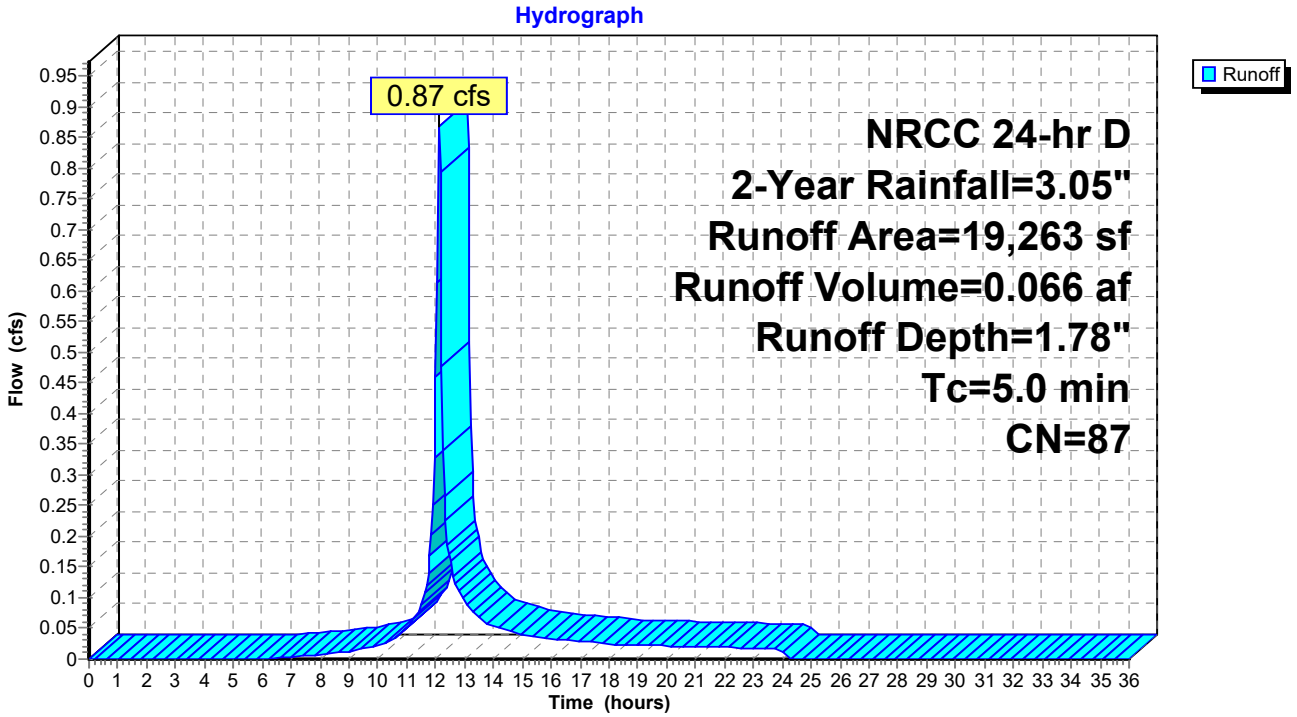
Runoff = 0.87 cfs @ 12.11 hrs, Volume= 0.066 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

Area (sf)	CN	Description
10,741	98	Roofs, HSG A
6,116	72	Dirt roads, HSG A
2,406	79	<50% Grass cover, Poor, HSG B
19,263	87	Weighted Average
8,522		44.24% Pervious Area
10,741		55.76% Impervious Area

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

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

[49] Hint: Tc<2dt may require smaller dt

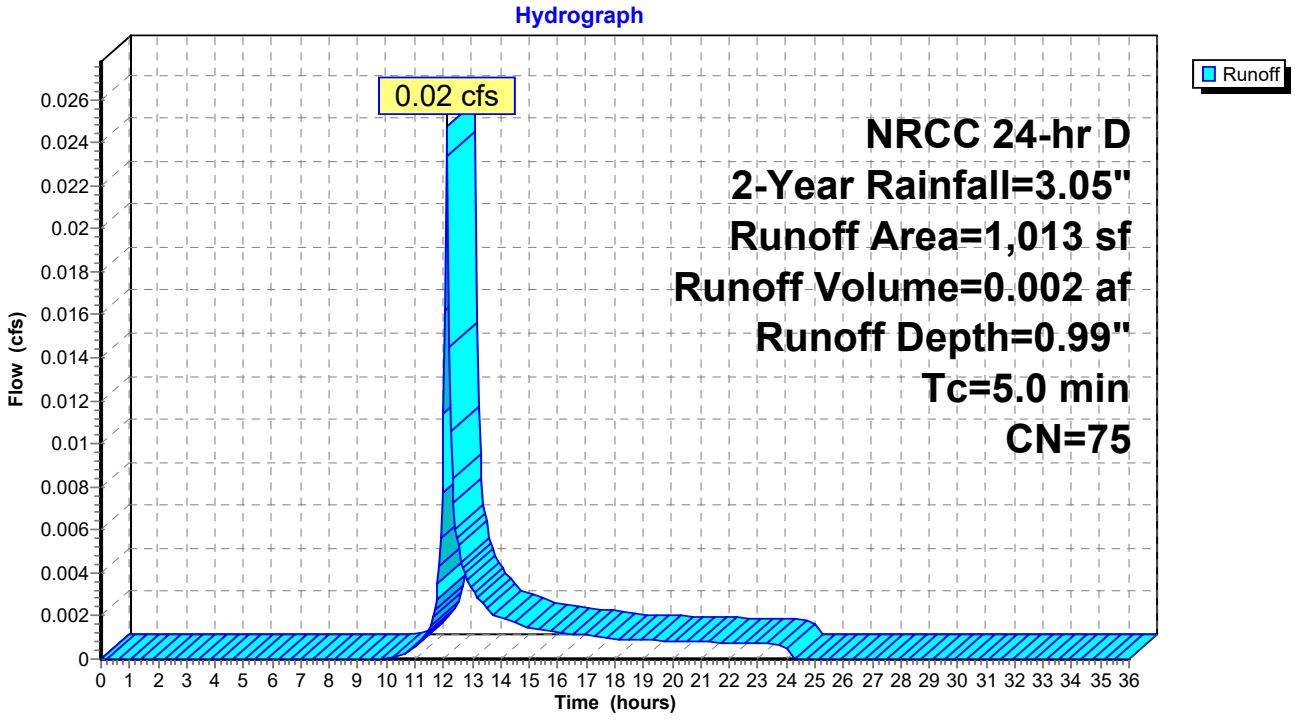
Runoff = 0.02 cfs @ 12.12 hrs, Volume= 0.002 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

Area (sf)	CN	Description
645	72	Dirt roads, HSG A
368	79	<50% Grass cover, Poor, HSG B
1,013	75	Weighted Average
1,013		100.00% Pervious Area

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

Subcatchment EX-2: EX-2



Summary for Subcatchment EX-3: EX-3

[49] Hint: Tc<2dt may require smaller dt

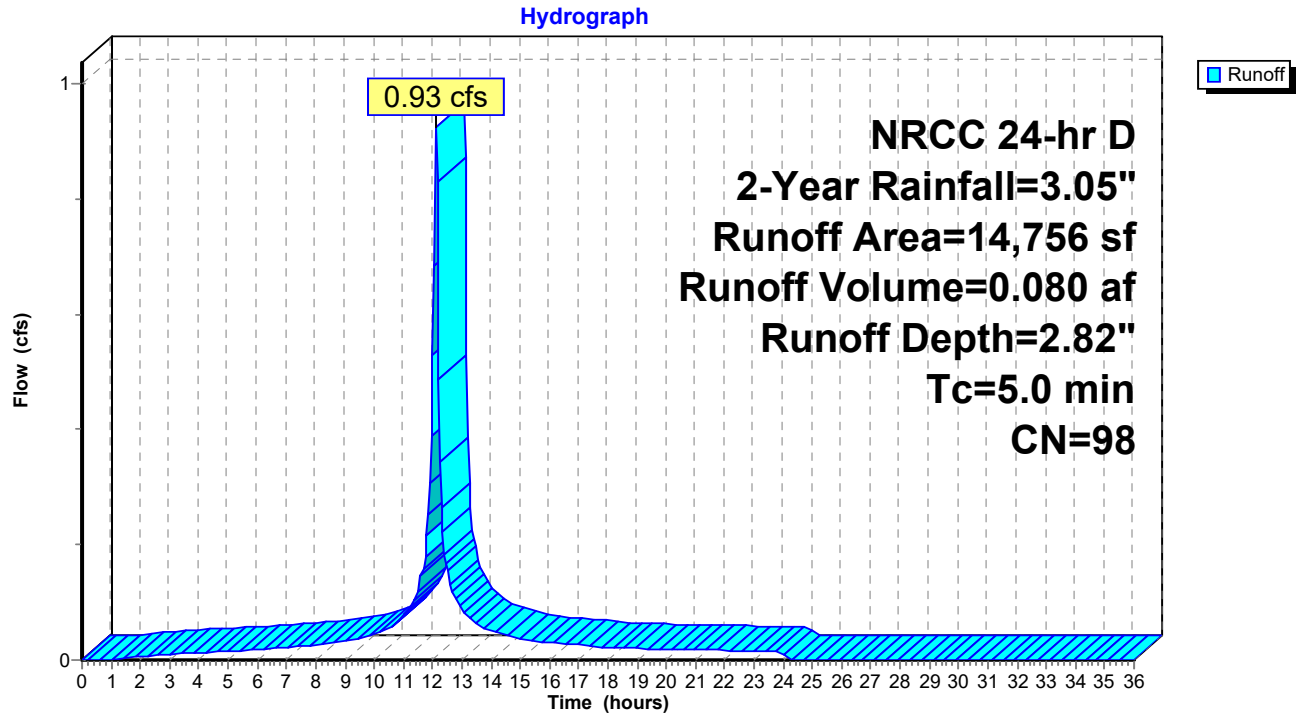
Runoff = 0.93 cfs @ 12.11 hrs, Volume= 0.080 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

Area (sf)	CN	Description
14,756	98	Paved parking, HSG A
14,756		100.00% Impervious Area

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

Subcatchment EX-3: EX-3

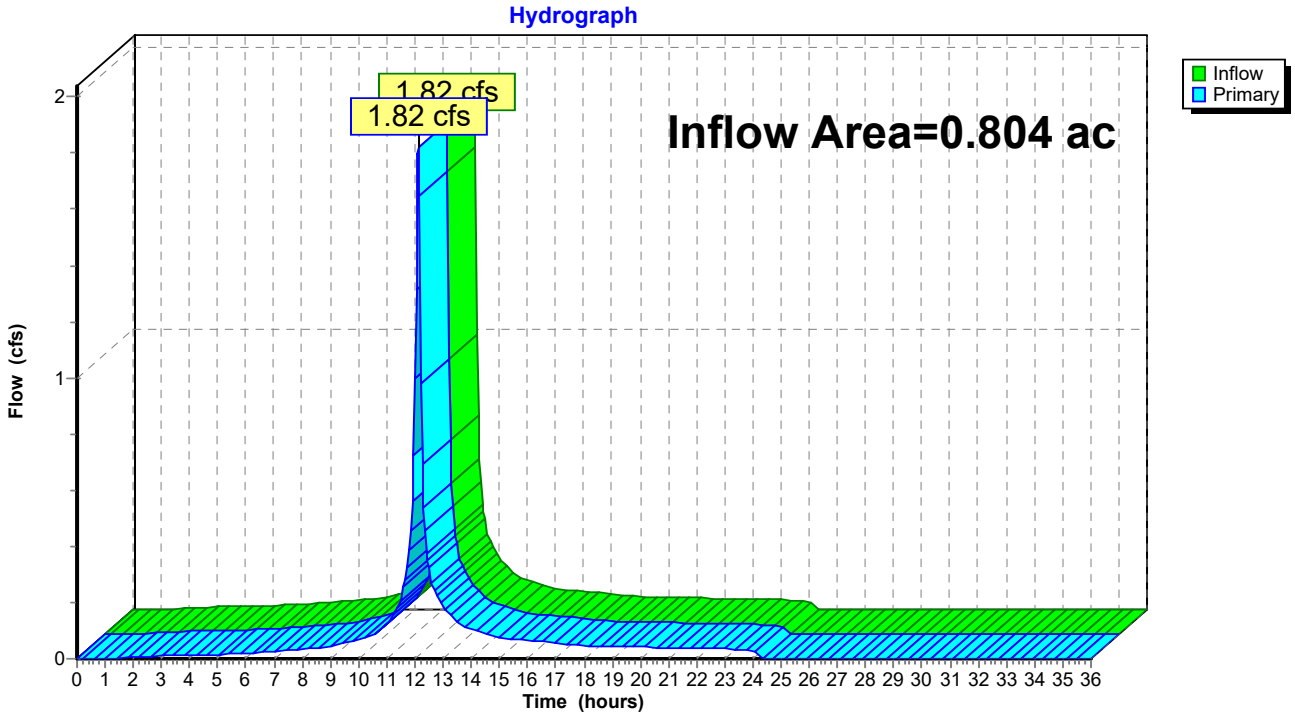


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 72.78% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 1.82 cfs @ 12.11 hrs, Volume= 0.147 af
Primary = 1.82 cfs @ 12.11 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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: EX-1 Runoff Area=19,263 sf 55.76% Impervious Runoff Depth=3.16"
Tc=5.0 min CN=87 Runoff=1.51 cfs 0.117 af

Subcatchment EX-2: EX-2 Runoff Area=1,013 sf 0.00% Impervious Runoff Depth=2.11"
Tc=5.0 min CN=75 Runoff=0.05 cfs 0.004 af

Subcatchment EX-3: EX-3 Runoff Area=14,756 sf 100.00% Impervious Runoff Depth=4.33"
Tc=5.0 min CN=98 Runoff=1.40 cfs 0.122 af

Link DP-1: Broadway Drainage Inflow=2.96 cfs 0.243 af
Primary=2.96 cfs 0.243 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.243 af Average Runoff Depth = 3.63"
27.22% Pervious = 0.219 ac 72.78% Impervious = 0.585 ac

Summary for Subcatchment EX-1: EX-1

[49] Hint: Tc<2dt may require smaller dt

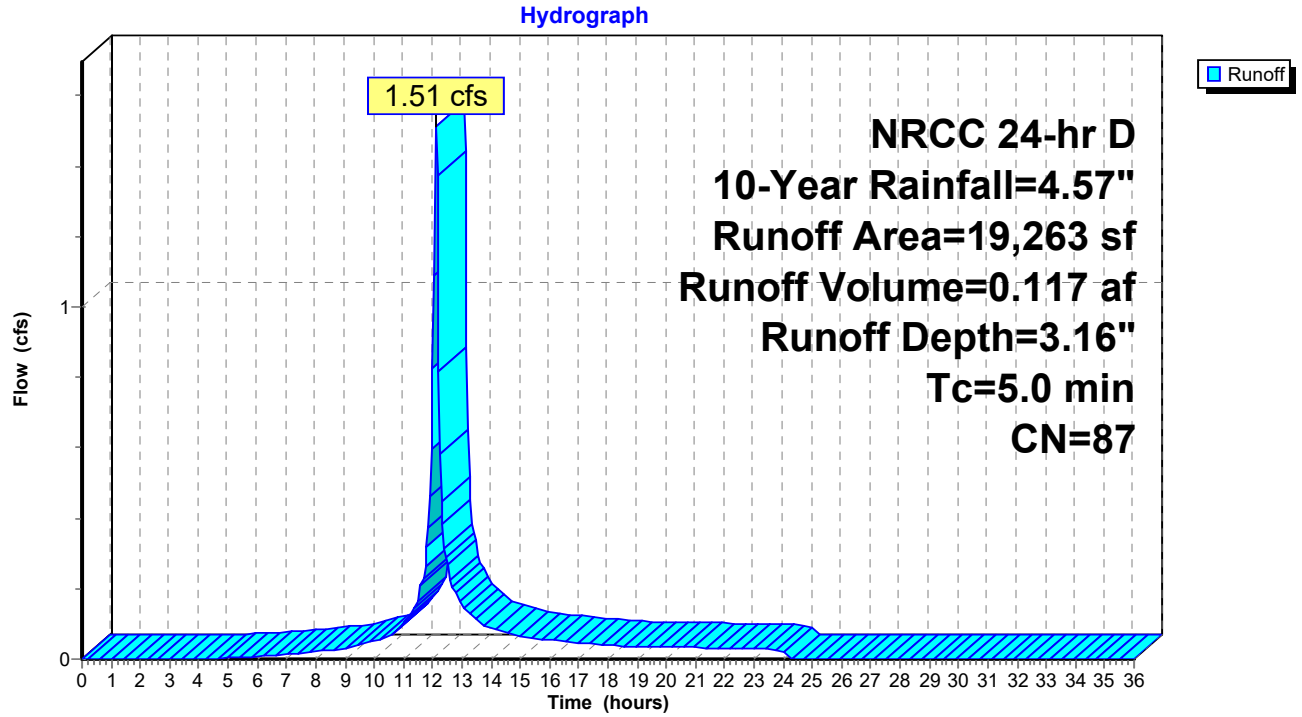
Runoff = 1.51 cfs @ 12.11 hrs, Volume= 0.117 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

Area (sf)	CN	Description
10,741	98	Roofs, HSG A
6,116	72	Dirt roads, HSG A
2,406	79	<50% Grass cover, Poor, HSG B
19,263	87	Weighted Average
8,522		44.24% Pervious Area
10,741		55.76% Impervious Area

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

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

[49] Hint: Tc<2dt may require smaller dt

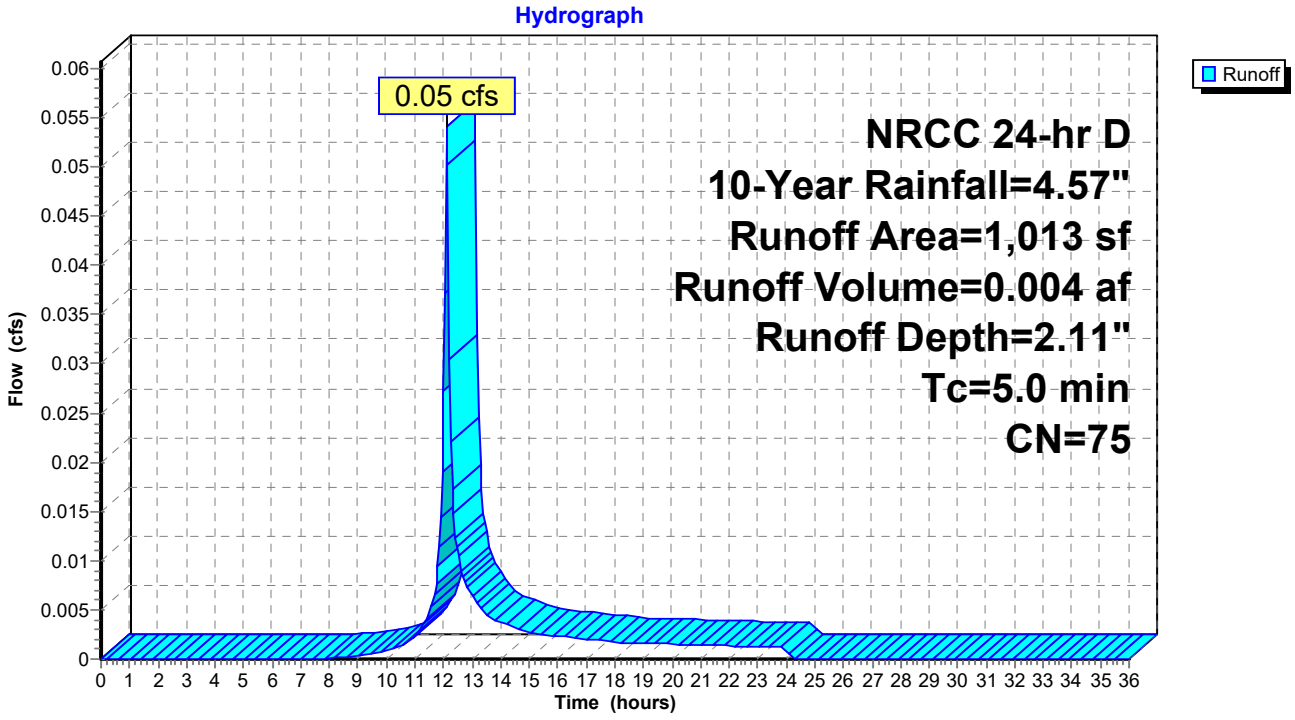
Runoff = 0.05 cfs @ 12.12 hrs, Volume= 0.004 af, Depth= 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

Area (sf)	CN	Description
645	72	Dirt roads, HSG A
368	79	<50% Grass cover, Poor, HSG B
1,013	75	Weighted Average
1,013		100.00% Pervious Area

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

Subcatchment EX-2: EX-2



Summary for Subcatchment EX-3: EX-3

[49] Hint: Tc<2dt may require smaller dt

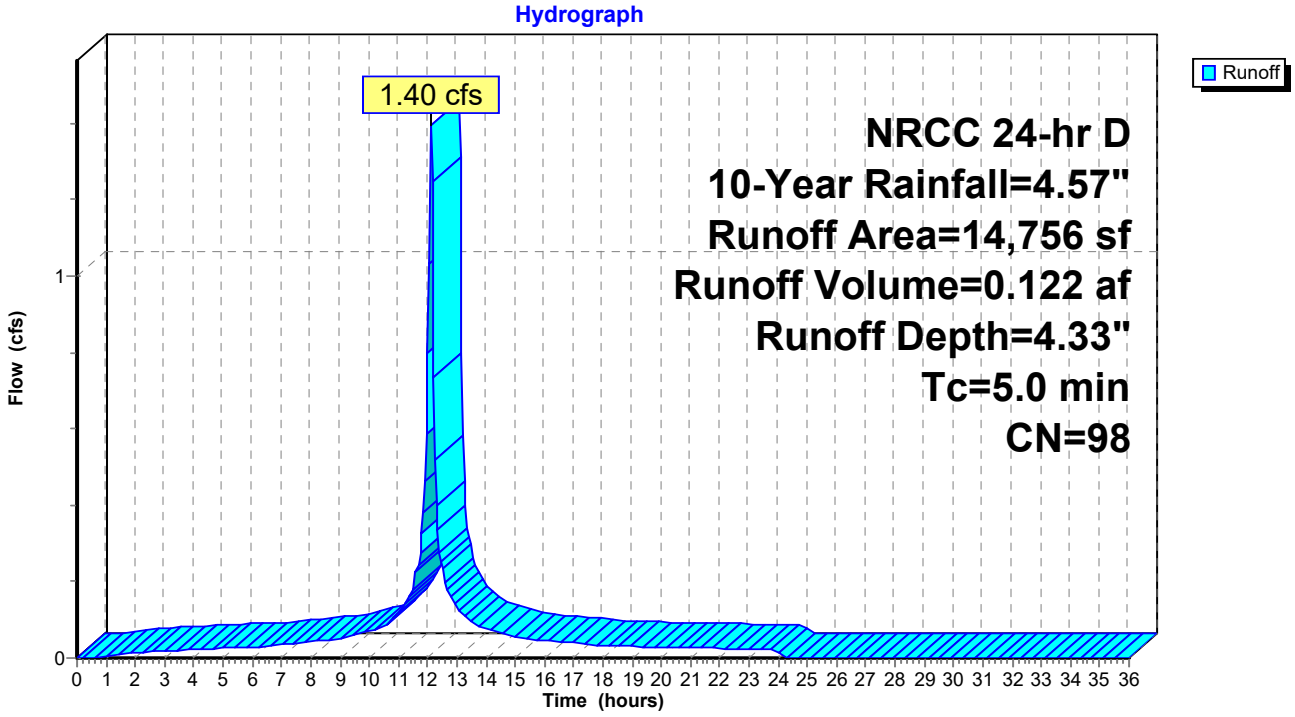
Runoff = 1.40 cfs @ 12.11 hrs, Volume= 0.122 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

Area (sf)	CN	Description
14,756	98	Paved parking, HSG A
14,756		100.00% Impervious Area

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

Subcatchment EX-3: EX-3

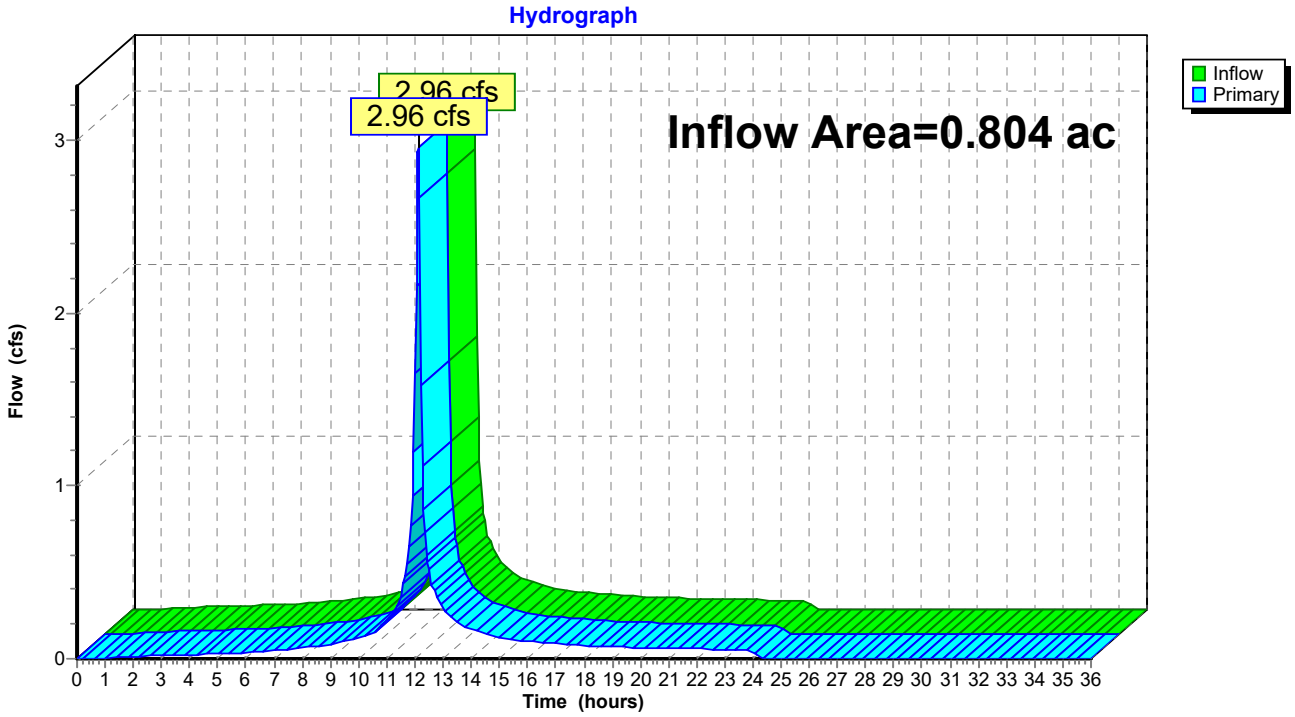


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 72.78% Impervious, Inflow Depth = 3.63" for 10-Year event
Inflow = 2.96 cfs @ 12.11 hrs, Volume= 0.243 af
Primary = 2.96 cfs @ 12.11 hrs, Volume= 0.243 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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: EX-1 Runoff Area=19,263 sf 55.76% Impervious Runoff Depth=4.30"
Tc=5.0 min CN=87 Runoff=2.02 cfs 0.158 af

Subcatchment EX-2: EX-2 Runoff Area=1,013 sf 0.00% Impervious Runoff Depth=3.09"
Tc=5.0 min CN=75 Runoff=0.08 cfs 0.006 af

Subcatchment EX-3: EX-3 Runoff Area=14,756 sf 100.00% Impervious Runoff Depth=5.53"
Tc=5.0 min CN=98 Runoff=1.77 cfs 0.156 af

Link DP-1: Broadway Drainage Inflow=3.87 cfs 0.321 af
Primary=3.87 cfs 0.321 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.321 af Average Runoff Depth = 4.78"
27.22% Pervious = 0.219 ac 72.78% Impervious = 0.585 ac

Summary for Subcatchment EX-1: EX-1

[49] Hint: Tc<2dt may require smaller dt

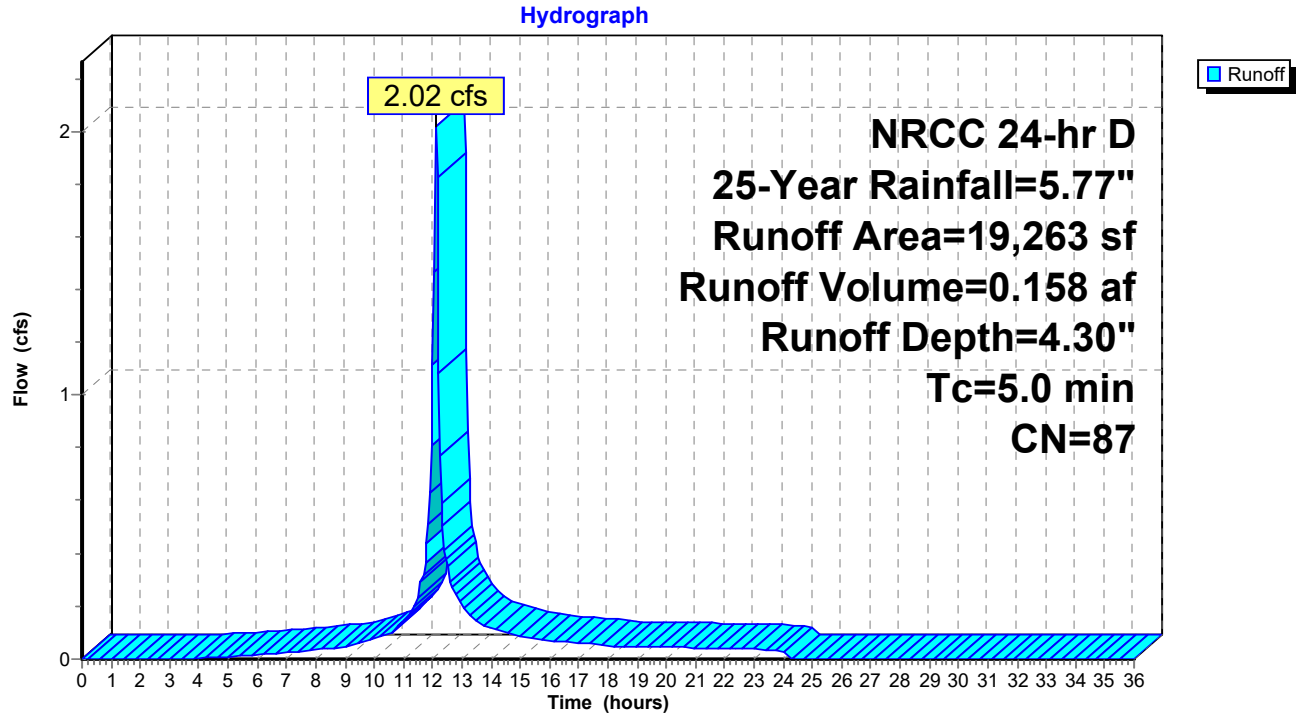
Runoff = 2.02 cfs @ 12.11 hrs, Volume= 0.158 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

Area (sf)	CN	Description
10,741	98	Roofs, HSG A
6,116	72	Dirt roads, HSG A
2,406	79	<50% Grass cover, Poor, HSG B
19,263	87	Weighted Average
8,522		44.24% Pervious Area
10,741		55.76% Impervious Area

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

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

[49] Hint: Tc<2dt may require smaller dt

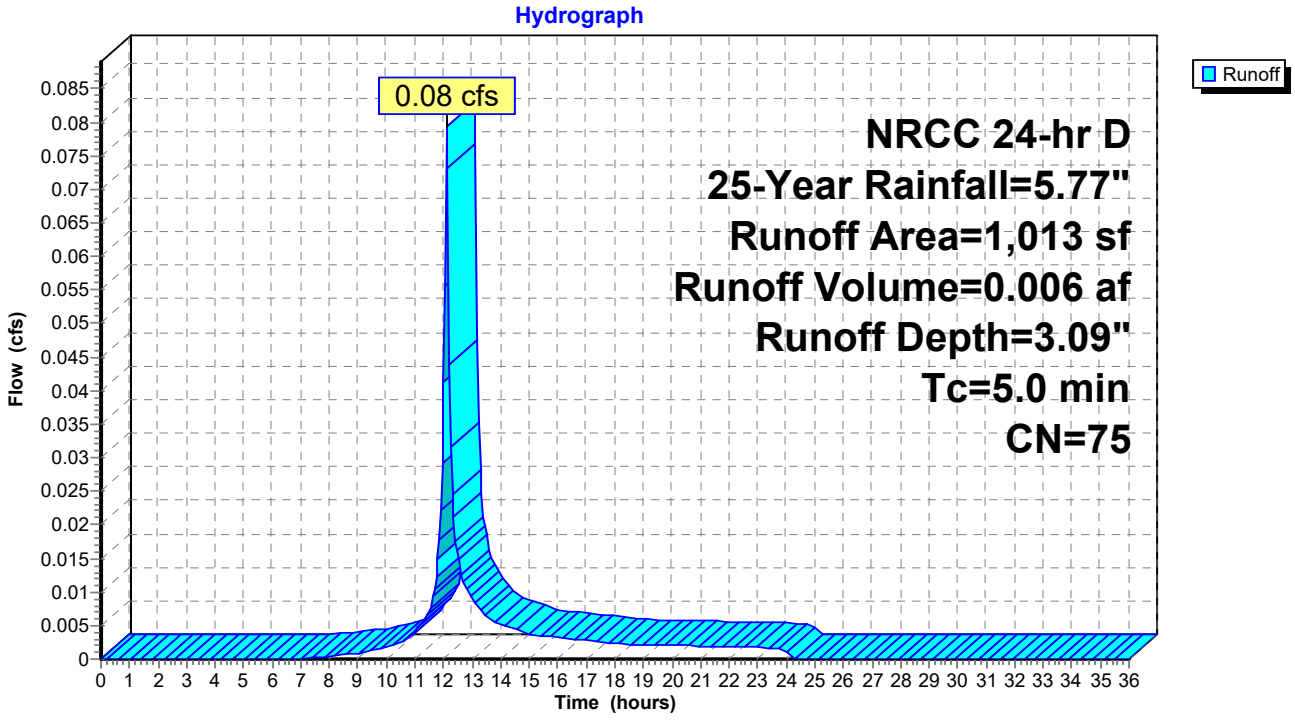
Runoff = 0.08 cfs @ 12.12 hrs, Volume= 0.006 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

Area (sf)	CN	Description
645	72	Dirt roads, HSG A
368	79	<50% Grass cover, Poor, HSG B
1,013	75	Weighted Average
1,013		100.00% Pervious Area

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

Subcatchment EX-2: EX-2



Summary for Subcatchment EX-3: EX-3

[49] Hint: Tc<2dt may require smaller dt

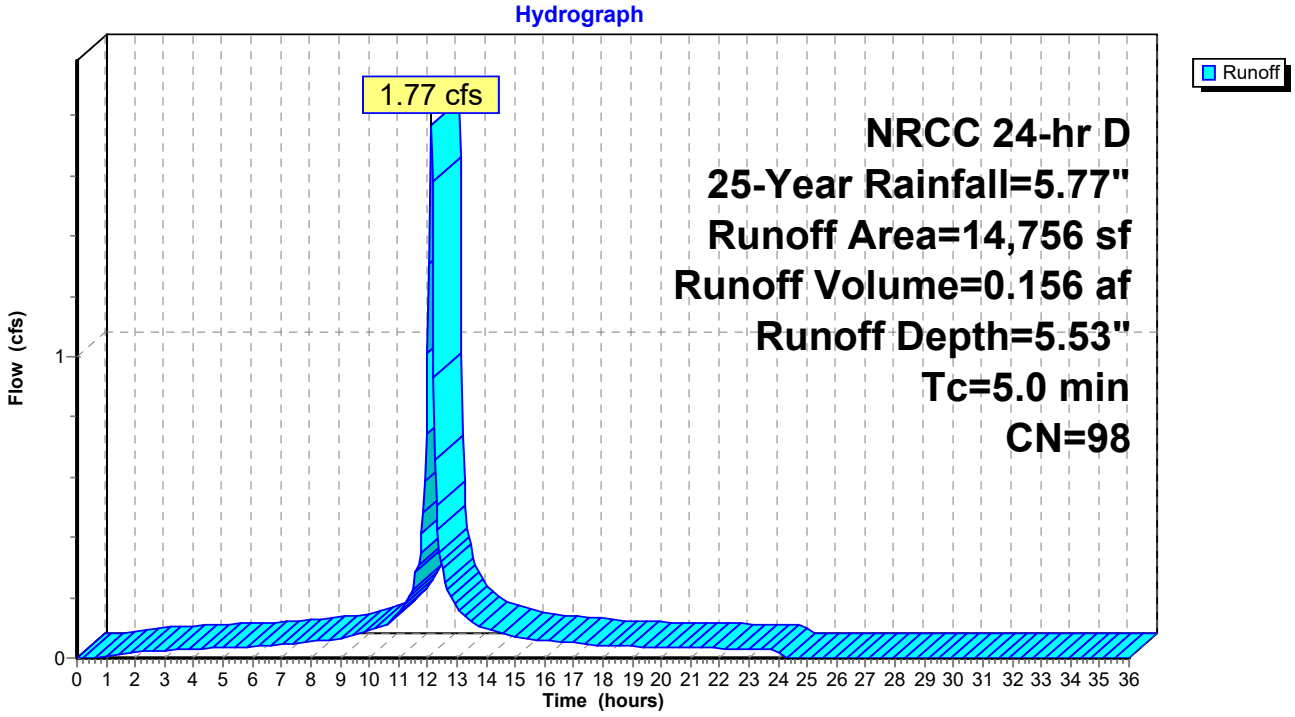
Runoff = 1.77 cfs @ 12.11 hrs, Volume= 0.156 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

Area (sf)	CN	Description
14,756	98	Paved parking, HSG A
14,756		100.00% Impervious Area

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

Subcatchment EX-3: EX-3

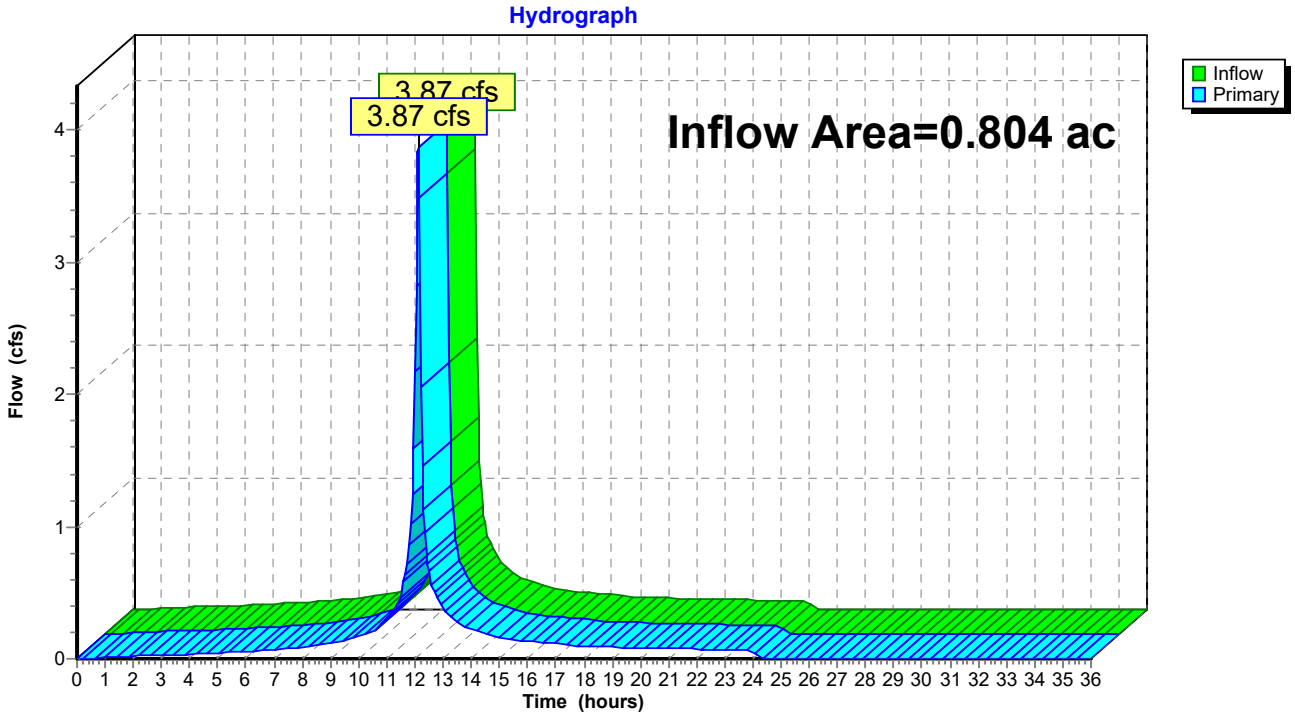


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 72.78% Impervious, Inflow Depth = 4.78" for 25-Year event
Inflow = 3.87 cfs @ 12.11 hrs, Volume= 0.321 af
Primary = 3.87 cfs @ 12.11 hrs, Volume= 0.321 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 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: EX-1 Runoff Area=19,263 sf 55.76% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=87 Runoff=2.49 cfs 0.198 af

Subcatchment EX-2: EX-2 Runoff Area=1,013 sf 0.00% Impervious Runoff Depth=4.04"
Tc=5.0 min CN=75 Runoff=0.10 cfs 0.008 af

Subcatchment EX-3: EX-3 Runoff Area=14,756 sf 100.00% Impervious Runoff Depth=6.64"
Tc=5.0 min CN=98 Runoff=2.11 cfs 0.187 af

Link DP-1: Broadway Drainage Inflow=4.71 cfs 0.393 af
Primary=4.71 cfs 0.393 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.393 af Average Runoff Depth = 5.86"
27.22% Pervious = 0.219 ac 72.78% Impervious = 0.585 ac

Summary for Subcatchment EX-1: EX-1

[49] Hint: Tc<2dt may require smaller dt

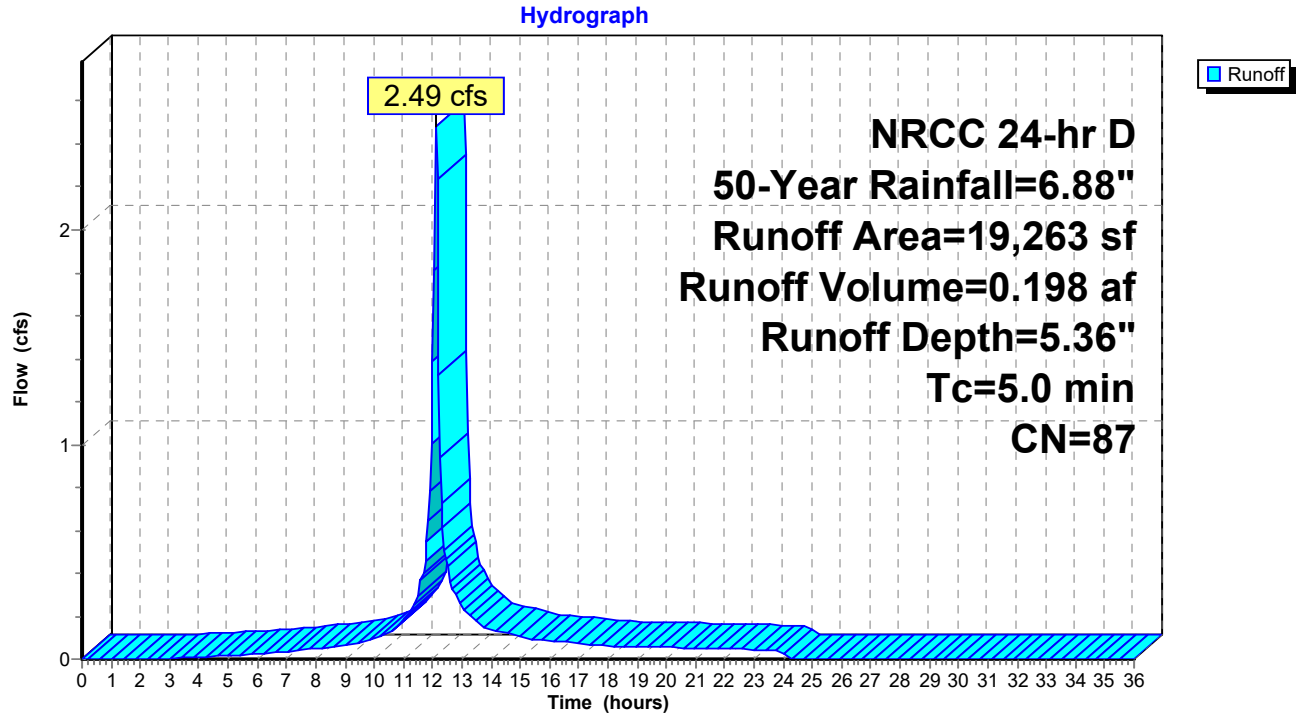
Runoff = 2.49 cfs @ 12.11 hrs, Volume= 0.198 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

Area (sf)	CN	Description
10,741	98	Roofs, HSG A
6,116	72	Dirt roads, HSG A
2,406	79	<50% Grass cover, Poor, HSG B
19,263	87	Weighted Average
8,522		44.24% Pervious Area
10,741		55.76% Impervious Area

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

Subcatchment EX-1: EX-1



Summary for Subcatchment EX-2: EX-2

[49] Hint: Tc<2dt may require smaller dt

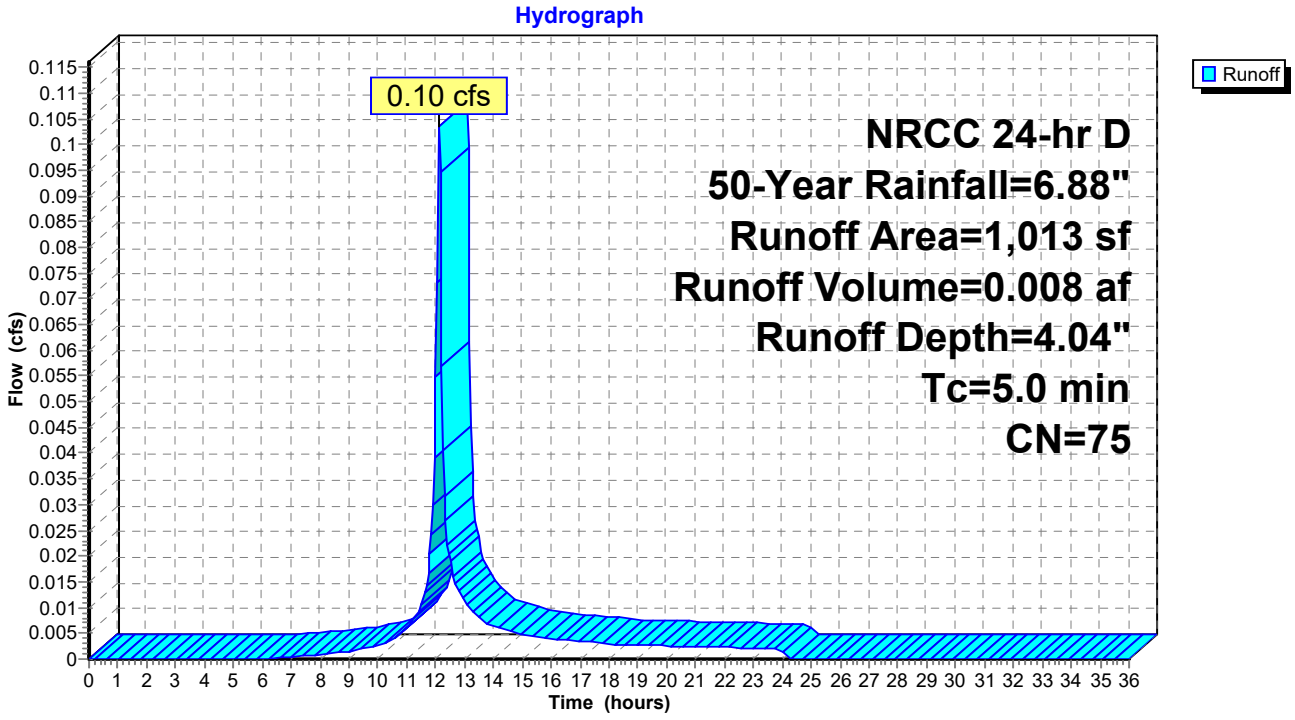
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.008 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

Area (sf)	CN	Description
645	72	Dirt roads, HSG A
368	79	<50% Grass cover, Poor, HSG B
1,013	75	Weighted Average
1,013		100.00% Pervious Area

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

Subcatchment EX-2: EX-2



Summary for Subcatchment EX-3: EX-3

[49] Hint: Tc<2dt may require smaller dt

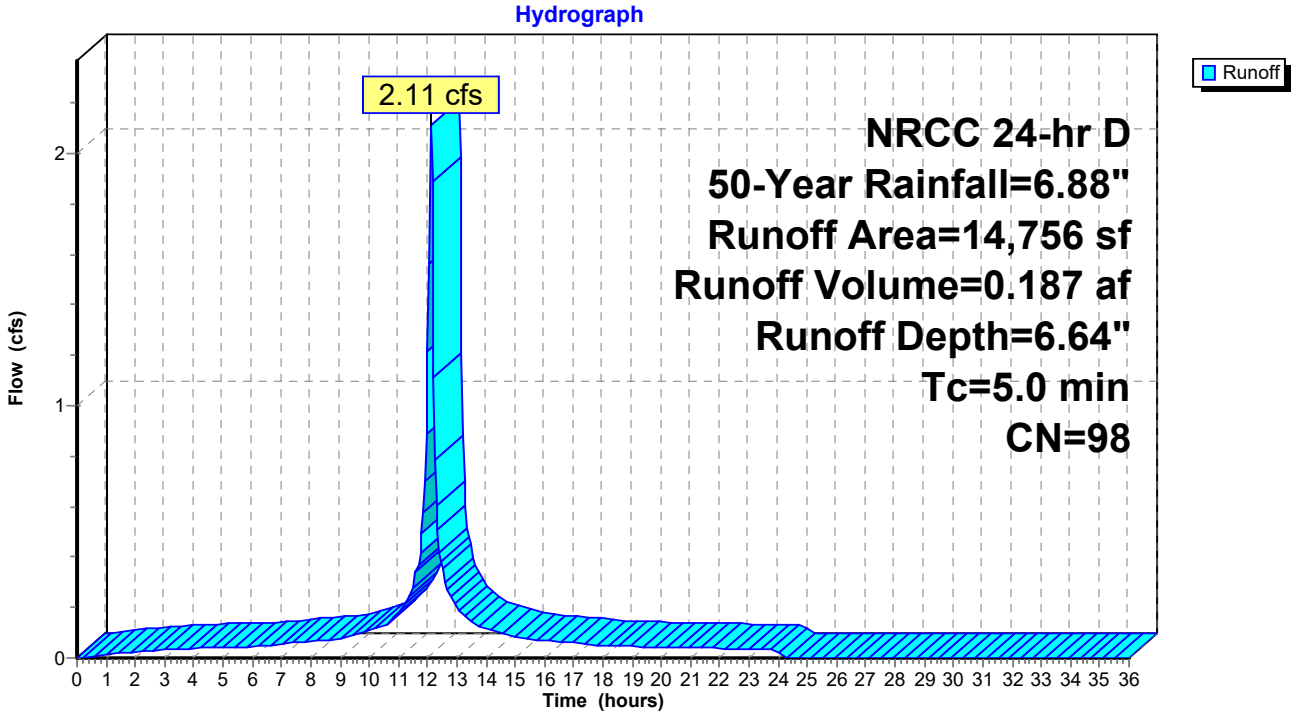
Runoff = 2.11 cfs @ 12.11 hrs, Volume= 0.187 af, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

Area (sf)	CN	Description
14,756	98	Paved parking, HSG A
14,756		100.00% Impervious Area

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

Subcatchment EX-3: EX-3

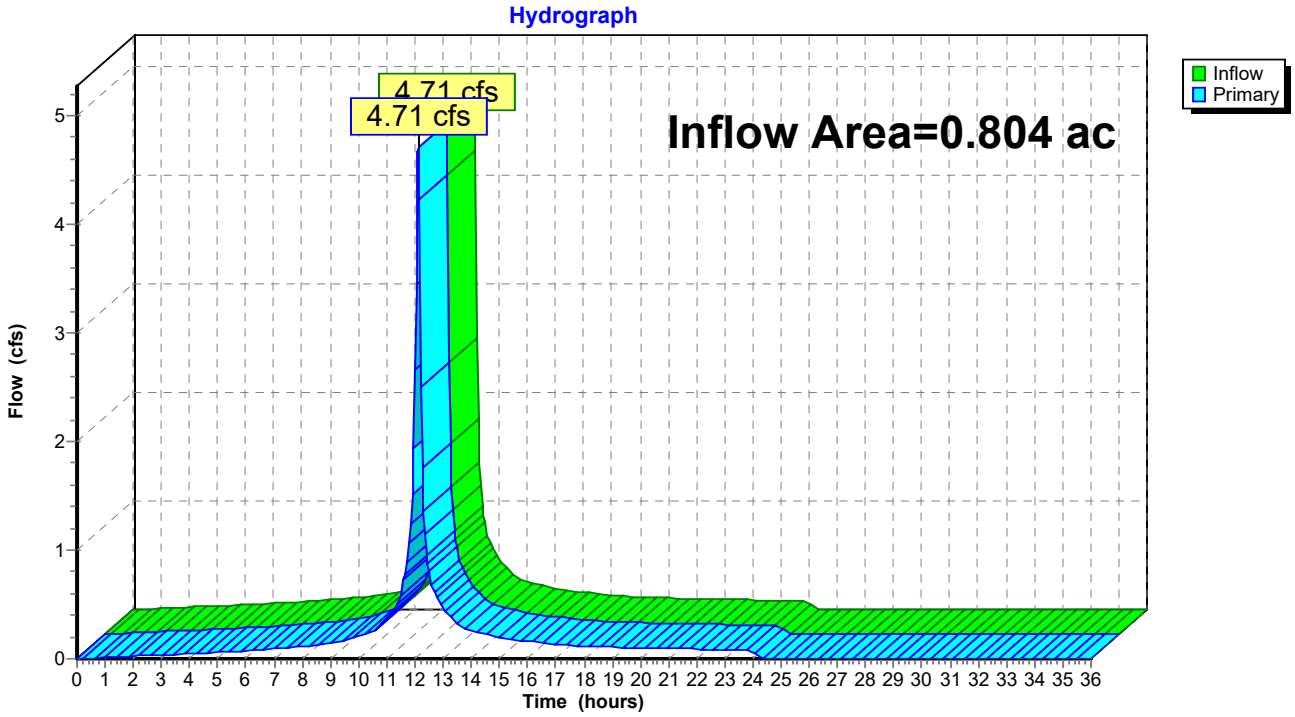


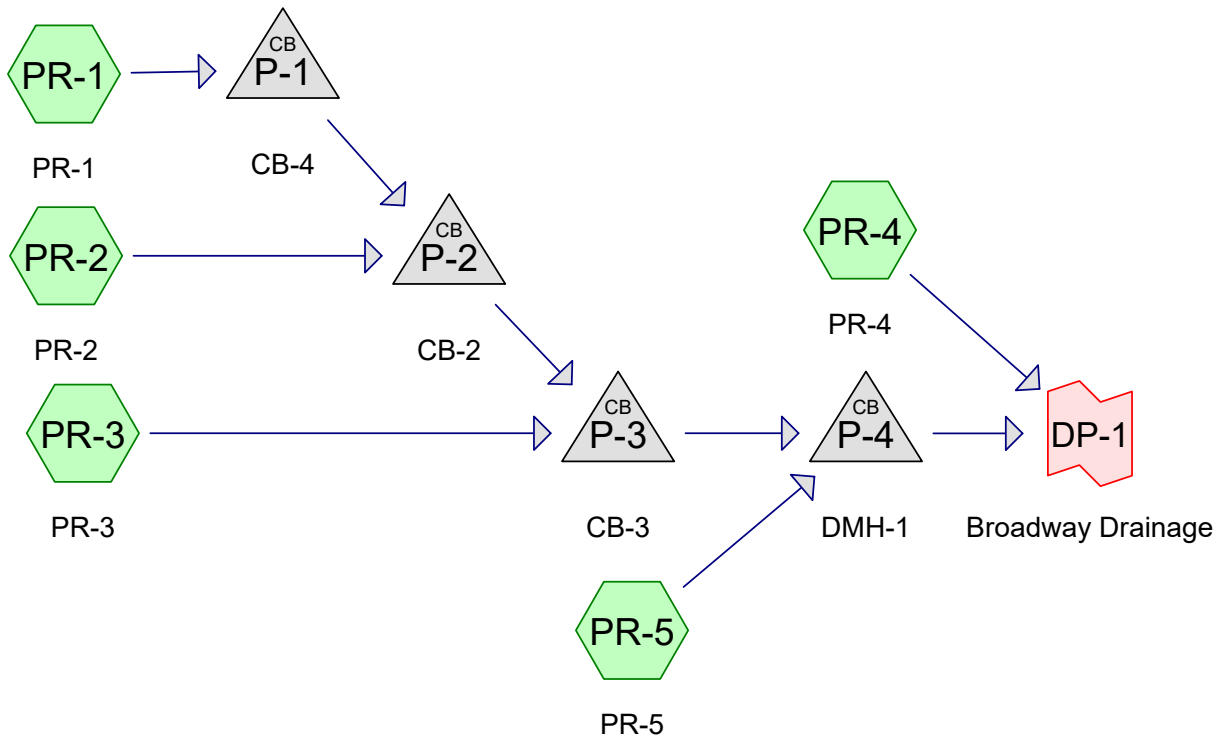
Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 72.78% Impervious, Inflow Depth = 5.86" for 50-Year event
Inflow = 4.71 cfs @ 12.11 hrs, Volume= 0.393 af
Primary = 4.71 cfs @ 12.11 hrs, Volume= 0.393 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Broadway Drainage





Subcat Reach Pond Link

Routing Diagram for 946.02_Post
Prepared by IO, Printed 10/25/2021
HydroCAD® 10.00-26 s/n 02793 © 2020 HydroCAD Software Solutions LLC

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6520 NH Strafford

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.133	49	50-75% Grass cover, Fair, HSG A (PR-1, PR-2, PR-3, PR-4)
0.008	98	Building Wall (PR-1, PR-4)
0.054	98	Cement Concrete Sidewalk, HSG A (PR-1, PR-2, PR-3, PR-4)
0.268	98	Paved parking, HSG A (PR-1, PR-2, PR-3)
0.341	98	Roofs, HSG A (PR-5)
0.804	**90**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.797	HSG A	PR-1, PR-2, PR-3, PR-4, PR-5
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.008	Other	PR-1, PR-4
0.804		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.133	0.000	0.000	0.000	0.000	0.133	50-75% Grass cover, Fair	PR-1, PR-2, PR-3, PR-4
0.000	0.000	0.000	0.000	0.008	0.008	Building Wall	PR-1, PR-4
0.054	0.000	0.000	0.000	0.000	0.054	Cement Concrete Sidewalk	PR-1, PR-2, PR-3, PR-4
0.268	0.000	0.000	0.000	0.000	0.268	Paved parking	PR-1, PR-2, PR-3
0.341	0.000	0.000	0.000	0.000	0.341	Roofs	PR-5
0.797	**0.000**	**0.000**	**0.000**	**0.008**	**0.804**	**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	P-1	67.45	67.40	40.5	0.0012	0.012	12.0	0.0	0.0
2	P-2	67.00	66.85	63.0	0.0024	0.012	12.0	0.0	0.0
3	P-3	66.80	66.60	41.0	0.0049	0.012	12.0	0.0	0.0
4	P-4	66.50	66.10	72.0	0.0056	0.013	12.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 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 PR-1: PR-1 Runoff Area=8,784 sf 80.57% Impervious Runoff Depth=1.86"
Tc=5.0 min CN=88 Runoff=0.43 cfs 0.031 af

Subcatchment PR-2: PR-2 Runoff Area=5,384 sf 63.34% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=80 Runoff=0.18 cfs 0.013 af

Subcatchment PR-3: PR-3 Runoff Area=3,520 sf 86.08% Impervious Runoff Depth=2.12"
Tc=5.0 min CN=91 Runoff=0.19 cfs 0.014 af

Subcatchment PR-4: PR-4 Runoff Area=2,483 sf 34.19% Impervious Runoff Depth=0.57"
Tc=5.0 min CN=66 Runoff=0.03 cfs 0.003 af

Subcatchment PR-5: PR-5 Runoff Area=14,860 sf 100.00% Impervious Runoff Depth=2.82"
Tc=5.0 min CN=98 Runoff=0.96 cfs 0.080 af

Pond P-1: CB-4 Peak Elev=67.91' Inflow=0.43 cfs 0.031 af
12.0" Round Culvert n=0.012 L=40.5' S=0.0012 '/' Outflow=0.43 cfs 0.031 af

Pond P-2: CB-2 Peak Elev=67.52' Inflow=0.61 cfs 0.045 af
12.0" Round Culvert n=0.012 L=63.0' S=0.0024 '/' Outflow=0.61 cfs 0.045 af

Pond P-3: CB-3 Peak Elev=67.35' Inflow=0.80 cfs 0.059 af
12.0" Round Culvert n=0.012 L=41.0' S=0.0049 '/' Outflow=0.80 cfs 0.059 af

Pond P-4: DMH-1 Peak Elev=67.37' Inflow=1.76 cfs 0.139 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0056 '/' Outflow=1.76 cfs 0.139 af

Link DP-1: Broadway Drainage Inflow=1.79 cfs 0.142 af
Primary=1.79 cfs 0.142 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.142 af Average Runoff Depth = 2.11"
16.57% Pervious = 0.133 ac 83.43% Impervious = 0.671 ac

Summary for Subcatchment PR-1: PR-1

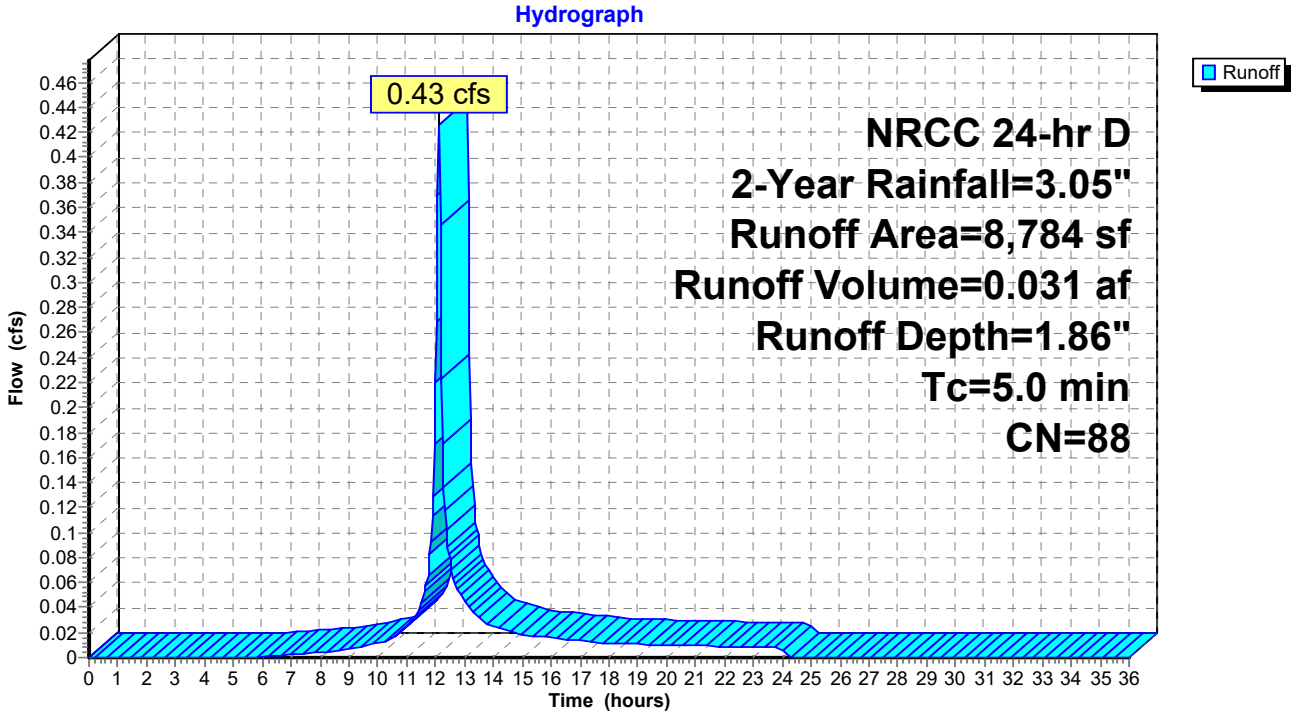
Runoff = 0.43 cfs @ 12.12 hrs, Volume= 0.031 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

	Area (sf)	CN	Description
	6,430	98	Paved parking, HSG A
	1,707	49	50-75% Grass cover, Fair, HSG A
*	287	98	Building Wall
*	360	98	Cement Concrete Sidewalk, HSG A
	8,784	88	Weighted Average
	1,707		19.43% Pervious Area
	7,077		80.57% Impervious Area

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

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2: PR-2

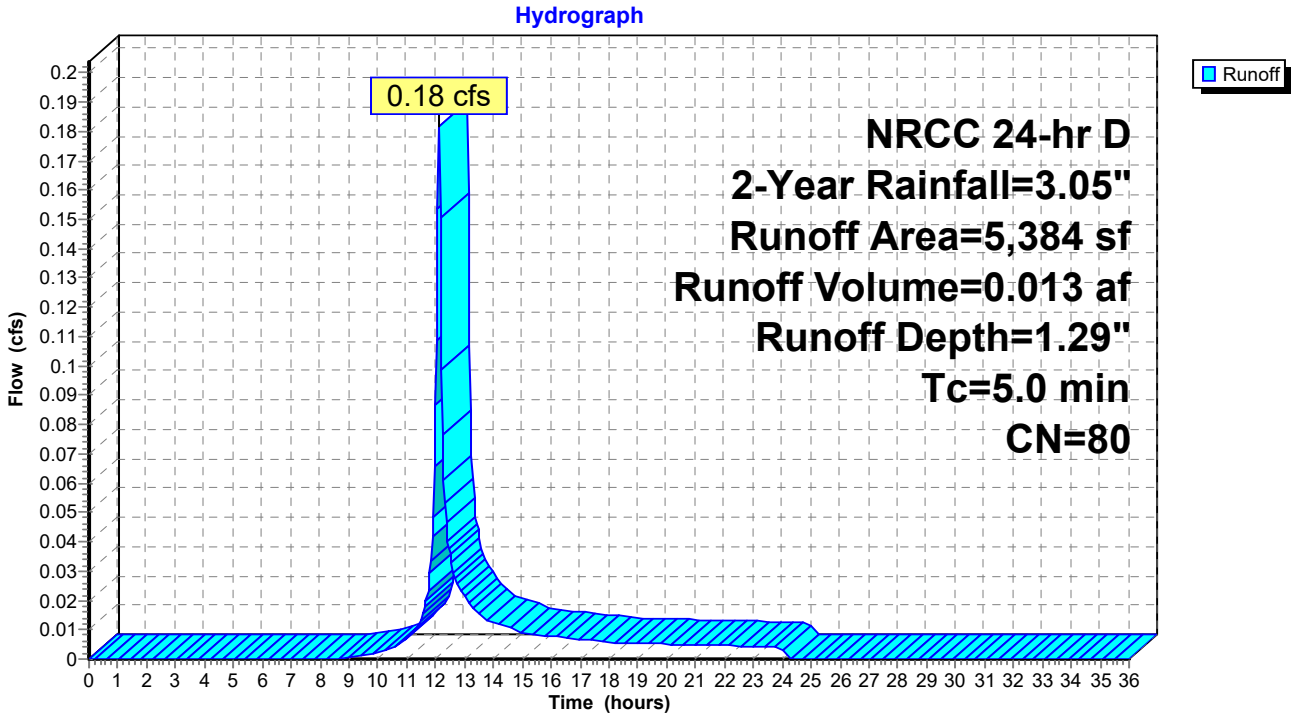
Runoff = 0.18 cfs @ 12.12 hrs, Volume= 0.013 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

	Area (sf)	CN	Description
	3,012	98	Paved parking, HSG A
	1,974	49	50-75% Grass cover, Fair, HSG A
*	398	98	Cement Concrete Sidewalk, HSG A
	5,384	80	Weighted Average
	1,974		36.66% Pervious Area
	3,410		63.34% Impervious Area

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

Subcatchment PR-2: PR-2



Summary for Subcatchment PR-3: PR-3

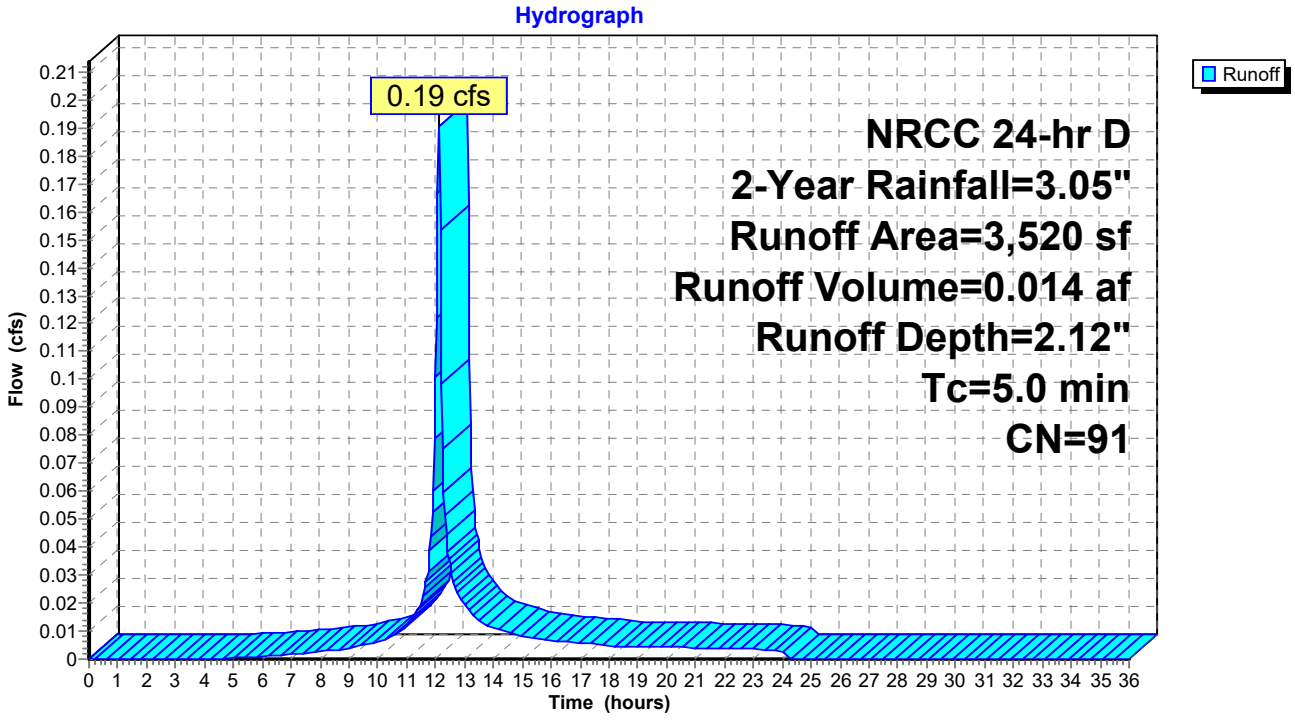
Runoff = 0.19 cfs @ 12.12 hrs, Volume= 0.014 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

	Area (sf)	CN	Description
	2,249	98	Paved parking, HSG A
	490	49	50-75% Grass cover, Fair, HSG A
*	781	98	Cement Concrete Sidewalk, HSG A
	3,520	91	Weighted Average
	490		13.92% Pervious Area
	3,030		86.08% Impervious Area

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

Subcatchment PR-3: PR-3



Summary for Subcatchment PR-4: PR-4

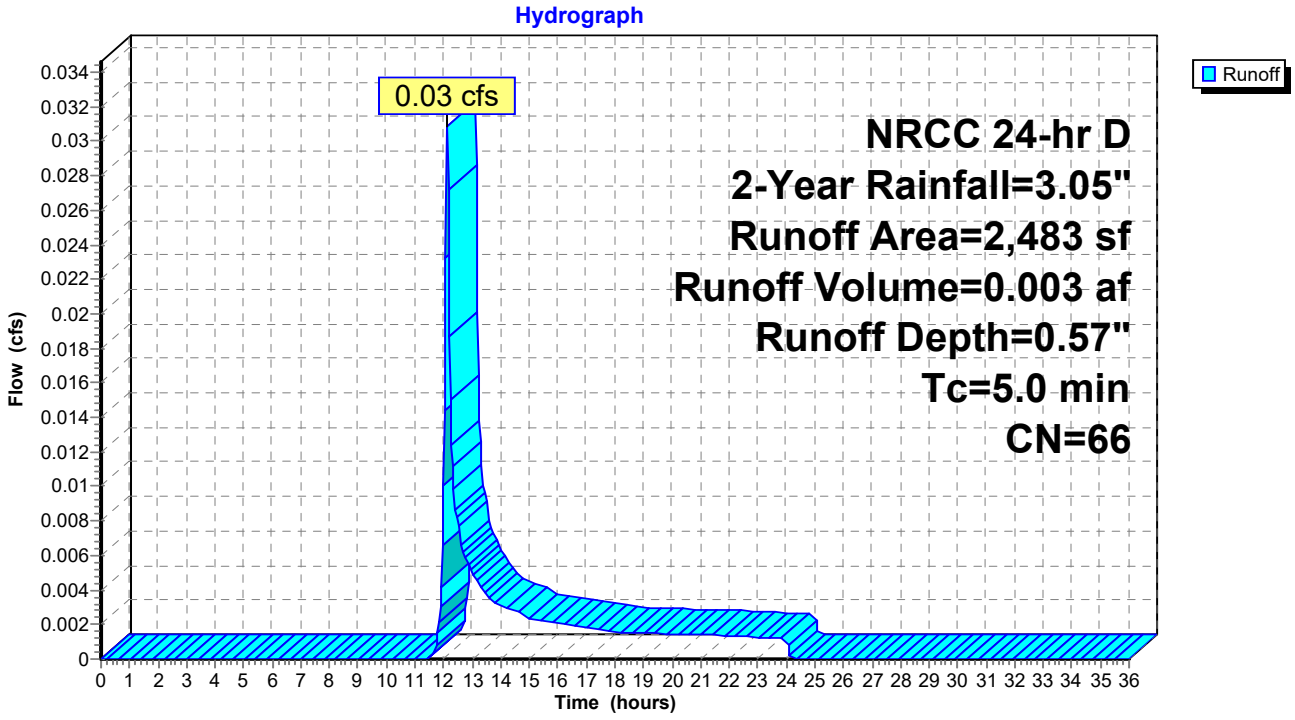
Runoff = 0.03 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

	Area (sf)	CN	Description
	1,634	49	50-75% Grass cover, Fair, HSG A
*	46	98	Building Wall
*	803	98	Cement Concrete Sidewalk, HSG A
	2,483	66	Weighted Average
	1,634		65.81% Pervious Area
	849		34.19% Impervious Area

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

Subcatchment PR-4: PR-4



Summary for Subcatchment PR-5: PR-5

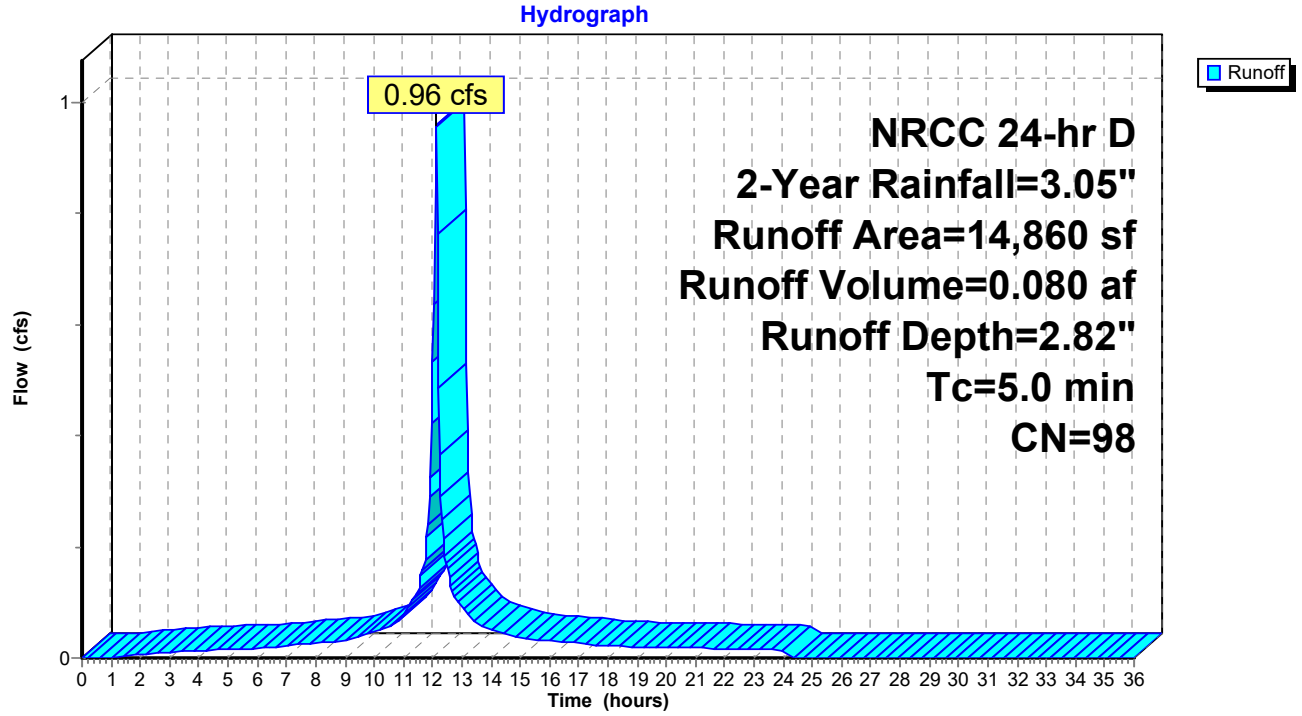
Runoff = 0.96 cfs @ 12.11 hrs, Volume= 0.080 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 2-Year Rainfall=3.05"

Area (sf)	CN	Description
14,860	98	Roofs, HSG A
14,860		100.00% Impervious Area

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

Subcatchment PR-5: PR-5



Summary for Pond P-1: CB-4

[57] Hint: Peaked at 67.91' (Flood elevation advised)

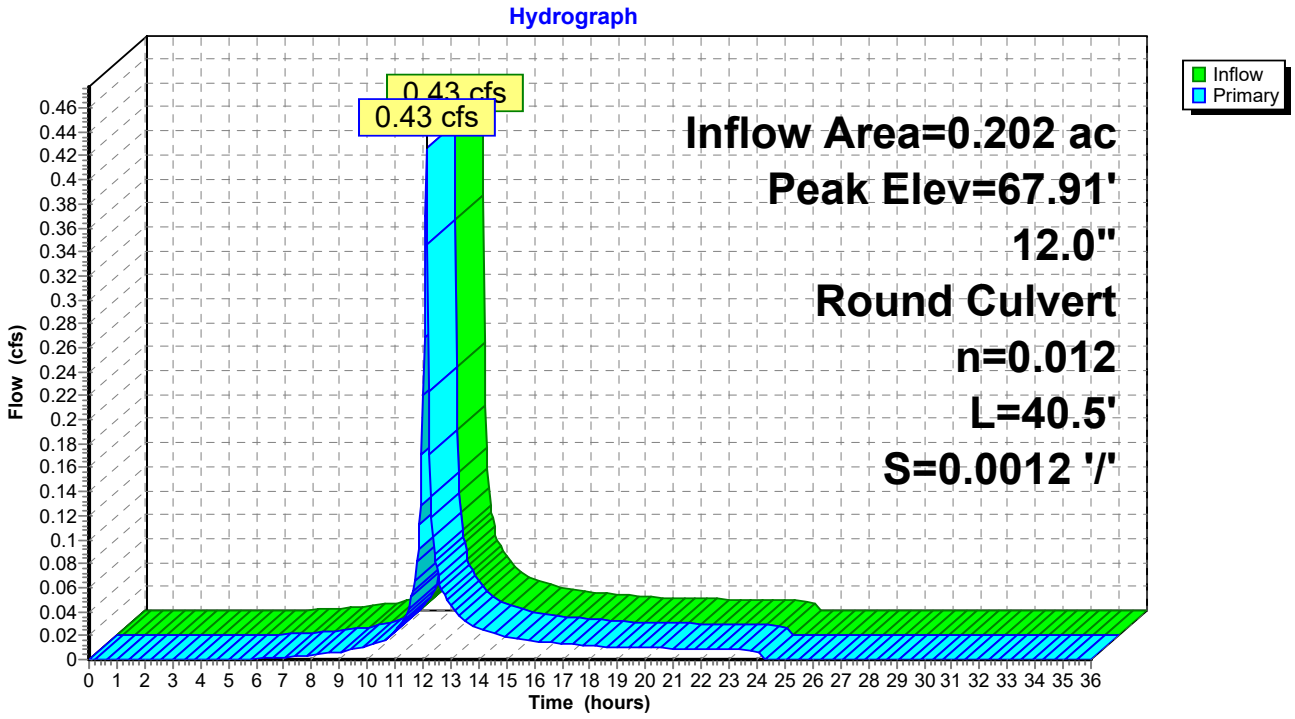
Inflow Area = 0.202 ac, 80.57% Impervious, Inflow Depth = 1.86" for 2-Year event
Inflow = 0.43 cfs @ 12.12 hrs, Volume= 0.031 af
Outflow = 0.43 cfs @ 12.12 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.43 cfs @ 12.12 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.91' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.45'	**12.0" Round Outlet Pipe** L= 40.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.45' / 67.40' S= 0.0012 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.12 hrs HW=67.91' (Free Discharge)
1=Outlet Pipe (Barrel Controls 0.42 cfs @ 1.75 fps)

Pond P-1: CB-4



Summary for Pond P-2: CB-2

[57] Hint: Peaked at 67.52' (Flood elevation advised)
[79] Warning: Submerged Pond P-1 Primary device # 1 INLET by 0.07'

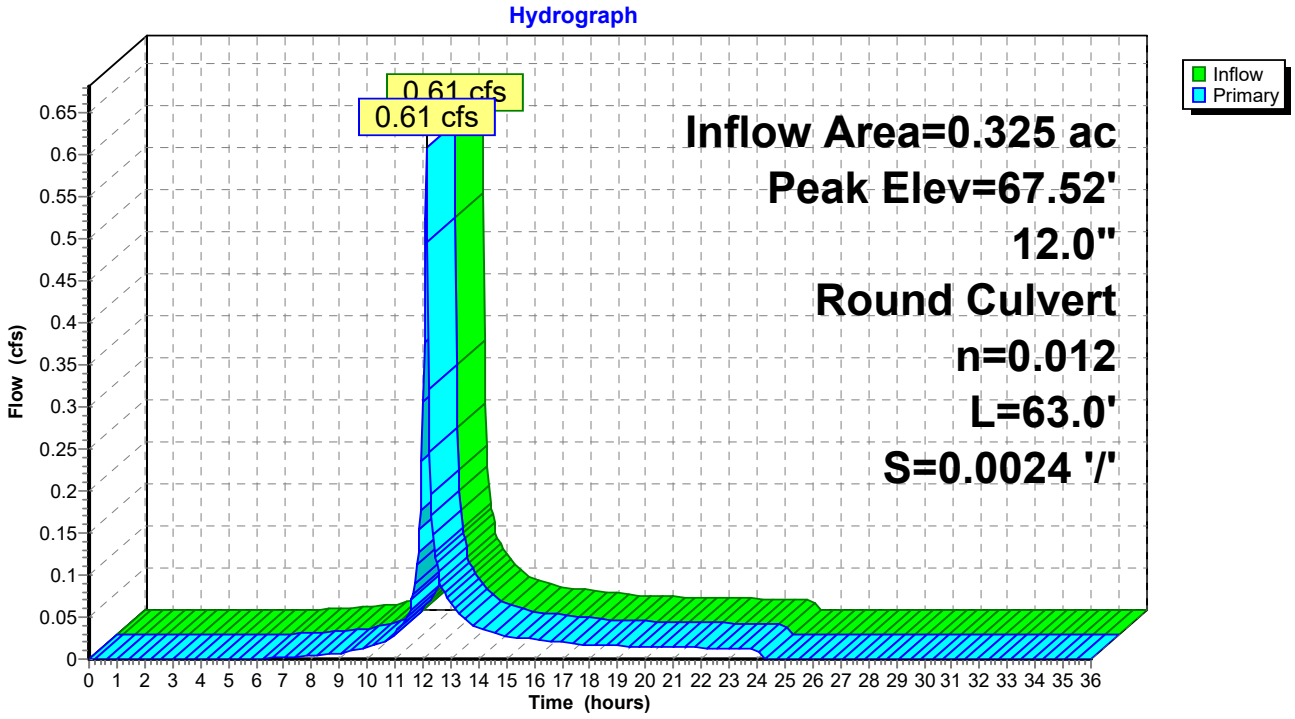
Inflow Area = 0.325 ac, 74.02% Impervious, Inflow Depth = 1.64" for 2-Year event
Inflow = 0.61 cfs @ 12.12 hrs, Volume= 0.045 af
Outflow = 0.61 cfs @ 12.12 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.12 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.52' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	**12.0" Round Outlet Pipe** L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.00' / 66.85' S= 0.0024 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.12 hrs HW=67.52' (Free Discharge)
1=Outlet Pipe (Barrel Controls 0.60 cfs @ 2.12 fps)

Pond P-2: CB-2



Summary for Pond P-3: CB-3

[57] Hint: Peaked at 67.35' (Flood elevation advised)
[79] Warning: Submerged Pond P-2 Primary device # 1 INLET by 0.35'

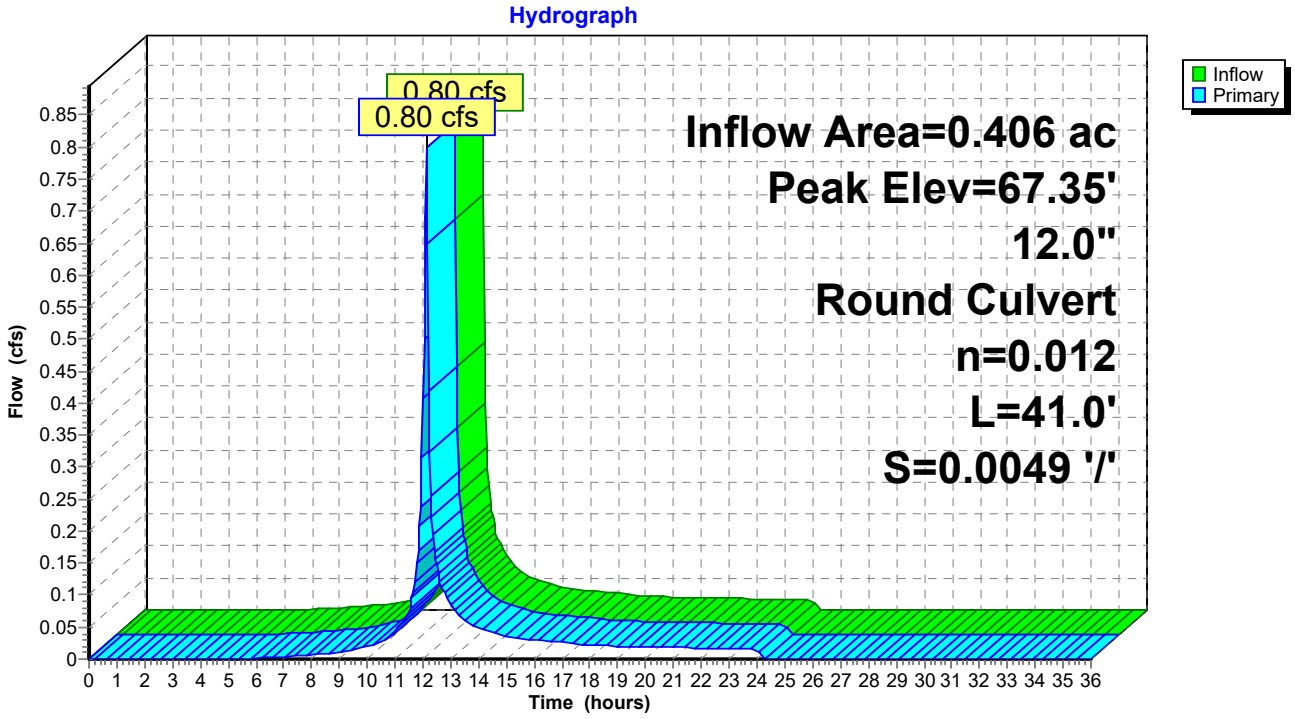
Inflow Area = 0.406 ac, 76.42% Impervious, Inflow Depth = 1.74" for 2-Year event
Inflow = 0.80 cfs @ 12.12 hrs, Volume= 0.059 af
Outflow = 0.80 cfs @ 12.12 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.80 cfs @ 12.12 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.35' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.80'	**12.0" Round Outlet Pipe** L= 41.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.80' / 66.60' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.12 hrs HW=67.35' (Free Discharge)
1=Outlet Pipe (Barrel Controls 0.79 cfs @ 2.60 fps)

Pond P-3: CB-3



Summary for Pond P-4: DMH-1

[57] Hint: Peaked at 67.37' (Flood elevation advised)
[81] Warning: Exceeded Pond P-3 by 0.02' @ 12.12 hrs

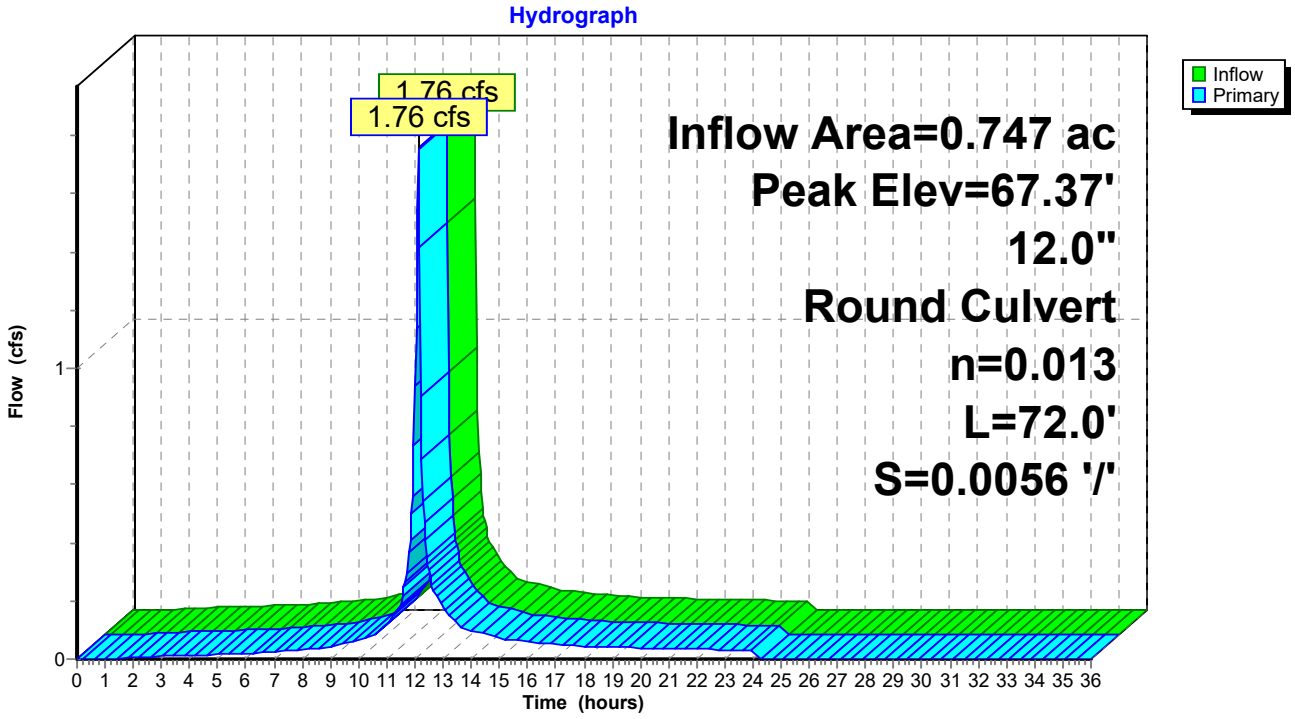
Inflow Area = 0.747 ac, 87.19% Impervious, Inflow Depth = 2.23" for 2-Year event
Inflow = 1.76 cfs @ 12.12 hrs, Volume= 0.139 af
Outflow = 1.76 cfs @ 12.12 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.12 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.37' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.50'	**12.0" Round Outlet Pipe** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.50' / 66.10' S= 0.0056 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.12 hrs HW=67.36' (Free Discharge)
└**1=Outlet Pipe** (Barrel Controls 1.73 cfs @ 3.24 fps)

Pond P-4: DMH-1

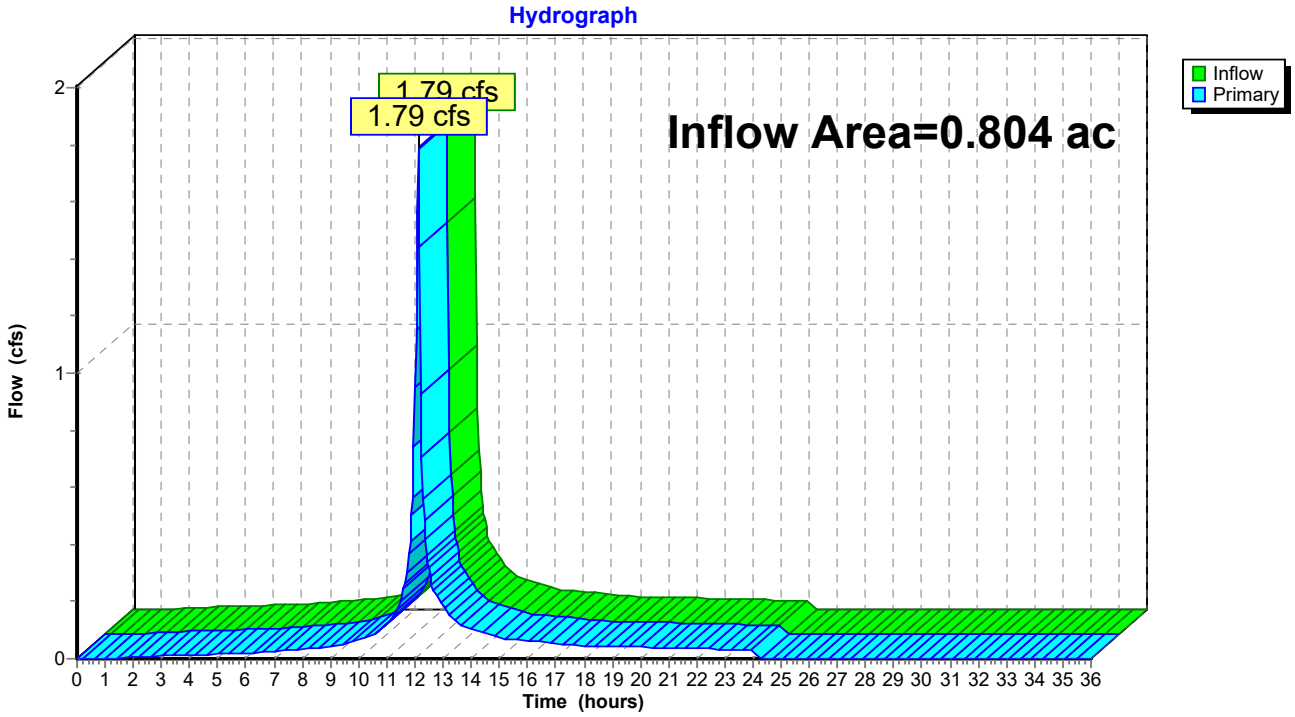


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 83.43% Impervious, Inflow Depth = 2.11" for 2-Year event
Inflow = 1.79 cfs @ 12.12 hrs, Volume= 0.142 af
Primary = 1.79 cfs @ 12.12 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 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 PR-1: PR-1 Runoff Area=8,784 sf 80.57% Impervious Runoff Depth=3.26"
Tc=5.0 min CN=88 Runoff=0.73 cfs 0.055 af

Subcatchment PR-2: PR-2 Runoff Area=5,384 sf 63.34% Impervious Runoff Depth=2.52"
Tc=5.0 min CN=80 Runoff=0.36 cfs 0.026 af

Subcatchment PR-3: PR-3 Runoff Area=3,520 sf 86.08% Impervious Runoff Depth=3.57"
Tc=5.0 min CN=91 Runoff=0.31 cfs 0.024 af

Subcatchment PR-4: PR-4 Runoff Area=2,483 sf 34.19% Impervious Runoff Depth=1.44"
Tc=5.0 min CN=66 Runoff=0.09 cfs 0.007 af

Subcatchment PR-5: PR-5 Runoff Area=14,860 sf 100.00% Impervious Runoff Depth=4.33"
Tc=5.0 min CN=98 Runoff=1.45 cfs 0.123 af

Pond P-1: CB-4 Peak Elev=68.06' Inflow=0.73 cfs 0.055 af
12.0" Round Culvert n=0.012 L=40.5' S=0.0012 '/' Outflow=0.73 cfs 0.055 af

Pond P-2: CB-2 Peak Elev=67.73' Inflow=1.09 cfs 0.081 af
12.0" Round Culvert n=0.012 L=63.0' S=0.0024 '/' Outflow=1.09 cfs 0.081 af

Pond P-3: CB-3 Peak Elev=67.57' Inflow=1.40 cfs 0.105 af
12.0" Round Culvert n=0.012 L=41.0' S=0.0049 '/' Outflow=1.40 cfs 0.105 af

Pond P-4: DMH-1 Peak Elev=67.95' Inflow=2.85 cfs 0.228 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0056 '/' Outflow=2.85 cfs 0.228 af

Link DP-1: Broadway Drainage Inflow=2.94 cfs 0.235 af
Primary=2.94 cfs 0.235 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.235 af Average Runoff Depth = 3.50"
16.57% Pervious = 0.133 ac 83.43% Impervious = 0.671 ac

Summary for Subcatchment PR-1: PR-1

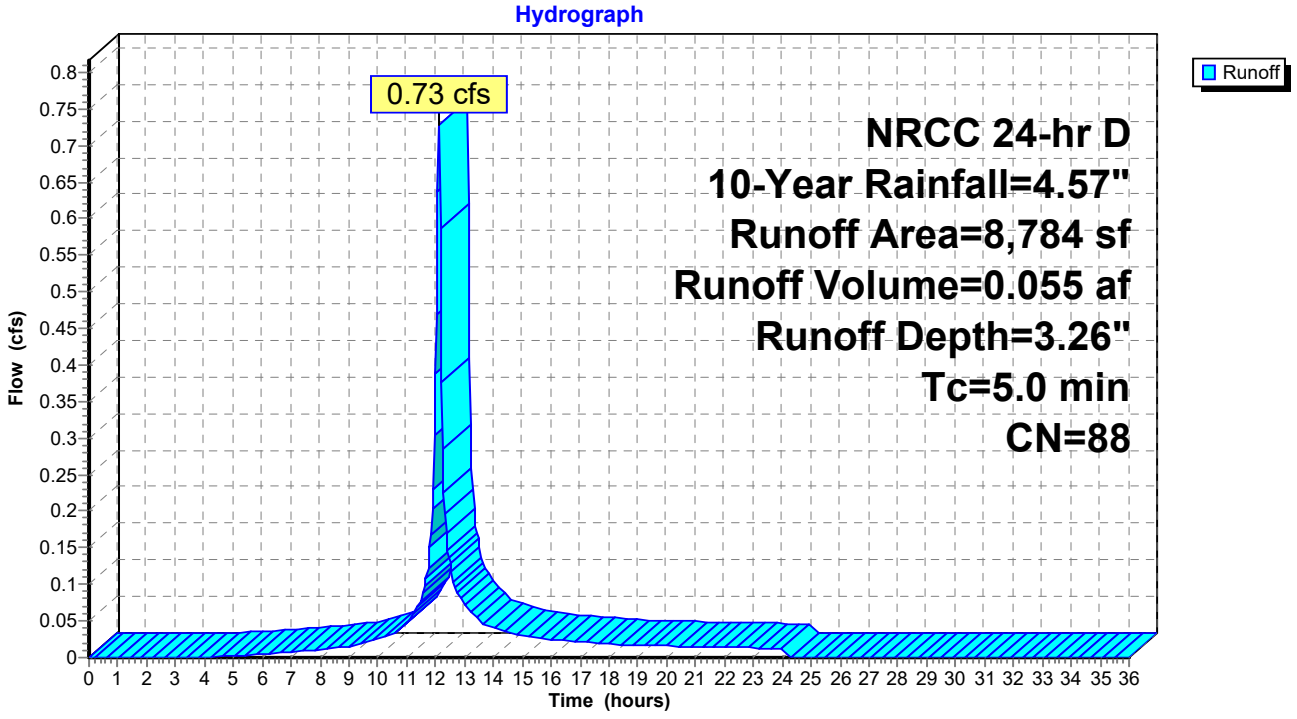
Runoff = 0.73 cfs @ 12.12 hrs, Volume= 0.055 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

	Area (sf)	CN	Description
	6,430	98	Paved parking, HSG A
	1,707	49	50-75% Grass cover, Fair, HSG A
*	287	98	Building Wall
*	360	98	Cement Concrete Sidewalk, HSG A
	8,784	88	Weighted Average
	1,707		19.43% Pervious Area
	7,077		80.57% Impervious Area

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

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2: PR-2

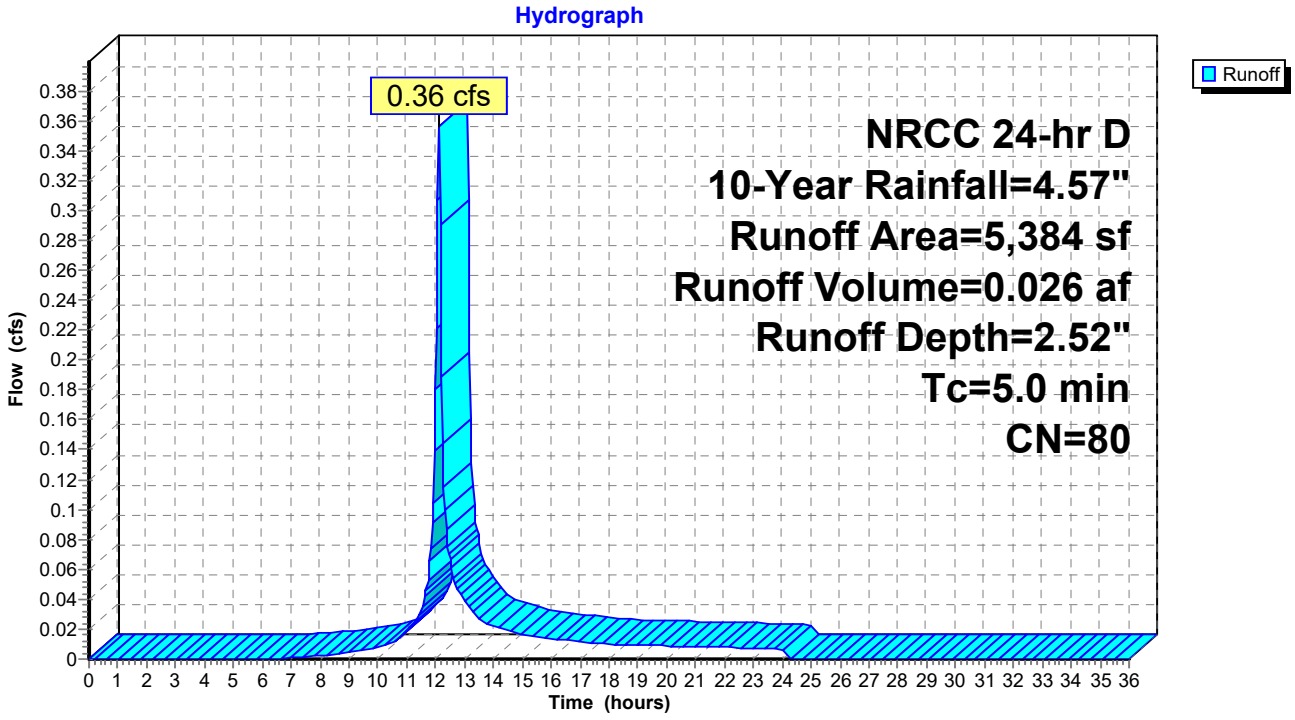
Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

	Area (sf)	CN	Description
	3,012	98	Paved parking, HSG A
	1,974	49	50-75% Grass cover, Fair, HSG A
*	398	98	Cement Concrete Sidewalk, HSG A
	5,384	80	Weighted Average
	1,974		36.66% Pervious Area
	3,410		63.34% Impervious Area

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

Subcatchment PR-2: PR-2



Summary for Subcatchment PR-3: PR-3

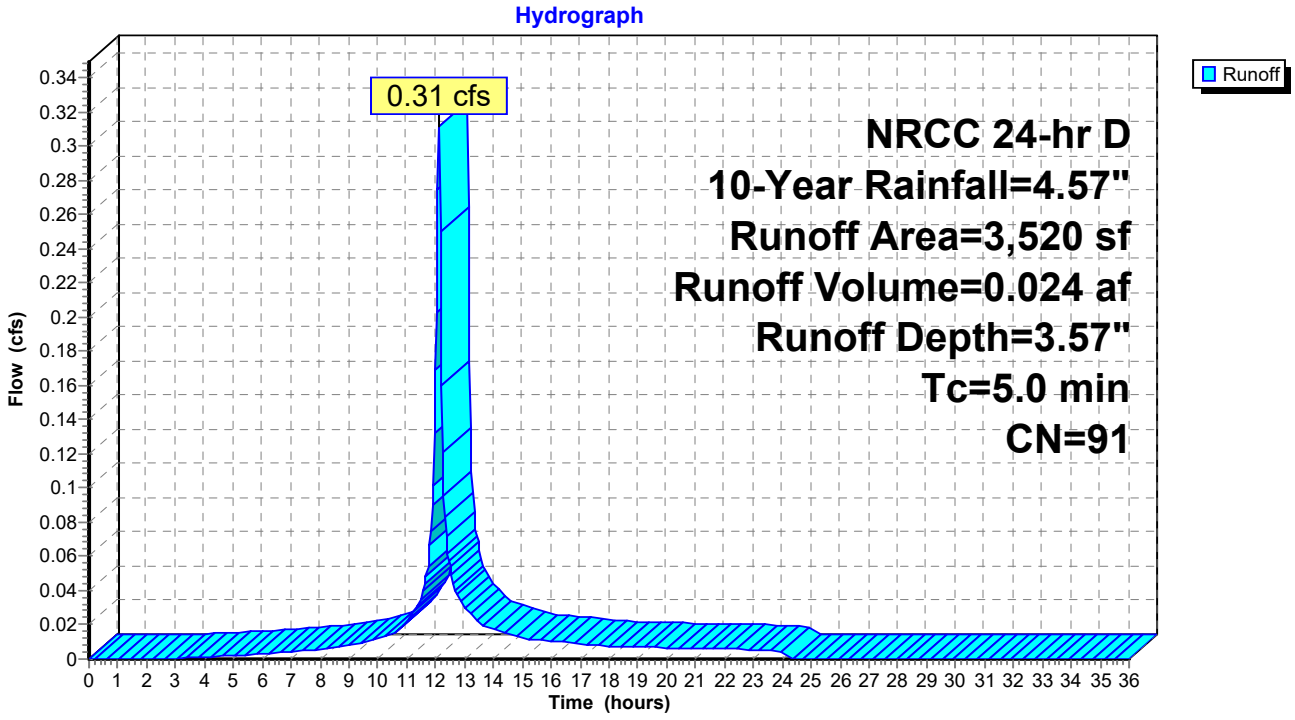
Runoff = 0.31 cfs @ 12.12 hrs, Volume= 0.024 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

	Area (sf)	CN	Description
	2,249	98	Paved parking, HSG A
	490	49	50-75% Grass cover, Fair, HSG A
*	781	98	Cement Concrete Sidewalk, HSG A
	3,520	91	Weighted Average
	490		13.92% Pervious Area
	3,030		86.08% Impervious Area

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

Subcatchment PR-3: PR-3



Summary for Subcatchment PR-4: PR-4

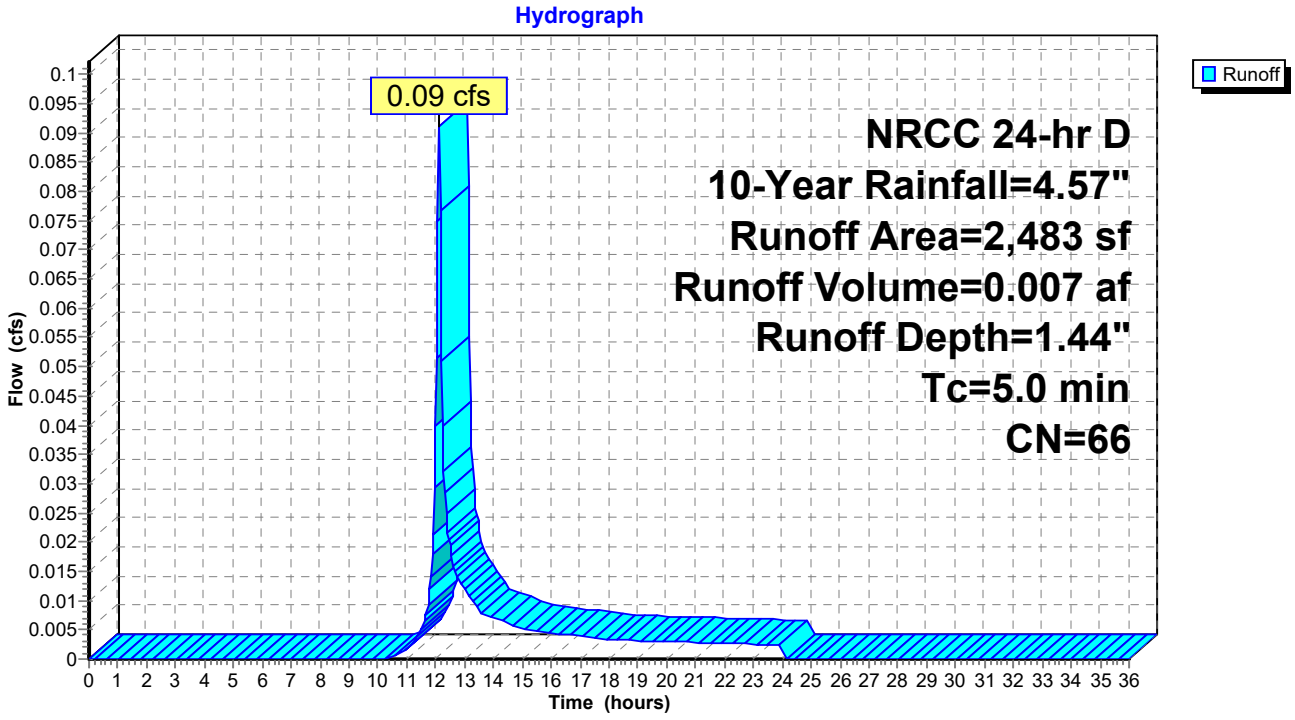
Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.007 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

	Area (sf)	CN	Description
	1,634	49	50-75% Grass cover, Fair, HSG A
*	46	98	Building Wall
*	803	98	Cement Concrete Sidewalk, HSG A
	2,483	66	Weighted Average
	1,634		65.81% Pervious Area
	849		34.19% Impervious Area

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

Subcatchment PR-4: PR-4



Summary for Subcatchment PR-5: PR-5

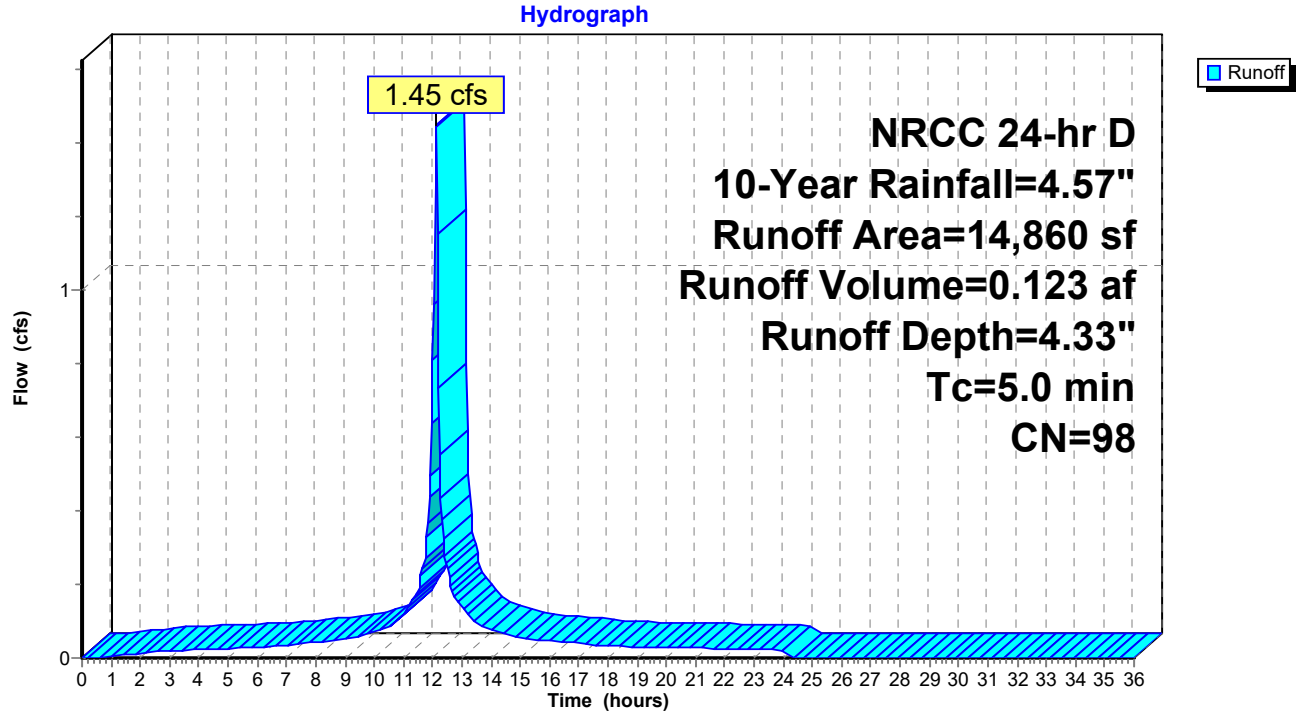
Runoff = 1.45 cfs @ 12.11 hrs, Volume= 0.123 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 10-Year Rainfall=4.57"

Area (sf)	CN	Description
14,860	98	Roofs, HSG A
14,860		100.00% Impervious Area

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

Subcatchment PR-5: PR-5



Summary for Pond P-1: CB-4

[57] Hint: Peaked at 68.06' (Flood elevation advised)

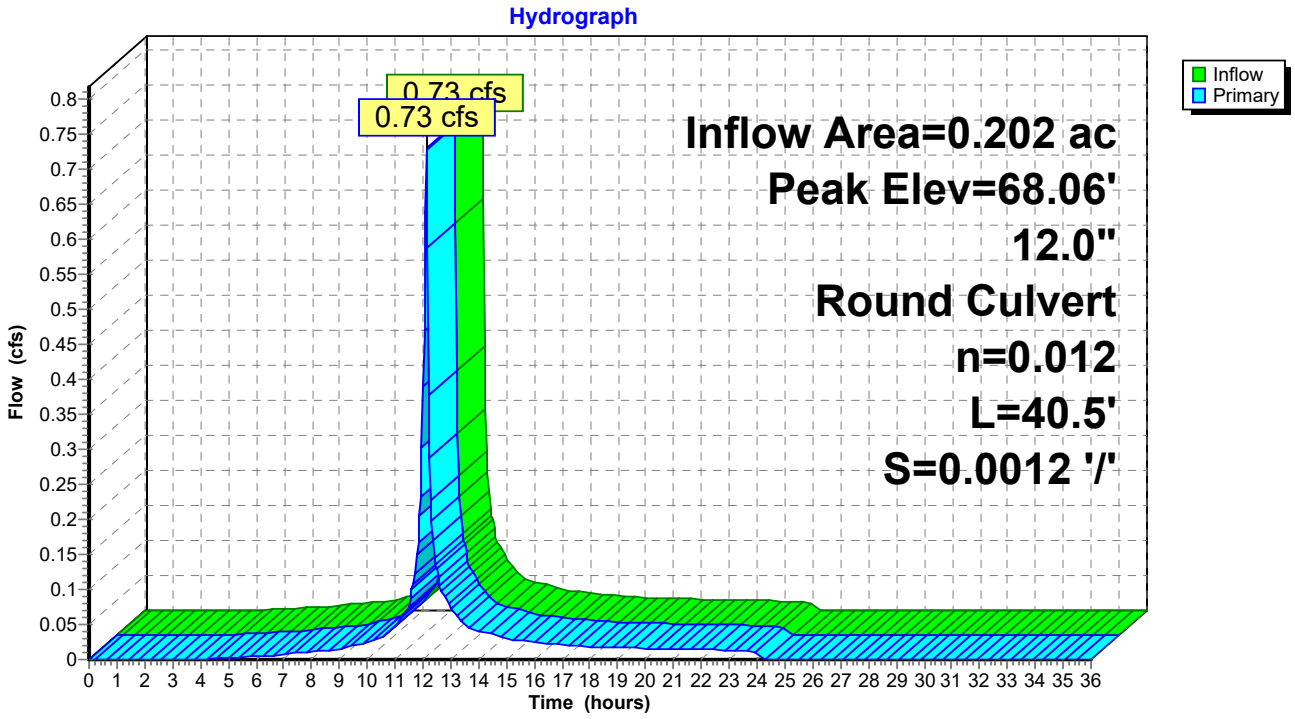
Inflow Area = 0.202 ac, 80.57% Impervious, Inflow Depth = 3.26" for 10-Year event
Inflow = 0.73 cfs @ 12.12 hrs, Volume= 0.055 af
Outflow = 0.73 cfs @ 12.12 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.12 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 68.06' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.45'	**12.0" Round Outlet Pipe** L= 40.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.45' / 67.40' S= 0.0012 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.12 hrs HW=68.06' (Free Discharge)
1=Outlet Pipe (Barrel Controls 0.72 cfs @ 2.06 fps)

Pond P-1: CB-4



Summary for Pond P-2: CB-2

[57] Hint: Peaked at 67.73' (Flood elevation advised)
[79] Warning: Submerged Pond P-1 Primary device # 1 INLET by 0.28'

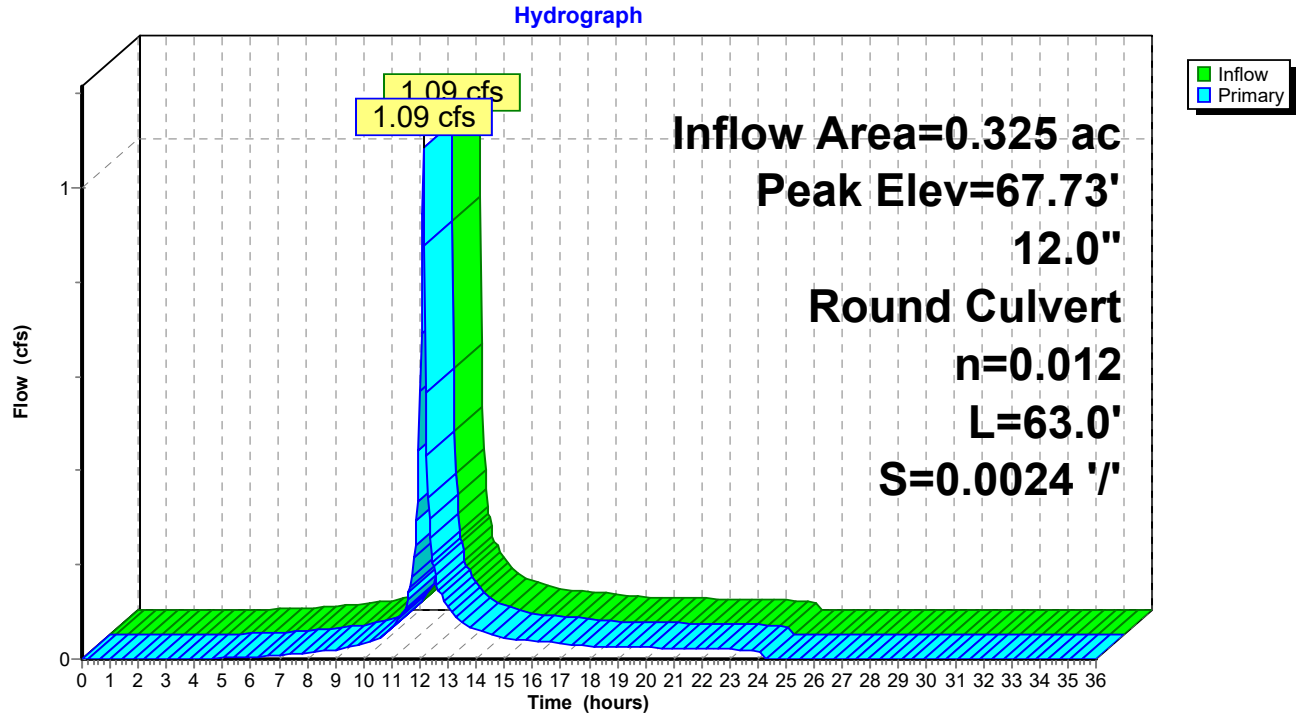
Inflow Area = 0.325 ac, 74.02% Impervious, Inflow Depth = 2.98" for 10-Year event
Inflow = 1.09 cfs @ 12.12 hrs, Volume= 0.081 af
Outflow = 1.09 cfs @ 12.12 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 1.09 cfs @ 12.12 hrs, Volume= 0.081 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.73' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	**12.0" Round Outlet Pipe** L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.00' / 66.85' S= 0.0024 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 12.12 hrs HW=67.72' (Free Discharge)
1=Outlet Pipe (Barrel Controls 1.07 cfs @ 2.47 fps)

Pond P-2: CB-2



Summary for Pond P-3: CB-3

[57] Hint: Peaked at 67.57' (Flood elevation advised)
[79] Warning: Submerged Pond P-2 Primary device # 1 INLET by 0.57'

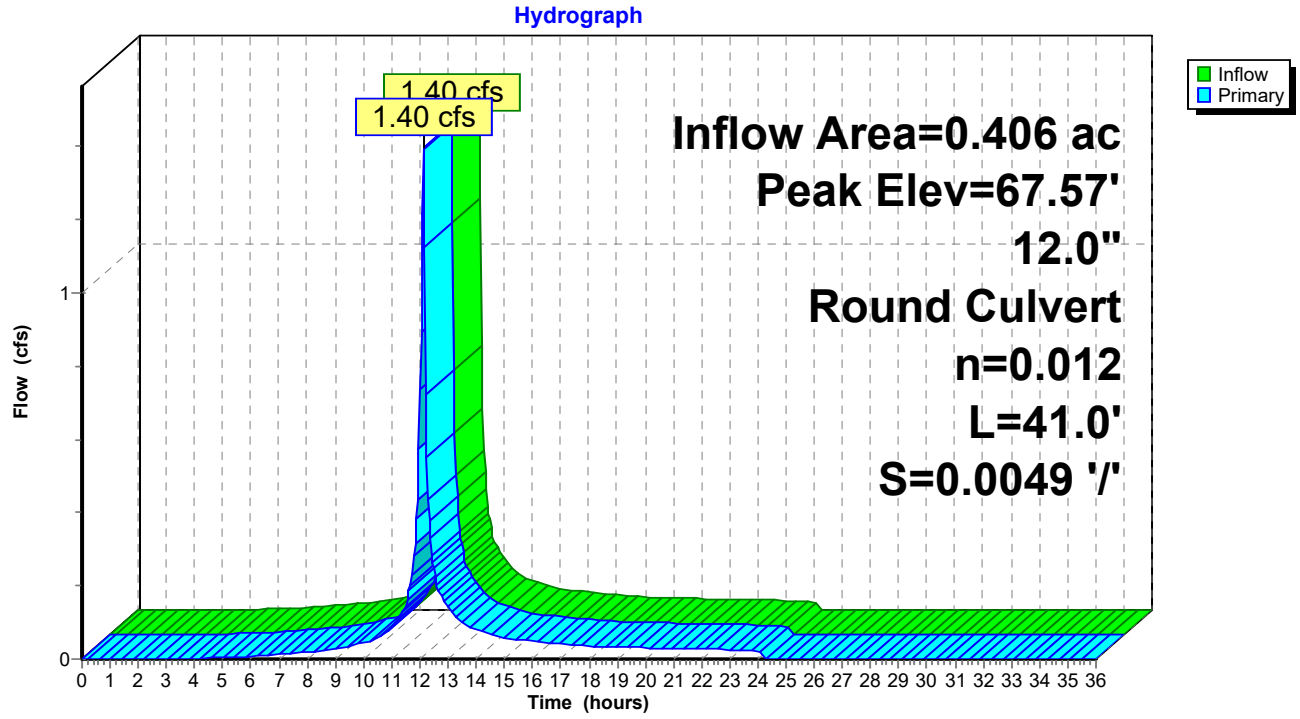
Inflow Area = 0.406 ac, 76.42% Impervious, Inflow Depth = 3.10" for 10-Year event
Inflow = 1.40 cfs @ 12.12 hrs, Volume= 0.105 af
Outflow = 1.40 cfs @ 12.12 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.40 cfs @ 12.12 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.57' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.80'	**12.0" Round Outlet Pipe** L= 41.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.80' / 66.60' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.12 hrs HW=67.56' (Free Discharge)
└**1=Outlet Pipe** (Barrel Controls 1.38 cfs @ 2.96 fps)

Pond P-3: CB-3



Summary for Pond P-4: DMH-1

[57] Hint: Peaked at 67.95' (Flood elevation advised)
[81] Warning: Exceeded Pond P-3 by 0.37' @ 12.12 hrs

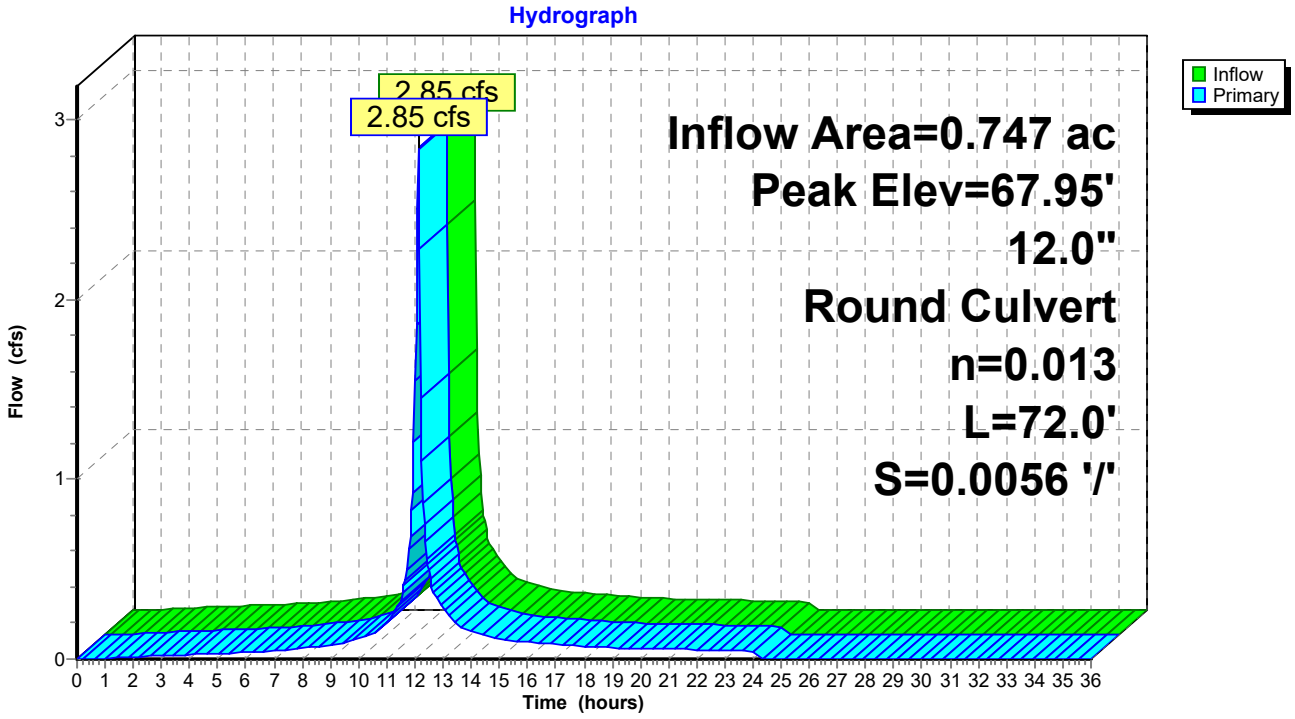
Inflow Area = 0.747 ac, 87.19% Impervious, Inflow Depth = 3.66" for 10-Year event
Inflow = 2.85 cfs @ 12.11 hrs, Volume= 0.228 af
Outflow = 2.85 cfs @ 12.11 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min
Primary = 2.85 cfs @ 12.11 hrs, Volume= 0.228 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.95' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.50'	**12.0" Round Outlet Pipe** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.50' / 66.10' S= 0.0056 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=2.79 cfs @ 12.11 hrs HW=67.91' (Free Discharge)
└**1=Outlet Pipe** (Barrel Controls 2.79 cfs @ 3.55 fps)

Pond P-4: DMH-1

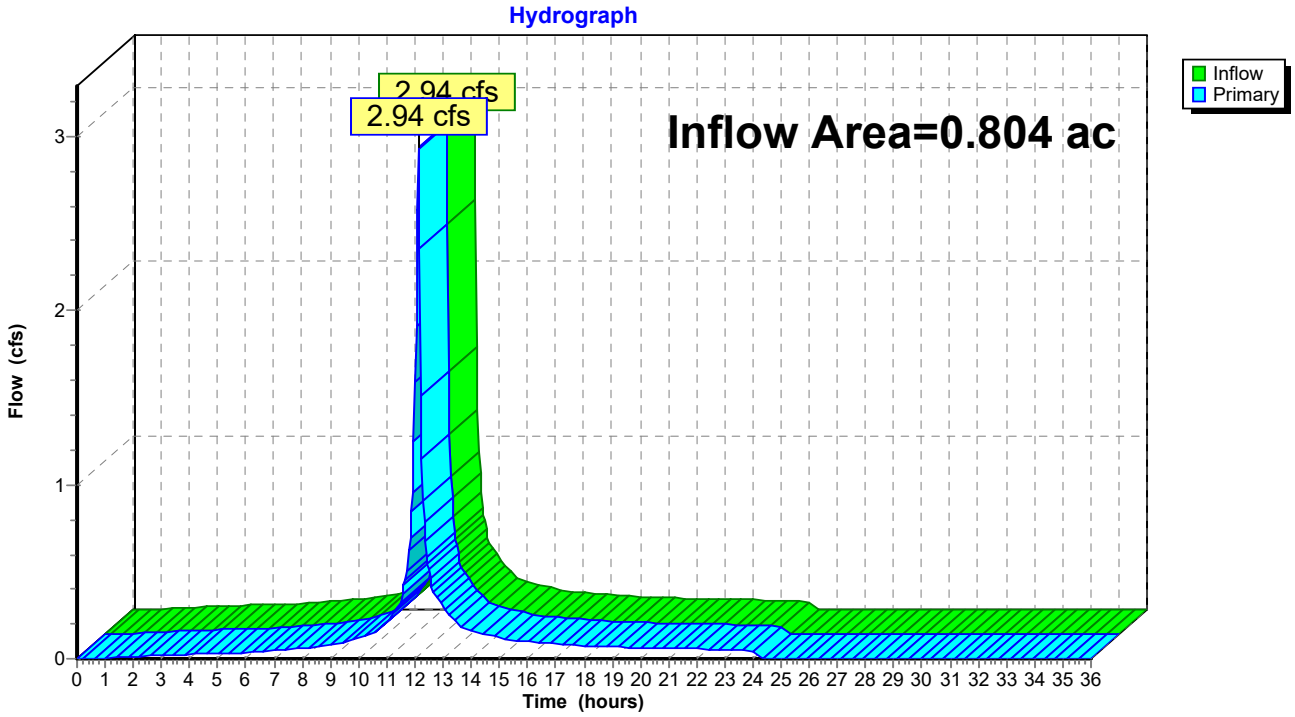


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 83.43% Impervious, Inflow Depth = 3.50" for 10-Year event
Inflow = 2.94 cfs @ 12.12 hrs, Volume= 0.235 af
Primary = 2.94 cfs @ 12.12 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 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 PR-1: PR-1 Runoff Area=8,784 sf 80.57% Impervious Runoff Depth=4.40"
Tc=5.0 min CN=88 Runoff=0.97 cfs 0.074 af

Subcatchment PR-2: PR-2 Runoff Area=5,384 sf 63.34% Impervious Runoff Depth=3.57"
Tc=5.0 min CN=80 Runoff=0.50 cfs 0.037 af

Subcatchment PR-3: PR-3 Runoff Area=3,520 sf 86.08% Impervious Runoff Depth=4.73"
Tc=5.0 min CN=91 Runoff=0.41 cfs 0.032 af

Subcatchment PR-4: PR-4 Runoff Area=2,483 sf 34.19% Impervious Runoff Depth=2.27"
Tc=5.0 min CN=66 Runoff=0.15 cfs 0.011 af

Subcatchment PR-5: PR-5 Runoff Area=14,860 sf 100.00% Impervious Runoff Depth=5.53"
Tc=5.0 min CN=98 Runoff=1.83 cfs 0.157 af

Pond P-1: CB-4 Peak Elev=68.17' Inflow=0.97 cfs 0.074 af
12.0" Round Culvert n=0.012 L=40.5' S=0.0012 '/' Outflow=0.97 cfs 0.074 af

Pond P-2: CB-2 Peak Elev=67.88' Inflow=1.47 cfs 0.111 af
12.0" Round Culvert n=0.012 L=63.0' S=0.0024 '/' Outflow=1.47 cfs 0.111 af

Pond P-3: CB-3 Peak Elev=67.74' Inflow=1.88 cfs 0.143 af
12.0" Round Culvert n=0.012 L=41.0' S=0.0049 '/' Outflow=1.88 cfs 0.143 af

Pond P-4: DMH-1 Peak Elev=68.54' Inflow=3.71 cfs 0.300 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0056 '/' Outflow=3.71 cfs 0.300 af

Link DP-1: Broadway Drainage Inflow=3.86 cfs 0.311 af
Primary=3.86 cfs 0.311 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.311 af Average Runoff Depth = 4.64"
16.57% Pervious = 0.133 ac 83.43% Impervious = 0.671 ac

Summary for Subcatchment PR-1: PR-1

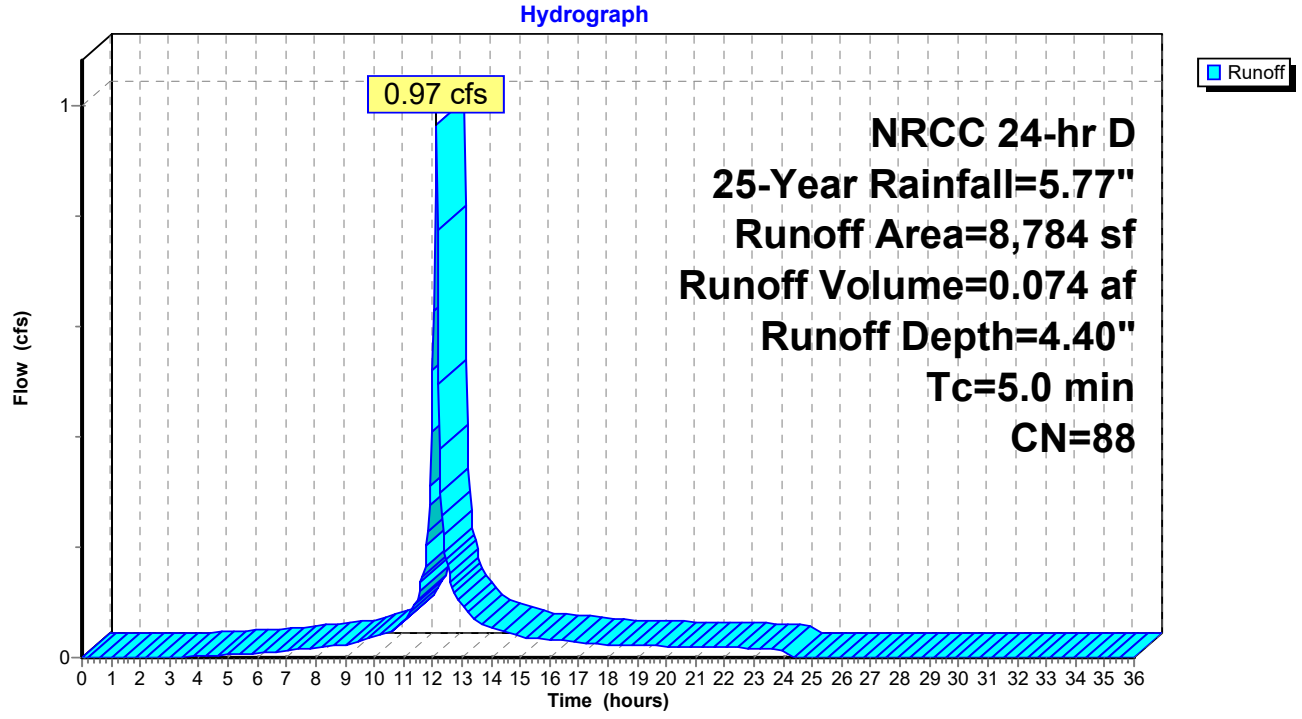
Runoff = 0.97 cfs @ 12.12 hrs, Volume= 0.074 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

	Area (sf)	CN	Description
	6,430	98	Paved parking, HSG A
	1,707	49	50-75% Grass cover, Fair, HSG A
*	287	98	Building Wall
*	360	98	Cement Concrete Sidewalk, HSG A
	8,784	88	Weighted Average
	1,707		19.43% Pervious Area
	7,077		80.57% Impervious Area

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

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2: PR-2

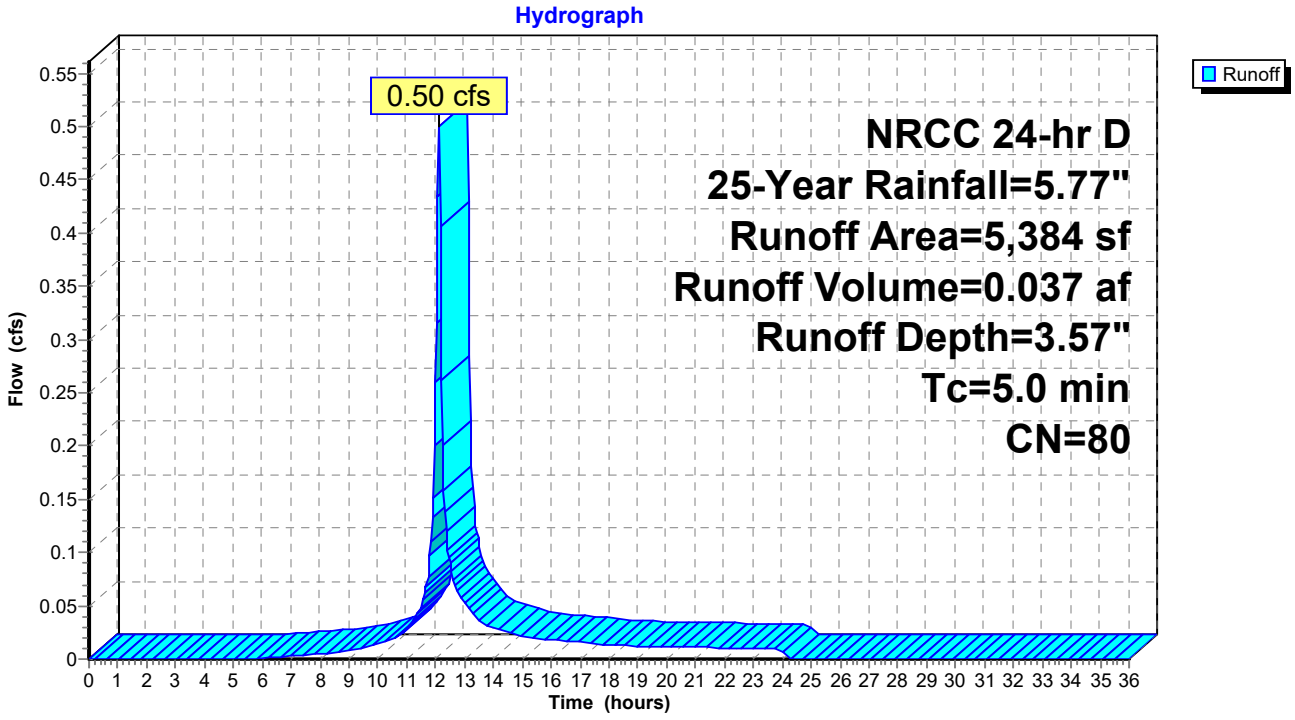
Runoff = 0.50 cfs @ 12.12 hrs, Volume= 0.037 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

	Area (sf)	CN	Description
	3,012	98	Paved parking, HSG A
	1,974	49	50-75% Grass cover, Fair, HSG A
*	398	98	Cement Concrete Sidewalk, HSG A
	5,384	80	Weighted Average
	1,974		36.66% Pervious Area
	3,410		63.34% Impervious Area

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

Subcatchment PR-2: PR-2



Summary for Subcatchment PR-3: PR-3

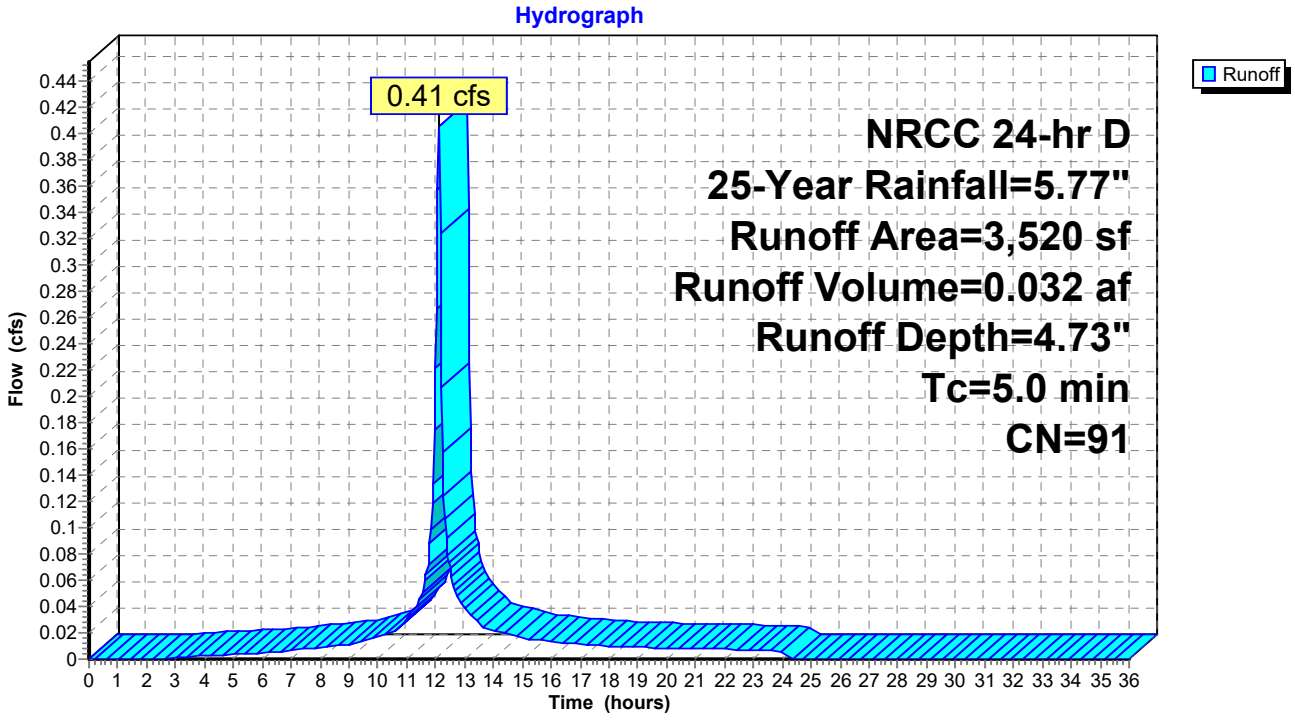
Runoff = 0.41 cfs @ 12.11 hrs, Volume= 0.032 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

	Area (sf)	CN	Description
	2,249	98	Paved parking, HSG A
	490	49	50-75% Grass cover, Fair, HSG A
*	781	98	Cement Concrete Sidewalk, HSG A
	3,520	91	Weighted Average
	490		13.92% Pervious Area
	3,030		86.08% Impervious Area

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

Subcatchment PR-3: PR-3



Summary for Subcatchment PR-4: PR-4

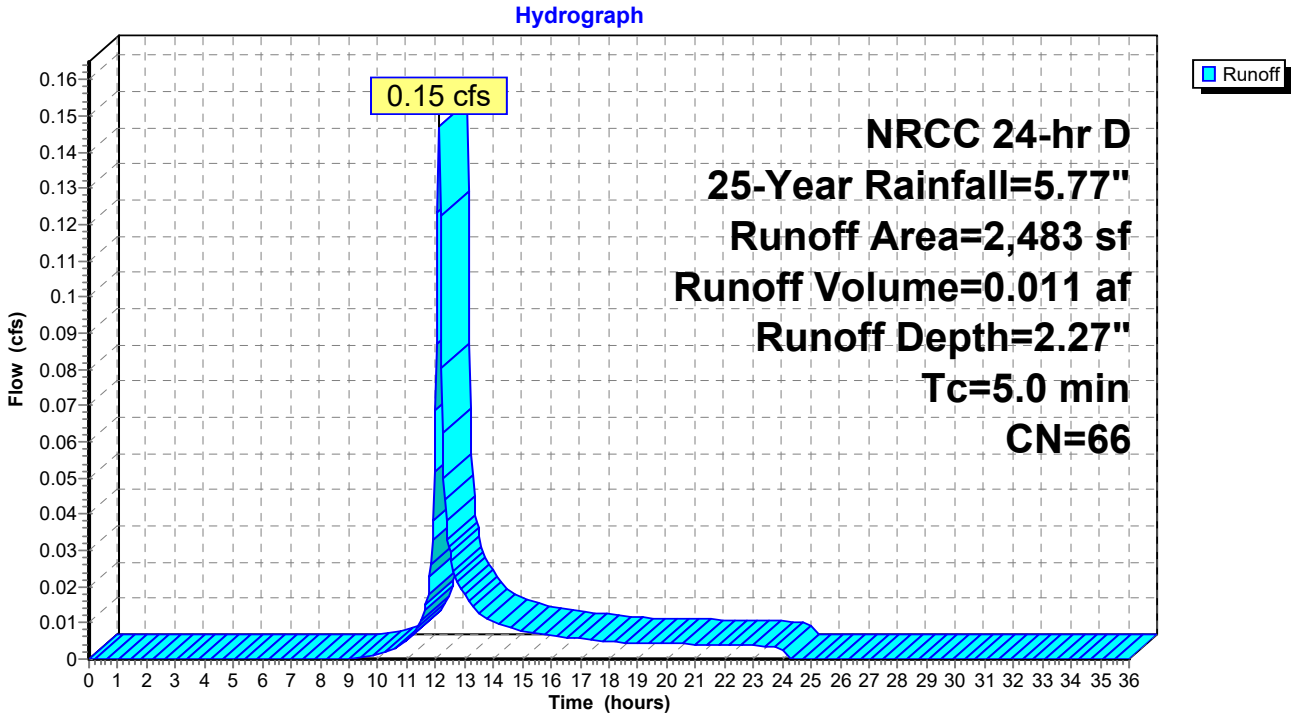
Runoff = 0.15 cfs @ 12.12 hrs, Volume= 0.011 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

	Area (sf)	CN	Description
	1,634	49	50-75% Grass cover, Fair, HSG A
*	46	98	Building Wall
*	803	98	Cement Concrete Sidewalk, HSG A
	2,483	66	Weighted Average
	1,634		65.81% Pervious Area
	849		34.19% Impervious Area

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

Subcatchment PR-4: PR-4



Summary for Subcatchment PR-5: PR-5

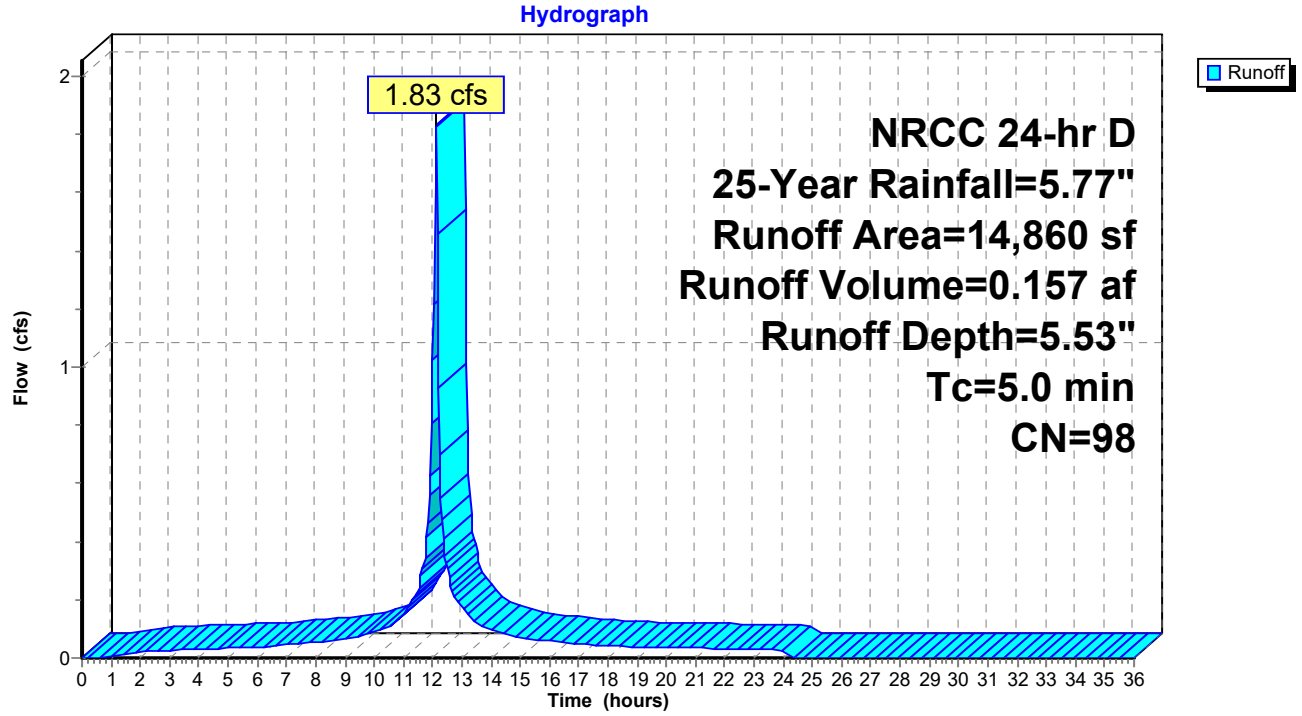
Runoff = 1.83 cfs @ 12.11 hrs, Volume= 0.157 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 25-Year Rainfall=5.77"

Area (sf)	CN	Description
14,860	98	Roofs, HSG A
14,860		100.00% Impervious Area

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

Subcatchment PR-5: PR-5



Summary for Pond P-1: CB-4

[57] Hint: Peaked at 68.17' (Flood elevation advised)

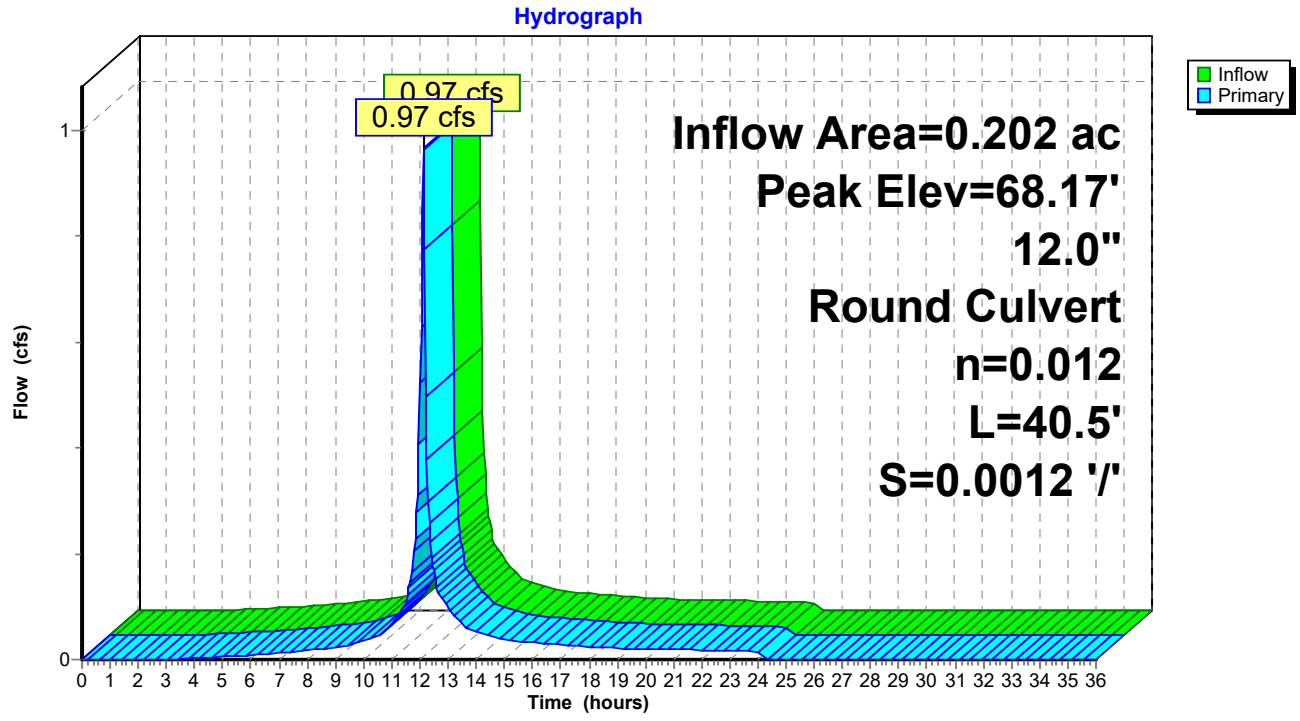
Inflow Area = 0.202 ac, 80.57% Impervious, Inflow Depth = 4.40" for 25-Year event
Inflow = 0.97 cfs @ 12.12 hrs, Volume= 0.074 af
Outflow = 0.97 cfs @ 12.12 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.12 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 68.17' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.45'	**12.0" Round Outlet Pipe** L= 40.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.45' / 67.40' S= 0.0012 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.95 cfs @ 12.12 hrs HW=68.16' (Free Discharge)
1=Outlet Pipe (Barrel Controls 0.95 cfs @ 2.24 fps)

Pond P-1: CB-4



Summary for Pond P-2: CB-2

[57] Hint: Peaked at 67.88' (Flood elevation advised)
[79] Warning: Submerged Pond P-1 Primary device # 1 INLET by 0.42'

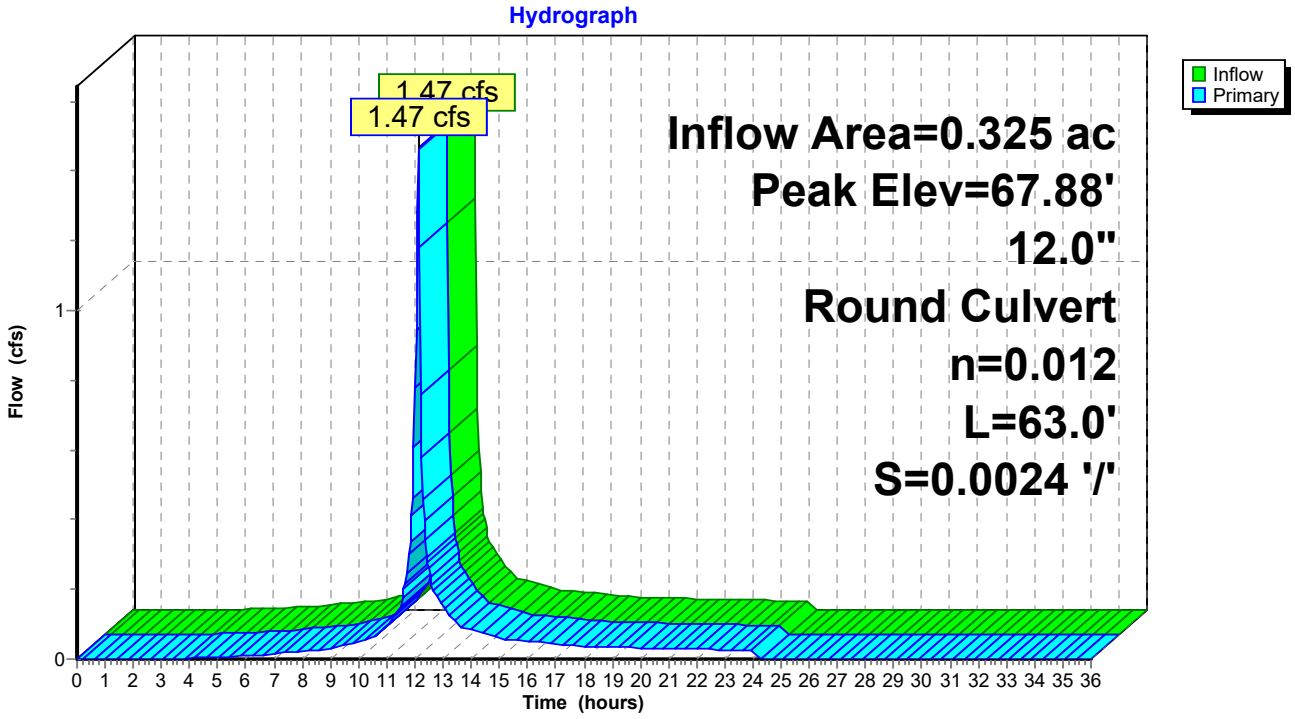
Inflow Area = 0.325 ac, 74.02% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 1.47 cfs @ 12.12 hrs, Volume= 0.111 af
Outflow = 1.47 cfs @ 12.12 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min
Primary = 1.47 cfs @ 12.12 hrs, Volume= 0.111 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.88' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	**12.0" Round Outlet Pipe** L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.00' / 66.85' S= 0.0024 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.12 hrs HW=67.87' (Free Discharge)
1=Outlet Pipe (Barrel Controls 1.45 cfs @ 2.68 fps)

Pond P-2: CB-2



Summary for Pond P-3: CB-3

[57] Hint: Peaked at 67.74' (Flood elevation advised)
[79] Warning: Submerged Pond P-2 Primary device # 1 INLET by 0.74'

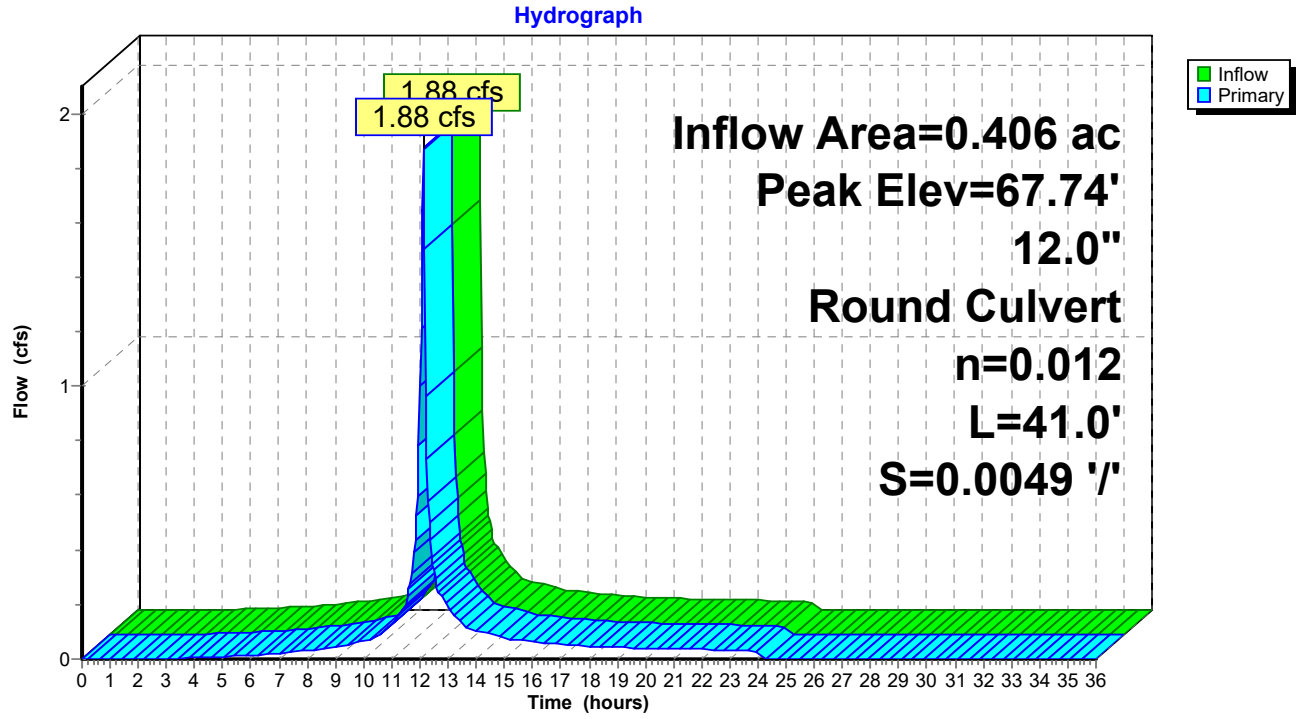
Inflow Area = 0.406 ac, 76.42% Impervious, Inflow Depth = 4.22" for 25-Year event
Inflow = 1.88 cfs @ 12.12 hrs, Volume= 0.143 af
Outflow = 1.88 cfs @ 12.12 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.12 hrs, Volume= 0.143 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.74' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.80'	**12.0" Round Outlet Pipe** L= 41.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.80' / 66.60' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.85 cfs @ 12.12 hrs HW=67.73' (Free Discharge)
1=Outlet Pipe (Barrel Controls 1.85 cfs @ 3.16 fps)

Pond P-3: CB-3



Summary for Pond P-4: DMH-1

[57] Hint: Peaked at 68.54' (Flood elevation advised)
[81] Warning: Exceeded Pond P-3 by 0.80' @ 12.12 hrs

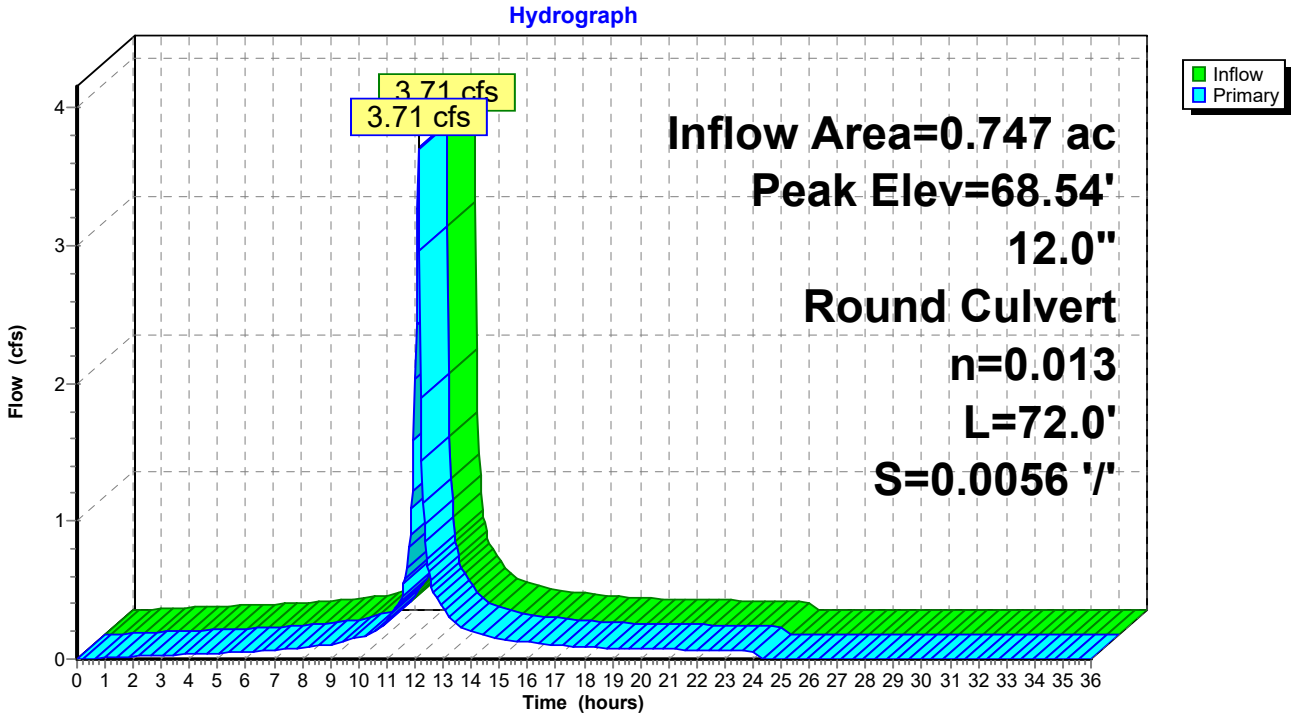
Inflow Area = 0.747 ac, 87.19% Impervious, Inflow Depth = 4.82" for 25-Year event
Inflow = 3.71 cfs @ 12.11 hrs, Volume= 0.300 af
Outflow = 3.71 cfs @ 12.11 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min
Primary = 3.71 cfs @ 12.11 hrs, Volume= 0.300 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 68.54' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.50'	**12.0" Round Outlet Pipe** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.50' / 66.10' S= 0.0056 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=3.65 cfs @ 12.11 hrs HW=68.49' (Free Discharge)
1=Outlet Pipe (Barrel Controls 3.65 cfs @ 4.64 fps)

Pond P-4: DMH-1

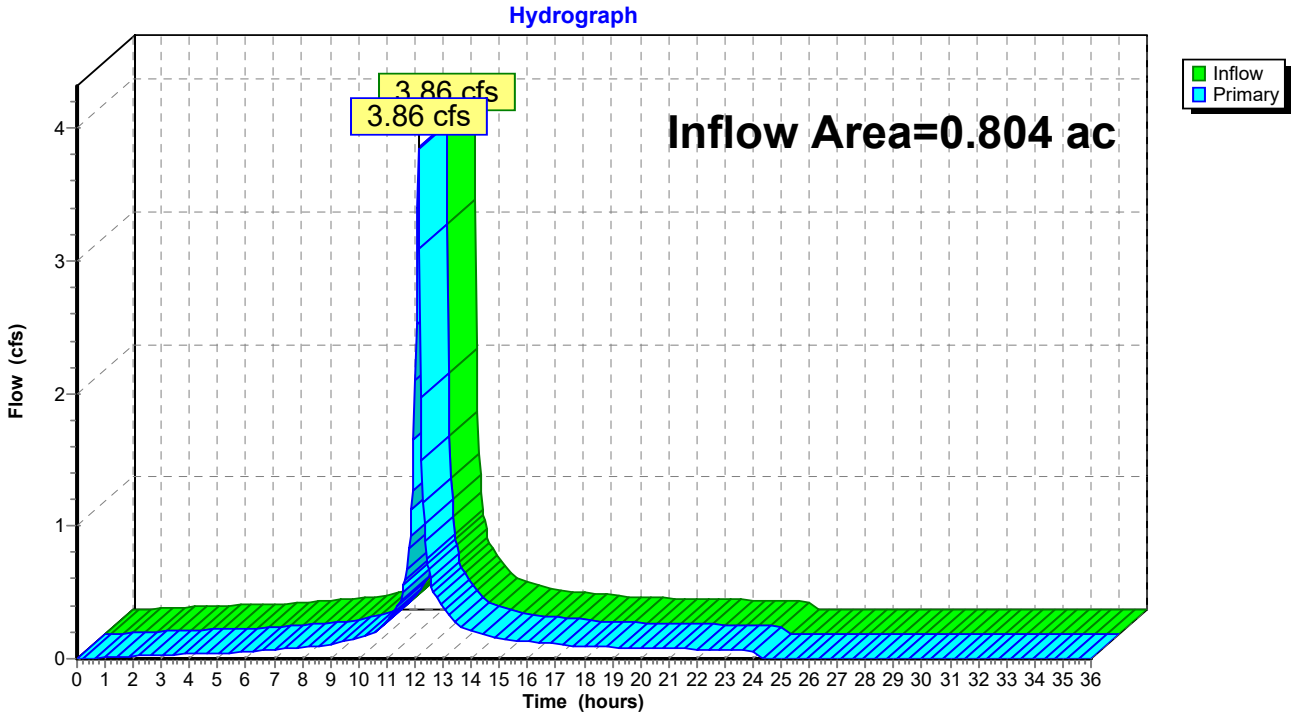


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 83.43% Impervious, Inflow Depth = 4.64" for 25-Year event
Inflow = 3.86 cfs @ 12.11 hrs, Volume= 0.311 af
Primary = 3.86 cfs @ 12.11 hrs, Volume= 0.311 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link DP-1: Broadway Drainage



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 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 PR-1: PR-1 Runoff Area=8,784 sf 80.57% Impervious Runoff Depth=5.48"
Tc=5.0 min CN=88 Runoff=1.19 cfs 0.092 af

Subcatchment PR-2: PR-2 Runoff Area=5,384 sf 63.34% Impervious Runoff Depth=4.58"
Tc=5.0 min CN=80 Runoff=0.64 cfs 0.047 af

Subcatchment PR-3: PR-3 Runoff Area=3,520 sf 86.08% Impervious Runoff Depth=5.82"
Tc=5.0 min CN=91 Runoff=0.49 cfs 0.039 af

Subcatchment PR-4: PR-4 Runoff Area=2,483 sf 34.19% Impervious Runoff Depth=3.11"
Tc=5.0 min CN=66 Runoff=0.20 cfs 0.015 af

Subcatchment PR-5: PR-5 Runoff Area=14,860 sf 100.00% Impervious Runoff Depth=6.64"
Tc=5.0 min CN=98 Runoff=2.19 cfs 0.189 af

Pond P-1: CB-4 Peak Elev=68.26' Inflow=1.19 cfs 0.092 af
12.0" Round Culvert n=0.012 L=40.5' S=0.0012 '/' Outflow=1.19 cfs 0.092 af

Pond P-2: CB-2 Peak Elev=68.01' Inflow=1.82 cfs 0.139 af
12.0" Round Culvert n=0.012 L=63.0' S=0.0024 '/' Outflow=1.82 cfs 0.139 af

Pond P-3: CB-3 Peak Elev=67.90' Inflow=2.32 cfs 0.178 af
12.0" Round Culvert n=0.012 L=41.0' S=0.0049 '/' Outflow=2.32 cfs 0.178 af

Pond P-4: DMH-1 Peak Elev=69.27' Inflow=4.51 cfs 0.367 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0056 '/' Outflow=4.51 cfs 0.367 af

Link DP-1: Broadway Drainage Inflow=4.71 cfs 0.382 af
Primary=4.71 cfs 0.382 af

Total Runoff Area = 0.804 ac Runoff Volume = 0.382 af Average Runoff Depth = 5.70"
16.57% Pervious = 0.133 ac 83.43% Impervious = 0.671 ac

Summary for Subcatchment PR-1: PR-1

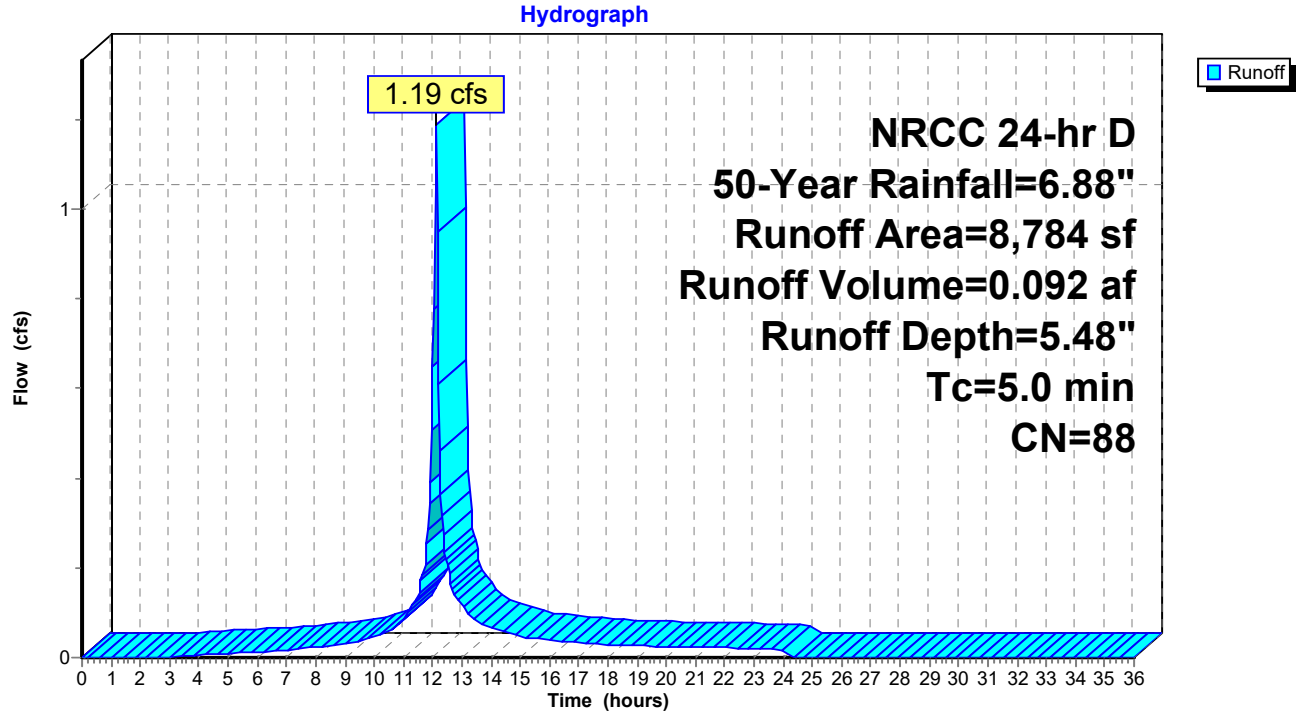
Runoff = 1.19 cfs @ 12.11 hrs, Volume= 0.092 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

	Area (sf)	CN	Description
	6,430	98	Paved parking, HSG A
	1,707	49	50-75% Grass cover, Fair, HSG A
*	287	98	Building Wall
*	360	98	Cement Concrete Sidewalk, HSG A
	8,784	88	Weighted Average
	1,707		19.43% Pervious Area
	7,077		80.57% Impervious Area

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

Subcatchment PR-1: PR-1



Summary for Subcatchment PR-2: PR-2

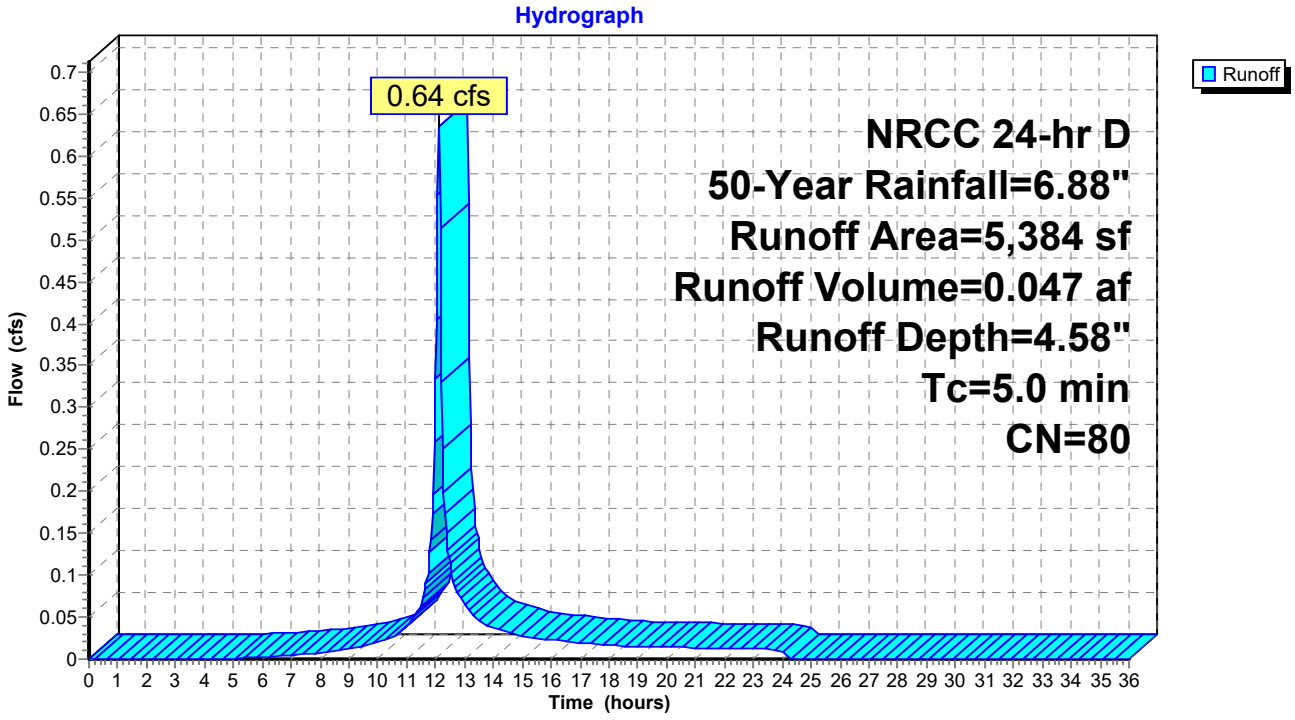
Runoff = 0.64 cfs @ 12.12 hrs, Volume= 0.047 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

	Area (sf)	CN	Description
	3,012	98	Paved parking, HSG A
	1,974	49	50-75% Grass cover, Fair, HSG A
*	398	98	Cement Concrete Sidewalk, HSG A
	5,384	80	Weighted Average
	1,974		36.66% Pervious Area
	3,410		63.34% Impervious Area

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

Subcatchment PR-2: PR-2



Summary for Subcatchment PR-3: PR-3

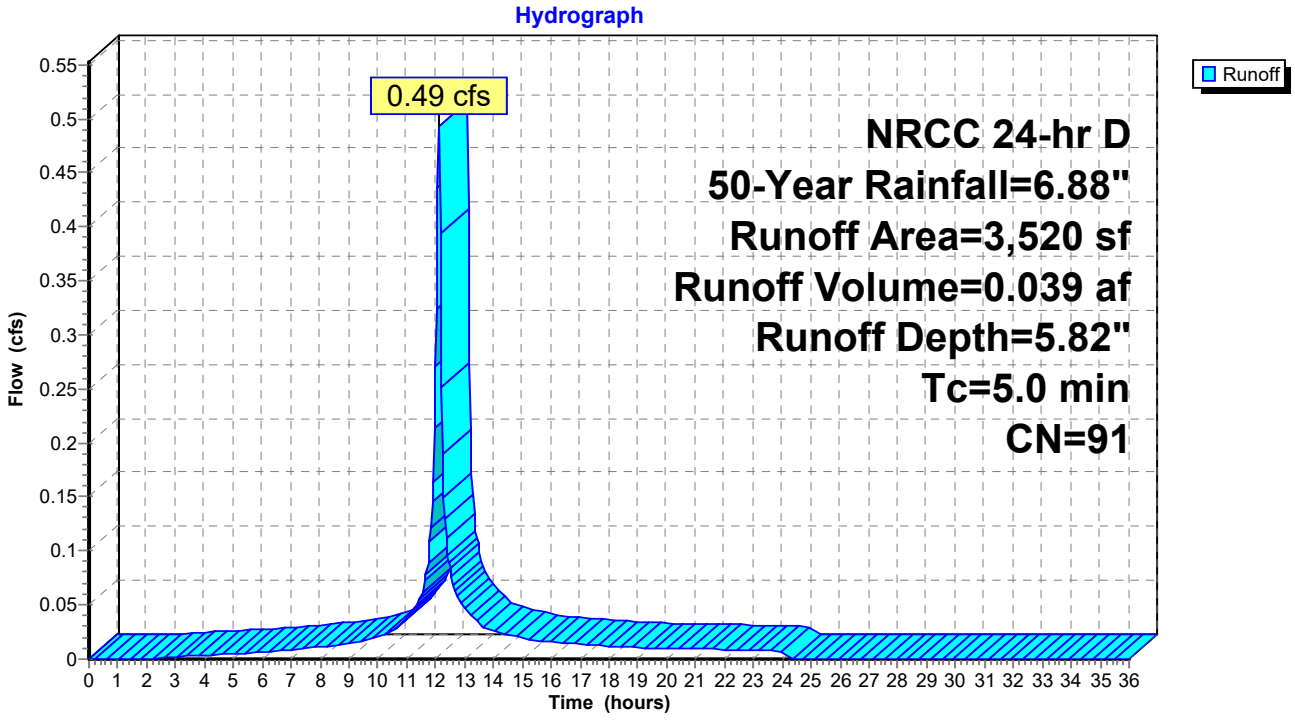
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.039 af, Depth= 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

	Area (sf)	CN	Description
	2,249	98	Paved parking, HSG A
	490	49	50-75% Grass cover, Fair, HSG A
*	781	98	Cement Concrete Sidewalk, HSG A
	3,520	91	Weighted Average
	490		13.92% Pervious Area
	3,030		86.08% Impervious Area

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

Subcatchment PR-3: PR-3



Summary for Subcatchment PR-4: PR-4

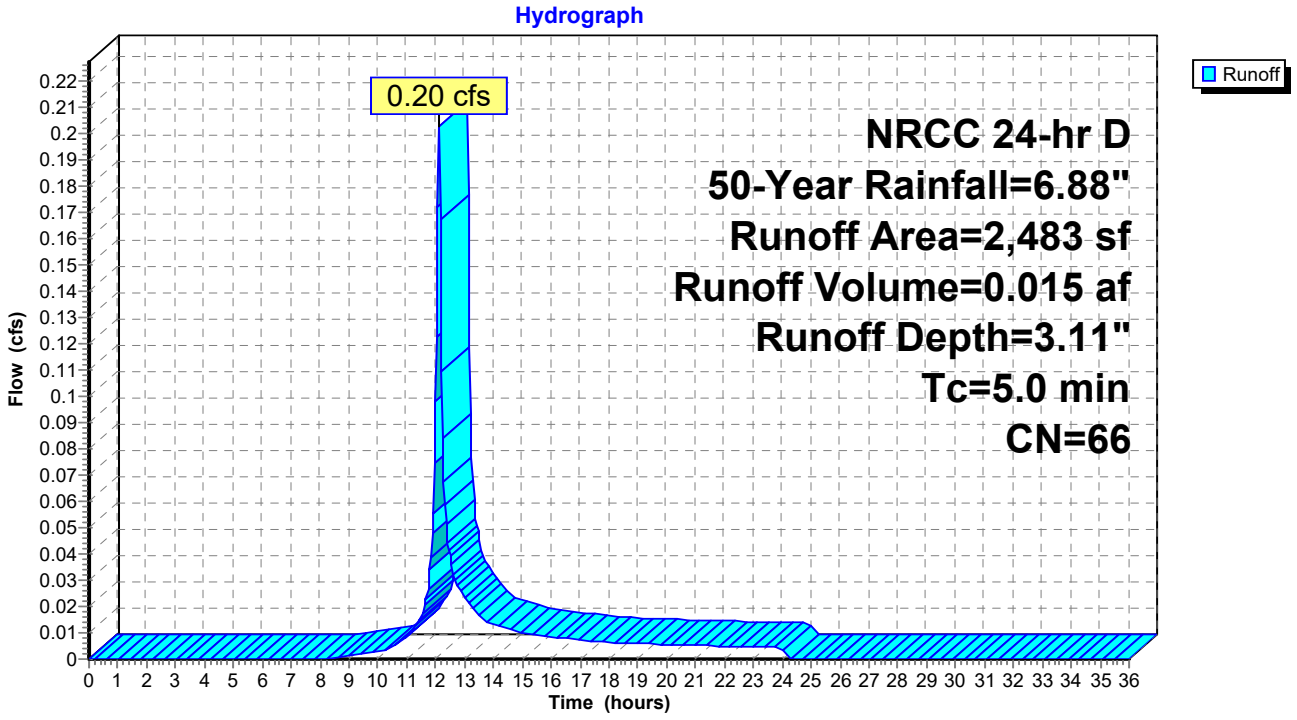
Runoff = 0.20 cfs @ 12.12 hrs, Volume= 0.015 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

	Area (sf)	CN	Description
	1,634	49	50-75% Grass cover, Fair, HSG A
*	46	98	Building Wall
*	803	98	Cement Concrete Sidewalk, HSG A
	2,483	66	Weighted Average
	1,634		65.81% Pervious Area
	849		34.19% Impervious Area

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

Subcatchment PR-4: PR-4



Summary for Subcatchment PR-5: PR-5

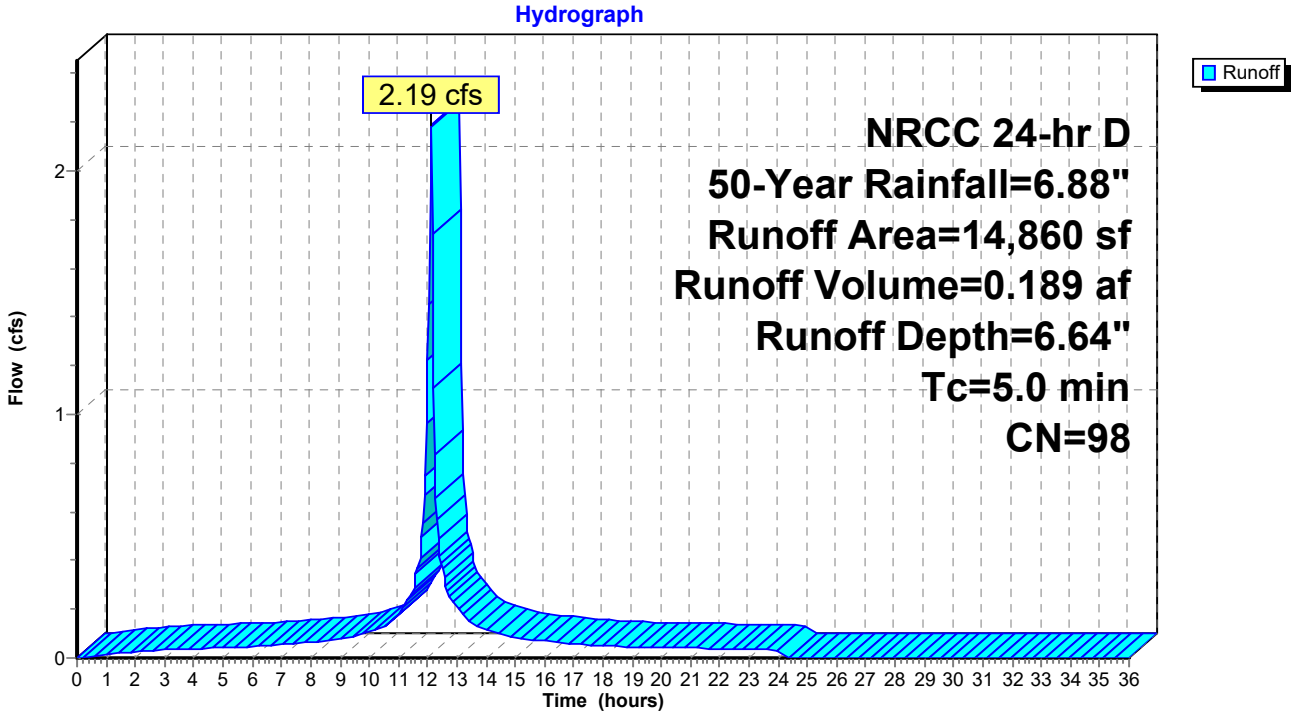
Runoff = 2.19 cfs @ 12.11 hrs, Volume= 0.189 af, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
NRCC 24-hr D 50-Year Rainfall=6.88"

Area (sf)	CN	Description
14,860	98	Roofs, HSG A
14,860		100.00% Impervious Area

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

Subcatchment PR-5: PR-5



Summary for Pond P-1: CB-4

[57] Hint: Peaked at 68.26' (Flood elevation advised)

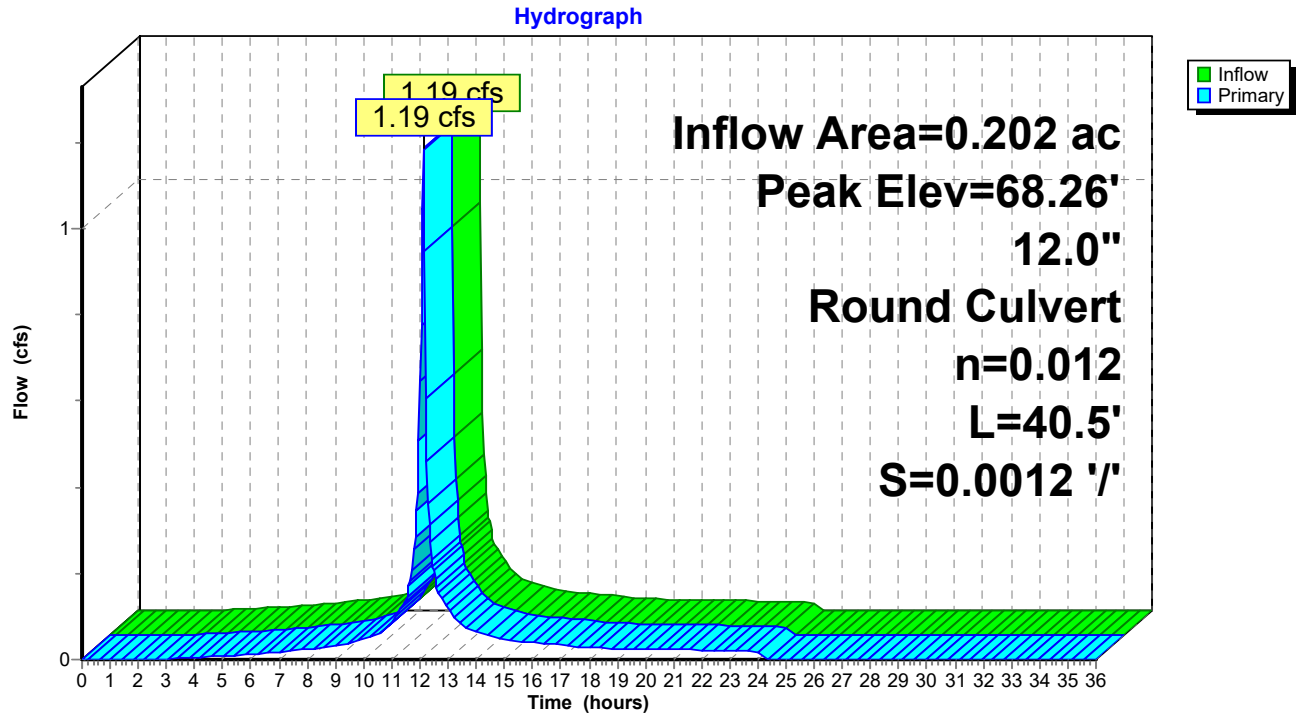
Inflow Area = 0.202 ac, 80.57% Impervious, Inflow Depth = 5.48" for 50-Year event
Inflow = 1.19 cfs @ 12.11 hrs, Volume= 0.092 af
Outflow = 1.19 cfs @ 12.11 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.11 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 68.26' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.45'	**12.0" Round Outlet Pipe** L= 40.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.45' / 67.40' S= 0.0012 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.11 hrs HW=68.25' (Free Discharge)
1=Outlet Pipe (Barrel Controls 1.17 cfs @ 2.38 fps)

Pond P-1: CB-4



Summary for Pond P-2: CB-2

[57] Hint: Peaked at 68.01' (Flood elevation advised)
[79] Warning: Submerged Pond P-1 Primary device # 1 INLET by 0.56'

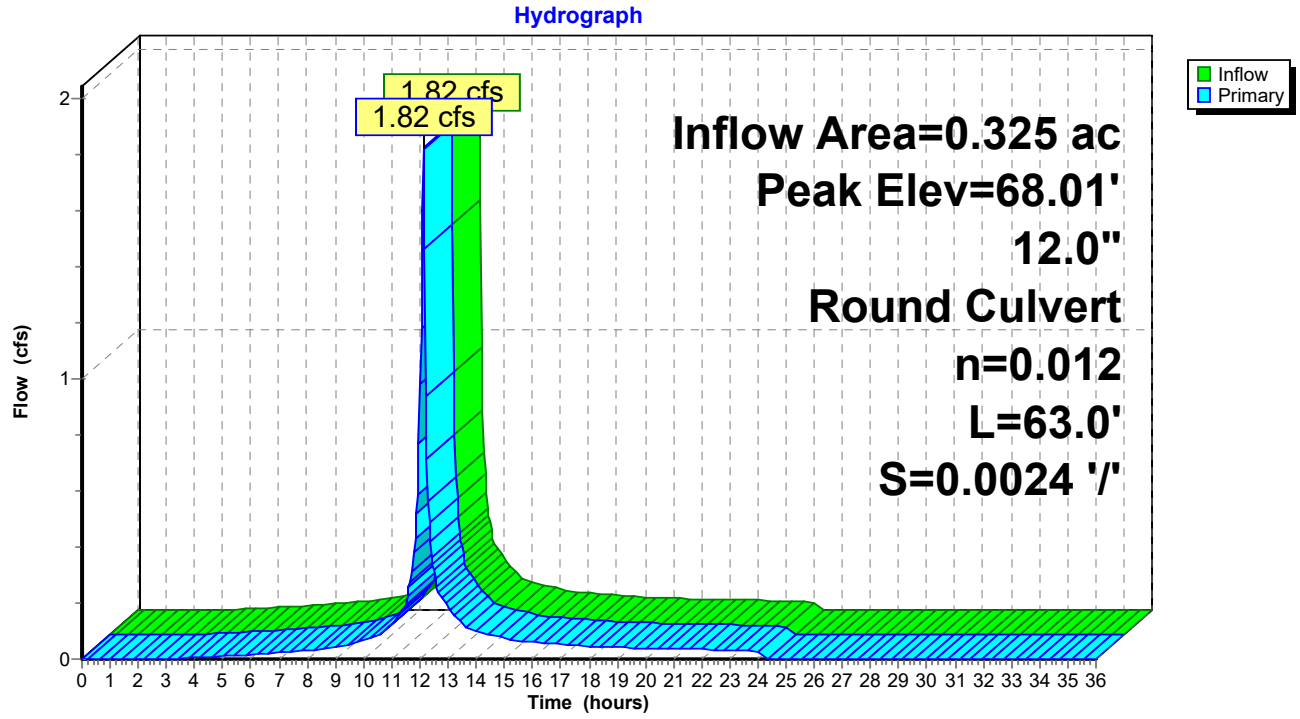
Inflow Area = 0.325 ac, 74.02% Impervious, Inflow Depth = 5.14" for 50-Year event
Inflow = 1.82 cfs @ 12.12 hrs, Volume= 0.139 af
Outflow = 1.82 cfs @ 12.12 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.12 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 68.01' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	**12.0" Round Outlet Pipe** L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.00' / 66.85' S= 0.0024 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.79 cfs @ 12.12 hrs HW=68.00' (Free Discharge)
1=Outlet Pipe (Barrel Controls 1.79 cfs @ 2.83 fps)

Pond P-2: CB-2



Summary for Pond P-3: CB-3

[57] Hint: Peaked at 67.90' (Flood elevation advised)
[79] Warning: Submerged Pond P-2 Primary device # 1 INLET by 0.90'

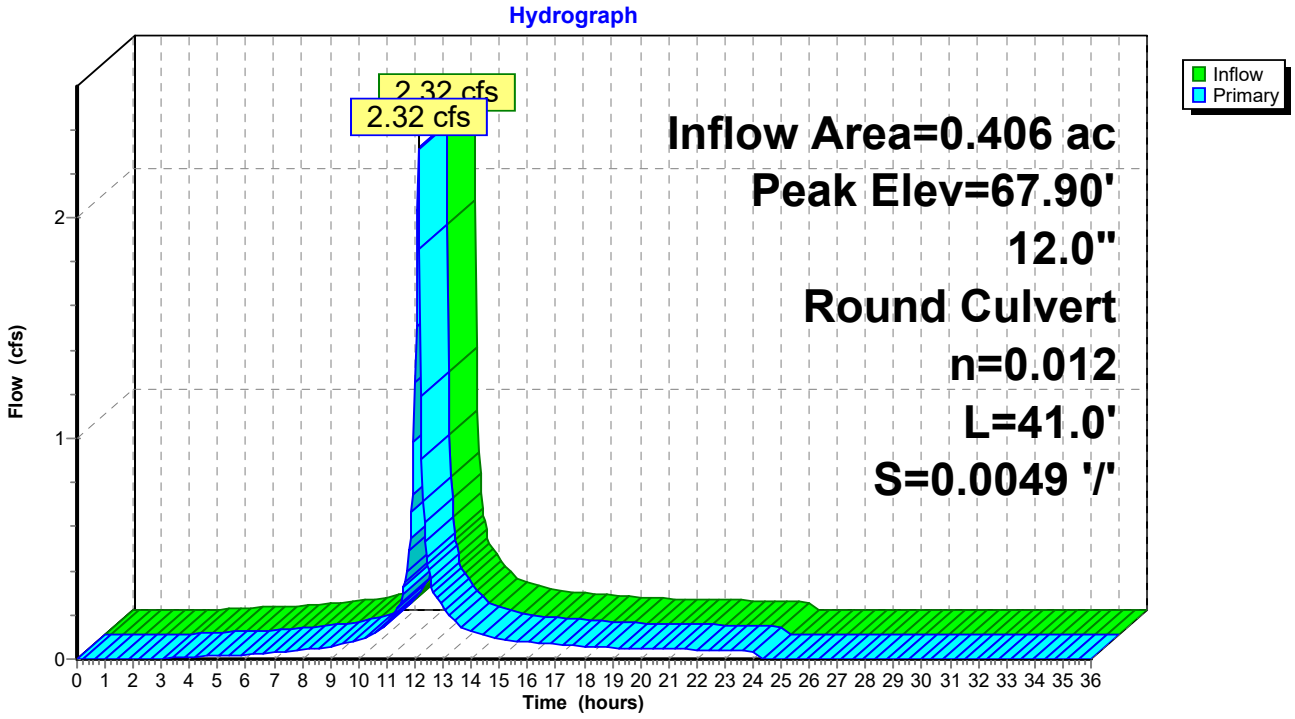
Inflow Area = 0.406 ac, 76.42% Impervious, Inflow Depth = 5.27" for 50-Year event
Inflow = 2.32 cfs @ 12.12 hrs, Volume= 0.178 af
Outflow = 2.32 cfs @ 12.12 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min
Primary = 2.32 cfs @ 12.12 hrs, Volume= 0.178 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 67.90' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.80'	**12.0" Round Outlet Pipe** L= 41.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.80' / 66.60' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.28 cfs @ 12.12 hrs HW=67.89' (Free Discharge)
1=Outlet Pipe (Barrel Controls 2.28 cfs @ 3.33 fps)

Pond P-3: CB-3



Summary for Pond P-4: DMH-1

[57] Hint: Peaked at 69.27' (Flood elevation advised)
[81] Warning: Exceeded Pond P-3 by 1.37' @ 12.12 hrs

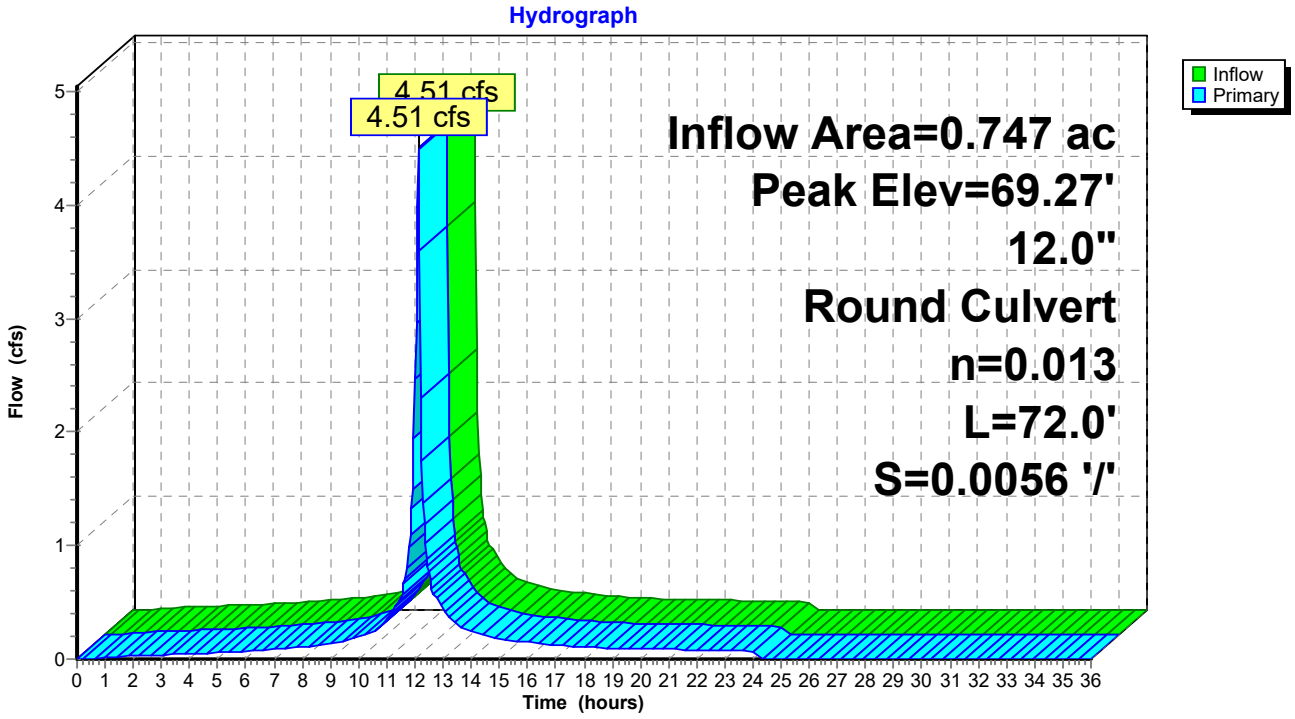
Inflow Area = 0.747 ac, 87.19% Impervious, Inflow Depth = 5.90" for 50-Year event
Inflow = 4.51 cfs @ 12.11 hrs, Volume= 0.367 af
Outflow = 4.51 cfs @ 12.11 hrs, Volume= 0.367 af, Atten= 0%, Lag= 0.0 min
Primary = 4.51 cfs @ 12.11 hrs, Volume= 0.367 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 69.27' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.50'	**12.0" Round Outlet Pipe** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.50' / 66.10' S= 0.0056 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=4.43 cfs @ 12.11 hrs HW=69.20' (Free Discharge)
1=Outlet Pipe (Inlet Controls 4.43 cfs @ 5.64 fps)

Pond P-4: DMH-1

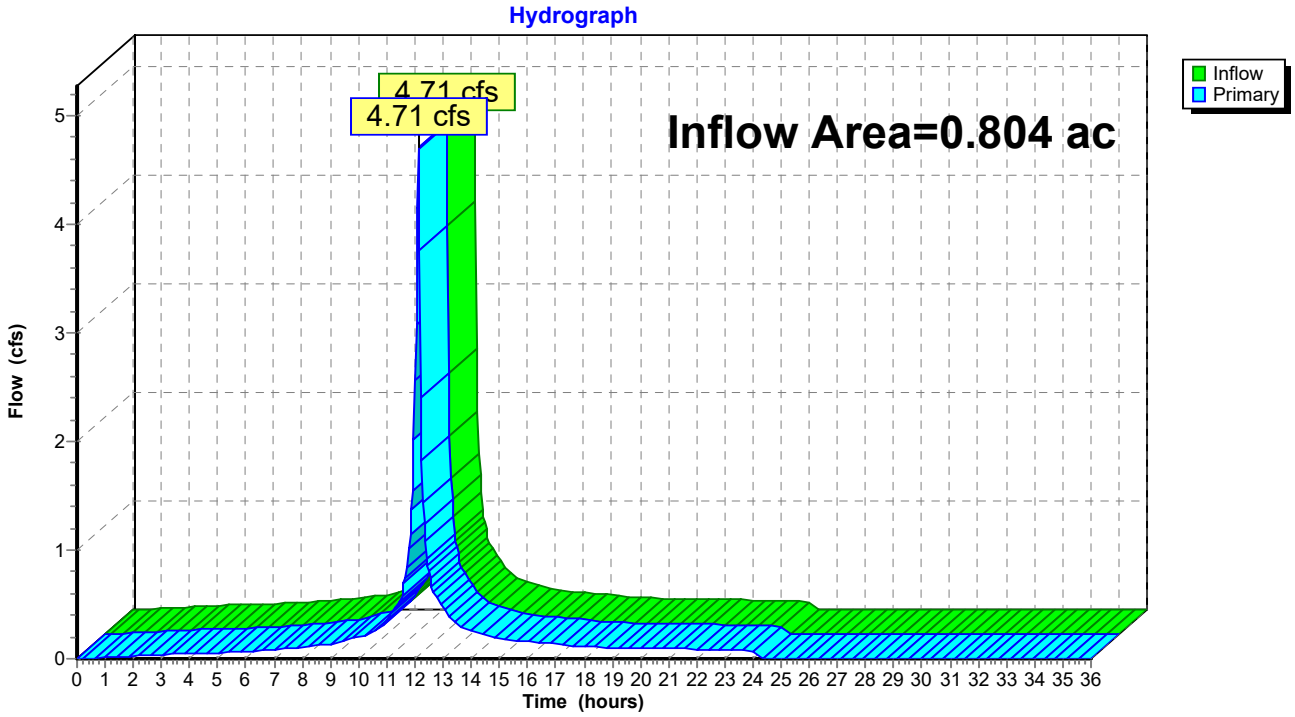


Summary for Link DP-1: Broadway Drainage

Inflow Area = 0.804 ac, 83.43% Impervious, Inflow Depth = 5.70" for 50-Year event
Inflow = 4.71 cfs @ 12.11 hrs, Volume= 0.382 af
Primary = 4.71 cfs @ 12.11 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link DP-1: Broadway Drainage



B

Water Quality Data

65 Glenn Street, Lawrence, MA 01843
tel 978.794.1792 | fax 978.794.1793 | tecmass.com

CALCULATIONS

JOB: Proposed Residenial Development
JOB NUMBER: N0946.02
LOCATION: 14 Broadway, Dover, NH 03820
DATE: July 27, 2021
TITLE: Water Quality Flow Calculation
SHEET: 1 OF 1
CALCULATED BY: MWP
CHECKED BY: CPR

Water Quality Flow Calculation

$Q=(q)(A)(WQV)$

Q=flow rate associated with first 1-inch of runoff

q=unit peak discharge (in csm/in)

A=impervious surface drainage area (in square miles)

WQV=water quality volume in watershed inches (1-inch)

A=0.666 acres=1.04×10^{-3} square miles

CN=98

Tc=5 minutes

Use Tc to find q:

q=752 csm/inch

Q=(752 csm/inch)(1.04×10^{-3} square miles)(1.0 inch)

Q=0.782 cubic feet per second (cfs)

Location: **Treatment Train #1**

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump and Hooded Catch Basins	**0.25**	**1.00**	**0.25**	**0.75**
Water Quality Unit (Stormceptor)	**0.77**	**0.75**	**0.58**	**0.17**

Total TSS Removal = **83%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **N0946.02 14 Broadway Proposed Residential Development**

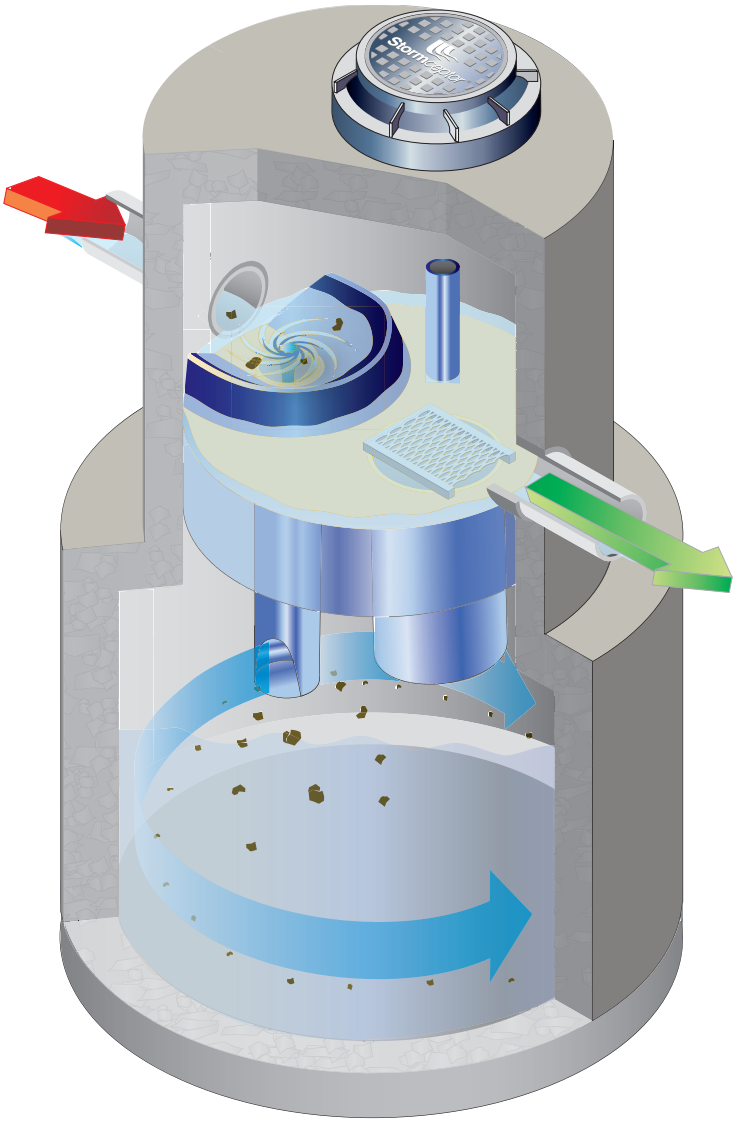
Prepared By: **TEC, Inc.**

Date: **7/27/2021**

*Equals remaining load from previous BMP (E) which enters the BMP

Stormceptor®

Owner's Manual



Stormceptor is protected by one or more of the following patents:

Canadian Patent No. 2,137,942
Canadian Patent No. 2,175,277
Canadian Patent No. 2,180,305
Canadian Patent No. 2,180,338
Canadian Patent No. 2,206,338
Canadian Patent No. 2,327,768
U.S. Patent No. 5,753,115
U.S. Patent No. 5,849,181
U.S. Patent No. 6,068,765
U.S. Patent No. 6,371,690
U.S. Patent No. 7,582,216
U.S. Patent No. 7,666,303
Australia Patent No. 693.164
Australia Patent No. 707,133
Australia Patent No. 729,096
Australia Patent No. 779,401
Australia Patent No. 2008,279,378
Australia Patent No. 2008,288,900
Indonesia Patent No. 0007058
Japan Patent No. 3581233
Japan Patent No. 9-11476
Korean Patent No. 0519212
Malaysia Patent No. 118987
New Zealand Patent No. 314,646
New Zealand Patent No. 583,008
New Zealand Patent No. 583,583
South African Patent No. 2010/00682
South African Patent No. 2010/01796
Other Patents Pending

Table of Contents

1 – Stormceptor Overview

2 – Stormceptor Operation & Components

3 – Stormceptor Identification

4 – Stormceptor Inspection & Maintenance
    Recommended Stormceptor Inspection Procedure
    Recommended Stormceptor Maintenance Procedure

5 – Contact Information (Stormceptor Licensees)

Congratulations!

Your selection of a Stormceptor® means that you have chosen the most recognized and efficient stormwater oil/sediment separator available for protecting the environment. Stormceptor is a pollution control device often referred to as a “Hydrodynamic Separator (HDS)” or an “Oil Grit Separator (OGS)”, engineered to remove and retain pollutants from stormwater runoff to protect our lakes, rivers and streams from the harmful effects of non-point source pollution.

1 – Stormceptor Overview

Stormceptor is a patented stormwater quality structure most often utilized as a treatment component of the underground storm drain network for stormwater pollution prevention. Stormceptor is designed to remove sediment, total suspended solids (TSS), other pollutants attached to sediment, hydrocarbons and free oil from stormwater runoff. Collectively the Stormceptor provides spill protection and prevents non-point source pollution from entering downstream waterways.

Key benefits of Stormceptor include:

- Removes sediment, suspended solids, debris, nutrients, heavy metals, and hydrocarbons (oil and grease) from runoff and snowmelt.
- Will not scour or re-suspend trapped pollutants.
- Provides sediment and oil storage.
- Provides spill control for accidents, commercial and industrial developments.
- Easy to inspect and maintain (vacuum truck).
- “STORMCEPTOR” is *clearly* marked on the access cover (excluding inlet designs).
- Relatively small footprint.
- 3rd Party tested and independently verified.
- Dedicated team of experts available to provide support.

Model Types:

- STC (Standard)
- STF (Fiberglass)
- EOS (Extended Oil Storage)
- OSR (Oil and Sand Removal)
- MAX (Custom designed unit, specific to site)

Configuration Types:

- Inlet unit (accommodates inlet flow entry, and multi-pipe entry)
- In-Line (accommodates multi-pipe entry)
- Submerged Unit (accommodates the site’s tailwater conditions)
- Series Unit (combines treatment in two systems)

Please Maintain Your Stormceptor

To ensure long-term environmental protection through continued performance as originally designed for your site, **Stormceptor must be maintained**, as any stormwater treatment practice does. The need for maintenance is determined through inspection of the Stormceptor. Procedures for inspection are provided within this document. Maintenance of the Stormceptor is performed from the surface via vacuum truck.

If you require information about Stormceptor, or assistance in finding resources to facilitate inspections or maintenance of your Stormceptor please call your local Stormceptor Licensee or Imbrium® Systems.

2 – Stormceptor Operation & Components

Stormceptor is a flexibly designed underground stormwater quality treatment device that is unparalleled in its effectiveness for pollutant capture and retention using patented flow separation technology.

Stormceptor creates a non-turbulent treatment environment below the insert platform within the system. The insert diverts water into the lower chamber, allowing free oils and debris to rise, and sediment to settle under relatively low velocity conditions. These pollutants are trapped and stored below the insert and protected from large runoff events for later removal during the maintenance procedure.

With thousands of units operating worldwide, Stormceptor delivers reliable protection every day, in every storm. The patented Stormceptor design prohibits the scour and release of captured pollutants, ensuring superior water quality treatment and protection during even the most extreme storm events. Stormceptor's proven performance is backed by the longest record of lab and field verification in the industry.

Stormceptor Schematic and Component Functions

Below are schematics of two common Stormceptor configurations with key components identified and their functions briefly described.

Figure 1.

Inline Stormceptor

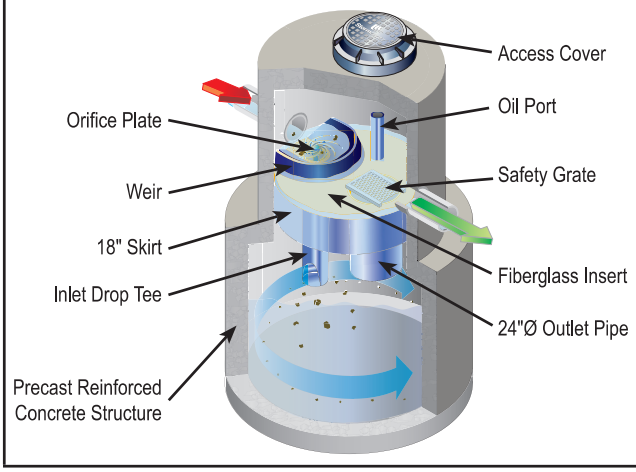
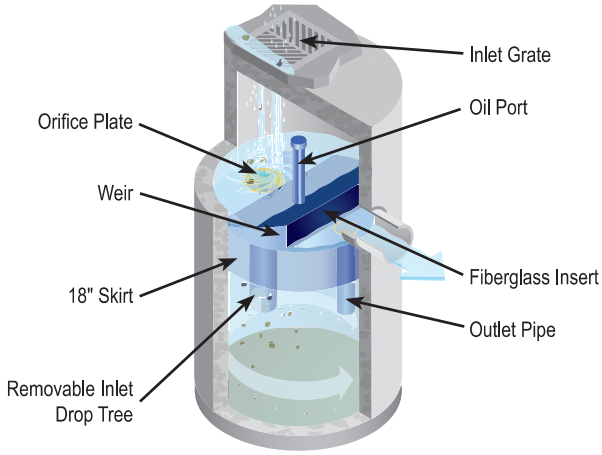


Figure 2.

Inlet Stormceptor



- **Manhole access cover** – provides access to the subsurface components
- **Precast reinforced concrete structure** – provides the vessel's watertight structural support
- **Fiberglass insert** – separates vessel into upper and lower chambers
- **Weir** – directs incoming stormwater and oil spills into the lower chamber
- **Orifice plate** – prevents scour of accumulated pollutants
- **Inlet drop tee** – conveys stormwater into the lower chamber
- **Fiberglass skirt** – provides double-wall containment of hydrocarbons
- **Outlet riser pipe** – conveys treated water to the upper chamber; primary vacuum line access port for sediment removal
- **Oil inspection port** – primary access for measuring oil depth and oil removal
- **Safety grate** – safety measure to cover riser pipe in the event of manned entry into vessel

3 – Stormceptor Identification

Stormceptor is available in both precast concrete and fiberglass vessels, with precast concrete often being the dominant material of construction.

In the Stormceptor, a patented, engineered fiberglass insert separates the structure into an upper chamber and lower chamber. The lower chamber will remain full of water, as this is where the pollutants are sequestered for later removal. Multiple Stormceptor model (STC, OSR, EOS, MAX and STF) configurations exist, each to be inspected and maintained in a similar fashion.

Each unit is easily identifiable as a Stormceptor by the trade name "Stormceptor" embossed on each access cover at the surface. To determine the location of "inlet" Stormceptor units with horizontal catch basin inlet, look down into the grate as the Stormceptor insert will be visible. The name "Stormceptor" is not embossed on inlet models due to the variability of inlet grates used/ approved across North America.

Once the location of the Stormceptor is determined, the model number may be identified by comparing the measured depth from the fiberglass insert level at the outlet pipe's invert (water level) to the bottom of the tank using **Table 1**.

In addition, starting in 1996 a metal serial number tag containing the model number has been affixed to the inside of the unit, on the fiberglass insert. If the unit does not have a serial number, or if there is any uncertainty regarding the size of the unit using depth measurements, please contact your local Stormceptor Representative for assistance.

Sizes/Models

Typical general dimensions and capacities of the standard precast STC, EOS & OSR Stormceptor models in both USA and Canada/International (excluding South East Asia and Australia) are provided in **Tables 1 and 2.** Typical rim to invert measurements are provided later in this document. The total depth for cleaning will be the sum of the depth from outlet pipe invert (generally the water level) to rim (grade) and the depth from outlet pipe invert to the precast bottom of the unit. Note that depths and capacities may vary slightly between regions.

Table 1A. (US) Stormceptor Dimensions – Insert to Base of Structure

STC Model	Insert to Base (in.)
450	60
900	55
1200	71
1800	105
2400	94
3600	134
4800	128
6000	150
7200	134
11000*	128
13000*	150
16000*	134

EOS Model	Insert to Base (in.)
4-175	60
9-365	55
12-590	71
18-1000	105
24-1400	94
36-1700	134
48-2000	128
60-2500	150
72-3400	134
110-5000*	128
130-6000*	150
160-7800*	134

OSR Model	Insert to Base (in.)
65	60
140	55
250	94
390	128
560	134
780*	128
1125*	134

Typical STF m (in.)
1.5 (60)
1.5 (61)
1.8 (73)
2.9 (115)
2.3 (89)
3.2 (127)
2.9 (113)
3.5 (138)
3.3 (128)

Notes:

1. *Depth Below Pipe Inlet Invert to the Bottom of Base Slab can vary slightly by manufacturing facility, and can be modified to accommodate specific site designs, pollutant loads or site conditions. Contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 1B. (CA & Int'l) Stormceptor Dimensions – Insert to Base of Structure

STC Model	Insert to Base (m)
300	1.5
750	1.5
1000	1.8
1500	2.8
2000	2.8
3000	3.7
4000	3.4
5000	4.0
6000	3.7
9000*	3.4
11000*	4.0
14000*	3.7

EOS Model	Insert to Base (m)
300	1.5
750	1.5
1000	1.8
2000	2.8
3000	3.7
4000	3.4
5000	4.0
6000	3.7
9000*	3.4
10000*	4.0
14000*	3.7

OSR Model	Insert to Base (m)
300	1.7
750	1.6
2000	2.6
4000	3.6
6000	3.7
9000*	3.6
14000*	3.7

Typical STF m (in.)
1.5 (60)
1.5 (61)
1.8 (73)
2.9 (115)
2.3 (89)
3.2 (127)
2.9 (113)
3.5 (138)
3.3 (128)

Notes:

1. *Depth Below Pipe Inlet Invert to the Bottom of Base Slab can vary slightly by manufacturing facility, and can be modified to accommodate specific site designs, pollutant loads or site conditions. Contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 2A. (US) Storage Capacities

STC Model	Hydrocarbon Storage Capacity gal	Sediment Capacity ft^3	**EOS Model**	Hydrocarbon Storage Capacity gal	**OSR Model**	Hydrocarbon Storage Capacity gal	Sediment Capacity ft^3
450	86	46	**4-175**	175	**065**	115	46
900	251	89	**9-365**	365	**140**	233	58
1200	251	127	**12-590**	591			
1800	251	207	**18-1000**	1198			
2400	840	205	**24-1400**	1457	**250**	792	156
3600	840	373	**36-1700**	1773			
4800	909	543	**48-2000**	2005	**390**	1233	465
6000	909	687	**60-2500**	2514			
7200	1059	839	**72-3400**	3418	**560**	1384	690
11000*	2797	1089	**110-5000***	5023	**780***	2430	930
13000*	2797	1374	**130-6000***	6041			
16000*	3055	1677	**160-7800***	7850	**1125***	2689	1378

Notes:

1. *Hydrocarbon & Sediment capacities can be modified to accommodate specific site design requirements, contact your local representative for assistance.*

**Consist of two chamber structures in series.*

Table 2B. (CA & Int'l) Storage Capacities

STC Model	Hydrocarbon Storage Capacity L	Sediment Capacity L	EOS Model	Hydrocarbon Storage Capacity L	OSR Model	Hydrocarbon Storage Capacity L	Sediment Capacity L
300	300	1450	**300**	662	**300**	300	1500
750	915	3000	**750**	1380	**750**	900	3000
1000	915	3800	**1000**	2235			
1500	915	6205					
2000	2890	7700	**2000**	5515	**2000**	2790	7700
3000	2890	11965	**3000**	6710			
4000	3360	16490	**4000**	7585	**4000**	4700	22200
5000	3360	20940	**5000**	9515			
6000	3930	26945	**6000**	12940	**6000**	5200	26900
9000*	10555	32980	**9000***	19010	**9000***	9300	33000
11000*	10555	37415	**10000***	22865			
14000*	11700	53890	**14000***	29715	**14000***	10500	53900

Notes:

1. *Hydrocarbon & Sediment capacities can be modified to accommodate specific site design requirements, contact your local representative for assistance.*

**Consist of two chamber structures in series.*

4 – Stormceptor Inspection & Maintenance

Regular inspection and maintenance is a proven, cost-effective way to maximize water resource protection for all stormwater pollution control practices, and is required to insure proper functioning of the Stormceptor. Both inspection and maintenance of the Stormceptor is easily performed from the surface. Stormceptor's patented technology has no moving parts, simplifying the inspection and maintenance process.

Please refer to the following information and guidelines before conducting inspection and maintenance activities.

When is inspection needed?

- Post-construction inspection is required prior to putting the Stormceptor into service.
- Routine inspections are recommended during the first year of operation to accurately assess the sediment accumulation.
- Inspection frequency in subsequent years is based on the maintenance plan developed in the first year.
- Inspections should also be performed immediately after oil, fuel, or other chemical spills.

When is maintenance cleaning needed?

- For optimum performance, the unit should be cleaned out once the sediment depth reaches the recommended maintenance sediment depth, which is approximately 15% of the unit's total storage capacity (see **Table 2**). The frequency should be adjusted based on historical inspection results due to variable site pollutant loading.

- Sediment removal is easier when removed on a regular basis at or prior to the recommended maintenance sediment depths, as sediment build-up can compact making removal more difficult.
- The unit should be cleaned out immediately after an oil, fuel or chemical spill.

What conditions can compromise Stormceptor performance?

- If construction sediment and debris is not removed prior to activating the Stormceptor unit, maintenance frequency may be reduced.
- If the system is not maintained regularly and fills with sediment and debris beyond the capacity as indicated in **Table 2**, pollutant removal efficiency may be reduced.
- If an oil spill(s) exceeds the oil capacity of the system, subsequent spills may not be captured.
- If debris clogs the inlet of the system, removal efficiency of sediment and hydrocarbons may be reduced.
- If a downstream blockage occurs, a backwater condition may occur for the Stormceptor and removal efficiency of sediment and hydrocarbons may be reduced.

What training is required?

The Stormceptor is to be inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. For typical inspection and maintenance activities, no specific supplemental training is required for the Stormceptor. Information provided within this Manual (provided to the site owner) contains sufficient guidance to maintain the system properly.

In unusual circumstances, such as if a damaged component needs replacement or some other condition requires manned entry into the vessel, confined space entry procedures must be followed. Only professional maintenance service providers trained in these procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards.

What equipment is typically required for inspection?

- Manhole access cover lifting tool
- Oil dipstick / Sediment probe with ball valve (typically ¾-inch to 1-inch diameter)
- Flashlight
- Camera
- Data log / Inspection Report
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

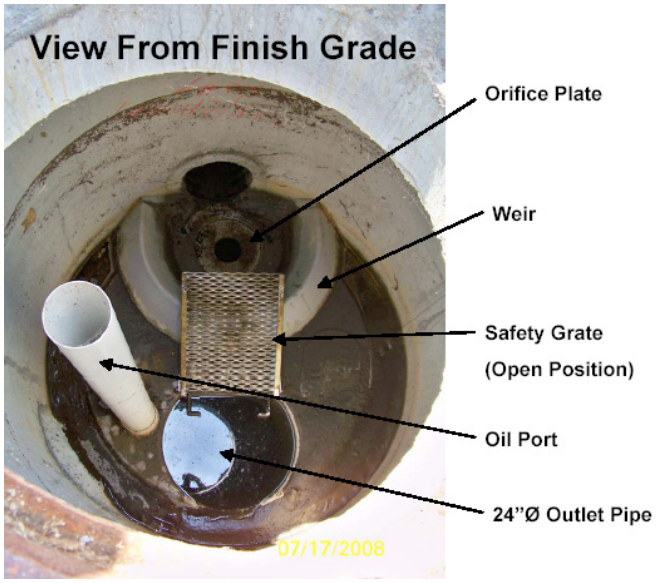
Recommended Stormceptor Inspection Procedure:

- Stormceptor is to be inspected from grade through a standard surface manhole access cover.
- Sediment and oil depth inspections are performed with a sediment probe and oil dipstick.
- Oil depth is measured through the oil inspection port, either a 4-inch (100 mm) or 6-inch (150 mm) diameter port.
- Sediment depth can be measured through the oil inspection port or the 24-inch (610 mm) diameter outlet riser pipe.
- Inspections also involve a visual inspection of the internal components of the system.

Figure 3.



Figure 4.



What equipment is typically required for maintenance?

- Vacuum truck equipped with water hose and jet nozzle
- Small pump and tubing for oil removal
- Manhole access cover lifting tool
- Oil dipstick / Sediment probe with ball valve (typically ¾-inch to 1-inch diameter)
- Flashlight
- Camera
- Data log / Inspection Report
- Safety cones
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Gas analyzer, respiratory gear, and safety harness for specially trained personnel if confined space entry is required

Recommended Stormceptor Maintenance Procedure

Maintenance of Stormceptor is performed using a vacuum truck.

No entry into the unit is required for maintenance. ***DO NOT ENTER THE STORMCEPTOR CHAMBER*** unless you have the proper personal safety equipment, have been trained and are qualified to enter a confined space, as identified by local Occupational Safety and Health Regulations (e.g. 29 CFR 1910.146 or Canada Occupational Safety and Health Regulations – SOR/86-304). Without the proper equipment, training and permit, entry into confined spaces can result in serious bodily harm and potentially death. Consult local, provincial, and/or state regulations to determine the requirements for confined space entry. Be aware, and take precaution that the Stormceptor fiberglass insert may be slippery. In addition, be aware that some units do not have a safety grate to cover the outlet riser pipe that leads to the submerged, lower chamber.

- Ideally maintenance should be conducted during dry weather conditions when no flow is entering the unit.
- Stormceptor is to be maintained through a standard surface manhole access cover.
- Insert the oil dipstick into the oil inspection port. If oil is present, pump off the oil layer into separate containment using a small pump and tubing.
- Maintenance cleaning of accumulated sediment is performed with a vacuum truck.
    - For 6-ft (1800 mm) diameter models and larger, the vacuum hose is inserted into the lower chamber via the 24-inch (610 mm) outlet riser pipe.
    - For 4-ft (1200 mm) diameter model, the removable drop tee is lifted out, and the vacuum hose is inserted into the lower chamber via the 12-inch (305 mm) drop tee hole.

Figure 5.

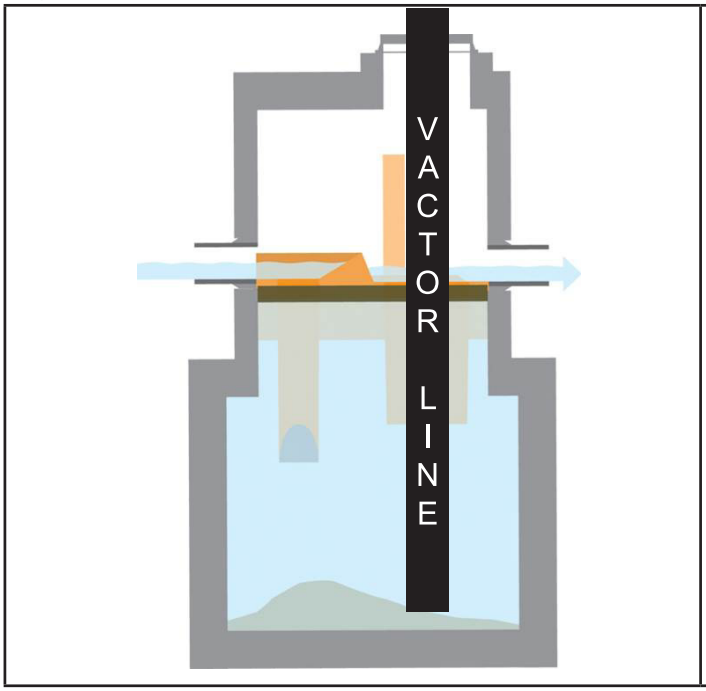
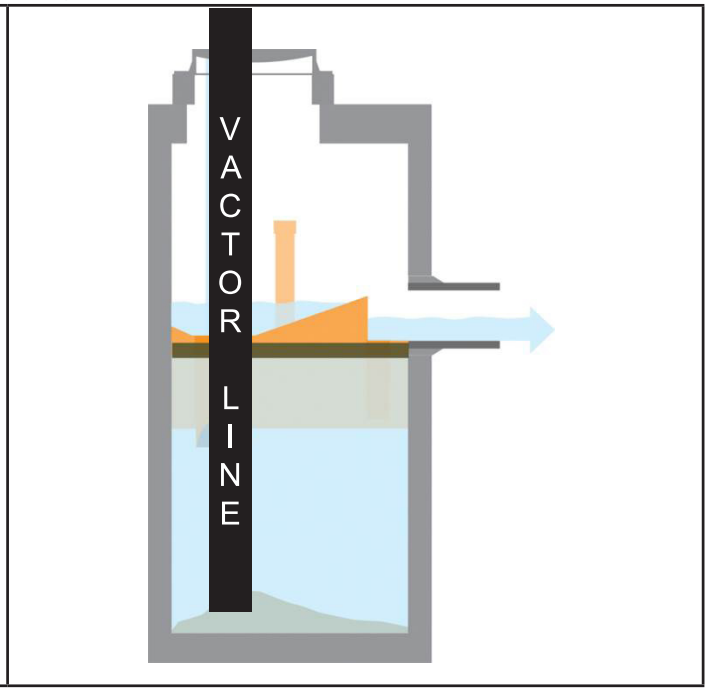


Figure 6.



- Using the vacuum hose, decant the water from the lower chamber into a separate containment tank or to the sanitary sewer, if permitted by the local regulating authority.
- Remove the sediment sludge from the bottom of the unit using the vacuum hose. For large Stormceptor units, a flexible hose is often connected to the primary vacuum line for ease of movement in the lower chamber.
- Units that have not been maintained regularly, have surpassed the maximum recommended sediment capacity, or contain damaged components may require manned entry by trained personnel using safe and proper confined space entry procedures.

Figure 7.



Figure 8.



A maintenance worker stationed at the above ground surface uses a vacuum hose to evacuate water, sediment, and debris from the system.

What is required for proper disposal?

The requirements for the disposal of material removed from Stormceptor units are similar to that of any other stormwater treatment Best Management Practices (BMP). Local guidelines should be consulted prior to disposal of the separator contents. In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste. This could be site and pollutant dependent. In some cases, approval from the disposal facility operator/agency may be required.

What about oil spills?

Stormceptor is often implemented in areas where there is high potential for oil, fuel or other hydrocarbon or chemical spills. Stormceptor units should be cleaned immediately after a spill occurs by a licensed liquid waste hauler. You should also notify the appropriate regulatory agencies as required in the event of a spill.

What if I see an oil rainbow or sheen at the Stormceptor outlet?

With a steady influx of water with high concentrations of oil, a sheen may be noticeable at the Stormceptor outlet. This may occur because a hydrocarbon rainbow or sheen can be seen at

very small oil concentrations (< 10 ppm). Stormceptor is effective at removing 95% of free oil, and the appearance of a sheen at the outlet with high influent oil concentrations does not mean that the unit is not working to this level of removal. In addition, if the influent oil is emulsified, the Stormceptor will not be able to remove it. The Stormceptor is designed for free oil removal and not emulsified or dissolved oil conditions.

What factors affect the costs involved with inspection/maintenance?

The Vacuum Service Industry for stormwater drainage and sewer systems is a well-established sector of the service industry that cleans underground tanks, sewers and catch basins. Costs to clean Stormceptor units will vary. Inspection and maintenance costs are most often based on unit size, the number of units on a site, sediment/oil/hazardous material loads, transportation distances, tipping fees, disposal requirements and other local regulations.

What factors predict maintenance frequency?

Maintenance frequency will vary with the amount of pollution on your site (number of hydrocarbon spills, amount of sediment, site activity and use, etc.). It is recommended that the frequency of maintenance be increased or reduced based on local conditions. If the sediment load is high from an unstable site or sediment loads transported from upstream catchments, maintenance may be required semi-annually. Conversely once a site has stabilized, maintenance may be required less frequently (for example: two to seven year, site and situation dependent). Maintenance should be performed immediately after an oil spill or once the sediment depth in Stormceptor reaches the value specified in **Table 3** based on the unit size.

Table 3A. (US) Recommended Sediment Depths Indicating Maintenance

STC Model	Maintenance Sediment depth (in)	EOS Model	Maintenance Sediment depth (in)	Oil Storage Depth (in)	OSR Model	Maintenance Sediment depth (in)
450	8	**4-175**	9	24	**065**	8
900	8	**9-365**	9	24	**140**	8
1200	10	**12-590**	11	39		
1800	15					
2400	12	**24-1400**	14	68	**250**	12
3600	17	**36-1700**	19	79		
4800	15	**48-2000**	16	68	**390**	17
6000	18	**60-2500**	20	79		
7200	15	**72-3400**	17	79	**560**	17
11000*	17	**110-5000***	16	68	**780***	17
13000*	20	**130-6000***	20	79		
16000*	17	**160-7800***	17	79	**1125***	17

Note:

1. *The values above are for typical standard units.*

**Per structure.*

Table 3B. (CA & Int'l) Recommended Sediment Depths Indicating Maintenance

STC Model	Maintenance Sediment depth (mm)	EOS Model	Maintenance Sediment depth (mm)	Oil Storage Depth (mm)	OSR Model	Maintenance Sediment depth (mm)
300	225	**300**	225	610	**300**	200
750	230	**750**	230	610	**750**	200
1000	275	**1000**	275	990		
1500	400					
2000	350	**2000**	350	1727	**2000**	300
3000	475	**3000**	475	2006		
4000	400	**4000**	400	1727	**4000**	375
5000	500	**5000**	500	2006		
6000	425	**6000**	425	2006	**6000**	375
9000*	400	**9000***	400	1727	**9000***	425
11000*	500	**10000***	500	2006		
14000*	425	**14000***	425	2006	**14000***	425

Note:

1. *The values above are for typical standard units.*

   **Per structure.*

Replacement parts

Since there are no moving parts during operation in a Stormceptor, broken, damaged, or worn parts are not typically encountered. Therefore, inspection and maintenance activities are generally focused on pollutant removal. However, if replacements parts are necessary, they may be purchased by contacting your local Stormceptor Representative, or Imbrium Systems.

The benefits of regular inspection and maintenance are many – from ensuring maximum operation efficiency, to keeping maintenance costs low, to the continued protection of natural waterways – and provide the key to Stormceptor's long and effective service life.

Stormceptor Inspection and Maintenance Log

Stormceptor Model No: _____

Allowable Sediment Depth: _____

Serial Number: _____

Installation Date: _____

Location Description of Unit: _____

Other Comments: _____

Contact Information

Questions regarding the Stormceptor can be addressed by contacting your area Stormceptor Licensee, Imbrium Systems, or visit our website at www.stormceptor.com.

Stormceptor Licensees:

CANADA

Lafarge Canada Inc.
www.lafargepipe.com

403-292-9502 / 1-888-422-4022	Calgary, AB
780-468-5910	Edmonton, AB
204-958-6348	Winnipeg, MB, NW. ON, SK

Langley Concrete Group
www.langleyconcretegroup.com

604-502-5236	BC

Hanson Pipe & Precast Inc.
www.hansonpipeandprecast.com

519-622-7574 / 1-888-888-3222	ON

Lécuyer et Fils Ltée.
www.lecuyerbeton.com

450-454-3928 / 1-800-561-0970	QC

Strescon Limited
www.strescon.com

902-494-7400	NS, NF
506-633-8877	NB, PE

UNITED STATES

Rinker Materials
www.rinkerstormceptor.com
1-800-909-7763

AUSTRALIA & SOUTHEAST ASIA, including New Zealand & Japan

Humes Water Solutions
www.humes.com.au
+61 7 3364 2894

Imbrium Systems Inc. & Imbrium Systems LLC

Canada	1-416-960-9900 / 1-800-565-4801
United States	1-301-279-8827 / 1-888-279-8826
International	+1-416-960-9900 / +1-301-279-8827
Email	info@imbriumsystems.com

www.imbriumsystems.com
www.stormceptor.com

Fact Sheet #4

Stormwater Technology: Stormceptor

(Hydro Conduit, formerly CSR New England Pipe)

Revised February 2003

*The **Stormceptor Fact Sheet** is one in a series of fact sheets for stormwater technologies and related performance evaluations, which are undertaken by the **Massachusetts STrategic Envirotechnology Partnership (STEP).***

The STEP evaluation entitled, *Technology Assessment, Stormceptor CSR New England Pipe*, January 1998 is the information source for this fact sheet. When a more thorough understanding of a system is required, the full *Technology Assessment* should be reviewed. Copies are available for downloading from the STEP Web site (www.STEPSITE.org/) or by contacting the STEP Program (Phone: 617/626/1197, FAX: 617/626/1180, email: linda.benevides@state.ma.us). This fact sheet is subject to future updates as additional performance information becomes available.

Description/Definition

Stormceptor is a prefabricated, underground unit that separates oils, grease, and sediment from stormwater runoff when installed with an existing or new pipe conveyance system. The unit is divided into two chambers–a treatment and a flow bypass chamber. During typical storm events, runoff is directed by the inflow weir through a drop pipe into the lower treatment chamber where sediment, oil, and grease are separated from the flow by gravity. The bypass chamber is designed to convey excess stormwater, which overtops the inflow weir, through the system without treatment.

Equipment and Sizing

The on-line Stormceptor units are available in eight sizes ranging from six and twelve feet in diameter with capacities of 900 to 7200 gallons. Since issuing the STEP assessment in 1998, the manufacturer has expanded the Stormceptor product line to include a storm drain inlet (STC 450i) and three units (Models STC 11000, STC 13000, and STC16000). These systems are not included in the STEP evaluation. Users and decision-makers may require additional field test results and new data for these new systems in order to accept performance ratings, particularly if they are higher than those reported in the STEP technology assessment and this fact sheet.

Stormceptor units are available in either precast concrete or fiberglass for special applications. Concrete units are pre-engineered for HS-20 min. traffic loading at the surface. Fiberglass units can be used in areas where there is a potential for oil and chemical spills.

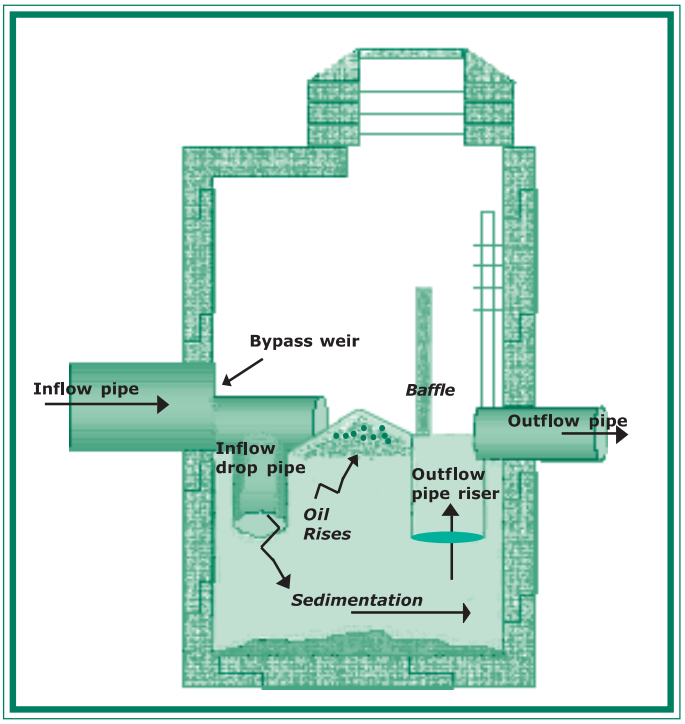


Figure 1. Stormceptor operation during average flow conditions.

Performance/Effectiveness

The system is designed to provide separation of sediment, oil, and grease from stormwater by routing runoff into a low-turbulence environment where solids settle and oils float out of solution. The system sizing is based on the drainage area, historical rainfall data, and the solids removal efficiency required. It is recommended that the system be used in combination with other stormwater controls to conform with the Massachusetts Stormwater Management Policy and standards.

An Imperial Model STC 2000 (equivalent to the Model STC 2400) in Edmonton, Canada treats flow from a 9.8 acre commercial parking lot. This system was monitored during four storm events in 1996 and shown to have an average total suspended solids (TSS) removal efficiency of 52 percent. In designing a system to achieve a comparable removal efficiency, the relationship between system size and impervious drainage area should be considered, as detailed in Table 1 and the Technology Assessment Report.

A Model STC 1200 in Westwood, Massachusetts treats flow from 0.65 acres consisting of a paved truck loading area at a manufacturing facility. The unit was monitored for six storm events in 1997, but only four events had measurable TSS influent concentrations. Of these four events, the average TSS removal efficiency was calculated to be 77 percent, which is less than the 80 percent removal targeted by the manufacturer.

Based on these field monitoring results, and when the unit sizing follows the guidance in Table 1, removal efficiencies between 52 percent and 77 percent may be achieved where installations have similar rainfall and land use characteristics as those reviewed for the STEP evaluation. It is recommended that additional field research and new data be evaluated to validate performance ratings higher than those verified by STEP.

Specific performance claims for oil and grease were not evaluated by STEP. However, total petroleum hydrocarbons (TPH) were analyzed during the Westwood study. Results indicated that the unit was effective in capturing oils.

Stormceptor Model Number	Maximum Impervious Area (acres)	
	77% TSS removal	52% TSS removal
STC 900	0.45	0.9
STC 1200	0.7	1.45
STC 1800	1.25	2.55
STC 2400	1.65	3.35
STC 3600	2.6	5.3
STC 4800	3.6	7.25
STC 6000	4.6	9.25
STC 7200	5.55	11.25

Table 1: Sizing for TSS removal (adapted from the manufacturer's sizing in the 1998 STEP Report) Use the table to determine a TSS removal rate. Use the new Rinker method for sizing Stormceptor units. The sizing method has been changed since publication of the STEP Report. **Note:** To achieve 52% and 77% TSS removal rates on some sites, it may be necessary to use lower maximum impervious areas than those in Table 1.

Technology Status

The Stormceptor system provides greater solids separation and higher TSS removal efficiencies than oil and grit separators. Stormceptor systems are among the category of hydrodynamic separators, which are flow-through devices with the capacity to settle or separate grit, oil, sediment, or other pollutants from stormwater. According to the U.S. Environmental Protection Agency, "Hydrodynamic separators are most effective where the materials to be removed from runoff are heavy particulates - which can be settled - or floatables - which can be captured, rather than solids with poor settleability or dissolved pollutants."

The field studies evaluated for the STEP assessment predate the Stormwater Best Management Practice Demonstration Tier II Protocol (2001), which is applicable in Massachusetts and other states in the Technology Acceptance Reciprocity Partnership (TARP), to ensure quality controlled studies that can be shared among participating states. Therefore, interstate reciprocity is not available to the manufacturer, based on performance claims that were evaluated by STEP in 1998. If the TARP Protocol requirements are fulfilled in the future, the manufacturer could pursue reciprocal verification for Stormceptor systems in participating TARP states. More information on the TARP Protocol is available on the following Web site: www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp.

Applications/Advantages

- Stormceptor systems identified in Table 1 should be used in combination with other BMPs to remove 80 percent of the average annual load of TSS (DEP Stormwater Policy Standard 4). Systems may be well suited for pretreatment in a mixed component system designed for stormwater recharge.
- Performance data show that Stormceptor may provide TSS removal rates in the range of 52 percent to 77 percent when sized according to Table 1. Higher TSS removal rates were achieved during low flow, low intensity storms with less than one third of an inch of runoff. Also, by reducing the impervious drainage area, relative to the system size, the STEP Technology Assessment Report indicated that higher removal efficiencies may be achievable. However, STEP recommends collection of additional data "representing a varied set of operating conditions over a realistic maintenance cycle to verify TSS removal rates greater than 80 percent."
- The Stormceptor system is suitable for new and retrofit applications. For retrofit applications, it should not

take the place of a catch basin for the systems that have been verified. Also, for retrofit applications, it should be installed in lateral lines and not main trunk lines.

- The system is particularly well suited in constricted areas and where space is limited.
- It also is suitable for use in areas of high potential pollutant loads (DEP Stormwater Policy Standard 5), where it may be used effectively in capturing and containing oil and chemical spills. *Web site:* www.state.ma.us/dep/brp/stormwtr/stormpub.htm.

Considerations/Limitations

- Systems are not expected to provide significant nutrient (nitrogen and phosphorus) or fecal coliform removal.
- The systems are not recommended for use in critical areas, such as public drinking water supplies, certified vernal pools, public swimming beaches, shellfish growing areas, cold water fisheries, and some Areas of Critical Environmental Concern (ACECs), except as a pretreatment device for BMPs that have been approved by DEP for use in critical areas. The structural BMPs approved for use in critical areas are described in Standard 6 of the Stormwater Management Policy, www.state.ma.us/dep/brp/stormwtr/stormpub.htm.
- There is a limited set of useful data for predicting the relationship between treatment efficiency and loading rates. Removal efficiencies have not been demonstrated for all unit sizes.
- Further research is needed to determine how much TSS bypasses the treatment chamber during certain, higher velocity storm events which recur less frequently.
- Systems require regular maintenance to minimize the potential for washout of the accumulated sediments.

Reliability/Maintenance

All BMPs require scheduled, routine maintenance to ensure that they operate as efficiently as possible. Although maintenance requirements are site specific, a general relationship between cleaning needs and depths of sediment has been established by the manufacturer. Inspection of the Stormceptor interior should be done after major storm events, particularly in the first year of operation. It is recommended that material in the treatment chamber be pumped out by a vacuum truck semiannually, or when the sediment and pollutant loads reach about 15 percent of the total storage. If the unit is used for spill containment, it should be pumped after the event is contained. Typical cleaning costs were estimated by the manufacturer in 1998 to be $250, with disposal costs averaging $300 to $500. The expected life of a system has been estimated to be 50 to 100 years.

Sediment Depths Indicating Required Maintenance	
Model Number	**Sediment Depth (feet)**
STC 900	0.5
STC 1200	0.75
STC 1800	1
STC 2400	1
STC 3600	1.25
STC 4800	1
STC 6000	1.5
STC 7200	1.25

Table 2: The Stormceptor clean out is based on 15 percent of the sediment storage volume in the

References

Winkler, E.S. 1998. "Technology Assessment, Stormceptor." University of Massachusetts, Amherst, MA. *STEP Web site:* www.STEPSITE.org/

Massachusetts Department of Environmental Protection and Office of Coastal Zone Management. 1997. "Stormwater Management Handbooks, Volumes One and Two." Boston, MA. *Handbooks Web site:* www.state.ma.us/dep/brp/stormwtr/stormpub.htm.

United States Environmental Protection Agency. "Storm Water Technology Fact Sheet Hydrodynamic Separators." EPA 832-F-99-017.

Stormceptor Web sites: www.rinkermaterials.com/stormceptor

TARP Web site: www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp

STEP Verification vs. Regulatory Approval

STEP assistance to developers of innovative technologies and STEP verification of stormwater treatment systems is not required to receive necessary approvals from conservation commissions or the Department of Environmental Protection (DEP). However, if a system has received verfication, a conservation commission shall presume that the technology will function as proposed, provided the conditions are similar to those in which performance was verified. STEP reports are not technology approvals, and do not constitute an endorsement or recommendation for use. Questions on regulatory issues should be referred to the DEP regional offices.

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

Rhode Island Alternative Stormwater Technology Certification

Vendor Contact:
Mr. John F. Czach, PE
Regional Engineer
Rinker Material – Concrete Pipe Division
69 Neck Road
Westfield, MA 01085
(413) 562-3647
Johnf.czach@cemex.com
www.rinkerpipe.com

Technology Name:
Stormceptor© Stormwater Treatment System (Specific models attached)

Approval Type:
Pretreatment/Retrofits
LUPPHL (conditional)

Certification Dates:
Issued: February 5, 2016
Expires: February 5, 2021

The Technology Review Team which consists of members from the Department of Environmental Management (DEM), and the Coastal Resources Management Council (CRMC) have reviewed the Stormceptor© Application to for Technology Approval and accepted use for Stormwater Treatment in the State of Rhode Island.

In accordance with Section 3.2.3 of the Rhode Island Stormwater Design and Installation Standards Manual (RISDISM) amended March 2015, Rinker Material has petitioned the permitting agencies to add this technology to the list of acceptable structural stormwater controls described in Chapter 6 – Pretreatment Practices. The applicant has submitted monitoring results and supporting information developed in accordance with the provisions of the Technology Assessment Protocol (TAPE and TARP) included in Appendix J of the RISDISM.

The Stormceptor© system is a pretreatment or retrofit device that captures both TSS and free oil (TPH) from stormwater runoff. The Stormceptor© is a vertically oriented cylindrical structure manufactured from pre-cast reinforced concrete and fiber reinforced plastic, designed to remove hydrocarbons and sediment from stormwater. This unit is approved for **in-line** as well as **off-line** use.

The manufacturer has demonstrated that this product meets the minimum water quality standards for pretreatment. It is approved for the following pollutant removals; **75% TSS. The Stormceptor is NOT recognized for removal of Pathogens, Total Phosphorus or, Nitrogen**. This device may be used as an **Oil and Grit Separator** for use on **LUHPPL sites** in accordance with section 6.6.2 of the Rhode Island Designs and Installations Standards Manual provided the following conditions are met.

I. GENERAL CERTIFICATION REQUIREMENTS

1. The STC devices listed Appendix F – "Summary Table of Stormceptor© Models" are **certified as pretreatment devices** in Rhode Island provided the device treats the flow of the first inch of runoff from the capture area unless waived by the state permitting agency.

2. The EOS 12-590 and the STC 2400 or greater models meet (**LUHPPL**) minimum requirements for sites that are classified as **LUHPPLS or MSGPs** that are required to have an oil and water separator. These models meet the minimum 500 gallon hydrocarbon storage capacity required for pretreatment.

3. The applicant must provide the RI specific manufacturers design sheet for Departmental review or provide the manufacturer's review approval. All units that capture greater than one acre of impervious cover must be reviewed by the manufacturer.

30% post-consumer fiber

4. This device is **certified as a retrofit device** in accordance with Section 1.2 and Appendix C of the RISDISM. Retrofits are allowed flexibility with regards to the standards in the RISDISM, but in general they are considered effective if they capture at least 50% of the catchment, and meet the target water quality treatment of at least the first 0.5 inches of the water quality volume.

5. The approved devices shall be located such that they are accessible for maintenance and/or emergency removal of oil or chemical spills.

II. MAINTENANCE REQUIREMENTS

1. The device must be maintained in accordance with the manufacturer's specifications and before the sediment capacity exceeds 15%.

2. The device must be maintained by a manufacturers recognized vendor, a licensed waste hauler, or a municipal employee trained to operate a vacuum truck.

3. All material removed from the unit must by properly disposed of and is the responsibility of the owner.

III. REPORTING REQUIREMENTS

1. The Vendor shall provide a listing with Latitude and Longitude of the site center point to the RIDEM Office of Water Resources of all systems within the State of Rhode Island on an annual basis.

IV. RIGHTS OF THE RIDEM AND CRMC

1. The RIDEM may suspend, modify or revoke this approval for cause, including but not limited to: non-compliance with any of the conditions or provisions of this approval, misrepresentation or failure to fully disclose all relevant data, or receipt of new information indicating that the use of the System is contrary to the public interest, public health or the environment.

2. This approval does not represent an endorsement of the System by the RIDEM. This letter of approval may be reproduced only in its entirety.

B. M Moore 2-8-16

Brian M. Moore, P.E. Date
Chief, Groundwater and Wetlands Protection

ATTACHMENT

Summary Table of Stormceptor Models

Stormceptor Model	Total Storage Volume U.S. Gal (L)	Hydrocarbon Storage Capacity U.S. Gal (L)	Max. Sediment Capacity ft^3 (L)	Water Quality Flow (cfs)	* Approx. Impervious Area (Ac)
STC 450i	470 (1,780)	86 (330)	46 (1,302)	0.283	0.38
STC 900	952 (3,600)	251 (950)	89 (2,520)	0.636	0.85
STC 1200	1,234 (4,670)	251 (950)	127 (3,596)	0.636	0.85
STC 1800	1,833 (6,940)	251 (950)	207 (5,861)	0.636	0.85
EOS 12-590	1,833 (6,940)	590 (2,233)	166 (4,707)	0.636	0.85
STC 2400	2,462 (9,320)	840 (3,180)	205 (5,805)	1.059	1.42
STC 3600	3,715 (1,406)	840 (3,180)	373 (10,562)	1.059	1.42
STC 4800	5,059 (1,950)	909 (3,440)	543 (15,376)	1.766	2.38
STC 6000	6,136 (23,230)	909 (3,440)	687 (19,453)	1.766	2.38
STC 7200	7,420 (28,090)	1,059 (4,010)	839 (23,757)	2.472	3.33
STC 11000	11,194 (42,370)	2,797 (10,590)	1,086 (30,752)	3.531	4.75
STC 13000	13,348 (50,530)	2,797 (10,590)	1,374 (38,907)	3.531	4.75
STC 16000	15,918 (60,260)	3,055 (11,560)	1,677 (47,487)	4.944	6.66

* Impervious areas are approximate only. Actual areas will vary based on site-specific conditions.

UNIVERSITY OF MASSACHUSETTS
AT AMHERST
Water Resources Research Center
Blaisdell House, UMass
310 Hicks Way
Amherst, MA 01003

Massachusetts Stormwater Evaluation Project

(413) 545-5532
(413) 545-2304 FAX
www.mastep.net

MASTEP Technology Review

Technology Name: Stormceptor

Studies Reviewed: Final NJCAT Technology Verification Stormceptor STC900 September 2004; Coventry University Study, 1996; Technology Assessment, University of Massachusetts, 1997; SeaTac Stormceptor Performance report 2001; SWAMP report Ontario 2004; Phoenix Group Edmonton report 1995; Stormceptor 1200 Field Evaluation report 2004; Applied Hydrology Associates Denver report 2003; Rinker Materials Como Park St. Paul MN report 2002; VA DOT / UVA "Testing of Ultra-Urban Stormwater Best Management Practices" report 2001.
Hydrodynamic Separator Sediment Retention Testing, Mohseni, 2010.

Date: September 17, 2013

Reviewer: Jerry Schoen

Rating: 2

Brief rationale for rating: This rating is primarily based on the 2005 NJCAT Technology Verification study. In general, this was a well-conducted test, which in large part followed NJDEP test guidelines for laboratory studies, which MASTEP considers as the laboratory equivalent of TARP field protocols. Issues of concern: the study measured suspended sediment concentration (SSC) rather than total suspended solids (TSS). Although SSC is considered by many scientists to be the preferred method, it is at odds with Massachusetts stormwater regulations, which are based on TSS treatment. Comparing SSC and TSS results is considered an inexact science. The test was conducted with higher influent sediment concentrations than is preferred, but results were fairly consistent across all ranges studied. The particle size distribution also appears to be slightly higher than the target test range. There are additional field studies that in general support the results obtained in this laboratory studies. These studies do not satisfy TARP protocols, but they do not contradict results obtained in the NJCAT study.

TARP Requirements Not Met*:

- Measurements in TSS.
- Influent sediment concentration is 100 – 300 mg/l: actual was 153-460.
- No documentation of a Quality Assurance Project Plan
- Third party studies are preferred. This was conducted by Stormceptor personnel, with sample analyses conducted by an external laboratory.

Other Comments:
* The 2010 Mohseni study evaluates the susceptibility of the Stormceptor to scouring, or washout of collected sediments. Report concluded that the unit does not scour at high flows as long as sediment depth does not exceed maintenance level.

* Criteria also based on NJDEP laboratory testing guidelines.

C

Geotechnical Data

JOHN TURNER CONSULTING

GEOTECHNICAL DATA SUMMARY

TEST PITS & INFILTRATION TESTING

PROPOSED PARKING LOT
519 Broadway
Dover, New Hampshire

Prepared for:

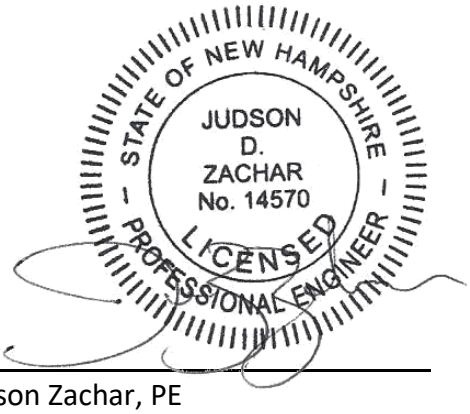
Nick Couturier
Downtown Dover Storage, LLC
Dover, NH

Prepared by:

John Turner Consulting, Inc.
19 Dover Street
Dover, NH 03820

JTC Project No. 20-04-097

December 7, 2020



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JOHN TURNER
CONSULTING

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1.0 INTRODUCTION

John Turner Consulting, Inc. (JTC) is pleased to present this *Geotechnical Data Summary* for the Proposed Parking Lot at 519 Broadway in Dover, New Hampshire. The purpose of the geotechnical investigation was to obtain information on the subsurface conditions at the site and provide geotechnical engineering recommendations to support the planning, design, and construction of the proposed project. Infiltration testing was performed on November 12, 2020.

The contents of this report are subject to the attached *Limitations*.

2.0 PROJECT INFORMATION

The following subsections provide general descriptions of the site, the proposed development, and the regional geologic setting.

Site and Project Description

The subject property is a partially developed parcel of land in downtown Dover with numerous commercial and residential buildings within close proximity. The site is bounded by Broadway to the south, railroad tracks to the north, and commercial/retail businesses to the east and west.

While the project is still in the schematic state, JTC understands that the proposed development involves the construction of a new parking lot accessible from Broadway.

3.0 SUBSURFACE EXPLORATION

On November 11, 2020, a total of three (3) test pits (designated as TP-1, TP-2, and TP-3) and three shallower, adjacent infiltration test pits (IT-1, IT-2, and IT-3) were excavated by O'Brien Landscape Co. utilizing a Bobcat mini excavator. JTC set up the PVC pipes in the ground at designated depths and performed infiltration testing directly adjacent to TP-1, TP-2, and TP-3. The test pits were advanced to depths ranging from 7.5 feet to 8.0 feet below the ground surface (bgs). The test pits were backfilled with soil cuttings upon completion of the excavation. Selected soil samples were sealed in moisture-tight containers and returned to JTC's office for further review, classification, and/or geotechnical laboratory testing. Detailed records of the drilling/excavation, testing, sampling performed, and the soil, bedrock, and groundwater conditions observed at each test boring location are provided on the attached *Test Pit Logs*. A brief summary has been provided below.

4.0 SUBSURFACE CONDITIONS

Existing Fill

Soils interpreted to be Existing Fill were encountered at TP-1, TP-2, and TP-3. The Fill material consisted of dark brown, sand with silt (SP-SM) at TP-1 and TP-2. The Fill encountered at TP-3 consisted of light brown, sand (SP). This soil layer was approximately 2.5 to 5.5 feet thick.

Marine Silt and Clay

Soils interpreted to be Marine Silt and Clay were encountered below the Existing Fill layer to the full depth of excavation terminated at all test pit locations. The material typically consisted of light brown Clay (CH).

Groundwater

Groundwater was only encountered during our subsurface exploration at TP-1, near 6.0 feet. JTC estimates that this investigation occurred during a period of seasonally moderate groundwater. Site groundwater levels should be expected to fluctuate seasonally and in response to precipitation events, construction activity, site use, and adjacent site use.

5.0 GEOTECHNICAL LABORATORY TESTING

JTC recovered representative soil samples within the excavations at all test pit locations for geotechnical laboratory testing and USCS Classification at our in-house laboratory. The following tests were performed:

- 3 Moisture contents
- 3 Particle-size analyses
- 1 Atterberg

Geotechnical laboratory testing was performed in general accordance with ASTM procedures. Test results are provided on the attached *Geotechnical Laboratory Testing Reports* and are summarized in the following table.

Summary of Sieve and Moisture Analyses

Location	Depth (ft bgs)	Soil Type	% Gravel	% Sand	% Silt	In-Situ Moisture (%)
TP-3	0 - 4’	Sand (SP)	7.5	90.1	2.4	4.3
TP-2	0 – 3’	Sand (SP-SM) with silt	11.3	78.5	10.2	13.3
TP-3	4’ – 8’	Clay (CH)	0.1	12.7	87.9	23.9

6.0 INFILTRATION TESTING

JTC performed infiltration tests at each test pit location directly adjacent to the excavated test pits in order to observe the soils at deeper depths than the required infiltration depths. Essentially, three test pits were excavated 7.5’ to 8’ bgs, and the infiltration tests were performed at shallower depths (as noted in Table below) in virgin soils, therefore separate, adjacent infiltration test pits were excavated for the IT’s, utilizing corresponding labels. Testing was performed in accordance with the NHDES AoTB requirements.

Testing Setup

At the designated bottom of each of the infiltration test pits (adjacent to deeper test pits), a clean, virgin, flat surface was prepared. Then a 3-inch diameter Schedule 40 PVC pipe was slightly driven into the testing surface to seat the PVC, and the excavated spoils were placed around the outside of the PVC pipe and tamped, securing the pipe in a vertically plumb orientation. Subsequently, JTC added approximately 6-inches of gravel inside of the PVC pipe, to prevent scouring and hydraulic conductivity laterally during testing. Lastly, 2-feet of water was added inside the PVC pipe and the soils left to soak for the next 24 hours. This procedure occurred at each of the three respective infiltration testing locations.

Infiltration Test Procedure

JTC returned to the site the following day to perform infiltration testing at each of the three prepared locations. The testing procedure consisted of:

- Filling the pipe with water to a depth of 2 feet above the ground surface;
- Taking regular water level measurements over the following hour;
- Refilling the water after each hour and repeating the process for a total of four cycles.

Infiltration Test Results

The test results are summarized in the following tables:

Summary of Infiltration Testing

Infiltration Test #	Proximal Test Pit Designation	Depth (feet bgs)	Soil Type	Measured Infiltration Rate (in/hr)				Average Measured Rate (in/hr)
				Trial 1	Trial 2	Trial 3	Trial 4	
IT-1	TP-1	3.5	Sand with silt (SP-SM)	**22.1**	**19.0**	**19.7**	**22.7**	**20.9**
IT-2	TP-2	6.0	Clay (CH)	**0**	**0**	**0**	**0**	**0**
IT-3	TP-3	3.0	Sand (SP)	**24.2**	**24.4**	**21.0**	**16.7**	**21.6**

As presented in the tables above, JTC concludes that the Sand with silt (SP-SM) encountered at test location IT-1 exhibited an infiltration rate of approximately 20.9 in/hr, the Sand (SP) encountered at test location IT-3 exhibited an infiltration rate of approximately 21.6 in/hr, and the Clay (CH) in IT-2 did not allow the water to infiltrate during the time constraints of this testing program.

No factors of safety have been applied to the measured rates presented in the table. JTC recommends applying a minimum safety factor of 2 to the measured rates for design purposes.

7.0 CLOSING

We trust the contents of this memorandum are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

APPENDIX A: LIMITATIONS

Explorations

1. The analyses and recommendations presented in this report are based in part upon the data obtained from widely-spaced subsurface explorations. Subsurface conditions between exploration locations may vary from those encountered at the exploration locations. The nature and extent of variations between explorations may not become evident until construction. If variations appear, it will be necessary to re-evaluate the recommendations of this report.
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely-spaced explorations and samples; actual strata transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.
3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that John Turner Consulting, Inc. be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the geotechnical engineering recommendations provided herein.
5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and conclusions of the report modified or verified in writing by John Turner Consulting, Inc.

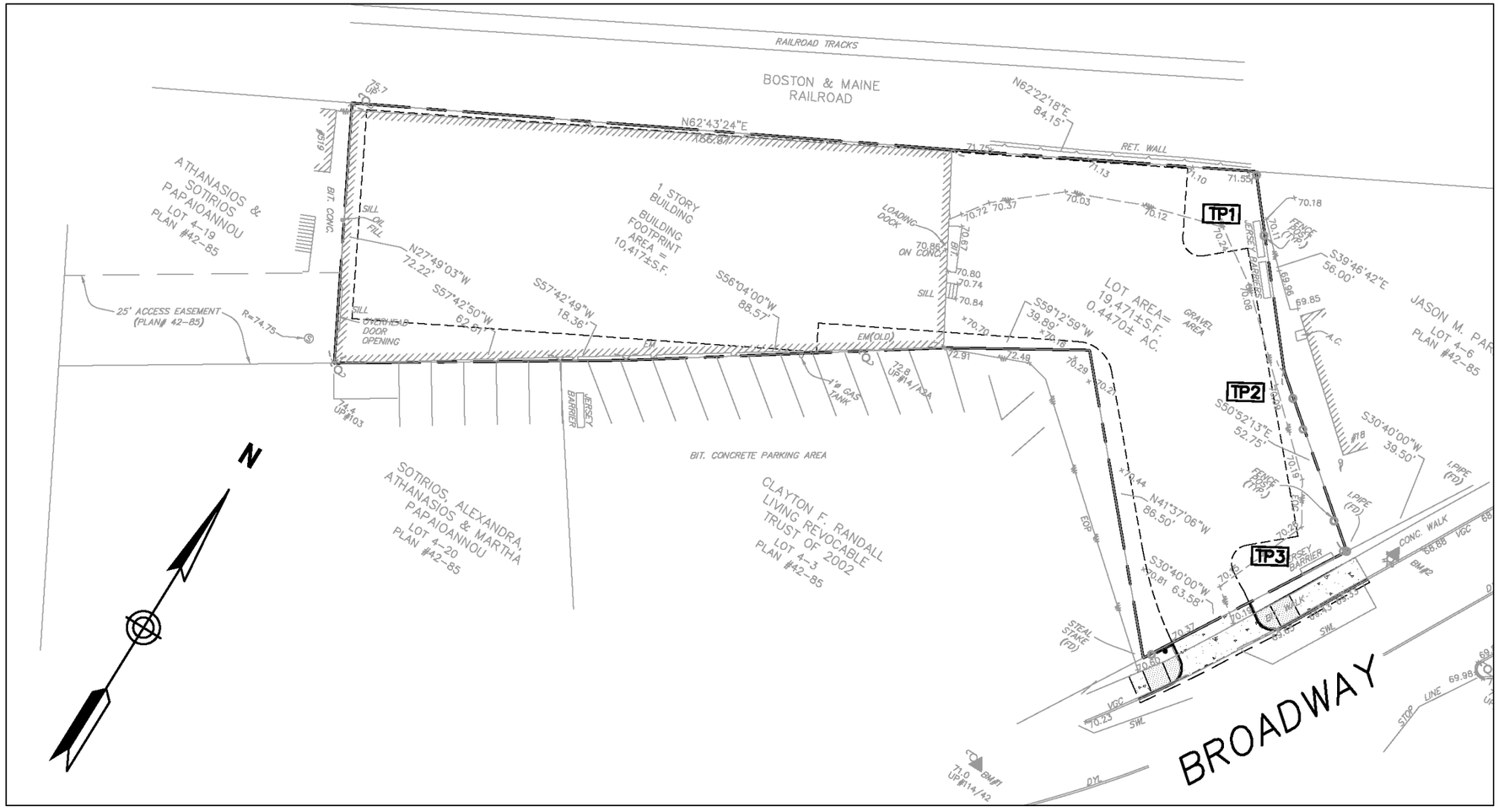
Construction

6. It is recommended that John Turner Consulting, Inc. be retained to provide geotechnical engineering services during the installation phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of Downtown Dover Storage, LLC for the project located at 519 Broadway in Dover, NH. All considerations are based on the available information and is in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.
8. This report has been prepared for this project by John Turner Consulting, Inc. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations.

APPENDIX B: TEST PIT & INFILTRATION TEST LOCATION PLAN



Notes:

1. Test borings were performed on Nov. 11, 2020 under the direction of JTC. Test boring locations should be considered approximate.
2. Refer to the Test Boring Logs for the subsurface conditions encountered at each boring location.
3. Basemap source(s): October 26, 2020 “Test Pits” prepared by TEC
4. Not to Scale.

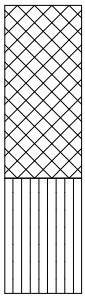
Nick Couturier **Downtown Dover Storage, LLC** **14 Broadway** **Dover, New Hampshire 03820**	**Proposed Parking Lot** **519 Broadway** **Dover, New Hampshire**
JOHN TURNER CONSULTING	**TEST BORING LOCATION PLAN**

APPENDIX C: TEST PIT LOGS & KEY TO SYMBOLS AND DESCRIPTIONS

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TEST PIT LOG
Test Pit No.: TP-1

PROJECT	PROJECT NO.
Downtown Dover Storage Proposed Parking lot	20-04-097
CLIENT	DATE
Downtown Dover Storage, LLC	11/11/2020
LOCATION	ELEV.
519 Broadway Dover, NH	70
EXCAVATION METHOD	LOGGER
Bobcat Excavator	JB
DEPTH TO - Water: N/A When checked: N/A	

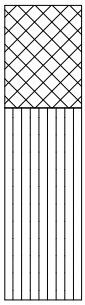
ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS: GRAPHIC	BULK	USCS	DESCRIPTION
70 — 0				[FILL] Dark brown Sand with silt (SP-SM)
65 — 5				[MARINE SILT AND CLAY] Light brown clay (CH) -Ground water at 6 feet
60 — 10				
55 — 15				
50 — 20				
45 — 25				

Notes: *Test pit was backfilled with soil cuttings from the investigation.*

JOHN TURNER CONSULTING

TEST PIT LOG
Test Pit No.: TP-2

PROJECT	PROJECT NO.
Downtown Dover Storage Proposed Parking lot	20-04-097
CLIENT	DATE
Downtown Dover Storage, LLC	11/11/2020
LOCATION	ELEV.
519 Broadway Dover, NH	70
EXCAVATION METHOD	LOGGER
Bobcat Excavator	JB
DEPTH TO - Water: N/A When checked: N/A	

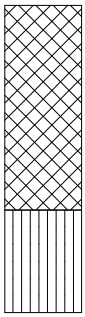
ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS: GRAPHIC	BULK	USCS	DESCRIPTION
70 — 0				[FILL] Dark brown Sand with silt (SP-SM)
				[MARINE SILT AND CLAY] Light brown clay (CH)
65 — 5				
60 — 10				
55 — 15				
50 — 20				
45 — 25				

Notes: *Test pit was backfilled with soil cuttings from the investigation.*

JOHN TURNER CONSULTING

TEST PIT LOG
Test Pit No.: TP-3

PROJECT	PROJECT NO.
Downtown Dover Storage Proposed Parking lot	20-04-097
CLIENT	DATE
Downtown Dover Storage, LLC	11/11/2020
LOCATION	ELEV.
519 Broadway Dover, NH	70
EXCAVATION METHOD	LOGGER
Bobcat Excavator	JB
DEPTH TO - Water: N/A When checked: N/A	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS: GRAPHIC	BULK	USCS	DESCRIPTION
70 / 0				[FILL] Light brown Sand (SP)
65 / 5				[MARINE SILT AND CLAY] Light brown Clay (CH)
60 / 10				
55 / 15				
50 / 20				
45 / 25				

Notes: *Test pit was backfilled with soil cuttings from the investigation.*

MAJOR DIVISIONS			SYMBOLS		TYPICAL NAMES
COARSE-GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW		Well-graded gravels or gravel-sand mixtures, little or no fines
			GP		Poorly graded gravels or gravel-sand mixtures, little or no fines
	MORE THAN 1/2 OF COARSE FRACTION > No.4 SIEVE SIZE	GRAVELS WITH OVER 15% FINES	GM		Silty gravels, gravel-sand mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	SANDS	CLEAN SANDS WITH LESS THAN 5% FINES	SW		Well-graded sand or gravelly sands, little or no fines
			SP		Poorly graded sands or gravelly sands, little or no fines
	MORE THAN 1/2 OF COARSE FRACTION < No.4 SIEVE SIZE	SANDS WITH OVER 15% FINES	SM		Silty sand, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LIQUID LIMIT 50% OR LESS		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LIQUID LIMIT GREATER THAN 50%		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH		Inorganic clays of high plasticity, fat clays
			OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS			PT		Peat and other highly organic soils

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KEY TO SYMBOLS AND DESCRIPTIONS

TYPICAL SYMBOLS

- Shelby Tube
- Auger Cuttings
- Standard Split Spoon Sample
- 3" Split Spoon Sample
- Rock Core
- Dynamic Cone Penetrometer
- Vane Shear
- Bulk/Grab Sample
- Geoprobe Sample
- Sonic or Vibro-Core Sample
- Water Table (at time of drilling)
- Water Table (after 24 hours)

SOIL MOISTURE MODIFIERS

Term	Description
Dry	Absence of moisture; dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible free water

The descriptor "damp" should not be used (use "moist").
The descriptor "saturated" should not be used (use "wet").

WELL SYMBOLS

- Recessed Cover Set in Concrete
- Top of Well, Recessed Pipe
- Covered Riser
- Capped Riser w/ Locking Cover
- Pipe Riser
- Concrete Seal
- Gravel Backfill
- Assorted Cuttings
- Bentonite Slurry
- Bentonite Pellets
- Silica Sand, blank PVC
- Slotted Pipe w/ Sand
- Endcap on Pipe Packed in Sand
- Silica Sand, No Pipe (End Plug)

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.75
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.75
SAND	No. 4 to No. 200	4.75 to 0.075
coarse	No. 4 to No. 10	4.75 to 2.00
medium	No. 10 to No. 40	2.00 to 0.425
fine	No. 40 to No. 200	0.425 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

RELATIVE DENSITY/CONSISTENCY

Gravel, Sand, and Silt (nonplastic)		Silt (plastic) and Clay		
N-Value	Relative Density	N-Value	Su	Consistency
0 - 4	Very Loose	0 - 2	0 - 250	Very Soft
5 - 10	Loose	3 - 4	251 - 500	Soft
11-30	Medium Dense	5 - 8	501 - 1000	Medium Stiff
31 - 50	Dense	9 - 15	1001 - 2000	Stiff
51 +	Very Dense	16 - 30	2001 - 4000	Very Stiff
		31 +	4001+	Hard

Standard Penetration Testing (SPT) N_{60} based on blows per 12 inches.
WR = Weight of Rods; WH = Weight of Hammer

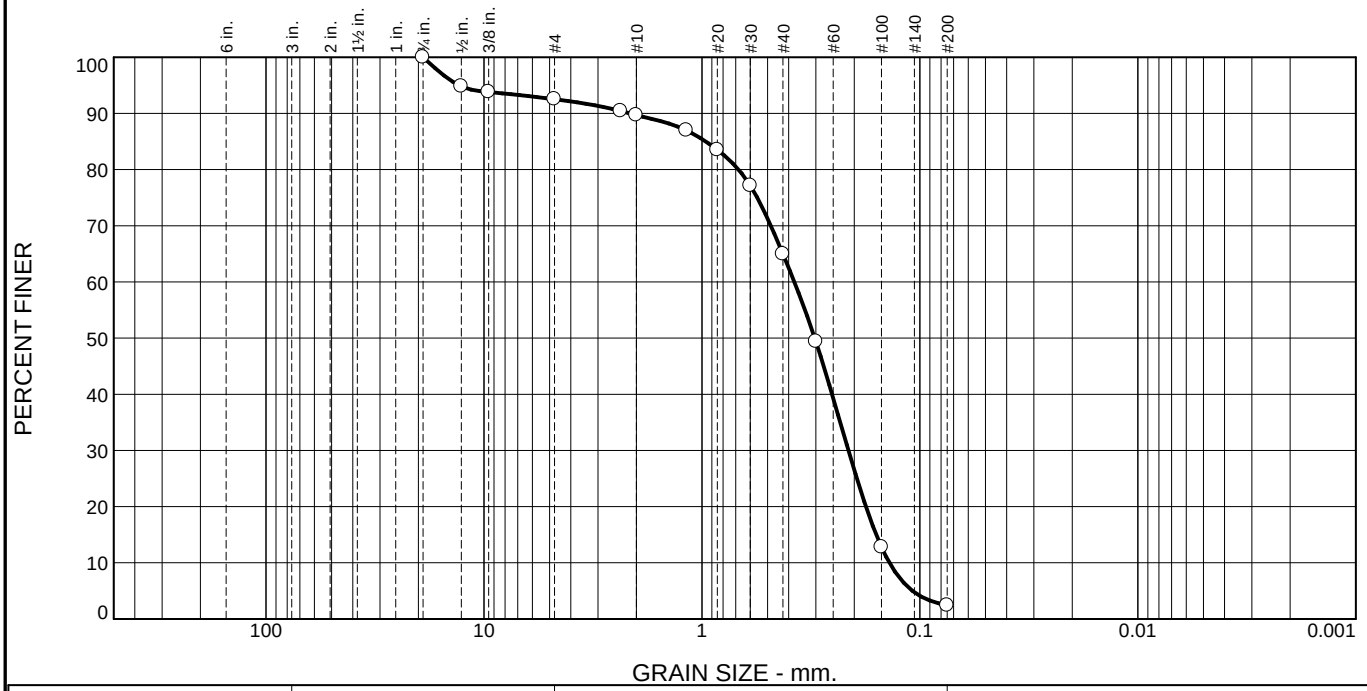
PERCENT OR PORTIONS OF SOIL

Term	Description
Parting:	> 1/16 in.
Seam:	0.5 in. to 1/16 in.
Layer:	12 in. to 0.5 in.
Stratum:	> 12 in.
Pocket:	Small erratic deposit
Lens:	Lenticular deposit
Occasional:	One or less per foot of thickness
Frequent	More than one per foot of thickness
Varved	Alternating seams or layers of silt and/or clay and sometimes f. sand

REFERENCE: UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2488-93

APPENDIX D: LABORATORY TEST RESULTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.5	2.8	24.7	62.6	2.4	

Test Results (ASTM D 422 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75	100.0		
1/2"	94.8		
.375	93.8		
#4	92.5		
#8	90.4		
#10	89.7		
#16	87.0		
#20	83.5		
#30	77.1		
#40	65.0		
#50	49.4		
#100	12.8		
#200	2.4		

* (no specification provided)

Material Description

Light brown sand

Atterberg Limits (ASTM D 4318)

PL= - **LL=** - **PI=** -

Classification

USCS (D 2487)= SP **AASHTO (M 145)=** -

Coefficients

D_{90}= 2.1381 D_{85}= 0.9618 D_{60}= 0.3769
D_{50}= 0.3035 D_{30}= 0.2127 D_{15}= 0.1586
D_{10}= 0.1379 C_u= 2.73 C_c= 0.87

Remarks

Moisture content 4.3%

Date Received: 11/19/2020 **Date Tested:** 11/30/2020

Tested By: Matt Watson

Checked By: Rob Faria

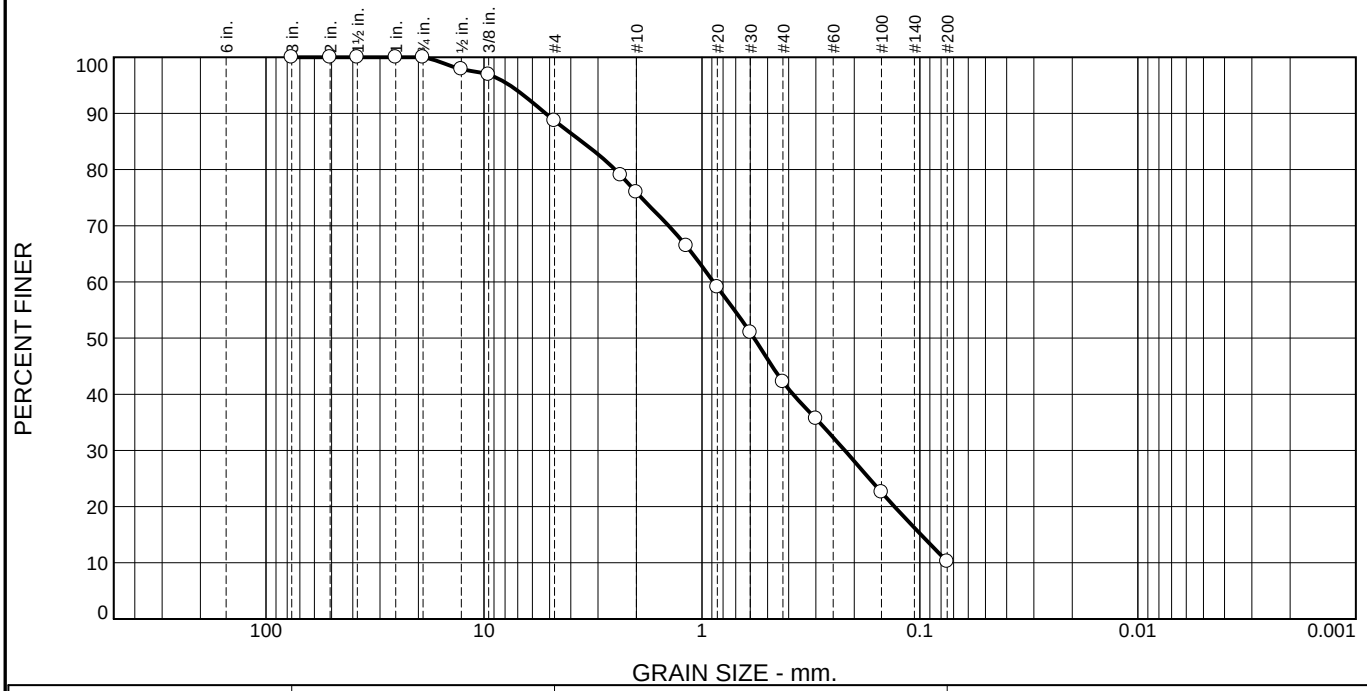
Title: Lab Manager

Location: TP-3 middle **Date Sampled:** 11/19/2020
Sample Number: 3520-711 **Depth:** 4'

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Client: Downtown Dover Storage, LLC
Project: Proposed Parking Area
14 Broadway Dover, NH
Project No: 20-04-097 **Figure** 711A

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.3	12.7	33.8	32.0	10.2	

Test Results (ASTM D 422 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
.75	100.0		
1/2"	97.9		
.375	96.9		
#4	88.7		
#8	79.0		
#10	76.0		
#16	66.4		
#20	59.1		
#30	51.0		
#40	42.2		
#50	35.7		
#100	22.5		
#200	10.2		

* (no specification provided)

Material Description

Dark brown sand with silt

Atterberg Limits (ASTM D 4318)

PL= - **LL=** - **PI=** -

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** -

Coefficients

D_{90}= 5.2145 D_{85}= 3.5599 D_{60}= 0.8858
D_{50}= 0.5767 D_{30}= 0.2211 D_{15}= 0.0988
D_{10}= C_u= C_c=

Remarks

Moisture content 13.3%

Date Received: 11/19/2020 **Date Tested:** 11/30/2020

Tested By: Matt Watson

Checked By: Rob Faria

Title: Lab Manager

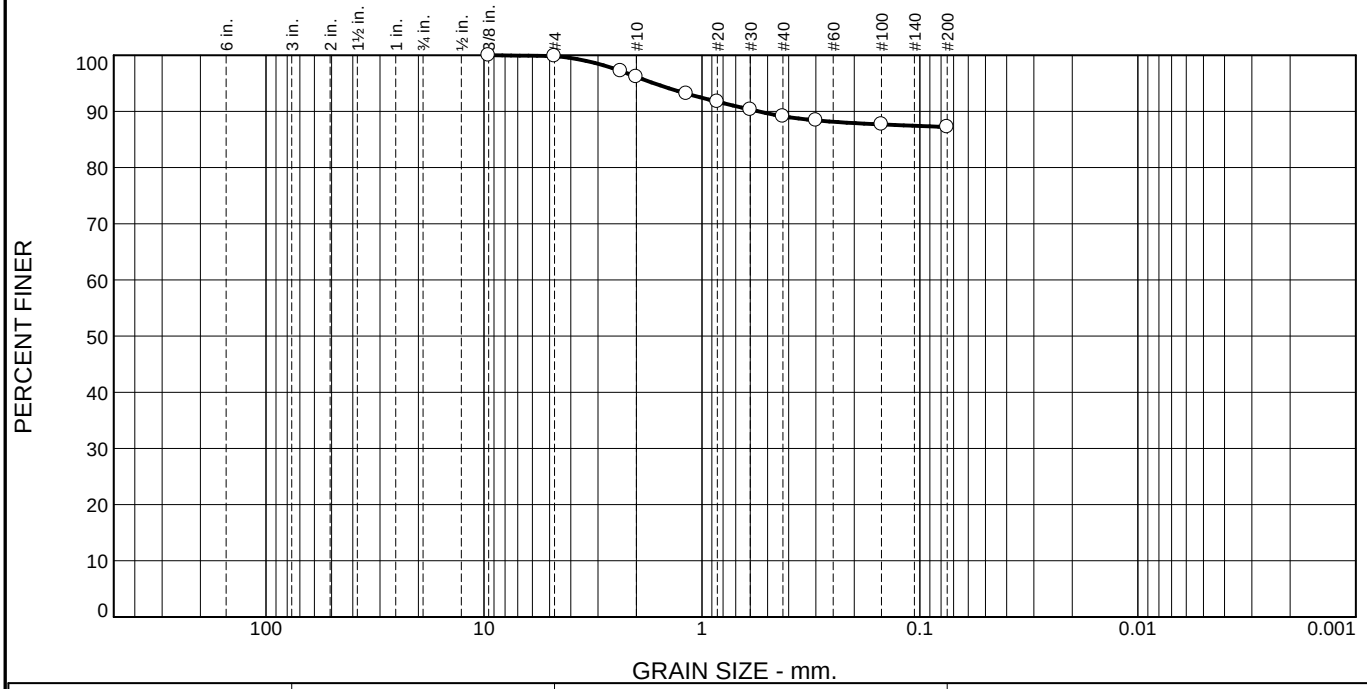
Location: TP-2 top
Sample Number: 3520-712 **Depth:** 0-3' bgs

Date Sampled: 11/19/2020

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Client: Downtown Dover Storage, LLC
Project: Proposed Parking Area
14 Broadway Dover, NH
Project No: 20-04-097 **Figure** 712A

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	3.7	7.1	1.9	87.2	

Test Results (ASTM D 422 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.9		
#8	97.2		
#10	96.2		
#16	93.2		
#20	91.7		
#30	90.3		
#40	89.1		
#50	88.4		
#100	87.7		
#200	87.2		

* (no specification provided)

Material Description

Light brown clay

Atterberg Limits (ASTM D 4318)

PL= 25 **LL=** 54 **PI=** 29

Classification

USCS (D 2487)= CH **AASHTO (M 145)=** A-7-6(28)

Coefficients

D_{90}= 0.5499 D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Moisture content 23.9%

Date Received: 11/19/2020 **Date Tested:** 12/1/2020

Tested By: Matt Watson

Checked By: Rob Faria

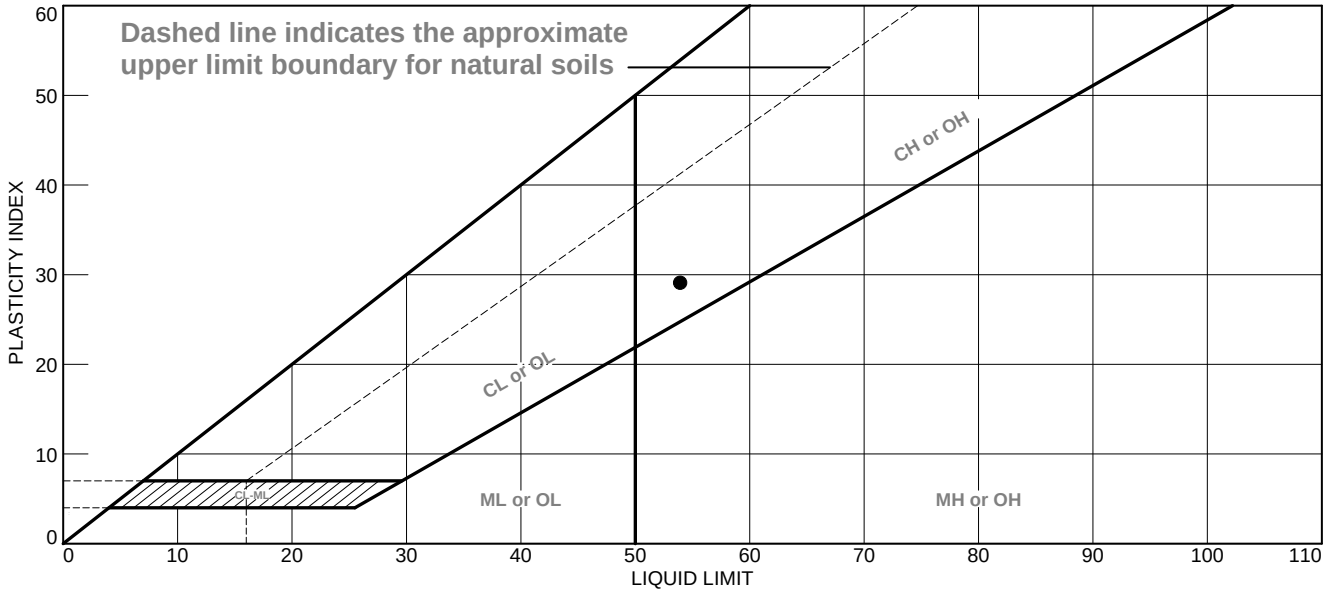
Title: Lab Manager

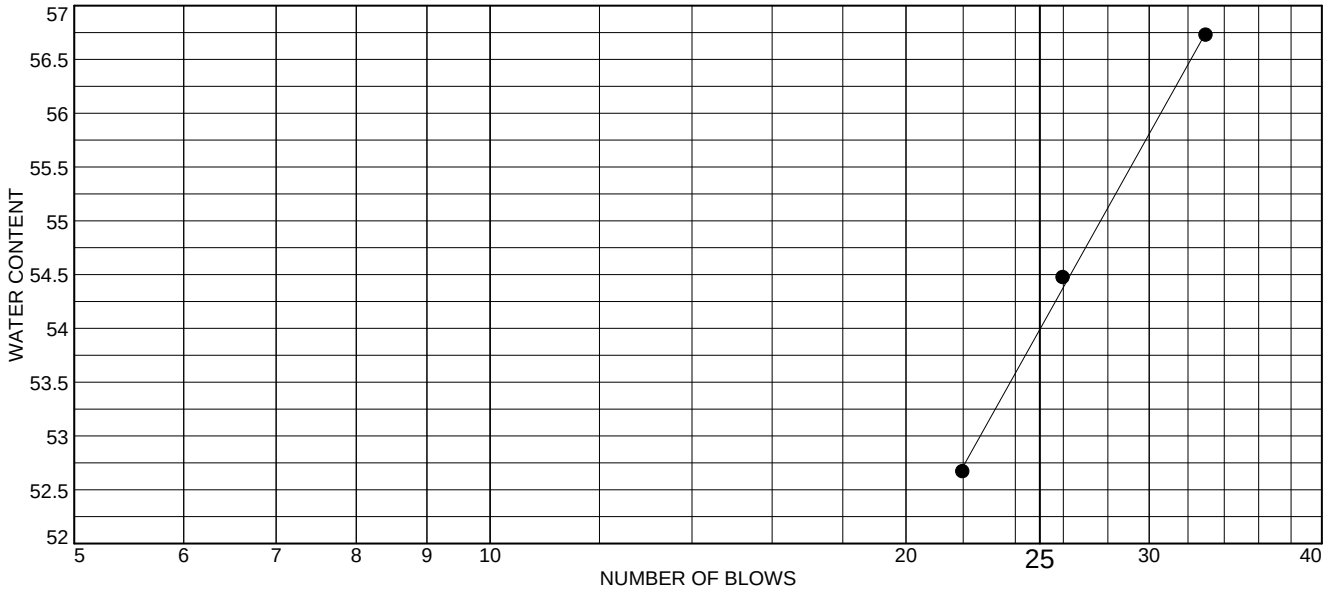
Location: TP-3 bottom **Date Sampled:** 11/19/2020
Sample Number: 3520-715 **Depth:** 8'

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Client: Downtown Dover Storage, LLC
Project: Proposed Parking Area
14 Broadway Dover, NH
Project No: 20-04-097 **Figure** 713A

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Light brown clay	54	25	29	89.1	87.2	CH

Project No. 20-04-097 **Client:** Downtown Dover Storage, LLC

Project: Proposed Parking Area

14 Broadway Dover, NH

Location: TP-3 bottom

Sample Number: 3520-715 **Depth:** 8'

Remarks:

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Figure 715B

Tested By: Rob Faria

APPENDIX E: SITE PHOTOGRAPHS

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Downtown Dover Storage, LLC
519 Broadway
Dover, New Hampshire

SITE PHOTOGRAPHS



Bobcat Mini Excavator Used to Dig Test Pits


Brick Shown in Fill at TP-3



Test Pit 2 Being Excavated


Soil Profile of Test Pit 2


Soil Profile of Test Pit 1


Site Layout

D

Operation & Maintenance Plan

Stormwater Management Operations and Maintenance Plan

PROPOSED RESIDENTIAL DEVELOPMENT

Assessor's Map 5, Lot 5
14 Broadway
Dover, New Hampshire

Prepared for: **Downtown Dover Storage, LLC**
42 L Dover Point Road
Dover, NH 03820

Prepared by: **TEC, Inc.**
169 Ocean Boulevard
Unit 101 PO BOX 249
Hampton, NH 03842



August 5, 2021

Stormwater Management Operation and Maintenance Plan
August 5, 2021

Name of Applicant: **Downtown Dover Storage, LLC**
Name of Project: **Proposed Residential Development – 14 Broadway**
Location: **Dover, New Hampshire 03820**

A detailed, written log of all scheduled preventative and corrective maintenance performed for the stormwater management measures must be kept by the Applicant, including a record of all inspections and copies of maintenance-related work orders. Attachment 1, "Inspection and Maintenance Check List" shall be maintained as a record of regularly scheduled inspection and maintenance items as outlined below for every year. Maintenance required and actions taken shall be recorded in Attachment 2, Inspection and Maintenance Log". The funding, operation, and maintenance of all stormwater management Best Management Practices (BMPs) shall be provided by the Owner or their appointee.

Maintenance routine and schedule: Routine inspections will be conducted monthly and thorough investigations will be conducted twice a year. Tasks that are common to all systems include regular removal of accumulated sediments, floatables and debris. Inspections will occur after every major storm event for the first six (6) months after construction. Inspections will be conducted by a person trained in stormwater management systems and experienced in drainage design.

Annual reports will be prepared detailing the status of the stormwater system and the maintenance performed. A copy of the annual report will be sent to the City of Dover Conservation Commission, if requested.

The Owner agrees to comply with a minimum maintenance schedule as follows:

1. **Monthly inspection for damaged or clogged catch basin and area drain grates**
   Catch basin grates shall be inspected and cleared of debris to maintain inlet capacity.

2. **Quarterly cleaning of catch basins**
   Sumps and inlets shall be cleaned four times per year and inspected on a monthly basis. All sediments shall be properly handled and disposed of in accordance with local, state and federal guidelines and regulations.

3. **Inspection and cleaning of drainage pipes and manholes**
   Drainage pipes and manhole structures shall be inspected and cleaned of sediment at least every five (5) years or as required to maintain adequate functionality of the stormwater conveyance system. All sediments shall be properly handled and disposed of in accordance with local, state and federal guidelines and regulations.

4. Grass Landscaping

The grass landscaping will be inspected after every major storm event for the two (2) months after seeding to ensure functionality. Thereafter, inspections should take place every six (6) months in the spring and fall and after severe storm events. Grass and mulched landscaping showing signs of wear and erosion will be re-loamed/re-seeded or re-mulched as necessary to prevent further erosion from taking place.

5. Snow Removal

Snow will be stored within the landscape islands onsite.

The Long-Term Pollution Prevention Plan

The Owner agrees to comply with the following Long-Term Pollution Prevention Plan to ensure long-term stormwater quality discharge from the site:

- Good housekeeping practices: The project will be maintained by the Town DPW, including snow removal, de-icing, and BMP inspection and maintenance.

- Provisions for storing materials and waste products inside or under cover: No materials or waste products will be stored on-site.

- Vehicle washing controls: Vehicle washing is not anticipated as a reasonably foreseeable use of the site.

- Requirements for routine inspections and maintenance of stormwater BMPs: The Owner will be responsible for providing the necessary inspections and maintenance for the stormwater BMPs.

- Spill prevention and response plans: There are no proposed uses at the site that would provide an opportunity for a spill of oil or hazardous materials, other than a sudden, catastrophic, vehicle failure. If a vehicle release is the result of an accident, the police and fire department will respond and address any release.

- Provisions for maintenance of lawns, gardens, and other landscaped areas: The Owner will provide long-term maintenance for the landscaped areas.

- Requirements for storage and use of fertilizers, herbicides, and pesticides: At this time there would be no foreseeable need for fertilizers, herbicides, and pesticides.

- Provisions for operation and management of septic systems: Proposed Parking Lot, no septic systems are proposed.

- Provisions for solid waste management: The proposed project is a Parking

Lot project, and any foreseeable solid waste would be litter. The Owner is responsible for litter clean up.

- Snow disposal and plowing plans relative to Wetland Resource Areas: Snow will be stored at the westerly edge of the parking lot temporarily.

- Street sweeping schedules: The Owner will be responsible for quarterly street sweeping with sweepings concentrated in the Spring and Fall.

- Provisions for prevention of illicit discharges to the stormwater management system: Only stormwater is proposed to be conveyed through the stormwater management system. No illicit materials will be permitted. The owner will be responsible to maintain this system.

- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL: Not applicable

- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan: The Owner shall appoint trained personnel to be involved with implementing Long-Term Pollution Prevention Plan.

- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan:

  Downtown Dover Storage, LLC
  42 L Dover Point Road
  Dover, New Hampshire 03820

INSPECTION AND MAINTENANCE CHECK LIST –
14 Broadway, Dover, NH

For Year: _____

	Inspection Item	Inspection Frequency* Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	Catch Basin Grates												
2	Drainage Pipes and Manholes	at least every 5 years											
3	Grass Landscaping												
	Maintenance Item	**Maintenance Frequency* Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
1	Roadway Sweeping												
2	Catch Basin Cleaning												
3	Drainage Pipes and Manholes	at least every 5 years											

* Actual time of inspecting and maintaining items may vary. Chart shall be used to indicate frequency of events

** This chart shall be used in conjunction with the attached "Stormwater Management Operations and Maintenance Plan", dated April 29, 2021

Name of Applicant: Downtown Dover Storage, LLC

Name of Project: Proposed Residential Development – 14 Broadway

Location: 14 Broadway, Dover, NH 03820

Inspection and Maintenance Log

Inspection No.	Date	Inspections Performed	Maintenance Actions Taken
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Additional Sheets shall be added as needed