CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

REVISED

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room – City Hall, Dover NH
Meeting Date: **Thursday, September 10, 2020**
Meeting Time: **10:30 AM**

1. 10:30 AM - 11:15 AM: Open Space Subdivision for Peter Georgakilas, Assessor's Map M, Lot 102-12, zoned R-40, and located at Middle Road. (Proposal is to construct a 875' roadway to provide access to a 13 lot open space condominium subdivision.) A related CUP application will also appear before the Planning Board). (P20-51)

2. 11:15 AM – 11:45 PM: Site Review for DBS Holdings LLC, Map G, Lot 1M, zoned CM, and located at Crosby Road. (Proposal is to construct two (2) industrial/commercial buildings consisting of 16,100 sq. ft. for warehouse and office space. A related CUP application will also appear before the Planning Board). [*Previously heard on June 4, 2020*] (P20-33)

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P20-46

Application Type:	Technical Review Only – Change of Use/Expansion
Applicant(s):	RUHI LLC
Owner(s):	RUHI LLC
Location:	221 Central Avenue (Tax Map 20, Lot 50)
Date:	August 6, 2020

INTENT: Proposal is to renovate and expand existing garage/gas station to a gas station to add a convenience store w/two residential units on second floor

LOTS/UNITS PROPOSED: 2

AGENDA ITEM #: 2

ACREAGE: 0.45 acres

ZONING DISTRICT: Central Business District – General (CBD-G)

EXISTING LAND USE:
Vehicle Refueling and Recharging Station with two-bay auto service

SURROUNDING LAND USE:
Church, Residential, Office/Commercial, School

ZBA ACTION: N/A

PERMITS REQUIRED: None

WAIVERS REQUESTED:
None

ATTENDANCE:
Members:
Christopher Parker, Planning
Elena Piekut, Planning/Zoning
Dave White, Engineering
Dan Barufaldi, Econ. Development
James Maxfield, Fire/Inspections
Sgt. Marn Speidel, Police
Frank Torr, Planning Board

Others:
Patrick Bogle, Howard Stein Hudson

Planning Comments:

- The City collects Impact Fees and Water/Sewer Investment fees
- Please provide a landscape maintenance plan
- Per Architectural regs, building should have a masonry first floor (first 12 feet)
- Does NHDES require permit or approval for relocation of monitoring wells? Please clarify, providing a letter from NHDES if no permit is needed and correct contradictory note on plan.
- Please revise the plan to add:
  - File number P20-46 to all sheets
  - Merge sheets into one plan set
  - Common Site Plan notes 9 (none issued), 12 (Who certified n wetlands), 29 (PTAPP)
  - Update sheet 3, note 19 to 7' tall, add retaining wall note (27)
  - Update sheet 4 note 7 from Chapter 109 to 81
  - Update sheet 6 to remove note 3, and correct note 1 from Chapter 149 to 153
  - Update Zoning info to include frontage buildout, and the front build-to line
  - Update parking calcs to include SF of store
  - Lighting plan needs to meet regulations
  - Surveyor and engineers stamps/signatures
  - Dumpster fence should be wood, not chain link

Police Department Comments:

- Install sign sleeve(s) in new raised sidewalk along Court Street
- Install sign sleeve(s) in raised median along Hanson Street
- Stop sign at Hanson Street exit is unnecessary

Engineering Comments

- The concrete sidewalk detail should show 5 ft wide not 4 ft. We don't count the curb as part of the sidewalk. Correct detail.
- The depth of gravel should be 9 inches. Correct detail.
- An easement will need to be granted to the city for the sidewalk portion on Hanson.
- Confirm water and sewer service sizes and locations. TV existing sewer to evaluate condition, as replacing it now may be best.
- City requires street opening permits for work in street.
- Reevaluate walkway and swale as they appear to conflict.

DRAFT

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P20-46

Application Type:	Technical Review Only – Change of Use/Expansion
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Owner(s):	RUHI LLC
Location:	221 Central Avenue (Tax Map 20, Lot 50)
Date:	August 6, 2020

Fire/Inspections Comments:

- FDC shall be located toward the front of the building (Hanson Street side preferred).
- Submitted plan sheet 4 grading drainage and utilities does not appear to indicate water or sewer lines. Please clarify
- Water line shall have a separate gate/shut off for suppression line.

Economic Development Comments:

- Revise the look of the new building to reflect the New England village look in its appearance.

Planning Board Comments:

- Correct contradictory note regarding monitoring wells.
- Would like to see improved architectural design, as this lacks character.
- How old are fuel tanks? Have they been updated? Provide a letter certifying condition.
- Add more screening to dumpster and for residential abutters.

Motion:

F.Torr moved to table this item and require a second TRC meeting to review how comments have been addressed prior to Planning Board submittal. Seconded by D.White. Vote: U/A.

Next Steps:

Prepare a letter/narrative outlining how each of the above comments have been addressed. Email a PDF of updated plan set, and final TRC meeting can be scheduled with one-week notice. Bring a hard copy plan set for in-person review.

Adjournment:

Motion to adjourn at 11:23 made by D.White and seconded by D.Barufaldi. Vote U/A.

DRAFT

City of Dover, New Hampshire
SUBDIVISION APPLICATION

[Revision Date: June 4, 2019]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Peter Georgakilas Telephone # 603-661-8679

Address of Applicant: 60 Silver Street, Dover NH 03820

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

Address of Property Owner:

E-Mail Address: atrcasju@yahoo.com

PROPERTY INFORMATION

Address of Property: Middle Road

Assessor's Map # M Lot(s) # 102-12

Zoning District(s) Rural Residential (R40) Overlay District(s) Conservation (wetland)

Size of Parcel: 28.56 Ac. Property Deed: Book 4669 Page: 1035

Existing Use of Property: Vacant lot

SUBDIVISION INFORMATION

Subdivision Type: Major (4 + net new lots): _____ Open Space: X TDR: _____

Existing Number of Lots: 1 Proposed Number of Lots: 13 Building plus open space

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

City Sewer? ___ Yes X No How far is city sewer from the property? On site septic

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

Estimated Length of Proposed Roads: 875' +/- feet Public or Private Road? Private

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

WAIVER REQUESTS

Subdivision Regulations section(s) to be waived: 157-32.G

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

PLANNING BOARD FEE SCHEDULE

(Revised February 10, 2020)

Below are the fees associated with plan review. Please complete the information below and provide payment with your application submittal. **Plan review fees shall be paid prior to technical review committee (TRC) being scheduled.** For plans not requiring TRC review, **fees are due 21 days prior** to the Planning Board meeting. Staff will coordinate abutter/notice fees, which will be invoiced and must be paid 28 hours before the Planning Board meeting for an application to be heard. Fees shall be paid by cash or check made payable to "City of Dover."

A. Plan Review Fees

1. Application fee for the following (SELECT ALL THAT APPLY):

☐ SUBDIVISION $150.00 x # 12 new lots created=	$ 1800.00
☐ LOT LINE ADJUSTMENT $100.00 X # of lots involved=	$_____
☐ TRANSFER OF DEVELOPMENT RIGHTS Application fee $150.00=	$_____
☐ SITE REVIEW – RESIDENTIAL $100.00 x # ____ per dwelling unit=	$_____
☐ SITE REVIEW – NON-RESIDENTIAL (not to exceed $10,000)	
○ New construction $.15 sq. ft. x # _____ sq. ft.=	$_____
○ Additions (new floor space) $.10 per sq. ft. x # _____sq. ft.=	$_____
☐ MOTEL/HOTEL $35.00 x # ___ per lodging unit=	$_____
☐ CHANGE OF USE (not to exceed $5,000)	
○ Existing floor spaces $.10 per sq. ft. x # _____ sq. ft. =	$_____
☐ CONDITIONAL USE PERMIT $150.00 x # 1 per application=	$ 150.00
☐ GRAVEL PIT/ EXCAVATIONS	
○ Application fee $50.00=	$_____
○ Permit fee $75.00=	$_____
☐ EXTENSIONS OF/AMENDMENTS TO/WAIVERS FOR AN APPROVED PLAN $50.00 x # ____ per hour of review (3 hour minimum)=	$_____
☐ REQUEST FOR REZONING Application fee $150.00=	$_____
☐ DRIVEWAY WAIVER Application fee $100.00=	$_____
SUB TOTAL=	**$ 1950.00**

AND

2. IMPERVIOUS PAVED AREA (for new development or additions to existing parking lots (not to exceed $10,000) $.07 sq. ft. x # _____= $_____

TOTAL PLAN REVIEW FEE= $_____

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will need to review the list and provide to this office the engineer, architect, licensed land surveyor (LLS), licensed landscape architect (LLA) and/or soil scientist whose professional seal appears on the plan with names and addresses for notices.

☐ Applicant & Owner, engineer, architect, LLS, LLA and/or soil scientist	
○ Certified letters fee # _____ of x $8.00=	$_____
☐ Certified letters fee: # of abutters _____ X $8.00=	$_____
☐ First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X $1.00=	$_____
☐ Creating/Printing Abutter Labels in triplicate per sheet _____ x $10.00=	$_____
SUB TOTAL=	**$_____**

C. Foster's newspaper public notice fee **$ 100.00**

TOTAL NOTICE FEE= $_____

The above amount must be paid 28 hours prior to the Planning Board meeting, to be heard.

City of Dover, New Hampshire
SUBDIVISION SUBMISSION CHECKLIST

[Revision Date: May 18, 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.

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 subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: Peter Georgakilas File Number: _____

PROJECT TITLE: Hayden Drive

PROPERTY LOCATION: Middle Road Tax Map: M Lot: 102-12

	Where/How Provided	Reviewed
1. Completed and signed Application form	X	
2. Plan Review Fees are provided	X	
3. Electronic copy of the surveyed plat layout	X	
4. Electronic copy of supplementary materials and application	X	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	X	
6. Waiver requests to the Subdivision Regulations, with written justification	X	
7. Conditional Use Permit applications	X	
8. Narrative describing yield plan and cost analysis	X	
9. Folded copies of subdivision plan w/scale of not less than 1"=50' or 1"=100' for larger subdivisions. Plans shall contain the following items as appropriate:		
Location map at appropriate scale	X	
Proposed subdivision name and title and Planning File #	X	
Date, north arrow and scale	X	
Names of all abutting property owners	X	
Name and address of owners and/or applicants	X	
Signature & stamp of NH licensed land surveyor and/or engineer	X	
Zoning District boundaries, including any special or overlay districts	X	
Location of Conservation District areas	X	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	X	
Location and widths of existing & proposed easements & right of ways	X	
Location and widths of existing and proposed sidewalks	X	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	X	
Existing and proposed lot areas in square feet	X	
Existing and proposed topographic information at two foot intervals	X	
Minimum building setbacks or build to lines on all lots	X	

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Peter Georgakilas Telephone # 603-661-8679

Address of Applicant: 60 Silver Street, Dover NH 03820

E-Mail Address: atrcasju@yahoo.com

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

Address of Property Owner:

PROPERTY INFORMATION

Assessor's Map # M Lot(s) # 102-12

Address of Property: Middle Road

Zoning District(s) Rural Residential (R40) Overlay District(s) Conservation (wetland)

Existing Use of Property: Vacant lot

CONDITIONAL USE PERMIT INFORMATION

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

☒ Conservation District	☐ RCM Use Overlay District	☐ I-1 District Uses
☐ Groundwater Protection	☐ Off-Street Parking and Loading	☐ Alternative Treatment Center
☒ Wetland Protection District	☐ Central Business District	☐ Heritage Residential District

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

Proposed disturbance within the 50' wetland buffer. See attached conditional use permit narrative for additional narrative.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: US EPA NOI, Natural Heritage Bureau (NHB), NH Division of Historical Resources

Name of Professional That Prepared Plans: Kenneth A Berry, PE, LLS
Christopher R. Berry
Berry Surveying & Engineering

Address 335 Second Crown Point Rd, Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: 805 E-mail address: K.Berry@BerrySurveying.com
crberry@metrocast.net

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: 8-4-20

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 8-4-20

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: _____

Address _____ Telephone #: _____

Professional License #: _____ 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.

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Signature of Property Owner: _____ Date: 8-4-20

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335 Second Crown Point Road
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www.BerrySurveying.Com
crberry@metrocast.net

August 4, 2020

City of Dover
Attention: City Planner Donna Benton
288 Central Ave
Dover, NH 03820

Re: Proposed Open Space Condominium Subdivision
Peter Georgakilas
Middle Road
Tax Map M, Lot 102-12

Dear Mrs. Benton,

On behalf of our client Peter Georgakilas Berry Surveying & Engineering (BS&E) is submitting for TRC to discuss a proposed open space subdivision.

Background and General Narrative:

Peter Georgakilas owns the parcel off Middle Road in Dover, NH (Tax Map M, Lot 102-12). Berry Surveying & Engineering has conducted an on-site survey of the parcel which includes a topographic analysis as well as a wetlands analysis. All on site wetlands have been delineated by a certified wetland scientist. The lot is vacant with no existing buildings or structures and is fully wooded, except for a large field in the middle of the property.

The Proposal:

The applicant is proposing to construct a 875' roadway (475' to the neck of the cul-de-sac, waiver requested) off Middle Road in order to provide access to 13 lot open space condominium subdivision. The proposed road, known as Hayden Drive, will be 24' wide with 2' gravel shoulders. A shared driveway will be constructed off the end of the cul-de-sac and provide aces to three more lots. Residential lamps will be installed on each house and several will be spaced out along the road.

The proposed subdivision was designed to have an open drainage design, utilizing drop inlets and driveway culverts to direct runoff from the proposed roads and houses towards two detention ponds and gavel wetlands. The proposed gravel wetlands will treat the generated runoff and discharge towards the eastern side of the subject parcel. The drainage design was modeled so

that there is a decrease in peak rate at the final analysis point. Gravel wetlands were sued in the design to treat the generated runoff and removed the nitrogen.

All proper erosion and sediment control measures will be taken to ensure that no sediment runs off onto abutting parcels. Double perimeter control and construction fences shall be used along the edge of disturbance within the 50' wetland buffer. A construction entrance will be installed at the proposed roadway cut in order to keep sediment off Middle Road. Check dams will be used in the swales to promote stabilization and keep sediment out of the best management practices.

An intensive landscaping design shall be used to screen the proposed development from Middle Road utilizing a various array of trees and shrubs. Increased vegetated buffers will also be utilized along the edge of disturbance within the wetland buffers to add a level of protection between the development and wetlands. Street trees are also proposed along the road in order to provide interior green space.

A conditional use permit is being filed for this project due to construction within the wetland buffer. Although the project was designed to have no impact within jurisdictional wetlands, disturbance within the buffers is required in order to place the proposed best management practices in the most practical locations. A separate conditional use narrative is included within the submittal.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

James F. Hayden
Engineering Technician

Christopher R. Berry
Principal, President

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335 Second Crown Pt. Rd., Barrington, NH 03825
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August 11, 2020

City of Dover
Attention: City Planner Donna Benton
288 Central Ave
Dover, NH 03820

Re: Proposed Open Space Condominium Subdivision
Peter Georgakilas
Middle Road
Tax Map M, Lot 102-12

Chairperson & Members of the Dover Planning Board:

In accordance with to the subdivision standards Article 157-30, the following waiver is hereby requested:

1. Identification of Waiver Request: Maximum road grade of 3% within 75' of an intersection per Dover Subdivision Regulation 157-32.G.

- Proposed road grade of 8% within 75' of Middle Road (2% up to 40' from intersection).

2. Explanation:

The applicant is proposing to construct a 24' wide roadway off Middle road in order to provide access to an open space condominium subdivision. Although the proposed road will have a grade of 8% within 75' of the intersection, it was design to have a 40' platform and large vertical curve at the entrance to allow for a save stopping platform as vehicles approach Middle Road from the proposed development.

3. Waiver Justification:

a. Granting the waiver will properly carry out the purpose and intent of the regulations.

The intent of requiring a maximum road grade of 3% within 75' of an intersection is to ensure vehicular and pedestrian safety as vehicles approach intersections. Although the proposed roadway has 8% road grade within 75' of the intersection, it will still be a safe intersection given the 40' proposed road section that is 3% or less. Furthermore, there are no visual obstructions as vehicles approach the intersection and more 350' of sight distance is provided in each direction.

b. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant meet the grading requirement would increase the disturbance at the front of the site. Causing the development to look less like a subdivision and more like a commercial site.

Identification of Waiver Request: Minimum roadway length of 500 (to the neck of the cul-de-sac) per Subdivision Regulation 155-33.J

- Proposed private road length of 475' to the neck of the cul-de-sac.

2. Explanation:

The applicant is utilizing the open space subdivision regulations within the City of Dover zoning regulations to obtain 13 new single family homes. The proposal is to construct a 24' wide private roadway off Middle Road in order to provide access to the single family homes. The roadway will be 877 feet long (475 feet to the neck of the cul-de-sac).

3. Waiver Justification:

a. Granting the waiver will properly carry out the purpose and intent of the regulations.

The proposed road length is 475 feet to the neck of the cul-de-sac. Minimum road length regulations are directly related to municipal efficiencies, where it is not efficient to maintain smaller road. This is a private road with no municipal responsibility.

b. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant to lengthen the road would pose an unnecessary hardship on the applicant. The road and project were designed to keep the majority of the development within the field in the center of the parcel. In addition, the proposed road layout keeps the majority of the development out of the wetland buffer to the west.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

James F. Hayden
Engineering Technician

Christopher R. Berry
Principal, President

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Yield Plan Analysis

For

Tax Map M, Lot #102-12

Peter Georgakilas
Mast Road
Dover, NH

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863

File Number
DB2019-114

Pursuant to the Dover Regulations we submit the following:

The proposed road lengths shown on the proposed yield plan, in and around the cul-de-sacs are approximately 1314 linear feet and 794. Road Construction costs for a City Street in Dover, NH are approximately $450 per linear foot. For a basic road in the R40 zone with a 24' paved surface. This also includes inspections and testing which is required of all city streets.

The land was purchased for $500,000.00 and the proposed construction cost of the yield plan is $948,600.00. This equates to approximately $111,430.77 per unit. The marketing price for a similar project in town is $140,000 per lot, with a frontage lot on Middle Road selling for $170,000.00. There are no additional costs associated with the project such as moving existing infrastructure or housing.

Respectfully submitted,

Berry Surveying & Engineering

Christopher R. Berry
Principal, President

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August 4, 2020

City of Dover Planning Board
288 Central Ave
Dover, NH 03820

RE: Proposed Open Space Condominium Subdivision
Peter Georgakilas
Middle Road
Tax Map M, Lot 102-12

Mr. Bird and the Dover Conservation Commission

Berry Surveying & Engineering (BS&E,) on behalf of Peter Georgakilas, respectfully requests the City of Dover Conservation Commission to accept the following Conditional Use Permit:

- Disturbance within the 50' wetland buffer.

1. Identification of Conditional Use Permits

Regulations in the zoning ordinance do not allow for earth disturbance within the 50' wetland buffer. However, Section 170-27.C states that a conditional use permit may be granted by the planning board, given the following standards, as shown below, are met. Below we show the project's compliance with the standards required to grant a Conditional Use Permit, and we provide justification for its approval.

2. Compliance with the following standards

a) The APPLICANT shall demonstrate that the proposed use is essential to the productive use of land not in the district; is located and constructed to minimize any detrimental impact of such use upon the surface waters or other environmentally sensitive areas, where it is physically impossible to locate DOVER CODE P 170-101 such use on land not in the district; and economic advantage alone shall not be deemed a sufficient reason for such proposed use.

- **The parcel has several pockets of isolated wetlands located towards the front of the lot, with a larger wetland spanning across the lot to the south. The proposed road was designed in order to minimize the impact within the wetland buffer by concentrating the development in the**

existing field. All proposed side slopes are to be 3:1, to promote vegetation and increase stabilization. The proposed gravel wetland adjacent to the shared driveway was designed to have the least impact on the existing wetlands. The wetland adjacent to the gravel wetland is an isolated pocket that does not contribute to the larger wetlands to the South. In addition impacts are limited to stormwater design which are required to be close to the elevation of the discharge point. Gravel wetlands were chosen in order to treat nitrogen from the proposed development.

b) A soil erosion and sedimentation control plan is submitted and followed to verify the planned avoidance of sediment pollutant runoff to bodies of water.
   - **A full erosion and sediment control plan will be submitted as part of this design. Silt soxx or mulch berm will be used to contain the sediment within the project limits. Rip-Rap and natural fiber matting will be used for slope stabilization. All necessary precautions will be taken to ensure that no sediment goes into the remaining wetland or buffer areas.**

c) Necessary state and federal approvals have been applied for. Said permits shall be received prior to the issuance of the Conditional Use Permit by the Planning Department.
   - **All permits will be presented to the City when acquired.**

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.
   - **An in depth landscaping design will also be done to ensure that new vegetation is promoted to grow throughout the construction site. In addition, the disturbed buffer and wetland areas will receive a special conservation seed mix that will allow for re-vegetation of those areas.**

3. Justification for approval of Conditional Use Permits

The proposed development will have 5,808 Sq.Ft. of buffer disturbance. All of this disturbance will be for the construction of the proposed road and relating grading through the buffer. The remaining area of road and proposed units will be pulled towards the center of the lot and away from the wetlands on site. Given the sensitivity

of the site and its location, the applicant wanted to contain all work within a concentrated area and away from the adjacent brook.

As part of this design, a full drainage analysis will also be conducted. The proposed road will be crowned, so that all the generated runoff will flow into proposed drop inlets and swales. These swales will divert the generated runoff towards two detention ponds and two gravel wetlands.

Proposed disturbance area #1 is 161 Sq.Ft. and is for the construction of the side slopes for the proposed roadway. The road was designed with 3:1 side slopes.

Proposed disturbance area #2 is 106 Sq.Ft. and is for the construction of the side slopes for the proposed shared driveway. The shared driveway was designed with 3:1 Side slopes, except in areas of buffer disturbance, where 2:1 side slopes are proposed.

Proposed disturbance area #3 is 3,839 Sq.Ft. and is for the construction of gravel wetland #104. The gravel wetland was designed to contain all runoff within the pond for the 25 Yr. design event.

Proposed disturbance area #4 is 78 Sq.Ft. and is for the construction of lot 9.

Proposed disturbance area #5 is 1,624 Sq.Ft. and is for the construction of level spreader 109.

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August 11, 2020

City of Dover Planning Department
Attention: City Planner Donna Benton
288 Central Ave.
Dover, NH 03820

RE: Traffic Impact Summary
Peter Georgakilas
60 Silver Street
Dover, NH 03820
Middle Road
Tax Map M, Lot 102-12

Mrs. Benton,

Pursuant to the City of Dover Site Review Regulations, Berry Surveying & Engineering (BS&E), on behalf of Peter Georgakilas, has prepared a Traffic Impact Summary for the development of a 13 single family housing development off Middle Road. The point of analysis is the intersection of Middle Road and the proposed access roadway, Hayden Drive.

The following trip generation is calculated from the 10th Edition Trip Generation Manual using Code 210, Single Family Detached Housing:

Hayden Drive Proposed Trip Generation (2020)

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	13			# Units	13			# Units	13		
Avg. Rate	9.44			Avg. Rate	0.74			Avg. Rate	0.99		
Total Trips	122.7			Total Trips	9.6			Total Trips	12.9		
% Enter	50.0	Total Enter	61.4	% Enter	25.0	Total Enter	2.4	% Enter	63.0	Total Enter	8.1
% Exit	50.0	Total Exit	61.4	% Exit	75.0	Total Exit	7.2	% Exit	37.0	Total Exit	4.8

Using Traffic Counts from the Dover NH Police Department, dated August 3rd – 5th, 2018, the following peak values were used to determine the directional distribution of trips entering and exiting Hayden Drive from Middle Road.

Date	Traffic Distribution Middle Avenue Northbound		Southbound		Two-Way	
8/3/2011	AM Peak	70	AM Peak	66	AM Peak	136
	PM Peak	81	PM Peak	76	PM Peak	157
8/4/2011	AM Peak	56	AM Peak	77	AM Peak	133
	PM Peak	93	PM Peak	89	PM Peak	182
8/5/2011	AM Peak	72	AM Peak	66	AM Peak	138
	PM Peak	80	PM Peak	75	PM Peak	155
Average Peak Hour Traffic	AM Peak	66.0	AM Peak	69.7	AM Peak	135.7
	PM Peak	84.7	PM Peak	80.0	PM Peak	164.7
% Distribution	AM Peak	48.6	AM Peak	51.4		
	PM Peak	51.4	PM Peak	48.6		

Traffic data obtained from the City of Dover Police Department and was used for this analysis. The following table shows in a tabular format the total trips that are calculated to occur to and from Hayden Drive. These trips are shown at AM and PM weekday peak hours in a build situation. These trips are further broken down into enter and exit to and from the site as well as percentage of left and right turns.

Time	AM Peak Hayden Drive	# Trips	Turn Type	% Distribution
Total Trips	9.6			
Trips Enter from Middle Road Northbound		1.2	Right	12.2
Trips Enter from Middle Road Southbound		1.2	Left	12.8
Trips Exit to Middle Road Northbound		3.5	Right	36.5
Trips Exit to Middle Road Westbound		3.7	Left	38.5

Time	PM Peak Hayden Drive	# Trips	Turn Type	% Distribution
Total Trips	12.9			
Trips Enter from Middle Road Northbound		4.2	Right	32.4
Trips Enter from Middle Road Southbound		3.9	Left	30.6
Trips Exit to Middle Road Northbound		2.4	Right	19.0
Trips Exit to Middle Road Southbound		2.3	Left	18.0

Due to the number of trips generated and quantity of single family detached homes on Hayden Drive, minimal turning movements will occur. The largest generation is four trips entering from the north and four trips entering from the south during the PM peak hour.

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19-114 Middle Road, Dover, NH
Traffic Impact Summary

August 11, 2020

The posted speed limit of Middle Road is 30MPH. For the purposes of the safety analysis, the 85th percentile of speed is required. The 85th percentile derived by observation and conservatively is assumed to be 46 MPH, based on traffic counts done by the City of Dover Police Department.

Sight distance on Middle Road to the east and west, as well as roadway alignment are the two determining factors of safety. Sight distance to the east is un-obstructed for well over 350 feet (measured), while sight distance to the west is un-obstructed for well over 400 feet (measured). Using Exhibit 3-1 (Stopping Sight Distance) in the Geometric Design Manual, City of Dover regulations, and a 46 mph 85th percentile speed, requires a stopping sight distance of 305 feet for eastbound and westbound traffic. In this instance both the easterly and westerly sight distances meet the design required warrants. There are no improvements required to obtain this sight distance.

With respect to general safety of Middle Road in relation to the peak hour trip generation and AADT, it is our assessment that the cross section of pavement and shoulder widths are appropriate.

*AASHTO Geometric Design of Highways and Streets 7th Edition (2018)

The proposed development is not within walking distance of any COAST bus stop. The closest bus stop is on Dover Point Road, over a mile away.

- It is recommended that the existing and surrounding infrastructure will be sufficient to handle the minimal projected vehicle trips generated for the peak hour and all other hours for Middle Road and the surrounding roadways

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

James Hayden
Project Engineer

Kenneth A. Berry, PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP-Technical Operations

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Dover Police Department Traffic Bureau
46 Locust Street
Dover, New Hampshire 03820
(603) 742-4646

MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Southbound (A to B)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/03/11	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	0	5	6	20	20	6	1	1	0	0	0	0	0	59
11:00	0	0	2	8	27	21	6	1	1	0	0	0	0	0	66
12 PM	0	0	1	11	32	26	6	0	0	0	0	0	0	0	76
13:00	0	0	3	9	17	15	9	1	0	0	0	0	0	0	54
14:00	0	0	3	14	21	28	7	0	0	0	0	0	0	0	73
15:00	0	0	1	8	24	16	12	0	0	1	0	0	0	0	62
16:00	0	0	1	8	15	20	10	0	0	0	0	0	0	0	54
17:00	1	0	0	5	21	39	5	2	0	0	0	0	0	0	73
18:00	0	0	0	3	19	18	6	0	1	0	0	0	0	0	47
19:00	0	0	0	3	10	8	4	3	0	0	0	0	0	0	28
20:00	1	0	0	6	12	10	2	1	0	0	0	0	0	0	32
21:00	0	0	0	1	4	8	4	0	0	0	0	0	0	0	17
22:00	0	1	0	0	9	4	1	1	0	0	0	0	0	0	16
23:00	0	0	0	1	1	2	3	1	0	0	0	0	0	0	8
Total	2	1	16	83	232	235	81	11	3	1	0	0	0	0	665

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46 Locust Street
Dover, New Hampshire 03820
(603) 742-4646

MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Southbound (A to B)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/04/11	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	2	2	0	0	0	0	0	0	0	0	0	4
04:00	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
05:00	0	0	0	6	8	4	2	0	0	0	0	0	0	0	20
06:00	1	0	2	12	23	13	0	0	0	0	1	0	0	0	52
07:00	2	0	0	9	11	15	7	0	0	0	0	0	0	0	44
08:00	2	1	0	17	24	21	10	1	0	0	1	0	0	0	77
09:00	0	0	0	5	15	17	5	1	0	0	0	0	0	0	43
10:00	1	0	1	4	13	23	7	0	0	0	0	0	0	0	49
11:00	3	0	1	8	20	20	9	1	0	0	0	0	0	0	62
12 PM	0	0	1	5	25	23	6	1	0	0	0	0	0	0	61
13:00	2	0	0	16	23	25	4	0	0	0	0	0	0	0	70
14:00	1	0	3	15	29	21	3	0	0	0	0	0	0	0	72
15:00	1	0	1	7	18	38	11	1	1	0	0	0	0	0	78
16:00	3	0	1	6	31	27	6	0	0	0	0	0	0	0	74
17:00	0	0	1	11	25	36	12	3	0	0	1	0	0	0	89
18:00	0	0	1	3	20	23	5	1	0	0	0	0	0	0	53
19:00	0	0	3	4	20	20	6	0	0	0	0	0	0	0	53
20:00	0	0	1	6	13	7	1	1	0	0	0	0	0	0	29
21:00	0	0	0	3	11	5	2	0	0	0	0	0	0	0	21
22:00	0	0	1	0	9	4	4	1	0	0	0	0	0	0	19
23:00	0	0	0	1	4	1	0	0	0	0	0	0	0	0	6
Total	16	1	17	140	345	348	102	11	1	0	3	0	0	0	984

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MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Southbound (A to B)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/05/11	0	0	0	0	3	0	1	0	0	0	0	0	0	0	4
01:00	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3
04:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	5	8	4	1	0	0	0	0	0	0	0	18
06:00	0	0	0	7	12	9	1	0	0	0	0	0	0	0	29
07:00	2	0	1	9	11	18	2	4	0	0	0	0	0	0	47
08:00	2	0	0	11	15	28	10	0	0	0	0	0	0	0	66
09:00	0	1	4	5	15	18	7	2	0	0	0	0	0	0	52
10:00	1	0	3	5	25	21	8	1	0	0	0	0	0	0	64
11:00	0	0	1	8	21	25	7	0	0	0	0	0	0	0	62
12 PM	2	0	2	8	18	23	9	2	0	0	0	0	0	0	64
13:00	0	0	3	13	19	32	3	0	1	0	0	0	0	0	71
14:00	1	1	5	9	25	22	9	3	0	0	0	0	0	0	75
15:00	0	0	2	6	14	25	14	2	0	0	0	0	0	0	63
16:00	0	1	1	6	22	26	10	1	1	0	0	0	0	0	68
17:00	1	0	1	3	12	30	20	0	0	0	1	0	0	0	68
18:00	1	0	0	4	12	20	4	1	0	0	0	0	0	0	42
19:00	0	0	1	4	13	7	2	0	1	0	0	0	0	0	28
20:00	0	0	0	4	14	15	3	1	0	0	0	0	0	0	37
21:00	1	0	1	4	16	7	1	0	1	0	0	0	0	0	31
22:00	1	1	0	0	10	5	2	0	0	0	0	0	0	0	19
23:00	0	0	0	0	5	3	1	2	0	0	0	0	0	0	11
Total	12	4	25	112	293	338	117	19	4	0	1	0	0	0	925

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MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Northbound (B to A)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/03/11	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	1	2	3	10	13	14	8	0	0	0	0	0	0	0	51
11:00	0	3	7	8	21	23	7	1	0	0	0	0	0	0	70
12 PM	0	3	8	13	27	15	8	1	1	0	0	0	0	0	76
13:00	0	0	3	13	16	17	5	0	0	0	0	0	0	0	54
14:00	0	1	10	18	17	28	6	1	0	0	0	0	0	0	81
15:00	0	2	9	15	18	24	7	1	0	0	0	0	0	0	76
16:00	1	0	2	15	22	29	7	0	0	0	0	0	0	0	76
17:00	1	0	7	12	22	19	5	1	0	0	0	0	0	0	67
18:00	1	0	1	5	18	27	2	0	0	0	0	0	0	0	54
19:00	0	1	3	11	10	15	4	2	0	0	0	0	0	0	46
20:00	0	1	2	10	12	5	3	0	0	0	0	0	0	0	33
21:00	0	1	1	4	14	6	3	1	0	0	0	0	0	0	30
22:00	0	0	1	1	3	3	2	0	0	0	0	0	0	0	10
23:00	0	0	0	11	6	4	0	0	0	0	0	0	0	0	21
Total	4	14	57	146	219	229	67	8	1	0	0	0	0	0	745

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46 Locust Street
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(603) 742-4646

MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Northbound (B to A)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/04/11	0	0	1	2	2	1	3	0	0	0	0	0	0	0	9
01:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
05:00	0	0	1	0	1	2	0	0	0	0	0	0	0	0	4
06:00	1	0	0	6	9	11	1	0	0	0	0	0	0	0	28
07:00	0	0	0	5	8	25	9	0	0	0	0	0	0	0	47
08:00	0	0	1	4	20	14	7	0	0	0	0	0	0	0	46
09:00	0	1	4	6	13	16	10	0	0	0	0	0	0	0	50
10:00	0	1	5	7	17	21	3	2	0	0	0	0	0	0	56
11:00	0	0	9	6	16	18	3	0	0	1	0	0	0	0	53
12 PM	0	0	2	8	26	22	5	2	0	0	0	0	0	0	65
13:00	0	1	10	9	25	24	3	0	0	0	0	0	0	0	72
14:00	0	2	11	20	20	11	5	1	0	0	0	0	0	0	70
15:00	2	1	11	19	12	36	9	2	1	0	0	0	0	0	93
16:00	0	0	11	12	28	30	2	0	0	0	0	0	0	0	83
17:00	1	0	2	10	28	29	7	0	0	0	0	0	0	0	77
18:00	0	0	5	6	17	16	3	0	1	0	0	0	0	0	48
19:00	2	1	12	12	14	13	2	1	0	0	0	0	0	0	57
20:00	0	2	4	13	15	5	2	0	0	0	0	0	0	0	41
21:00	0	0	4	7	8	5	3	0	0	0	0	0	0	0	27
22:00	0	0	2	2	6	6	1	0	0	0	0	0	0	0	17
23:00	0	1	0	5	3	2	0	0	0	0	0	0	0	0	11
Total	7	10	95	162	290	307	78	8	2	1	0	0	0	0	960

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MIDDLE ROAD
area of # 39 (Langdon Place to Hubbard)

Date Start: 03-Aug-11
Date End: 10-Aug-11

Northbound (B to A)

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total
08/05/11	0	2	1	1	4	2	2	0	0	0	0	0	0	0	12
01:00	0	0	0	0	0	2	0	1	0	0	0	0	0	0	3
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	2	0	2	1	0	0	0	0	0	0	0	0	5
06:00	0	0	1	2	11	4	1	0	0	0	0	0	0	0	19
07:00	0	0	4	5	16	16	8	0	0	0	0	0	0	0	49
08:00	0	1	1	6	18	23	10	1	0	1	0	0	0	0	61
09:00	0	0	3	4	17	16	5	1	0	1	0	0	0	0	47
10:00	0	1	4	8	14	16	7	0	0	0	0	0	0	0	50
11:00	0	2	6	15	23	16	8	1	1	0	0	0	0	0	72
12 PM	1	0	6	15	15	15	3	2	0	0	0	0	0	0	57
13:00	0	4	7	16	14	20	4	1	0	0	0	0	0	0	66
14:00	1	2	10	10	15	17	8	0	0	0	0	0	0	0	63
15:00	2	0	10	13	23	25	7	0	0	0	0	0	0	0	80
16:00	0	0	6	16	16	25	14	1	0	0	0	0	0	0	78
17:00	0	0	4	10	23	27	6	0	0	0	0	0	0	0	70
18:00	0	0	3	9	15	19	4	1	0	0	0	0	0	0	51
19:00	0	0	4	8	10	10	3	1	0	0	0	0	0	0	36
20:00	1	0	2	2	9	10	0	0	0	0	0	0	0	0	24
21:00	0	1	3	6	3	2	2	0	0	0	0	0	0	0	17
22:00	0	0	3	1	1	5	2	0	0	0	0	0	0	0	12
23:00	0	0	3	4	6	4	1	0	0	0	0	0	0	0	18
Total	5	13	83	152	255	275	95	10	1	2	0	0	0	0	891

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
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www.BerrySurveying.Com

City of Dover
Planning Office
Attn: Donna Benton, City Planner
288 Central Ave
Dover, NH 03820

August 18, 2020

RE: Proposed Open Space Subdivision
Peter Georgakilas
Middle Road
Tax Map M, Lot 102-12

Mrs. Benton,

Enclosed please find the following required material in support of the Open Space Subdivision off Middle Road

- 9 Copies of the full size plan
- 9 Copies of the subdivision plan application
- 9 Copies of the subdivision checklist
- 9 Copies of the narrative
- 9 Copies of the waiver request
- 9 Copies of the conditional use permit application and narrative
- 9 Copies of the traffic narrative
- 9 Copies of the yield plan assessment
- 2 Copies of the Drainage binders

Thank you for your time and attention to this matter.

BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

OPEN SPACE CONDOMINIUM SUBDIVISION
FOR
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H.
TAX MAP M, LOT 102-12

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SHEET 14 ~ GRADING PLAN OVERVIEW
SHEET 15 ~ PLAN AND PROFILE HAYDEN DRIVE 0+00 TO 4+50
SHEET 16 ~ PLAN AND PROFILE HAYDEN DRIVE 4+50 TO END
SHEET 17 ~ PLAN AND PROFILE SHARED DRIVEWAY 0+00 TO END
SHEET 18 ~ P-101 & P-103 DETENTION POND #101 & #103
SHEET 19 ~ P-102 GRAVEL WETLAND #102
SHEET 20 ~ P-104 GRAVEL WETLAND #104
SHEET 21 ~ EROSION AND SEDIMENT CONTROL PLAN EAST
SHEET 22 ~ EROSION AND SEDIMENT CONTROL PLAN WEST
SHEET 23 ~ SIGHT DISTANCE PLAN EAST BOUND
SHEET 24 ~ SIGHT DISTANCE PLAN WEST BOUND
SHEET 25 ~ CROSS SECTIONS
SHEET 26 ~ E101-SEDIMENT & EROSION DETAILS
SHEET 27 ~ E102-SEDIMENT & EROSION DETAILS
SHEET 28 ~ C101-CONSTRUCTION DETAILS
SHEET 29 ~ D101-DRAINAGE DETAILS
SHEET 30 ~ U101-UTILITY DETAILS

ASTERISKS FOR PLANS TO BE RECORDED

OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

SURVEYOR OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825
(603) 332-2863

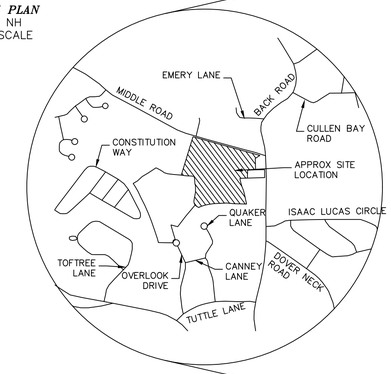
ENGINEER OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825
(603) 332-2863

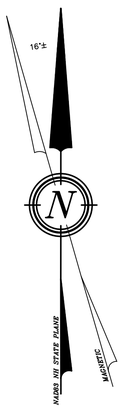
WETLAND SCIENTIST: & SOIL SCIENTIST: JOHN P. HAYES III, CSS, CWS
7 LIMESTONE WAY
NORTH HAMPTON, NH 03862
(603) 205-4396

NOTE:

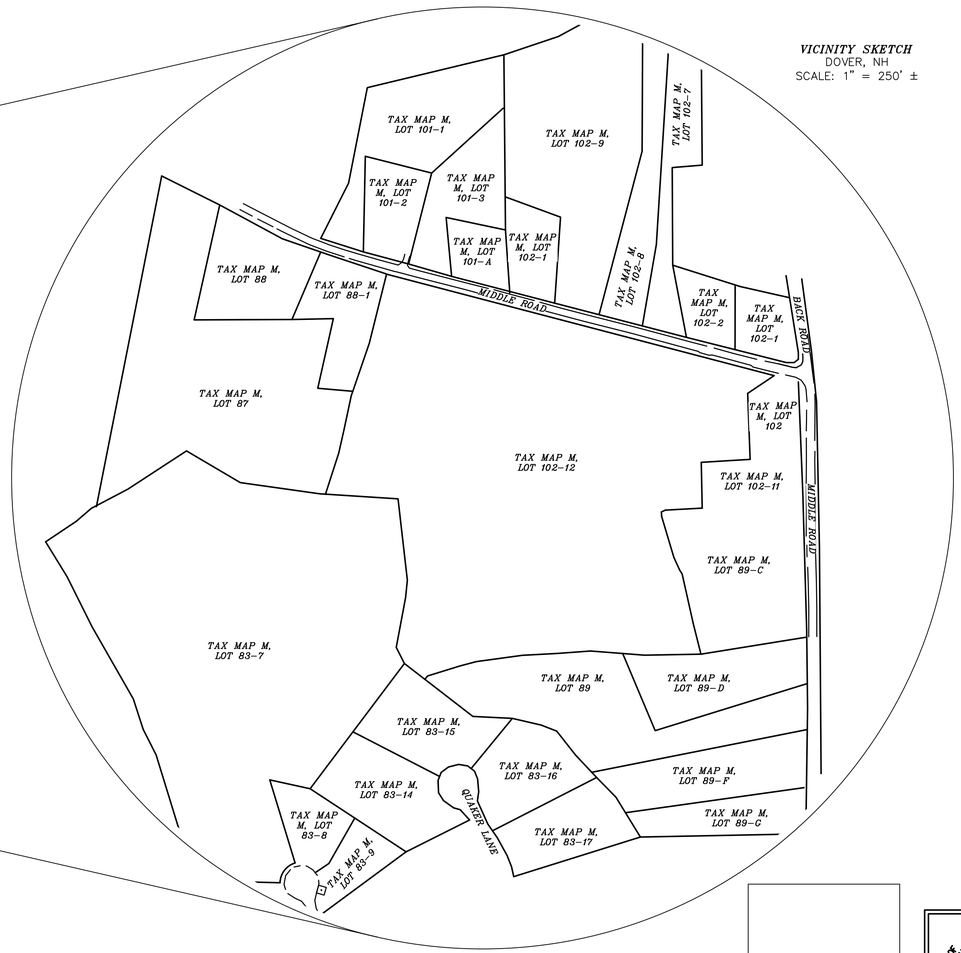
BERRY SURVEYING & ENGINEERING HAS PREPARED AN INSPECTION & MAINTENANCE MANUAL AS PART OF THIS PROJECTS DOCUMENTATION. ALL USERS ARE BOUND TO THIS DOCUMENT AS PART OF THE APPROVAL OF THE PLANNING BOARD. COPIES OF THE YEARLY INSPECTIONS ARE TO BE DELIVERED TO THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

LOCATION PLAN
DOVER, NH
NOT TO SCALE





VICINITY SKETCH
DOVER, NH
SCALE: 1" = 250' ±



REQUIRED PERMITS:

~ US EPA NOI & SWPPP (PENDING)
~ NATURAL HERITAGE BUREAU (PENDING)
~ NH DIVISION OF HISTORICAL RESOURCES (PENDING)

GENERAL PLAN SET NOTES:

1.) 11x17" PLANS ARE HALF THE PUBLISHED SCALE.

2.) ALL PLANS ARE CONSIDERED TO BE NOT FOR CONSTRUCTION UNLESS THEY CONTAIN THE APPROVAL STAMP OF THE CITY OF DOVER.

WHETHER OR NOT OTHERWISE EXPRESSLY RECITED ON THIS SITE PLAN, THE SITE PLAN APPROVAL GRANTED IS CONDITIONED ON FAITHFUL AND DILIGENT ADHERENCE BY THE OWNER/SUBDIVIDER/DEVELOPER OF ALL TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS OF THE CITY OF DOVER LAND SITE PLAN REGULATIONS AS AMENDED OR AS MAY LATER BE AMENDED, IN EFFECT ON THE DATE OF APPROVAL, UNLESS OR EXCEPT INSOFAR AS EXPRESSLY WAIVED, IN ANY PARTICULAR, BELOW. NON – ADHERENCE MAY RESULT IN A REVOCATION OF APPROVAL. ANY VARIATION FROM THE APPROVED PLAN WILL REQUIRE A RESUBMISSION FOR SITE PLAN APPROVAL.

APPROVED DOVER

STATE OF NEW HAMPSHIRE — No. 805 — KENNETH A. BERRY — LICENSED LAND SURVEYOR — SIGNATURE

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY — No. 14148 — LICENSED PROFESSIONAL ENGINEER

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OPEN SPACE SUBDIVISION
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

ABBREVIATION LEGEND:

E.O.P.	EDGE OF PAVEMENT
BITUM.	BITUMINOUS
E.S.H.W.T	ESTIMATE SEASONAL HIGH WATER TABLE
TYP.	TYPICAL
U.G.E.	UNDER GROUND ELECTRIC / UTILITY
U.D.	UNDER DRAIN
C.O.	CLEAN OUT
INV.	INVERT
ELEV.	ELEVATION
F.E.S.	FLARED END SECTION
HDPE	HIGH DENSITY POLYETHYLENE
RECB	ROLLED EROSION CONTROL BLANKET
F.G.	FINISHED GRADE
E.G.	EXISTING GRADE
T.B.R.	TO BE REMOVED
LCA	LIMITED COMMON ARE
CL	CENTER LINE
CF	CUBIC FEET
P.C.	POINT OF CURVATURE
P.T.	POINT OF TANGENCY
P.V.C.	POINT OF VERTICAL CURVE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENCY
EX.	EXISTING
PROP.	PROPOSED
STA.	STATION
'/.	FEET / FEET

{ } SSL ( ) ~ {SIZE} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } DSL ( ) ~ {SIZE} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } SSB ( ) ~ {SIZE} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } SBL ( ) ~ {SIZE} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } DBL ( ) ~ {SIZE} DOUBLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)

EXISTING LEGEND:

- IRON BOUND (FND)
- REBAR (FND)
- RAILROAD SPIKE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- CURB STOP
- GATE VALVE
- GAS VALVE
- FIRE HYDRANT
- CATCH BASIN
- SEWER MANHOLE
- BUILDING SETBACK LINE
- EWL — EWL — EXISTING WATER LINE
- D — EXISTING DRAIN LINE
- OHU — OHU — OHU — OHU — OVERHEAD UTILITIES
- 116 — EXISTING CONTOUR MINOR
- 115 — EXISTING CONTOUR MAJOR
- FEMA FLOOD MAP

PROPOSED LEGEND:

- IRON BOUND (FND)
- TEMPORARY BENCHMARK
- CURB STOP
- GATE VALVE
- GAS VALVE
- DROP INLET
- E101 / E6 — SHEET DETAIL
- THRUST BLOCK
- P114.05 — PROPOSED SPOT ELEVATION
- EASEMENT LINE
- W — W — PROPOSED WATER LINE
- D — PROPOSED DRAIN LINE
- U.D. — U.D. — PROPOSED UNDERDRAIN
- F41 — PROPOSED CONTOUR MINOR
- F40 — PROPOSED CONTOUR MAJOR
- SAW CUT LINE
- UGE — UGE — PROPOSED UNDERGROUND UTILITY
- SF — SILT FENCE / EROSION MIX BERM
- SS — SS — SS — FILTREXX SILT SOXX (8" or 12" AS NOTED)
- C — C — C — ORANGE CONSTRUCTION PERIMETER FENCE

GIS SKETCH
DOVER, NH
SCALE: 1" = 200' ±

16°±
MAGNETIC
MAGNETIC NORTH

SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R1-1	30"x30"	STOP	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	RED	WHITE	WHITE	SQUARE (2)
R2-1	24"x30"	SPEED LIMIT 25	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN	GREEN	SQUARE (1)
R6-1R	36"x12"	ONE WAY	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	BLACK W/ WHITE ARROW	BLACK	WHITE	SQUARE (1)
W14-2	30"x30"	NO OUTLET	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	YELLOW	BLACK	BLACK	SQUARE (1)

ABUTTERS WITHIN 200':

N/F BRENDAN C DRISCOLL
277 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 10
S.C.R.D. BOOK 4671, PAGE 957

N/F HAPPY MOUNTAIN HOLDINGS
901 NORTH MARKET STREET STE 705
WILMINGTON, DE 09801
TAX MAP M, LOT 102-11
S.C.R.D. BOOK 4775, PAGE 485

N/F MELISSA SPALDING
291 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 89C
S.C.R.D. BOOK 4223, PAGE 128

N/F CARL & SHARON MAMIGONIAN REV TST
297 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 89E
S.C.R.D. BOOK 4524, PAGE 529

N/F THEODORE S & CYNTHIA A HACKETT
309 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 89D
S.C.R.D. BOOK, 1853, PAGE 667

N/F SCOTT GAGNON REV TST
315 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 89
S.C.R.D. BOOK, 3757, PAGE 56

N/F JEREMIAH COMEFORD
PO BOX 1173
DOVER, NH 03821
TAX MAP M, LOT 83-15
S.C.R.D. BOOK, 4672, PAGE 543

ABUTTERS WITHIN 200' CONT.:

N/F WILLIAM E & PENNY E SCIRE
52 OVERLOOK DR
DOVER, NH 03820
TAX MAP M, LOT 83-7
S.C.R.D. BOOK 3391, PAGE 501

N/F PATRICIA E WELCH REV LIV TST
193 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 87
S.C.R.D. BOOK 4368, PAGE 103

N/F RYAN P & ALLISON N MONTECALVO
209 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 88-1
S.C.R.D. BOOK 3857, PAGE 562

N/F MATTHEW R KLEIN JULIE A BLEYENBERG
210 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 101-2
S.C.R.D. BOOK 3536, PAGE 731

N/F JAMES & KELLY MCMANUS
214 MIDDLE RD
DOVER, NH 30820
TAX MAP M, LOT 101-3
S.C.R.D. BOOK 4661, PAGE 354

N/F O'CONNELL FAMILY TRUST
232 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 101-A
S.C.R.D. BOOK 2012, PAGE 788

ABUTTERS WITHIN 200' CONT.:

N/F PAUL C & LEA ANN TUNG
238 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 102-1
S.C.R.D. BOOK 2184, PAGE 486

N/F TODD & JULIE M TODD REV TST
19 EMERY LN
DOVER, NH 03820
TAX MAP M, LOT 102-9
S.C.R.D. BOOK 4381, PAGE 145

N/F OCONNOR FAMILY REV TST
15 EMERY LN
DOVER, NH 03820
TAX MAP M, LOT 102-8
S.C.R.D. BOOK 4371, PAGE 679

N/F WILLIAM & PATRICIA MAXWELL REV TST
9 EMERY LN
DOVER, NH 03820
TAX MAP M, LOT 102-7
S.C.R.D. BOOK 4604, PAGE 179

N/F BEAUDOIN FAMILY TRUST
262 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 102-1
S.C.R.D. BOOK 2046, PAGE 105

ABUTTERS WITHIN 200' CONT.:

N/F GLENN & SUZANNE BERGER
212 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 101-1
S.C.R.D. BOOK 3450, PAGE 707

N/F PATRICIA LANGS
10 HAWTHORN RD
DOVER, NH 03820
TAX MAP M, LOT 92-A
S.C.R.D. BOOK 1019, PAGE 352

N/F JAMES & JOANNE MCKENNA REV TST
278 MIDDLE RD
DOVER, NH 03820
TAX MAP M, LOT 91-B
S.C.R.D. BOOK 4520, PAGE 683

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

NEIGHBORHOOD PLAN
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14141
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R–40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015.

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE SUBDIVISION YIELD USING TRADITIONAL R–40 ZONING DIMENSIONS.

ABUTTERS LIST:

(A) DRISCOLL, BRENDAN C.
277 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102
S.C.R.D. BOOK 4671, PAGE 957

(B) STRANGE, EDWARD S.
286 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 91
S.C.R.D. BOOK 2733, PAGE 123

(C) MCKENNA, JAMES F. & JOANNE E. TRUSTEES
MCKENNA, JAMES AND JOANNE REVOCABLE LIVING TRUST
278 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 91–B
S.C.R.D. BOOK 4520, PAGE 683

(D) MINEROWICZ, EDWARD & MARCIA
268 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–1
S.C.R.D. BOOK 2046, PAGE 105

(E) BEAUDOIN, KENNETH D. JR. & CATHLEEN TRUSTEES
BEAUDOIN FAMILY TRUST
262 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–2
S.C.R.D. BOOK 4109, PAGE 275

(F) MAXWELL, WILLIAM J. & PATRICIA L. TRUSTEES
MAXWELL, WILLIAM AND PATRICIA REVOCABLE TRUST
9 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102–7
S.C.R.D. BOOK 4604, PAGE 179

(G) O'CONNOR, JOHN E. & JANE R. CO–TRUSTEES
O'CONNOR FAMILY REVOCABLE TRUST OF 2016
15 EMERY LANE
DOVER, NH 03820–5011
TAX MAP M, LOT 102–8
S.C.R.D. BOOK 4371, PAGE 679

(H) BLACK, TODD R. & JULIE TRUSTEES
BLACK, TODD AND JULIE M. REVOCABLE TRUSTS
19 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102–9
S.C.R.D. BOOK 4381, PAGE 145

(I) TUNG, PAUL C. & LEA ANN
238 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–10
S.C.R.D. BOOK 2184, PAGE 486

(J) O'CONNELL, ELIAS & PAULINE TRUSTEES
O'CONNELL FAMILY TRUST
232 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 101–A
S.C.R.D BOOK 2012, PAGE 788

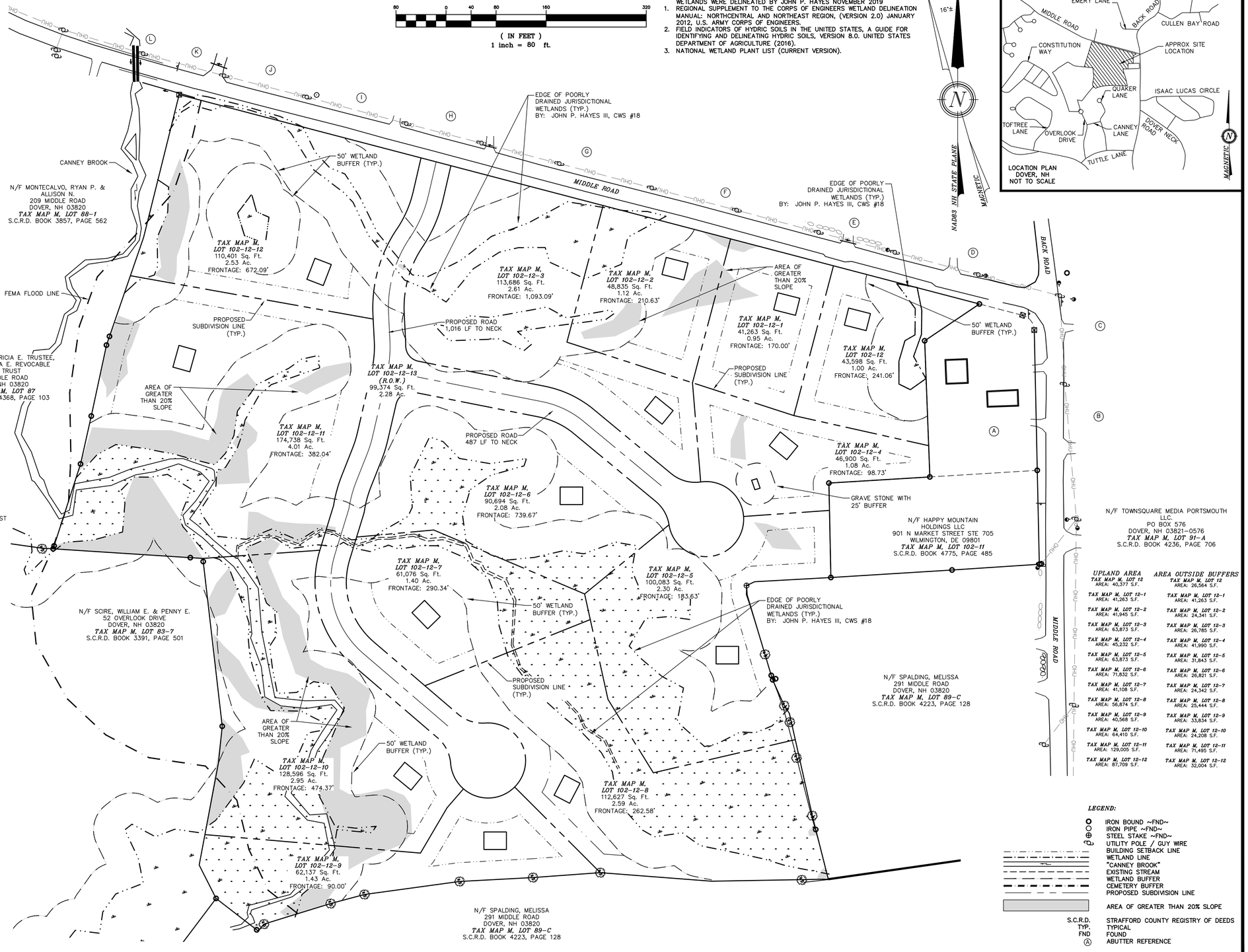
(K) MCMANUS, JAMES & KELLY
214 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 101–3
S.C.R.D. BOOK 4661, PAGE 354

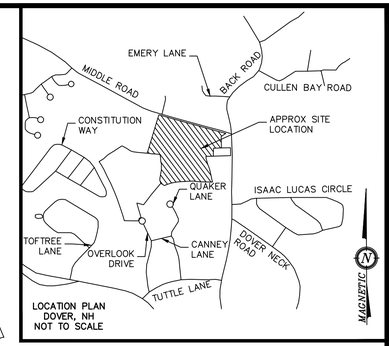
(L) KLEIN, MATTHEW R. & BLEYENBERG, JULIE A.
210 MIDDLE ROAD
DOVER, NH 03820–5001
TAX MAP M, LOT 101–2
S.C.R.D. BOOK 3536, PAGE 731

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80 ft.

WETLAND NOTES:

1. WETLANDS WERE DELINEATED BY JOHN P. HAYES NOVEMBER 2019
2. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
3. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
4. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).





LOCATION PLAN
DOVER, NH
NOT TO SCALE

LEGEND:

- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- UTILITY POLE / GUY WIRE
- BUILDING SETBACK LINE
- WETLAND LINE
- "CANNEY BROOK"
- EXISTING STREAM
- WETLAND BUFFER
- CEMETERY BUFFER
- PROPOSED SUBDIVISION LINE
- AREA OF GREATER THAN 20% SLOPE

S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP. TYPICAL
FND FOUND
(A) ABUTTER REFERENCE

UPLAND AREA

TAX MAP M, LOT 12	AREA: 40,377 S.F.
TAX MAP M, LOT 12–1	AREA: 41,263 S.F.
TAX MAP M, LOT 12–2	AREA: 41,945 S.F.
TAX MAP M, LOT 12–3	AREA: 63,873 S.F.
TAX MAP M, LOT 12–4	AREA: 45,232 S.F.
TAX MAP M, LOT 12–5	AREA: 63,873 S.F.
TAX MAP M, LOT 12–6	AREA: 71,832 S.F.
TAX MAP M, LOT 12–7	AREA: 61,108 S.F.
TAX MAP M, LOT 12–8	AREA: 56,874 S.F.
TAX MAP M, LOT 12–9	AREA: 40,568 S.F.
TAX MAP M, LOT 12–10	AREA: 64,410 S.F.
TAX MAP M, LOT 12–11	AREA: 129,005 S.F.
TAX MAP M, LOT 12–12	AREA: 87,709 S.F.

AREA OUTSIDE BUFFERS

TAX MAP M, LOT 12	AREA: 26,564 S.F.
TAX MAP M, LOT 12–1	AREA: 41,263 S.F.
TAX MAP M, LOT 12–2	AREA: 24,341 S.F.
TAX MAP M, LOT 12–3	AREA: 26,785 S.F.
TAX MAP M, LOT 12–4	AREA: 41,990 S.F.
TAX MAP M, LOT 12–5	AREA: 31,843 S.F.
TAX MAP M, LOT 12–6	AREA: 26,821 S.F.
TAX MAP M, LOT 12–7	AREA: 24,342 S.F.
TAX MAP M, LOT 12–8	AREA: 25,444 S.F.
TAX MAP M, LOT 12–9	AREA: 33,834 S.F.
TAX MAP M, LOT 12–10	AREA: 24,208 S.F.
TAX MAP M, LOT 12–11	AREA: 71,495 S.F.
TAX MAP M, LOT 12–12	AREA: 32,004 S.F.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

R–40 YIELD PLAN
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

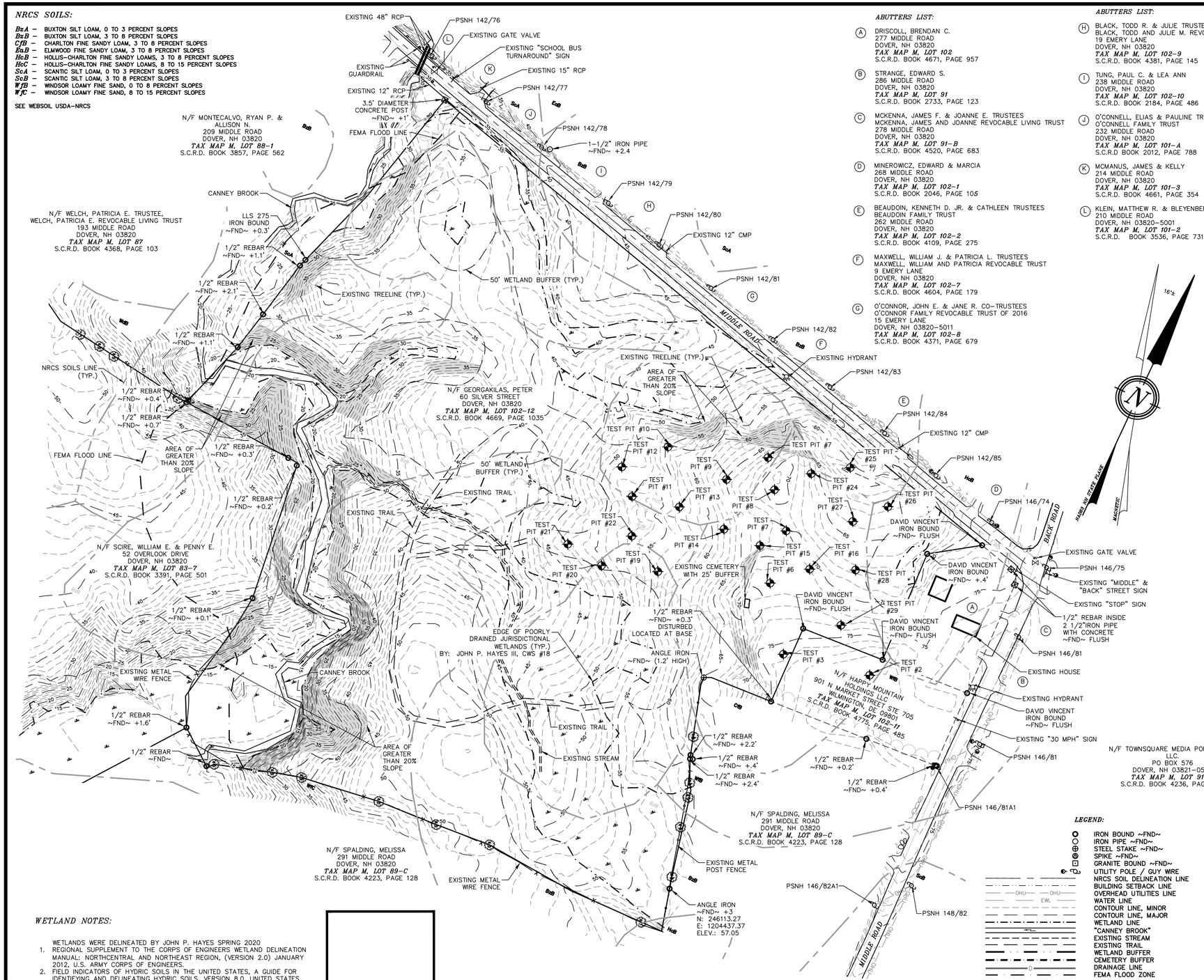
SCALE : 1 IN. EQUALS 80 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
NO. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NRCS SOILS:

BxA — BUXTON SILT LOAM, 0 TO 3 PERCENT SLOPES
BxB — BUXTON SILT LOAM, 3 TO 8 PERCENT SLOPES
CfB — CHARLTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
EaB — ELMWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
HcB — HOLLIS–CHARLTON FINE SANDY LOAMS, 3 TO 8 PERCENT SLOPES
HcC — HOLLIS–CHARLTON FINE SANDY LOAMS, 8 TO 15 PERCENT SLOPES
ScA — SCANTIC SILT LOAM, 0 TO 3 PERCENT SLOPES
ScB — SCANTIC SILT LOAM, 3 TO 8 PERCENT SLOPES
WfB — WINDSOR LOAMY FINE SAND, 0 TO 8 PERCENT SLOPES
WfC — WINDSOR LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES

SEE WEBSOIL USDA–NRCS



ABUTTERS LIST:

(A) DRISCOLL, BRENDAN C.
277 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102
S.C.R.D. BOOK 4671, PAGE 957

(B) STRANGE, EDWARD S.
286 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 91
S.C.R.D. BOOK 2733, PAGE 123

(C) MCKENNA, JAMES F. & JOANNE E. TRUSTEES
MCKENNA, JAMES AND JOANNE REVOCABLE LIVING TRUST
278 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 91–B
S.C.R.D. BOOK 4520, PAGE 683

(D) MINEROWICZ, EDWARD & MARCIA
268 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–1
S.C.R.D. BOOK 2046, PAGE 105

(E) BEAUDOIN, KENNETH D. JR. & CATHLEEN TRUSTEES
BEAUDOIN FAMILY TRUST
262 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–2
S.C.R.D. BOOK 4109, PAGE 275

(F) MAXWELL, WILLIAM J. & PATRICIA L. TRUSTEES
MAXWELL, WILLIAM AND PATRICIA REVOCABLE TRUST
9 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102–7
S.C.R.D. BOOK 4604, PAGE 179

(G) O'CONNOR, JOHN E. & JANE R. CO–TRUSTEES
O'CONNOR FAMILY REVOCABLE TRUST OF 2016
15 EMERY LANE
DOVER, NH 03820–5011
TAX MAP M, LOT 102–8
S.C.R.D. BOOK 4371, PAGE 679

ABUTTERS LIST:

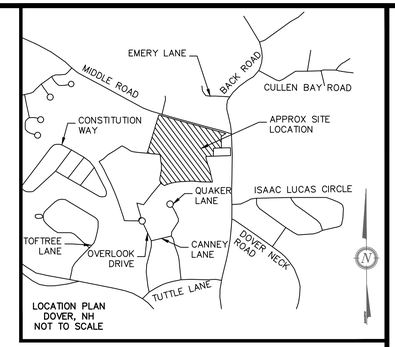
(H) BLACK, TODD R. & JULIE TRUSTEES
BLACK, TODD AND JULIE M. REVOCABLE TRUSTS
19 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102–9
S.C.R.D. BOOK 4381, PAGE 145

(I) TUNG, PAUL C. & LEA ANN
238 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102–10
S.C.R.D. BOOK 2184, PAGE 486

(J) O'CONNELL, ELIAS & PAULINE TRUSTEES
O'CONNELL FAMILY TRUST
232 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 101–A
S.C.R.D BOOK 2012, PAGE 788

(K) MCMANUS, JAMES & KELLY
214 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 101–3
S.C.R.D. BOOK 4661, PAGE 354

(L) KLEIN, MATTHEW R. & BLEYENBERG, JULIE A.
210 MIDDLE ROAD
DOVER, NH 03820–5001
TAX MAP M, LOT 101–2
S.C.R.D. BOOK 3536, PAGE 731



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R–40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015. THE FLOOD ZONE SHOWN ON THE FEMA MAPS IS INCORRECT BASED ON THE LOCATION OF CANNEY BROOK.

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

9.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON TAX MAP M, LOT 102–12 AS OF THE DATE OF THE SURVEY (SPRING/SUMMER 2020).

PLAN REFERENCES:

1.) PLAN OF LAND FOR FRANCIS & VALERIE CHENEVERT, MIDDLE ROAD
DOVER, N.H.
BY: KENNETH E. MOORE
DATED: MAY 1989
S.C.R.D. PLAN #38–48

2.) PLAN OF LAND PREPARED FOR WILLIAM P. TUTTLE, III TAX MAP M, LOT 83
TUTTLE LANE, QUAKER LANE AND DOVER POINT ROAD, DOVER, NH
BY: MCENEANEY SURVEY ASSOCIATES INC.
DATED: NOVEMBER 2001
S.C.R.D.: PLAN #63–95

3.) LOT LINE ADJUSTMENT PLAN PREPARED FOR STABILE HOMES AT OVERLOOK, INC., TAX MAP M, LOT 83–7 & 83–15, QUAKER LANE, DOVER, NH
BY:MCENEANEY SURVEY ASSOCIATES INC.
DATED: FEBRUARY 2002
S.C.R.D.: PLAN #65–19

4.) MINOR SUBDIVISION PLAN OF PROPERTY IN THE NAME OF BALERIA A. CHENEVERT IRREVOCABLE TRUST, TAX MAP M, LOT 102, 277 MIDDLE ROAD, DOVER, NH
BY: DAVID VINCENT
DATED:
S.C.R.D.: PLAN DOCUMENT #11895

5.) SUBDIVISION OF LAND PREPARED FOR MICHAEL L. CROTTO & ELIXABETH J. DALEY. 201 MIDDLE ROAD, DOVER, NH
BY: POHOPEK LAND SURVEYORS & SEPTIC SYSTEM DESIGN LLC.
DATED: MARCH 2009
S.C.R.D.: PLAN #97–25

LEGEND:

- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- SPIKE ~FND~
- GRANITE BOUND ~FND~
- UTILITY POLE / GUY WIRE
- NRCS SOIL DELINEATION LINE
- BUILDING SETBACK LINE
- OVERHEAD UTILITIES LINE
- WATER LINE
- CONTOUR LINE, MINOR
- CONTOUR LINE, MAJOR
- WETLAND LINE
- "CANNEY BROOK"
- EXISTING STREAM
- EXISTING TRAIL
- WETLAND BUFFER
- CEMETERY BUFFER
- DRAINAGE LINE
- FEMA FLOOD ZONE
- AREA OF GREATER THAN 20% SLOPE
- NRCS SOIL LABEL
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. TYPICAL
- FND FOUND
- (A) ABUTTER REFERENCE

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES SPRING 2020

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES III, CWS #18

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

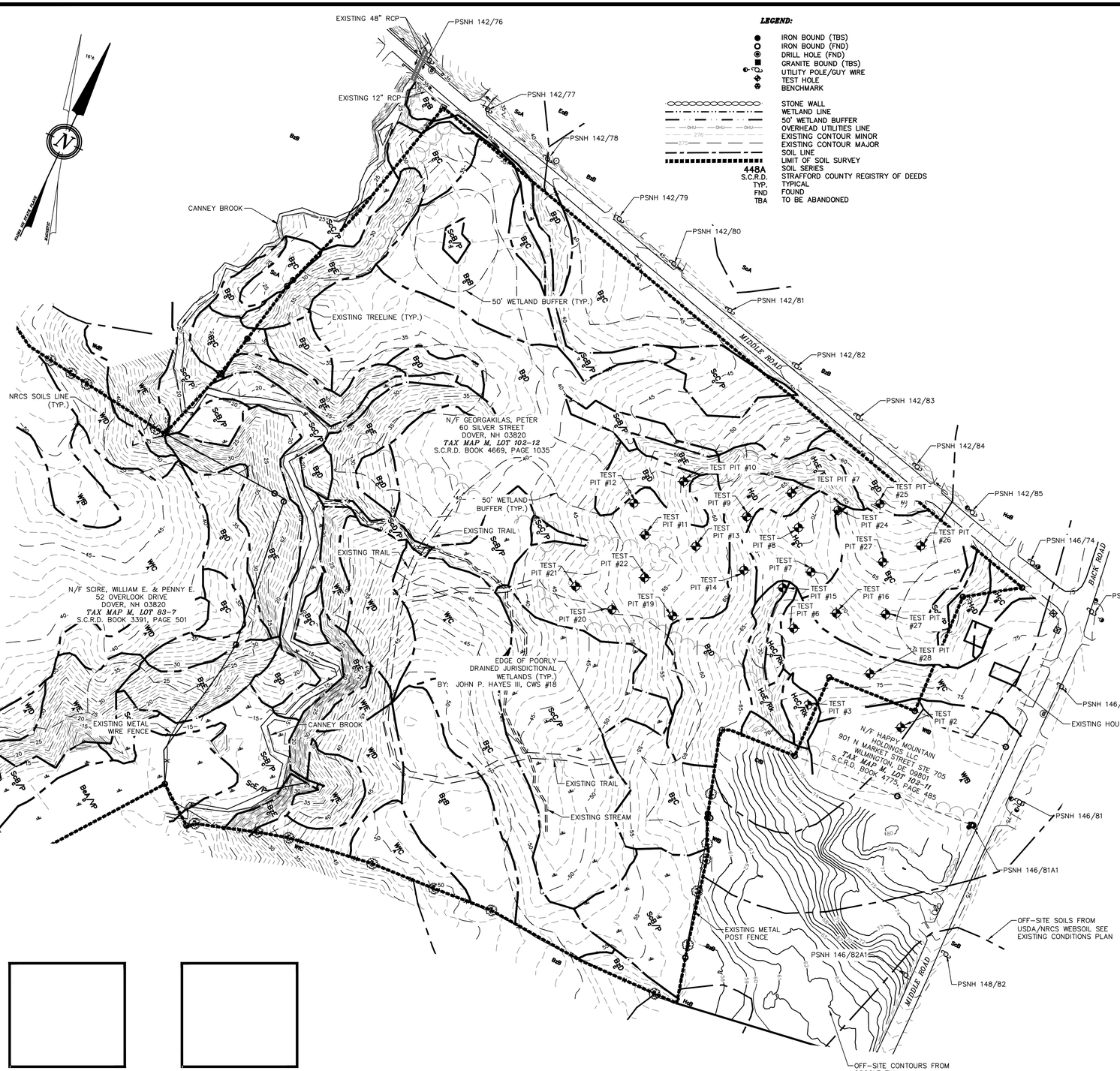
EXISTING CONDITIONS PLAN
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

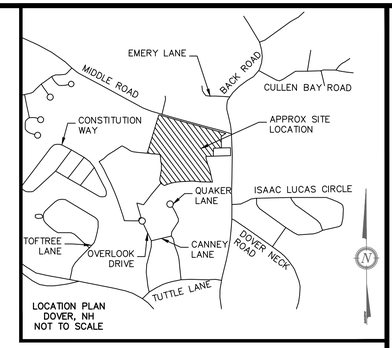
STATE OF NEW HAMPSHIRE — No. 805 — KENNETH A. BERRY — LICENSED LAND SURVEYOR — SIGNATURE

SHEET 3 OF 30



LEGEND:

- IRON BOUND (TBS)
- IRON BOUND (FND)
- DRILL HOLE (FND)
- GRANITE BOUND (TBS)
- UTILITY POLE/GUY WIRE
- TEST HOLE
- BENCHMARK
- STONE WALL
- WETLAND LINE
- 50' WETLAND BUFFER
- OVERHEAD UTILITIES LINE
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A — SOIL SERIES
- S.C.R.D. — STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. — TYPICAL
- FND — FOUND
- TBA — TO BE ABANDONED



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW SITE SPECIFIC SOILS MAP ON TAX MAP M, LOT 102-12 AS OF THE DATE OF THE SURVEY. SEE DETAIL SHEET AND SOILS REPORT FOR MORE INFORMATION.

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
BzB	BOXFORD	C
BzC	BOXFORD	C
BzD	BOXFORD	C
BzE	BOXFORD	C
ScB/P	SCITICO (POORLY DRAINED)	C
ScC/P	SCITICO (POORLY DRAINED)	C
ScD/P	SCITICO (POORLY DRAINED)	C
ScE/P	SCITICO (POORLY DRAINED)	C
HcC	HOLLIS-CHARLTON COMPLEX (VERY ROCKY)	B
HcD	HOLLIS-CHARLTON COMPLEX (VERY ROCKY)	B
HcC/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcD/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcE/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
BeA/VP	MAYBID (VERY POORLY DRAINED)	D
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfC	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfD	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfE	WINDSOR VARIANT (CLAY SUBSOIL)	A

SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD & P = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

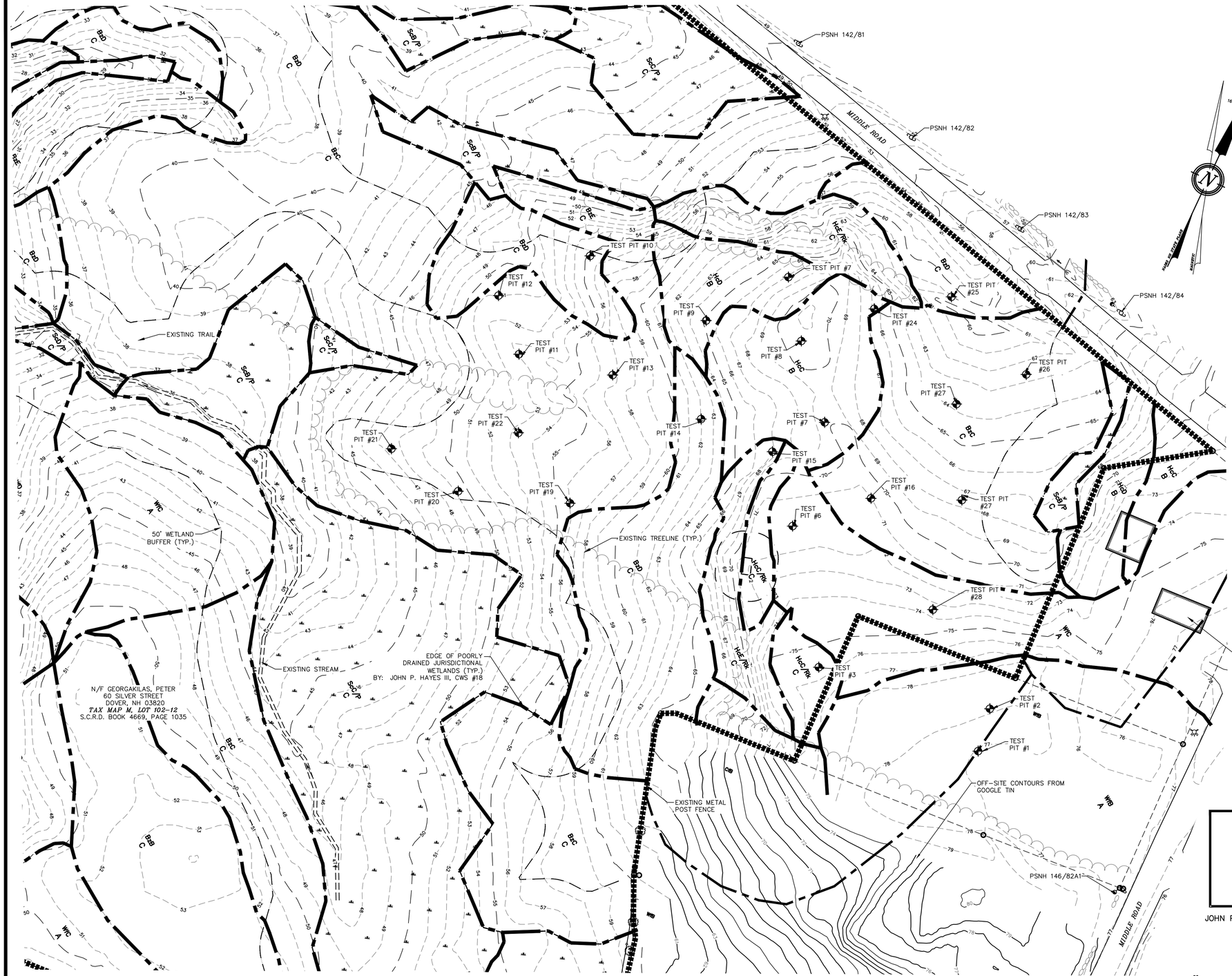
SITE SPECIFIC SOILS MAP OVERVIEW

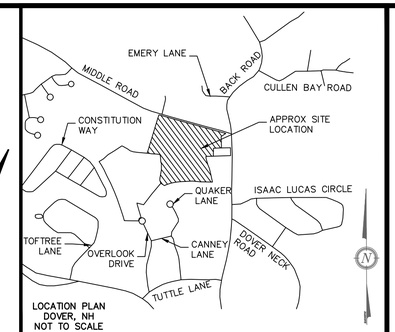
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER





LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE DETAIL SITE SPECIFIC SOILS MAP ON TAX MAP M, LOT 102-12 AS OF THE DATE OF THE SURVEY. SEE DETAIL SHEET AND SOILS REPORT FOR MORE INFORMATION.

LEGEND:

- IRON BOUND (TBS)
- IRON BOUND (FND)
- DRILL HOLE (FND)
- GRANITE BOUND (TBS)
- UTILITY POLE/GUY WIRE
- TEST HOLE
- BENCHMARK
- STONE WALL
- WETLAND LINE
- 50' WETLAND BUFFER
- OHU — OVERHEAD UTILITIES LINE
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A SOIL SERIES
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. TYPICAL
- FND FOUND
- TBA TO BE ABANDONED

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SITE SPECIFIC SOILS MAP DETAIL
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14423
LICENSED PROFESSIONAL ENGINEER

TEST PIT #1
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–22" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–26" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
26–60" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED: 60"
E.S.H.W.T.: 36"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #2
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24–60" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED: 49"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A
PERC RATE: 10 MIN./IN.

TEST PIT #3
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
14–30" 10YR 5/4 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, BLOCKY, FRIABLE
TERMINATED: 30"
E.S.H.W.T.: NONE
RESTRICTIVE LAYER: N/A
REFUSAL: 30"
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #4
0–8" 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 10YR 5/6 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18–30" 2.5Y 6/3 LIGHT YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
30–42" 2.5Y 6/2 LIGHT BROWNISH GRAY, LOAMY SAND, GRANULAR, FRIABLE
42–72" 10YR 5/8 LIGHT BROWNISH GRAY, STRATIFIED SAND, GRANULAR, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 30"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #5
0–8" 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18–24" 2.5Y 6/3 LIGHT YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE,
24–38" 2.5Y 6/2 LIGHT BROWNISH GRAY, LOAMY FINE SAND, GRANULAR, FRIABLE
38–68" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LOAM, BLOCKY, FIRM

TERMINATED: 68"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: 38"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 10 MIN./IN.

TEST PIT #6
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
12–18" 10YR 5/6 YELLOWISH BROWN, LOAMY SAND, GRANULAR, BLOCKY, FRIABLE

TERMINATED: 18"
E.S.H.W.T.: NONE
RESTRICTIVE LAYER: 18"
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #7
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–32" 2.5Y 5/6 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/4 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #8
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32–74" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 74"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: @ 22"
REFUSAL: 60"
GROUND WATER OBSERVED: 30"
PERC RATE: 8 MIN./IN.

TEST PIT #9
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–32" 2.5Y 5/4 YELLOWISH BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/2 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #10
0–8 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–13" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
13–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 13"
RESTRICTIVE LAYER: 13"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 20 MIN./IN.

TEST PIT #11
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–20" 2.5Y 5/3 YELLOWISH BROWN, SILT CLAY LOAM, BLOCKY, FIRM
20–72" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 12:
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 20 MIN./IN.

TEST PIT #12
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM GRANULAR, FRIABLE
12–22" 2.5Y 5/3 GRAYISH BROWN, SAND, SINGLE GRAIN, LOOSE
22–42" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 42"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 42"
REFUSAL: 42"
GROUND WATER OBSERVED: N/A
PERC RATE: 20 MIN./IN.

TEST PIT #13
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–24" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LOAM, BLOCKY, FIRM
24–64" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #14
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–16" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16–24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24–70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SAND, MASSIVE, FRIABLE

TERMINATED: 70"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 16 MIN./IN.

TEST PIT #15
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/4 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 8 MIN./IN.

TEST PIT #16
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LAOM, GRANULAR, FRIABLE
18–52" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 52"
E.S.H.W.T.: 18"
RESTRICTIVE LAYER: 18"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A
PERC RATE: 12 MIN./IN.

TEST PIT #17
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12–15" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
15–72" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 15"
RESTRICTIVE LAYER: 15"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 16 MIN./IN.

TEST PIT #18
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–24" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
24–64" 5Y 5/3 OLIVE, FINE SILTY CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: @ 14"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A
PERC RATE: 16 MIN./IN.

TEST PIT #19
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–13" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
13–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 13"
RESTRICTIVE LAYER: 13"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #20
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
18–60" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 60"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 12"
REFUSAL: N/A
GROUND WATER OBSERVED: 38"
PERC RATE: 22 MIN./IN.

TEST PIT #21
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–60" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 60"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: 40"
PERC RATE: 24 MIN./IN.

TEST PIT #22
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: 38"
PERC RATE: 24 MIN./IN.

TEST PIT #23
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–16" 10YR 4/4 DARK YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
16–24" 10YR 5/6 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, BLOCKY, FRIABLE

TERMINATED: 24"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #24
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–16" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
16–20" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
20–74" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 74"
E.S.H.W.T.: 20"
RESTRICTIVE LAYER: 20"
REFUSAL: 74"
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #25
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
18–64" 2.5Y 6/2 GRAYISH BROWN, SILT CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 18"
RESTRICTIVE LAYER: 18"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 18 MIN./IN.

TEST PIT #26
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–20" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
20–38" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 38"
E.S.H.W.T.: 20"
RESTRICTIVE LAYER: 20"
REFUSAL: 38"
GROUND WATER OBSERVED: N/A
PERC RATE: 22 MIN./IN.

TEST PIT #27
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–15" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
15–77" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 77"
E.S.H.W.T.: 15"
RESTRICTIVE LAYER: 15"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
PERC RATE: 20 MIN./IN.

TEST PIT #27
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE FRIABLE
32–52" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE FRIABLE

TERMINATED: 52"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: 52"
PERC RATE: 8 MIN./IN.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

TEST PIT DATA
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : N/A
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 805
KENNETH A BERRY
SIGNATURE

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

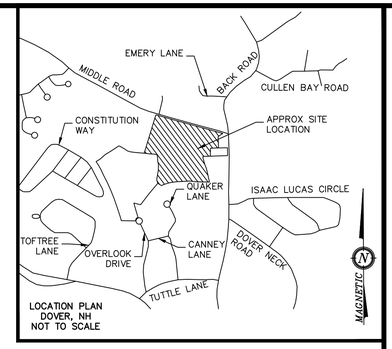
JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES SPRING 2020
1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

CONDITIONAL USE PERMITS:
CONSTRUCTION WITHIN THE 50' BUFFER (5,808 Sq. Ft. PROPOSED): PENDING

WAIVER REQUESTS:
ROAD LESS THAN 500' TO THE NECK (475' PROPOSED): PENDING
ROAD GRADE STEEPER THAN 3% WITHIN 75' OF AN INTERSECTION: PENDING



LOCATION PLAN
DOVER, NH
NOT TO SCALE

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OPEN SPACE CONDOMINIUM SUBDIVISION NORTH
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE No. 805 KENNETH A. BERRY LICENSED LAND SURVEYOR
SIGNATURE

SHEET 7 OF 30

ABUTTERS LIST:

(A) DRISCOLL, BRENDAN C.
277 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102
S.C.R.D. BOOK 4671, PAGE 957

(B) MINEROWICZ, EDWARD & MARCIA
268 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102-1
S.C.R.D. BOOK 2046, PAGE 105

(C) BEAUDOIN, KENNETH D. JR. & CATHLEEN TRUSTEES
BEAUDOIN FAMILY TRUST
262 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102-2
S.C.R.D. BOOK 4109, PAGE 275

(D) MAXWELL, WILLIAM J. & PATRICIA L. TRUSTEES
MAXWELL, WILLIAM AND PATRICIA REVOCABLE TRUST
9 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102-7
S.C.R.D. BOOK 4604, PAGE 179

(E) O'CONNOR, JOHN E. & JANE R. CO-TRUSTEES
O'CONNOR FAMILY REVOCABLE TRUST OF 2016
15 EMERY LANE
DOVER, NH 03820-5011
TAX MAP M, LOT 102-8
S.C.R.D. BOOK 4371, PAGE 679

ABUTTERS LIST:

(F) BLACK, TODD R. & JULIE TRUSTEES
BLACK, TODD AND JULIE M. REVOCABLE TRUSTS
19 EMERY LANE
DOVER, NH 03820
TAX MAP M, LOT 102-9
S.C.R.D. BOOK 4381, PAGE 145

(G) TUNG, PAUL C. & LEA ANN
238 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 102-10
S.C.R.D. BOOK 2184, PAGE 486

(H) O'CONNELL, ELIAS & PAULINE TRUSTEES
O'CONNELL FAMILY TRUST
232 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 101-A
S.C.R.D BOOK 2012, PAGE 788

OPEN SPACE:

LOT 102-12 AREA = 1,033,159 SF

PROPOSED GRADING OUTSIDE RIGHT OF WAY = 23,000 SF

OPEN SPACE = 1,010,159 SF (81.2 % OF OF SUBJECT PARCEL)

UPLAND OPEN SPACE = 757,539 SF (75.0 % OF OPEN SPACE)

REQUIRED OPEN SPACE = 622,004 SF (50.0 %)
PROVIDED OPEN SPACE = 1,010,159 (81.2 %)

REQUIRED UPLAND OPEN SPACE = 311,002 SF (50.0 % OF REQUIRED OPEN SPACE)
PROVIDED UPLAND OPEN SPACE = 757,539 (75.0 % OF PROVIDED OPEN SPACE)

LEGEND:

- 3/4: REBAR W/ ID CAP ~TBS~
- IRON BOUND ~FND~
- STEEL STAKE ~FND~
- UTILITY POLE / GUY WIRE
- BUILDING SETBACK LINE
- WETLAND LINE
- "CANNEY BROOK"
- EXISTING STREAM
- WETLAND BUFFER
- FOMETERY BUFFER
- PROPOSED LCA LINE
- MATCH LINE

- LCA LIMITED COMMON AREA
- TBS TO BE SET
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. TYPICAL
- FND FOUND
- (A) ABUTTER REFERENCE
- MATCH POINT

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R-40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%
OPEN SPACE SUBDIVISION
STREET SIDES OF UNITS ~ 20'
DISTANCE BETWEEN UNITS ~ 30'
100' FRONT BUFFER
50' PERIMETER BUFFER
100' ABUTTING STRUCTURE SETBACK

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015. THE FLOOD ZONE SHOWN ON THE FEMA MAPS IS INCORRECT BASED ON THE LOCATION OF CANNEY BROOK.

NOTES CONTINUED:

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE NORTHERN DETAIL OF THE OPEN SPACE CONDOMINIUM SUBDIVISION. THE PROPOSED LOTS ARE PROPOSED TO BE LIMITED COMMON AREA AND ARE NOT FEE SIMPLE LOTS.

10.) THIS IS A 30 SHEET PLAN SET WITH SHEETS 7 & 8 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS. THE REST OF THE PLAN SET WILL BE ON FILE AT THE CITY OF DOVER OR THIS OFFICE. FOR MORE INFORMATION ON THIS SUBDIVISION, CONTACT THE CITY OF DOVER PLANNING DEPARTMENT, 288 CENTRAL AVENUE, DOVER, NH 03820, (603) 516-6008.

11.) ALL LOTS WILL SERVICED BY CITY WATER AND ON SITE SEWAGE DISPOSAL SYSTEMS.

12.) SEE SHEET 8 FOR ALL OTHER COMMON DOVER SUBDIVISION NOTES.

13.) A CONDITIONAL USE PERMIT IS REQUIRED FOR DISTURBANCE WITHIN THE WETLAND BUFFER.

NOTES CONTINUED:

14.) WAIVERS ARE REQUIRED FOR ROAD GRADE AT INTERSECTION AND ROAD LENGTH TO CUL-DE-SAC.

15.) WETLAND BUFFER SIGNS ARE TO BE INSTALLED ALONG THE BUFFER WHERE POSSIBLE ENCROACHMENT MAY OCCUR.

16.) HAYDEN DRIVE IS PROPOSED TO BE PRIVATE. REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES.

SUBDIVISION PLAN LINE TABLE

LINE #	BEARING	DISTANCE
L1	N57°49'14"W	34.29'
L2	N18°56'48"E	41.36'
L3	N82°43'52"W	46.12'
L4	N82°43'52"W	34.19'
L5	N07°16'08"E	35.00'
L6	S73°38'16"W	31.68'
L7	S18°56'48"W	28.41'
L8	N25°17'55"E	23.62'

APPROVED DOVER

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE CITY OF DOVER, N.H. 1:10,000

KENNETH A. BERRY LLS 805 DATE

PSNH 142/77 (H)
PSNH 142/78
1-1/2" IRON PIPE ~FND~ +2.4
PSNH 142/79 (G)
PSNH 142/80
PSNH 142/81 (F)
PSNH 142/82 (E)
PSNH 142/84 (D)
PSNH 142/85 (C)
PSNH 146/74 (B)
PSNH 146/75 (A)
PSNH 146/81
PSNH 146/81A1
DAVID VINCENT IRON BOUND ~FND~ FLUSH
1/2" REBAR INSIDE 2 1/2"IRON PIPE WITH CONCRETE ~FND~ FLUSH
3/4" REBAR W/ ID CAP ~TBS~
3.5' DIAMETER CONCRETE POST ~FND~ +1'
1/2" REBAR ~FND~ +2.1'
1/2" REBAR ~FND~ +1.1'
LLS 275 IRON BOUND ~FND~ +0.3'
1/2" REBAR ~FND~ +1.1'
1/2" REBAR ~FND~ +1.1'
1/2" REBAR ~FND~ +0.4'
1/2" REBAR ~FND~ +0.3'
1/2" REBAR ~FND~ +0.2'
1/2" REBAR ~FND~ +0.7'
1/2" REBAR ~FND~ +0.3'
1/2" REBAR ~FND~ +0.2'
1/2" REBAR ~FND~ +0.4'
ANGLE IRON ~FND~ (1.2' HIGH)
MATCH POINT (TYP.)
MATCH LINE SHEET 8
CANNEY BROOK
EDGE OF POORLY DRAINED JURISDICTIONAL WETLANDS (TYP.) BY: JOHN P. HAYES III, CWS #18
50' WETLAND BUFFER (TYP.)
PROPOSED LCA LINE (TYP.)
MIDDLE ROAD
BACK ROAD
HAYDEN DRIVE (PVT.)
COMMON AREA
OPEN SPACE CONDOMINIUM SUBDIVISION NORTH
LAND OF PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12
N/F MONTECALVO, RYAN P. & ALLISON N.
209 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 88-1
S.C.R.D. BOOK 3857, PAGE 562
N/F WELCH, PATRICIA E. TRUSTEE, WELCH, PATRICIA E. REVOCABLE LIVING TRUST
193 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 87
S.C.R.D. BOOK 4368, PAGE 103
N/F HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET STREET STE 705
WILMINGTON, DE 09801
TAX MAP M, LOT 102-11
S.C.R.D. BOOK 4775, PAGE 485
N/F SPALDING, MELISSA
291 MIDDLE ROAD
DOVER, NH 03820
TAX MAP M, LOT 89-C
S.C.R.D. BOOK 4223, PAGE 128
OPEN SPACE COMMON AREA TAX MAP M, LOT 102-12 1,033,159 Sq. Ft. 23.72 Ac.
TAX MAP M, LOT 102-14 52,835 Sq. Ft. 1.21 Ac.
TAX MAP M, LOT 102-10 10,351 Sq. Ft. 0.24 Ac.
TAX MAP M, LOT 102-19 9,023 Sq. Ft. 0.21 Ac.
TAX MAP M, LOT 102-18 9,187 Sq. Ft. 0.21 Ac.
TAX MAP M, LOT 102-11 8,932 Sq. Ft. 0.21 Ac.
TAX MAP M, LOT 102-12-1 15,345 Sq. Ft. 0.35 Ac.
TAX MAP M, LOT 102-12-2 10,925 Sq. Ft. 0.25 Ac.
TAX MAP M, LOT 102-12-3 9,356 Sq. Ft. 0.22 Ac.
TAX MAP M, LOT 102-12-4 14,169 Sq. Ft. 0.33 Ac.
TAX MAP M, LOT 102-12-5 16,869 Sq. Ft. 0.39 Ac.
TAX MAP M, LOT 102-12-6 12,231 Sq. Ft. 0.28 Ac.
TAX MAP M, LOT 102-12-7 15,271 Sq. Ft. 0.35 Ac.
TAX MAP M, LOT 102-12-8 13,509 Sq. Ft. 0.31 Ac.
TAX MAP M, LOT 102-12-9 12,828 Sq. Ft. 0.29 Ac.

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R–40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%
OPEN SPACE SUBDIVISION
STREET SIDES OF UNITS ~ 20'
DISTANCE BETWEEN UNITS ~ 30'
100' FRONT BUFFER
50' PERIMETER BUFFER
100' ABUTTING STRUCTURE SETBACK

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015. THE FLOOD ZONE SHOWN ON THE FEMA MAPS IS INCORRECT BASED ON THE LOCATION OF CANNEY BROOK.

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE SOUTHERN DETAIL OF THE OPEN SPACE CONDOMINIUM SUBDIVISION. THE PROPOSED LOTS ARE PROPOSED TO BE LIMITED COMMON AREA AND ARE NOT FEE SIMPLE LOTS.

10.) THIS IS A 30 SHEET PLAN SET WITH SHEETS 7 & 8 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS. THE REST OF THE PLAN SET WILL BE ON FILE AT THE CITY OF DOVER OR THIS OFFICE. FOR MORE INFORMATION ON THIS SUBDIVISION, CONTACT THE CITY OF DOVER PLANNING DEPARTMENT, 288 CENTRAL AVENUE, DOVER, NH 03820, (603) 516–6008.

11.) ALL LOTS WILL SERVICED BY CITY WATER AND ON SITE SEWAGE DISPOSAL SYSTEMS.

NOTES CONTINUED:

12.) A CONDITIONAL USE PERMIT IS REQUIRED FOR DISTURBANCE WITHIN THE WETLAND BUFFER.

13.) WAIVERS ARE REQUIRED FOR ROAD GRADE AT INTERSECTION AND ROAD LENGTH TO CUL–DE–SAC.

14.) WETLAND BUFFER SIGNS ARE TO BE INSTALLED ALONG THE BUFFER WHERE POSSIBLE ENCROACHMENT MAY OCCUR.

15.) HAYDEN DRIVE IS PROPOSED TO BE PRIVATE. REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES.

16.) CALL DIG SAFE PRIOR TO BEGINNING WORK (1–888–344–7233)

17.) ALL CONSTRUCTION SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONSTRUCTION SHALL ALSO CONFORM TO THE CITY OF DOVER POLICIES AND PRACTICES.

18.) WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

19.) LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT: NONE

20.) THE SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY–FRIDAY 7AM–6PM, WITH NO SATURDAY & SUNDAY HOURS. HOURS OF CONSTRUCTION SHALL BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. THE PROJECT SIGN SHALL INDICATE THE ROAD IS PROPOSED TO BE PRIVATE AND SHALL RECEIVE NO CITY SERVICES.

21.) THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED. SITE PLANS SHALL SHOW ANY EASEMENTS FOR THESE SERVICES.

22.) FROM GROUND BREAKING THE SITE SHALL REMAIN ACCESSIBLE YEAR ROUND IN ALL WEATHER CONDITIONS.

NOTES CONTINUED:

23.) 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. CONTRACTOR IS RESPONSIBLE FOR ACCURATE LOCATION OF ALL BURIED UTILITIES.

24.) THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED. SUBDIVISION PLANS SHALL SHOW ANY EASEMENTS FOR THESE SERVICES.

25.) THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR ANY EARTH DISTURBING ACTIVITY OCCURS. PLEASE NOTE THAT NO WORK IS PROPOSED ADJACENT TOO OR WITHIN THE 50' WETLAND BUFFER.

26.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS. NOT APPLICABLE.

27.) 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. NOT APPLICABLE.

28.) 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.

29.) THE PROPOSED USE FOR THE SITE IS 13 NEW SINGLE FAMILY HOMES.

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

31.) ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

32.) ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

33.) APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.

NOTES CONTINUED:

34.) 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.

35.) FIRE DEPARTMENT ACCESS ROADS SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.

36.) NO ROADWAY WITH PRIVATE UTILITY EASEMENTS SHALL BE ACCEPTED AS A PUBLIC ROAD BY THE CITY UNLESS THE EASEMENTS ARE EXPUNGED PRIOR TO THE TRANSFER OF LAND TO THE CITY. LICENSE AGREEMENTS FOR ANY AND ALL PRIVATE UTILITIES WITHIN THE RIGHT OF WAY MAY BE GRANTED BY THE CITY UPON ACCEPTANCE OF THE UNENCUMBERED ROADWAY CONSISTENT WITH APPLICABLE STATE LAW.

NRCS SOILS:

BzA – **BUXTON SILT LOAM, 0 TO 3 PERCENT SLOPES**
CfB – **CHARLTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES**
ElwB – **ELMWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES**
HcB – **HOLLIS–CHARLTON FINE SANDY LOAMS, 3 TO 8 PERCENT SLOPES**
HoC – **HOLLIS–CHARLTON FINE SANDY LOAMS, 8 TO 15 PERCENT SLOPES**
ScA – **SCANTIC SILT LOAM, 0 TO 3 PERCENT SLOPES**
ScB – **SCANTIC SILT LOAM, 3 TO 8 PERCENT SLOPES**
WfB – **WINDSOR LOAMY FINE SAND, 0 TO 8 PERCENT SLOPES**
WfC – **WINDSOR LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES**

SEE WEBSOIL USDA–NRCS

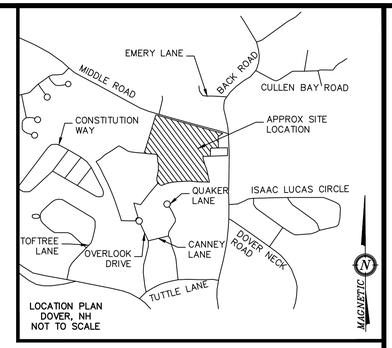
CONDITIONAL USE PERMITS:
CONSTRUCTION WITHIN THE 50' BUFFER (5,808 Sq. Ft. PROPOSED): PENDING

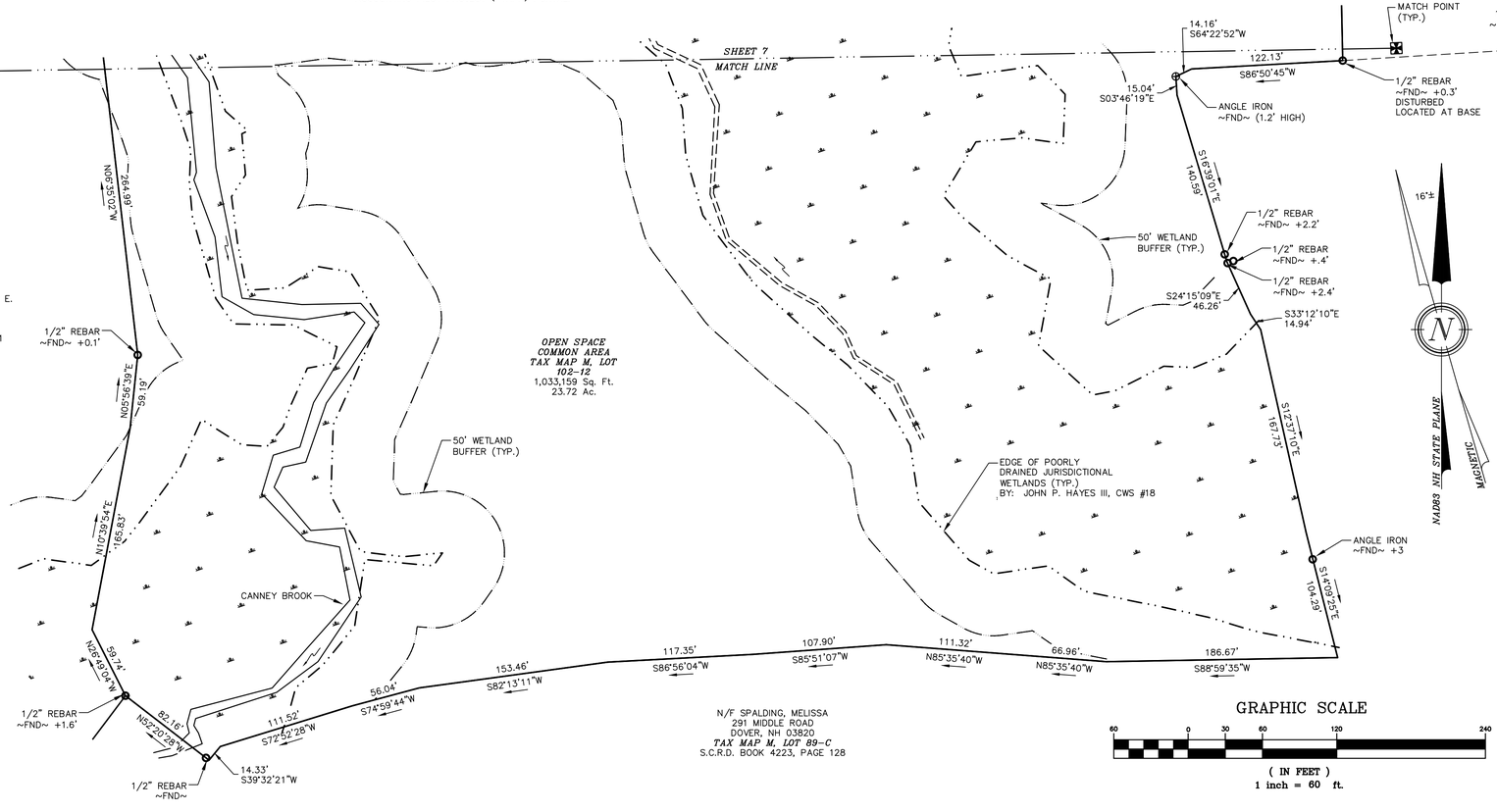
WAIVER REQUESTS:
ROAD LESS THAN 500' TO THE NECK (475' PROPOSED): PENDING
ROAD GRADE STEEPER THAN 3% WITHIN 75' OF AN INTERSECTION: PENDING

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES SPRING 2020
1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES III, CWS #18





LEGEND:

- 3/4: REBAR W/ ID CAP ~TBS~
- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- UTILITY POLE / GUY WIRE
- BUILDING SETBACK LINE
- WETLAND LINE
- "CANNEY BROOK"
- EXISTING STREAM
- WETLAND BUFFER
- CEMETERY BUFFER
- PROPOSED LCA LINE
- MATCH LINE

LCA – LIMITED COMMON AREA
TBS – TO BE SET
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
TYP. – TYPICAL
FND – FOUND
(A) – ABUTTER REFERENCE
MATCH POINT

PLAN REFERENCES:

1.) PLAN OF LAND FOR FRANCIS & VALERIE CHENEVERT, MIDDLE ROAD
DOVER, N.H.
BY: KENNETH E. MOORE
DATED: MAY 1989
S.C.R.D. PLAN #38–48

2.) PLAN OF LAND PREPARED FOR WILLIAM P. TUTTLE, III TAX MAP M, LOT 83
TUTTLE LANE, QUAKER LANE AND DOVER POINT ROAD, DOVER, NH
BY: MCENEANEY SURVEY ASSOCIATES INC.
DATED: NOVEMBER 2001
S.C.R.D.: PLAN #63–95

3.) LOT LINE ADJUSTMENT PLAN PREPARED FOR STABILE HOMES AT OVERLOOK, INC., TAX MAP M, LOT 83–7 & 83–15, QUAKER LANE, DOVER, NH
BY:MCENEANEY SURVEY ASSOCIATES INC.
DATED: FEBRUARY 2002
S.C.R.D.: PLAN #65–19

4.) MINOR SUBDIVISION PLAN OF PROPERTY IN THE NAME OF BALERIA A. CHENEVERT IRREVOCABLE TRUST, TAX MAP M, LOT 102, 277 MIDDLE ROAD, DOVER, NH
BY: DAVID VINCENT
DATED:
S.C.R.D.: PLAN DOCUMENT #11895

5.) SUBDIVISION OF LAND PREPARED FOR MICHAEL L. CROTTO & ELIXABETH J. DALEY. 201 MIDDLE ROAD, DOVER, NH
BY: POHOPEK LAND SURVEYORS & SEPTIC SYSTEM DESIGN LLC.
DATED: MARCH 2009
S.C.R.D.: PLAN #97–25

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

APPROVED DOVER

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE CITY OD DOVER, N.H. 1:10,000

KENNETH A. BERRY LLS 805 DATE

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OPEN SPACE CONDOMINIUM SUBDIVISION NORTH
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE No. 805 KENNETH A. BERRY LICENSED LAND SURVEYOR
SIGNATURE

GRAPHIC SCALE

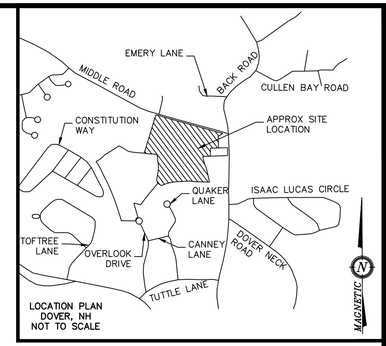
60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

JOHN P. HAYES III, CWS #18

WETLAND NOTES:

1. WETLANDS WERE DELINEATED BY JOHN P. HAYES SPRING 2020
2. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
3. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
4. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).



LOCATION PLAN
DOVER, NH
NOT TO SCALE

16°± MAGNETIC

NAD83 NH STATE PLANE

PSNH 142/77
PSNH 142/78
1-1/2" IRON PIPE ~FND~ +2.4
3.5' DIAMETER CONCRETE POST ~FND~ +1'
PSNH 142/79
PSNH 142/80
PSNH 142/81
PSNH 142/82
PSNH 142/84
PSNH 142/85
PSNH 146/74
PSNH 146/75
PSNH 146/81
PSNH 146/81A1
50' WETLAND BUFFER (TYP.)
FEMA FLOOD LINE
EDGE OF POORLY DRAINED JURISDICTIONAL WETLANDS (TYP.) BY: JOHN P. HAYES III, CWS #18
3/4" REBAR W/ ID CAP ~TBS~
PROPOSED LCA LINE (TYP.)
TAX MAP M, LOT 102-12
LCA TAX MAP M, LOT 102-12-9
LCA TAX MAP M, LOT 102-12-10
LCA TAX MAP M, LOT 102-12-13
LCA TAX MAP M, LOT 102-12-1
LCA TAX MAP M, LOT 102-12-12
LCA TAX MAP M, LOT 102-12-14
LCA TAX MAP M, LOT 102-12-11
LCA TAX MAP M, LOT 102-12-8
LCA TAX MAP M, LOT 102-12-7
LCA TAX MAP M, LOT 102-12-6
LCA TAX MAP M, LOT 102-12-5
LCA TAX MAP M, LOT 102-12-4
LCA TAX MAP M, LOT 102-12-2
LCA TAX MAP M, LOT 102-12-3
HAYDEN DRIVE
MIDDLE ROAD
BACK ROAD
TEST PIT #1
TEST PIT #2
TEST PIT #3
TEST PIT #7
TEST PIT #8
TEST PIT #9
TEST PIT #10
TEST PIT #11
TEST PIT #12
TEST PIT #13
TEST PIT #14
TEST PIT #15
TEST PIT #16
TEST PIT #19
TEST PIT #20
TEST PIT #21
TEST PIT #22
TEST PIT #24
TEST PIT #25
TEST PIT #26
TEST PIT #27
TEST PIT #28
TEST PIT #29
1/2" REBAR ~FND~ +1.1'
LLS 275 IRON BOUND ~FND~ +0.3'
1/2" REBAR ~FND~ +2.1'
1/2" REBAR ~FND~ +1.1'
1/2" REBAR ~FND~ +0.4'
N17°06'55"E 411/2" REBAR ~FND~ +0.7'
1/2" REBAR ~FND~ +0.3'
1/2" REBAR ~FND~ +0.2'
CANNEY BROOK
EXISTING TRAIL
MATCH POINT (TYP.)
MATCH LINE SHEET 10
3/4" REBAR W/ ID CAP ~TBS~
GRAVE STONE WITH 25' BUFFER
DAVID VINCENT IRON BOUND ~FND~ FLUSH
1/2" REBAR INSIDE 2 1/2"IRON PIPE WITH CONCRETE ~FND~ FLUSH
DAVID VINCENT IRON BOUND ~FND~ +.4'
ANGLE IRON ~FND~ (1.2' HIGH)
1/2" REBAR ~FND~ +0.3' DISTURBED LOCATED AT BASE
MATCH POINT (TYP.)
1/2" REBAR ~FND~ +0.2'
1/2" REBAR ~FND~ +0.4'

LEGEND:

- ● 3/4: REBAR W/ ID CAP ~TBS~
- O IRON BOUND ~FND~
- ○ IRON PIPE ~FND~
- ⊕ STEEL STAKE ~FND~
- UTILITY POLE / GUY WIRE
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- WETLAND LINE
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- MATCH LINE

LCA	LIMITED COMMON AREA
TBS	TO BE SET
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
Ⓐ	ABUTTER REFERENCE
⊠	MATCH POINT

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R-40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%
OPEN SPACE SUBDIVISION
STREET SIDES OF UNITS ~ 20'
DISTANCE BETWEEN UNITS ~ 30'
100' FRONT BUFFER
50' PERIMETER BUFFER
100' ABUTTING STRUCTURE SETBACK

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015. THE FLOOD ZONE SHOWN ON THE FEMA MAPS IS INCORRECT BASED ON THE LOCATION OF CANNEY BROOK.

NOTES CONTINUED:

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE NORTHERN TOPOGRAPHY DETAIL OF THE OPEN SPACE CONDOMINIUM SUBDIVISION. THE PROPOSED LOTS ARE PROPOSED TO BE LIMITED COMMON AREA AND ARE NOT FEE SIMPLE LOTS.

10.) THIS IS A 30 SHEET PLAN SET WITH SHEETS 7 & 8 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS. THE REST OF THE PLAN SET WILL BE ON FILE AT THE CITY OF DOVER OR THIS OFFICE. FOR MORE INFORMATION ON THIS SUBDIVISION, CONTACT THE CITY OF DOVER PLANNING DEPARTMENT, 288 CENTRAL AVENUE, DOVER, NH 03820, (603) 516-6008.

11.) ALL LOTS WILL SERVICED BY CITY WATER AND ON SITE SEWAGE DISPOSAL SYSTEMS.

12.) SEE SHEET 8 FOR ALL OTHER COMMON DOVER SUBDIVISION NOTES.

13.) A CONDITIONAL USE PERMIT IS REQUIRED FOR DISTURBANCE WITHIN THE WETLAND BUFFER.

NOTES CONTINUED:

14.) WAIVERS ARE REQUIRED FOR ROAD GRADE AT INTERSECTION AND ROAD LENGTH TO CUL-DE-SAC.

15.) WETLAND BUFFER SIGNS ARE TO BE INSTALLED ALONG THE BUFFER WHERE POSSIBLE ENCROACHMENT MAY OCCUR.

16.) HAYDEN DRIVE IS PROPOSED TO BE PRIVATE. REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES.

APPROVED DOVER

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

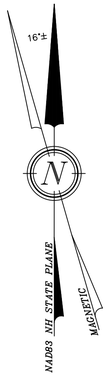
OPEN SPACE TOPOGRAPHY PLAN NORTH

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE No. 805 KENNETH A. BERRY LICENSED LAND SURVEYOR
SIGNATURE



NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R-40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%
OPEN SPACE SUBDIVISION
STREET SIDES OF UNITS ~ 20'
DISTANCE BETWEEN UNITS ~ 30'
100' FRONT BUFFER
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6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015. THE FLOOD ZONE SHOWN ON THE FEMA MAPS IS INCORRECT BASED ON THE LOCATION OF CANNEY BROOK.

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NOTES CONTINUED:

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE SOUTHERN TOPOGRAPHY DETAIL OF THE OPEN SPACE CONDOMINIUM SUBDIVISION. THE PROPOSED LOTS ARE PROPOSED TO BE LIMITED COMMON AREA AND ARE NOT FEE SIMPLE LOTS.

10.) THIS IS A 30 SHEET PLAN SET WITH SHEETS 7 & 8 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS. THE REST OF THE PLAN SET WILL BE ON FILE AT THE CITY OF DOVER OR THIS OFFICE. FOR MORE INFORMATION ON THIS SUBDIVISION, CONTACT THE CITY OF DOVER PLANNING DEPARTMENT, 288 CENTRAL AVENUE, DOVER, NH 03820, (603) 516-6008.

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15.) WETLAND BUFFER SIGNS ARE TO BE INSTALLED ALONG THE BUFFER WHERE POSSIBLE ENCROACHMENT MAY OCCUR.

LEGEND:

- ● 3/4" REBAR W/ ID CAP ~TBS~
- ○ IRON BOUND ~FND~
- ⊙ IRON PIPE ~FND~
- ⊕ STEEL STAKE ~FND~
- UTILITY POLE / GUY WIRE
- BUILDING SETBACK LINE
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- "CANNEY BROOK"
- EXISTING STREAM
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- CEMETERY BUFFER
- PROPOSED LCA LINE
- MATCH LINE

LCA LIMITED COMMON AREA
TBS TO BE SET
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP. TYPICAL
FND FOUND
Ⓐ ABUTTER REFERENCE
MATCH POINT

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES SPRING 2020
1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
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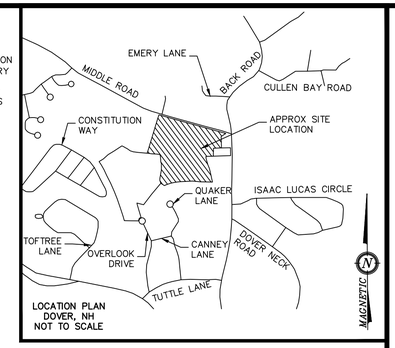
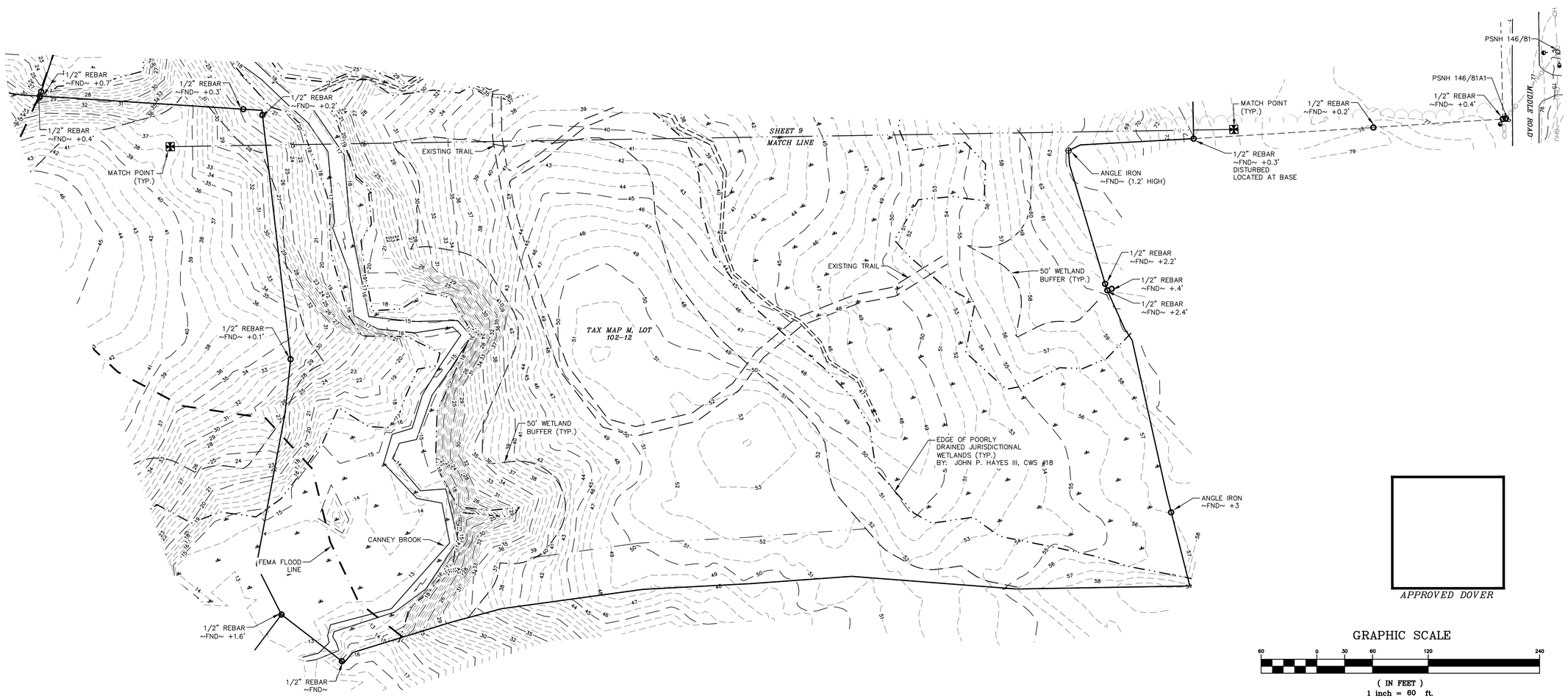
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES III, CWS #18



LOCATION PLAN
DOVER, NH
NOT TO SCALE



APPROVED DOVER

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OPEN SPACE TOPOGRAPHY PLAN SOUTH

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE No. 805 KENNETH A BERRY LICENSED LAND SURVEYOR
SIGNATURE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) ZONING: (R–40) RURAL RESIDENTIAL
MINIMUM FRONTAGE ~ 150'
MINIMUM LOT SIZE ~ 40,000 Sq. Ft.
FRONT SETBACK ~ 40'
REAR SETBACK ~ 30'
SIDE SETBACK ~ 25'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 35'
MAX. LOT COVERAGE: 10%
OPEN SPACE SUBDIVISION
STREET SIDES OF UNITS ~ 20'
DISTANCE BETWEEN UNITS ~ 30'
100' FRONT BUFFER
50' PERIMETER BUFFER
100' ABUTTING STRUCTURE SETBACK

6.) THE INTENT OF THIS PLAN IS TO SHOW THE SITE PLAN ELEMENTS FOR THE PROPOSED OPEN SPACE CONDOMINIUM SUBDIVISION.

7.) ALL ON–SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.

8.) THE SUBJECT PARCEL IS SERVICED BY MUNICIPAL WATER AND ON SITE SEPTICS.

9.) ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.

10.) APPROVED BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.

11.) 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.

12.) BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING INSPECTOR AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

13.) THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
US EPA NOI & SWPPP (PENDING)
NATURAL HERITAGE BUREAU (PENDING)
NH DIVISION OF HISTORICAL RESOURCES (PENDING)

14.) CALL DIG SAFE PRIOR TO BEGINNING WORK (1–888–344–7233)

15.) ALL CONSTRUCTION SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONSTRUCTION SHALL ALSO CONFORM TO THE CITY OF DOVER POLICIES AND PRACTICES.

16.) WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

17.) LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT: NONE

18.) THE SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY–FRIDAY 7AM–6PM, SATURDAY 9AM–4PM & SUNDAY HOURS. HOURS OF CONSTRUCTION SHALL BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. THE PROJECT SIGN SHALL INDICATE THE ROAD IS PROPOSED TO BE PRIVATE AND SHALL RECEIVE NO CITY SERVICES.

19.) THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED. SITE PLANS SHALL SHOW ANY EASEMENTS FOR THESE SERVICES.

20.) FROM GROUND BREAKING THE SITE SHALL REMAIN ACCESSIBLE YEAR ROUND IN ALL WEATHER CONDITIONS.

21.) 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. CONTRACTOR IS RESPONSIBLE FOR ACCURATE LOCATION OF ALL BURIED UTILITIES.

22.) 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.

23.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS. NOT APPLICABLE.

24.) 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. NOT APPLICABLE.

25.) A PRE–CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

NOTES CONTINUED:.

26.) THE PROPOSED USE FOR THE SITE IS 13 NEW SINGLE FAMILY HOMES.

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

28.) ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

29.) ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

30.) APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.

31.) 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.

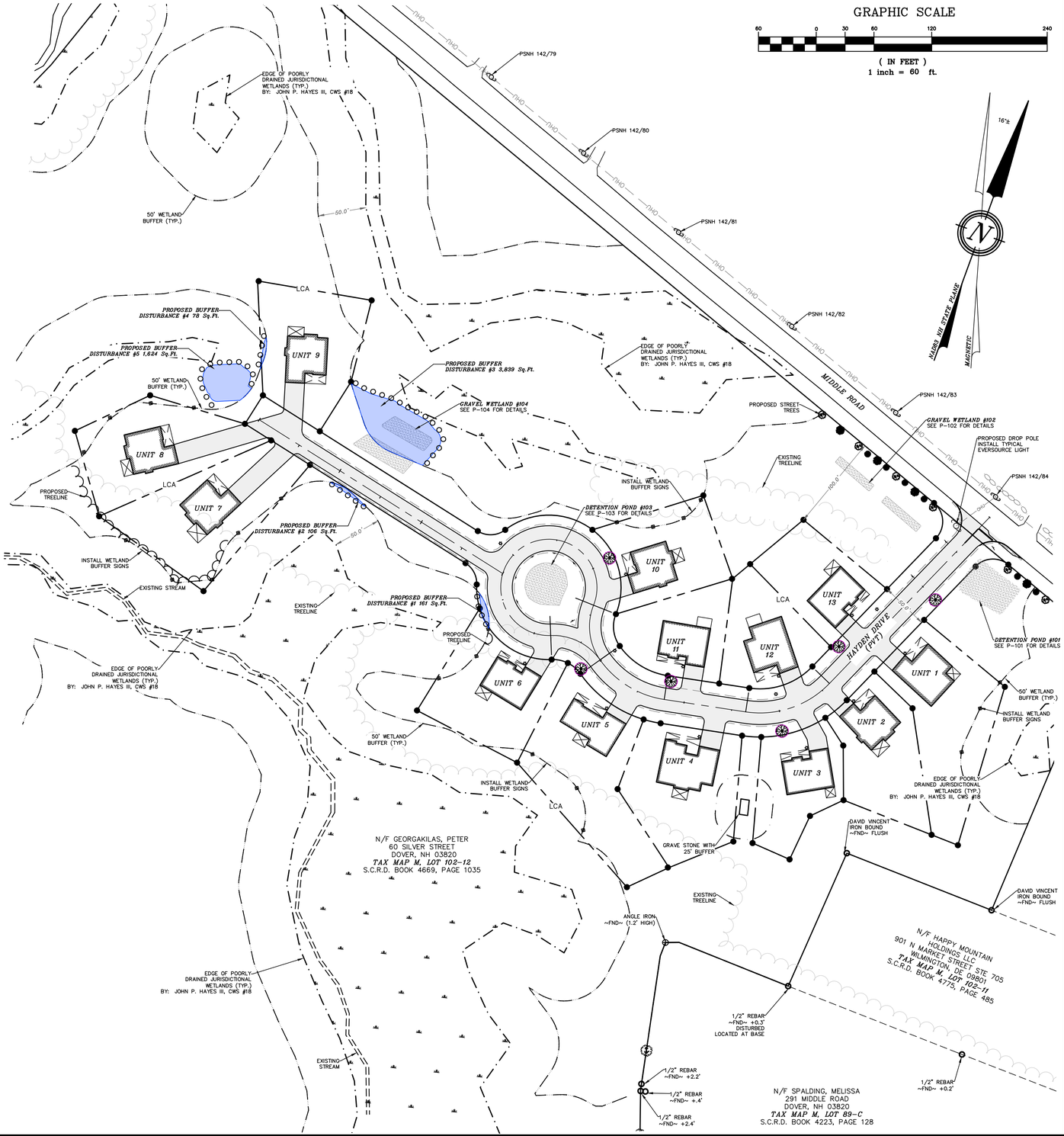
32.) FIRE DEPARTMENT ACCESS ROADS SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.

33.) NO ROADWAY WITH PRIVATE UTILITY EASEMENTS SHALL BE ACCEPTED AS A PUBLIC ROAD BY THE CITY UNLESS THE EASEMENTS ARE EXPUNGED PRIOR TO THE TRANSFER OF LAND TO THE CITY. LICENSE AGREEMENTS FOR ANY AND ALL PRIVATE UTILITIES WITHIN THE RIGHT OF WAY MAY BE GRANTED BY THE CITY UPON ACCEPTANCE OF THE UNENCUMBERED ROADWAY CONSISTENT WITH APPLICABLE STATE LAW. THIS IS A PRIVATE ROAD AND THEREFORE DOES NOT APPLY TO THIS PROJECT.

34.) THE PROPOSED PROJECT WILL CONSIST OF TWO PHASES. THE FIRST PHASE WILL BE THE CONSTRUCTION OF THE PROPOSED ROAD, RELATING GRADING/DRAINAGE AND THE STORM WATER MANAGEMENT SYSTEM (DETENTION PONDS AND GRAVEL WETLANDS). THE ROAD, GRAVEL WETLANDS AND DETENTION PONDS ARE TO BE FULLY CONSTRUCTED AND STABILIZED PRIOR TO RESIDENTIAL LOT CONSTRUCTION.
PHASE 1 (ROAD): 87,000 SqFt. OF DISTURBANCE
PHASE 2 (RESIDENTIAL): LESS THAN 100,000 Sq.Ft. OF DISTURBANCE

CONDITIONAL USE PERMITS:
CONSTRUCTION WITHIN THE 50' BUFFER (5,808 Sq. Ft. PROPOSED): PENDING

WAIVER REQUESTS:
ROAD LESS THAN 500' TO THE NECK (475' PROPOSED): PENDING
ROAD GRADE STEEPER THAN 3% WITHIN 75' OF AN INTERSECTION: PENDING



CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OVERVIEW SITE PLAN
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14245
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EASTERN SITE PLAN DETAIL.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SITE PLAN EAST
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE WESTERN SITE PLAN DETAIL.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

PROPOSED HIGH BUSH BLUEBERRY BUSHES PLANTED 10' O.C. AT EDGE OF DISTURBANCE WITHIN RIGHT OF WAY
PROPOSED BUFFER DISTURBANCE #4 78 Sq.Ft.
PROPOSED BUFFER DISTURBANCE #5 1,624 Sq.Ft.
PROPOSED DECK (TYP.)
UNIT 9
OPEN SPACE COMMON AREA
PROPOSED PORCH (TYP.)
LCA
50' WETLAND BUFFER (TYP.)
INSTALL WETLAND BUFFER SIGNS
PROPOSED BUFFER DISTURBANCE #3 3,839 Sq.Ft.
EDGE OF POORLY-DRAINED JURISDICTIONAL WETLANDS (TYP.) BY: JOHN P. HAYES III, CWS #18
GRAVEL WETLAND #104 SEE P-104 FOR DETAILS
16°± HUBB'S HILL STATE PLANE MAGNETIC
UNIT 8
UNIT 7
LIMITED COMMON AREA (TYP.)
EXISTING TREELINE
PROPOSED BUFFER DISTURBANCE #2 106 Sq.Ft.
PROPOSED HIGH BUSH BLUEBERRY BUSHES PLANTED 10' O.C. AT EDGE OF DISTURBANCE WITHIN RIGHT OF WAY
N87°45'07"W 299.25'
E.O.P.
2' GRAVEL SHOULDERS
18' TRAVELED LANE WITH 2'/. SUPER ELEVATION
SHARED DRIVEWAY COMMON AREA
MATCH POINT (TYP.)
SHEET 12 MATCH LINE
50' WETLAND BUFFER (TYP.)
26' TRAVELED LANE WITH 2'/. SUPER ELEVATION
PROP. LAMP STA.: 7+00 (Lt.18.0')
R=256.47' L=50.00'
R64.0'
STREET TREE (MIX) (TYP.) SPACED APPROX. 100' APART OR AS SHOWN.
DETENTION POND #102 SEE P-102 FOR DETAILS
R38.0'
R15.0'
2' GRAVEL SHOULDERS
UNIT 10
RESIDENTIAL LAMP MOUNTED ON HOUSE
ONE WAY
PROP. ONE WAY SIGN PER MUTCD R6-1R STA: 5+43.00 (Lt. 18.00)
CONTRACTOR TO INSTALL REFLECTORS ALONG BACK SIDE OF CUL-DE-SAC
PROPOSED HIGH BUSH BLUEBERRY BUSHES PLANTED 10' O.C. AT EDGE OF DISTURBANCE WITHIN RIGHT OF WAY
EDGE OF POORLY DRAINED JURISDICTIONAL WETLANDS (TYP.) BY: JOHN P. HAYES III, CWS #18
N/F GEORGAKILAS, PETER
60 SILVER STREET
DOVER, NH 03820
TAX MAP M, LOT 102-12
S.C.R.D. BOOK 4669, PAGE 1035
EXISTING STREAM
EXISTING TREELINE
PROPOSED TREELINE
INSTALL WETLAND BUFFER SIGNS
PROPOSED PORCH (TYP.)
PROPOSED DECK (TYP.)
PROPOSED TREELINE
PC=+80.92
PT=+60.92
R=59.63' L=60.00'
R48.0'
UNIT 11
2' GRAVEL SHOULDERS
PROP. LAMP STA.: 5+00 (Lt.18.0')
PC=+17.38
PT=+77.02
HAYDEN DRIVE COMMON AREA
R=80.45' L=100.00'
UNIT 6

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SITE PLAN WEST
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOTES:

1. OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2. TAX MAP M, LOT 102–12

3. LOT AREA: 1,244,008 Sq. Ft., 28.56 Ac.

4. S.C.R.D. BOOK 4669, PAGE 1035

5. EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE.

6. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

7. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES CALL "DIG–SAFE" 1–888–DIGSAFE (344–7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION.

8. WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

9. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

10. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. LIMIT OF GRADING SHOULD NOT BE EXPANDED WITHOUT CONSULTING THE DESIGN ENGINEER. SEE ALSO E&SC PLAN.

11. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE–USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

12. ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH [T] SHALL BE THERMOPLASTIC.

13. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.

14. ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

15. NOTE THAT THE PROJECT IS SUBJECT TO THE EPA NPDES PHASE II. THE NOTICE OF INTENT (NOI) MUST BE FILED ALONG WITH A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). BIWEEKLY INSPECTIONS WILL BE CONDUCTED BY THE DESIGN ENGINEER AND AFTER STORM EVENTS OF OVER 0.25".

16. UPON FINAL COMPLETION AND 85% STABILIZATION THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS TO INCLUDE THE PUMPING OF THE BASIN SUMPS. SEE SHEET E102, DETAIL E18 FOR DEFINITION OF STABLE.

17. ALL BASINS AND DRAINS ARE TO HAVE BOOTS INSTALLED ON ALL INLETS AND OUTLETS.

18. ALL TREATMENT SWALE TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS UNLESS OTHERWISE INSTRUCTED BY THE DESIGN ENGINEER DURING CONSTRUCTION.

19. A LETTER OF CREDIT FOR THE COST OF RE–VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS, AS MAY BE APPLICABLE.

20. A PRE–CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND DOVER CITY STAGF SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

21. BUILDING ADDRESSES SHALL BE DETERMINED BY THE BUILDING OGFICIAL.

22. THE PROPOSED PROJECT WILL CONSIST OF TWO PHASES. THE FIRST PHASE WILL BE THE CONSTRUCTION OF THE PROPOSED ROAD, RELATING GRADING/DRAINAGE AND THE STORM WATER MANAGEMENT SYSTEM (DETENTION PONDS AND GRAVEL WETLANDS). THE ROAD, GRAVEL WETLANDS AND DETENTION PONDS ARE TO BE FULLY CONSTRUCTED AND STABILIZED PRIOR TO RESIDENTIAL LOT CONSTRUCTION.
PHASE 1 (ROAD): 87,000 SqFt. OF DISTURBANCE
PHASE 2 (RESIDENTIAL): LESS THAN 100,000 Sq.Ft. OF DISTURBANCE

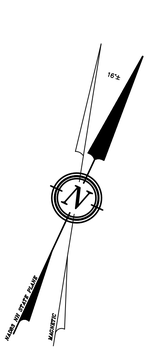
23. WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

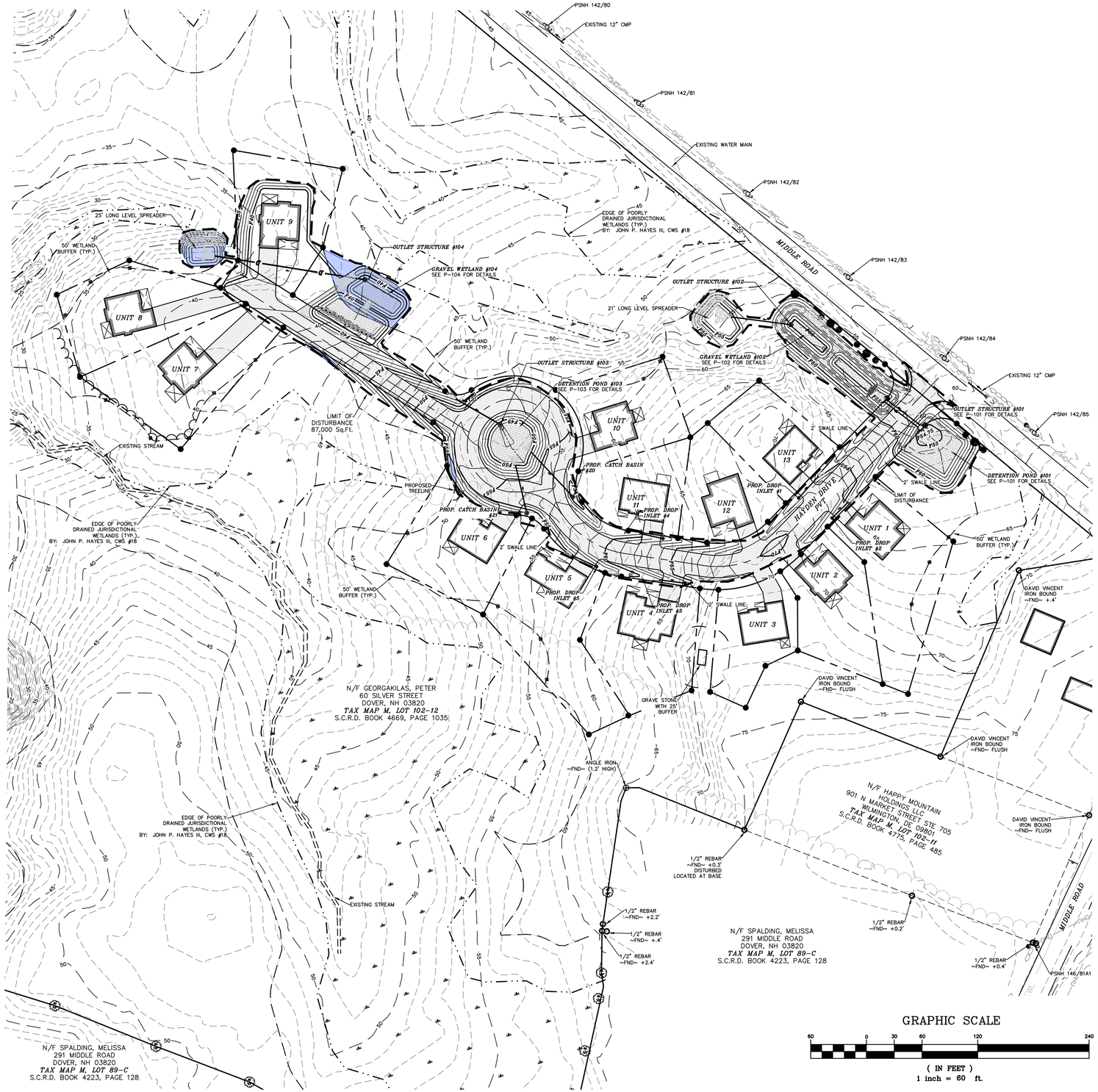
24. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH CITY OF DOVER CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.

25. THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE AT 1–888–344–7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

26. SEE DETAILS CONCERNING SITE LAYOUT, DRAINAGE, UTILITY, AND SEDIMENT AND EROSION CONTROLS.

27. ALL DRAINAGE PIPE IS TO BE HDPE N–12. INDIVIDUAL PIPE SIZES ARE SPECIFIED, RECYCLED PIPE IS APPROVED FOR PROJECT SITE. RECYCLED HDPE PIPE "GREEN PIPE" IS ACCEPTABLE FOR THIS PROJECT SITE.





CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

OVERVIEW GRADING PLAN

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

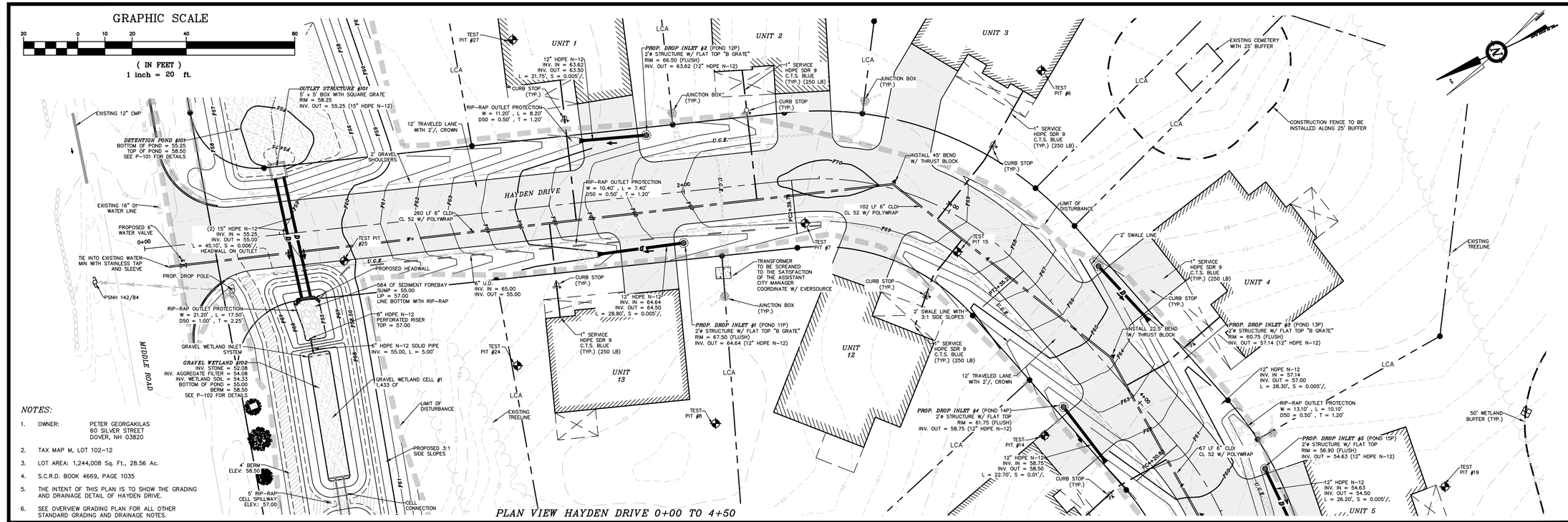
SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

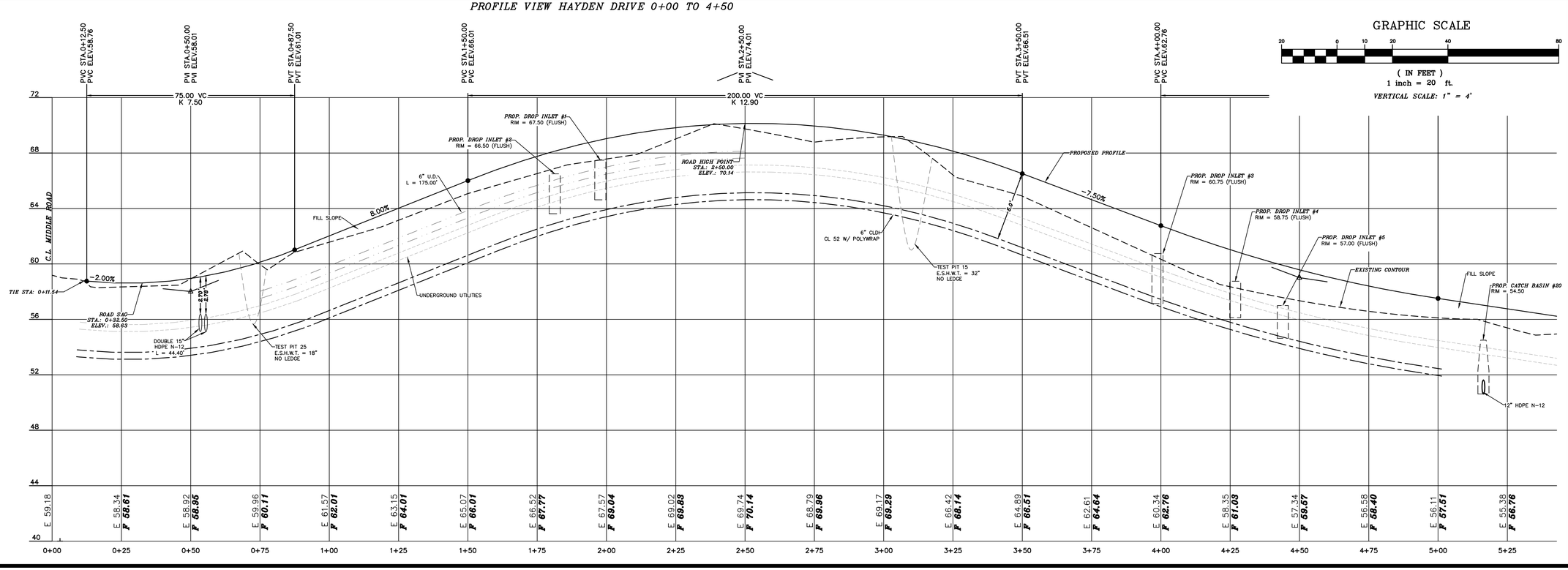


PLAN VIEW HAYDEN DRIVE 0+00 TO 4+50

NOTES:

1. OWNER: PETER GEORGAKILAS
   60 SILVER STREET
   DOVER, NH 03820
2. TAX MAP M, LOT 102-12
3. LOT AREA: 1,244,008 Sq. Ft., 28.56 Ac.
4. S.C.R.D. BOOK 4669, PAGE 1035
5. THE INTENT OF THIS PLAN IS TO SHOW THE GRADING AND DRAINAGE DETAIL OF HAYDEN DRIVE.
6. SEE OVERVIEW GRADING PLAN FOR ALL OTHER STANDARD GRADING AND DRAINAGE NOTES.

PROFILE VIEW HAYDEN DRIVE 0+00 TO 4+50



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

VERTICAL SCALE: 1" = 4'

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

PLAN AND PROFILE HAYDEN DRIVE 0+00 TO 4+50

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
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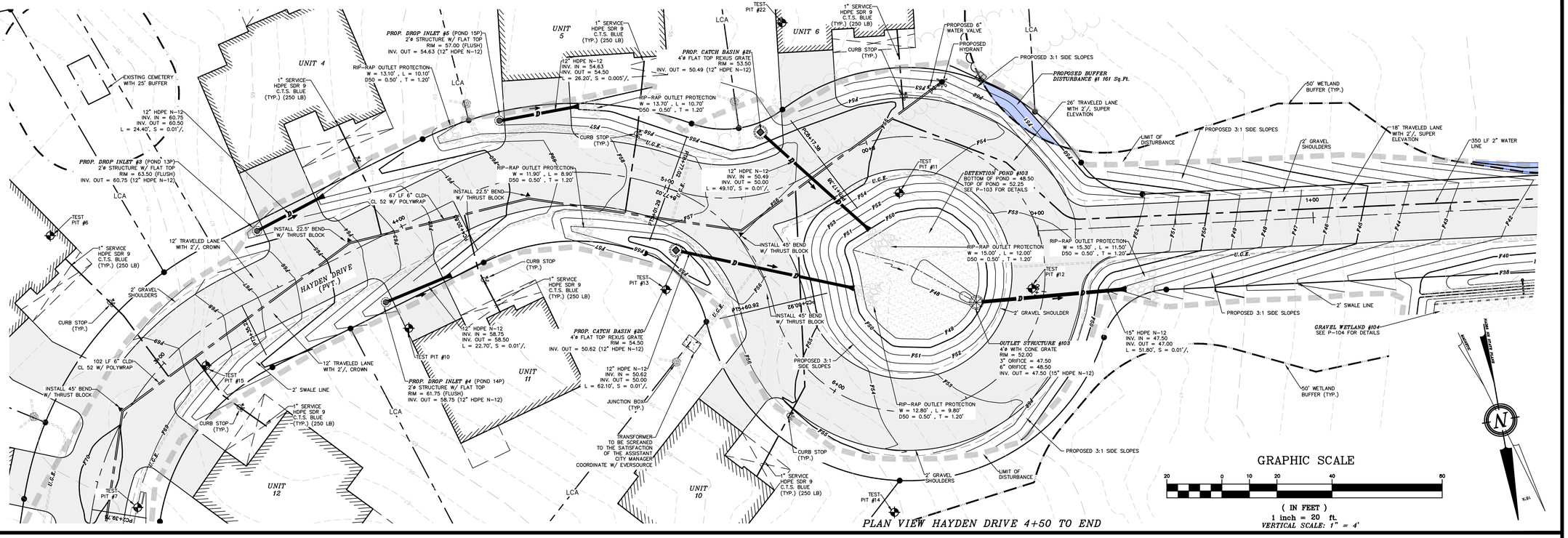
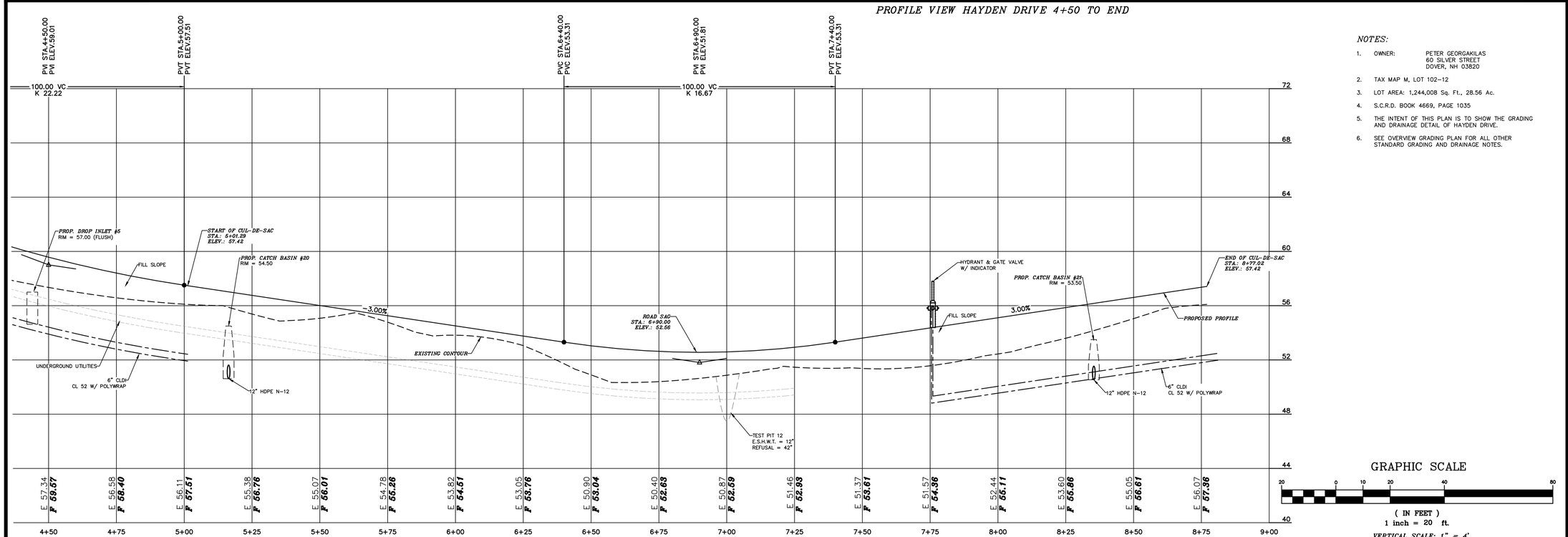
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER



PLAN VIEW HAYDEN DRIVE 4+50 TO END

PROFILE VIEW HAYDEN DRIVE 4+50 TO END



NOTES:

1. OWNER: PETER GEORGAKILAS
   60 SILVER STREET
   DOVER, NH 03820
2. TAX MAP M, LOT 102-12
3. LOT AREA: 1,244,008 Sq. Ft., 28.56 Ac.
4. S.C.R.D. BOOK 4669, PAGE 1035
5. THE INTENT OF THIS PLAN IS TO SHOW THE GRADING AND DRAINAGE DETAIL OF HAYDEN DRIVE.
6. SEE OVERVIEW GRADING PLAN FOR ALL OTHER STANDARD GRADING AND DRAINAGE NOTES.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

PLAN AND PROFILE HAYDEN DRIVE 4+50 TO END

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
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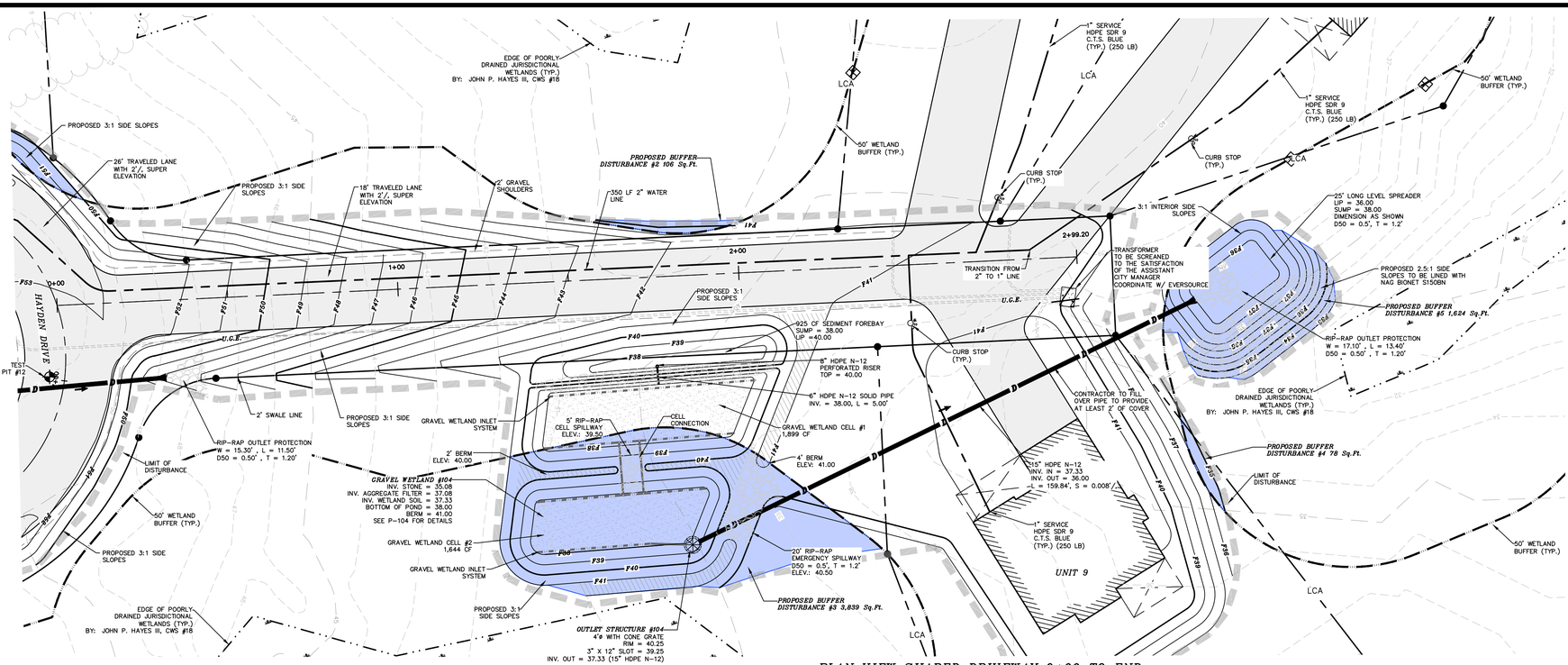
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER



PLAN VIEW SHARED DRIVEWAY 0+00 TO END

NOTES:

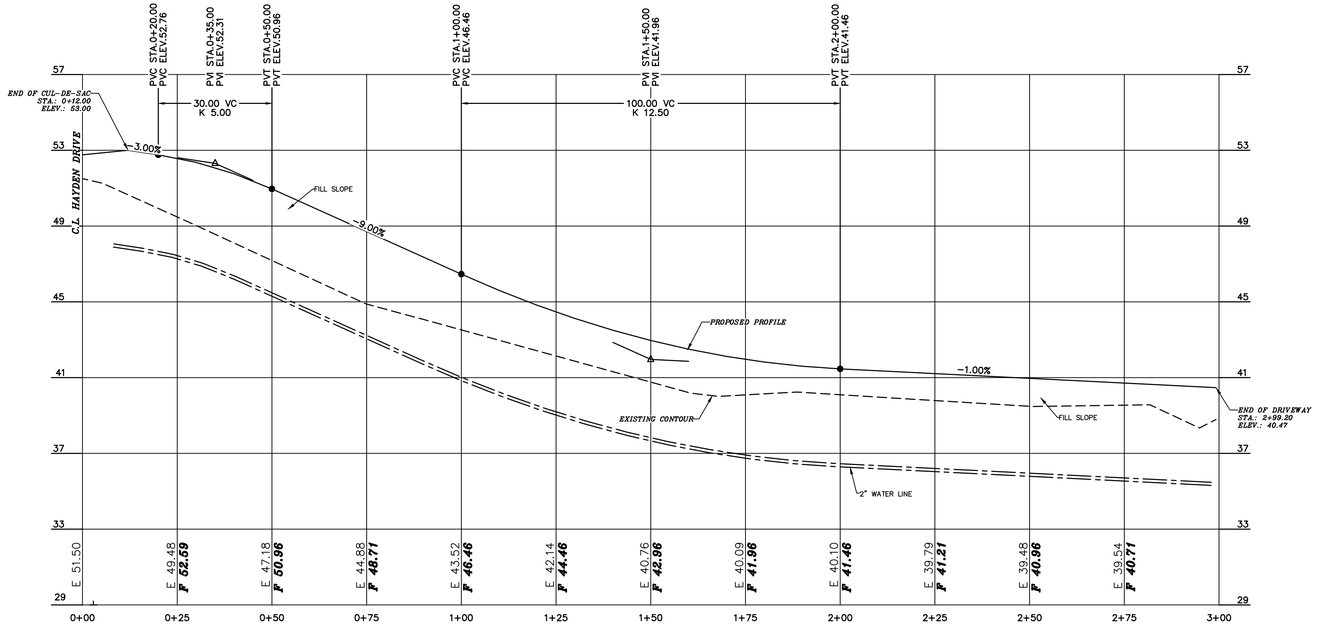
1. OWNER: PETER GEORGAKILAS 60 SILVER STREET DOVER, NH 03820
2. TAX MAP M, LOT 102-12
3. LOT AREA: 1,244,008 Sq. Ft., 28.56 Ac.
4. S.C.R.D. BOOK 4669, PAGE 1035
5. THE INTENT OF THIS PLAN IS TO SHOW THE GRADING AND DRAINAGE DETAIL OF THE SHARED DRIVEWAY.
6. SEE OVERVIEW GRADING PLAN FOR ALL OTHER STANDARD GRADING AND DRAINAGE NOTES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROFILE VIEW SHARED DRIVEWAY 0+00 TO END



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

PLAN AND PROFILE SHARED DRIVEWAY 0+00 TO END

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

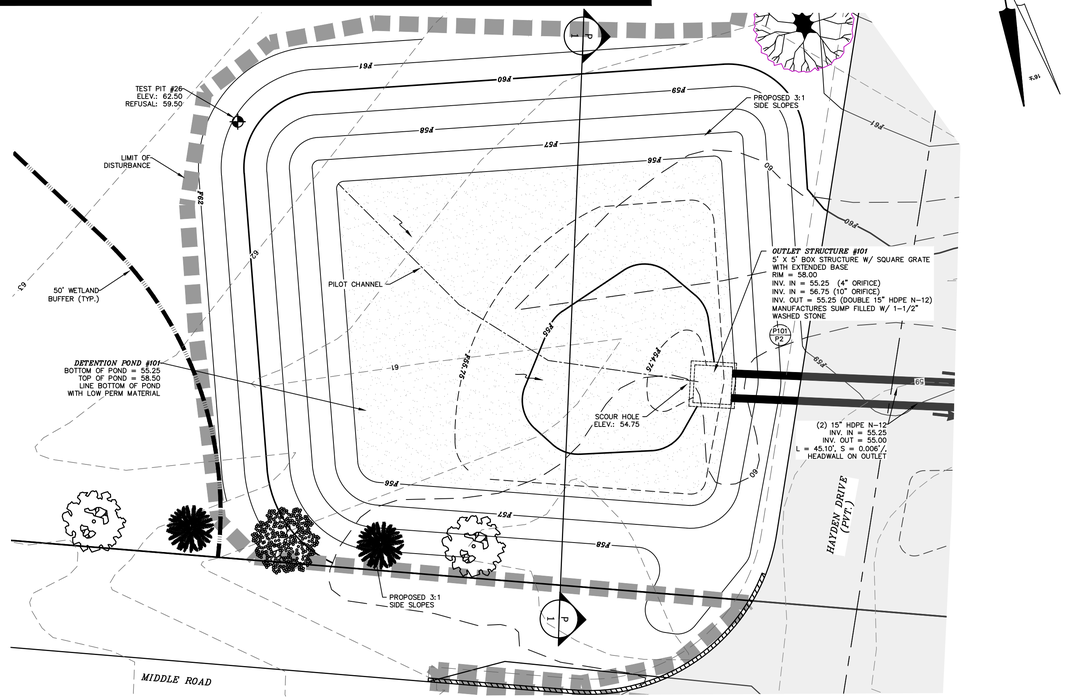
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

P1

LOW PERMEABILITY MATERIAL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	95 – 100
#40	60 – 95
#100	40 – 60
#200	25 – 45

1–1/2" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1–1/2"	90 – 100
1"	20 – 55
1–1/2"	0 –15
3/8"	0 –5

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

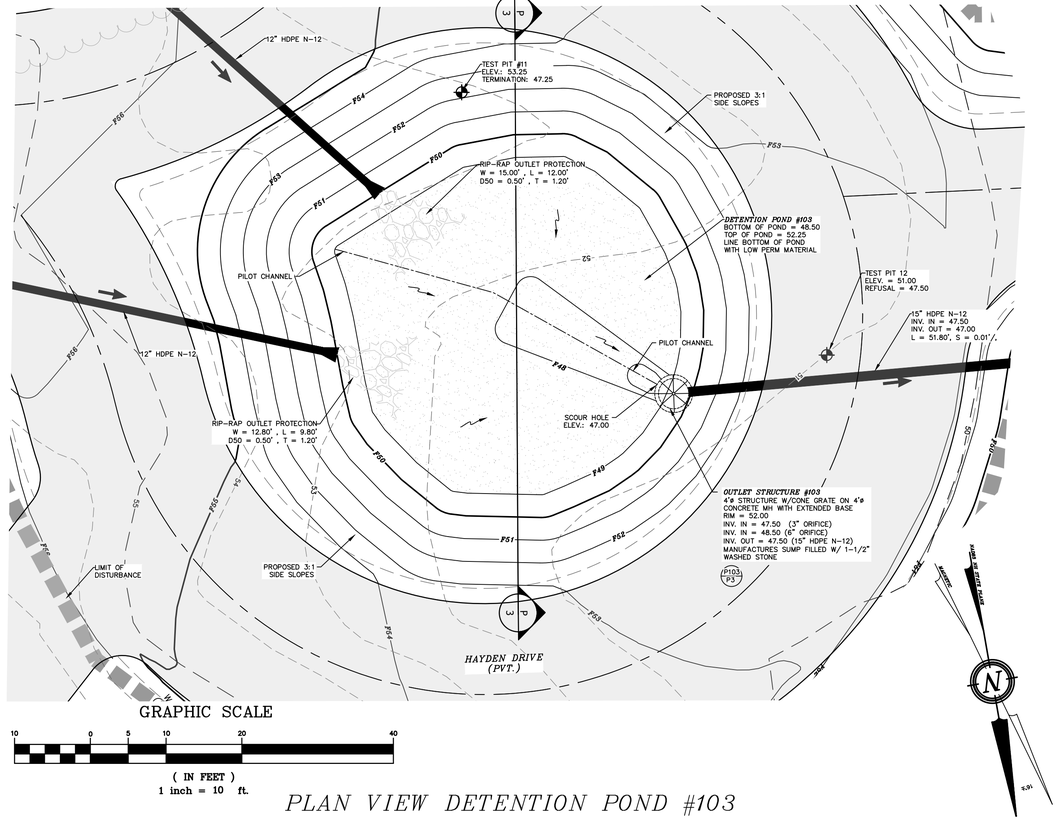


GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

PLAN VIEW DETENTION POND #101



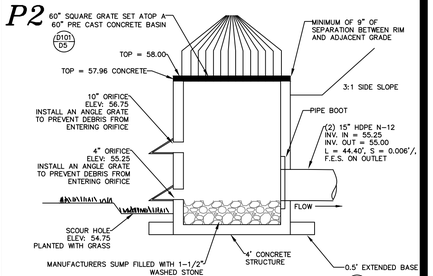
GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

PLAN VIEW DETENTION POND #103

P2



OUTLET STRUCTURE #101

NOT TO SCALE

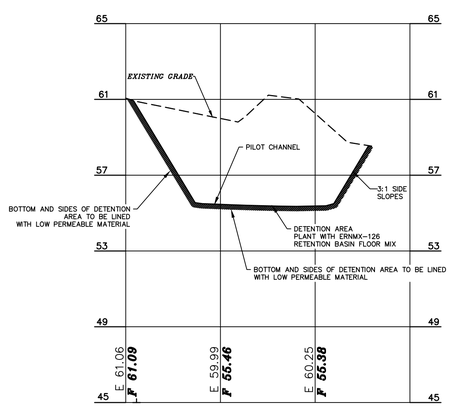
5' X 5' SQUARE BOX D101 D5

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

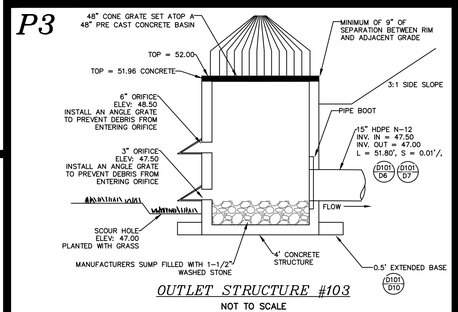
VERTICAL SCALE: 1" = 4'



SECTION OF DETENTION POND 101

P 1 | P 1

P3



OUTLET STRUCTURE #103

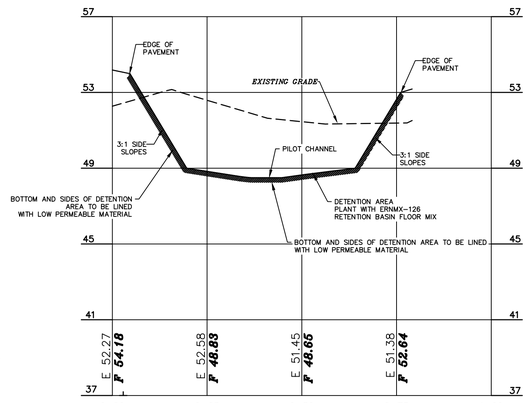
NOT TO SCALE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

VERTICAL SCALE: 1" = 4'



SECTION OF DETENTION POND 103

P 3 | P 3

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

DETENTION POND #101 & DETENTION POND #103

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14245
LICENSED PROFESSIONAL ENGINEER

P101 & P103

MAINTENANCE REQUIREMENTS

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
CHECK FOR INTERNAL EROSION, EVIDENCE OF SHORT-CIRCUITING, AND ANIMAL BURROWS. REMEDY: SOIL EROSION FROM SHORT-CIRCUITING OR ANIMAL BOROUGHS SHOULD BE REPAIRED WHEN THEY OCCUR.	
CHECK THAT THE SYSTEM IS FULLY DRAINING WITHIN A 24-48 HOUR PERIOD AFTER RAIN EVENTS. REMEDY: REPAIR OR RESTORE HYDRAULIC INLET OR OUTLET CONFIGURATION.	
VEGETATION	
CHECK FOR ROBUST VEGETATION COVERAGE THROUGHOUT THE SYSTEM AND DEAD OR DYING PLANTS REMEDY: VEGETATION SHOULD COVER > 75% OF THE SYSTEM AND SHOULD BE RESEEDED AND CARED FOR AS NEEDED	ANNUALLY, OR AS NEEDED
CUT AND REMOVE VEGETATION FROM GRAVEL WETLAND SYSTEM AND FOREBAY IN ORDER TO MAINTAIN NITROGEN REMOVAL PERFORMANCE REMEDY: THE VEGETATION SHOULD BE CUT AND REMOVED FROM THE SYSTEM TO PREVENT NITROGEN FROM CYCLING BACK INTO THE SYSTEM	ONCE EVERY 3 YEARS

P1

3/8" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 – 100
# 4	22 – 55
# 8	0 – 10

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

1-1/2" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 – 100
1"	20 – 55
1-1/2"	0 –15
3/8"	0 –5

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

WETLAND SOIL

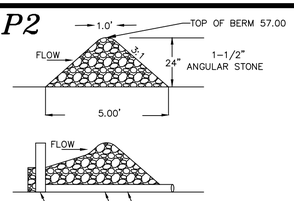
SIEVE SIZE	% PASSING BY WEIGHT
0.5	100
#10"	90 – 75
#100	40 – 50
#200	25 – 50
SIEVE SIZE	% PASSING TOLERANCES
0.5	±10.0
#10	±5.0
#100	±5.0
#200	±5.0

DESIGN REFERENCES

1 UNH STORMWATER CENTER

P2

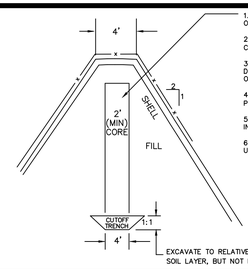
STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 – 100
#40	60 – 95
#100	40 – 60
#200	25 – 45



1.) 2' CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

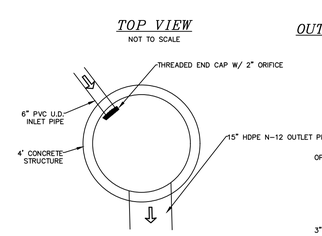
3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

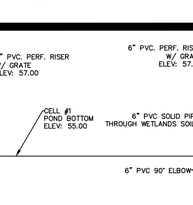
4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

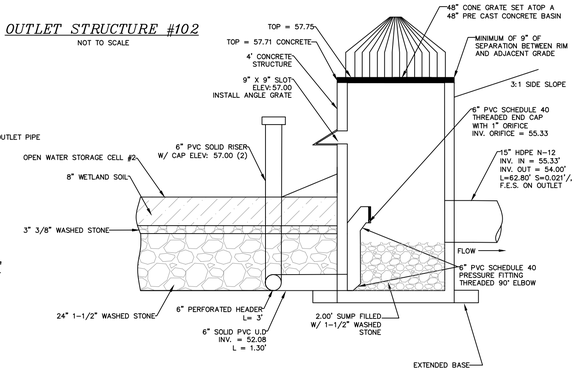
5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

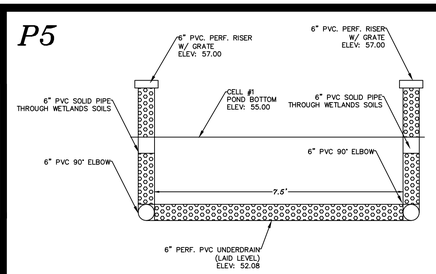
P4







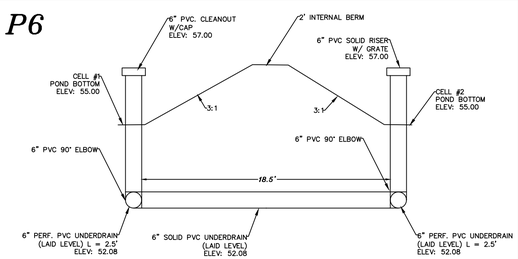
P5



GRAVEL WETLAND INLET SYSTEM

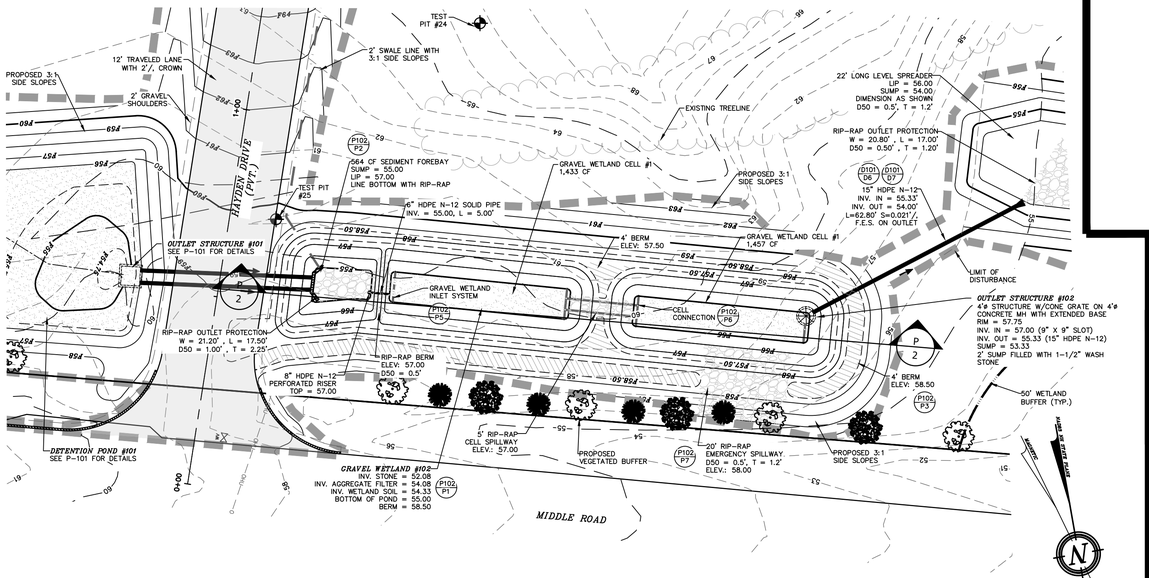
NOT TO SCALE

P6



GRAVEL WETLAND CONNECTION SYSTEM

NOT TO SCALE



GRAPHIC SCALE

20 0 10 20 40 80

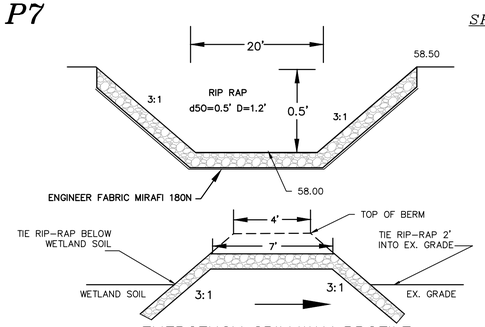
(IN FEET)
1 inch = 20 ft.

PLAN VIEW GRAVEL WETLAND #102

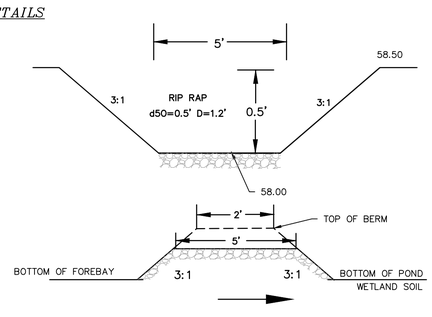
P7

SPILLWAY DETAILS

NOT TO SCALE

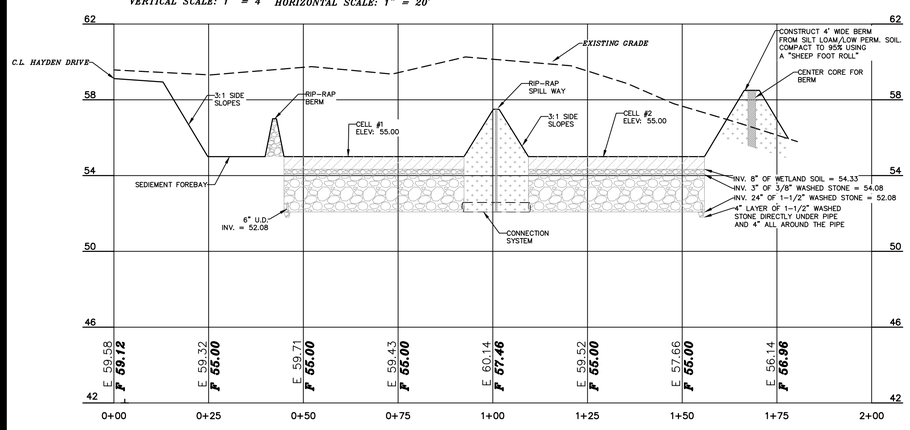


EMERGENCY SPILLWAY PROFILE



GRAVEL WETLAND CELL SPILLWAY PROFILE

VERTICAL SCALE: 1" = 4' HORIZONTAL SCALE: 1" = 20'



SECTION OF GRAVEL WETLAND 102

P102

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

GRAVEL WETLAND #102
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

P1

MAINTENANCE REQUIREMENTS

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
CHECK FOR INTERNAL EROSION, EVIDENCE OF SHORT-CIRCUITING, AND ANIMAL BURROWS. REMEDY: SOIL EROSION FROM SHORT-CIRCUITING OR ANIMAL BOROUGHS SHOULD BE REPAIRED WHEN THEY OCCUR.	
CHECK THAT THE SYSTEM IS FULLY DRAINING WITHIN A 24-48 HOUR PERIOD AFTER RAIN EVENTS. REMEDY: REPAIR OR RESTORE HYDRAULIC INLET OR OUTLET CONFIGURATION.	
VEGETATION	
CHECK FOR ROBUST VEGETATION COVERAGE THROUGHOUT THE SYSTEM AND DEAD OR DYING PLANTS REMEDY: VEGETATION SHOULD COVER > 75% OF THE SYSTEM AND SHOULD BE RESEEDED AND CARED FOR AS NEEDED	ANNUALLY, OR AS NEEDED
CUT AND REMOVE VEGETATION FROM GRAVEL WETLAND SYSTEM AND FOREBAY IN ORDER TO MAINTAIN NITROGEN REMOVAL PERFORMANCE REMEDY: THE VEGETATION SHOULD BE CUT AND REMOVED FROM THE SYSTEM TO PREVENT NITROGEN FROM CYCLING BACK INTO THE SYSTEM	ONCE EVERY 3 YEARS

3/8" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 – 100
# 4	22 – 55
# 8	0 – 10

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

1-1/2" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 – 100
1"	20 – 55
1-1/2"	0 –15
3/8"	0 –5

* EQUIVALENT TO STANDARD WASHED STONE – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

WETLAND SOIL

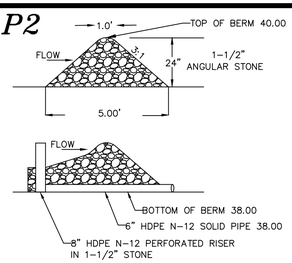
SIEVE SIZE	% PASSING BY WEIGHT
0.5	100
#10"	90 – 75
#100	40 – 50
#200	25 – 50
SIEVE SIZE	**% PASSING TOLERANCES**
0.5	±10.0
#10	±5.0
#100	±5.0
#200	±5.0

DESIGN REFERENCES

1 UNH STORMWATER CENTER

P2

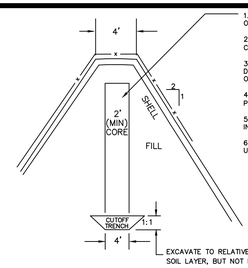
STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 – 100
#40	60 – 95
#100	40 – 60
#200	25 – 45



1.) 2' CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

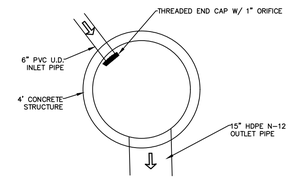
4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

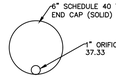
6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

P4

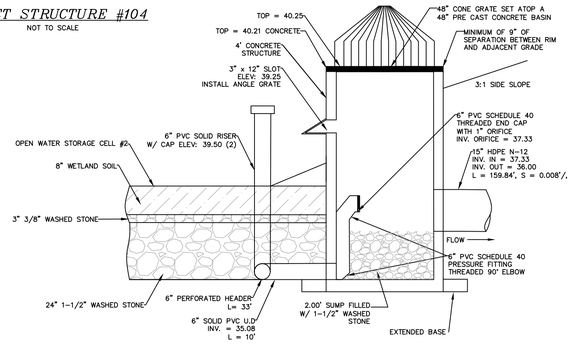
TOP VIEW
NOT TO SCALE



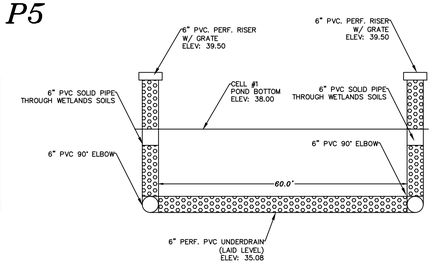
CAP WITH CONTROL ORIFICE
NOT TO SCALE



OUTLET STRUCTURE #104
NOT TO SCALE

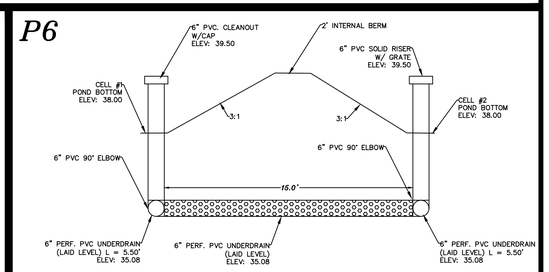


P5

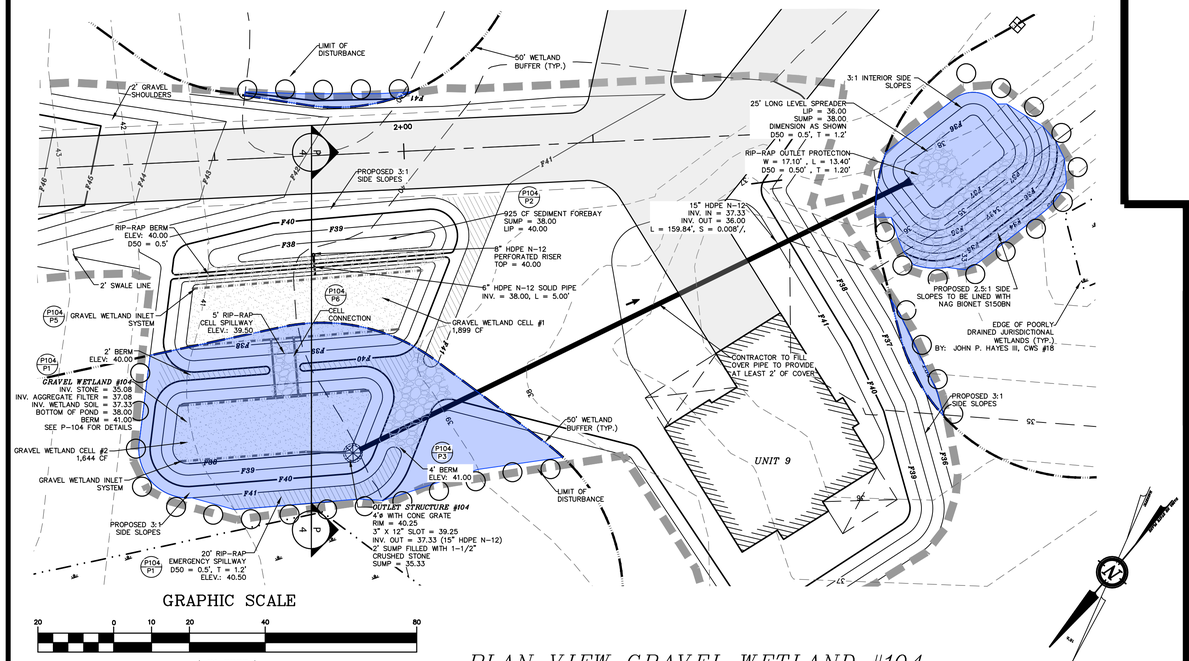


GRAVEL WETLAND INLET SYSTEM
NOT TO SCALE

P6



GRAVEL WETLAND CONNECTION SYSTEM
NOT TO SCALE



GRAPHIC SCALE

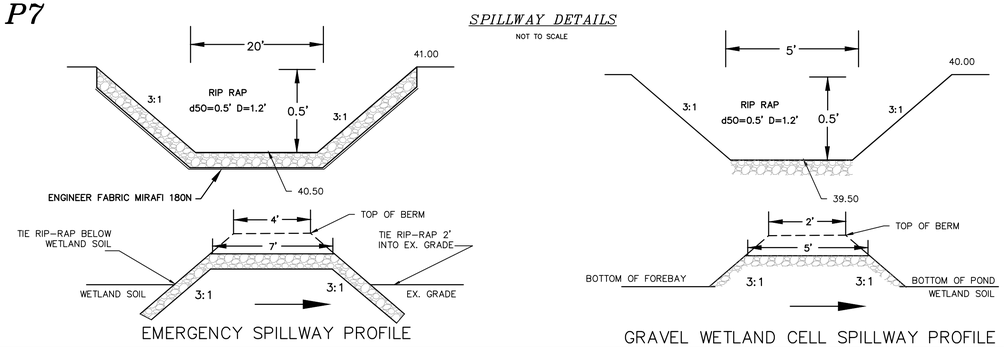
20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PLAN VIEW GRAVEL WETLAND #104

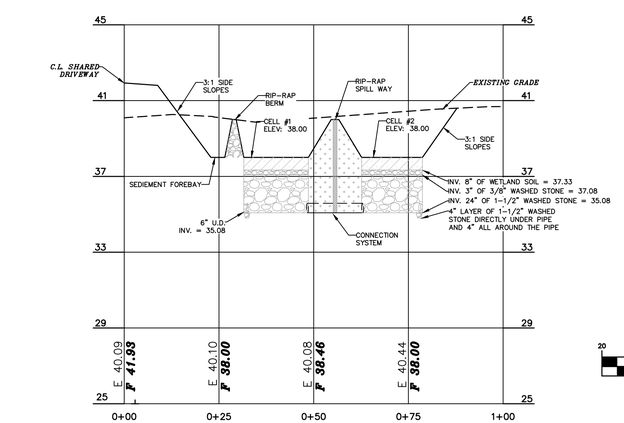
P7

SPILLWAY DETAILS
NOT TO SCALE



EMERGENCY SPILLWAY PROFILE

GRAVEL WETLAND CELL SPILLWAY PROFILE



SECTION OF GRAVEL WETLAND 104

P 4

P 4

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

VERTICAL SCALE: 1" = 4'

P104

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

GRAVEL WETLAND #104
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

SHEET 20 OF 30

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EROSION AND SEDIMENT CONTROL PLAN FOR THE EASTERN SIDE OF THE SUBDIVISION.

5.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVE AND BELOW GROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY UTILITY CONFLICTS SHOULD BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.

9.) UPON FINAL COMPLETION AND 85% STABILIZATION, THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS. SEDIMENT CONTROL PRACTICES REMOVED AND DISPOSED OF PROPERLY, AND ANNUAL MAINTENANCE PREFORMED ON ALL DRAINAGE PRACTICES.

10.) EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24–HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP 4.1.1 AND INSPECTION REPORTS SUBMITTED TO THE CITY OF DOVER, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED.

11.) SILT FENCE MAY BE SUBSTITUTED WITH FILTREXX SILT SOXX OR EROSION CONTROL MIX BERM.

12.) PER EPA CGP Z.1.2.2 (INSTALL PERIMETER CONTROL), "YOU MUST INSTALL SEDIMENT CONTROLS ALONG THOSE PERIMETER AREAS OF YOUR SITE THAT WILL RECEIVE STORMWATER FROM EARTH DISTURBING ACTIVITIES." AS A RESULT OF SWPPP INSPECTIONS, THE CONTRACTOR MAY HAVE TO EXPAND PERIMETER CONTROLS TO MEET THIS REQUIREMENT. THE E&SC PLAN IS INITIAL GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.

14.) A CONSTRUCTION ENTRANCE IS REQUIRED AND THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING IT.

15.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE ROAD AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO MIDDLE ROAD.

16.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

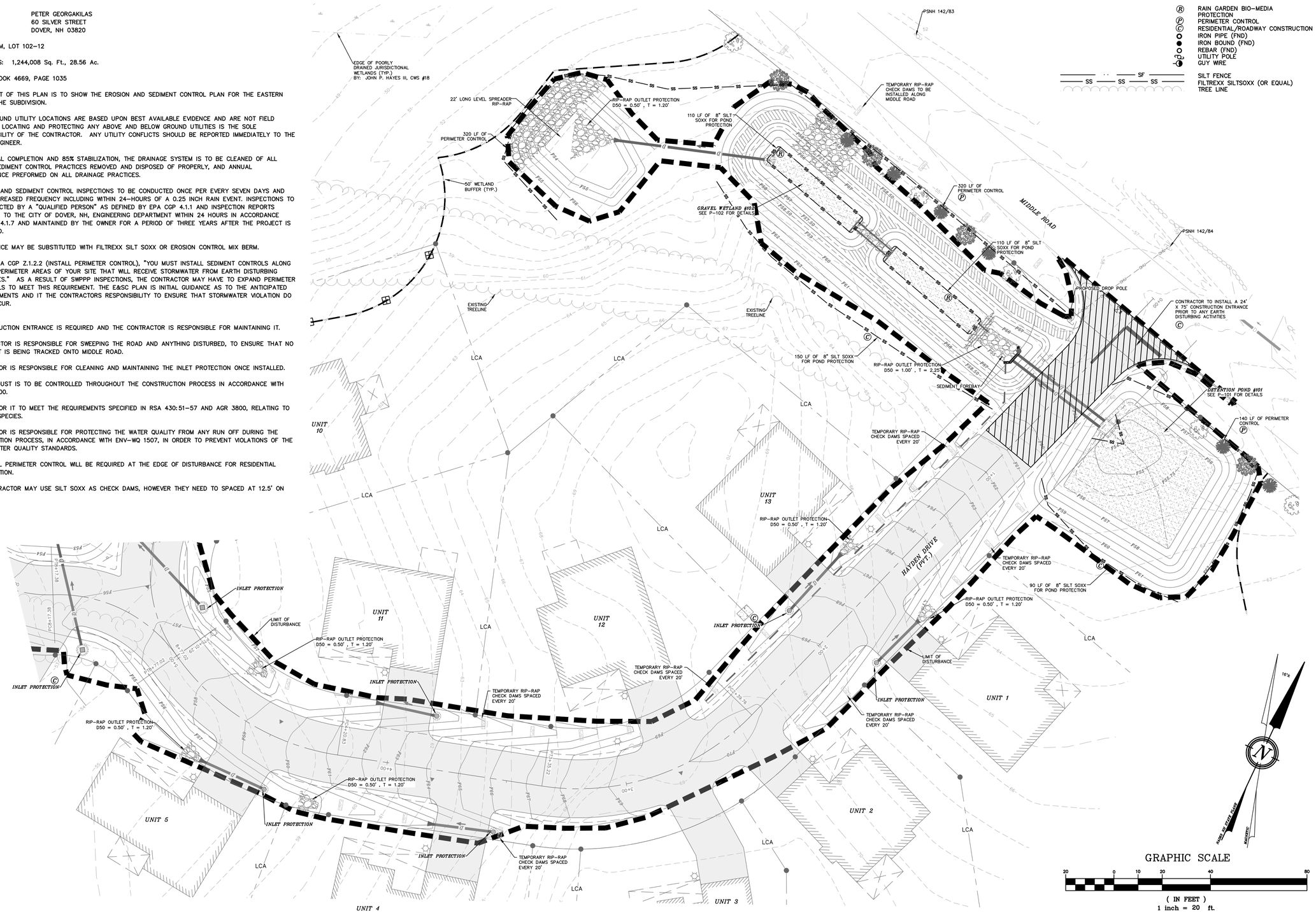
17.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV–A 1000.

18.) CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51–57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

19.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV–WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

20.) ADDITIONAL PERIMETER CONTROL WILL BE REQUIRED AT THE EDGE OF DISTURBANCE FOR RESIDENTIAL CONSTRUCTION.

21.) THE CONTRACTOR MAY USE SILT SOXX AS CHECK DAMS, HOWEVER THEY NEED TO SPACED AT 12.5' ON CENTER.



CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN EAST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY & SURVEYING ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 10243 LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EROSION AND SEDIMENT CONTROL PLAN FOR THE WESTERN SIDE OF THE SUBDIVISION.

5.) SEE SHEET 21 FOR ALL OTHER STANDARD EROSION AND SEDIMENT CONTROL NOTES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND:

- Ⓡ RAIN GARDEN BIO-MEDIA PROTECTION
- Ⓟ PERIMETER CONTROL
- Ⓒ RESIDENTIAL/ROADWAY CONSTRUCTION
- IRON PIPE (FND)
- IRON BOUND (FND)
- REBAR (FND)
- UTILITY POLE
- GUY WIRE
- SF — SILT FENCE
- SS — FILTREXX SILTSOXX (OR EQUAL)
- TREE LINE

SOILS & DEWATERING:

BnB	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnC	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnD	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnE	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
ScB	SCITICO	SILT CLAY	K= 0.20
ScC	SCITICO	SILT CLAY	K= 0.20
ScD	SCITICO	SILT CLAY	K= 0.20
ScE	SCITICO	SILT CLAY	K= 0.20
HoC	HOLLIS	COMPLEX	K= 0.43
HoD	HOLLIS	COMPLEX	K= 0.43
HoC/RK	HOLLIS	COMPLEX	K= 0.43
HoD/RK	HOLLIS	COMPLEX	K= 0.43
HoE/RK	HOLLIS	COMPLEX	K= 0.43
BnA	MAYBID	MARINE SEDIMENTS	K= 0.32
WfB	WINDSOR	SANDY LOAM	K= 0.17
WfC	WINDSOR	SANDY LOAM	K= 0.17
WfD	WINDSOR	SANDY LOAM	K= 0.17
WfE	WINDSOR	SANDY LOAM	K= 0.17

SEE SITE SPECIFIC SOILS MAP (SSSM)
SEE WEBSOIL USDA-NRCS
ERODIBILITY FACTOR - K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. &
ROCKINGHAM COUNTTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) AND OTHER NH SPECIFIC INFORMATION FOR THE U.S. EPA 2012 NPDES CONSTRUCTION GENERAL PERMIT (CGP)" DATED MAY 3, 2012 INCLUDED IN THE SWPPP.

COVER MANAGEMENT DURING CONSTRUCTION FOR EXPOSED SOIL WILL INCLUDE HAY / STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE, TEMPORARY SEEDING OF ANNUAL RYE GRASS, AND PERMANENT SEEDING AT THE EARLIES OPPORTUNITY. SEE ADDITIONAL REQUIREMENT FOR STABILIZATION ON THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS, E-101 AND E-102.

THE CONSTRUCTION SCHEDULE WILL BE MANAGED SO THAT ALL STORMWATER STRUCTURES WILL BE BUILT AND STABILIZED PRIOR TO RECEIVING SURFACE WATER RUNOFF. CONTRACTOR TO BE RESPONSIBLE FOR ALL DIVERSIONS DURING CONSTRUCTION AND FOR INTERIM SEDIMENT AND EROSION CONTROL MEASURES.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN WEST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THIS IS A RESIDENTIAL SUBDIVISION.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED ROADWAY KNOWN AS HAYDEN DRIVE.

7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 2' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2010. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

9.) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION

NOTES CONT.:

10.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

11.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

12.) AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

13.) THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

14.) ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.

15.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH (T) SHALL BE THERMOPLASTIC.

16.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.

17.) THE SPEED LIMIT ON MIDDLE ROAD IS 30 MPH.

LEGEND:

- DRILL HOLE ~FND~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- NH HIGHWAY BOUND ~FND~
- 3/4" IRON BOUND W/ ID CAP ~TBS~
- GRANITE BOUND ~TBS~
- SIGNAGE
- UTILITY POLE
- GUY WIRE
- OHU — OVERHEAD UTILITIES LINE
- POORLY DRAINED WETLAND LINE
- 50' POORLY DRAINED WETLAND BUFFER
- SHOULDER
- BUILDING SETBACK LINE
- SUBDIVISION BOUNDARY LINE
- CENTER LINE

S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP. TYPICAL
FND FOUND
PL PROPERTY LINE
EL EASEMENT LINE
R.O.W. RIGHT OF WAY
E.O.P. EDGE OF PAVEMENT
SSL (W) SINGLE SOLD LINE (WHITE)
DSL (Y) DOUBLE SOLID LINE (YELLOW)

CLEAR ZONE CALCULATION:

DESIGN SPEED: 30 MPH / 85TH PERCENTILE CALCULATED 46 MPH

SOUTHBOUND DESIGN ADT (2011): 985 (DOVER POLICE DEPARTMENT)

FROM AASHTO ROADSIDE DESIGN GUIDE (2011) TABLE 3.1 PAGE 3-3

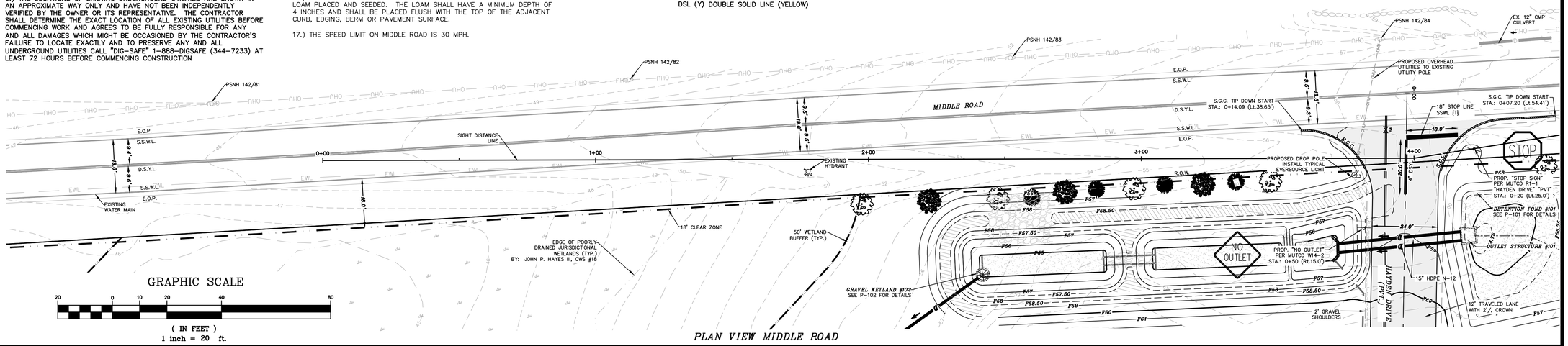
CLEAR ZONE REQUIRED TO BE 16-20 FEET (1V:5H TO 1V:4H)
-18 FEET HAS BEEN SELECTED

SIGHT DISTANCE REQUIREMENT:

DESIGN SPEED: 30 MPH
85TH PERCENTILE ESTIMATED: 46 MPH

WESTBOUND: 305 FEET REQUIRED (350 FEET PROVIDED)
EASTBOUND: 305 FEET REQUIRED (400 FEET PROVIDED)
MINIMUM 305' REQUIRED BY CITY OF DOVER

FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (2018) TABLE 3-1



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

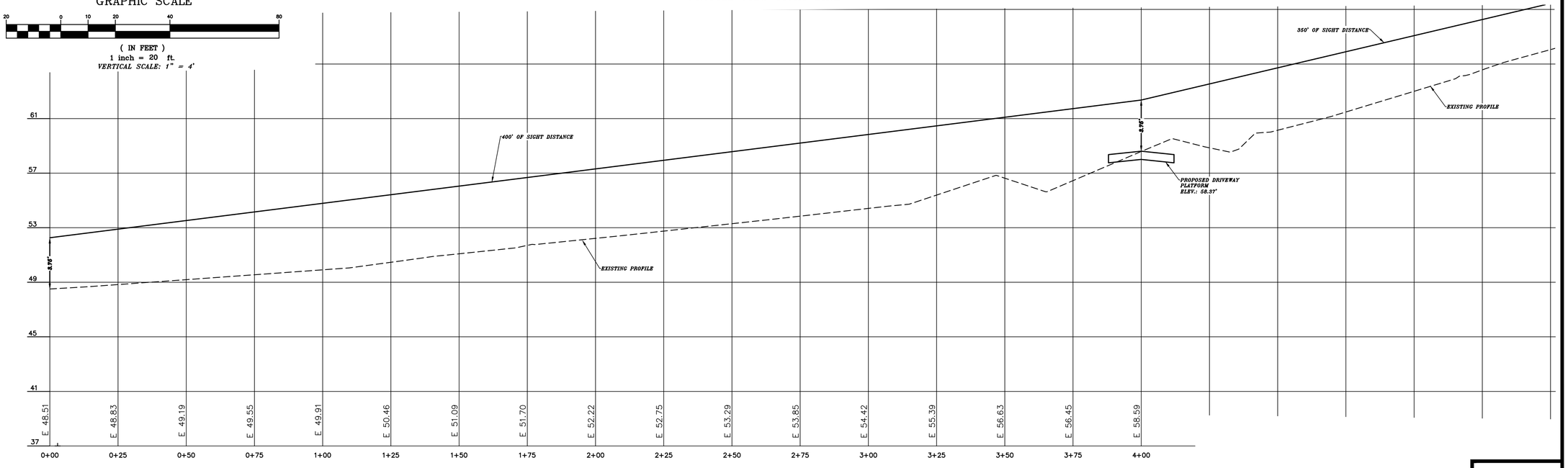
PLAN VIEW MIDDLE ROAD

PROFILE VIEW SIGHT LINE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



SD-1

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SIGHT DISTANCE PLAN EAST BOUND

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THIS IS A RESIDENTIAL SUBDIVISION.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED ROADWAY KNOWN AS HAYDEN DRIVE.

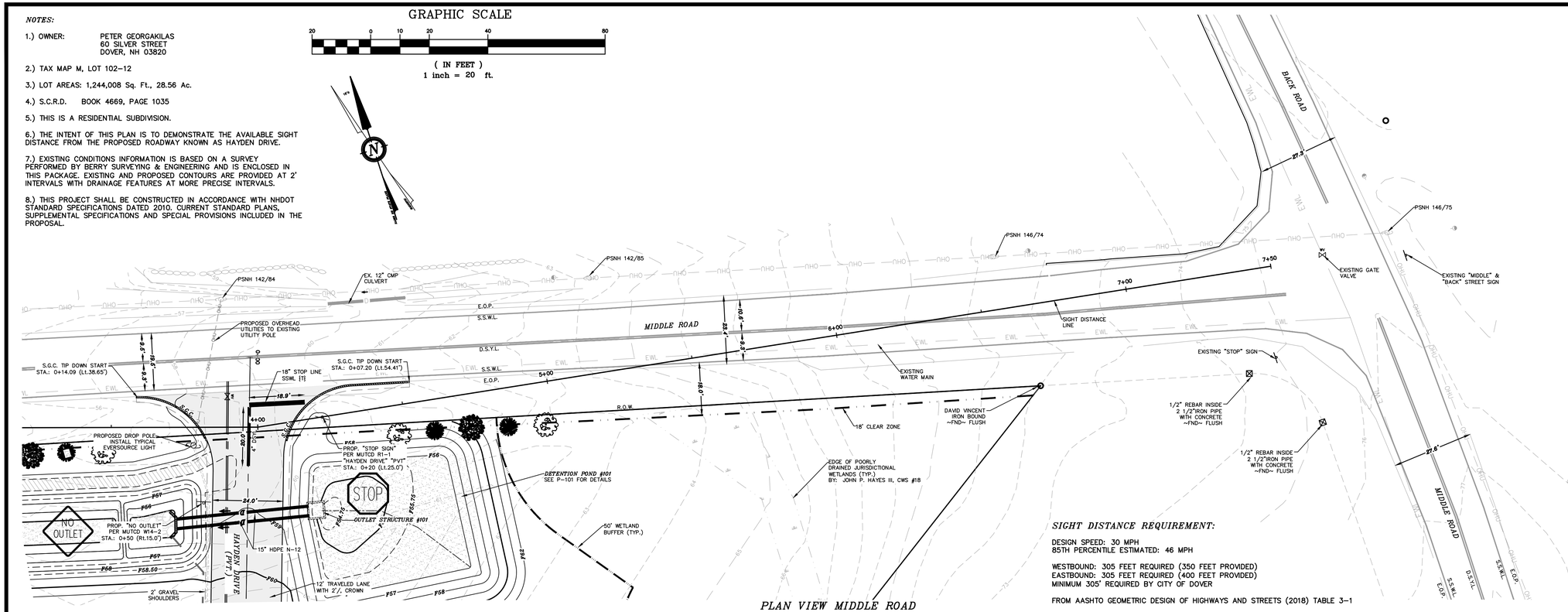
7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 2' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2010. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



PLAN VIEW MIDDLE ROAD

SIGHT DISTANCE REQUIREMENT:

DESIGN SPEED: 30 MPH
85TH PERCENTILE ESTIMATED: 46 MPH

WESTBOUND: 305 FEET REQUIRED (350 FEET PROVIDED)
EASTBOUND: 305 FEET REQUIRED (400 FEET PROVIDED)
MINIMUM 305' REQUIRED BY CITY OF DOVER

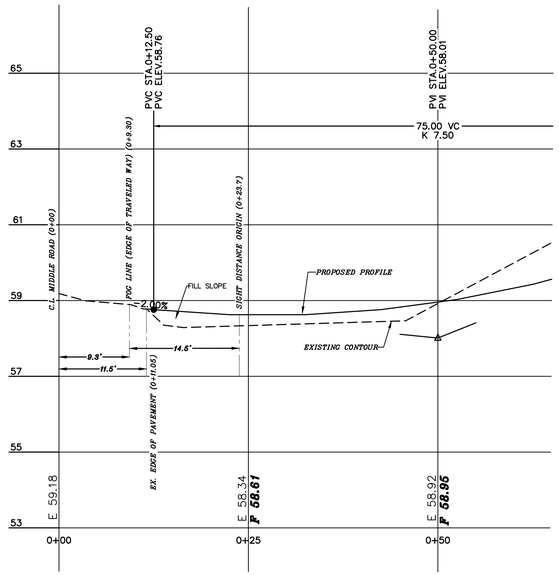
FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (2018) TABLE 3–1

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

VERTICAL SCALE: 1" = 2'



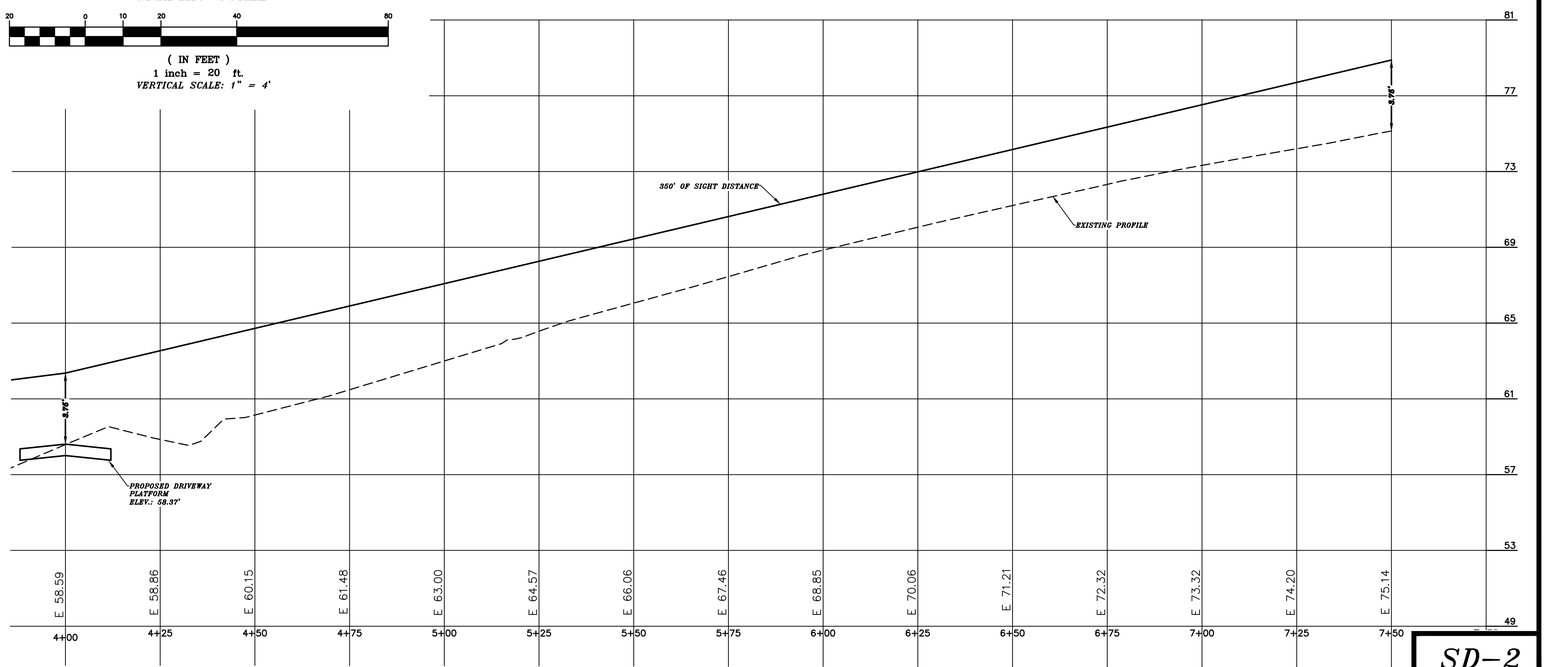
PROFILE HAYDEN DRIVE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'

PROFILE VIEW SIGHT LINE



SD–2

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SIGHT DISTANCE PLAN WEST BOUND

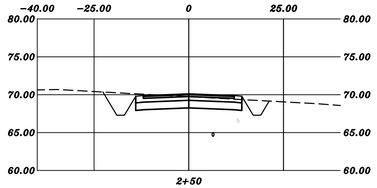
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

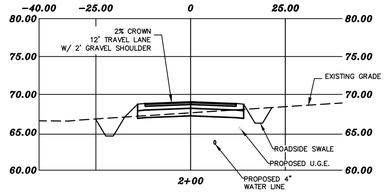
BERRY & SURVEYING ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

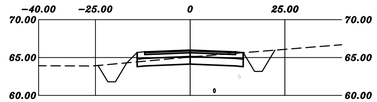
SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

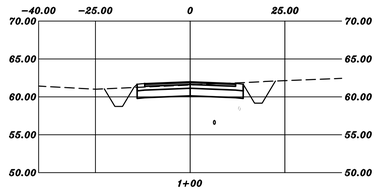
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14245
LICENSED PROFESSIONAL ENGINEER

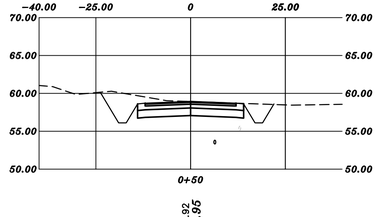
CROSS SECTIONS HAYDEN DRIVE 0+00 TO END

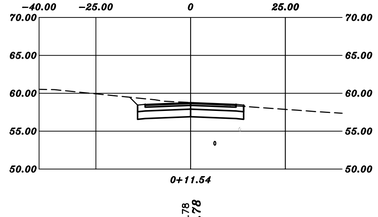


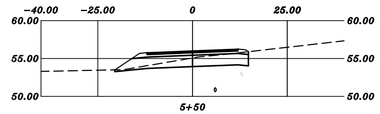


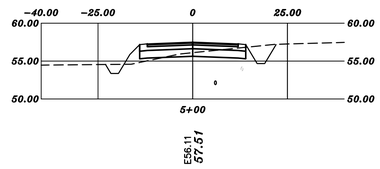


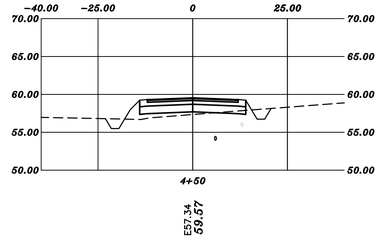


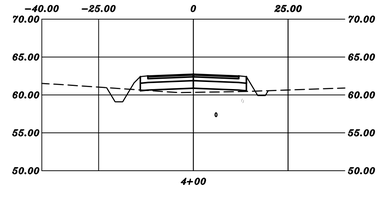


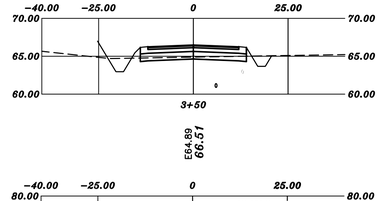


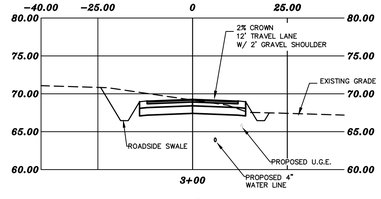








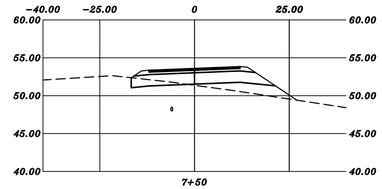


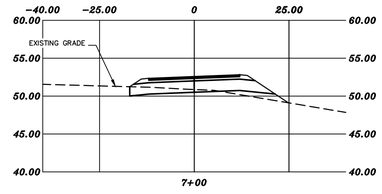


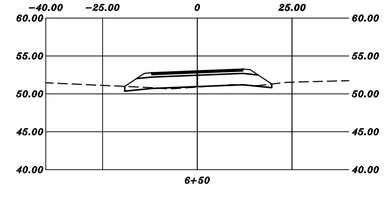
GRAPHIC SCALE

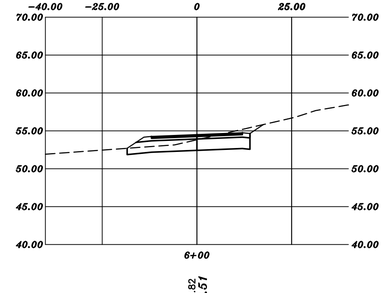
20 0 10 20 40 80

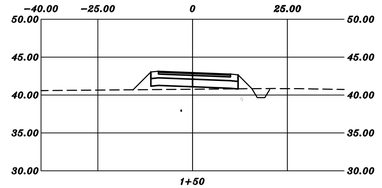
(IN FEET)
1 inch = 20 ft.
Vertical Scale 10

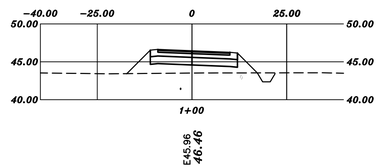


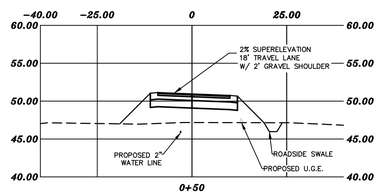


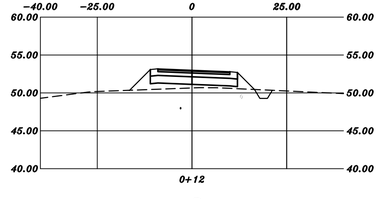








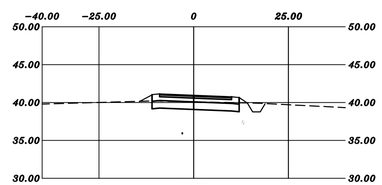


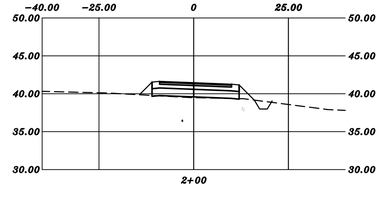


GRAPHIC SCALE

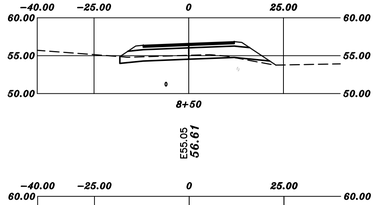
20 0 10 20 40 80

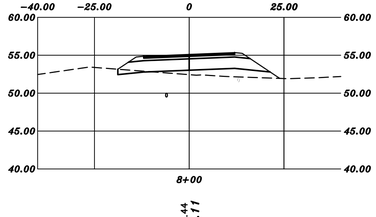
(IN FEET)
1 inch = 20 ft.
Vertical Scale 10





CROSS SECTIONS SHARED DRIVEWAY 0+00 TO END





CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CROSS SECTIONS

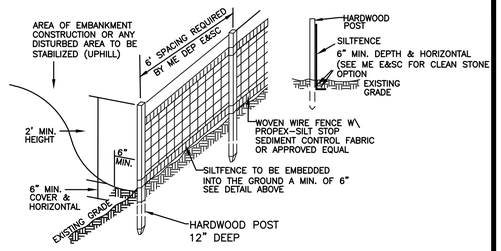
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY & SURVEYING ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

E1



SILT FENCE CONSTRUCTION SPECIFICATIONS

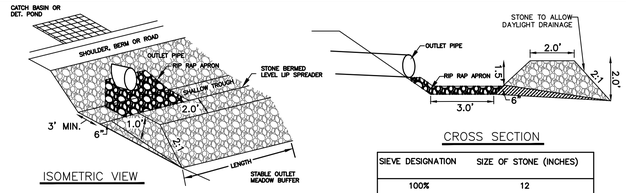
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 12" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 12" INTO THE GROUND.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF. SEE MAINTENANCE NOTE BELOW, REMOVAL OF SEDIMENT REQUIRED AT A DEPTH OF 6-INCHES.
4. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
5. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
6. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
7. TO BE CONSTRUCTED IAW ME E&SC BMPs B1 SEDIMENT CONTROLS, SILT FENCE, PAGE 23.

SILT FENCE MAINTENANCE

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH SIX-INCHES IN DEPTH.
4. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE DETAIL
NOT TO SCALE

E2



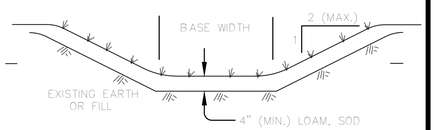
CROSS SECTION

SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84-100%	6
68-83%	3
42-55%	1
8-12%	NO. 4

1. CONSTRUCT THE LEVEL SPREADER LIP ON A 0% GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING EXCELSIOR ENFORCER MATTING BENEATH THE STONE. EACH STRIP SHALL OVERLAP BY AT LEAST SIX INCHES.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. MAINTENANCE: THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHOULD BE REMOVED. IF STONE REMOVAL HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED.
6. REFERENCE IS MADE TO ME E&SC SECTION G SWALES AND DITCHES #4 LEVEL SPREADERS, PAGE 77 AND ME SWM CHAPTER 8 CONVEYANCE SYSTEMS8.3 LEVEL SPREADERS.

STONE BERM LEVEL SPREADER
NOT TO SCALE

E3



GRASS DIVERSION SWALE
NOT TO SCALE

INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATIONS, VEGETATION LOSS, & INVASIVE SPECIES. REPAIR AS NECESSARY.

MOW GRASS ANNUALLY TO A DEPTH OF 4".

INSTALL STABILIZATION MATTING DURING CONSTRUCATION

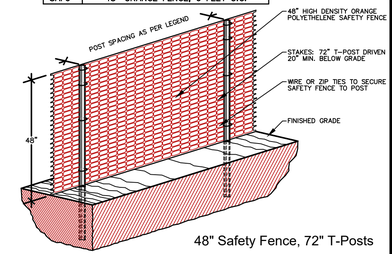
TO BE CONSTRUCTED IAW ME SWM SECTION 8, #1 VEGETATED SWALES AND ME E&SC SITE DEVELOPMENT, A4 WATER DIVERSION, PAGE 11.

E4

CONSTRUCTION SAFETY FENCE
NOT TO SCALE

LEGEND

SAF12	48" ORANGE FENCE, 12 FEET O.C.
SAF11	48" ORANGE FENCE, 11 FEET O.C..
SAF10	48" ORANGE FENCE, 10 FEET O.C.
SAF9	48" ORANGE FENCE, 9 FEET O.C.
SAF8	48" ORANGE FENCE, 8 FEET O.C..
SAF7	48" ORANGE FENCE, 7 FEET O.C.
SAF6	48" ORANGE FENCE, 6 FEET O.C.



48" Safety Fence, 72" T-Posts

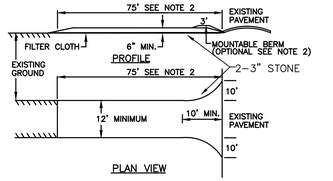
1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE AS PER PLAN.
3. WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
4. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
5. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

E5

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

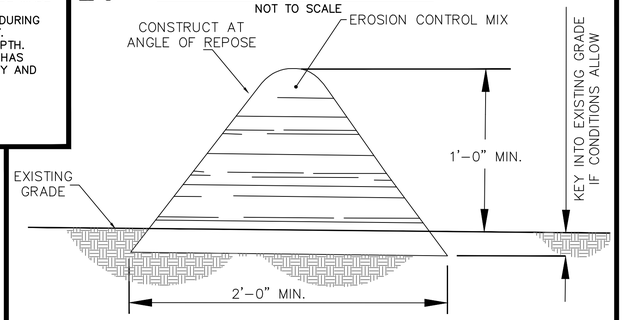


PLAN VIEW

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 2 - 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. TO BE CONSTRUCTED IAW ME E&SC SITE DEVELOPMENT #2 CONSTRUCTION ENTRANCE / EXIT, PAGE 8..

E6

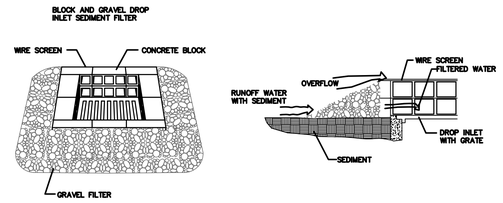
EROSION CONTROL MIX BERM
NOT TO SCALE



EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSLY AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%
4. SUBJECT TO (E), BELOW, THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
5. THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
6. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.
7. THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
8. THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
9. TO BE CONSTRUCTED IAW ME E&SC SECTION B SEDIMENT CONTROLS, #2 EROSION CONTROL MIX BERM, PAGE 24.

E7



MAINTENANCE

ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

BLOCK & GRAVEL DROP INLET SEDIMENT FILTER
NOT TO SCALE

TO BE USED IN ALL AREAS WHERE THERE WILL BE NO TRAFFIC.

TO BE CONSTRUCTED IAW ME E&SC SEDIMENT CONTROLS B5, STORM DRAIN INLET PROTECTION, PAGE 27.

E8

TEMPORARY EROSION CONTROL MEASURES

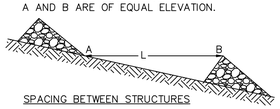
1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. (SEE SEED SPECIFICATIONS THIS SHEET)
4. ALL DISTURBED AREAS WILL BE RESTABILIZED WITHIN 45 DAYS. AT ANY ONE TIME, NO MORE THAN 5 ACRES, (217,800 Sq. Ft.) WILL BE DISTURBED.
5. SILT FENCES AND PERIMETER BARRIERS SHALL BE INSPECTED PERIODICALLY AND AFTER EVERY RAIN DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
6. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
7. PER THE EPA CGP REQUIREMENTS THERE WILL BE REPORTS OF THE EROSION CONTROL INSPECTIONS IAW SWPPP PREPARED BY BS&E. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OR GREATER RAIN EVENT.
8. DITCHES, SWALES, AND BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
9. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
10. DRIVEWAYS AND CUT AND FILL SPLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADE.
11. STABILIZATION MEANS:
    - 11.1. A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED.
    - 11.2. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED, OR
    - 11.3. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
12. THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
13. THE NHDES STORMWATER MANUAL, IN THREE VOLUMES, DATED DECEMBER 2008, IS A PART OF THIS PLAN SET AND THE MORE RESTRICTIVE WILL GOVERN. (NH SWM)

EROSION & SEDIMENT CONTROL DETAILS
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

E9

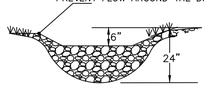
STONE CHECK DAM
NOT TO SCALE

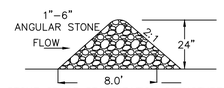
THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.



SPACING BETWEEN STRUCTURES

NOTE: KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIUM OF 18" TO PREVENT FLOW AROUND THE DAM.

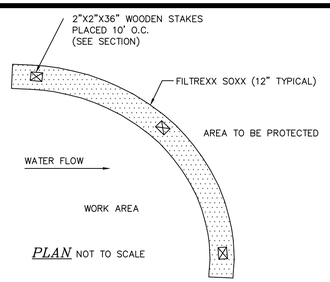




STONE GRADE STABILIZATION STRUCTURE

1.) CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2.) THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THEN ONE ACRE.
3.) THE MAXIMUM HEIGHT OF THE DAM SHOULD BE TWO FEET.
4.) THE CENTER OF THE DAM SHOULD BE AT LEAST SIX INCHES LOWER THAN THE OUTER EDGES.
5.) THE MAXIMUM SPACING IS AS SHOWN ON THE PROJECT SITE PLANS.
6.) CHECK DAMS WILL NOT BE USED IN A FLOWING STREAM.
7.) TEMPORARY CHECK DAMS WILL BE REMOVED ONCE THE SWALE OR DITCH IS DETERMINED STABLE.
8.) TO BE CONSTRUCTED IAW ME E&SC B4 4-2 SEDIMENT CONTROLS, STONE CHECK DAMS, PAGE 26.
9.) SILT SOXX (12 INCH) MAY BE SUBSTITUTED AS CHECK DAM WITH ADJUSTED SPACING (12.5' FOR 8% ROADWAY).

E10

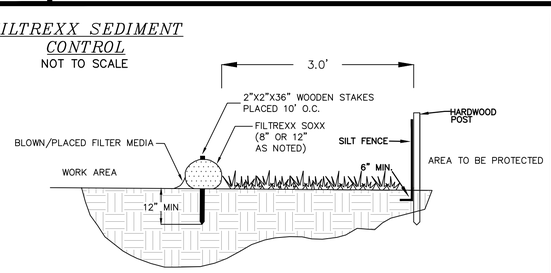


PLAN NOT TO SCALE

NOTES

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIRMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. SILTSOXX MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
5. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIRMENTS OF THE SPECIFIC APPLICATION.
6. FILTREXX SOXX IS A REGISTERED TRADEMARK OF FILTREXXIN TERNATIONAL, LLC.
7. SILT FENCE IS NOT A SUBSTITUTION FOR SILT SOXX AND ANY EQUAL SUBSTITUTION TO BE APPROVED.
8. TO BE CONSTRUCTED IAW FILTREXX, SECTION 1:EROSION & SEDIMENT CONTROL (PAGE 323) - CONSTRUCTION ACTIVITIES, SWPPP CUT SHEET: FILTREXX SEDIMENT CONTROL AND ME E&SC SEDIMENT CONTROLS B3 FILTER SOCKS, PAGE 25.

FILTREXX SEDIMENT CONTROL
NOT TO SCALE

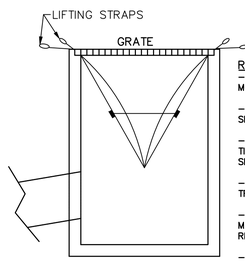


Filtrexx International, LLC
35481 Grafton Eastern Rd | Grafton, Oh 44044
440-926-2607 | fax: 440-926-4021
WWW.FILTREXX.COM
OR APPROVED EQUAL

NOTE: FOR AREAS REQUIRING DOUBLE PERIMETER CONTROL WITHIN 50' OF JURISDICTIONAL WETLANDS AND NOT FOR ALL SILT SOXX APPLICATIONS. THIS DUPLICATION MAY BE SPECIFIED AS 12" SILT SOXX OR ORANGE CONSTRUCTION FENCE AS NOTED.

SECTION NOT TO SCALE

E11



RECOMMENDED MAINTENANCE SCHEDULE

-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT, AND MUST BE MAINTAINED.

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS.

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

-TO BE USED IN ALL AREAS WHERE THERE WILL BE TRAFFIC.

- ARE SUBJECT TO DAMAGE BY SNOW PLOWS, AND MUST BE INSPECTED AFTER ANY SNOW EVENT AND REPLACED AS REQUIRED.

- TO BE CONSTRUCTED IAW ME E&SC SEDIMENT CONTROLS B5, STORM DRAIN INLET PROTECTION, PAGE 27.

STORM DRAIN INLET PROTECTION DETAIL
NOT TO SCALE

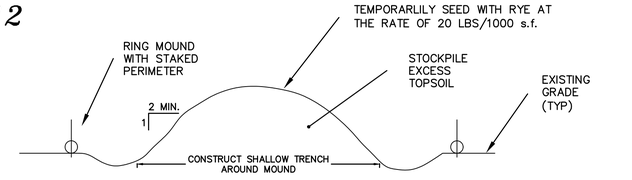
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS NOTED
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

E-101

E12



TO BE CONSTRUCTED IAW NH SWM #3 4–1 EROSION CONTROL PRACTICES, SOIL STOCKPILE PRACTICES, PAGE 46.

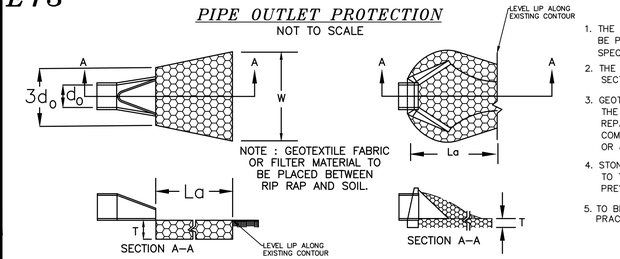
TOPSOIL STOCKPILE MOUND

NOT TO SCALE

E13

PIPE OUTLET PROTECTION

NOT TO SCALE



PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

PIPE OUTLET TO WELL–DEFINED CHANNEL

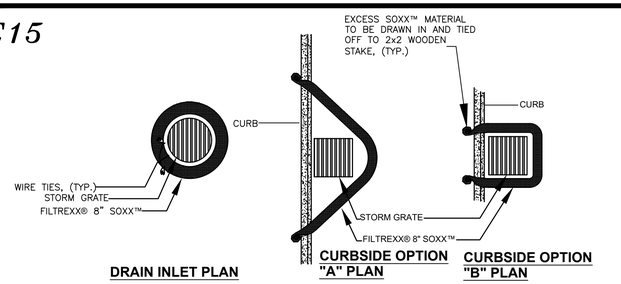
PIPE OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

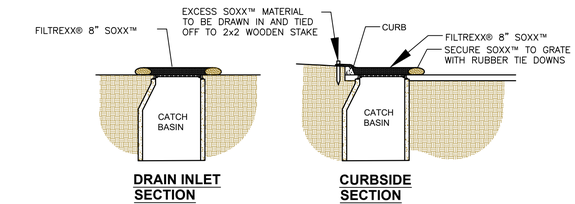
1. THE SUB GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS. SPECIFIED GRADATION.
2. THE ROCK OR GRAVEL USED FOR FILTER OF RIP RAP SHALL CONFORM TO NHDOT SECTION 583.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. TO BE CONSTRUCTED IAW NH SWM #2 4–6 CONVEYANCE PRACTICES, 6. OUTLET PROTECTION, PAGE 172.

E14

TABLE 7–24––RECOMMENDED RIP RAP GRADATION RANGES		
d50 SIZE= 0.5 FEET 6 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

E15





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.

FILTREXX INLET PROTECTION

NOT TO SCALE

E16

NOTE: THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	GOOD	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH–PM–24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7–36.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

RECOMMENDED *

SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	24	0.55
CREEPING RED FESCUE	24	0.55
BIRDS FOOT TREFOIL	REMOVED	REMOVED
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

CONSERVATION MIX	POUNDS PER ACRE	POUNDS PER 1,000 S.F.
TALL FESCUE (35%)	15	0.35
CREEPING RED FESCUE (25%)	15	0.35
ANNUAL RYEGRASS (12%)	5	0.12
PERENNIAL RYEGRASS (10%)	5	0.12
KENTUCKY BLUEGRASS (10%)	15	0.35
WHITE CLOVER (3%)	7	0.16

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED.
   WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEED BED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING
   AND INCORPORATED INTO THE SOIL KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE,
   THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
   AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100LBS. PER 1,000 SQ.FT.
   NITROGEN(N), 50LBS. PER ACRE OR 1.1LBS. PER 1,000 SQ.FT.
   PHOSPHATE(P2O5), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   POTASH(K2O), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   (NOTE: THIS IS THE EQUIVALENT OF 500LBS. PER ACRE OF 10–20–20 FERTILIZER OR 1,000LBS. PER ACRE OF 5–10–10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO TABLE(G–E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H–E1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT TREFOIL, AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.
6. TO BE CONSTRUCTED IAW NH SWM #3 4–1 EROSION CONTROL PRACTICES, PERMANENT VEGETATION, PAGE 60.

E17

CONSTRUCTION SEQUENCE:

1.) CUT AND REMOVE TREES IN CONSTRUCTION AREA ONLY AS REQUIRED, RELOCATE ANY PROJECT T.B.M.

2.) CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS SPECIFIED. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.

3.) EROSION, SEDIMENT AND DETENTION CONTROL FACILITY SHALL BE INSTALLED & STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.TEMPORARY DIVERSIONS MAY BE REQUIRED. POST CONSTRUCTION STORM WATER MANAGEMENT PRACTICES MUST BE INITIATED AND STABILIZED EARLY IN THE PROCESS.

4.) CLEAR, CUT AND DISPOSE OF DEBRIS IN APPROVED FACILITY

5.) CONSTRUCT TEMPORARY CULVERTS AS REQUIRED, OR DIRECTED

6.) CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY

7.) START BUILDING CONSTRUCTION

8.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. INSTALL RAIN GARDENS. ALLDISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.

9.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 60 DAYS BEFORE BEING STABILIZED. DAILY, OR AS REQUIRED. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES.

10.) CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.

11.) INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION. ALL SWPPP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORM WATER INSPECTOR (CESSW), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.

12.) COMPLETE PERMANENT SEEDING AND LANDSCAPING.

13.) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.

14.) SMOOTH AND REVEGETATE ALL DISTURBED AREAS.

15.) FINISH PAVING ALL ROADWAYS.

E18

DEFINITION OF STABLE:

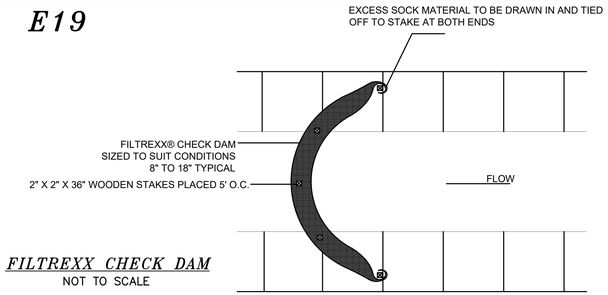
PER ENV–WQ 1500 ALTERATION OF TERRAIN

1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
2. A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED..
3. A MINIMUM OF 3 INCHES OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED.
4. OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

ADDITION STABILIZATION NOTES:

5. HAY MULCH OR OTHER APPROVED METHODS SHALL BE USED TO CONTROL EROSION OF NEWLY GRADED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER THEIR CONSTRUCTION.
6. DISTURBED SOIL AREAS SHALL BE EITHER TEMPORARILY OR PERMANENTLY STABILIZED. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN (7) CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN ONE HUNDRED (100) FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE (3) CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.

E19

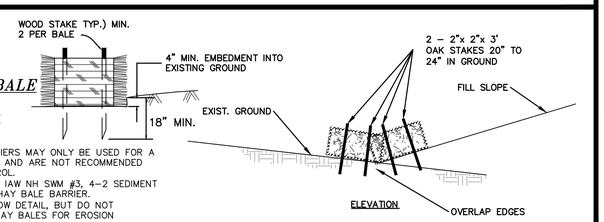


FILTREXX CHECK DAM

NOT TO SCALE

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. CHECK DAM SHOULD BE USED IN AREAS THAT DRAIN 1 ACRE OR LESS.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED ½ THE HEIGHT OF THE CHECK DAM.
4. CHECK DAM CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED™ INSTALLER.

E20

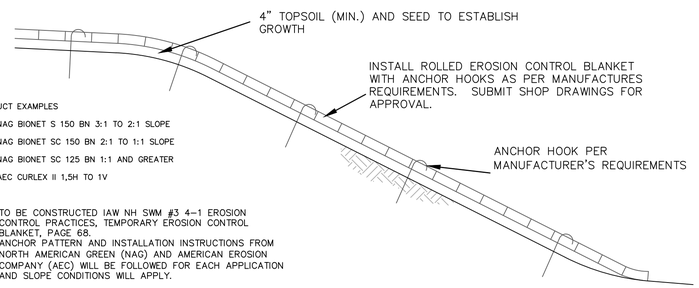


STAKED HAYBALE DETAIL

NOT TO SCALE

1.) HAY BALES BARRIERS MAY ONLY BE USED FOR A MAXIMUM OF 60 DAYS AND ARE NOT RECOMMENDED FOR PERIMETER CONTROL.
2.) TO BE INSTALLED IAW NH SWM #3, 4–2 SEDIMENT CONTROL, STRAW OR HAY BALE BARRIER.
3.) REQUIRED TO SHOW DETAIL, BUT DO NOT RECOMEND USE OF HAY BALES FOR EROSION CONTROL.

E21



PRODUCT EXAMPLES

1.) NAG BIONET S 150 BN 3:1 TO 2:1 SLOPE
2.) NAG BIONET SC 150 BN 2:1 TO 1:1 SLOPE
3.) NAG BIONET SC 125 BN 1:1 AND GREATER
4.) AEC CURLEX II 1,5H TO 1V

1. TO BE CONSTRUCTED IAW NH SWM #3 4–1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 68.
2. ANCHOR PATTERN AND INSTALLATION INSTRUCTIONS FROM NORTH AMERICAN GREEN (NAG) AND AMERICAN EROSION COMPANY (AEC) WILL BE FOLLOWED FOR EACH APPLICATION AND SLOPE CONDITIONS WILL APPLY.

ROLLED EROSION CONTROL BLANKET (RECB)
SLOPE STABILIZATION DETAIL

NOT TO SCALE

E22

WINTER STABILIZATION NOTES

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3–4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3–4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.

2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.

3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15–25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.

4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3–4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION & SEDIMENT CONTROL DETAILS

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

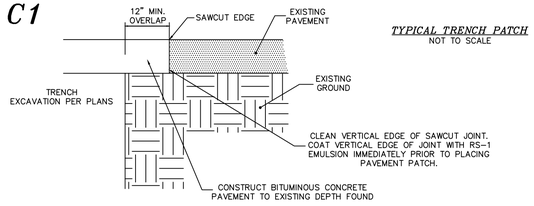
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : AS NOTED
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

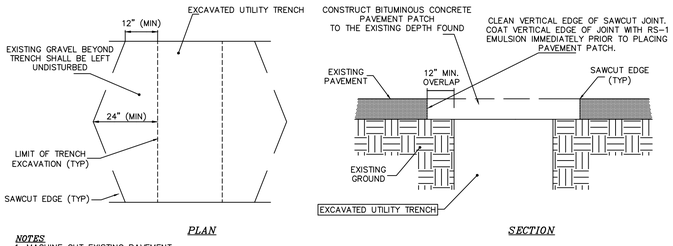
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14145
LICENSED PROFESSIONAL ENGINEER

E–102

C1



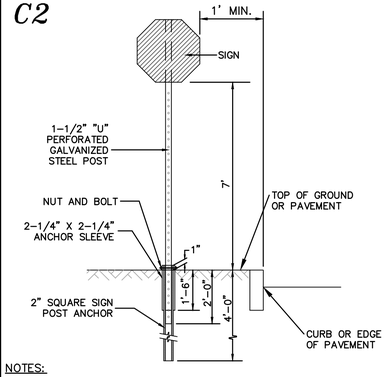
TYPICAL TRENCH PATCH
NOT TO SCALE



PLAN *SECTION*

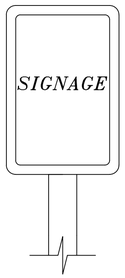
NOTES:
1. MACHINE CUT EXISTING PAVEMENT.
2. ALL TEMPORARY, DAMAGED, OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
3. DIAMOND PATCHES, SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET NHDOT REQUIREMENTS.

C2

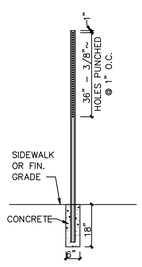


NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
3. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF DOVER DEPARTMENT OF PUBLIC WORKS.

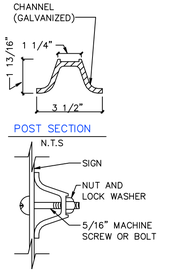
TYPICAL SIGN POST
(NOT TO SCALE)



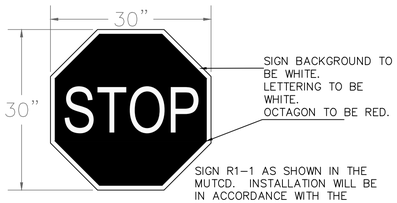
PARTIAL ELEVATION
N.T.S.



POST
N.T.S.



MOUNTING
N.T.S.



SIGN BACKGROUND TO BE WHITE. LETTERING TO BE WHITE. OCTAGON TO BE RED.

SIGN R1-1 AS SHOWN IN THE MUTCD. INSTALLATION WILL BE IN ACCORDANCE WITH THE MUTCD.

C3

affinity led lighting

AMERICAN BUILT — ASSEMBLED WITH PRIDE IN ITS VETERANS IN DOVER, NEW HAMPSHIRE

S800 Series Roadway Luminaire
LED Street & Area Lighting

The S800 Series distills the benefits of combining industry-leading components and LED technology with pragmatic design and American-Built reliability. The outstanding photometric performance results in sites with excellent uniformity, allowing greater pole spacing and lower power density. The S800 Series is the best alternative available for traditional street and area lighting with quick payback and improved performance.

Standard Features
- Night Sky Friendly (zero uplight) with integrated backlight-shield
- Reduced-glare optical lenses standard in Type II, Type III and Type V photometric distributions
- Available in 3000K, 4000K and 5000K Correlated Color Temperatures
- Tool-Less Entry with Connect-Safe™ for Lineman Friendly installation
- Die-Cast Aluminum Housing and Housing Door with Ultra-durable powder-coat finish that resists corrosion, abrasion and UV-degradation
- Integrated Tilt Adjustment ±5°
- Built-in Bird-Guard
- Input Voltage: 120-277V or 347-480V, 50/60Hz
- Ambient Operating Temperatures -40°C to +50°C
- Smart Ready with 7-pin Photocontrol Receptacle (per ANSI C136.41) and 0-10V Dimming Capability
- LED Lifetime Rating >120,000 hours L70 @55°C (per IESNA TM-21-11)
- 10-Year Limited Warranty

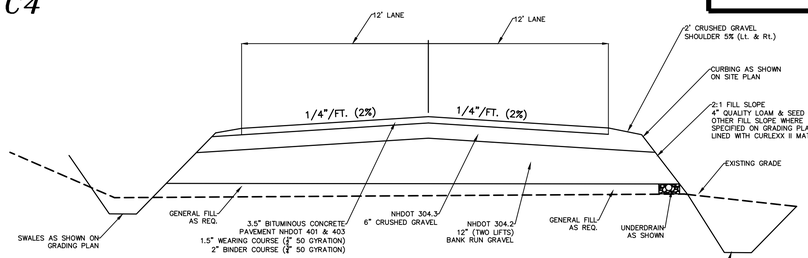
Product Specifications

EXAMPLE: S80X-XXW-X3K-TX-10-XX-M ⟹ S800-40W-40K-T2-10-GR-M

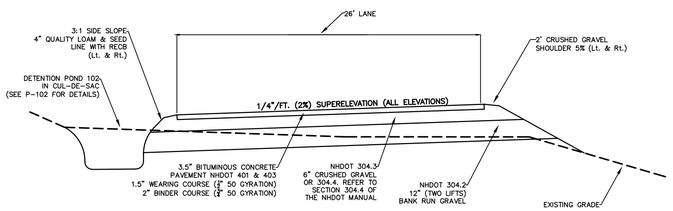
MODEL	POWER	COLOR	DISTRIBUTION	CONTROL OPTION	FINISH	DRIVER
S800	20W 30W 40W 60W	30K: 3000K 40K: 4000K 50K: 5000K	T2: Type II T3: Type III T5: Type V	10: 0-10V Dimming	BR: Bronze BL: Black GR: Grey WH: White	M: Meanwell
S801	80W 100W	57K: 5700K				

EVERSOURCE POLE MOUNTED LAMP

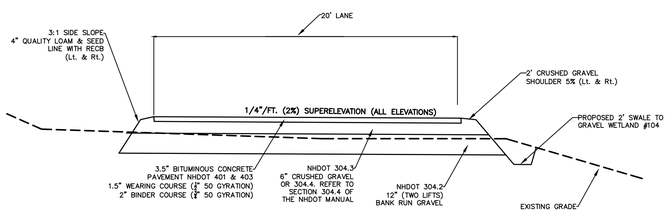
C4



TYPICAL ROADWAY SECTION
0+00–5+10.29
NOT TO SCALE

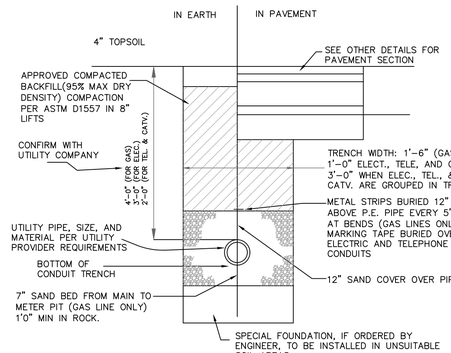


TYPICAL CUL-DE-SAC SECTION
5+10.29–END
NOT TO SCALE



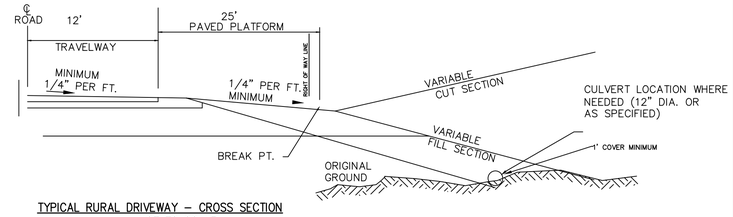
TYPICAL SHARED DRIVEWAY
0+00–END
NOT TO SCALE

C5



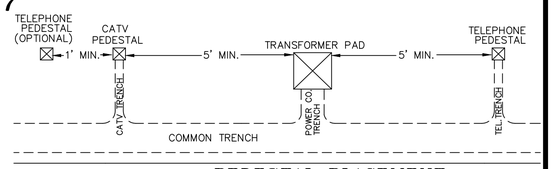
ELECTRICAL, TELEPHONE, AND GAS TRENCH
NOT TO SCALE

C6



TYPICAL RURAL DRIVEWAY – CROSS SECTION
NOT TO SCALE

C7



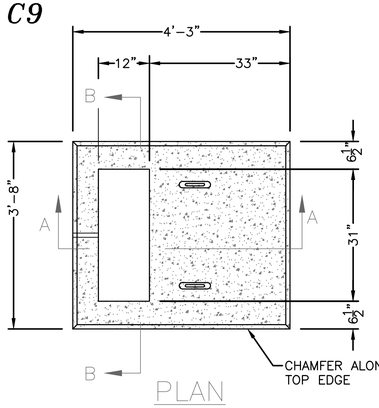
PEDESTAL PLACEMENT
NOT TO SCALE

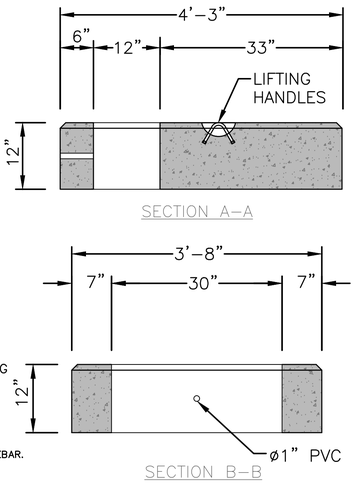
C8

TYPICAL RESIDENTIAL LAMP

MOUNTED 8' ON UNITS

C9





NOTES:
1. CONCRETE MINIMUM STRENGTH 4,000 PSI AFTER 28 DAYS
2. REINFORCEMENT STEEL CONFORMS TO ASTM A615 GRADE 60 #6 REBAR.
3. MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS.
4. MUST BE A SHEA CONCRETE PRODUCT OR EQUAL.

TRANSFORMER AND PAD DETAIL
NOT TO SCALE

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

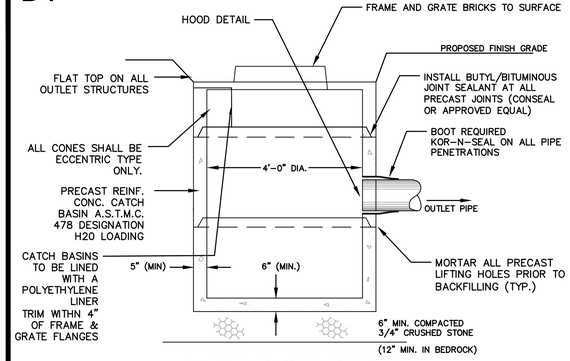
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS NOTED
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY No. 14243 — LICENSED PROFESSIONAL ENGINEER

C-101

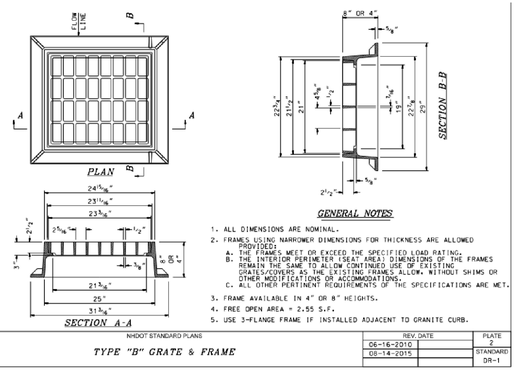
D1



CATCH BASIN DETAIL

NOT TO SCALE

D2



GENERAL NOTES

1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THEY MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS.
4. FREE OPEN AREA = 2.55 S.F.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

NHDOT STANDARD PLANS

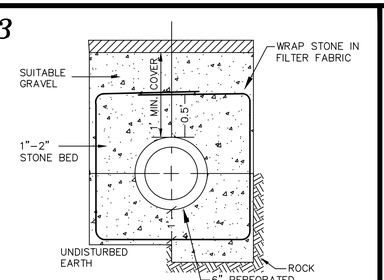
REV. DATE		PLATE
06-16-2010		2
08-14-2015		STANDARD
		SB-1

TYPE "B" GRATE & FRAME

CATCH BASIN GRATE

NOT TO SCALE

D3



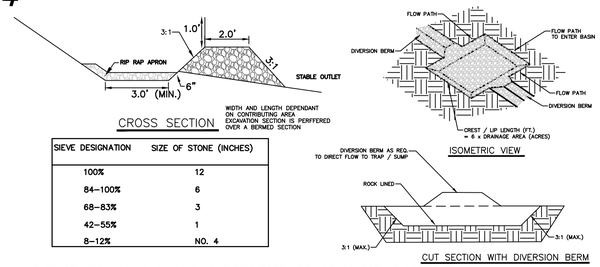
NOTE:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.

UNDERDRAIN TRENCH DETAIL

NOT TO SCALE

D4



SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84-100%	6
68-83%	3
42-55%	1
8-12%	NO. 4

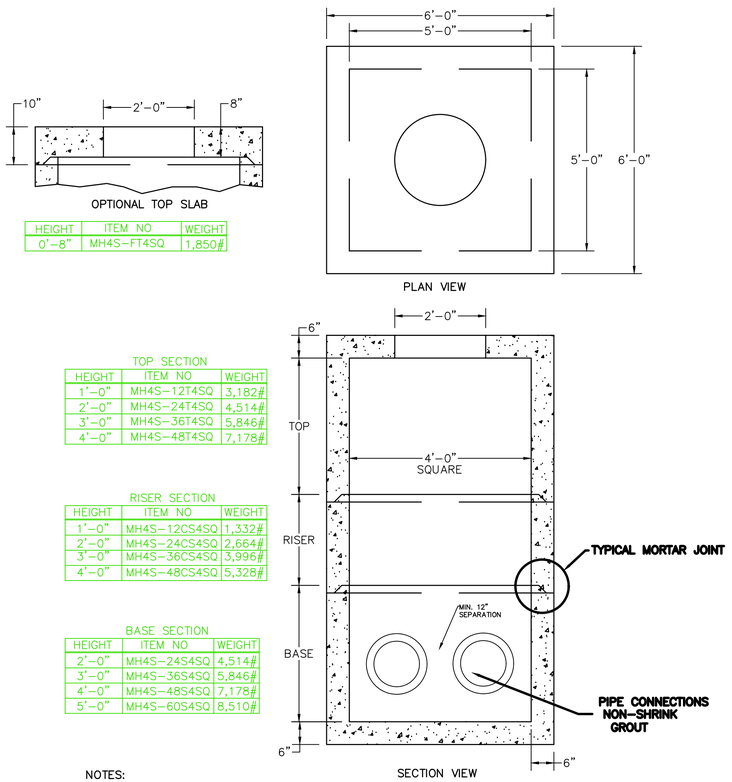
1. TRAP TO BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
6. THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

STONE LINED SEDIMENT TRAP

D5

5' X 5' BOX MANHOLE

NOT TO SCALE



HEIGHT	ITEM NO	WEIGHT
0'-8"	MH4S-FT4SQ	1,850#

TOP SECTION

HEIGHT	ITEM NO	WEIGHT
1'-0"	MH4S-12T4SQ	3,182#
2'-0"	MH4S-24T4SQ	4,514#
3'-0"	MH4S-36T4SQ	5,846#
4'-0"	MH4S-48T4SQ	7,178#

RISER SECTION

HEIGHT	ITEM NO	WEIGHT
1'-0"	MH4S-12CS4SQ	1,332#
2'-0"	MH4S-24CS4SQ	2,664#
3'-0"	MH4S-36CS4SQ	3,996#
4'-0"	MH4S-48CS4SQ	5,328#

BASE SECTION

HEIGHT	ITEM NO	WEIGHT
2'-0"	MH4S-24S4SQ	4,514#
3'-0"	MH4S-36S4SQ	5,846#
4'-0"	MH4S-48S4SQ	7,178#
5'-0"	MH4S-60S4SQ	8,510#

NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN LOADING PER AASHTO HS-20, 1 TO 5 FEET COVER.
3. MANHOLE DESIGN SPECS CONFORM TO ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. MUST BE SHEA CONCRETE OR EQUAL.

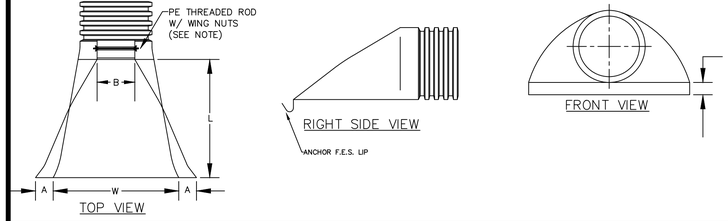
D6

PART No.	PIPE SIZE	A	B(MAX)	H	L	W
1510-NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810-NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410-NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	45" 1140 mm
3010-NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3610-NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

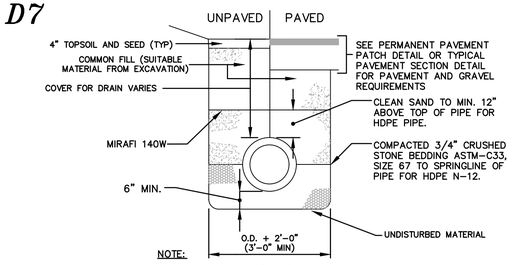
NOTE: PE THREADED ROD W/ WING NUTS PROVIDED FOR END SECTIONS 15"-24". 30" & 36" END SECTIONS TO BE WELDED PER MANUFACTURER'S RECOMMENDATIONS.

ADS N-12 FLARED END SECTIONS

NOT TO SCALE (ALL DIMENSIONS ARE NOMINAL)



D7



NOTE:

PLASTIC DRAIN PIPE (HDPE) SHALL BE ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.

TYPICAL DRAIN TRENCH

NOT TO SCALE

D8

ANGLE GRATE

NOT TO SCALE

NOTE:

MUST BE HAALA INDUSTRIES INC. OR EQUAL.

Angle Grates For Manholes

AG0808-58
Part No. AG0808-58

Save Trees

Angle Grates are designed to cover inlet orifices and prevent small to medium debris from passing through. The top angled design helps to minimize the amount of debris that settles on top after the water receeds. All grates are made from plate for a clean and smooth contact surface.

- Plate design for a clean appearance
- Standard 2" openings (other sizes can be made)
- Angled top/front plate to maximize debris deflection
- Mounting flanges on 3 sides allows grate to be mounted at floor level inverts
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D9

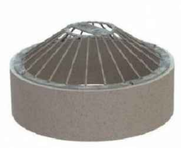
CONE GRATE

NOT TO SCALE

NOTE:

MUST BE HAALA INDUSTRIES INC. OR EQUAL.

Cone Grates Top Mount



CG12TM
Part No. CG12TM

Save Trees

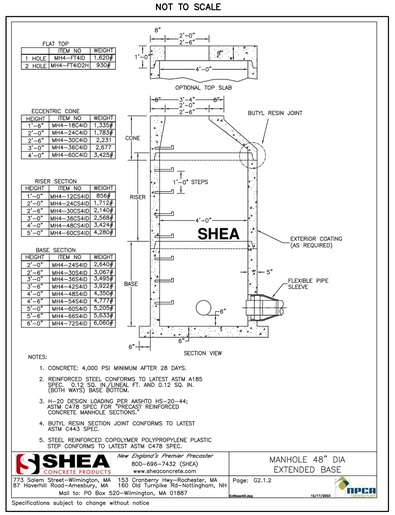
Top Mount Cone Grates are designed to mount on the top of round manhole inlet or outlet structures to keep debris from entering the storm water system. Top mount cone grates are easy to install and allow for at grade manhole installations but can be used in a variety of applications. Grates 96" and larger are made as a two piece, bolt together design.

- Plate and bar hybrid design is both clean and cost effective
- Made from 1/2" plate with 3/4" or 1" round bars depending on grate size
- Anti vortex plate can be added upon request
- Hinged and lockable access doors can be added upon request
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D10

48" MANHOLE ROUND EXTENDED BASE

NOT TO SCALE



NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44, ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

SHEA CONCRETE PRODUCTS — New England's Premier Precaster — 800-696-7432 (SHEA) — www.sheaconcrete.com
773 Salem Street-Wilmington, MA 87 Haverhill Road-Amesbury, MA 153 Cranberry Hwy-Rochester, MA 160 Old Turnpike Rd-Nottingham, NH
Mail to: PO Box 520-Wilmington, MA 01887
MANHOLE 48" DIA EXTENDED BASE
Page: G2.1.2
Specifications subject to change without notice

D-101

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

DRAINAGE DETAILS
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

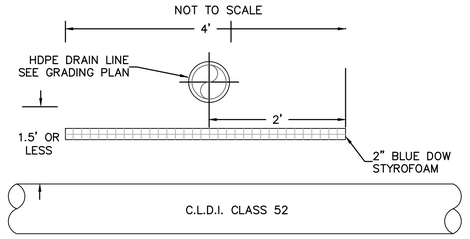
SCALE : AS NOTED
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY No. 14243 — LICENSED PROFESSIONAL ENGINEER

U1

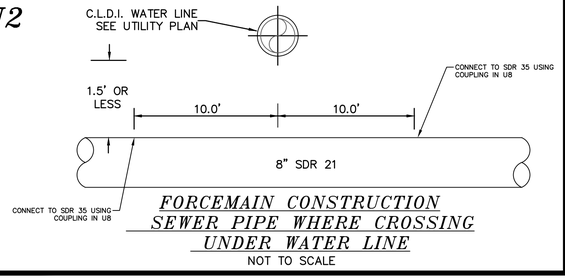
INSULATE WATER PIPE WHERE CROSSING UNDER DRAIN LINE

NOT TO SCALE



NOTE: THIS ONLY APPLIES IF 1.5' OF VERTICAL SEPARATION CAN NOT BE OBTAINED THIS ALSO APPLIES FOR THE REVERSE SITUATION

U2



FORCEMAIN CONSTRUCTION SEWER PIPE WHERE CROSSING UNDER WATER LINE

NOT TO SCALE

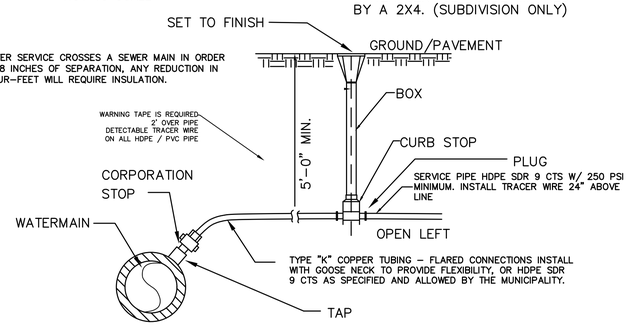
U3

TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE

THE END OF THE INSTALLED WATER SERVICE TO BE MARKED BY A 2X4. (SUBDIVISION ONLY)

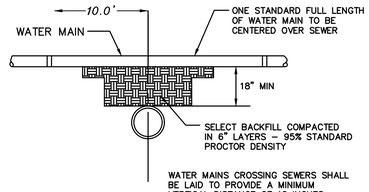
WHERE A WATER SERVICE CROSSES A SEWER MAIN IN ORDER TO PROVIDE 18 INCHES OF SEPARATION, ANY REDUCTION IN DEPTH TO FOUR-FEET WILL REQUIRE INSULATION.



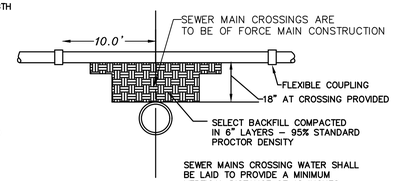
U4

SEPERATION NOTES:

1. WATER MAIN SHALL BE IN ACCORDANCE WITH THE "RECOMMENDED STANDARDS FOR WATER WORKS" SO-CALLED TEN STATE STANDARDS AND NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL DESIGN STANDARDS, ENV-WQ 700 ADOPTED OCTOBER 14, 2014.
2. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IF THIS DISTANCE CANNOT BE OBTAINED, THEN THE PIPES SHALL BE INSTALLED IN A SEPARATE TRENCH AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
3. VERTICAL SEPARATION REQUIREMENTS APPLY TO WATER AND SEWER MAINS AND SERVICE LINES. WHERE SEWER CROSSES WATER MAIN AND WATER SERVICE CROSSES SEWER MAIN, 18 INCH VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER OVER SEWER.



WATER MAIN ABOVE SEWER

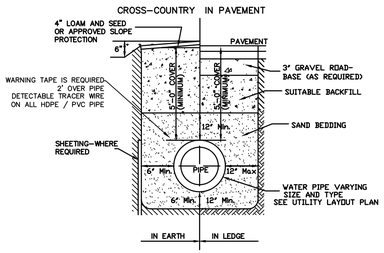


WATER MAIN BELOW SEWER

TYPICAL WATER/SEWER SEPERATION DETAILS

NOT TO SCALE

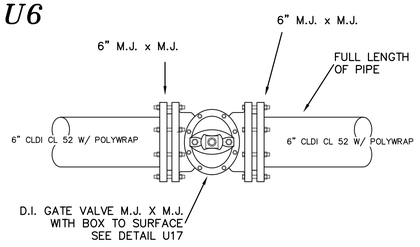
U5



TYPICAL TRENCH DETAIL FOR WATER SYSTEM

NOT TO SCALE

U6



SHUTOFF VALVE DETAIL

NOT TO SCALE

1.) ALL VALVES ARE TO OPEN RIGHT
2.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS

U7

TYPICAL THRUST BLOCKS

NOT TO SCALE

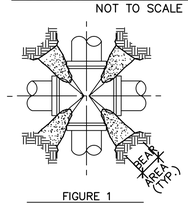


FIGURE 1
CROSS
(ONLY REQ'D IF ANY LEG IS LESS THAN 60 FT. LONG)

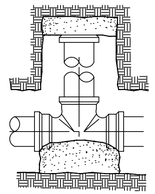


FIGURE 2
TEE, PLUG OR CAP

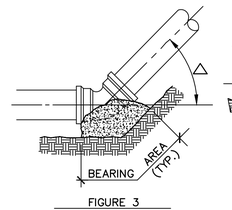


FIGURE 3
HORIZONTAL OR
UPWARD VERTICAL BEND

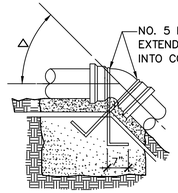


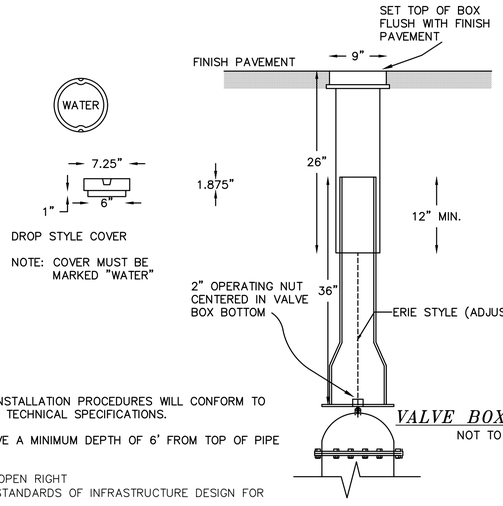
FIGURE 4
DOWNWARD VERTICAL BEND

PIPE I.D.	BEARING AREA, SQUARE FEET						VOLUME OF CONC. CU.YD		
	FIGURE 1	FIGURE 2	FIGURE 3, △				FIGURE 4, △		
			90°	45°	22-1/2°	11-1/4°	45°	22-1/2°	11-1/4°
4"	2	2	2	1	1	1	1.0	.5	.5
6"	2	3	3	2	1	1	1.5	1.0	.5
8"	2	5	6	3	2	1	2.0	1.0	.5
10"	3	7	10	5	3	1	4.0	2.0	1.0
12"	3	10	14	8	4	2			
14"	4	14	20	10	5	3			
16"	4	20	24	12	7	4			
18"	5	24	30	16	10	5			
20"	5	28	40	20	12	6			

GENERAL NOTES:

1. ALL FITTINGS & EXPOSED REBAR TO BE RAPPED W/ TWO LAYERS OF 6 MIL. POLYETHYLENE WHERE COVERED WITH CONCRETE.
2. ALL CONCRETE SHALL BE CLASS C 3000 P.S.I. MINIMUM 28 DAYS COMPRESSIVE STRENGTH.
3. PLACE CONCRETE AGAINST UNDISTURBED EARTH.
4. TABLE DENOTES MINIMUM BEARING AREA OR VOLUME OF THRUST BLOCK. SPECIAL DESIGN FOR EACH INSTALLATION IS REQUIRED IF ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN 3000 P.S.F.
5. VERTICAL SURFACES NOT BEARING AGAINST UNDISTURBED EARTH SHALL BE FORMED.
6. KEEP CONCRETE AWAY FROM FLANGE BOLTS AND FITTINGS.
7. MECHANICAL JOINTS AT ALL FITTINGS IE: BENDS,
8. TEES, CROSSES, AND VALVES SHALL BE THRUST RESTRAINT. (MEGA-LUG OR APPROVED EQUAL.

U8



NOTES:

1.) ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO LOCAL WATER WORKS TECHNICAL SPECIFICATIONS.

2.) ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 6' FROM TOP OF PIPE TO FINISH GRADE.

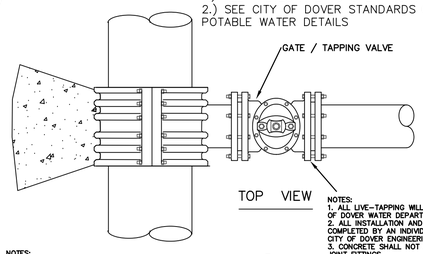
3.) ALL VALVES ARE TO OPEN RIGHT
4.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS

VALVE BOX DETAIL

NOT TO SCALE

U9

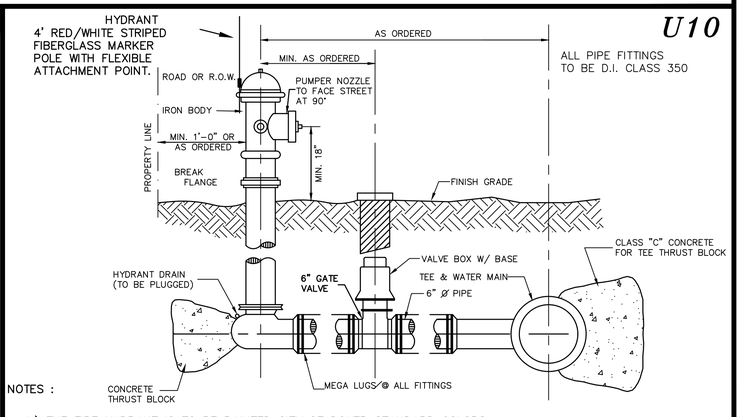
1.) ALL VALVES ARE TO OPEN RIGHT
2.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS



DETAIL FOR STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

NOT TO SCALE

U10



NOTES :

1.) THE FIRE HYDRANT IS TO BE PAINTED CITY OF DOVER STANDARD COLORS AND BE EQUIPPED WITH A HYDRANT LOCATOR.
2.) THE FIRE HYDRANT SHALL BE THE "EDDY" TYPE.
3.) GATE VALVES OPEN LEFT.

HYDRANT INSTALLATION DETAIL

NOT TO SCALE

U-101

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

UTILITY DETAILS
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS NOTED
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

SHEET 30 OF 30

P20-51 **Middle Road**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
M0083-007000	52 OVERLOOK DR	SCIRE WILLIAM E &	SCIRE PENNY E	52 OVERLOOK DR	DOVER	NH	03820
M0083-015000	62 QUAKER LN	COMEFORD JEREMIAH		PO BOX 1173	DOVER	NH	03821
M0083-016000	59 QUAKER LN	MORE ASHISH &	MORE SARAH	59 QUAKER LN	DOVER	NH	03820
M0087-000000	193 MIDDLE RD	WELCH PATRICIA E TRUSTEE	WELCH PATRICIA E REVOCABLE LIVING TRUST	193 MIDDLE ROAD	DOVER	NH	03820
M0088-001000	209 MIDDLE RD	MONTECALVO RYAN P &	MONTECALVO ALLISON N	209 MIDDLE RD	DOVER	NH	03820-5002
M0089-000000	315 MIDDLE RD	GAGNON SCOTT C TRUSTEE	GAGNON SCOTT REVOCABLE TRUST	315 MIDDLE RD	DOVER	NH	03820
M0089-C00000	291 MIDDLE RD	SPALDING MELISSA		291 MIDDLE RD	DOVER	NH	03820
M0089-D00000	309 MIDDLE RD	HACKETT THEODORE S &	HACKETT CYNTHIA A	309 MIDDLE ROAD	DOVER	NH	03820
M0089-E00000	297 MIDDLE RD	MAMIGONIAN CARL H & SHARON J TRUSTEES	MAMIGONIAN CARL AND SHARON REVOCABLE LIV	297 MIDDLE RD	DOVER	NH	03820
M0091-B00000	278 MIDDLE RD	MCKENNA JAMES F & JOANNE E TRUSTEES	MCKENNA JAMES AND JOANNE REVOCABLE LIVIN	278 MIDDLE ROAD	DOVER	NH	03820
M0092-A00000	BACK RD	LANGS PATRICIA		10 HAWTHORN ROAD	DOVER	NH	03820
M0101-001000	212 MIDDLE RD	BERGER GLENN &	BERGER SUZANNE	212 MIDDLE RD	DOVER	NH	03820
M0101-002000	210 MIDDLE RD	KLEIN MATTHEW R &	BLEYENBERG JULIE A	210 MIDDLE RD	DOVER	NH	03820-5001
M0101-003000	214 MIDDLE RD	MCMANUS JAMES &	MCMANUS KELLY	214 MIDDLE RD	DOVER	NH	03820
M0101-A00000	232 MIDDLE RD	O CONNELL ELIAS & PAULINE TRUS	O CONNELL FAMILY TRUST	232 MIDDLE RD	DOVER	NH	03820
M0102-000000	277 MIDDLE RD	DRISCOLL BRENDAN C		277 MIDDLE RD	DOVER	NH	03820
M0102-001000	268 MIDDLE RD	MINEROWICZ EDWARD	MINEROWICZ MARCIA	268 MIDDLE RD	DOVER	NH	03820
M0102-002000	262 MIDDLE RD	BEAUDOIN KENNETH D JR & CATHLEEN TRUSTEE	BEAUDOIN FAMILY TRUST	262 MIDDLE RD	DOVER	NH	03820
M0102-007000	9 EMERY LN	MAXWELL WILLIAM J & PATRICIA L TRUSTEES	MAXWELL WILLIAM AND PATRICIA REVOCABLE T	9 EMERY LN	DOVER	NH	03820
M0102-008000	15 EMERY LN	O CONNOR JOHN E & JANE R CO-TRUSTEES	O CONNOR FAMILY REVOCABLE TRUST OF 2016	15 EMERY LANE	DOVER	NH	03820-5011
M0102-009000	19 EMERY LN	BLACK TODD R & JULIE TRUSTEES	BLACK TODD AND JULIE M REVOCABLE TRUSTS	19 EMERY LANE	DOVER	NH	03820
M0102-010000	238 MIDDLE RD	TUNG PAUL C	TUNG LEA ANN	238 MIDDLE RD	DOVER	NH	03820
M0102-011000	MIDDLE RD	HAPPY MOUNTAIN HOLDINGS LLC		901 N MARKET STREET STE 705	WILMINGTON	DE	09801
M0102-012000	MIDDLE RD	GEORGAKILAS PETER		60 SILVER ST	DOVER	NH	03820
		BERRY SURVEYING & ENGINEERING	CHRISTOPHER BERRY	335 SECOND CROWN POINT RD	BARRINGTON	NH	03825

DRAINAGE ANALYSIS
&
EROSION & SEDIMENT CONTROL PLAN

Prepared for:

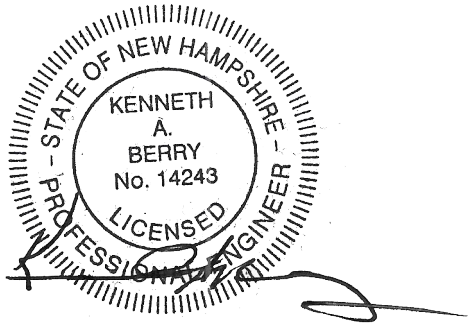
Peter Georgakilas
60 Silver Street
Dover, NH 03820

LOCATION

Open-space Subdivision
Tax Map M, Lot 102-12

Prepared by:

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825



Project Number:
DB 2019-114

August 11, 2020

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Appendix I - Existing Conditions Analysis

25 Yr-24 Hr. Full Summary
2 Yr- 24 Hr Node Listing
10 Yr -24 Hr. Node Listing
25 Yr-24 Hr. Node Listing
50 Yr-24 Hr. Node Listing
100 Yr-24 Hr. Node Listing

Appendix II - Proposed Conditions Analysis

25 Yr-24 Hr. Full Summary
2 Yr-24 Hr. Node Listing
10 Yr-24 Hr. Node Listing
25 Yr-24 HR. Node Listing
50 Yr-24 Hr. Node Listing
100 Yr-24 Hr. Node Listing

Appendix III - Calculations, Charts, & Graphs
Extreme Precipitation Tables
Rip Rap Calculations
AoT Stormwater Treatment Shreadsheets
NCRS USDA Web-soil Map
Inspection and Maintenance Manual Stormwater System Management
Watershed Report Card, 303(d) List, & ORW List

Enclosed: W-1 Sheet Existing Conditions Watershed Plan Sheet 1
W-2 Sheet Post Construction Watershed Plan Sheet 2
Erosion & Sediment Control Plan

Map by NH GRANIT

Legend

- Polygons
- State
- County
- City/Town

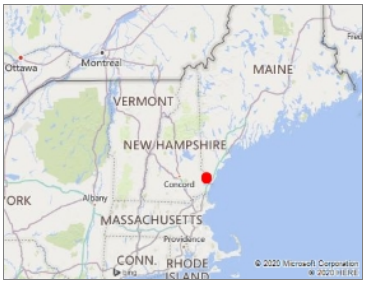
Map Scale

1: 24,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 5/19/2020

Notes



Map by NH GRANIT

Legend

- Polygons
- State
- County
- City/Town

Map Scale

1: 10,000

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Map Generated: 5/19/2020

Notes

DESIGN METHOD OBJECTIVES

The owner / developer of Tax Map M, Lot 102-12, Peter Georgakilas is proposing to develop the property at 277 Middle Road. The site currently is vacant land.

An Existing and Proposed Conditions analysis was conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate mitigation of drainage. There are two existing drainage discharge points which was identified in the existing analysis and duplicated in the proposed conditions analysis. There are also two depressions in the existing analysis that capture and hold surface water runoff. Designing two watershed models we have compared the differences in these rates of peak run-off and surface water volume. Sheet W1, Existing Conditions Watershed Plan, outlines the characteristics of the site in its existing or pre-construction conditions. The second analysis displays the proposed (post-construction) conditions (See Sheet W2). The analysis was conducted using data for; 2 Yr – 24 Hr (3.65”), 10 Yr – 24 Hr (5.50”), 25 Yr -24 Hr (6.96”), 50 Yr – 24 Hr (8.31”), and 100 YR-24 Hr (9.94”) storm events. Storm event analysis was accomplished using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. Rainfall quantities are based on the Extreme Precipitation Table for this location from the Northeast Regional Climate Center / Cornell University (http://precip.eas.cornell.edu). As Dover is considered a part of the Coastal Region, and therefore a 15% escalation on rain fall depths has been applied to this application.

1.0 Existing Conditions Analysis:

Reference: Sheet W1 - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plan

The existing parcel of land is vacant land currently, the residential house having been subdivided. The soils within the development area are made up of multiple soil types, containing Hydrologic Soil Group (HSG) A, B, C & D. See Site Specific Soils Map and report for more information. The parcel consists of Hollis Charlton complex soil as well as Boxford and Scitico soils. The land cover types involved are grass land, woods and road pavement.

The land area analyzed consists of 15.650 acres of the 28.56 acres of land area ownership. The parcel is naturally divided into three subcatchments by wetland fingers and streams that all drain to the Canney Brook which likewise divides the parcel. Each of the three existing Subcatchments are analyzed with an analysis reach and summed at the Final Analysis Reach.

Reach #100

Subcatchment #1, is land area in the northeast portion of the property and drains to a delineated wetland adjacent to Middle Road being analyzed at Analysis Reach #100.

Reach #200

Subcatchment #2, is land area in the center portion of the property and drains to a delineated wetland adjacent to Canney Brook and being analyzed at Analysis Reach #200.

Reach #300

Subcatchment #3, is land area in the sourthern portion of the property and drains to a delineated wetland and small stream, also adjacent to Canney Brook, and being analyzed as Reach #300.

Final Reach #1000

The Final Reach being analyzed is representative of the properties impact to the Canney Brook, however the brook itself is not being analyzed. Final Reach #1000 is the sum of the hydrographs from reaches 100 through 300.

2.0 Proposed Conditions Analysis:

Reference: Sheet W2 - Proposed Conditions Watershed Plan (Enclosed)
Proposed Grading & Drainage Plan

The proposal for development in the Open Space Subdivision includes dwelling units each with individual Limited Common Areas, a cul-de-sac road consisting of 877 feet of roadway and a common driveway that is 300 feet in length. The proposal is supported by two detention ponds and two subsurface gravel wetlands.

Reach #100

Subcatchment #1, from the Existing conditions analysis is divided into 6 subcatchments by the road network, detention pond (Pond #101), subsurface gravel wetland (Pond #102), and discharge level spreader. Subcatchment #1 is the area remaining after the proposal. Subcatchment #11 and #12 contributes runoff to Drop Inlet #1 and #2 (Pond #11 & #12) respectively. Subcatchment #4 contributes runoff to the detention pond (Pond #101) and Subcatchment $6 contributes runoff directly to the subsurface gravel wetland (Pond #102). Ruoff from Subcatchment #8 and the level spreader all drains to **Analysis Reach #100**.

Reach #200

Subcatchment #2, from the from the Existing Condition Analysis is divided into 10 subcatchment again by the road and common driveway, drop inlets, catch basins, detention pond which is the center of the cul-de-sac, swales, and subsurface gravel wetland. Subcatchment 13 and 14 contribute runoff to drop inlets 13 and 14 (Pond #13 & #14) and Subcatchment 20 and 21 contribute runoff to catch basins 20 and 21 (Pond #20 & #21) where the runoff is collected in the detention pond. Subcatchment 5 has runoff that falls directly on the detention pond (Pond #103) which discharges into a swale (Reach #5) and to a subsurface gravel wetland (Pond #104). Subcatchment #7 is directly around the subsurface gravel wetland and Subcatchment 9 directly around the level spreader (Pond #9). The discharge from the level spreader is overland (Reach #9) and emergency spill way from the subsurface gravel wetland overland (Reach #7), both of which discharge runoff to Analysis Reach #200.

Reach #300

Subcatchment #3 is reduced in size and contributes to the same Analysis Reach #300.

Final Reach #1000

The Final Reach being analyzed is representative of the properties impact to the Canney Brook, however the brook itself is not being analyzed. Final Reach #1000 is the sum of the hydrographs from reaches 100 through 300.

Stormwater Treatment:

Treatment takes place within the subsurface gravel wetlands designed to support the development on site. Pre-treatment will be provided in the sediment forebay's of the subsurface gravel wetlands. The stormwater quality volume capability is treated within provided treatment area of the practice.

3.0 FULL COMPARATIVE ANALYSIS

Peak Rate of Discharge

ANALYSIS	COMPONENT	PEAK RATE DISCHARGE (Cubic Feet / Second)				
		2 Yr	10 Yr	25 Yr	50 Yr.	100 Yr.
Final Reach #100	Existing	2.16	6.53	10.68	14.86	20.17
	Proposed	1.48	3.15	9.15	11.69	18.58
Final Reach #200	Existing	4.23	11.31	17.78	24.15	32.16
	Proposed	3.87	9.26	15.90	25.93	37.49
Final Reach #300	Existing	8.67	22.53	35.23	47.64	63.19
	Proposed	7.00	17.10	28.48	44.10	62.09
Final Reach #1000	Existing	8.67	22.53	35.23	47.64	63.19
	Proposed	7.00	17.10	28.48	44.10	62.09

ANALYSIS	COMPONENT	VOLUME (ACRE FEET)				
		2 Yr	10 Yr	25 Yr	50 Yr.	100 Yr.
Final Reach #1000	Existing	1.163	2.713	4.137	5.551	7.345
	Proposed	1.082	2.709	4.175	5.619	7.441

4.0 EROSION and SEDIMENT CONTROL PLAN & BEST MANAGEMENT PRACTICES (BMP's)

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plan
Erosion & Sediment Control Details

The proposed site development is protected from erosion and the abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA). Any area disturbed by construction will be re-stabilized within 30 days and abutting properties will not be adversely affected by this development. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them. Reference is also made to the Stormwater System Operation and Maintenance Plan / Inspection & Maintenance Manual which has been written specifically for this project and available to the owner.

Perimeter Control (Silt Fence / SiltSoxx / Erosion Control Mix Berm)

The plan set demonstrates the location of perimeter sediment control. The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation and maintenance of the silt fence, Filtrexx mulch filled SiltSoxx (or approved equal), and Erosion Control Mix Berm. There are locations on the site, for example bio-media rain garden protection, where SiltSoxx protection is specified

Detention Ponds

Description: Detention Ponds are also constructed ponds with the purpose of detaining runoff but not necessarily for infiltration purposes. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities of the existing soil. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 3B, In-ground Infiltration Basin and Section 4-6, Conveyance Practices, 2. Detention Basins.

Maintenance Considerations:
Infiltration Basins and Detention Ponds should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the infiltration system does not drain within 72-hours following a

rainfall event, a qualified professional will assess the condition of the basin to determine measures required to restore the infiltration function. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation should be inspected to ensure healthy condition. Invasive species need to be removed along with dead or diseased vegetation.

Subsurface Gravel Wetland

Description: A Gravel Wetland (NHDES SWM 4-3 Treatment Practice 2D) or Subsurface Gravel Wetland consists of a forebay and multiple flow-through treatment cells. During smaller rain events, the surface water runoff is intended to pass from the forebay, into the gravel media through perforated pipes and structures where it passes through an anaerobic environment where the Water Quality Volume will have 24-72 hours of contact time. The forebay is required to contain 10% of the WQV and each of the two cell must contain 45% of the WQV. During larger storm events, the system works as a detention pond. The design of a Subsurface Gravel Wetland will be constructed in accordance with the most current version of the Design Specifications provided by the UNH Stormwater Center and SWM Volume 2, Section 4-3 Treatment Practices, 2d Gravel Wetlands.

Maintenance Considerations: The outlet configuration of the anaerobic subsurface gravel consists of a small discharge orifice that is located in a threaded cap. This goose-neck feature is designed to be disassembled to allow cleaning. This outlet orifice is located within a concrete outlet structure that also contains a control stack used to control and detain runoff in the system. Although this is designed to be "clean water" after the filtering process, the outlet structure in general is going to require periodic maintenance to ensure that it is discharging runoff properly. If the Subsurface Gravel Wetland retains runoff on the surface for more than 72 hours the performance is not correct and maintenance is required.

Debris will need to be removed from the inlet and outlet structures as well as any buildup of sediment. The surface of the ponded area is intended to have wetland plants which may require periodic replanting, depending on the sediment loading. Sediment buildup in the forebay must be removed to maintain the minimum required volume. See also 9 and 10 of the attached UNHSC Subsurface Gravel Wetland Design Specifications 2009, and / or UNHSC Subsurface Gravel Wetland Design Specifications 2016 with Maintenance Guidelines and Checklist. See also Design and Maintenance of Subsurface Gravel Wetlands, (for NHDOT) by UNHSC. (Check List, Page 24 & 25, Attached)

Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet E-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer. (If applicable).

Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be 3" coarse aggregate, and the pad itself constructed to a minimum length of 75' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E-101- Erosion & Sediment Control Detail Plan. (If applicable).

Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

Vegetated Filter Strips / Buffers

Filter strips are areas of land with natural or planted vegetation designed to receive sheet run-off from up gradient development. These natural areas, preferably wooded, are effective in removing sediment and sediment-laden pollutants from such run-off, although their effectiveness is severely diminished when forced to deal with concentrated flow and must therefore be equipped with a level-spreading device. Filter strips should not have a slope exceeding fifteen percent and have a minimum length of seventy-five feet. Each buffer is individually specified and limits are located on the Sediment & Erosion Control Plan

Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-102 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions (If applicable).

Construction Sequence

1. Cut and remove trees in construction area only as required.

2. Construct and/or install temporary and permanent sediment erosion and detention control facilities as required.

3. Erosion, sediment and detention control facility shall be installed & stabilized prior to any earth moving operation & or directing runoff to them.

4. Clear, cut and dispose of debris in approved facility.

5. Construct temporary culverts as required, or directed.

6. Construct roadways for access to desired construction areas. All roads shall be stabilized immediately.

7. Install pipe and construction associated appurtenances as required or directed. Install rain gardens. All disturbed areas shall stabilized immediately after grading.

8. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded or mulched as required, or directed. No area is allowed to be disturbed for a length of time that exceeds 60 days before being stabilized. Daily, or as required. All roadways and parking areas shall be stabilized within 72 hours of

achieving finished grades. All cut and fill slopes shall be stabilized within 72 hours of achieving finished grades.

9. Construct temporary berms, drains ditches, silt fences, sediment traps, etc. mulch and seed as required.

10. Inspect and maintain all erosion and sediment control measures during construction.

11. Complete permanent seeding and landscaping.

12. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete.

13. Smooth and revegetate all disturbed areas.

14. Finish paving all roadways.

Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion, sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt fences and other barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired, sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and re-vegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 15 days of final grading, or temporarily stabilized within 30 days of initial disturbance of soil.

Inspection and Maintenance Schedule

Fencing (if used) will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. Depending on SWPPP criteria, all controls will be inspected either once every 7 days or once every 14 days and after storm events. Inspection reports must be submitted to City of Dover Engineering Department. See also Stormwater System Operation & Maintenance Plan and Inspection & Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) developed in accordance with EPA NPDES requirements & the City of Dover Stormwater regulations.

Corrective Action measures will be made in accordance with SWPPP requirements and records maintained on site by the Contractor.

5.0 **CONCLUSION**

Peak rates of runoff flow are modeled to be reduced in the post-construction analysis / condition, as compared to the pre-construction peak rates of runoff flow. This reduction occurs during the 10 Yr, 25 Yr, 50 Yr, and 100 Yr/24 Hr. extreme storm events due to the installation of the low impact development stormwater devices.

The volume of stormwater discharge from the site at is reduced due to construction grading, the detention in the detention ponds, and retention in the subsurface gravel wetlands. The gravel wetlands are designed to manage the stormwater volume to threat the runoff.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this site plan due to the area of disturbance being less than 100,000 SF. The impact is approximately 87,000 square feet, so that an EPA Notice of Intent will be required to be filed prior to construction and a Stormwater Pollution Prevention Plan prepared.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry, SIT 567
Principal, President

Kenneth A. Berry PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP - Technical Operations

James F. Hayden
Design Engineer / Project Manager

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
BzB	BOXFORD	C
BzC	BOXFORD	C
BzD	BOXFORD	C
BzE	BOXFORD	C
ScB/P	SCITICO (POORLY DRAINED)	C
ScC/P	SCITICO (POORLY DRAINED)	C
ScD/P	SCITICO (POORLY DRAINED)	C
ScE/P	SCITICO (POORLY DRAINED)	C
HcC	HOLLIS–CHARLTON COMPLEX (VERY ROCKY)	B
HcD	HOLLIS–CHARLTON COMPLEX (VERY ROCKY)	B
HcC/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcD/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcE/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
BeA/VP	MAYBID (VERY POORLY DRAINED)	D
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfC	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfD	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfE	WINDSOR VARIANT (CLAY SUBSOIL)	A

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

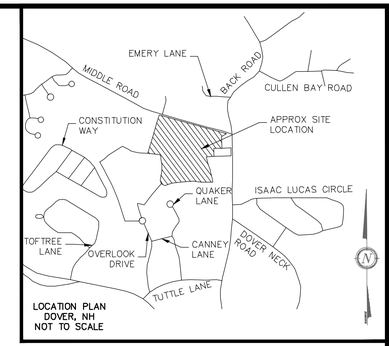
NRCS SOILS:

BzA – BUXTON SILT LOAM, 0 TO 3 PERCENT SLOPES
CfB – CHARLTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
ElmB – ELMWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
HcB – HOLLIS–CHARLTON FINE SANDY LOAMS, 3 TO 8 PERCENT SLOPES
HcC – HOLLIS–CHARLTON FINE SANDY LOAMS, 8 TO 15 PERCENT SLOPES
ScA – SCANTIC SILT LOAM, 0 TO 3 PERCENT SLOPES
ScB – SCANTIC SILT LOAM, 3 TO 8 PERCENT SLOPES
WfB – WINDSOR LOAMY FINE SAND, 0 TO 8 PERCENT SLOPES
WfC – WINDSOR LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES

SEE WEBSOIL USDA–NRCS

JOHN P. HAYES, III CWS #18

JOHN P. HAYES, III CSS #87



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THAT A PORTION OF THIS PARCEL DOES FALL WTHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW EXISTING WATERSHED ANALYSIS FOR THE SUBJECT PARCEL.

LEGEND:

- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- SPIKE ~FND~
- GRANITE BOUND ~FND~
- UTILITY POLE / GUY WIRE
- NRCS SOIL DELINEATION LINE
- BUILDING SETBACK LINE
- OVERHEAD UTILITIES LINE
- WATER LINE
- CONTOUR LINE, MINOR
- CONTOUR LINE, MAJOR
- WETLAND LINE
- "CANNEY BROOK"
- EXISTING STREAM
- EXISTING TRAIL
- WETLAND BUFFER
- CEMETERY BUFFER
- DRAINAGE LINE
- SOIL BOUNDARY
- LIMIT OF SITE SPECIFIC SOIL SURVEY
- 448A / CfB NRCS SOIL LABEL
- LIMIT OF SUBCATCHMENT
- TIME OF CONCENTRATION
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. TYPICAL
- FND FOUND

SYMBOLS LEGEND:

- # SUBCATCHMENT AREA SYMBOL
- # FLOW REACH SYMBOL
- # POND DEVICE SYMBOL
- Tc. (#) TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CONDITIONS WATERSHED OVERVIEW

W–1 EXISTING CONDITIONS WATERSHED OVERVIEW

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

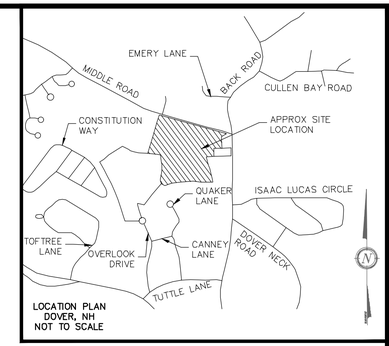
STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14240 LICENSED PROFESSIONAL ENGINEER

SHEET 1 OF 6

SEE SHEET 3 OF 6
FOR DETAILS

JOHN P. HAYES, III CWS #18

JOHN P. HAYES, III CSS #87



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

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60 SILVER STREET
DOVER, NH 03820

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LEGEND:

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- IRON PIPE ~FND~
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- 448A / CfB — NRCS SOIL LABEL
- LIMIT OF SUBCATCHMENT
- TIME OF CONCENTRATION
- S.C.R.D. — STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. — TYPICAL
- FND — FOUND

SYMBOLS LEGEND:

- SUBCATCHMENT AREA SYMBOL
- FLOW REACH SYMBOL
- POND DEVICE SYMBOL
- TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

W-1 EXISTING CONDITIONS WATERSHED PLAN – EAST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14240
LICENSED PROFESSIONAL ENGINEER

LEGEND:

- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- SPIKE ~FND~
- GRANITE BOUND ~FND~
- UTILITY POLE / GUY WIRE
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JOHN P. HAYES, III CWS #18

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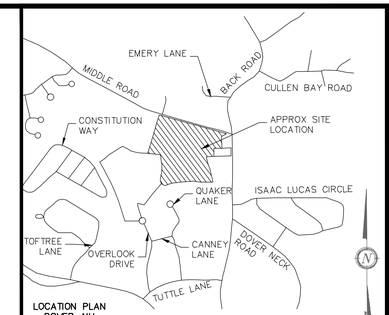

LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

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60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

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SEE SHEET 2 OF 6
FOR DETAILS

SYMBOLS LEGEND:

- # — SUBCATCHMENT AREA SYMBOL
- # — FLOW REACH SYMBOL
- # — POND DEVICE SYMBOL
- Tc. — TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

W-1 EXISTING CONDITIONS WATERSHED PLAN – WEST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14241
LICENSED PROFESSIONAL ENGINEER

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
BzB	BOXFORD	C
BzC	BOXFORD	C
BzD	BOXFORD	C
BzE	BOXFORD	C
ScB/P	SCITICO (POORLY DRAINED)	C
ScC/P	SCITICO (POORLY DRAINED)	C
ScD/P	SCITICO (POORLY DRAINED)	C
ScE/P	SCITICO (POORLY DRAINED)	C
HcC	HOLLIS–CHARLTON COMPLEX (VERY ROCKY)	B
HcD	HOLLIS–CHARLTON COMPLEX (VERY ROCKY)	B
HcC/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcD/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcE/Rk	HOLLIS–CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
BeA/VP	MAYBID (VERY POORLY DRAINED)	D
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfC	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfD	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfE	WINDSOR VARIANT (CLAY SUBSOIL)	A

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

NRCS SOILS:

BzA – BUXTON SILT LOAM, 0 TO 3 PERCENT SLOPES
CfB – CHARLTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
EaB – ELMWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
HcB – HOLLIS–CHARLTON FINE SANDY LOAMS, 3 TO 8 PERCENT SLOPES
HcC – HOLLIS–CHARLTON FINE SANDY LOAMS, 8 TO 15 PERCENT SLOPES
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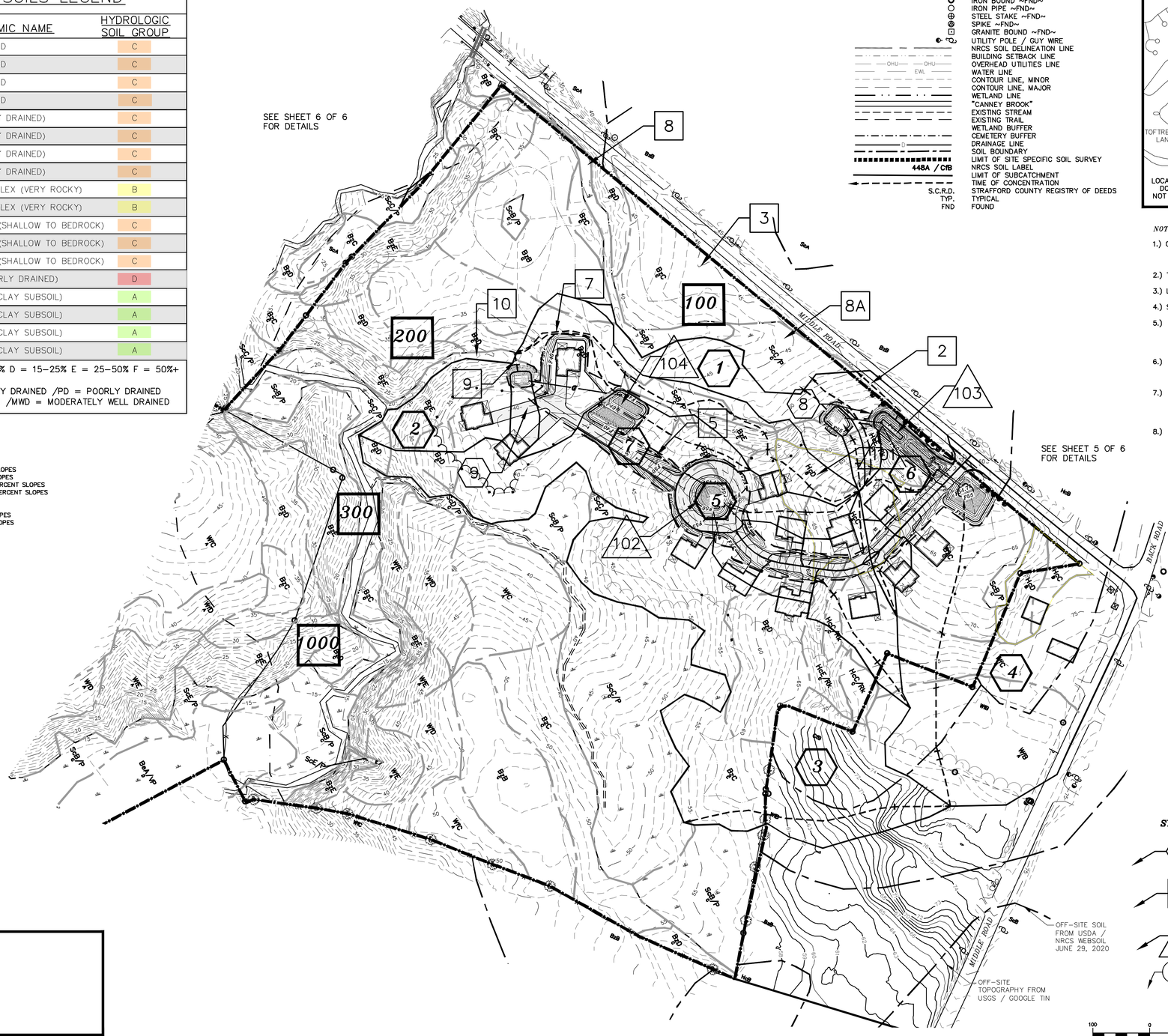
WfB – WINDSOR LOAMY FINE SAND, 0 TO 8 PERCENT SLOPES
WfC – WINDSOR LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES

SEE WEBSOIL USDA–NRCS



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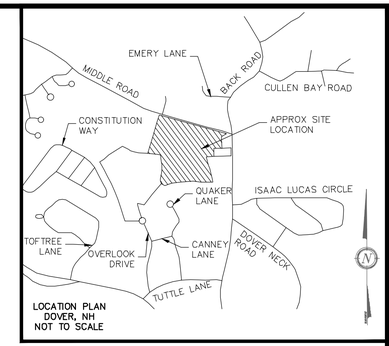

LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102–12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

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SYMBOLS LEGEND:

- # SUBCATCHMENT AREA SYMBOL
- # FLOW REACH SYMBOL
- # POND DEVICE SYMBOL
- Tc. TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

JOHN P. HAYES, III CWS #18

JOHN P. HAYES, III CSS #87

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

W–2 PROPOSED CONDITIONS WATERSHED OVERVIEW
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14242 – LICENSED PROFESSIONAL ENGINEER

JOHN P. HAYES, III CWS #18

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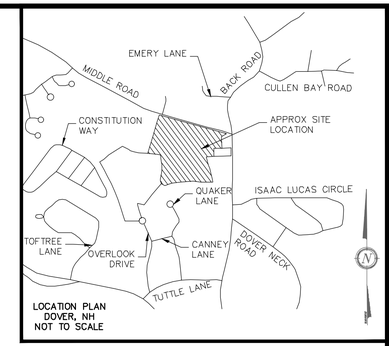

LOCATION PLAN
DOVER, NH
NOT TO SCALE

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- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. TYPICAL
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SYMBOLS LEGEND:

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- TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

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CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

W-2 PROPOSED CONDITIONS WATERSHED PLAN – EAST

LAND OF
PETER GEORGAKILAS
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DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : AUGUST 11, 2020
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STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14241
LICENSED PROFESSIONAL ENGINEER

LEGEND:

- IRON BOUND ~FND~
- IRON PIPE ~FND~
- STEEL STAKE ~FND~
- SPIKE ~FND~
- GRANITE BOUND ~FND~
- UTILITY POLE / GUY WIRE
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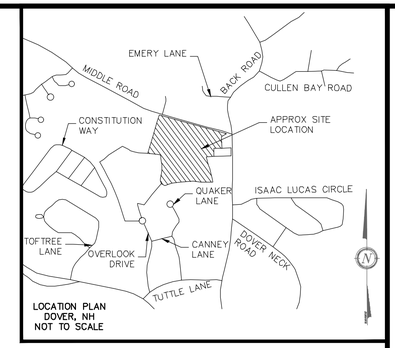

LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

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60 SILVER STREET
DOVER, NH 03820

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SEE SHEET 5 OF 6 FOR DETAILS

SYMBOLS LEGEND:

- SUBCATCHMENT AREA SYMBOL
- FLOW REACH SYMBOL
- POND DEVICE SYMBOL
- TIME OF CONCENTRATION SEGMENT

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50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

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LAND OF
PETER GEORGAKILAS
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TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
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STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14240
LICENSED PROFESSIONAL ENGINEER

NOTES:

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4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EROSION AND SEDIMENT CONTROL PLAN FOR THE EASTERN SIDE OF THE SUBDIVISION.

5.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVE AND BELOW GROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY UTILITY CONFLICTS SHOULD BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.

9.) UPON FINAL COMPLETION AND 85% STABILIZATION, THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS. SEDIMENT CONTROL PRACTICES REMOVED AND DISPOSED OF PROPERLY, AND ANNUAL MAINTENANCE PREFORMED ON ALL DRAINAGE PRACTICES.

10.) EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24–HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP 4.1.1 AND INSPECTION REPORTS SUBMITTED TO THE CITY OF DOVER, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED.

11.) SILT FENCE MAY BE SUBSTITUTED WITH FILTREXX SILT SOXX OR EROSION CONTROL MIX BERM.

12.) PER EPA CGP Z.1.2.2 (INSTALL PERIMETER CONTROL), "YOU MUST INSTALL SEDIMENT CONTROLS ALONG THOSE PERIMETER AREAS OF YOUR SITE THAT WILL RECEIVE STORMWATER FROM EARTH DISTURBING ACTIVITIES." AS A RESULT OF SWPPP INSPECTIONS, THE CONTRACTOR MAY HAVE TO EXPAND PERIMETER CONTROLS TO MEET THIS REQUIREMENT. THE E&SC PLAN IS INITIAL GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.

14.) A CONSTRUCTION ENTRANCE IS REQUIRED AND THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING IT.

15.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE ROAD AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO MIDDLE ROAD.

16.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

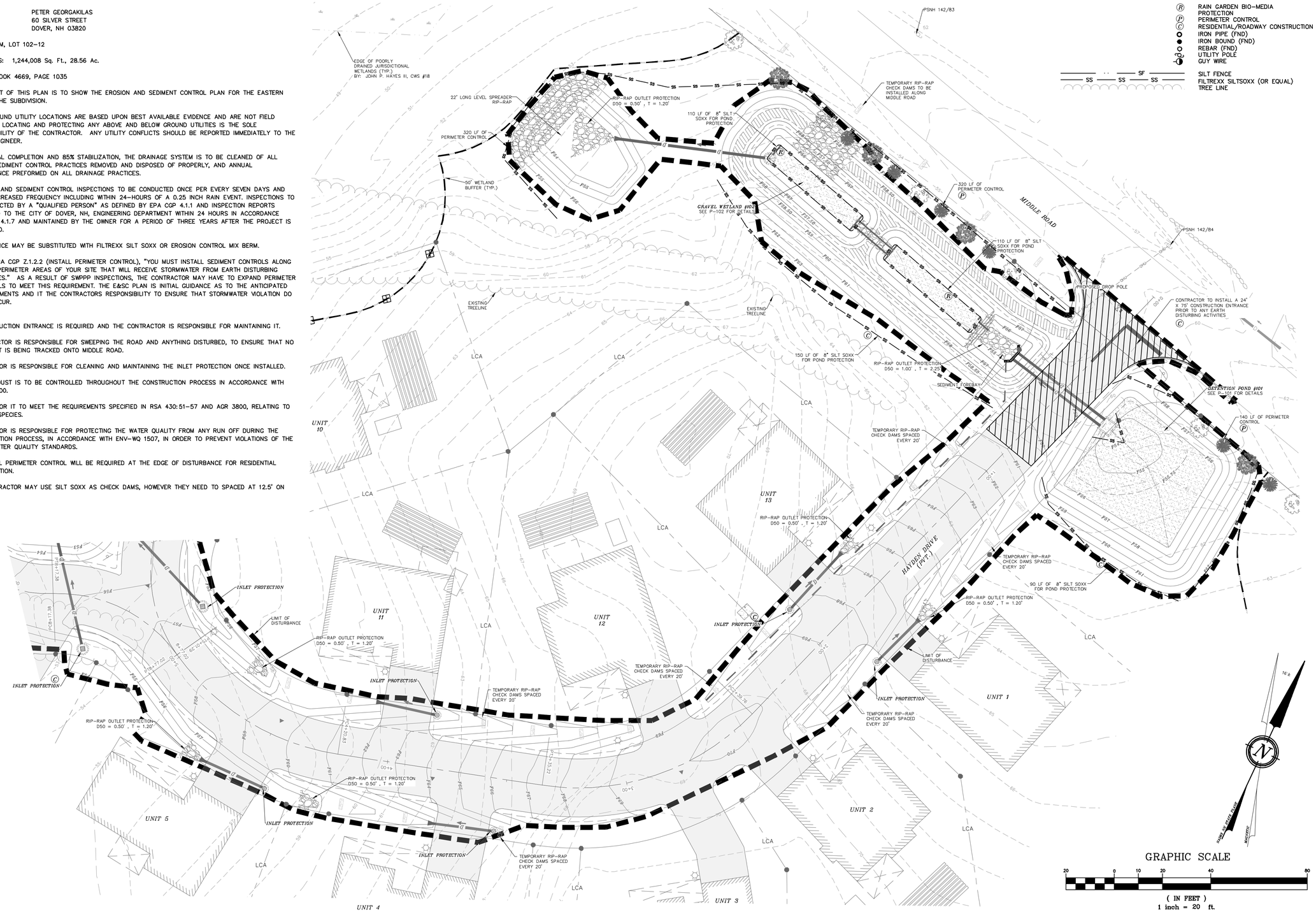
17.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV–A 1000.

18.) CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51–57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

19.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV–WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

20.) ADDITIONAL PERIMETER CONTROL WILL BE REQUIRED AT THE EDGE OF DISTURBANCE FOR RESIDENTIAL CONSTRUCTION.

21.) THE CONTRACTOR MAY USE SILT SOXX AS CHECK DAMS, HOWEVER THEY NEED TO SPACED AT 12.5' ON CENTER.



CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN EAST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102–12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14245
LICENSED PROFESSIONAL ENGINEER

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) THE INTENT OF THIS PLAN IS TO SHOW THE EROSION AND SEDIMENT CONTROL PLAN FOR THE WESTERN SIDE OF THE SUBDIVISION.

5.) SEE SHEET 21 FOR ALL OTHER STANDARD EROSION AND SEDIMENT CONTROL NOTES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND:

- (R) RAIN GARDEN BIO-MEDIA PROTECTION
- (P) PERIMETER CONTROL
- (C) RESIDENTIAL/ROADWAY CONSTRUCTION
- IRON PIPE (FND)
- IRON BOUND (FND)
- REBAR (FND)
- UTILITY POLE
- GUY WIRE
- SF — SILT FENCE
- SS — FILTREXX SILTSOXX (OR EQUAL)
- TREE LINE

SOILS & DEWATERING:

BnB	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnC	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnD	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
BnE	BOXFORD	CLAYEY MARINE SEDIMENT	K= 0.49
ScB	SCITICO	SILT CLAY	K= 0.20
ScC	SCITICO	SILT CLAY	K= 0.20
ScD	SCITICO	SILT CLAY	K= 0.20
ScE	SCITICO	SILT CLAY	K= 0.20
HoC	HOLLIS	COMPLEX	K= 0.43
HoD	HOLLIS	COMPLEX	K= 0.43
HoC/RK	HOLLIS	COMPLEX	K= 0.43
HoD/RK	HOLLIS	COMPLEX	K= 0.43
HoE/RK	HOLLIS	COMPLEX	K= 0.43
BsA	MAYBID	MARINE SEDIMENTS	K= 0.32
WfB	WINDSOR	SANDY LOAM	K= 0.17
WfC	WINDSOR	SANDY LOAM	K= 0.17
WfD	WINDSOR	SANDY LOAM	K= 0.17
WfE	WINDSOR	SANDY LOAM	K= 0.17

SEE SITE SPECIFIC SOILS MAP (SSSM)
SEE WEBSOIL USDA-NRCS
ERODIBILITY FACTOR - K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. & ROCKINGHAM COUNTTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) AND OTHER NH SPECIFIC INFORMATION FOR THE U.S. EPA 2012 NPDES CONSTRUCTION GENERAL PERMIT (CGP)" DATED MAY 3, 2012 INCLUDED IN THE SWPPP.

COVER MANAGEMENT DURING CONSTRUCTION FOR EXPOSED SOIL WILL INCLUDE HAY / STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE, TEMPORARY SEEDING OF ANNUAL RYE GRASS, AND PERMANENT SEEDING AT THE EARLIES OPPORTUNITY. SEE ADDITIONAL REQUIREMENT FOR STABILIZATION ON THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS, E-101 AND E-102.

THE CONSTRUCTION SCHEDULE WILL BE MANAGED SO THAT ALL STORMWATER STRUCTURES WILL BE BUILT AND STABILIZED PRIOR TO RECEIVING SURFACE WATER RUNOFF. CONTRACTOR TO BE RESPONSIBLE FOR ALL DIVERSIONS DURING CONSTRUCTION AND FOR INTERIM SEDIMENT AND EROSION CONTROL MEASURES.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

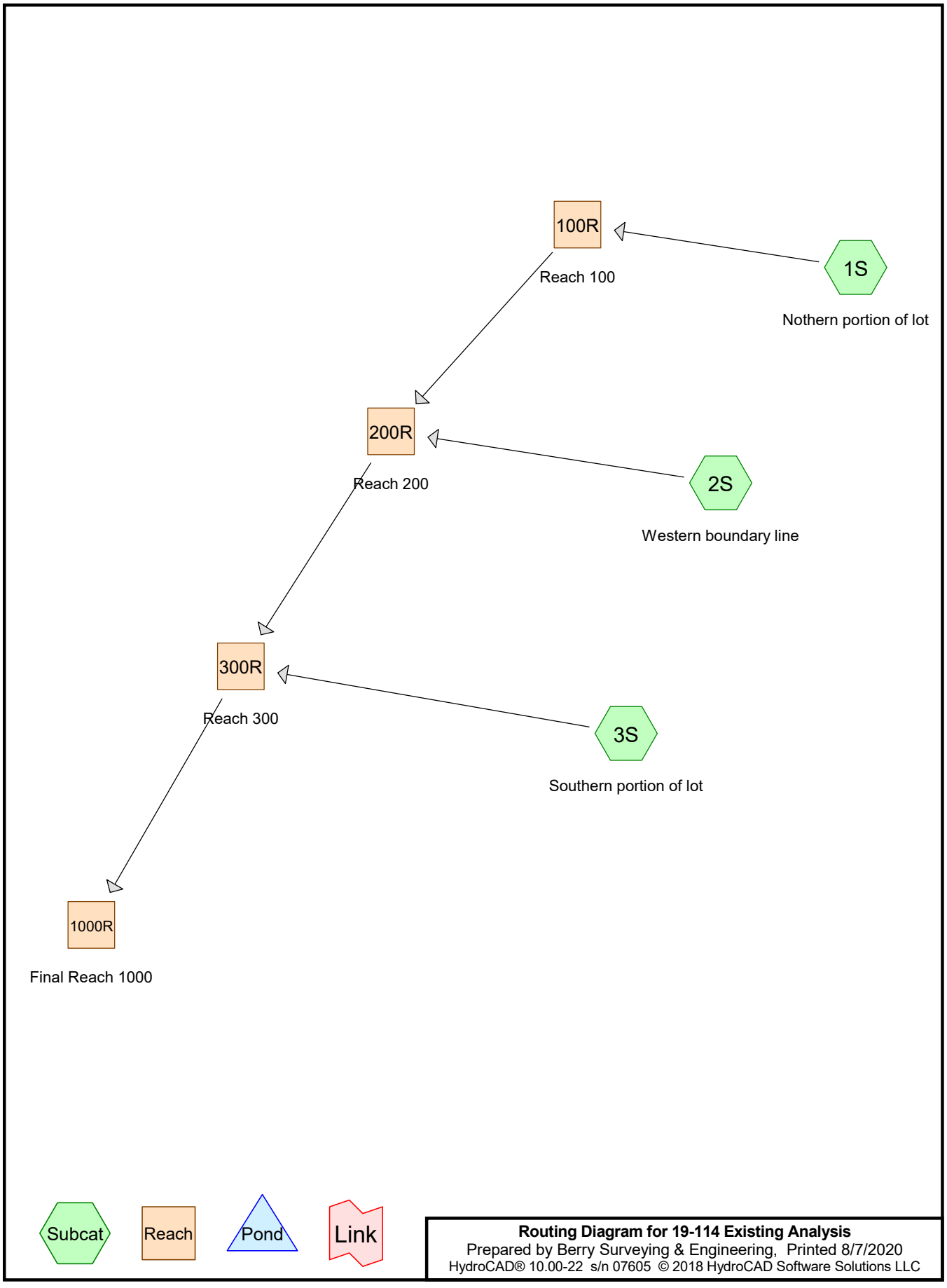
EROSION AND SEDIMENT CONTROL PLAN WEST

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER



Routing Diagram for 19-114 Existing Analysis
Prepared by Berry Surveying & Engineering, Printed 8/7/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.051	39	>75% Grass cover, Good, HSG A (1S, 3S)
0.840	61	>75% Grass cover, Good, HSG B (1S, 3S)
8.175	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S)
0.150	98	Paved parking, HSG A (1S)
0.032	98	Paved parking, HSG B (1S)
0.152	98	Paved parking, HSG C (1S)
0.030	98	Roofs, HSG A (1S)
0.737	30	Woods, Good, HSG A (1S, 3S)
0.271	55	Woods, Good, HSG B (1S, 2S)
3.211	70	Woods, Good, HSG C (1S, 2S, 3S)
15.650	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.968	HSG A	1S, 3S
1.144	HSG B	1S, 2S, 3S
11.538	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
15.650		**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
2.051	0.840	8.175	0.000	0.000	11.067	>75% Grass cover, Good	1S, 2S, 3S
0.150	0.032	0.152	0.000	0.000	0.334	Paved parking	1S
0.030	0.000	0.000	0.000	0.000	0.030	Roofs	1S
0.737	0.271	3.211	0.000	0.000	4.220	Woods, Good	1S, 2S, 3S
2.968	**1.144**	**11.538**	**0.000**	**0.000**	**15.650**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>2.75"
Flow Length=857' Tc=29.3 min CN=62 Runoff=10.68 cfs 1.353 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>3.79"
Flow Length=720' Tc=13.3 min CN=72 Runoff=10.62 cfs 0.960 af

Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>3.26"
Flow Length=476' Tc=19.3 min CN=67 Runoff=17.45 cfs 1.824 af

Reach 100R: Reach 100 Inflow=10.68 cfs 1.353 af
Outflow=10.68 cfs 1.353 af

Reach 200R: Reach 200 Inflow=17.78 cfs 2.313 af
Outflow=17.78 cfs 2.313 af

Reach 300R: Reach 300 Inflow=35.23 cfs 4.137 af
Outflow=35.23 cfs 4.137 af

Reach 1000R: Final Reach 1000 Inflow=35.23 cfs 4.137 af
Outflow=35.23 cfs 4.137 af

Total Runoff Area = 15.650 ac Runoff Volume = 4.137 af Average Runoff Depth = 3.17"
97.67% Pervious = 15.286 ac 2.33% Impervious = 0.364 ac

Summary for Subcatchment 1S: Nothern portion of lot

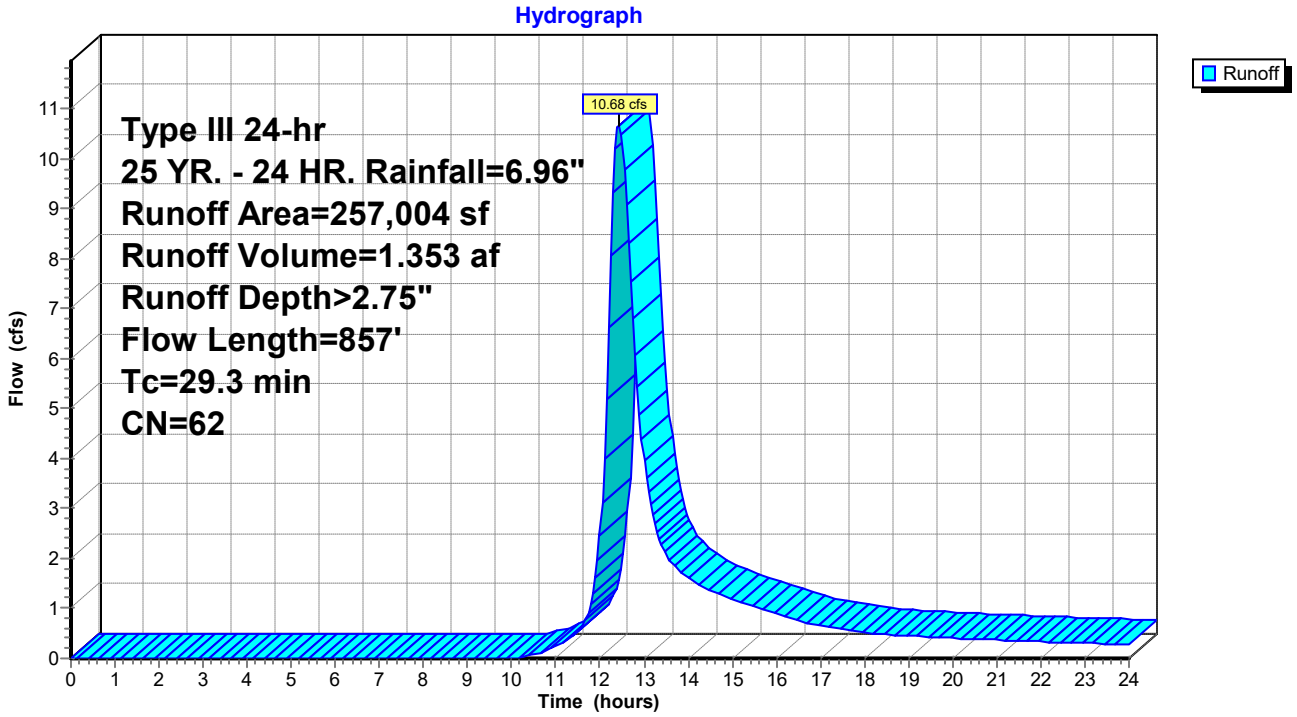
Runoff = 10.68 cfs @ 12.43 hrs, Volume= 1.353 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,307	98	Roofs, HSG A
6,537	98	Paved parking, HSG A
74,504	39	>75% Grass cover, Good, HSG A
9,608	30	Woods, Good, HSG A
1,397	98	Paved parking, HSG B
25,354	61	>75% Grass cover, Good, HSG B
424	55	Woods, Good, HSG B
6,627	98	Paved parking, HSG C
124,136	74	>75% Grass cover, Good, HSG C
7,110	70	Woods, Good, HSG C
257,004	62	Weighted Average
241,136		93.83% Pervious Area
15,868		6.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	85	0.0200	0.08		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.65"
2.7	15	0.0100	0.09		**Sheet Flow, Segment #2** Grass: Short n= 0.150 P2= 3.65"
1.6	111	0.0270	1.15		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
0.9	97	0.0720	1.88		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
3.0	266	0.0450	1.48		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
3.4	283	0.0400	1.40		**Shallow Concentrated Flow, Segment #6** Short Grass Pasture Kv= 7.0 fps
29.3	857	Total			

Subcatchment 1S: Nothern portion of lot



Summary for Subcatchment 2S: Western boundary line

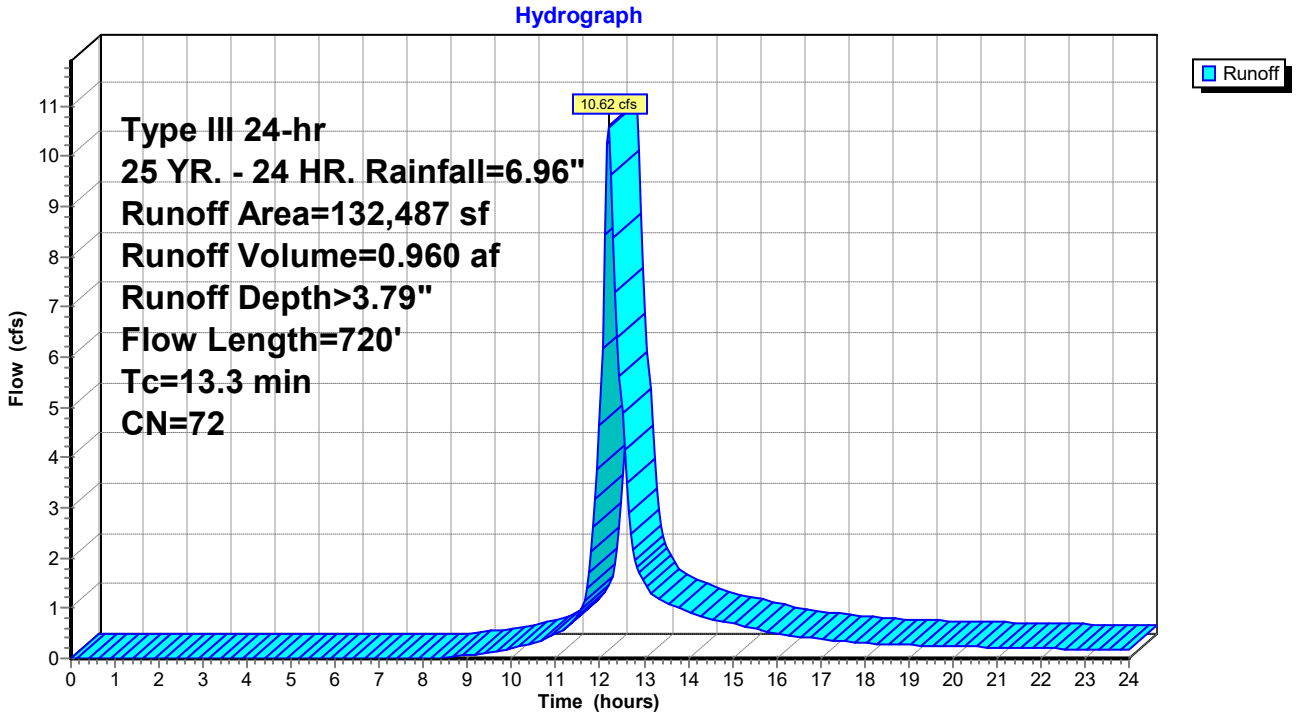
Runoff = 10.62 cfs @ 12.19 hrs, Volume= 0.960 af, Depth> 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
11,399	55	Woods, Good, HSG B
112,135	74	>75% Grass cover, Good, HSG C
8,953	70	Woods, Good, HSG C
132,487	72	Weighted Average
132,487		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0550	0.27		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.65"
0.8	103	0.0973	2.18		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
0.2	29	0.2105	2.29		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
3.7	281	0.0320	1.25		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
2.5	207	0.0400	1.40		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
13.3	720	Total			

Subcatchment 2S: Western boundary line



Summary for Subcatchment 3S: Southern portion of lot

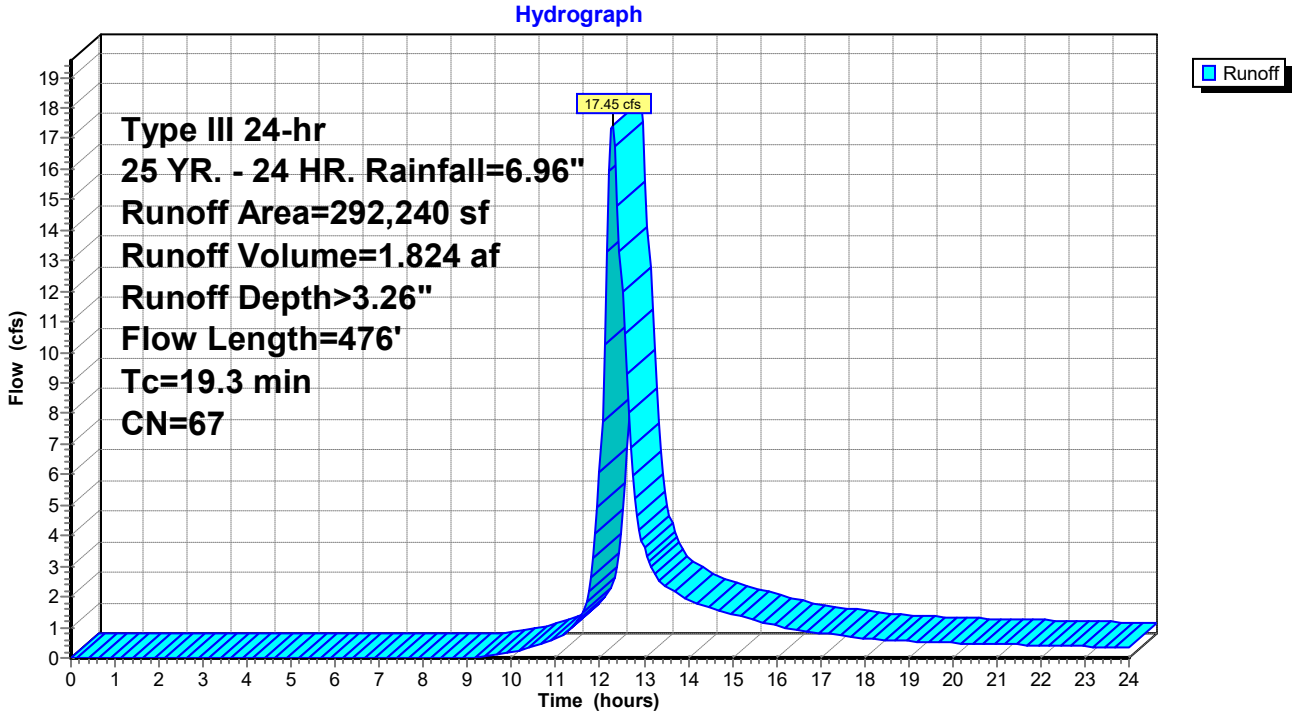
Runoff = 17.45 cfs @ 12.27 hrs, Volume= 1.824 af, Depth> 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
14,821	39	>75% Grass cover, Good, HSG A
22,514	30	Woods, Good, HSG A
11,254	61	>75% Grass cover, Good, HSG B
119,853	74	>75% Grass cover, Good, HSG C
123,798	70	Woods, Good, HSG C
292,240	67	Weighted Average
292,240		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0500	0.12		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.65"
5.4	376	0.0530	1.15		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
19.3	476	Total			

Subcatchment 3S: Southern portion of lot



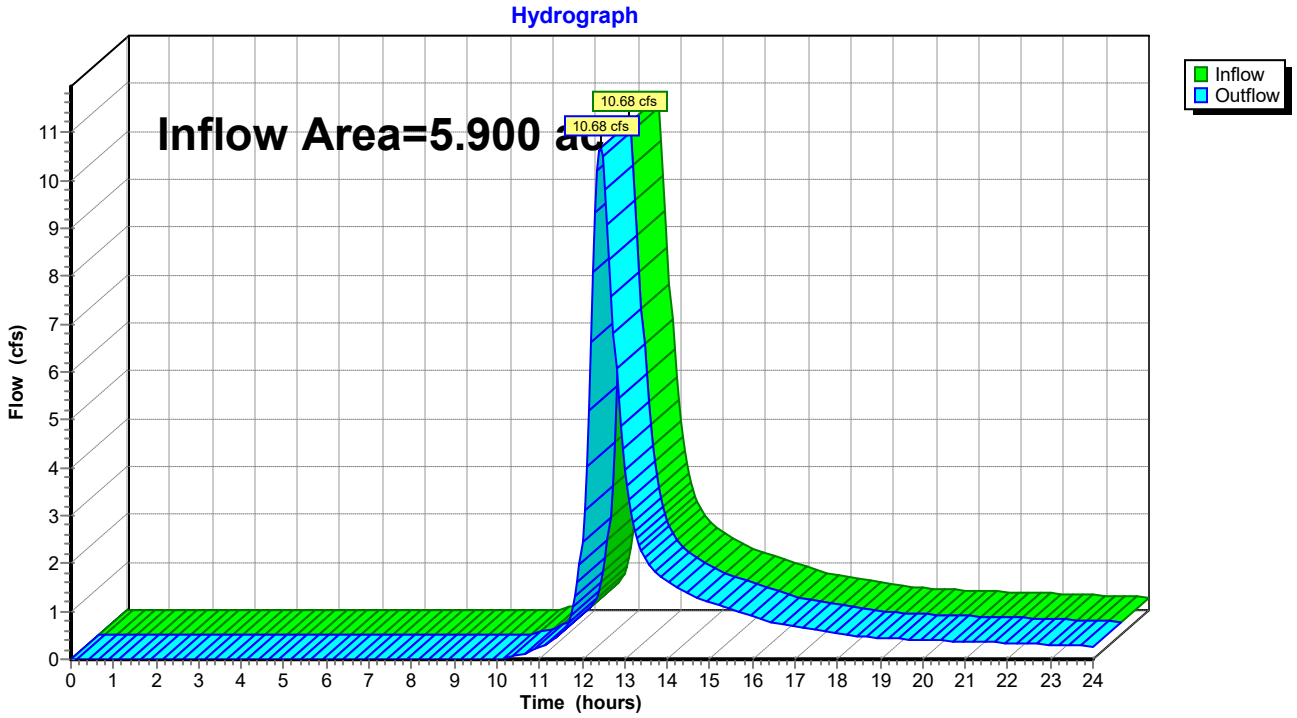
Summary for Reach 100R: Reach 100

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.900 ac, 6.17% Impervious, Inflow Depth > 2.75" for 25 YR. - 24 HR. event
Inflow = 10.68 cfs @ 12.43 hrs, Volume= 1.353 af
Outflow = 10.68 cfs @ 12.43 hrs, Volume= 1.353 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Reach 100



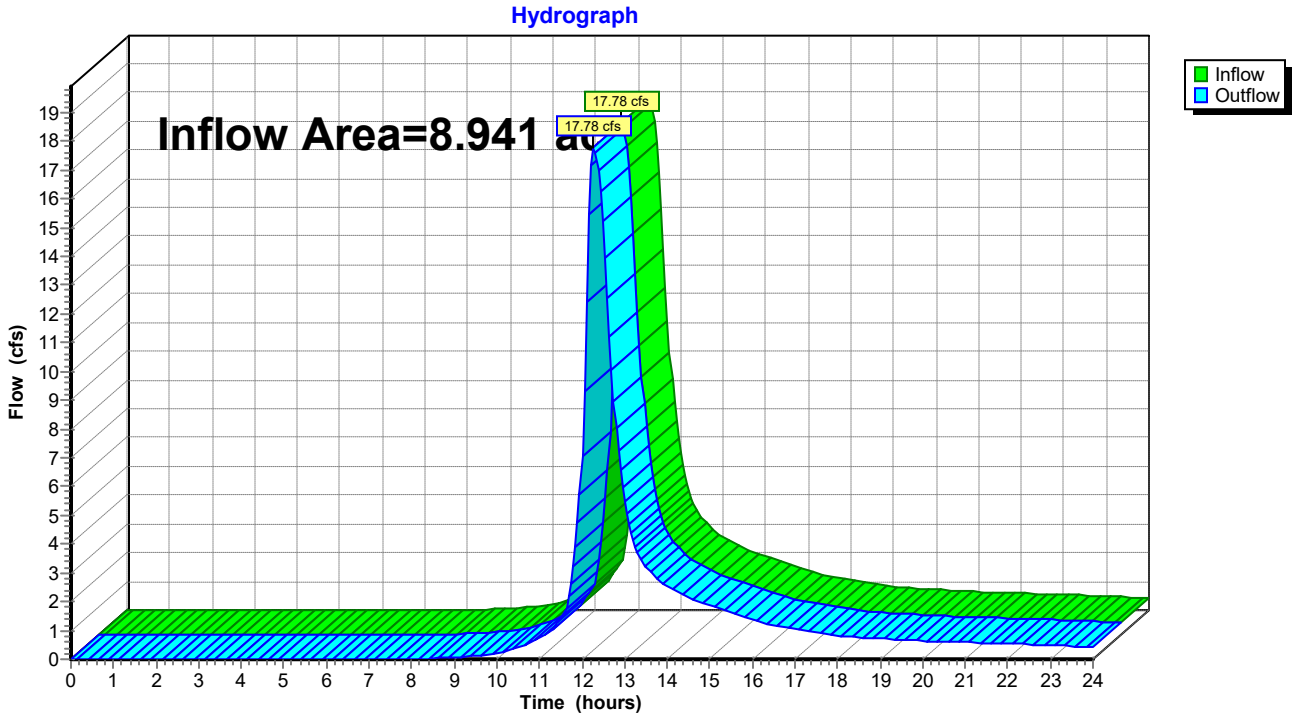
Summary for Reach 200R: Reach 200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.941 ac, 4.07% Impervious, Inflow Depth > 3.10" for 25 YR. - 24 HR. event
Inflow = 17.78 cfs @ 12.27 hrs, Volume= 2.313 af
Outflow = 17.78 cfs @ 12.27 hrs, Volume= 2.313 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Reach 200



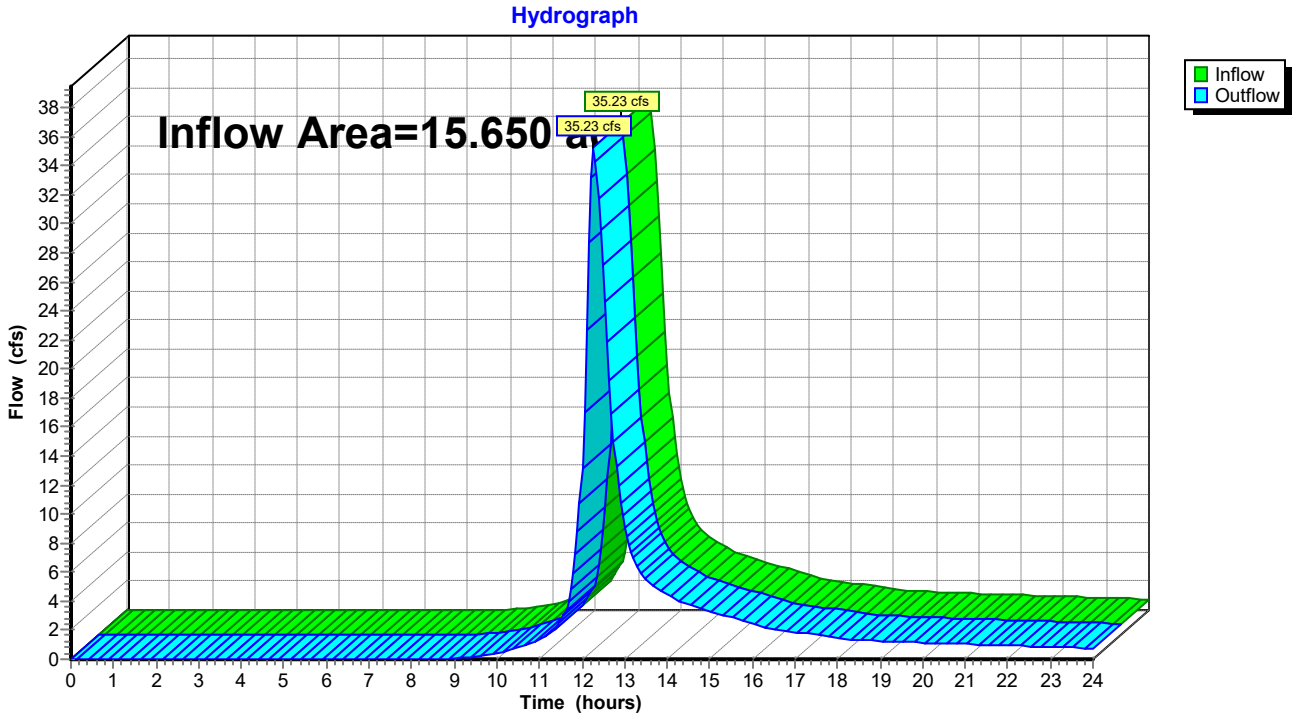
Summary for Reach 300R: Reach 300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.650 ac, 2.33% Impervious, Inflow Depth > 3.17" for 25 YR. - 24 HR. event
Inflow = 35.23 cfs @ 12.27 hrs, Volume= 4.137 af
Outflow = 35.23 cfs @ 12.27 hrs, Volume= 4.137 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 300R: Reach 300



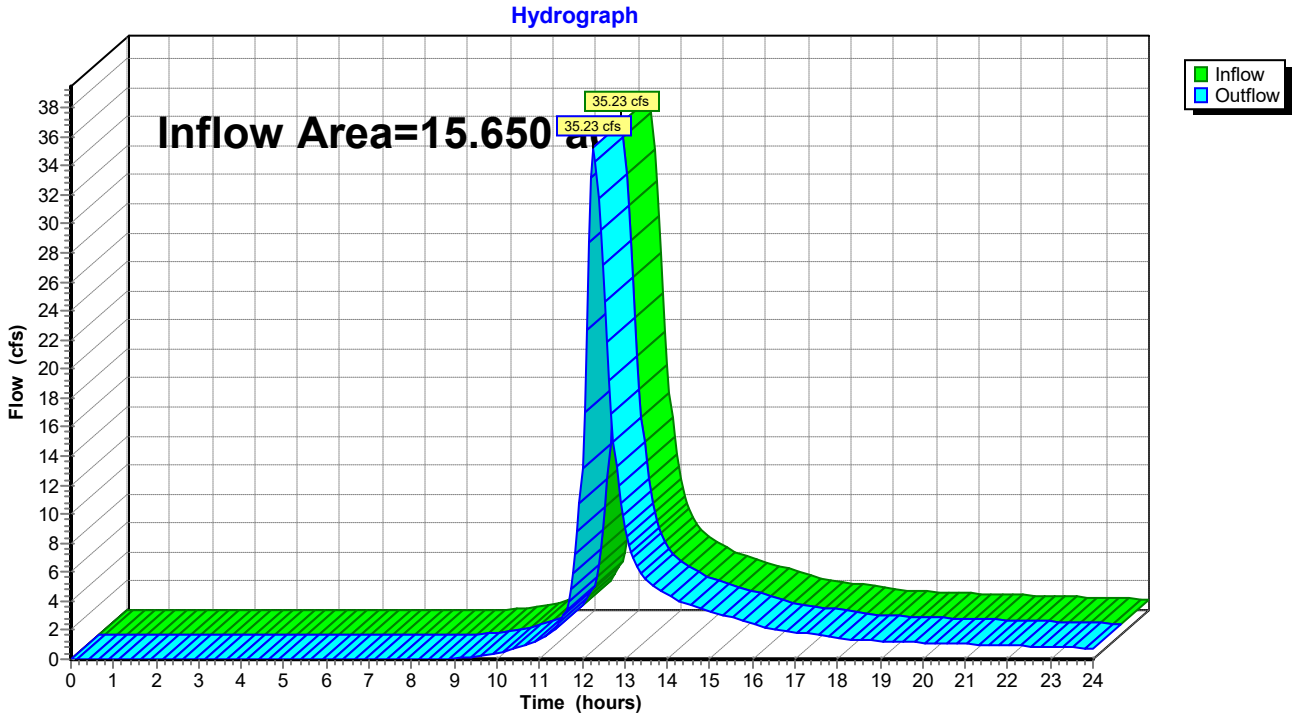
Summary for Reach 1000R: Final Reach 1000

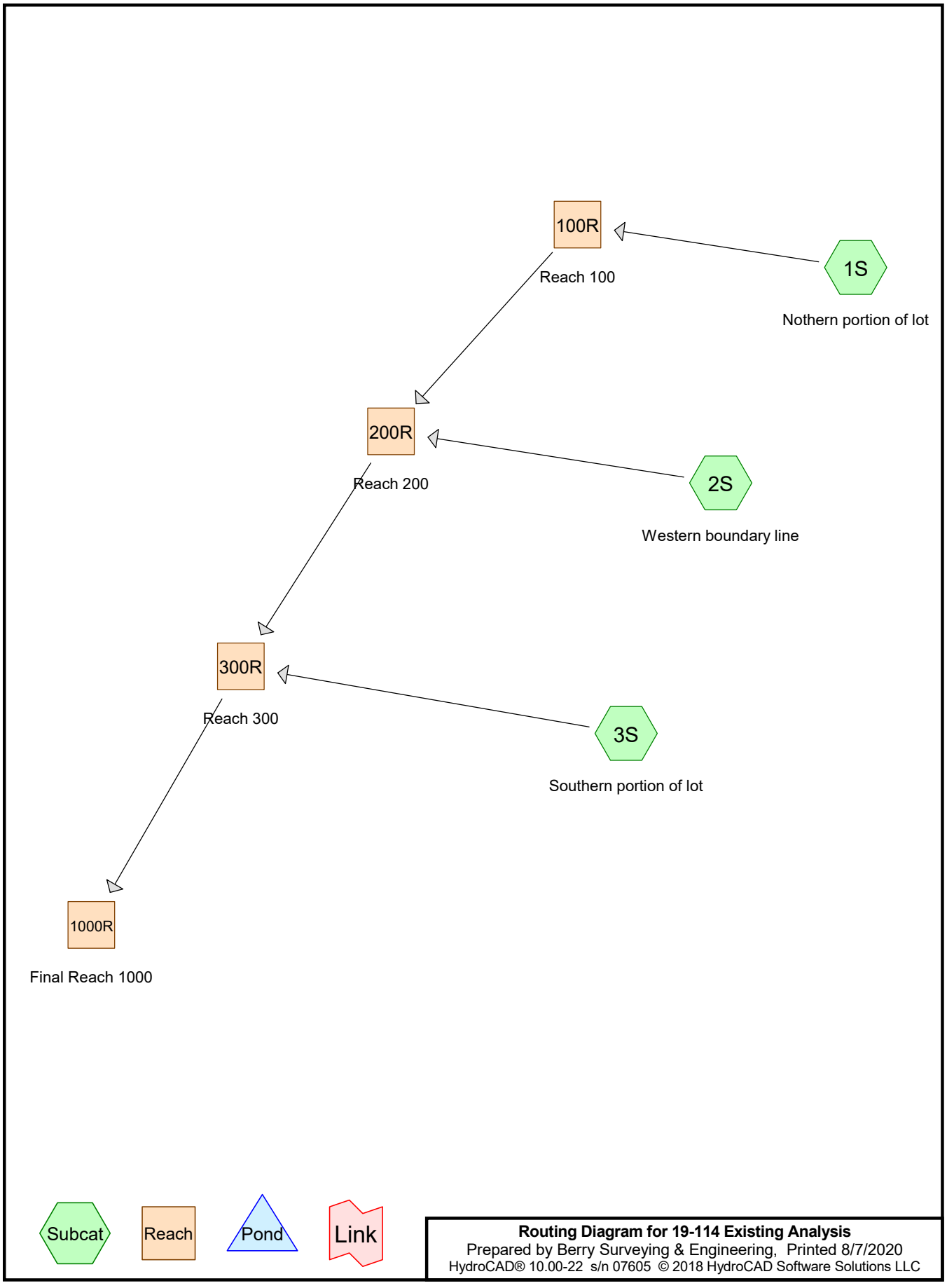
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.650 ac, 2.33% Impervious, Inflow Depth > 3.17" for 25 YR. - 24 HR. event
Inflow = 35.23 cfs @ 12.27 hrs, Volume= 4.137 af
Outflow = 35.23 cfs @ 12.27 hrs, Volume= 4.137 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 1000R: Final Reach 1000





Routing Diagram for 19-114 Existing Analysis
Prepared by Berry Surveying & Engineering, Printed 8/7/2020
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>0.68"
Flow Length=857' Tc=29.3 min CN=62 Runoff=2.16 cfs 0.335 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>1.22"
Flow Length=720' Tc=13.3 min CN=72 Runoff=3.24 cfs 0.308 af

Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>0.93"
Flow Length=476' Tc=19.3 min CN=67 Runoff=4.44 cfs 0.520 af

Reach 100R: Reach 100 Inflow=2.16 cfs 0.335 af
Outflow=2.16 cfs 0.335 af

Reach 200R: Reach 200 Inflow=4.23 cfs 0.643 af
Outflow=4.23 cfs 0.643 af

Reach 300R: Reach 300 Inflow=8.67 cfs 1.163 af
Outflow=8.67 cfs 1.163 af

Reach 1000R: Final Reach 1000 Inflow=8.67 cfs 1.163 af
Outflow=8.67 cfs 1.163 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>1.74"
Flow Length=857' Tc=29.3 min CN=62 Runoff=6.53 cfs 0.857 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>2.58"
Flow Length=720' Tc=13.3 min CN=72 Runoff=7.20 cfs 0.655 af

Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>2.15"
Flow Length=476' Tc=19.3 min CN=67 Runoff=11.25 cfs 1.202 af

Reach 100R: Reach 100 Inflow=6.53 cfs 0.857 af
Outflow=6.53 cfs 0.857 af

Reach 200R: Reach 200 Inflow=11.31 cfs 1.511 af
Outflow=11.31 cfs 1.511 af

Reach 300R: Reach 300 Inflow=22.53 cfs 2.713 af
Outflow=22.53 cfs 2.713 af

Reach 1000R: Final Reach 1000 Inflow=22.53 cfs 2.713 af
Outflow=22.53 cfs 2.713 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>2.75"
Flow Length=857' Tc=29.3 min CN=62 Runoff=10.68 cfs 1.353 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>3.79"
Flow Length=720' Tc=13.3 min CN=72 Runoff=10.62 cfs 0.960 af

Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>3.26"
Flow Length=476' Tc=19.3 min CN=67 Runoff=17.45 cfs 1.824 af

Reach 100R: Reach 100 Inflow=10.68 cfs 1.353 af
Outflow=10.68 cfs 1.353 af

Reach 200R: Reach 200 Inflow=17.78 cfs 2.313 af
Outflow=17.78 cfs 2.313 af

Reach 300R: Reach 300 Inflow=35.23 cfs 4.137 af
Outflow=35.23 cfs 4.137 af

Reach 1000R: Final Reach 1000 Inflow=35.23 cfs 4.137 af
Outflow=35.23 cfs 4.137 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>3.77"
Flow Length=857' Tc=29.3 min CN=62 Runoff=14.86 cfs 1.855 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>4.96"
Flow Length=720' Tc=13.3 min CN=72 Runoff=13.89 cfs 1.256 af

Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>4.36"
Flow Length=476' Tc=19.3 min CN=67 Runoff=23.49 cfs 2.439 af

Reach 100R: Reach 100 Inflow=14.86 cfs 1.855 af
Outflow=14.86 cfs 1.855 af

Reach 200R: Reach 200 Inflow=24.15 cfs 3.112 af
Outflow=24.15 cfs 3.112 af

Reach 300R: Reach 300 Inflow=47.64 cfs 5.551 af
Outflow=47.64 cfs 5.551 af

Reach 1000R: Final Reach 1000 Inflow=47.64 cfs 5.551 af
Outflow=47.64 cfs 5.551 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=257,004 sf 6.17% Impervious Runoff Depth>5.08"
Flow Length=857' Tc=29.3 min CN=62 Runoff=20.17 cfs 2.500 af

Subcatchment 2S: Western boundary line Runoff Area=132,487 sf 0.00% Impervious Runoff Depth>6.42"
Flow Length=720' Tc=13.3 min CN=72 Runoff=17.91 cfs 1.627 af

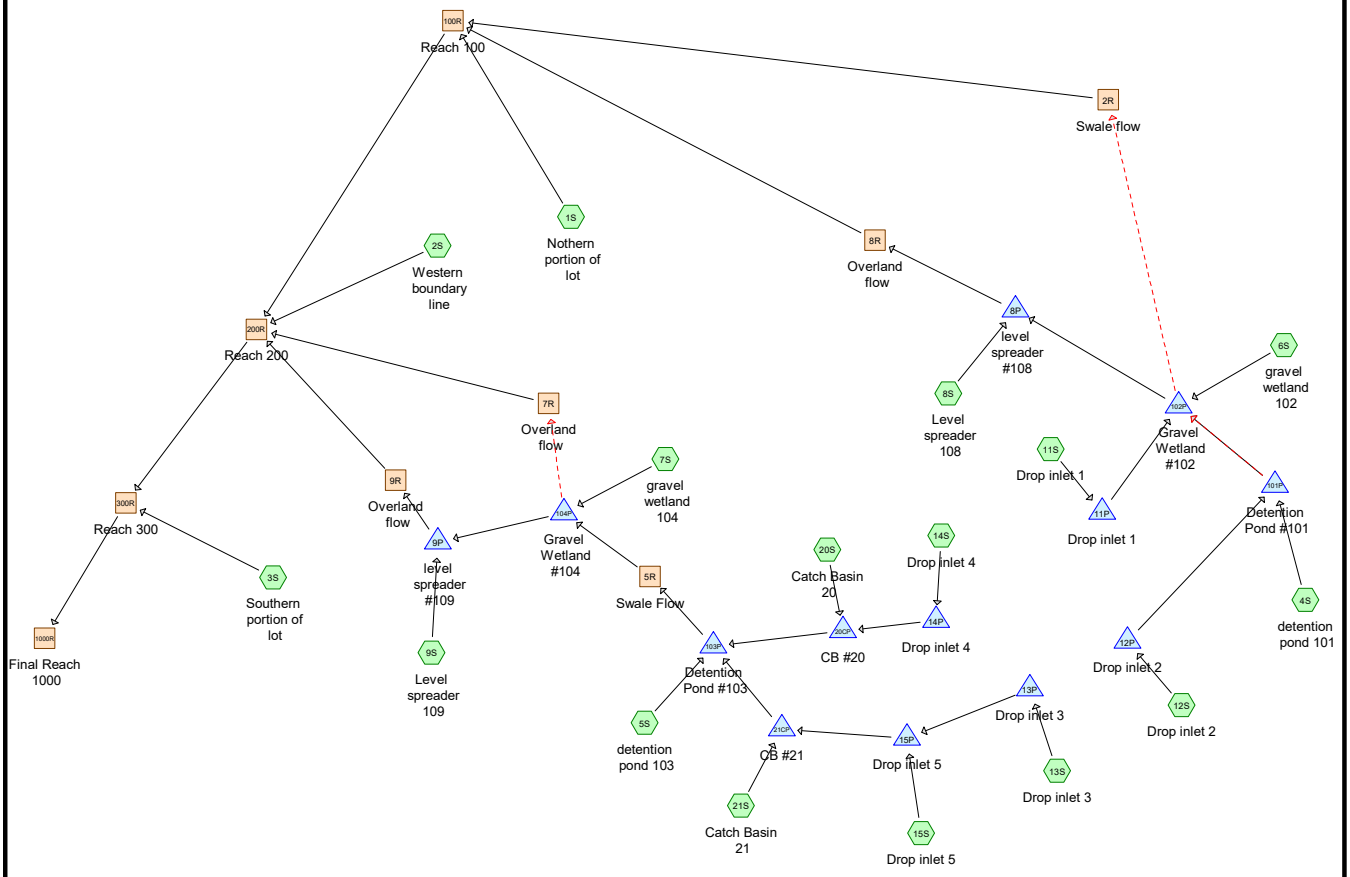
Subcatchment 3S: Southern portion of lot Runoff Area=292,240 sf 0.00% Impervious Runoff Depth>5.76"
Flow Length=476' Tc=19.3 min CN=67 Runoff=31.03 cfs 3.218 af

Reach 100R: Reach 100 Inflow=20.17 cfs 2.500 af
Outflow=20.17 cfs 2.500 af

Reach 200R: Reach 200 Inflow=32.16 cfs 4.127 af
Outflow=32.16 cfs 4.127 af

Reach 300R: Reach 300 Inflow=63.19 cfs 7.345 af
Outflow=63.19 cfs 7.345 af

Reach 1000R: Final Reach 1000 Inflow=63.19 cfs 7.345 af
Outflow=63.19 cfs 7.345 af



Subcat Reach Pond Link

Routing Diagram for 19-114 Proposed Analysis
Prepared by Berry Surveying & Engineering, Printed 8/17/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.995	39	>75% Grass cover, Good, HSG A (3S, 4S, 13S)
0.856	61	>75% Grass cover, Good, HSG B (1S, 2S, 4S, 5S, 6S, 8S, 11S, 12S, 13S, 14S)
7.037	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 12S, 13S, 14S, 15S, 20S, 21S)
0.157	98	Paved parking, HSG A (4S, 13S, 14S)
0.114	98	Paved parking, HSG B (6S, 11S, 12S, 13S, 14S)
0.841	98	Paved parking, HSG C (1S, 2S, 3S, 4S, 5S, 6S, 7S, 9S, 12S, 13S, 14S, 15S, 20S, 21S)
0.078	98	Roofs, HSG A (4S, 13S)
0.139	98	Roofs, HSG B (4S, 5S, 6S, 14S)
0.292	98	Roofs, HSG C (4S, 5S, 6S, 9S, 12S, 13S, 14S, 15S, 20S, 21S)
0.010	98	Unconnected roofs, HSG B (2S)
0.247	98	Unconnected roofs, HSG C (2S, 3S)
0.737	30	Woods, Good, HSG A (3S, 4S)
0.025	55	Woods, Good, HSG B (1S, 2S, 8S)
3.121	70	Woods, Good, HSG C (1S, 2S, 3S, 4S, 6S, 8S)
15.650	**69**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.968	HSG A	3S, 4S, 13S, 14S
1.144	HSG B	1S, 2S, 4S, 5S, 6S, 8S, 11S, 12S, 13S, 14S
11.538	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 12S, 13S, 14S, 15S, 20S, 21S
0.000	HSG D	
0.000	Other	
15.650		**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
1.995	0.856	7.037	0.000	0.000	9.888	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 11S, 12S, 13S, 14S, 15S, 20S, 21S
0.157	0.114	0.841	0.000	0.000	1.112	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 7S, 9S, 11S, 12S, 13S, 14S, 15S, 20S, 21S
0.078	0.139	0.292	0.000	0.000	0.510	Roofs	4S, 5S, 6S, 9S, 12S, 13S, 14S, 15S, 20S, 21S
0.000	0.010	0.247	0.000	0.000	0.257	Unconnected roofs	2S, 3S
0.737	0.025	3.121	0.000	0.000	3.883	Woods, Good	1S, 2S, 3S, 4S, 6S, 8S
2.968	**1.144**	**11.538**	**0.000**	**0.000**	**15.650**	**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	11P	64.64	64.50	28.8	0.0049	0.012	12.0	0.0	0.0
2	12P	63.62	63.50	21.7	0.0055	0.012	12.0	0.0	0.0
3	13P	60.75	60.50	24.4	0.0102	0.012	12.0	0.0	0.0
4	14P	58.75	58.50	22.7	0.0110	0.012	12.0	0.0	0.0
5	15P	54.63	54.50	26.2	0.0050	0.012	12.0	0.0	0.0
6	20CP	50.62	50.00	62.1	0.0100	0.012	12.0	0.0	0.0
7	21CP	50.49	50.00	49.1	0.0100	0.012	12.0	0.0	0.0
8	101P	55.25	55.00	45.1	0.0055	0.012	15.0	0.0	0.0
9	102P	55.33	54.00	62.8	0.0212	0.012	15.0	0.0	0.0
10	103P	47.50	47.00	51.8	0.0097	0.012	15.0	0.0	0.0
11	104P	37.33	36.00	159.8	0.0083	0.012	15.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>4.00"
Flow Length=232' Tc=8.6 min CN=74 Runoff=4.61 cfs 0.363 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>4.00"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=7.78 cfs 0.708 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>3.36"
Flow Length=476' Tc=19.3 min CN=68 Runoff=14.00 cfs 1.460 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>2.46"
Flow Length=579' Tc=25.9 min CN=59 Runoff=6.94 cfs 0.848 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>4.99"
Flow Length=216' Tc=6.7 min CN=83 Runoff=3.31 cfs 0.249 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>4.54"
Flow Length=158' Tc=6.1 min CN=79 Runoff=2.34 cfs 0.171 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>4.43"
Flow Length=216' Tc=6.3 min CN=78 Runoff=2.83 cfs 0.208 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>3.58"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.38 cfs 0.028 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=84 Runoff=0.85 cfs 0.063 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>3.90"
Tc=6.0 min CN=73 Runoff=0.22 cfs 0.016 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>5.21"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.64 cfs 0.052 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>2.77"
Flow Length=279' Tc=9.1 min CN=62 Runoff=1.39 cfs 0.114 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>4.76"
Flow Length=250' Tc=9.9 min CN=81 Runoff=0.98 cfs 0.081 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>4.65"
Tc=6.0 min CN=80 Runoff=0.72 cfs 0.053 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=84 Runoff=0.66 cfs 0.049 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=87 Runoff=0.74 cfs 0.056 af

Reach 2R: Swale flow Avg. Flow Depth=0.00' Max Vel=0.47 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: Swale Flow Avg. Flow Depth=0.23' Max Vel=3.52 fps Inflow=2.16 cfs 0.602 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=2.16 cfs 0.602 af

Reach 7R: Overland flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=0.00 cfs 0.000 af

Reach 8R: Overland flow Avg. Flow Depth=0.23' Max Vel=4.12 fps Inflow=7.38 cfs 0.897 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=7.77 cfs 0.897 af

Reach 9R: Overland flow Avg. Flow Depth=0.12' Max Vel=2.28 fps Inflow=3.99 cfs 0.748 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=3.99 cfs 0.748 af

Reach 100R: Reach 100 Inflow=9.15 cfs 1.260 af
Outflow=9.15 cfs 1.260 af

Reach 200R: Reach 200 Inflow=15.90 cfs 2.716 af
Outflow=15.90 cfs 2.716 af

Reach 300R: Reach 300 Inflow=28.48 cfs 4.175 af
Outflow=28.48 cfs 4.175 af

Reach 1000R: Final Reach 1000 Inflow=28.48 cfs 4.175 af
Outflow=28.48 cfs 4.175 af

Pond 8P: level spreader #108 Peak Elev=56.24' Storage=2,083 cf Inflow=7.08 cfs 0.938 af
Outflow=7.38 cfs 0.897 af

Pond 9P: level spreader #109 Peak Elev=38.19' Storage=1,361 cf Inflow=4.11 cfs 0.776 af
Outflow=3.99 cfs 0.748 af

Pond 11P: Drop inlet 1 Peak Elev=64.91' Storage=1 cf Inflow=0.22 cfs 0.016 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.22 cfs 0.016 af

Pond 12P: Drop inlet 2 Peak Elev=64.11' Storage=2 cf Inflow=0.64 cfs 0.052 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.64 cfs 0.052 af

Pond 13P: Drop inlet 3 Peak Elev=61.47' Storage=2 cf Inflow=1.39 cfs 0.114 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=1.39 cfs 0.114 af

Pond 14P: Drop inlet 4 Peak Elev=59.34' Storage=2 cf Inflow=0.98 cfs 0.081 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=0.98 cfs 0.081 af

Pond 15P: Drop inlet 5 Peak Elev=55.65' Storage=3 cf Inflow=2.06 cfs 0.167 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=2.06 cfs 0.167 af

Pond 20CP: CB #20 Peak Elev=51.89' Storage=16 cf Inflow=1.60 cfs 0.131 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=1.59 cfs 0.131 af

Pond 21CP: CB #21 Peak Elev=51.94' Storage=18 cf Inflow=2.77 cfs 0.222 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=2.76 cfs 0.222 af

Pond 101P: Detention Pond #101 Peak Elev=58.24' Storage=6,944 cf Inflow=7.21 cfs 0.900 af
Primary=7.31 cfs 0.816 af Secondary=0.00 cfs 0.000 af Outflow=7.31 cfs 0.816 af

Pond 102P: Gravel Wetland #102 Peak Elev=58.00' Storage=6,754 cf Inflow=8.10 cfs 1.003 af
Primary=6.97 cfs 0.910 af Secondary=0.00 cfs 0.000 af Outflow=6.97 cfs 0.910 af

Pond 103P: Detention Pond #103 Peak Elev=51.87' Storage=6,808 cf Inflow=7.65 cfs 0.602 af
Outflow=2.16 cfs 0.602 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.41' Storage=7,638 cf Inflow=4.53 cfs 0.810 af
Primary=3.59 cfs 0.713 af Secondary=0.00 cfs 0.000 af Outflow=3.59 cfs 0.713 af

Total Runoff Area = 15.650 ac Runoff Volume = 4.518 af Average Runoff Depth = 3.46"
88.00% Pervious = 13.771 ac 12.00% Impervious = 1.879 ac

Summary for Subcatchment 1S: Nothern portion of lot

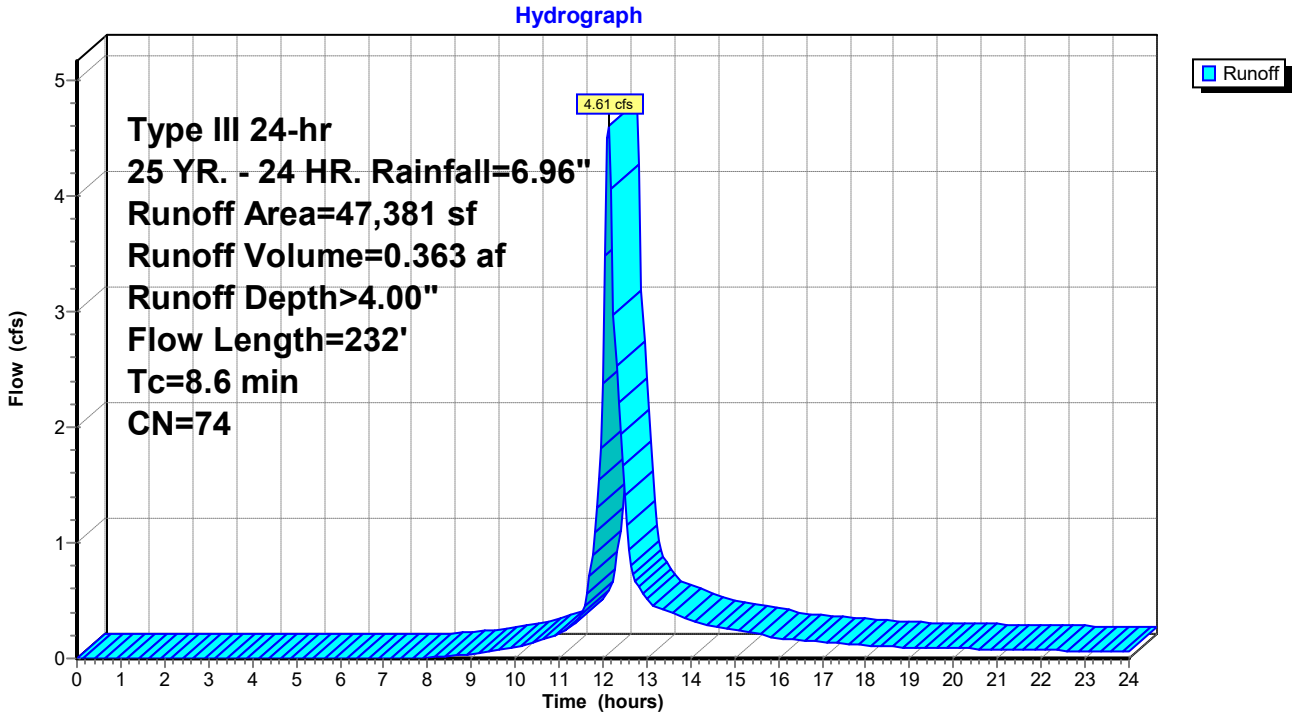
Runoff = 4.61 cfs @ 12.12 hrs, Volume= 0.363 af, Depth> 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
2,470	61	>75% Grass cover, Good, HSG B
354	55	Woods, Good, HSG B
1,575	98	Paved parking, HSG C
40,479	74	>75% Grass cover, Good, HSG C
2,503	70	Woods, Good, HSG C
47,381	74	Weighted Average
45,806		96.68% Pervious Area
1,575		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	35	0.0800	0.26		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.65"
3.4	34	0.1959	0.17		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.65"
1.7	35	0.1600	0.34		**Sheet Flow, Segment #3** Grass: Short n= 0.150 P2= 3.65"
1.2	128	0.0600	1.71		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
8.6	232	Total			

Subcatchment 1S: Nothern portion of lot



Summary for Subcatchment 2S: Western boundary line

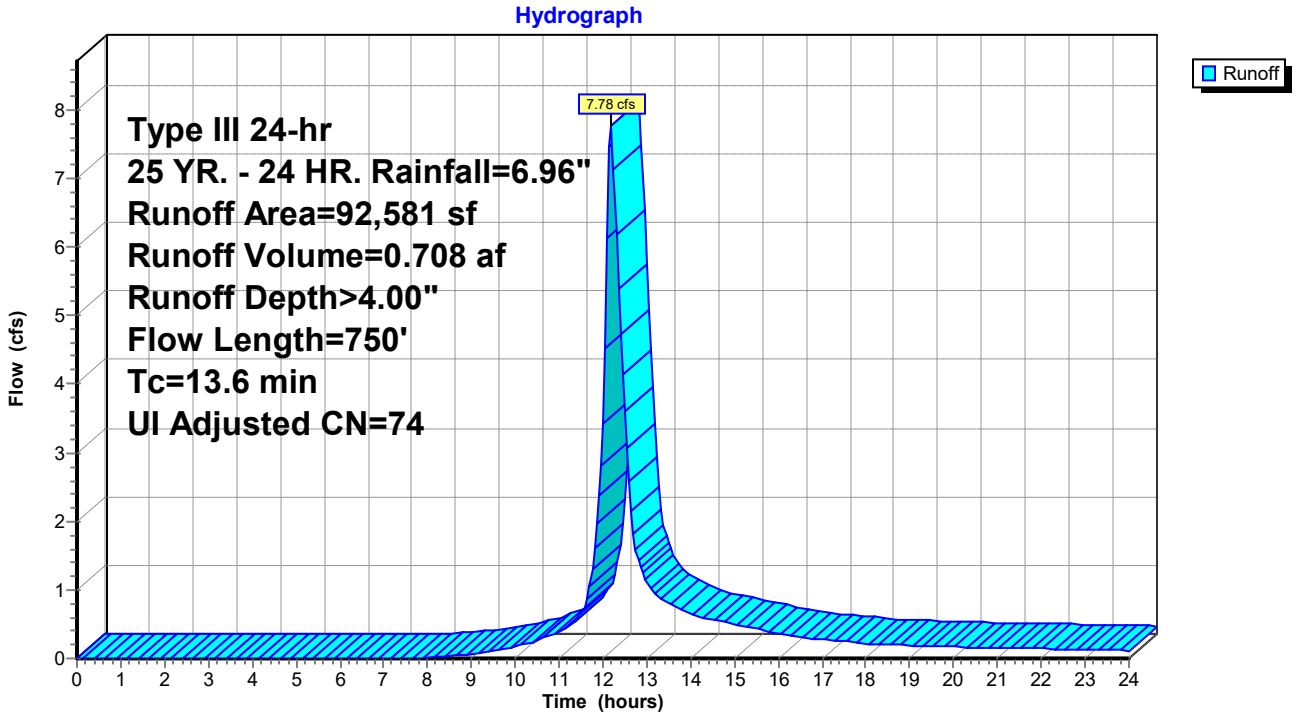
Runoff = 7.78 cfs @ 12.19 hrs, Volume= 0.708 af, Depth> 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Adj	Description
423	98		Unconnected roofs, HSG B
6,914	61		>75% Grass cover, Good, HSG B
669	55		Woods, Good, HSG B
4,965	98		Unconnected roofs, HSG C
4,386	98		Paved parking, HSG C
64,420	74		>75% Grass cover, Good, HSG C
10,804	70		Woods, Good, HSG C
92,581	75	74	Weighted Average, UI Adjusted
82,807			89.44% Pervious Area
9,774			10.56% Impervious Area
5,388			55.13% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0550	0.27		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.65"
0.8	103	0.0973	2.18		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
0.2	29	0.2105	2.29		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
3.7	281	0.0320	1.25		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
2.8	237	0.0400	1.40		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
13.6	750	Total			

Subcatchment 2S: Western boundary line



Summary for Subcatchment 3S: Southern portion of lot

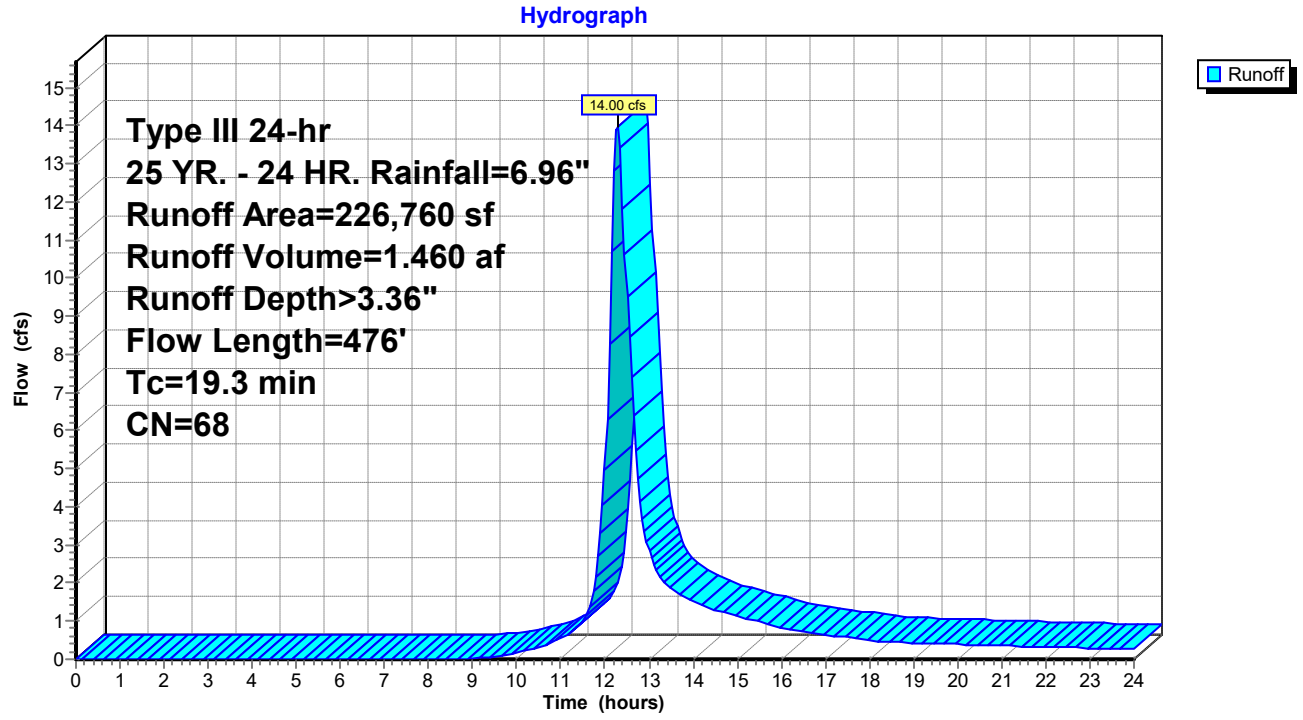
Runoff = 14.00 cfs @ 12.27 hrs, Volume= 1.460 af, Depth> 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,127	39	>75% Grass cover, Good, HSG A
22,514	30	Woods, Good, HSG A
5,794	98	Unconnected roofs, HSG C
599	98	Paved parking, HSG C
78,709	74	>75% Grass cover, Good, HSG C
118,017	70	Woods, Good, HSG C
226,760	68	Weighted Average
220,367		97.18% Pervious Area
6,393		2.82% Impervious Area
5,794		90.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0500	0.12		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.65"
5.4	376	0.0530	1.15		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
19.3	476	Total			

Subcatchment 3S: Southern portion of lot



Summary for Subcatchment 4S: detention pond 101

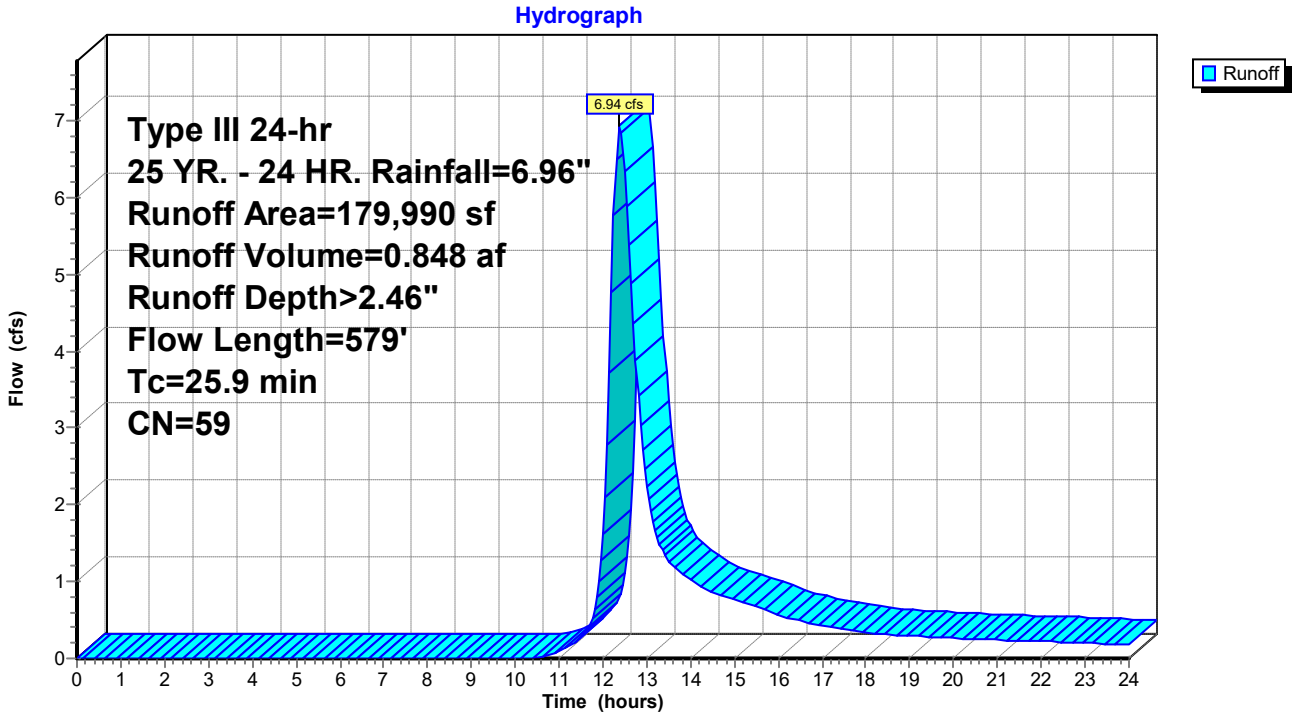
Runoff = 6.94 cfs @ 12.39 hrs, Volume= 0.848 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,307	98	Roofs, HSG A
6,537	98	Paved parking, HSG A
74,502	39	>75% Grass cover, Good, HSG A
9,608	30	Woods, Good, HSG A
1,396	98	Roofs, HSG B
14,079	61	>75% Grass cover, Good, HSG B
3,517	98	Roofs, HSG C
6,617	98	Paved parking, HSG C
59,548	74	>75% Grass cover, Good, HSG C
2,879	70	Woods, Good, HSG C
179,990	59	Weighted Average
160,616		89.24% Pervious Area
19,374		10.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	85	0.0200	0.08		**Sheet Flow, Segment 1** Woods: Light underbrush n= 0.400 P2= 3.65"
2.7	15	0.0100	0.09		**Sheet Flow, Segment 2** Grass: Short n= 0.150 P2= 3.65"
1.6	115	0.0280	1.17		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
0.9	97	0.0710	1.87		**Shallow Concentrated Flow, Segment 4** Short Grass Pasture Kv= 7.0 fps
3.0	267	0.0450	1.48		**Shallow Concentrated Flow, Segment 5** Short Grass Pasture Kv= 7.0 fps
25.9	579	Total			

Subcatchment 4S: detention pond 101



Summary for Subcatchment 5S: detention pond 103

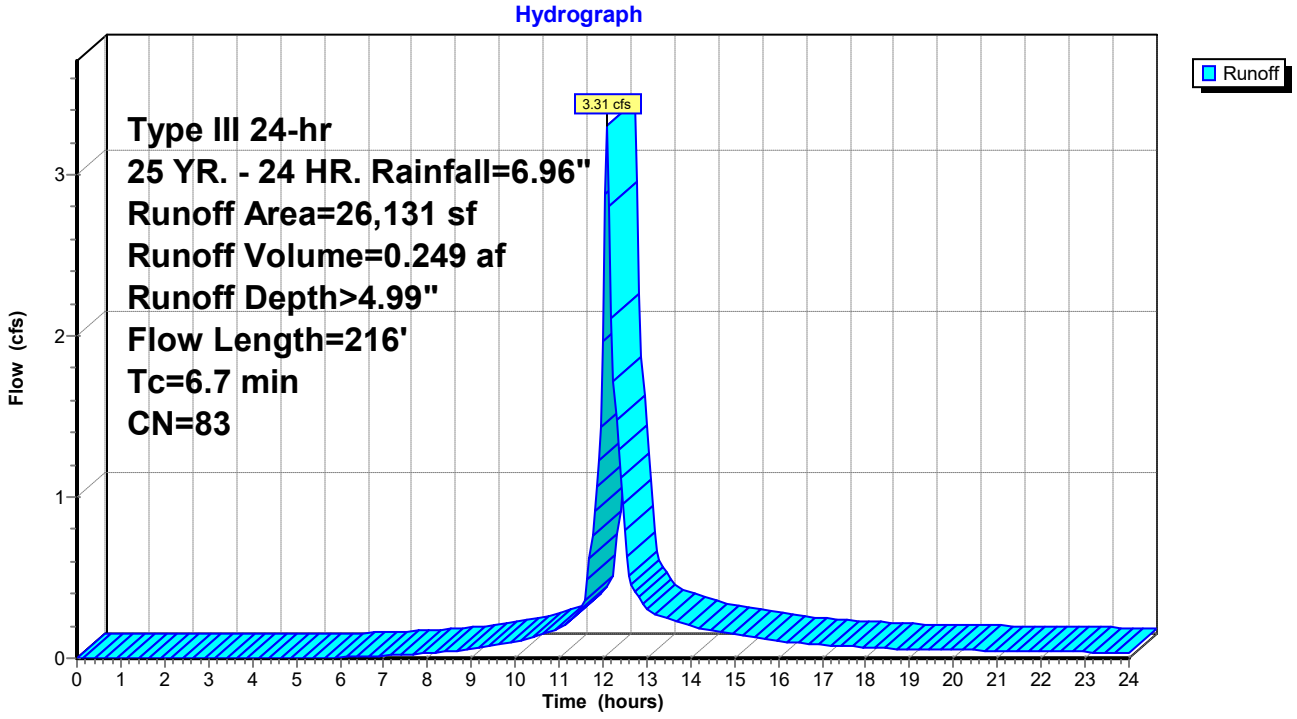
Runoff = 3.31 cfs @ 12.10 hrs, Volume= 0.249 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,319	98	Roofs, HSG B
5,113	61	>75% Grass cover, Good, HSG B
2,454	98	Roofs, HSG C
8,476	98	Paved parking, HSG C
8,769	74	>75% Grass cover, Good, HSG C
26,131	83	Weighted Average
13,882		53.12% Pervious Area
12,249		46.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.0650	0.29		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
1.0	116	0.0720	1.88		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
6.7	216	Total			

Subcatchment 5S: detention pond 103



Summary for Subcatchment 6S: gravel wetland 102

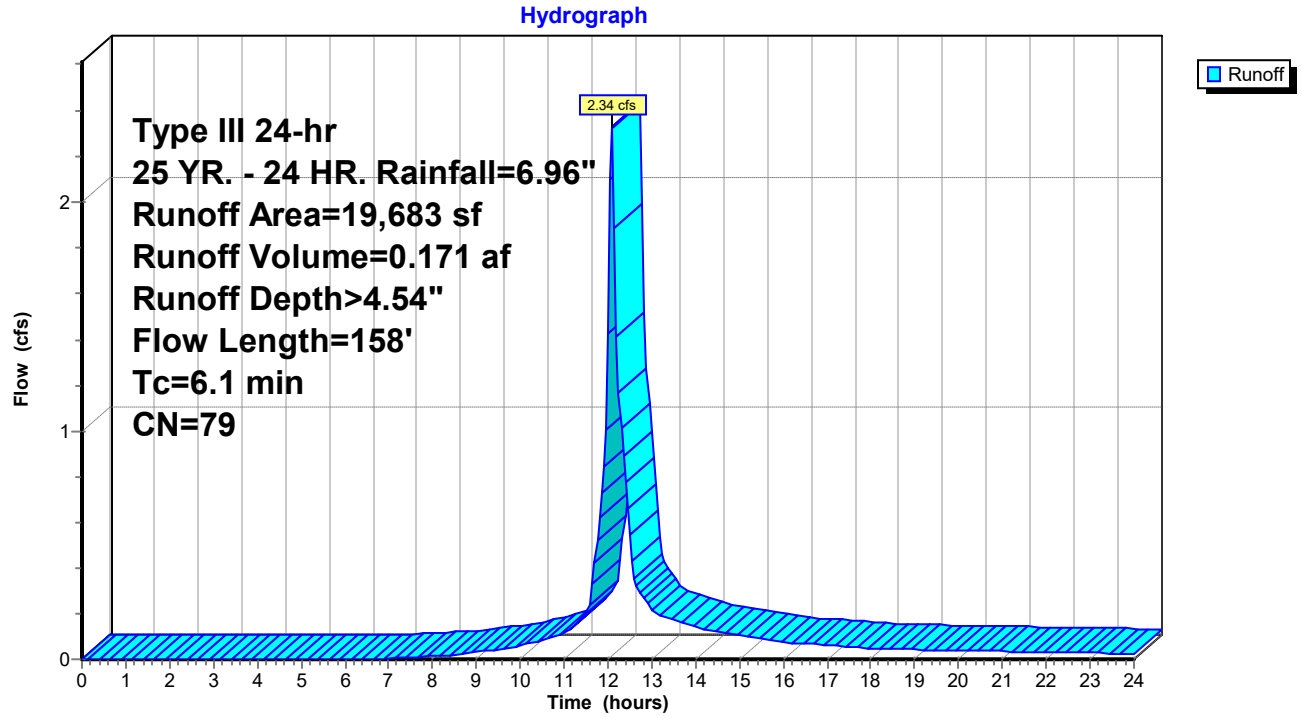
Runoff = 2.34 cfs @ 12.09 hrs, Volume= 0.171 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
2,086	98	Roofs, HSG B
1,771	98	Paved parking, HSG B
2,576	61	>75% Grass cover, Good, HSG B
135	98	Roofs, HSG C
1,586	98	Paved parking, HSG C
10,509	74	>75% Grass cover, Good, HSG C
1,020	70	Woods, Good, HSG C
19,683	79	Weighted Average
14,105		71.66% Pervious Area
5,578		28.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.0650	0.29		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
0.4	58	0.1000	2.21		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
6.1	158	Total			

Subcatchment 6S: gravel wetland 102



Summary for Subcatchment 7S: gravel wetland 104

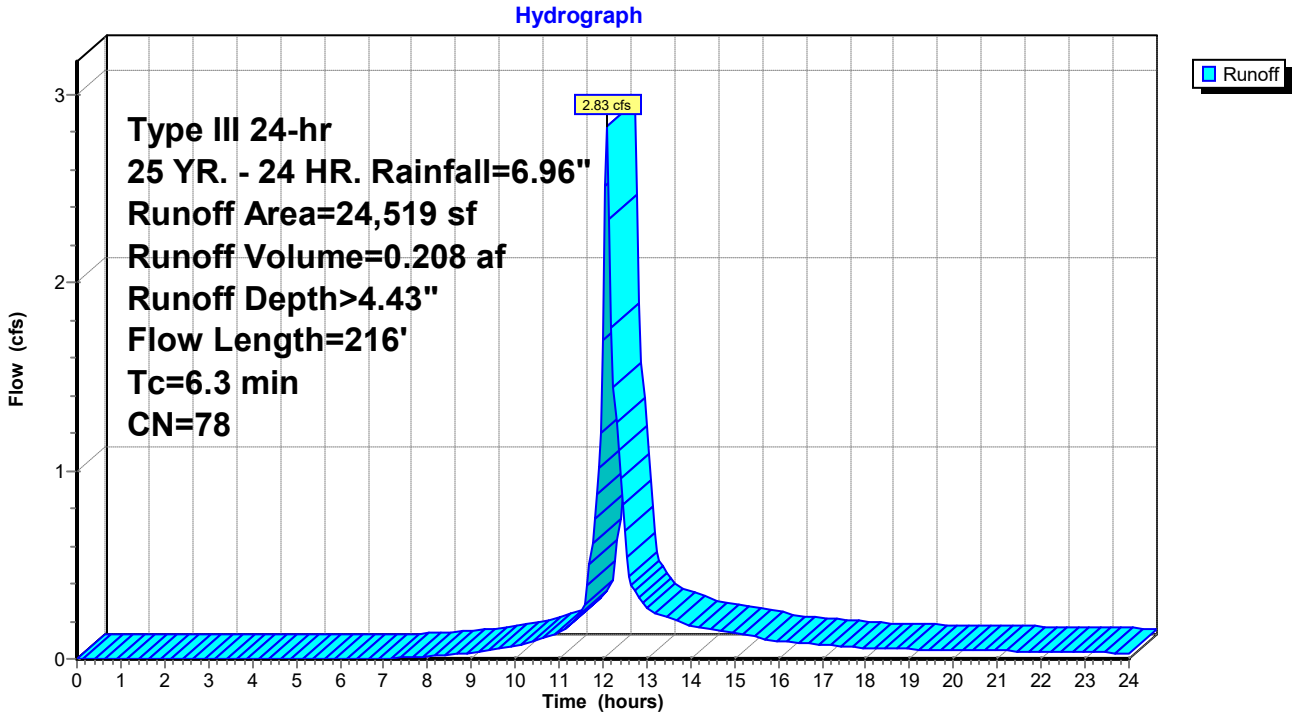
Runoff = 2.83 cfs @ 12.09 hrs, Volume= 0.208 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
4,140	98	Paved parking, HSG C
20,379	74	>75% Grass cover, Good, HSG C
24,519	78	Weighted Average
20,379		83.12% Pervious Area
4,140		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0800	0.32		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
1.0	116	0.0700	1.85		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
6.3	216	Total			

Subcatchment 7S: gravel wetland 104



Summary for Subcatchment 8S: Level spreader 108

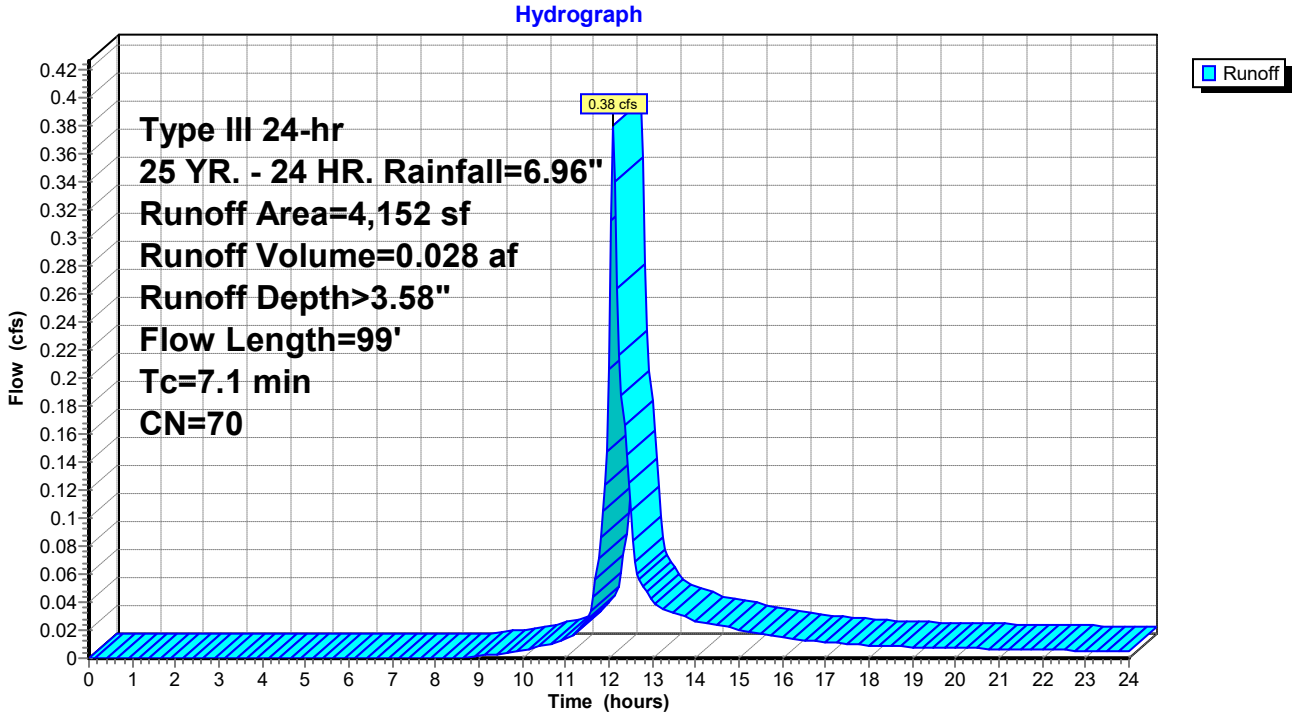
Runoff = 0.38 cfs @ 12.11 hrs, Volume= 0.028 af, Depth> 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
984	61	>75% Grass cover, Good, HSG B
71	55	Woods, Good, HSG B
2,377	74	>75% Grass cover, Good, HSG C
720	70	Woods, Good, HSG C
4,152	70	Weighted Average
4,152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	40	0.1000	0.29		**Sheet Flow, Segemnt 1** Grass: Short n= 0.150 P2= 3.65"
4.7	45	0.1560	0.16		**Sheet Flow, Segment 2** Woods: Light underbrush n= 0.400 P2= 3.65"
0.1	14	0.2900	3.77		**Shallow Concentrated Flow, Segment 3** Short Grass Pasture Kv= 7.0 fps
7.1	99	Total			

Subcatchment 8S: Level spreader 108



Summary for Subcatchment 9S: Level spreader 109

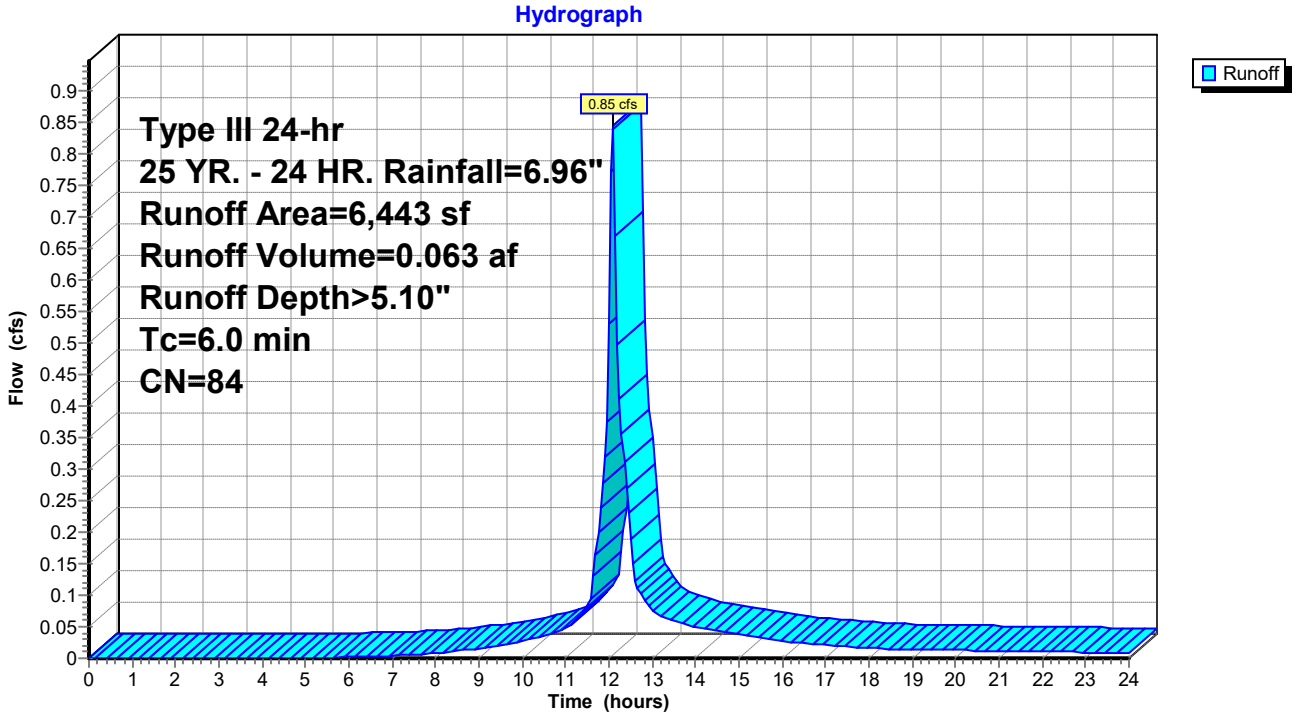
Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.063 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,188	98	Roofs, HSG C
1,581	98	Paved parking, HSG C
3,674	74	>75% Grass cover, Good, HSG C
6,443	84	Weighted Average
3,674		57.02% Pervious Area
2,769		42.98% Impervious Area

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

Subcatchment 9S: Level spreader 109



Summary for Subcatchment 11S: Drop inlet 1

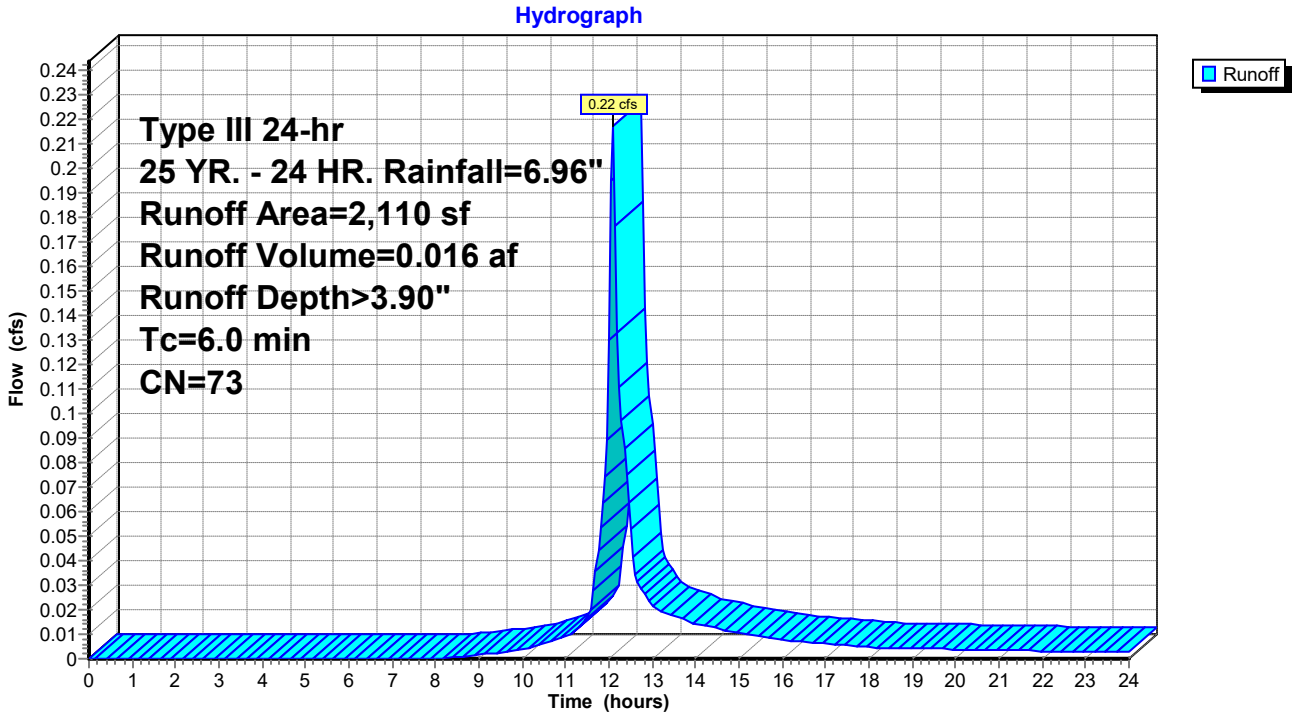
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
684	98	Paved parking, HSG B
1,426	61	>75% Grass cover, Good, HSG B
2,110	73	Weighted Average
1,426		67.58% Pervious Area
684		32.42% Impervious Area

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

Subcatchment 11S: Drop inlet 1



Summary for Subcatchment 12S: Drop inlet 2

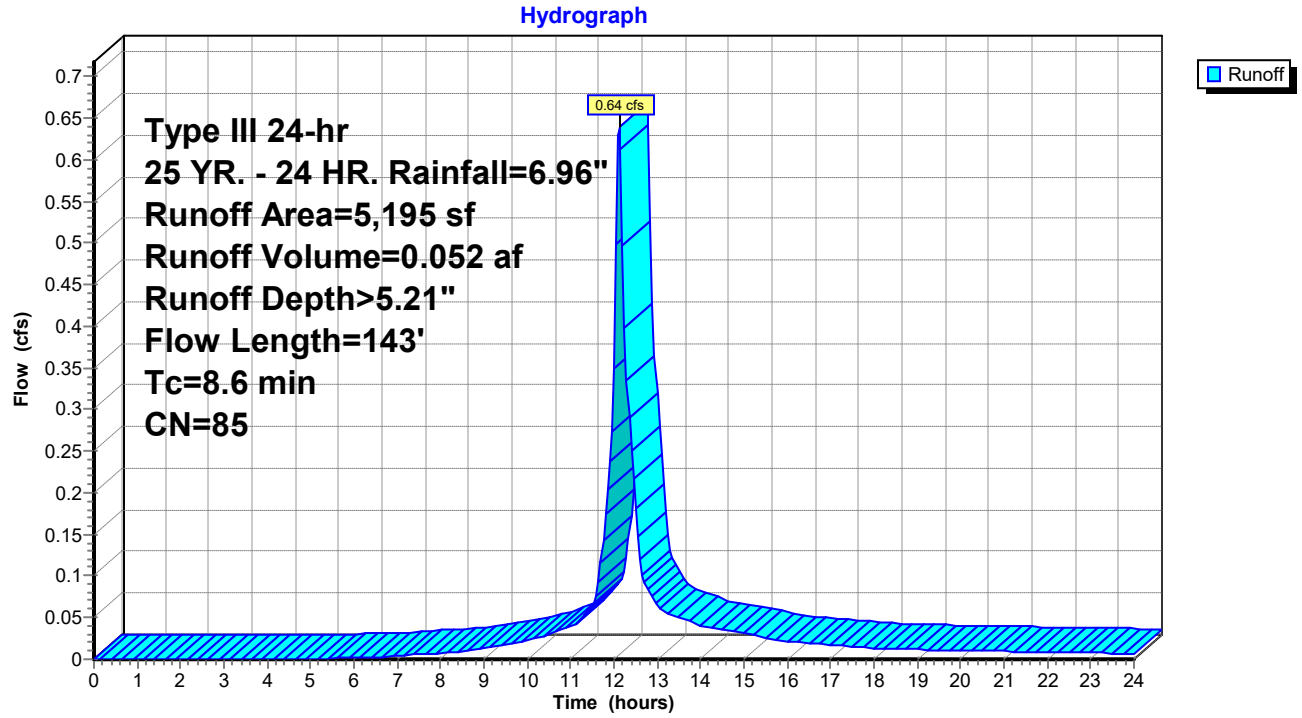
Runoff = 0.64 cfs @ 12.12 hrs, Volume= 0.052 af, Depth> 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
900	98	Paved parking, HSG B
178	61	>75% Grass cover, Good, HSG B
1,297	98	Roofs, HSG C
289	98	Paved parking, HSG C
2,531	74	>75% Grass cover, Good, HSG C
5,195	85	Weighted Average
2,709		52.15% Pervious Area
2,486		47.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	90	0.0220	0.18		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
0.2	10	0.0100	0.70		**Sheet Flow, Segment 2** Smooth surfaces n= 0.011 P2= 3.65"
0.3	43	0.0930	2.13		**Shallow Concentrated Flow, Segment 3** Short Grass Pasture Kv= 7.0 fps
8.6	143	Total			

Subcatchment 12S: Drop inlet 2



Summary for Subcatchment 13S: Drop inlet 3

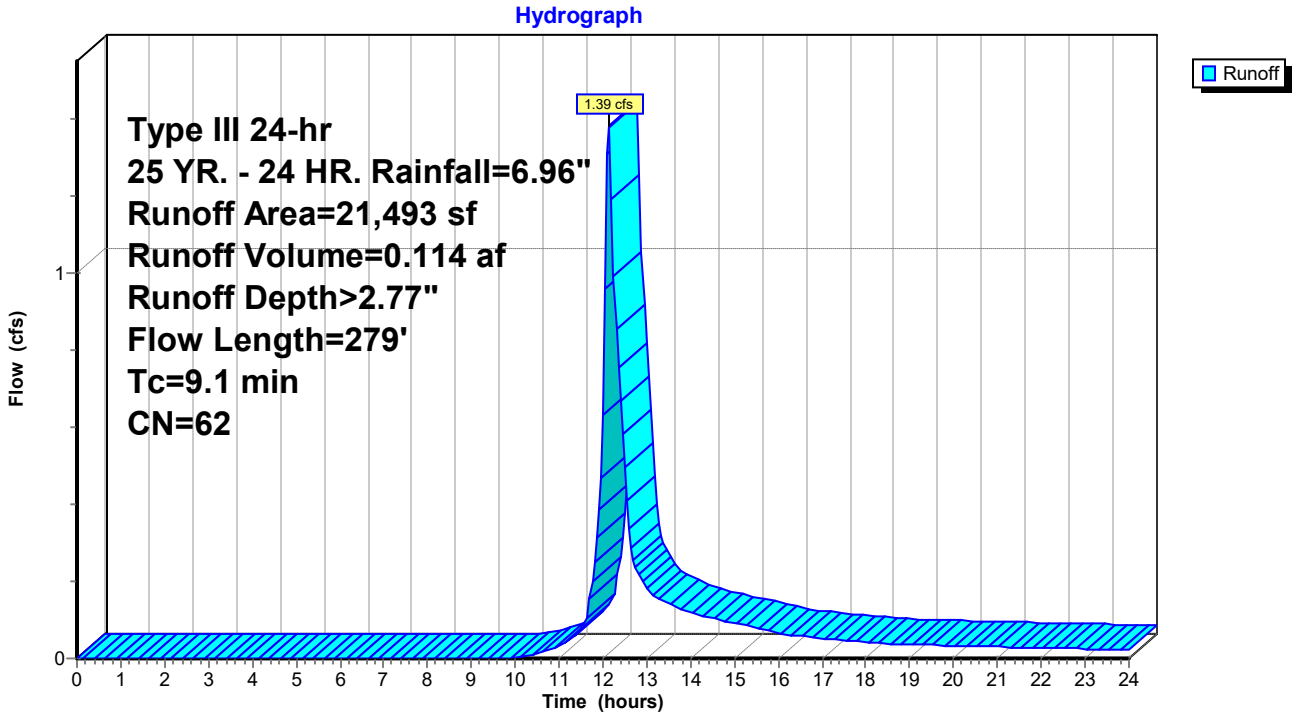
Runoff = 1.39 cfs @ 12.14 hrs, Volume= 0.114 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
2,110	98	Roofs, HSG A
301	98	Paved parking, HSG A
11,270	39	>75% Grass cover, Good, HSG A
520	98	Paved parking, HSG B
85	61	>75% Grass cover, Good, HSG B
1,232	98	Roofs, HSG C
1,679	98	Paved parking, HSG C
4,296	74	>75% Grass cover, Good, HSG C
21,493	62	Weighted Average
15,651		72.82% Pervious Area
5,842		27.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0400	0.24		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
1.9	143	0.0320	1.25		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
0.2	36	0.1900	3.05		**Shallow Concentrated Flow, Segment 3** Short Grass Pasture Kv= 7.0 fps
9.1	279	Total			

Subcatchment 13S: Drop inlet 3



Summary for Subcatchment 14S: Drop inlet 4

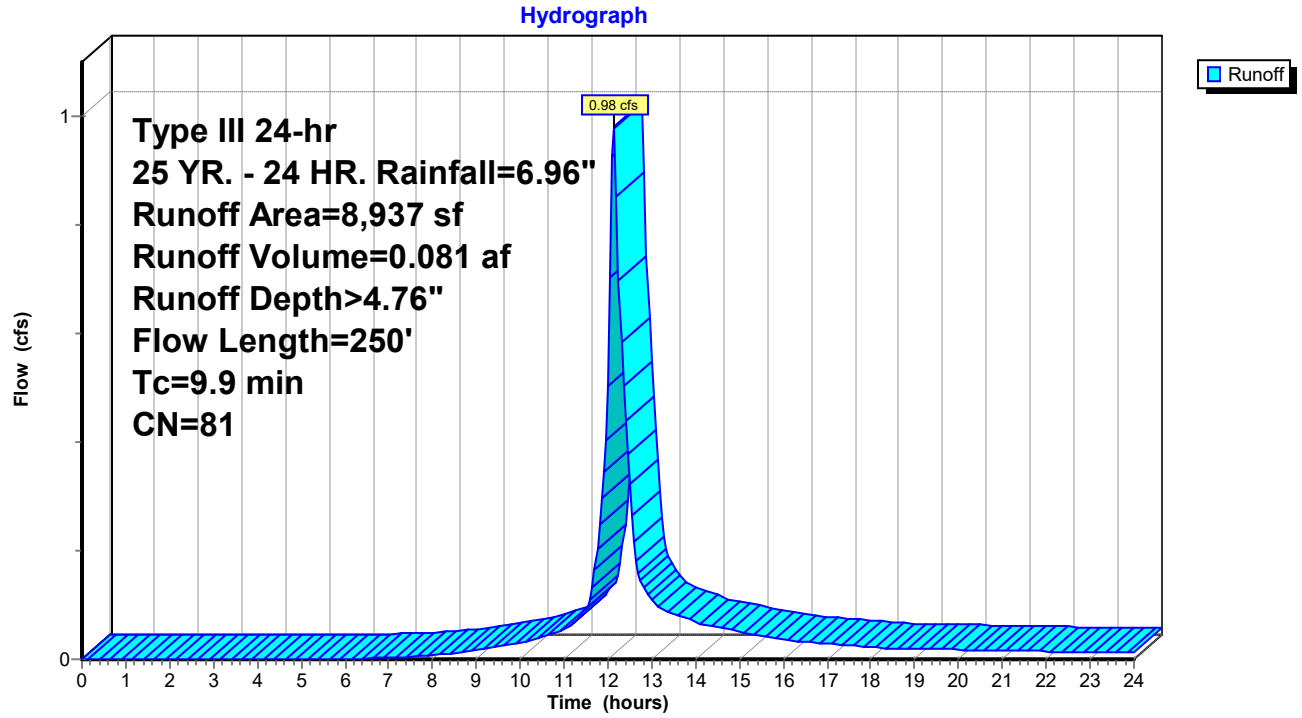
Runoff = 0.98 cfs @ 12.14 hrs, Volume= 0.081 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
13	98	Paved parking, HSG A
1,257	98	Roofs, HSG B
1,097	98	Paved parking, HSG B
3,471	61	>75% Grass cover, Good, HSG B
681	98	Roofs, HSG C
1,361	98	Paved parking, HSG C
1,057	74	>75% Grass cover, Good, HSG C
8,937	81	Weighted Average
4,528		50.67% Pervious Area
4,409		49.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0250	0.20		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.65"
1.5	150	0.0600	1.71		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
9.9	250	Total			

Subcatchment 14S: Drop inlet 4



Summary for Subcatchment 15S: Drop inlet 5

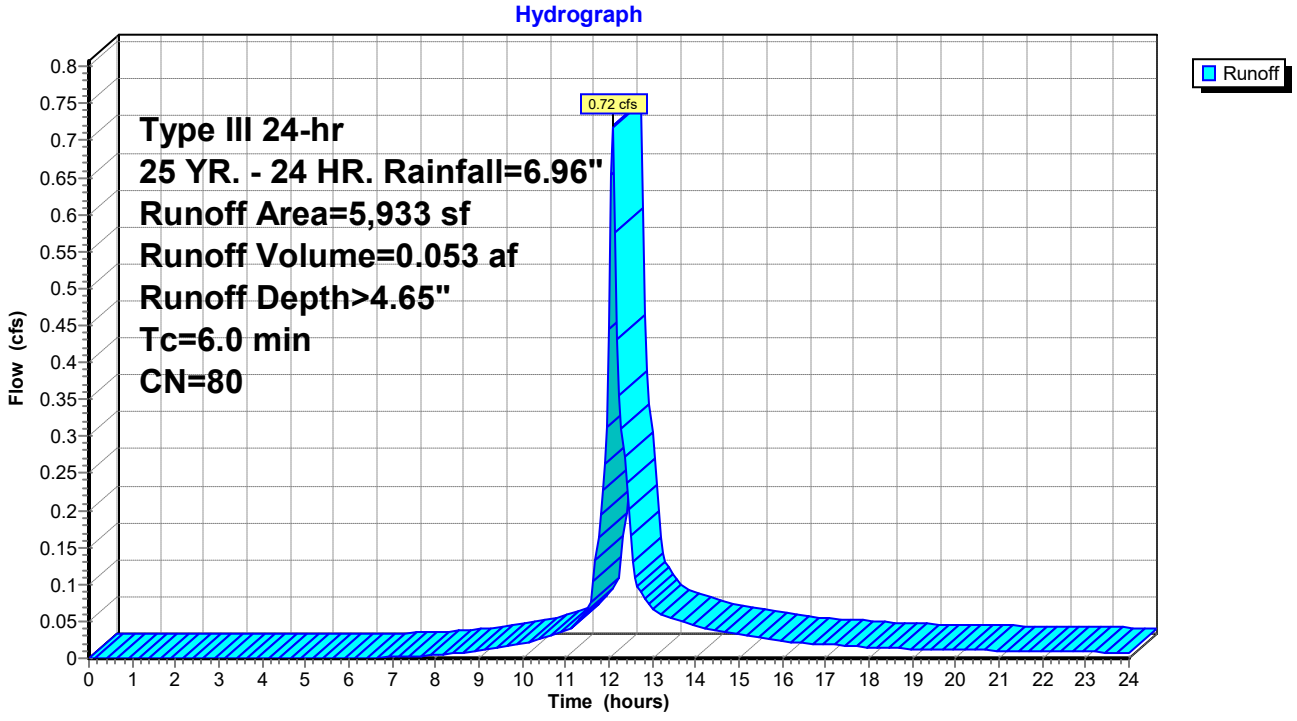
Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.053 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
535	98	Roofs, HSG C
1,034	98	Paved parking, HSG C
4,364	74	>75% Grass cover, Good, HSG C
5,933	80	Weighted Average
4,364		73.55% Pervious Area
1,569		26.45% Impervious Area

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

Subcatchment 15S: Drop inlet 5



Summary for Subcatchment 20S: Catch Basin 20

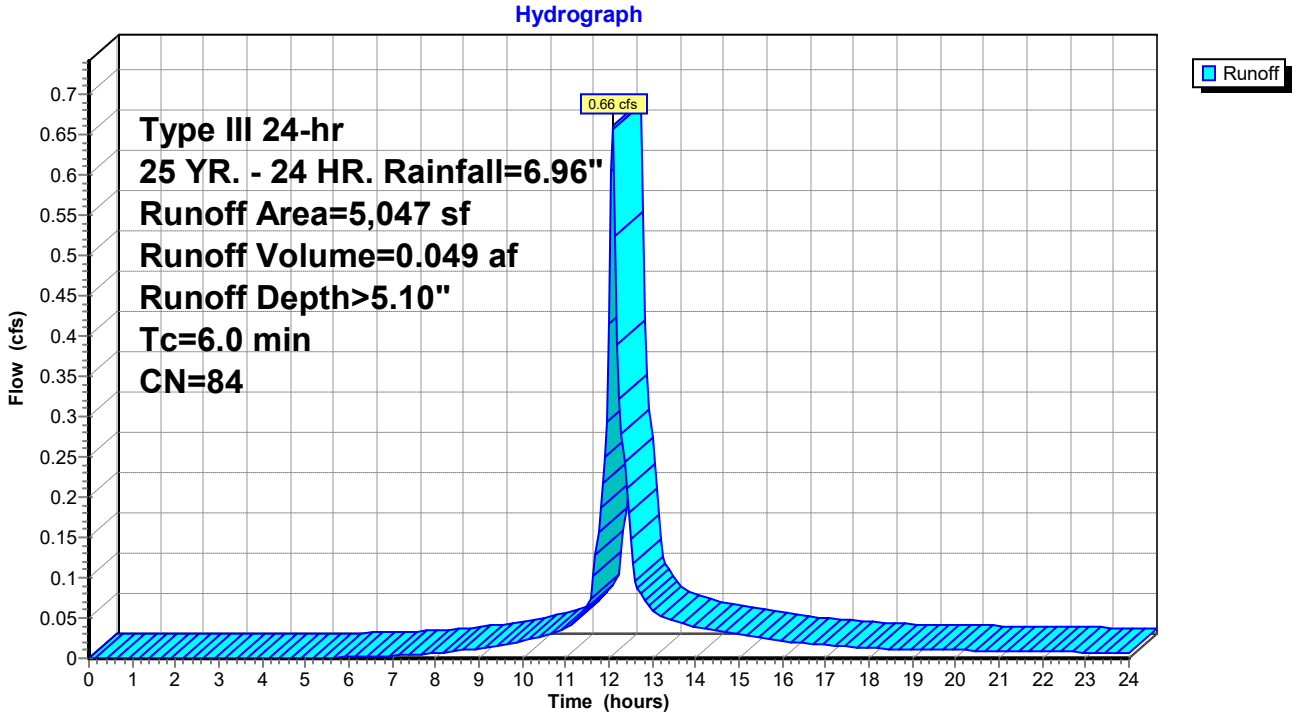
Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
434	98	Roofs, HSG C
1,675	98	Paved parking, HSG C
2,938	74	>75% Grass cover, Good, HSG C
5,047	84	Weighted Average
2,938		58.21% Pervious Area
2,109		41.79% Impervious Area

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

Subcatchment 20S: Catch Basin 20



Summary for Subcatchment 21S: Catch Basin 21

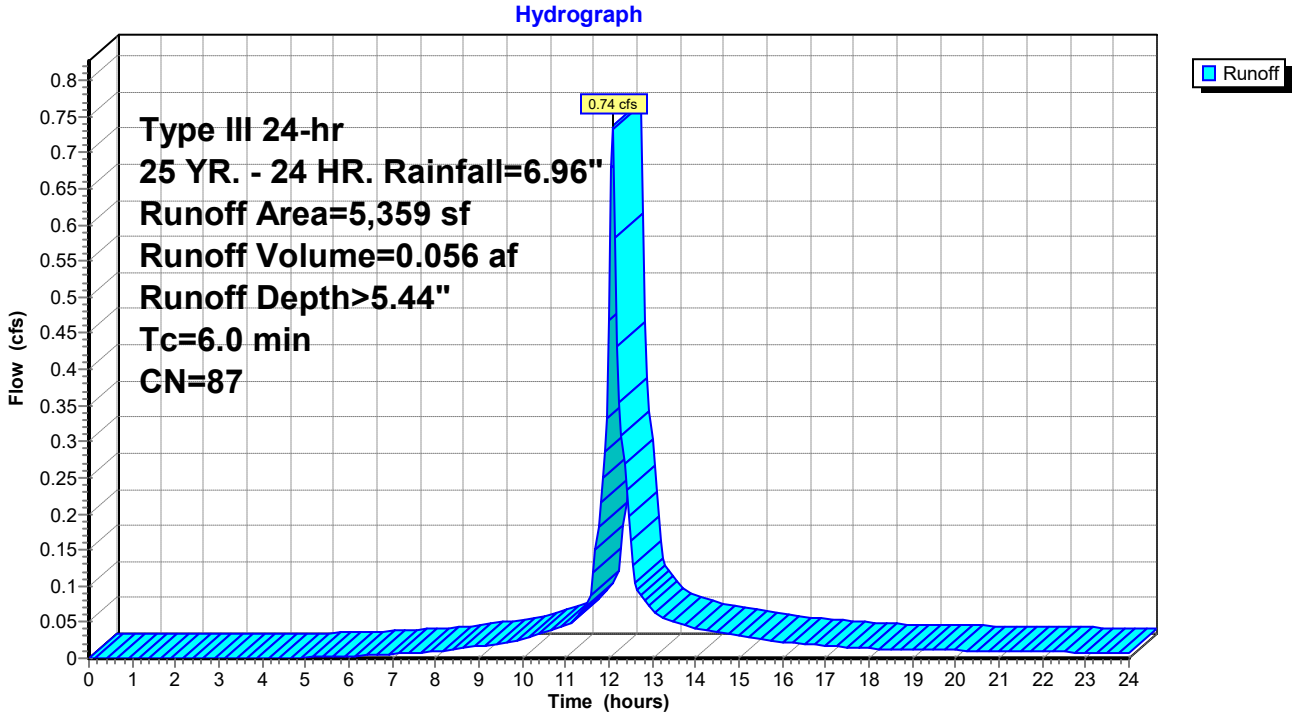
Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.056 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR. - 24 HR. Rainfall=6.96"

Area (sf)	CN	Description
1,257	98	Roofs, HSG C
1,626	98	Paved parking, HSG C
2,476	74	>75% Grass cover, Good, HSG C
5,359	87	Weighted Average
2,476		46.20% Pervious Area
2,883		53.80% Impervious Area

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

Subcatchment 21S: Catch Basin 21



Summary for Reach 2R: Swale flow

Inflow = 0.00 cfs @ 12.51 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.56 hrs, Volume= 0.000 af, Atten= 51%, Lag= 2.9 min

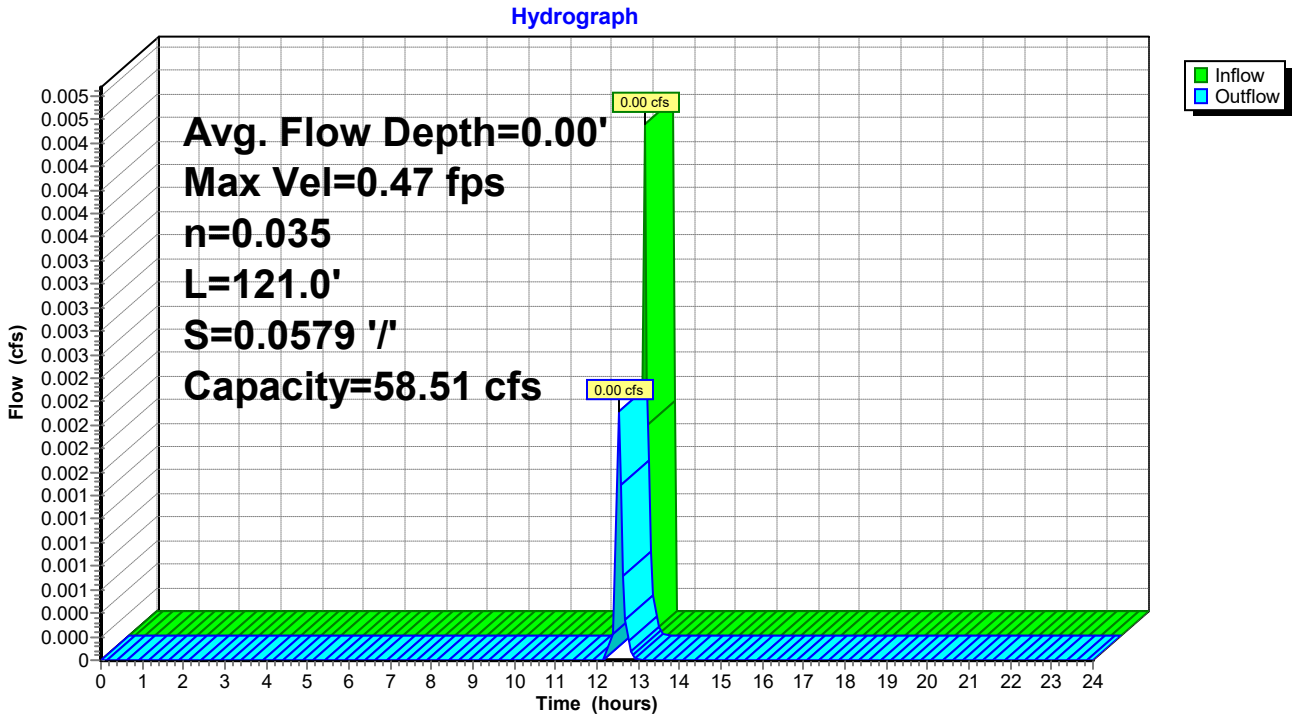
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 4.3 min

Peak Storage= 1 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 58.51 cfs

3.00' x 1.00' deep channel, n= 0.035 Scattered brush, heavy weeds
Side Slope Z-value= 5.0 '/' Top Width= 13.00'
Length= 121.0' Slope= 0.0579 '/'
Inlet Invert= 57.00', Outlet Invert= 50.00'

‡

Reach 2R: Swale flow



Summary for Reach 5R: Swale Flow

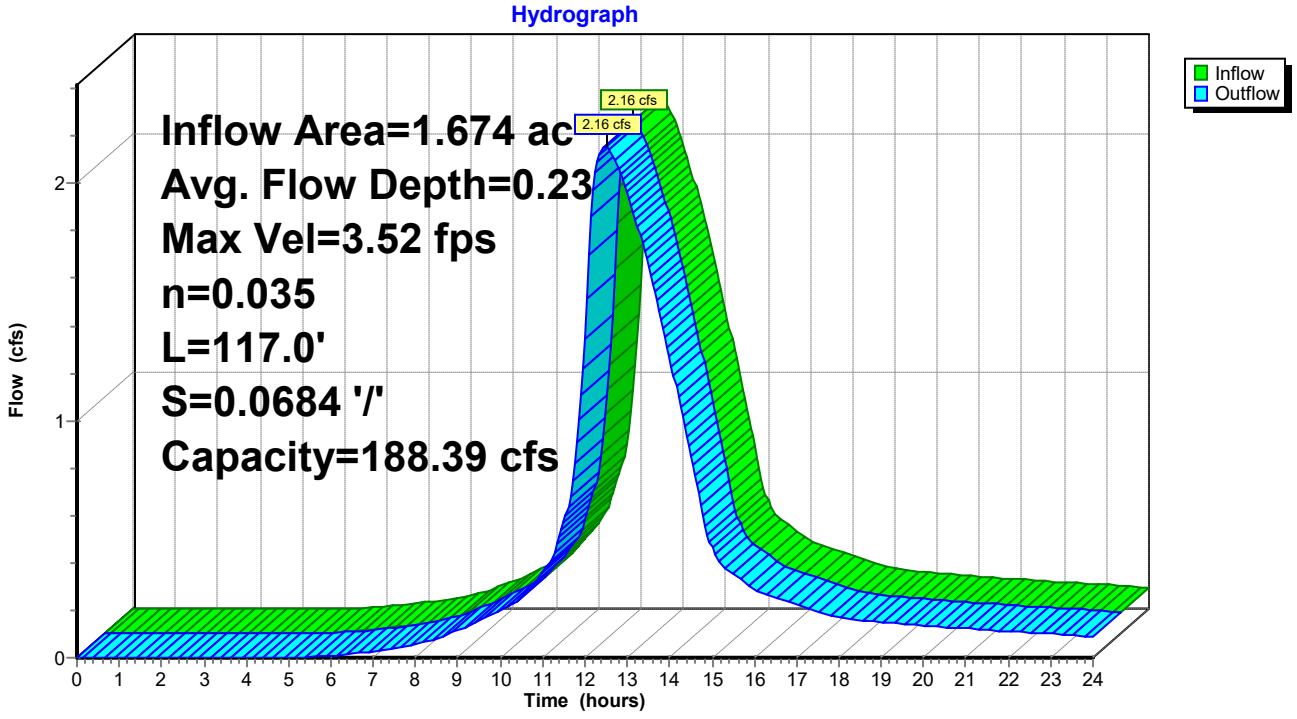
Inflow Area = 1.674 ac, 39.86% Impervious, Inflow Depth > 4.32" for 25 YR. - 24 HR. event
Inflow = 2.16 cfs @ 12.49 hrs, Volume= 0.602 af
Outflow = 2.16 cfs @ 12.50 hrs, Volume= 0.602 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.52 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 1.2 min

Peak Storage= 72 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 188.39 cfs

2.00' x 2.00' deep channel, n= 0.035 Scattered brush, heavy weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 117.0' Slope= 0.0684 '/'
Inlet Invert= 47.00', Outlet Invert= 39.00'

Reach 5R: Swale Flow



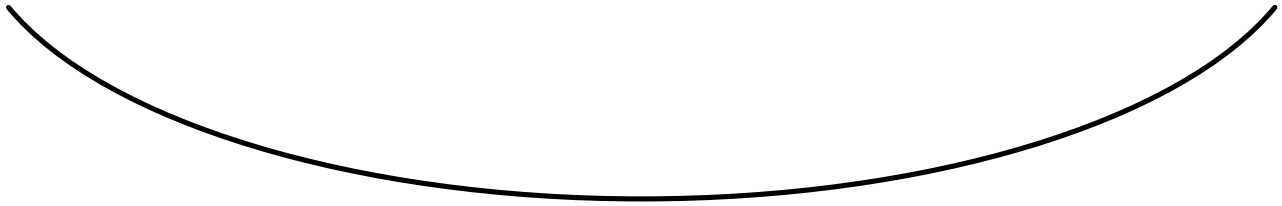
Summary for Reach 7R: Overland flow

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 75.40 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.035 Scattered brush, heavy weeds
Length= 255.0' Slope= 0.0196 '/'
Inlet Invert= 40.00', Outlet Invert= 35.00'



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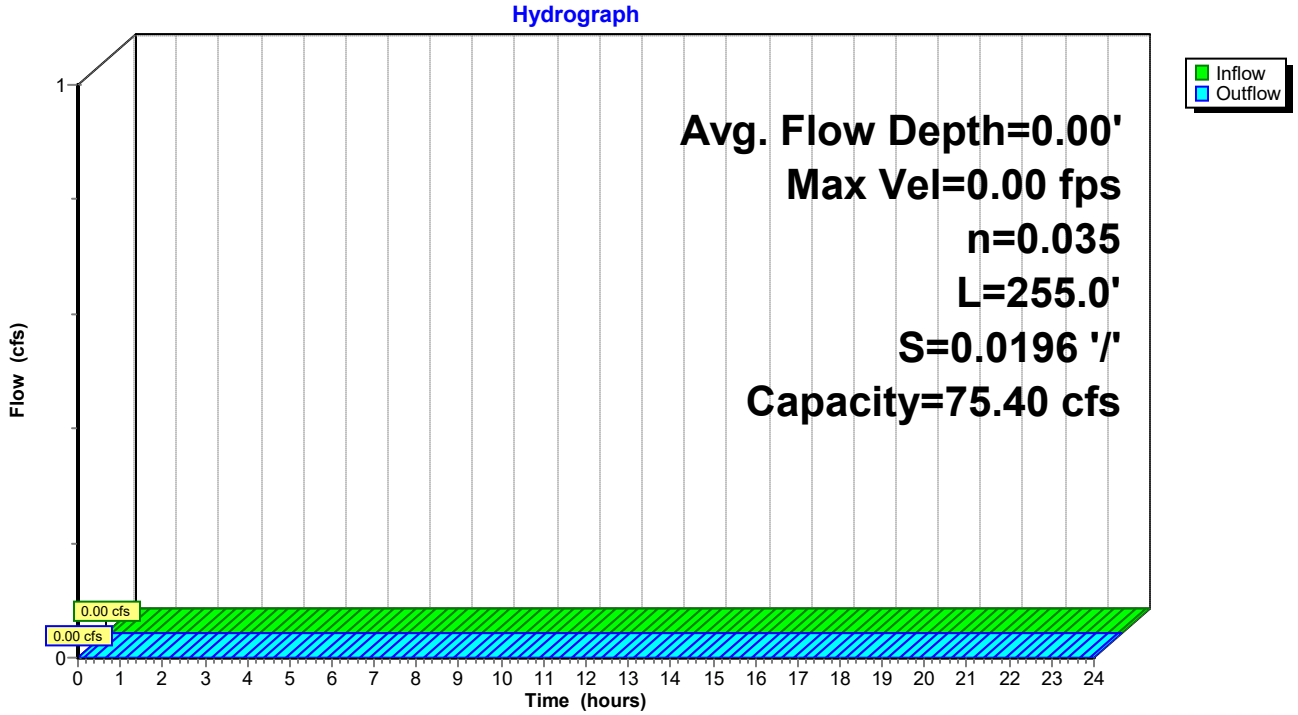
Reach 7R: Overland flow



Summary for Reach 8R: Overland flow

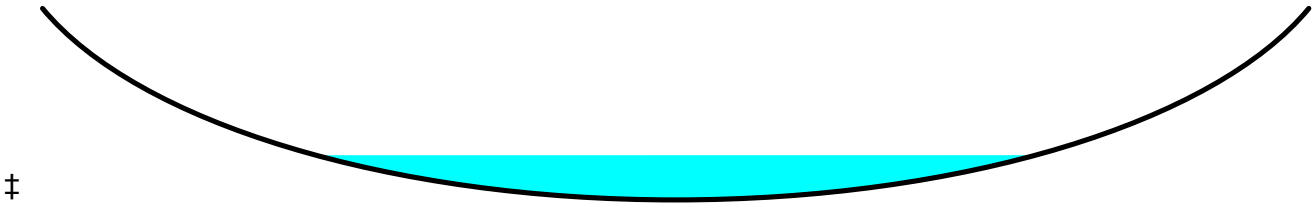
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 4.847 ac, 13.32% Impervious, Inflow Depth > 2.22" for 25 YR. - 24 HR. event
Inflow = 7.38 cfs @ 12.51 hrs, Volume= 0.897 af
Outflow = 7.77 cfs @ 12.51 hrs, Volume= 0.897 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.97 fps, Avg. Travel Time= 0.4 min

Peak Storage= 100 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 181.18 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.035 Scattered brush, heavy weeds
Length= 53.0' Slope= 0.1132 '/'
Inlet Invert= 55.00', Outlet Invert= 49.00'



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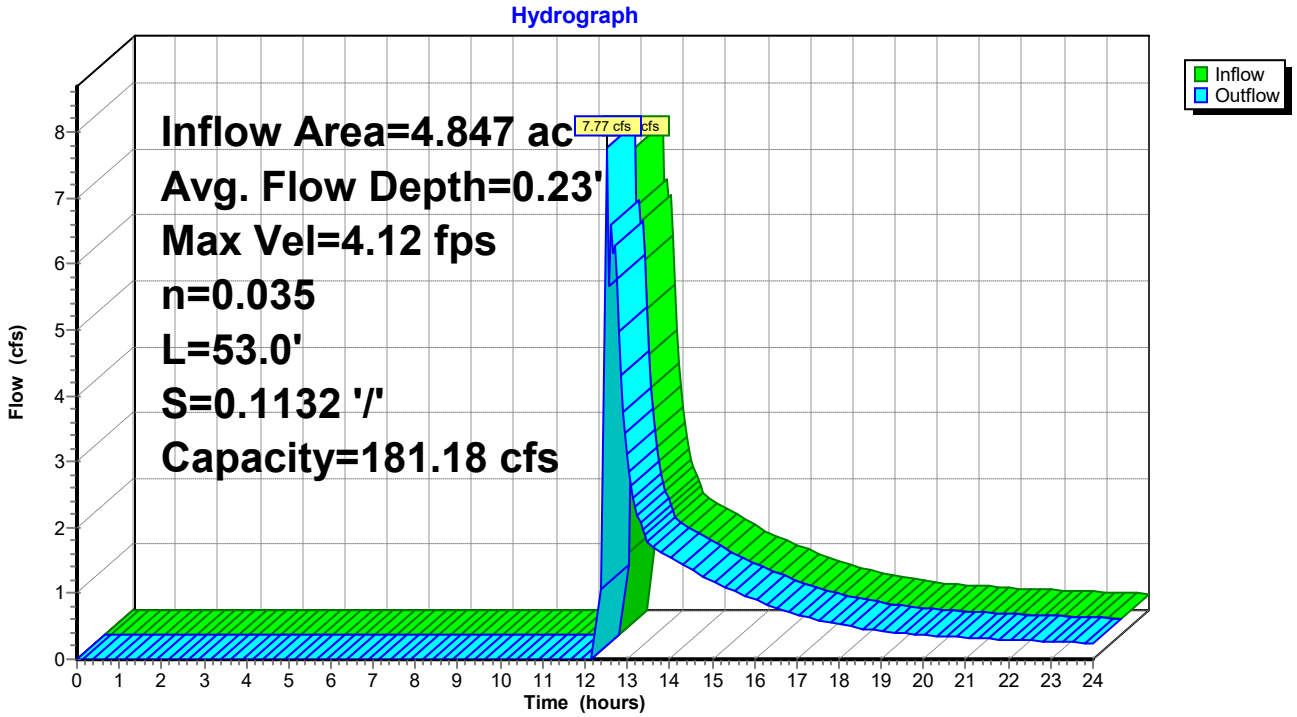
Reach 8R: Overland flow



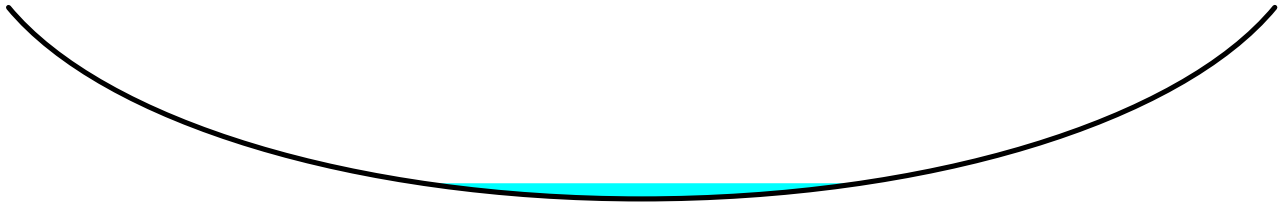
Summary for Reach 9R: Overland flow

Inflow Area = 2.384 ac, 34.63% Impervious, Inflow Depth > 3.77" for 25 YR. - 24 HR. event
Inflow = 3.99 cfs @ 12.20 hrs, Volume= 0.748 af
Outflow = 3.99 cfs @ 12.23 hrs, Volume= 0.748 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.28 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.5 min

Peak Storage= 65 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 1.50' Flow Area= 75.0 sf, Capacity= 906.07 cfs

75.00' x 1.50' deep Parabolic Channel, n= 0.035 Scattered brush, heavy weeds
Length= 37.0' Slope= 0.0811 '/'
Inlet Invert= 38.00', Outlet Invert= 35.00'



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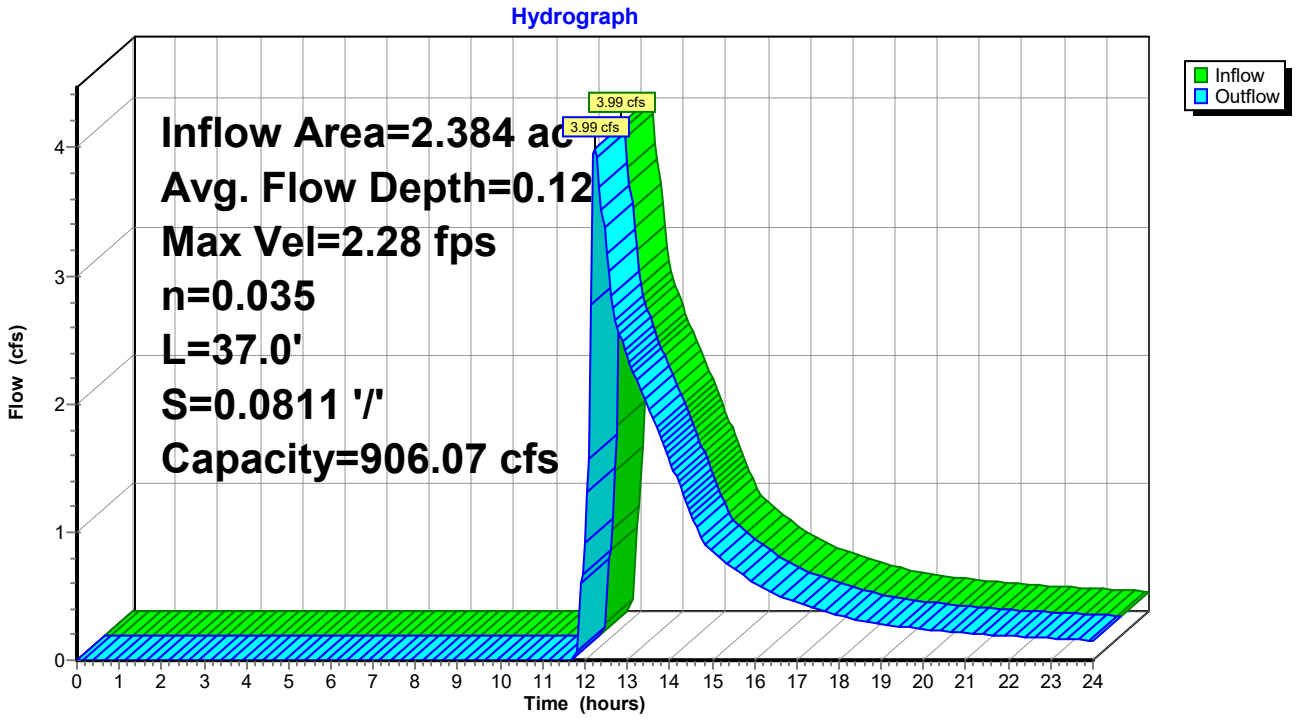
Reach 9R: Overland flow



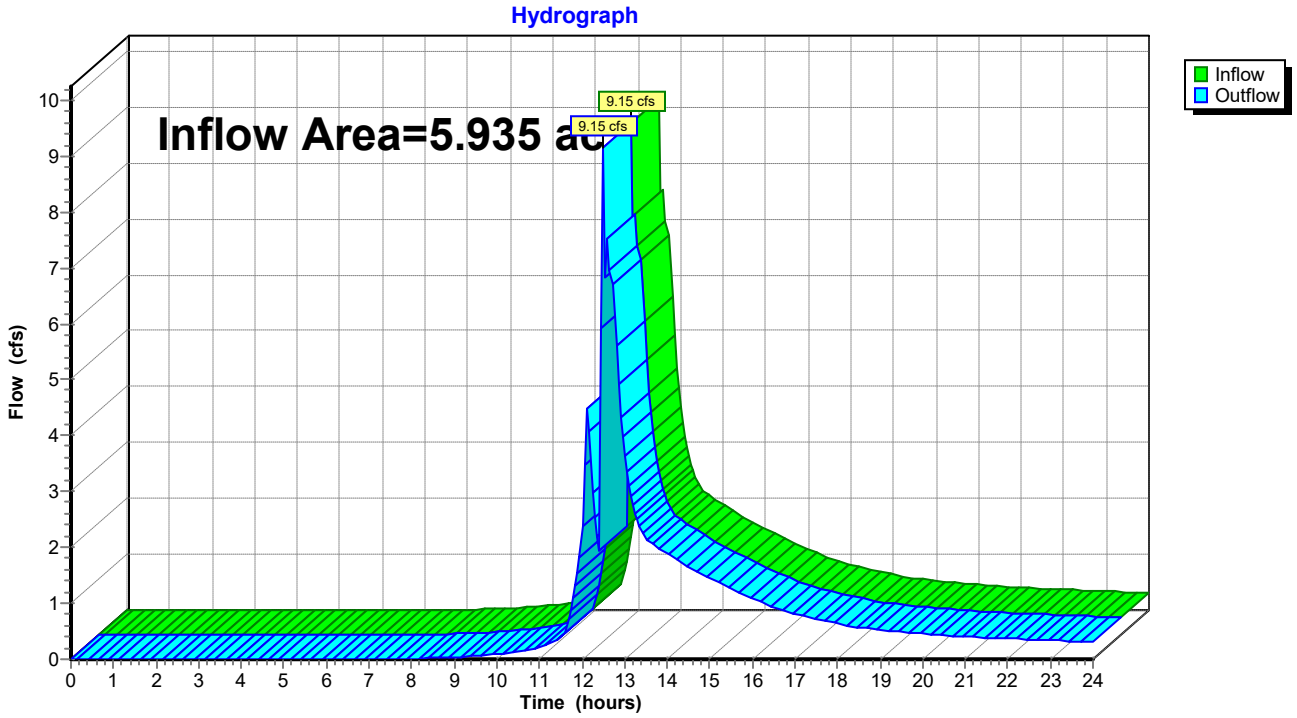
Summary for Reach 100R: Reach 100

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.935 ac, 11.49% Impervious, Inflow Depth > 2.55" for 25 YR. - 24 HR. event
Inflow = 9.15 cfs @ 12.50 hrs, Volume= 1.260 af
Outflow = 9.15 cfs @ 12.50 hrs, Volume= 1.260 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Reach 100



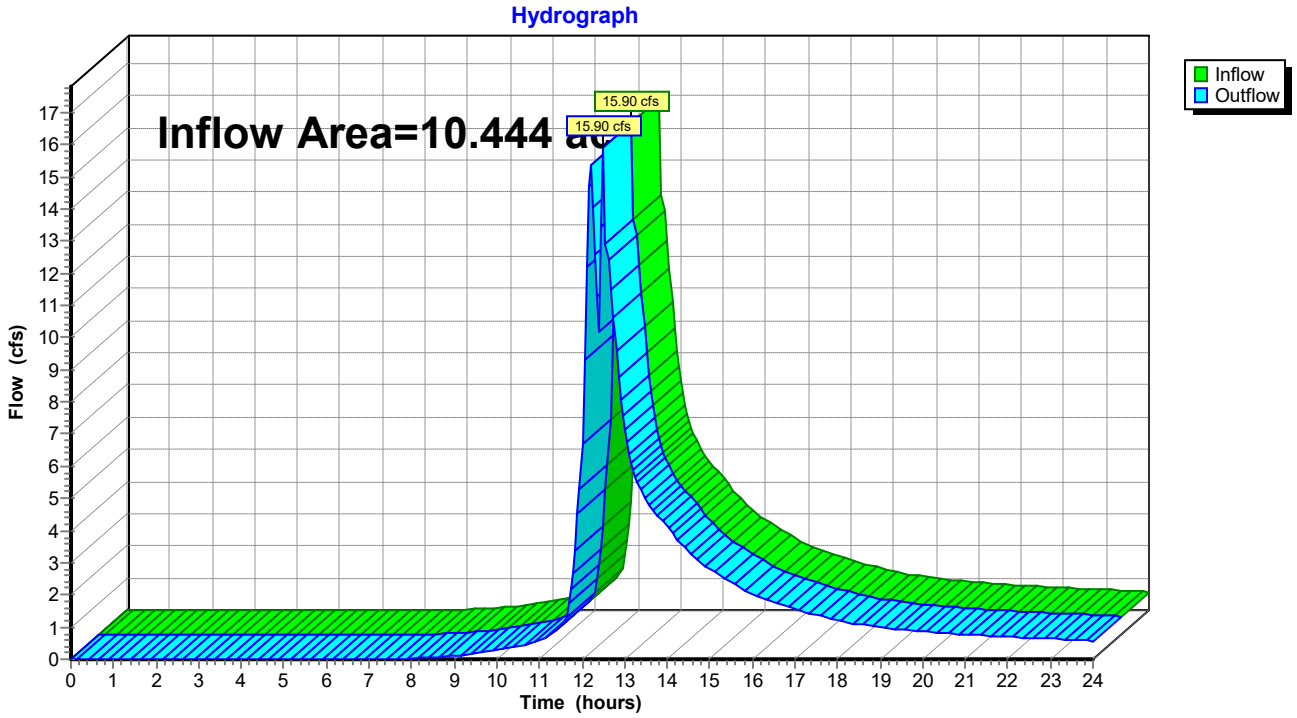
Summary for Reach 200R: Reach 200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.444 ac, 16.58% Impervious, Inflow Depth > 3.12" for 25 YR. - 24 HR. event
Inflow = 15.90 cfs @ 12.50 hrs, Volume= 2.716 af
Outflow = 15.90 cfs @ 12.50 hrs, Volume= 2.716 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Reach 200



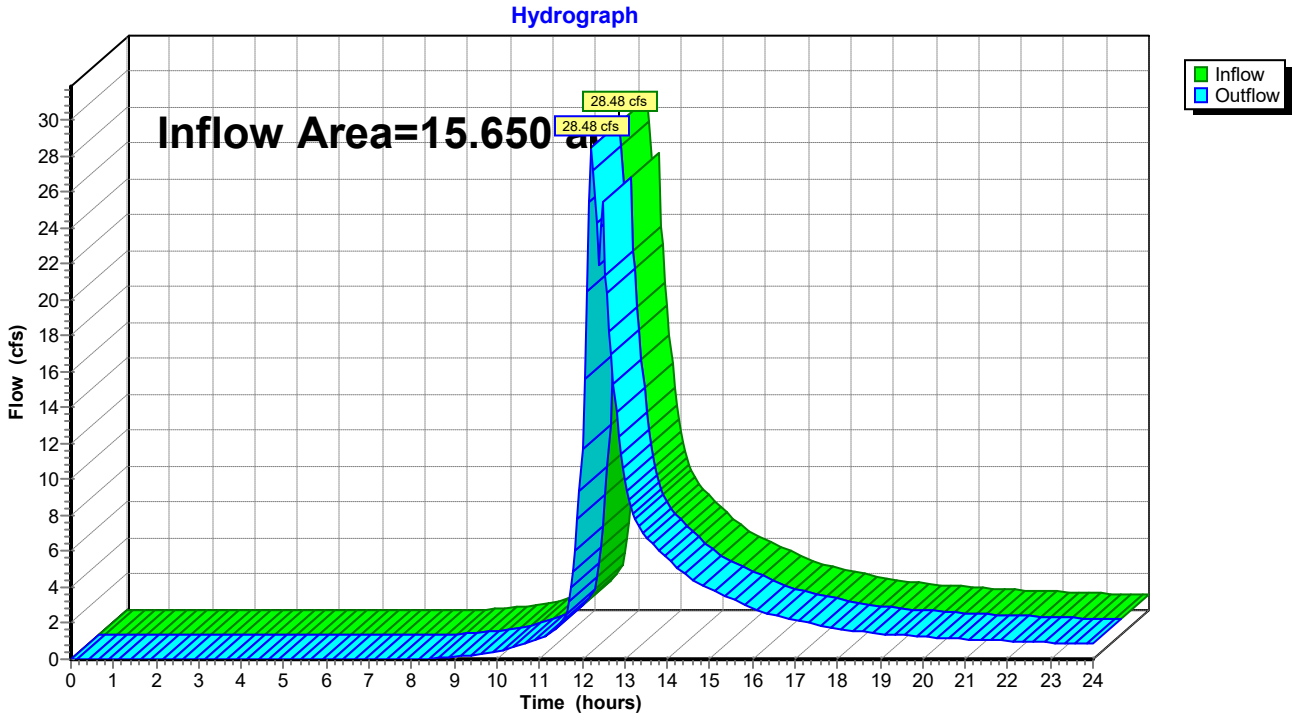
Summary for Reach 300R: Reach 300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.650 ac, 12.00% Impervious, Inflow Depth > 3.20" for 25 YR. - 24 HR. event
Inflow = 28.48 cfs @ 12.22 hrs, Volume= 4.175 af
Outflow = 28.48 cfs @ 12.22 hrs, Volume= 4.175 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 300R: Reach 300



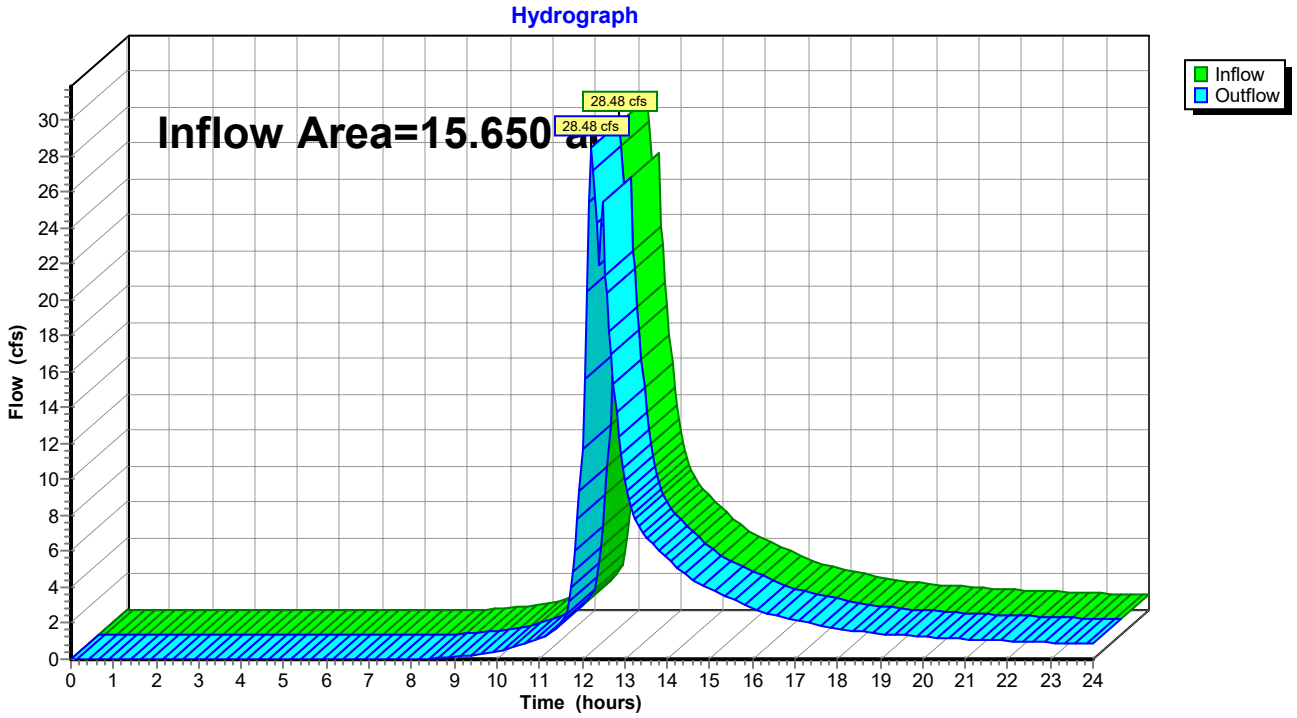
Summary for Reach 1000R: Final Reach 1000

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.650 ac, 12.00% Impervious, Inflow Depth > 3.20" for 25 YR. - 24 HR. event
Inflow = 28.48 cfs @ 12.22 hrs, Volume= 4.175 af
Outflow = 28.48 cfs @ 12.22 hrs, Volume= 4.175 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 1000R: Final Reach 1000



Summary for Pond 8P: level spreader #108

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 4.847 ac, 13.32% Impervious, Inflow Depth > 2.32" for 25 YR. - 24 HR. event
Inflow = 7.08 cfs @ 12.47 hrs, Volume= 0.938 af
Outflow = 7.38 cfs @ 12.51 hrs, Volume= 0.897 af, Atten= 0%, Lag= 2.1 min
Primary = 7.38 cfs @ 12.51 hrs, Volume= 0.897 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 56.24' @ 12.50 hrs Surf.Area= 1,351 sf Storage= 2,083 cf
Flood Elev= 56.50' Surf.Area= 1,351 sf Storage= 2,438 cf

Plug-Flow detention time= 30.6 min calculated for 0.895 af (95% of inflow)
Center-of-Mass det. time= 9.3 min (922.6 - 913.3)

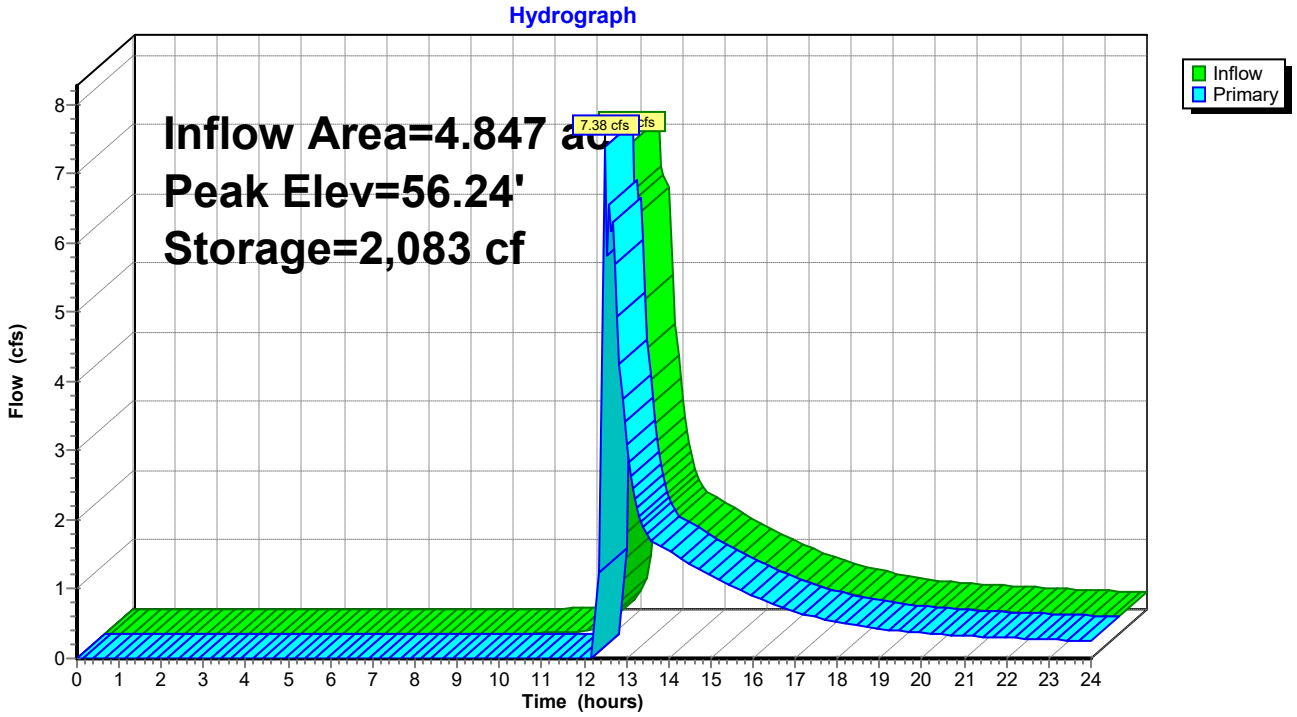
Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	3,114 cf	**Open water storage (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.00	439	82.3	0	0	439
55.00	889	112.2	651	651	912
56.00	1,351	138.0	1,112	1,763	1,441
57.00	1,351	138.0	1,351	3,114	1,579

Device	Routing	Invert	Outlet Devices
#1	Primary	56.00'	**25.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.19 cfs @ 12.51 hrs HW=56.23' TW=55.23' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 7.19 cfs @ 1.23 fps)

Pond 8P: level spreader #108



Summary for Pond 9P: level spreader #109

Inflow Area = 2.384 ac, 34.63% Impervious, Inflow Depth > 3.91" for 25 YR. - 24 HR. event
Inflow = 4.11 cfs @ 12.22 hrs, Volume= 0.776 af
Outflow = 3.99 cfs @ 12.20 hrs, Volume= 0.748 af, Atten= 3%, Lag= 0.0 min
Primary = 3.99 cfs @ 12.20 hrs, Volume= 0.748 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 38.19' @ 12.27 hrs Surf.Area= 893 sf Storage= 1,361 cf
Flood Elev= 38.50' Surf.Area= 893 sf Storage= 1,639 cf

Plug-Flow detention time= 29.3 min calculated for 0.748 af (96% of inflow)
Center-of-Mass det. time= 10.9 min (890.6 - 879.7)

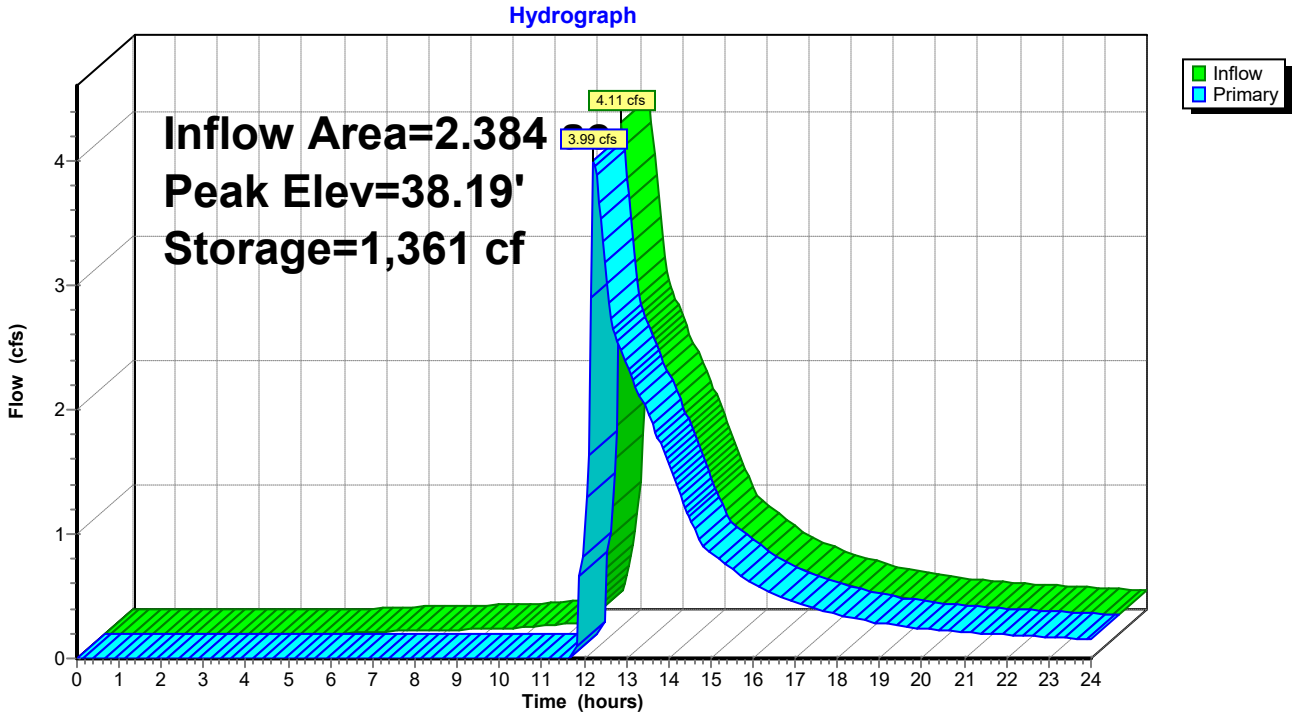
Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	2,085 cf	**Open water storage (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
36.00	339	73.4	0	0	339
37.00	587	92.3	457	457	602
38.00	893	111.0	735	1,192	921
39.00	893	111.0	893	2,085	1,032

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**25.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.65 cfs @ 12.20 hrs HW=38.18' TW=38.12' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.65 cfs @ 0.80 fps)

Pond 9P: level spreader #109



Summary for Pond 11P: Drop inlet 1

Inflow Area = 0.048 ac, 32.42% Impervious, Inflow Depth > 3.90" for 25 YR. - 24 HR. event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 64.91' @ 12.09 hrs Surf.Area= 3 sf Storage= 1 cf
Flood Elev= 68.00' Surf.Area= 139 sf Storage= 55 cf

Plug-Flow detention time= 0.2 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (824.0 - 823.9)

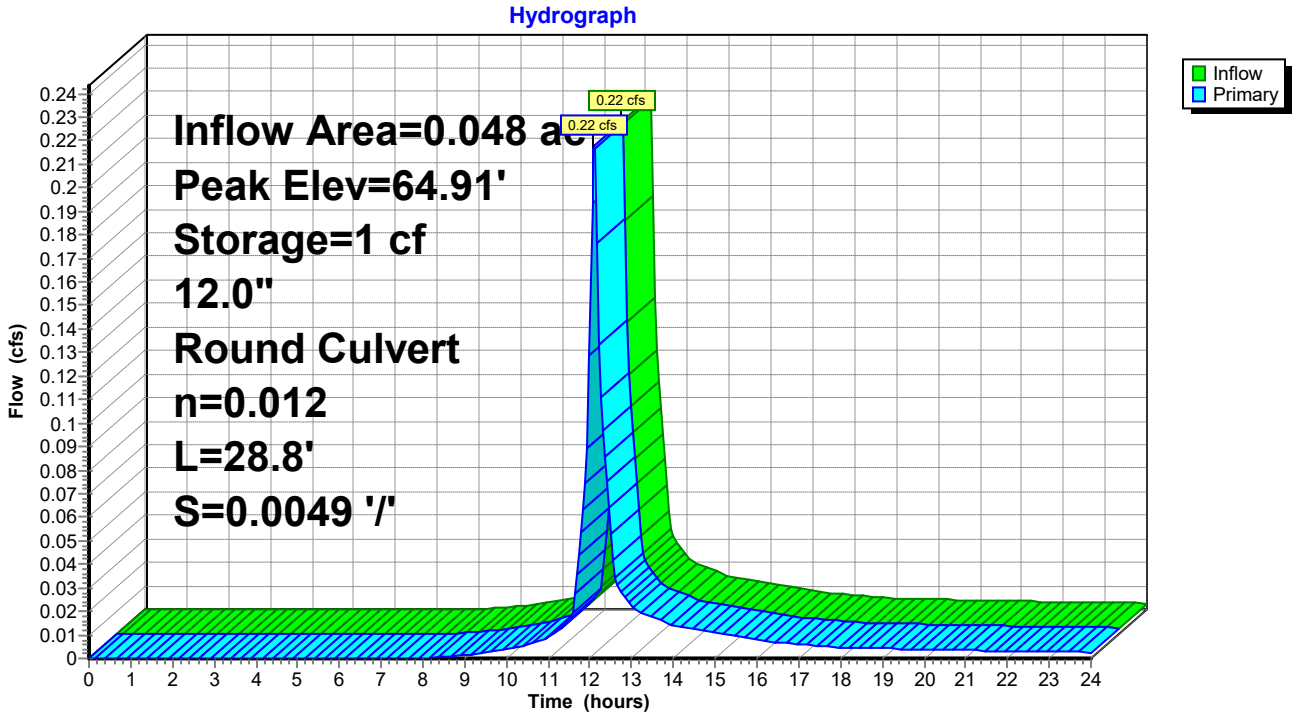
Volume	Invert	Avail.Storage	Storage Description
#1	64.64'	9 cf	**2.00'D x 2.86'H Vertical Cone/Cylinder**
#2	67.50'	46 cf	**Open water storage (Irregular)** Listed below (Recalc)
		55 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
67.50	55	50.0	0	0	55
68.00	136	59.0	46	46	138

Device	Routing	Invert	Outlet Devices
#1	Primary	64.64'	**12.0" Round 12" HDPE N-12** L= 28.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.64' / 64.50' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=64.91' TW=56.86' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Barrel Controls 0.21 cfs @ 1.86 fps)

Pond 11P: Drop inlet 1



Summary for Pond 12P: Drop inlet 2

Inflow Area = 0.119 ac, 47.85% Impervious, Inflow Depth > 5.21" for 25 YR. - 24 HR. event
Inflow = 0.64 cfs @ 12.12 hrs, Volume= 0.052 af
Outflow = 0.64 cfs @ 12.12 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.12 hrs, Volume= 0.052 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 64.11' @ 12.12 hrs Surf.Area= 3 sf Storage= 2 cf
Flood Elev= 66.50' Surf.Area= 3 sf Storage= 8 cf

Plug-Flow detention time= 0.1 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (797.0 - 796.9)

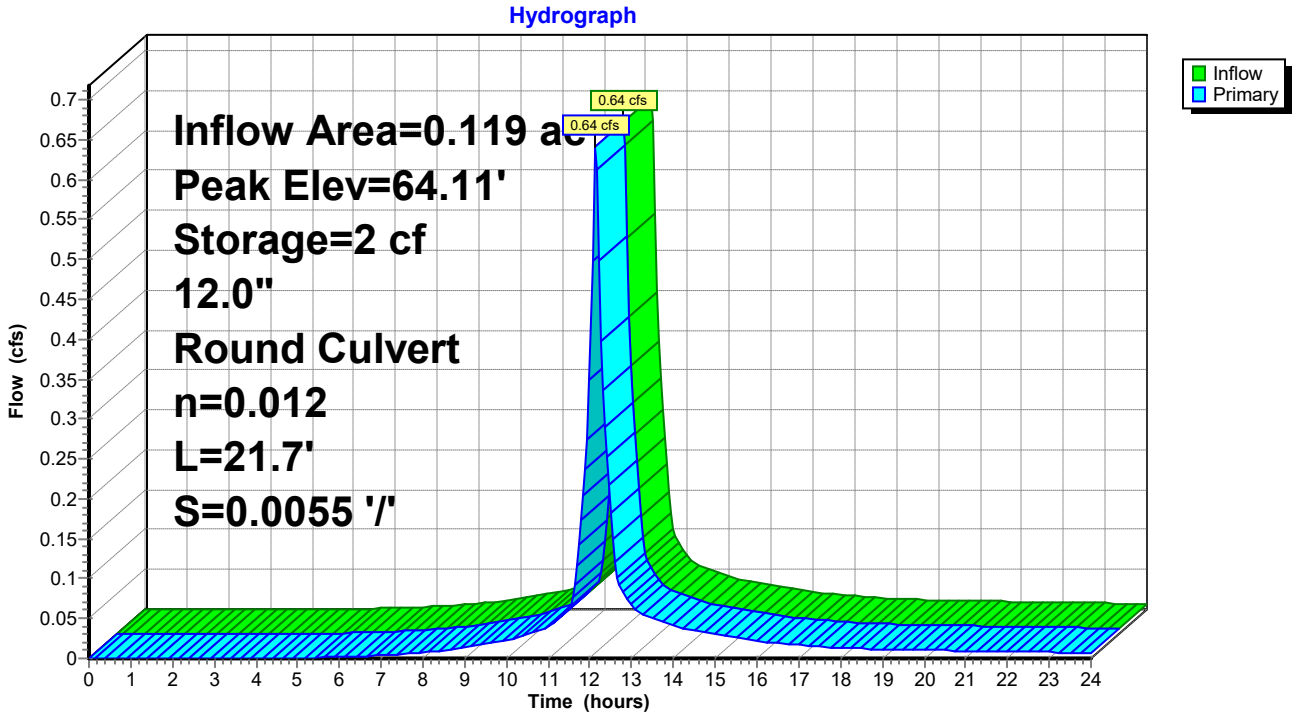
Volume	Invert	Avail.Storage	Storage Description
#1	63.62'	8 cf	**2.00'D x 2.63'H Vertical Cone/Cylinder**
#2	66.60'	57 cf	**Open water storage (Irregular)** Listed below (Recalc)
		65 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.60	94	63.6	0	0	94
67.00	197	73.1	57	57	201

Device	Routing	Invert	Outlet Devices
#1	Primary	63.62'	**12.0" Round 12" HDPE N-12** L= 21.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.62' / 63.50' S= 0.0055 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 12.12 hrs HW=64.11' TW=56.95' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Barrel Controls 0.62 cfs @ 2.41 fps)

Pond 12P: Drop inlet 2



Summary for Pond 13P: Drop inlet 3

Inflow Area = 0.493 ac, 27.18% Impervious, Inflow Depth > 2.77" for 25 YR. - 24 HR. event
Inflow = 1.39 cfs @ 12.14 hrs, Volume= 0.114 af
Outflow = 1.39 cfs @ 12.14 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.14 hrs, Volume= 0.114 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 61.47' @ 12.14 hrs Surf.Area= 3 sf Storage= 2 cf
Flood Elev= 64.50' Surf.Area= 116 sf Storage= 88 cf

Plug-Flow detention time= 0.1 min calculated for 0.114 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (851.0 - 850.9)

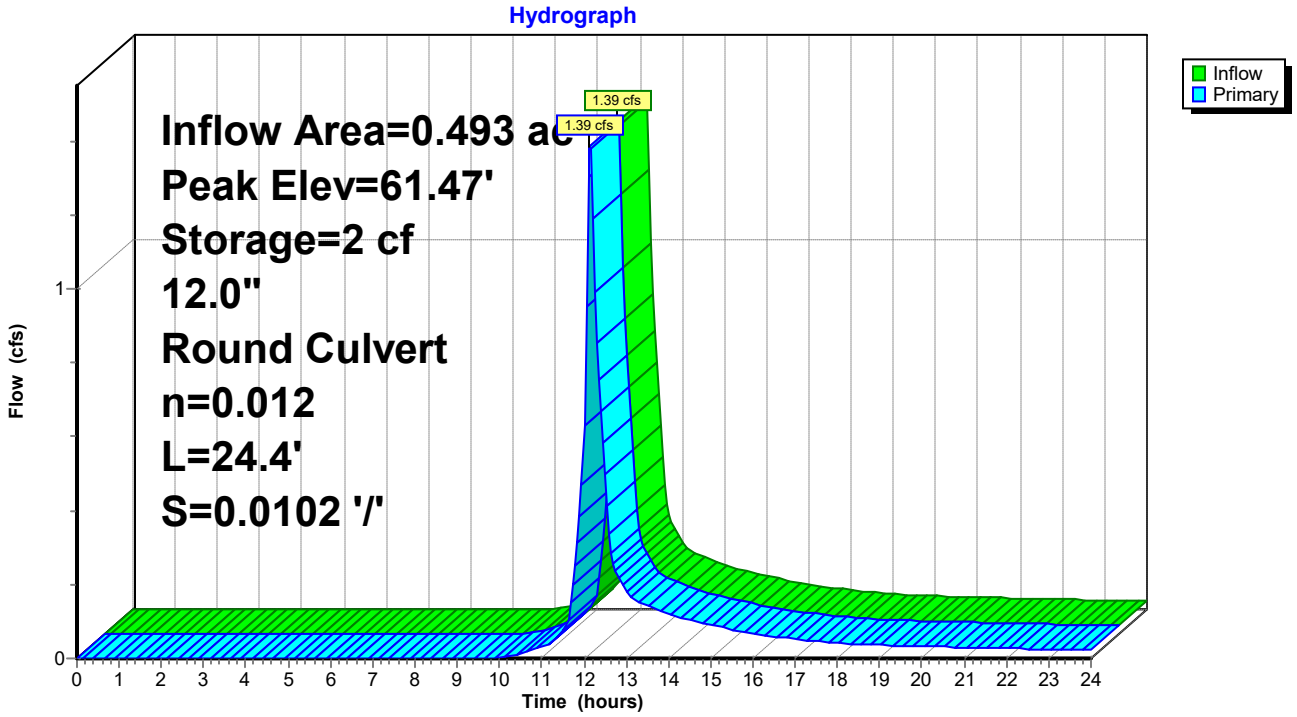
Volume	Invert	Avail.Storage	Storage Description
#1	60.75'	9 cf	**2.00'D x 2.75'H Vertical Cone/Cylinder**
#2	63.50'	79 cf	**Open water storage (Irregular)** Listed below (Recalc)
		88 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
63.50	50	37.3	0	0	50
64.50	113	47.0	79	79	128

Device	Routing	Invert	Outlet Devices
#1	Primary	60.75'	**12.0" Round 12" HDPE N-12** L= 24.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.75' / 60.50' S= 0.0102 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.14 hrs HW=61.46' TW=55.62' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 1.36 cfs @ 2.27 fps)

Pond 13P: Drop inlet 3



Summary for Pond 14P: Drop inlet 4

Inflow Area = 0.205 ac, 49.33% Impervious, Inflow Depth > 4.76" for 25 YR. - 24 HR. event
Inflow = 0.98 cfs @ 12.14 hrs, Volume= 0.081 af
Outflow = 0.98 cfs @ 12.14 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 0.98 cfs @ 12.14 hrs, Volume= 0.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 59.34' @ 12.14 hrs Surf.Area= 3 sf Storage= 2 cf
Flood Elev= 62.50' Surf.Area= 228 sf Storage= 146 cf

Plug-Flow detention time= 0.1 min calculated for 0.081 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (808.5 - 808.4)

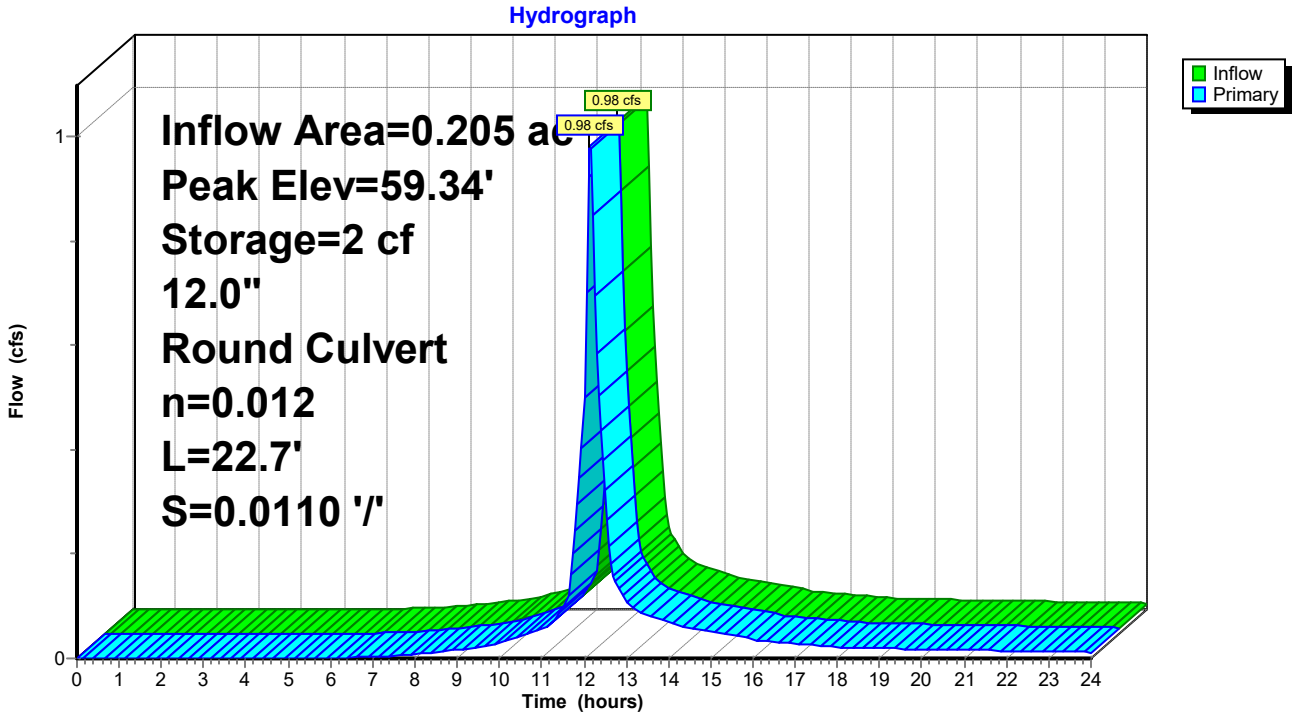
Volume	Invert	Avail.Storage	Storage Description
#1	58.75'	6 cf	**2.00'D x 2.00'H Vertical Cone/Cylinder**
#2	61.75'	140 cf	**Open water storage (Irregular)** Listed below (Recalc)
		146 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
61.75	150	70.0	0	0	150
62.50	225	90.0	140	140	412

Device	Routing	Invert	Outlet Devices
#1	Primary	58.75'	**12.0" Round 12" HDPE N-12** L= 22.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.75' / 58.50' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.97 cfs @ 12.14 hrs HW=59.33' TW=51.39' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 0.97 cfs @ 2.05 fps)

Pond 14P: Drop inlet 4



Summary for Pond 15P: Drop inlet 5

Inflow Area = 0.630 ac, 27.02% Impervious, Inflow Depth > 3.17" for 25 YR. - 24 HR. event
Inflow = 2.06 cfs @ 12.12 hrs, Volume= 0.167 af
Outflow = 2.06 cfs @ 12.12 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min
Primary = 2.06 cfs @ 12.12 hrs, Volume= 0.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 55.65' @ 12.12 hrs Surf.Area= 3 sf Storage= 3 cf
Flood Elev= 57.50' Surf.Area= 149 sf Storage= 69 cf

Plug-Flow detention time= 0.1 min calculated for 0.166 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (837.3 - 837.2)

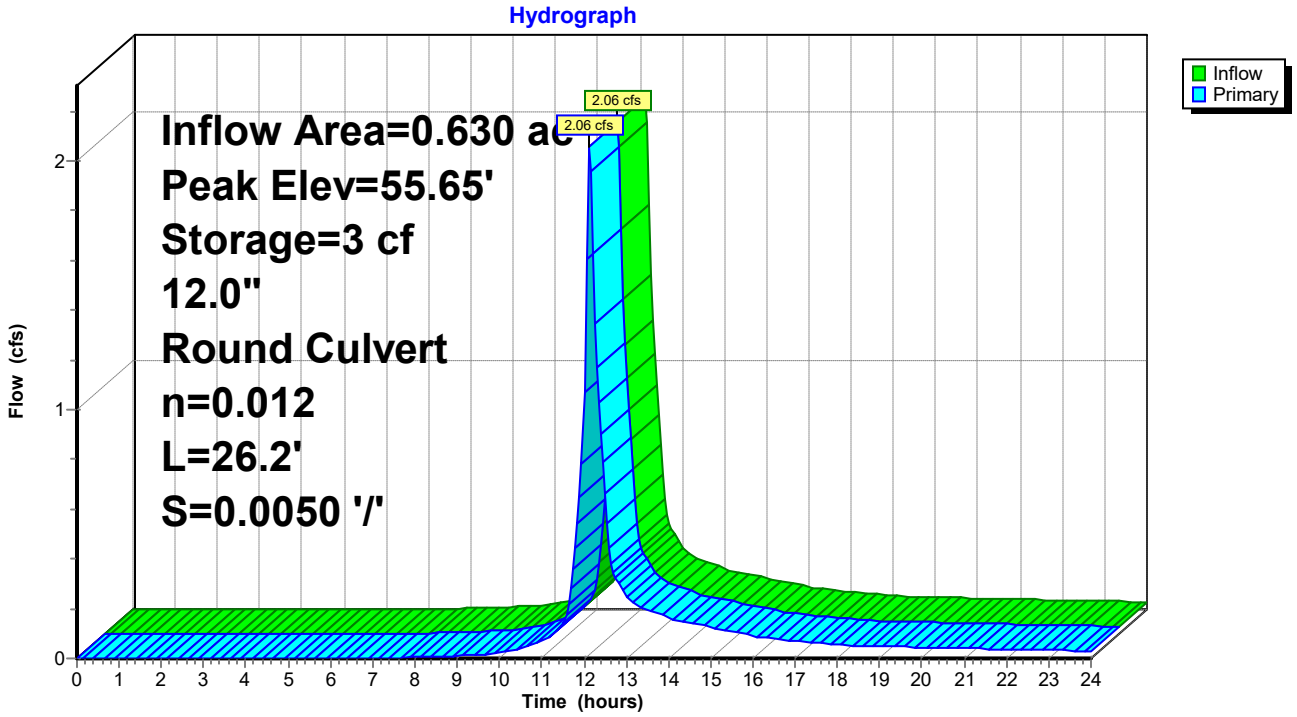
Volume	Invert	Avail.Storage	Storage Description
#1	54.63'	7 cf	**2.00'D x 2.37'H Vertical Cone/Cylinder**
#2	57.00'	147 cf	**Open water storage (Irregular)** Listed below (Recalc)
		155 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
57.00	100	50.0	0	0	100
58.00	200	75.0	147	147	356

Device	Routing	Invert	Outlet Devices
#1	Primary	54.63'	**12.0" Round 12" HDPE N-12** L= 26.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.63' / 54.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.00 cfs @ 12.12 hrs HW=55.63' TW=51.80' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Barrel Controls 2.00 cfs @ 3.16 fps)

Pond 15P: Drop inlet 5



Summary for Pond 20CP: CB #20

Inflow Area = 0.321 ac, 46.61% Impervious, Inflow Depth > 4.88" for 25 YR. - 24 HR. event
Inflow = 1.60 cfs @ 12.11 hrs, Volume= 0.131 af
Outflow = 1.59 cfs @ 12.12 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.1 min
Primary = 1.59 cfs @ 12.12 hrs, Volume= 0.131 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.89' @ 12.53 hrs Surf.Area= 13 sf Storage= 16 cf
Flood Elev= 54.50' Surf.Area= 63 sf Storage= 49 cf

Plug-Flow detention time= 0.4 min calculated for 0.131 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (804.7 - 804.4)

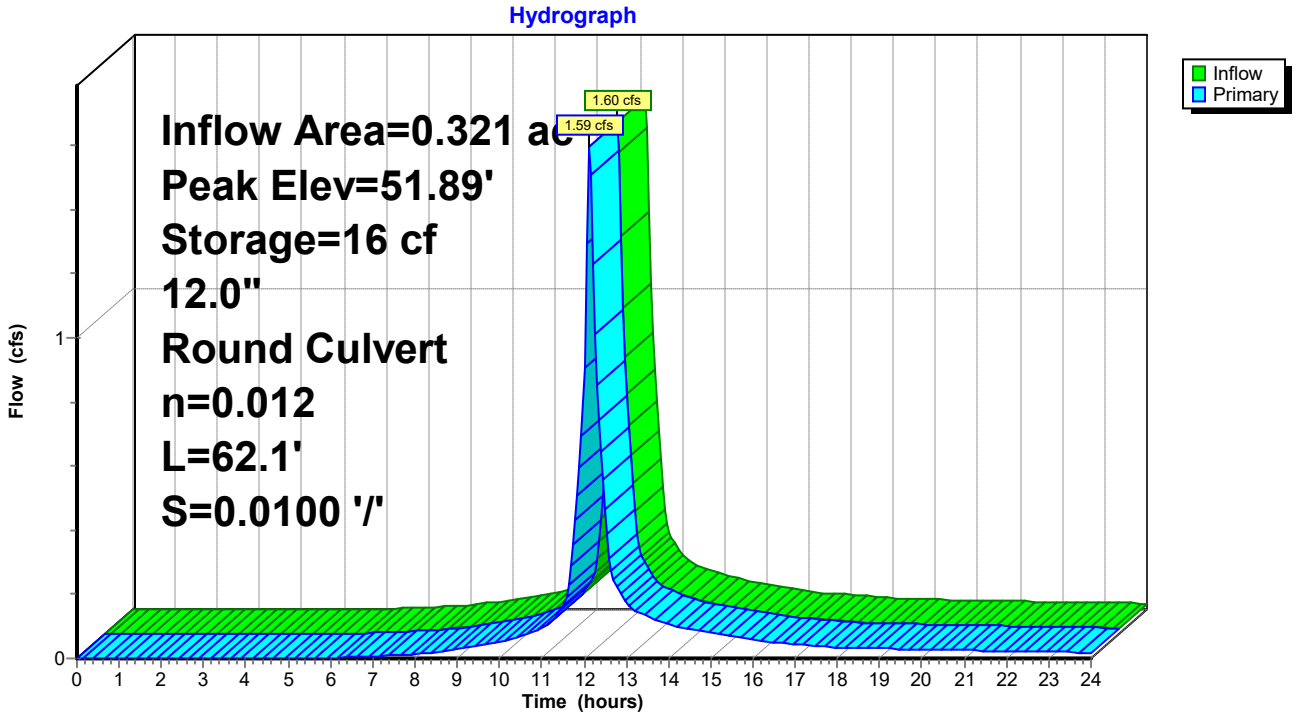
Volume	Invert	Avail.Storage	Storage Description
#1	50.62'	49 cf	**4.00'D x 3.88'H Basin**
#2	54.50'	301 cf	**pen water sotrage (Irregular)** Listed below (Recalc)
		349 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
54.50	50	25.0	0	0	50
55.00	150	73.0	48	48	425
56.00	372	112.0	253	301	1,007

Device	Routing	Invert	Outlet Devices
#1	Primary	50.62'	**12.0" Round 12" HDPE N-12** L= 62.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.62' / 50.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.56 cfs @ 12.12 hrs HW=51.40' TW=50.80' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 1.56 cfs @ 2.37 fps)

Pond 20CP: CB #20



Summary for Pond 21CP: CB #21

Inflow Area = 0.753 ac, 31.40% Impervious, Inflow Depth > 3.54" for 25 YR. - 24 HR. event
Inflow = 2.77 cfs @ 12.11 hrs, Volume= 0.222 af
Outflow = 2.76 cfs @ 12.11 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.1 min
Primary = 2.76 cfs @ 12.11 hrs, Volume= 0.222 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.94' @ 12.48 hrs Surf.Area= 13 sf Storage= 18 cf
Flood Elev= 55.00' Surf.Area= 313 sf Storage= 380 cf

Plug-Flow detention time= 0.3 min calculated for 0.222 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (825.4 - 825.2)

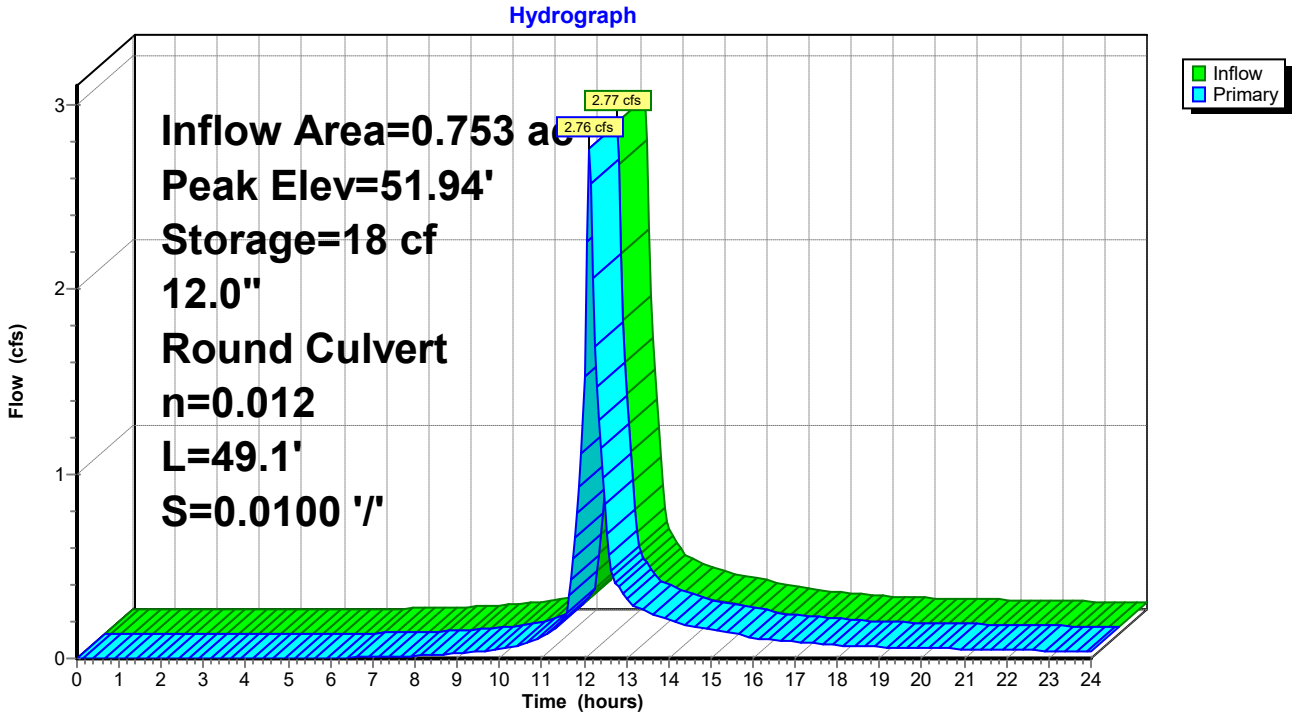
Volume	Invert	Avail.Storage	Storage Description
#1	50.49'	38 cf	**4.00'D x 3.01'H Basin**
#2	53.50'	342 cf	**Open water storage (Irregular)** Listed below (Recalc)
		380 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
53.50	100	35.0	0	0	100
54.00	227	59.0	80	80	281
55.00	300	75.0	263	342	464

Device	Routing	Invert	Outlet Devices
#1	Primary	50.49'	**12.0" Round 12" HDPE N-12** L= 49.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 50.49' / 50.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.71 cfs @ 12.11 hrs HW=51.81' TW=50.77' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 2.71 cfs @ 3.44 fps)

Pond 21CP: CB #21



Summary for Pond 101P: Detention Pond #101

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 4.251 ac, 11.80% Impervious, Inflow Depth > 2.54" for 25 YR. - 24 HR. event
Inflow = 7.21 cfs @ 12.38 hrs, Volume= 0.900 af
Outflow = 7.31 cfs @ 12.42 hrs, Volume= 0.816 af, Atten= 0%, Lag= 2.7 min
Primary = 7.31 cfs @ 12.42 hrs, Volume= 0.816 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 58.24' @ 12.58 hrs Surf.Area= 3,525 sf Storage= 6,944 cf
Flood Elev= 58.61' Surf.Area= 3,779 sf Storage= 8,289 cf

Plug-Flow detention time= 77.9 min calculated for 0.816 af (91% of inflow)
Center-of-Mass det. time= 33.1 min (899.8 - 866.7)

Volume	Invert	Avail.Storage	Storage Description
#1	55.25'	9,817 cf	**Open Water Storage (Irregular)** Listed below (Recalc)

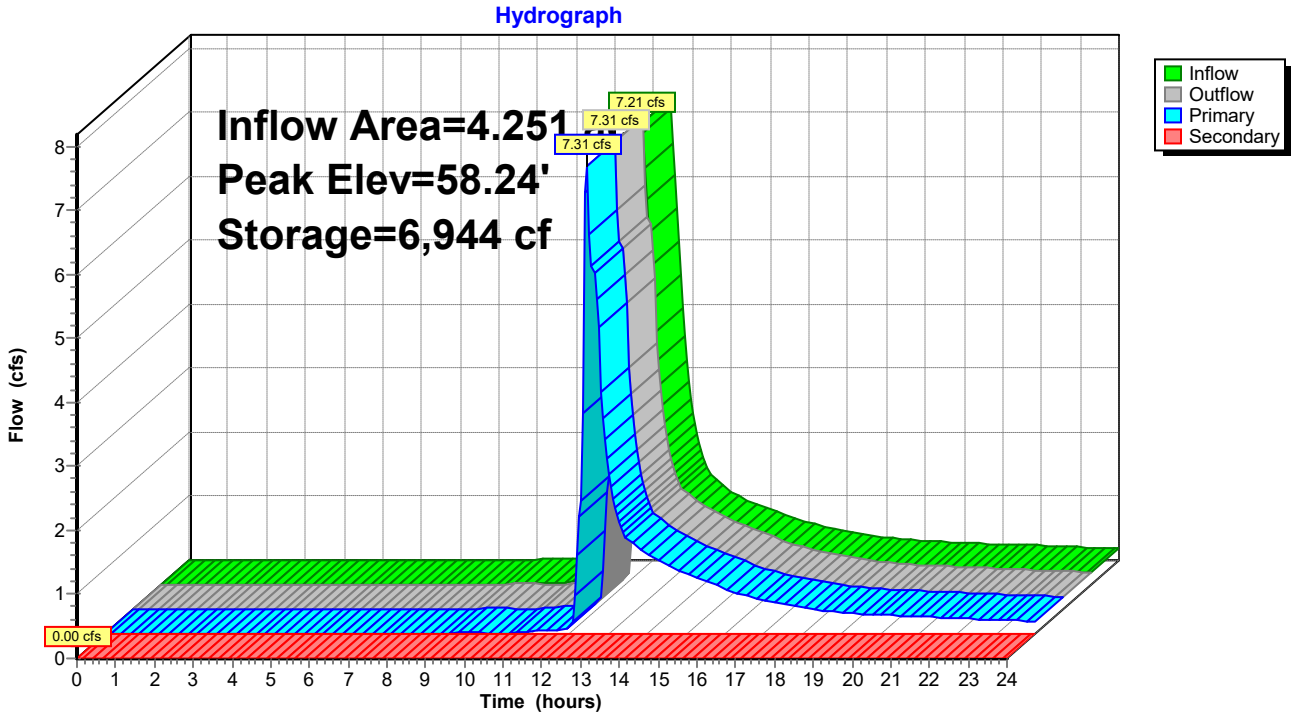
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.25	61	25.0	0	0	61
55.75	1,108	120.0	238	238	1,158
56.00	2,150	181.0	400	638	2,619
57.00	2,728	203.0	2,433	3,072	3,319
58.00	3,364	221.0	3,040	6,112	3,962
59.00	4,057	240.3	3,705	9,817	4,707

Device	Routing	Invert	Outlet Devices
#1	Primary	55.25'	**15.0" Round 15" HDPE N-12 X 2.00** L= 45.1' Ke= 0.500 Inlet / Outlet Invert= 55.25' / 55.00' S= 0.0055 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	55.25'	**4.0" Vert. 4" Orifice** C= 0.600
#3	Device 1	56.75'	**10.0" Vert. 10" Orifice** C= 0.600
#4	Device 1	58.00'	**60.0" x 60.0" Horiz. 60" X 60" Box Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	58.60'	**20.0' long x 24.0' breadth Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=6.08 cfs @ 12.42 hrs HW=58.18' TW=57.91' (Dynamic Tailwater)
- **1=15" HDPE N-12** (Inlet Controls 6.08 cfs @ 2.48 fps)
  - **2=4" Orifice** (Passes < 0.22 cfs potential flow)
  - **3=10" Orifice** (Passes < 1.35 cfs potential flow)
  - **4=60" X 60" Box Grate** (Passes < 4.90 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.25' TW=55.00' (Dynamic Tailwater)
- **5=Spillway** (Controls 0.00 cfs)

Pond 101P: Detention Pond #101



Summary for Pond 102P: Gravel Wetland #102

[80] Warning: Exceeded Pond 101P by 0.05' @ 11.85 hrs (0.09 cfs 0.008 af)

Inflow Area = 4.752 ac, 13.59% Impervious, Inflow Depth > 2.53" for 25 YR. - 24 HR. event
Inflow = 8.10 cfs @ 12.42 hrs, Volume= 1.003 af
Outflow = 6.97 cfs @ 12.47 hrs, Volume= 0.910 af, Atten= 14%, Lag= 2.9 min
Primary = 6.97 cfs @ 12.47 hrs, Volume= 0.910 af
Secondary = 0.00 cfs @ 12.51 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 58.00' @ 12.50 hrs Surf.Area= 6,552 sf Storage= 6,754 cf
Flood Elev= 58.50' Surf.Area= 7,161 sf Storage= 8,820 cf

Plug-Flow detention time= 76.1 min calculated for 0.910 af (91% of inflow)
Center-of-Mass det. time= 32.6 min (915.9 - 883.3)

Volume	Invert	Avail.Storage	Storage Description
#1	55.33'	30 cf	**4.00'D x 2.42'H 4' Outlet Structure**
#2	55.00'	564 cf	**Forebay (Irregular)** Listed below (Recalc)
#3	55.00'	1,433 cf	**Cell 1 (Irregular)** Listed below (Recalc)
#4	55.00'	1,457 cf	**Cell 2 (Irregular)** Listed below (Recalc)
#5	57.00'	7,565 cf	**Open water storage (Irregular)** Listed below (Recalc)
		11,049 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	124	45.6	0	0	124
56.00	276	65.8	195	195	312
57.00	470	83.4	369	564	533

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	379	109.0	0	0	379
56.00	714	127.0	538	538	737
57.00	1,089	144.2	895	1,433	1,132

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	371	107.2	0	0	371
56.00	723	126.9	537	537	756
57.00	1,132	145.8	920	1,457	1,188

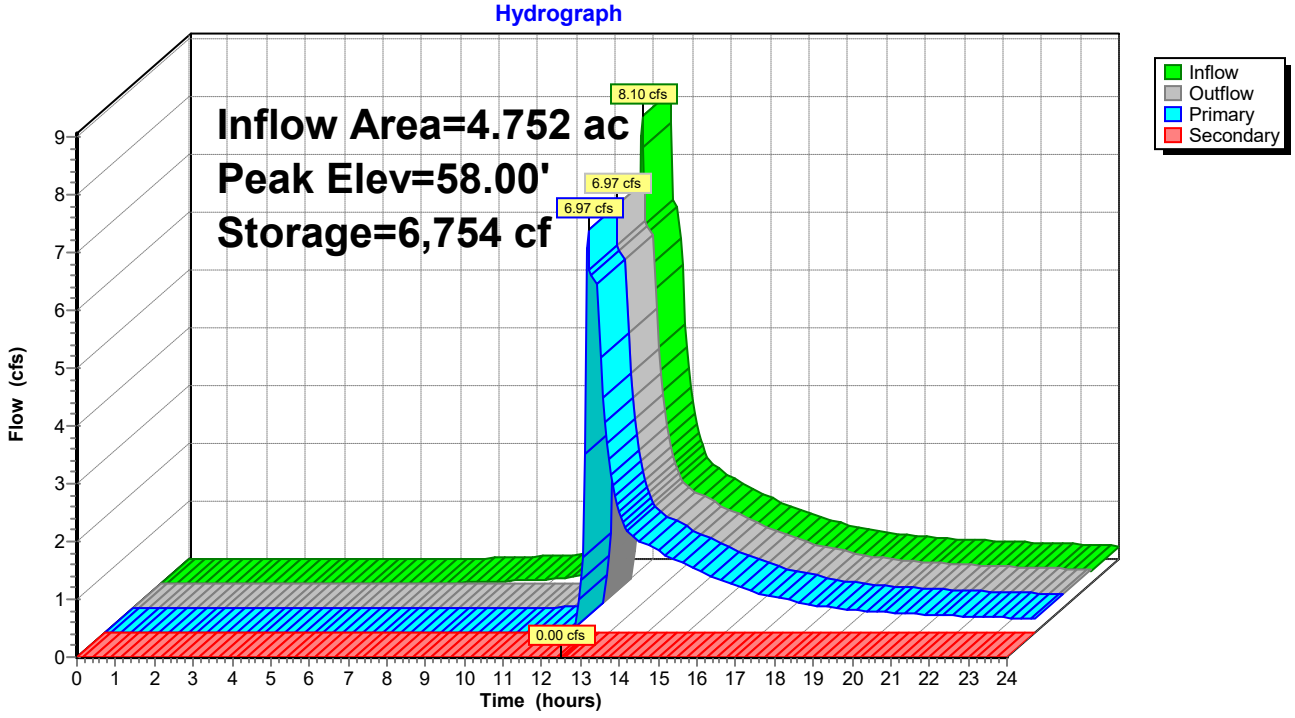
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
57.00	2,727	341.1	0	0	2,727
57.50	3,246	350.5	1,491	1,491	3,272
58.00	3,846	339.4	1,771	3,262	3,906
58.50	4,457	378.0	2,074	5,336	6,117
59.00	4,457	378.0	2,229	7,565	6,306

Device	Routing	Invert	Outlet Devices
#1	Primary	55.33'	**15.0" Round 15" N-12 HDPE** L= 62.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.33' / 54.00' S= 0.0212 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	55.33'	**1.0" Vert. 1" Orifice Goose Neck** C= 0.600
#3	Device 1	57.00'	**9.0" W x 9.0" H Vert. 9 x 9 slot** C= 0.600
#4	Device 1	57.75'	**48.0" Horiz. 4' Structure** C= 0.600 Limited to weir flow at low heads
#5	Secondary	58.00'	**20.0' long x 4.0' breadth E-Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=6.23 cfs @ 12.47 hrs HW=57.99' TW=56.21' (Dynamic Tailwater)
└─**1=15" N-12 HDPE** (Inlet Controls 6.23 cfs @ 5.08 fps)
  ├─**2=1" Orifice Goose Neck** (Passes < 0.04 cfs potential flow)
  ├─**3=9 x 9 slot** (Passes < 2.09 cfs potential flow)
  └─**4=4' Structure** (Passes < 4.83 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=58.00' TW=57.00' (Dynamic Tailwater)
└─**5=E-Spillway** (Weir Controls 0.00 cfs @ 0.10 fps)

Pond 102P: Gravel Wetland #102



Summary for Pond 103P: Detention Pond #103

[44] Hint: Outlet device #2 is below defined storage
[80] Warning: Exceeded Pond 20CP by 0.04' @ 12.30 hrs (0.61 cfs 0.008 af)

Inflow Area = 1.674 ac, 39.86% Impervious, Inflow Depth > 4.32" for 25 YR. - 24 HR. event
Inflow = 7.65 cfs @ 12.11 hrs, Volume= 0.602 af
Outflow = 2.16 cfs @ 12.49 hrs, Volume= 0.602 af, Atten= 72%, Lag= 23.2 min
Primary = 2.16 cfs @ 12.49 hrs, Volume= 0.602 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 51.87' @ 12.49 hrs Surf.Area= 3,012 sf Storage= 6,808 cf
Flood Elev= 52.50' Surf.Area= 3,088 sf Storage= 8,744 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 23.0 min (833.7 - 810.7)

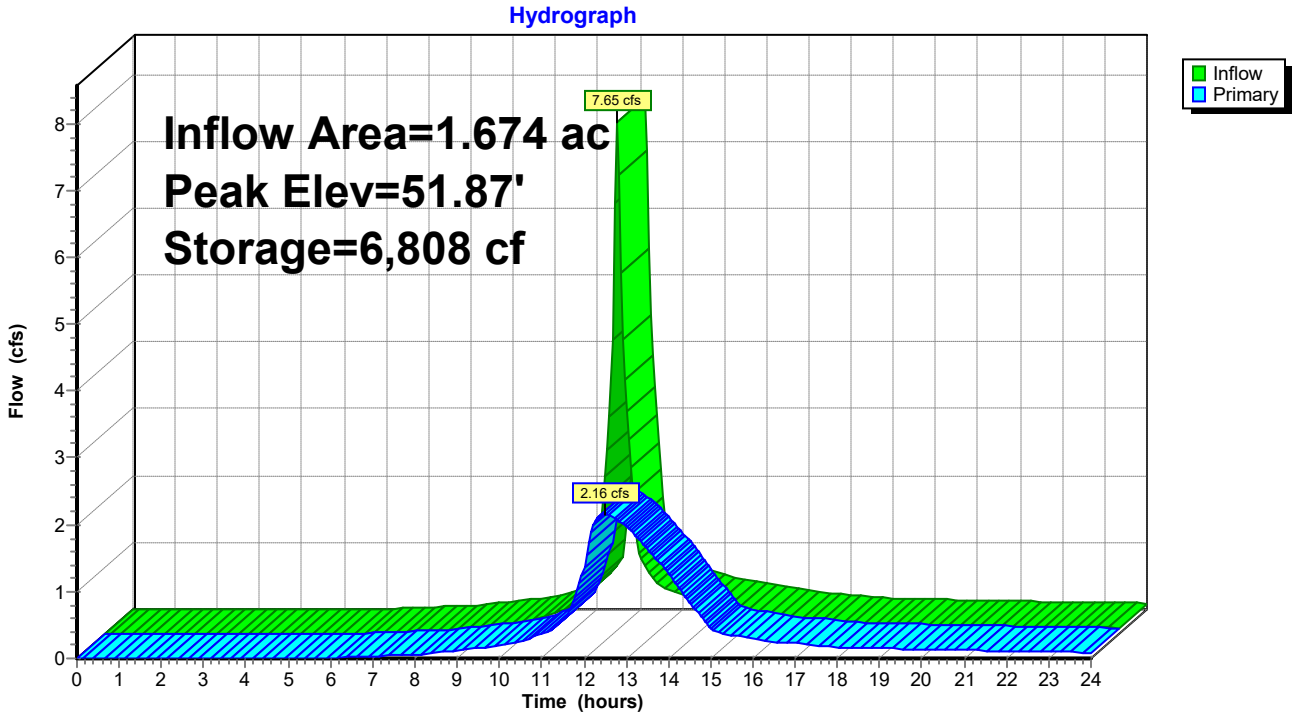
Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	10,288 cf	**Open Water Storage (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
48.50	162	55.0	0	0	162
49.00	1,551	143.0	369	369	1,549
50.00	2,007	161.3	1,774	2,143	2,018
51.00	2,519	180.2	2,258	4,401	2,559
52.00	3,088	199.1	2,799	7,200	3,160
53.00	3,088	199.1	3,088	10,288	3,360

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	**15.0" Round 15" HDPE N-12** L= 51.8' Ke= 0.500 Inlet / Outlet Invert= 47.50' / 47.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	47.50'	**3.0" Vert. 3" Orifice** C= 0.600
#3	Device 1	48.50'	**6.0" Vert. 6" Orifice** C= 0.600
#4	Device 1	52.00'	**48.0" Horiz. 48" Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.16 cfs @ 12.49 hrs HW=51.87' TW=47.23' (Dynamic Tailwater)
↑**1=15" HDPE N-12** (Passes 2.16 cfs of 11.43 cfs potential flow)
↑**2=3" Orifice** (Orifice Controls 0.49 cfs @ 9.92 fps)
3=6" Orifice (Orifice Controls 1.67 cfs @ 8.50 fps)
4=48" Grate (Controls 0.00 cfs)

Pond 103P: Detention Pond #103



Summary for Pond 104P: Gravel Wetland #104

[62] Hint: Exceeded Reach 5R OUTLET depth by 1.19' @ 12.20 hrs

Inflow Area = 2.236 ac, 34.08% Impervious, Inflow Depth > 4.35" for 25 YR. - 24 HR. event
Inflow = 4.53 cfs @ 12.11 hrs, Volume= 0.810 af
Outflow = 3.59 cfs @ 12.24 hrs, Volume= 0.713 af, Atten= 21%, Lag= 8.2 min
Primary = 3.59 cfs @ 12.24 hrs, Volume= 0.713 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 40.41' @ 12.24 hrs Surf.Area= 8,006 sf Storage= 7,638 cf
Flood Elev= 41.00' Surf.Area= 9,190 sf Storage= 10,439 cf

Plug-Flow detention time= 110.9 min calculated for 0.713 af (88% of inflow)
Center-of-Mass det. time= 58.1 min (886.9 - 828.8)

Volume	Invert	Avail.Storage	Storage Description
#1	37.33'	37 cf	**4.00'D x 2.92'H 4' Outlet Structure**
#2	38.00'	925 cf	**Forebay (Irregular)** Listed below (Recalc)
#3	38.00'	1,899 cf	**Cell 1 (Irregular)** Listed below (Recalc)
#4	38.00'	1,644 cf	**Cell 2 (Irregular)** Listed below (Recalc)
#5	39.50'	11,275 cf	**Open water storage (Irregular)** Listed below (Recalc)
		15,780 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.00	182	108.0	0	0	182
39.00	450	134.0	306	306	697
40.00	805	164.3	619	925	1,432

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.00	991	150.0	0	0	991
39.00	1,344	169.0	1,163	1,163	1,499
39.50	1,603	177.8	736	1,899	1,757

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.00	789	128.0	0	0	789
39.00	1,201	149.0	988	988	1,272
39.50	1,428	156.2	656	1,644	1,463

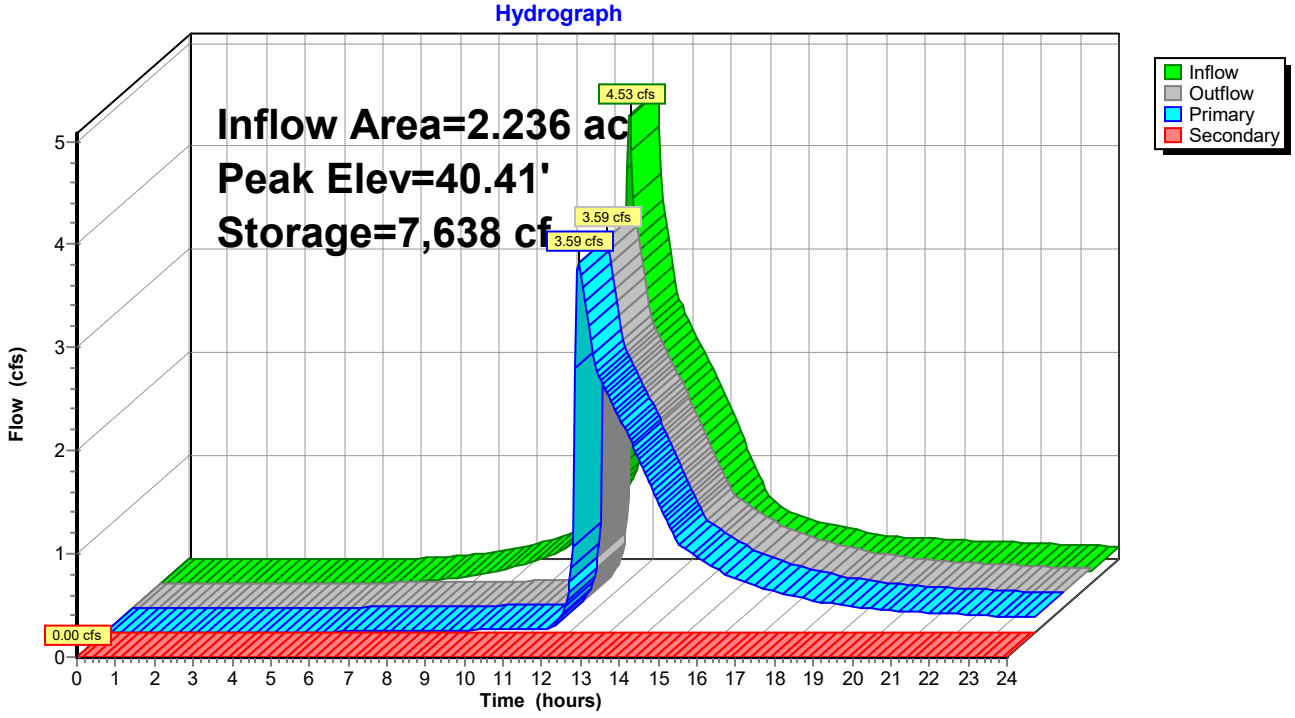
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.50	2,925	329.0	0	0	2,925
40.00	3,426	339.0	1,586	1,586	3,482
41.00	5,341	290.0	4,348	5,934	5,955
42.00	5,341	290.0	5,341	11,275	6,245

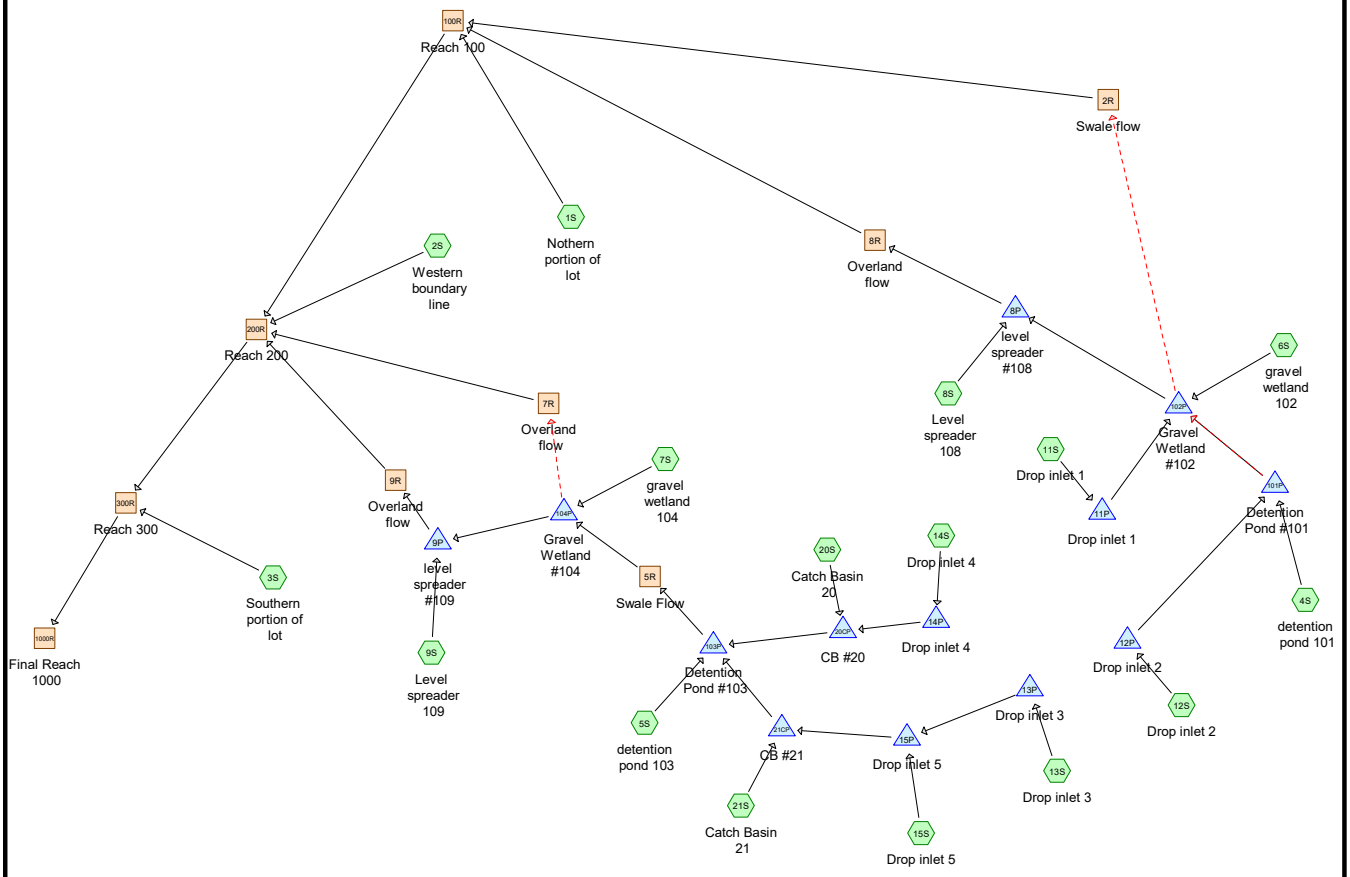
Device	Routing	Invert	Outlet Devices
#1	Primary	37.33'	**15.0" Round 15" HDPE N-12** L= 159.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.33' / 36.00' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	37.33'	**1.0" Vert. 1" Orifice Goose Neck** C= 0.600
#3	Device 1	39.25'	**3.0" W x 12.0" H Vert. 3 x 12 slot** C= 0.600
#4	Device 1	40.25'	**48.0" Horiz. 4' Structure** C= 0.600 Limited to weir flow at low heads
#5	Secondary	40.50'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=3.57 cfs @ 12.24 hrs HW=40.41' TW=38.19' (Dynamic Tailwater)
- **1=15" HDPE N-12** (Passes 3.57 cfs of 6.51 cfs potential flow)
  - **2=1" Orifice Goose Neck** (Orifice Controls 0.04 cfs @ 7.17 fps)
  - **3=3 x 12 slot** (Orifice Controls 0.95 cfs @ 3.80 fps)
  - **4=4' Structure** (Weir Controls 2.59 cfs @ 1.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=37.33' TW=40.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 104P: Gravel Wetland #104





Subcat Reach Pond Link

Routing Diagram for 19-114 Proposed Analysis
Prepared by Berry Surveying & Engineering, Printed 8/17/2020
HydroCAD® 10.00-22 s/n 07605 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>1.34"
Flow Length=232' Tc=8.6 min CN=74 Runoff=1.48 cfs 0.122 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>1.34"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=2.52 cfs 0.237 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>0.98"
Flow Length=476' Tc=19.3 min CN=68 Runoff=3.71 cfs 0.427 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>0.55"
Flow Length=579' Tc=25.9 min CN=59 Runoff=1.15 cfs 0.189 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>1.98"
Flow Length=216' Tc=6.7 min CN=83 Runoff=1.34 cfs 0.099 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>1.68"
Flow Length=158' Tc=6.1 min CN=79 Runoff=0.87 cfs 0.063 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>1.61"
Flow Length=216' Tc=6.3 min CN=78 Runoff=1.03 cfs 0.076 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>1.10"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.11 cfs 0.009 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>2.06"
Tc=6.0 min CN=84 Runoff=0.35 cfs 0.025 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>1.28"
Tc=6.0 min CN=73 Runoff=0.07 cfs 0.005 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>2.14"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.27 cfs 0.021 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>0.69"
Flow Length=279' Tc=9.1 min CN=62 Runoff=0.27 cfs 0.028 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>1.83"
Flow Length=250' Tc=9.9 min CN=81 Runoff=0.38 cfs 0.031 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>1.75"
Tc=6.0 min CN=80 Runoff=0.27 cfs 0.020 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>2.06"
Tc=6.0 min CN=84 Runoff=0.28 cfs 0.020 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>2.32"
Tc=6.0 min CN=87 Runoff=0.33 cfs 0.024 af

Reach 2R: Swale flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: Swale Flow Avg. Flow Depth=0.17' Max Vel=2.97 fps Inflow=1.26 cfs 0.222 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=1.26 cfs 0.222 af

Reach 7R: Overland flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=0.00 cfs 0.000 af

Reach 8R: Overland flow Avg. Flow Depth=0.04' Max Vel=1.38 fps Inflow=0.21 cfs 0.086 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=0.22 cfs 0.086 af

Reach 9R: Overland flow Avg. Flow Depth=0.05' Max Vel=1.29 fps Inflow=0.62 cfs 0.210 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=0.62 cfs 0.210 af

Reach 100R: Reach 100 Inflow=1.48 cfs 0.207 af
Outflow=1.48 cfs 0.207 af

Reach 200R: Reach 200 Inflow=3.87 cfs 0.655 af
Outflow=3.87 cfs 0.655 af

Reach 300R: Reach 300 Inflow=7.00 cfs 1.082 af
Outflow=7.00 cfs 1.082 af

Reach 1000R: Final Reach 1000 Inflow=7.00 cfs 1.082 af
Outflow=7.00 cfs 1.082 af

Pond 8P: level spreader #108 Peak Elev=56.02' Storage=1,793 cf Inflow=0.21 cfs 0.127 af
Outflow=0.21 cfs 0.086 af

Pond 9P: level spreader #109 Peak Elev=38.06' Storage=1,248 cf Inflow=0.61 cfs 0.238 af
Outflow=0.62 cfs 0.210 af

Pond 11P: Drop inlet 1 Peak Elev=64.79' Storage=0 cf Inflow=0.07 cfs 0.005 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.07 cfs 0.005 af

Pond 12P: Drop inlet 2 Peak Elev=63.93' Storage=1 cf Inflow=0.27 cfs 0.021 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.27 cfs 0.021 af

Pond 13P: Drop inlet 3 Peak Elev=61.04' Storage=1 cf Inflow=0.27 cfs 0.028 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=0.28 cfs 0.028 af

Pond 14P: Drop inlet 4 Peak Elev=59.10' Storage=1 cf Inflow=0.38 cfs 0.031 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=0.38 cfs 0.031 af

Pond 15P: Drop inlet 5 Peak Elev=55.07' Storage=1 cf Inflow=0.52 cfs 0.048 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=0.52 cfs 0.048 af

Pond 20CP: CB #20 Peak Elev=51.08' Storage=6 cf Inflow=0.63 cfs 0.051 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=0.63 cfs 0.051 af

Pond 21CP: CB #21 Peak Elev=51.02' Storage=7 cf Inflow=0.83 cfs 0.072 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=0.83 cfs 0.072 af

Pond 101P: Detention Pond #101 Peak Elev=57.18' Storage=3,583 cf Inflow=1.24 cfs 0.211 af
Primary=0.30 cfs 0.135 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.135 af

Pond 102P: Gravel Wetland #102 Peak Elev=57.17' Storage=3,969 cf Inflow=0.94 cfs 0.203 af
Primary=0.21 cfs 0.118 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.118 af

Pond 103P: Detention Pond #103 Peak Elev=49.69' Storage=1,543 cf Inflow=2.80 cfs 0.222 af
Outflow=1.26 cfs 0.222 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.02' Storage=6,167 cf Inflow=2.03 cfs 0.298 af
Primary=0.58 cfs 0.212 af Secondary=0.00 cfs 0.000 af Outflow=0.58 cfs 0.212 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>2.76"
Flow Length=232' Tc=8.6 min CN=74 Runoff=3.15 cfs 0.251 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>2.76"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=5.36 cfs 0.489 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>2.23"
Flow Length=476' Tc=19.3 min CN=68 Runoff=9.11 cfs 0.969 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>1.52"
Flow Length=579' Tc=25.9 min CN=59 Runoff=4.06 cfs 0.522 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>3.63"
Flow Length=216' Tc=6.7 min CN=83 Runoff=2.44 cfs 0.181 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>3.23"
Flow Length=158' Tc=6.1 min CN=79 Runoff=1.67 cfs 0.122 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>3.14"
Flow Length=216' Tc=6.3 min CN=78 Runoff=2.02 cfs 0.147 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>2.41"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.25 cfs 0.019 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>3.73"
Tc=6.0 min CN=84 Runoff=0.63 cfs 0.046 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=73 Runoff=0.15 cfs 0.011 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>3.83"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.48 cfs 0.038 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>1.75"
Flow Length=279' Tc=9.1 min CN=62 Runoff=0.85 cfs 0.072 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>3.43"
Flow Length=250' Tc=9.9 min CN=81 Runoff=0.71 cfs 0.059 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=80 Runoff=0.52 cfs 0.038 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>3.73"
Tc=6.0 min CN=84 Runoff=0.49 cfs 0.036 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>4.04"
Tc=6.0 min CN=87 Runoff=0.56 cfs 0.041 af

Reach 2R: Swale flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: Swale Flow Avg. Flow Depth=0.21' Max Vel=3.34 fps Inflow=1.82 cfs 0.427 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=1.82 cfs 0.427 af

Reach 7R: Overland flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=0.00 cfs 0.000 af

Reach 8R: Overland flow Avg. Flow Depth=0.13' Max Vel=2.74 fps Inflow=1.93 cfs 0.501 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=2.04 cfs 0.501 af

Reach 9R: Overland flow Avg. Flow Depth=0.10' Max Vel=1.96 fps Inflow=2.40 cfs 0.500 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=2.44 cfs 0.500 af

Reach 100R: Reach 100 Inflow=3.15 cfs 0.751 af
Outflow=3.15 cfs 0.751 af

Reach 200R: Reach 200 Inflow=9.26 cfs 1.740 af
Outflow=9.26 cfs 1.740 af

Reach 300R: Reach 300 Inflow=17.10 cfs 2.709 af
Outflow=17.10 cfs 2.709 af

Reach 1000R: Final Reach 1000 Inflow=17.10 cfs 2.709 af
Outflow=17.10 cfs 2.709 af

Pond 8P: level spreader #108 Peak Elev=56.10' Storage=1,895 cf Inflow=1.93 cfs 0.542 af
Outflow=1.93 cfs 0.501 af

Pond 9P: level spreader #109 Peak Elev=38.14' Storage=1,316 cf Inflow=2.41 cfs 0.528 af
Outflow=2.40 cfs 0.500 af

Pond 11P: Drop inlet 1 Peak Elev=64.87' Storage=1 cf Inflow=0.15 cfs 0.011 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.15 cfs 0.011 af

Pond 12P: Drop inlet 2 Peak Elev=64.04' Storage=1 cf Inflow=0.48 cfs 0.038 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.48 cfs 0.038 af

Pond 13P: Drop inlet 3 Peak Elev=61.29' Storage=2 cf Inflow=0.85 cfs 0.072 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=0.85 cfs 0.072 af

Pond 14P: Drop inlet 4 Peak Elev=59.24' Storage=2 cf Inflow=0.71 cfs 0.059 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=0.71 cfs 0.059 af

Pond 15P: Drop inlet 5 Peak Elev=55.39' Storage=2 cf Inflow=1.33 cfs 0.110 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=1.33 cfs 0.110 af

Pond 20CP: CB #20 Peak Elev=51.27' Storage=8 cf Inflow=1.17 cfs 0.095 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=1.17 cfs 0.095 af

Pond 21CP: CB #21 Peak Elev=51.38' Storage=11 cf Inflow=1.86 cfs 0.151 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=1.86 cfs 0.151 af

Pond 101P: Detention Pond #101 Peak Elev=58.03' Storage=6,207 cf Inflow=4.25 cfs 0.560 af
Primary=2.16 cfs 0.480 af Secondary=0.00 cfs 0.000 af Outflow=2.16 cfs 0.480 af

Pond 102P: Gravel Wetland #102 Peak Elev=57.78' Storage=5,931 cf Inflow=2.60 cfs 0.612 af
Primary=1.90 cfs 0.523 af Secondary=0.00 cfs 0.000 af Outflow=1.90 cfs 0.523 af

Pond 103P: Detention Pond #103 Peak Elev=50.92' Storage=4,205 cf Inflow=5.45 cfs 0.427 af
Outflow=1.82 cfs 0.427 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.35' Storage=7,403 cf Inflow=3.45 cfs 0.574 af
Primary=2.27 cfs 0.482 af Secondary=0.00 cfs 0.000 af Outflow=2.27 cfs 0.482 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>4.00"
Flow Length=232' Tc=8.6 min CN=74 Runoff=4.61 cfs 0.363 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>4.00"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=7.78 cfs 0.708 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>3.36"
Flow Length=476' Tc=19.3 min CN=68 Runoff=14.00 cfs 1.460 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>2.46"
Flow Length=579' Tc=25.9 min CN=59 Runoff=6.94 cfs 0.848 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>4.99"
Flow Length=216' Tc=6.7 min CN=83 Runoff=3.31 cfs 0.249 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>4.54"
Flow Length=158' Tc=6.1 min CN=79 Runoff=2.34 cfs 0.171 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>4.43"
Flow Length=216' Tc=6.3 min CN=78 Runoff=2.83 cfs 0.208 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>3.58"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.38 cfs 0.028 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=84 Runoff=0.85 cfs 0.063 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>3.90"
Tc=6.0 min CN=73 Runoff=0.22 cfs 0.016 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>5.21"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.64 cfs 0.052 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>2.77"
Flow Length=279' Tc=9.1 min CN=62 Runoff=1.39 cfs 0.114 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>4.76"
Flow Length=250' Tc=9.9 min CN=81 Runoff=0.98 cfs 0.081 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>4.65"
Tc=6.0 min CN=80 Runoff=0.72 cfs 0.053 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=84 Runoff=0.66 cfs 0.049 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=87 Runoff=0.74 cfs 0.056 af

Reach 2R: Swale flow Avg. Flow Depth=0.00' Max Vel=0.47 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: Swale Flow Avg. Flow Depth=0.23' Max Vel=3.52 fps Inflow=2.16 cfs 0.602 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=2.16 cfs 0.602 af

Reach 7R: Overland flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=0.00 cfs 0.000 af

Reach 8R: Overland flow Avg. Flow Depth=0.23' Max Vel=4.12 fps Inflow=7.38 cfs 0.897 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=7.77 cfs 0.897 af

Reach 9R: Overland flow Avg. Flow Depth=0.12' Max Vel=2.28 fps Inflow=3.99 cfs 0.748 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=3.99 cfs 0.748 af

Reach 100R: Reach 100 Inflow=9.15 cfs 1.260 af
Outflow=9.15 cfs 1.260 af

Reach 200R: Reach 200 Inflow=15.90 cfs 2.716 af
Outflow=15.90 cfs 2.716 af

Reach 300R: Reach 300 Inflow=28.48 cfs 4.175 af
Outflow=28.48 cfs 4.175 af

Reach 1000R: Final Reach 1000 Inflow=28.48 cfs 4.175 af
Outflow=28.48 cfs 4.175 af

Pond 8P: level spreader #108 Peak Elev=56.24' Storage=2,083 cf Inflow=7.08 cfs 0.938 af
Outflow=7.38 cfs 0.897 af

Pond 9P: level spreader #109 Peak Elev=38.19' Storage=1,361 cf Inflow=4.11 cfs 0.776 af
Outflow=3.99 cfs 0.748 af

Pond 11P: Drop inlet 1 Peak Elev=64.91' Storage=1 cf Inflow=0.22 cfs 0.016 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.22 cfs 0.016 af

Pond 12P: Drop inlet 2 Peak Elev=64.11' Storage=2 cf Inflow=0.64 cfs 0.052 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.64 cfs 0.052 af

Pond 13P: Drop inlet 3 Peak Elev=61.47' Storage=2 cf Inflow=1.39 cfs 0.114 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=1.39 cfs 0.114 af

Pond 14P: Drop inlet 4 Peak Elev=59.34' Storage=2 cf Inflow=0.98 cfs 0.081 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=0.98 cfs 0.081 af

Pond 15P: Drop inlet 5 Peak Elev=55.65' Storage=3 cf Inflow=2.06 cfs 0.167 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=2.06 cfs 0.167 af

Pond 20CP: CB #20 Peak Elev=51.89' Storage=16 cf Inflow=1.60 cfs 0.131 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=1.59 cfs 0.131 af

Pond 21CP: CB #21 Peak Elev=51.94' Storage=18 cf Inflow=2.77 cfs 0.222 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=2.76 cfs 0.222 af

Pond 101P: Detention Pond #101 Peak Elev=58.24' Storage=6,944 cf Inflow=7.21 cfs 0.900 af
Primary=7.31 cfs 0.816 af Secondary=0.00 cfs 0.000 af Outflow=7.31 cfs 0.816 af

Pond 102P: Gravel Wetland #102 Peak Elev=58.00' Storage=6,754 cf Inflow=8.10 cfs 1.003 af
Primary=6.97 cfs 0.910 af Secondary=0.00 cfs 0.000 af Outflow=6.97 cfs 0.910 af

Pond 103P: Detention Pond #103 Peak Elev=51.87' Storage=6,808 cf Inflow=7.65 cfs 0.602 af
Outflow=2.16 cfs 0.602 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.41' Storage=7,638 cf Inflow=4.53 cfs 0.810 af
Primary=3.59 cfs 0.713 af Secondary=0.00 cfs 0.000 af Outflow=3.59 cfs 0.713 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>5.20"
Flow Length=232' Tc=8.6 min CN=74 Runoff=5.97 cfs 0.471 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>5.19"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=10.08 cfs 0.920 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>4.48"
Flow Length=476' Tc=19.3 min CN=68 Runoff=18.73 cfs 1.944 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>3.43"
Flow Length=579' Tc=25.9 min CN=59 Runoff=9.89 cfs 1.182 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>6.27"
Flow Length=216' Tc=6.7 min CN=83 Runoff=4.12 cfs 0.313 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>5.79"
Flow Length=158' Tc=6.1 min CN=79 Runoff=2.95 cfs 0.218 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>5.67"
Flow Length=216' Tc=6.3 min CN=78 Runoff=3.60 cfs 0.266 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>4.73"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.50 cfs 0.038 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>6.39"
Tc=6.0 min CN=84 Runoff=1.05 cfs 0.079 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>5.08"
Tc=6.0 min CN=73 Runoff=0.28 cfs 0.021 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>6.51"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.79 cfs 0.065 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>3.79"
Flow Length=279' Tc=9.1 min CN=62 Runoff=1.93 cfs 0.156 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>6.03"
Flow Length=250' Tc=9.9 min CN=81 Runoff=1.23 cfs 0.103 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>5.91"
Tc=6.0 min CN=80 Runoff=0.91 cfs 0.067 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>6.39"
Tc=6.0 min CN=84 Runoff=0.82 cfs 0.062 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>6.75"
Tc=6.0 min CN=87 Runoff=0.91 cfs 0.069 af

Reach 2R: Swale flow Avg. Flow Depth=0.23' Max Vel=3.25 fps Inflow=3.15 cfs 0.092 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=3.15 cfs 0.092 af

Reach 5R: Swale Flow Avg. Flow Depth=0.38' Max Vel=4.64 fps Inflow=5.54 cfs 0.770 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=5.51 cfs 0.770 af

Reach 7R: Overland flow Avg. Flow Depth=0.02' Max Vel=0.32 fps Inflow=0.05 cfs 0.000 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=0.01 cfs 0.000 af

Reach 8R: Overland flow Avg. Flow Depth=0.24' Max Vel=4.04 fps Inflow=8.23 cfs 1.207 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=7.88 cfs 1.207 af

Reach 9R: Overland flow Avg. Flow Depth=0.16' Max Vel=2.70 fps Inflow=6.95 cfs 0.986 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=6.97 cfs 0.986 af

Reach 100R: Reach 100 Inflow=11.69 cfs 1.770 af
Outflow=11.69 cfs 1.770 af

Reach 200R: Reach 200 Inflow=25.93 cfs 3.676 af
Outflow=25.93 cfs 3.676 af

Reach 300R: Reach 300 Inflow=44.10 cfs 5.619 af
Outflow=44.10 cfs 5.619 af

Reach 1000R: Final Reach 1000 Inflow=44.10 cfs 5.619 af
Outflow=44.10 cfs 5.619 af

Pond 8P: level spreader #108 Peak Elev=56.25' Storage=2,097 cf Inflow=6.82 cfs 1.249 af
Outflow=8.23 cfs 1.207 af

Pond 9P: level spreader #109 Peak Elev=38.26' Storage=1,428 cf Inflow=7.03 cfs 1.014 af
Outflow=6.95 cfs 0.986 af

Pond 11P: Drop inlet 1 Peak Elev=64.96' Storage=1 cf Inflow=0.28 cfs 0.021 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.28 cfs 0.021 af

Pond 12P: Drop inlet 2 Peak Elev=64.18' Storage=2 cf Inflow=0.79 cfs 0.065 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.79 cfs 0.065 af

Pond 13P: Drop inlet 3 Peak Elev=61.66' Storage=3 cf Inflow=1.93 cfs 0.156 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=1.93 cfs 0.156 af

Pond 14P: Drop inlet 4 Peak Elev=59.42' Storage=2 cf Inflow=1.23 cfs 0.103 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=1.23 cfs 0.103 af

Pond 15P: Drop inlet 5 Peak Elev=56.00' Storage=4 cf Inflow=2.77 cfs 0.223 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=2.77 cfs 0.223 af

Pond 20CP: CB #20 Peak Elev=52.30' Storage=21 cf Inflow=1.99 cfs 0.165 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=1.99 cfs 0.165 af

Pond 21CP: CB #21 Peak Elev=52.60' Storage=26 cf Inflow=3.64 cfs 0.292 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=3.64 cfs 0.292 af

Pond 101P: Detention Pond #101 Peak Elev=58.66' Storage=8,463 cf Inflow=10.23 cfs 1.247 af
Primary=8.45 cfs 1.153 af Secondary=0.70 cfs 0.007 af Outflow=9.13 cfs 1.160 af

Pond 102P: Gravel Wetland #102 Peak Elev=58.16' Storage=7,392 cf Inflow=9.88 cfs 1.398 af
Primary=6.57 cfs 1.211 af Secondary=3.15 cfs 0.092 af Outflow=9.66 cfs 1.303 af

Pond 103P: Detention Pond #103 Peak Elev=52.19' Storage=7,787 cf Inflow=9.72 cfs 0.770 af
Outflow=5.54 cfs 0.770 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.51' Storage=8,084 cf Inflow=7.11 cfs 1.036 af
Primary=6.62 cfs 0.935 af Secondary=0.05 cfs 0.000 af Outflow=6.67 cfs 0.936 af

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Nothern portion of lot Runoff Area=47,381 sf 3.32% Impervious Runoff Depth>6.68"
Flow Length=232' Tc=8.6 min CN=74 Runoff=7.63 cfs 0.606 af

Subcatchment 2S: Western boundary line Runoff Area=92,581 sf 10.56% Impervious Runoff Depth>6.68"
Flow Length=750' Tc=13.6 min UI Adjusted CN=74 Runoff=12.88 cfs 1.183 af

Subcatchment 3S: Southern portion of lot Runoff Area=226,760 sf 2.82% Impervious Runoff Depth>5.89"
Flow Length=476' Tc=19.3 min CN=68 Runoff=24.62 cfs 2.554 af

Subcatchment 4S: detention pond 101 Runoff Area=179,990 sf 10.76% Impervious Runoff Depth>4.69"
Flow Length=579' Tc=25.9 min CN=59 Runoff=13.69 cfs 1.615 af

Subcatchment 5S: detention pond 103 Runoff Area=26,131 sf 46.88% Impervious Runoff Depth>7.84"
Flow Length=216' Tc=6.7 min CN=83 Runoff=5.09 cfs 0.392 af

Subcatchment 6S: gravel wetland 102 Runoff Area=19,683 sf 28.34% Impervious Runoff Depth>7.33"
Flow Length=158' Tc=6.1 min CN=79 Runoff=3.70 cfs 0.276 af

Subcatchment 7S: gravel wetland 104 Runoff Area=24,519 sf 16.88% Impervious Runoff Depth>7.20"
Flow Length=216' Tc=6.3 min CN=78 Runoff=4.52 cfs 0.338 af

Subcatchment 8S: Level spreader 108 Runoff Area=4,152 sf 0.00% Impervious Runoff Depth>6.16"
Flow Length=99' Tc=7.1 min CN=70 Runoff=0.65 cfs 0.049 af

Subcatchment 9S: Level spreader 109 Runoff Area=6,443 sf 42.98% Impervious Runoff Depth>7.97"
Tc=6.0 min CN=84 Runoff=1.29 cfs 0.098 af

Subcatchment 11S: Drop inlet 1 Runoff Area=2,110 sf 32.42% Impervious Runoff Depth>6.56"
Tc=6.0 min CN=73 Runoff=0.36 cfs 0.026 af

Subcatchment 12S: Drop inlet 2 Runoff Area=5,195 sf 47.85% Impervious Runoff Depth>8.09"
Flow Length=143' Tc=8.6 min CN=85 Runoff=0.97 cfs 0.080 af

Subcatchment 13S: Drop inlet 3 Runoff Area=21,493 sf 27.18% Impervious Runoff Depth>5.11"
Flow Length=279' Tc=9.1 min CN=62 Runoff=2.61 cfs 0.210 af

Subcatchment 14S: Drop inlet 4 Runoff Area=8,937 sf 49.33% Impervious Runoff Depth>7.58"
Flow Length=250' Tc=9.9 min CN=81 Runoff=1.53 cfs 0.130 af

Subcatchment 15S: Drop inlet 5 Runoff Area=5,933 sf 26.45% Impervious Runoff Depth>7.46"
Tc=6.0 min CN=80 Runoff=1.13 cfs 0.085 af

Subcatchment 20S: Catch Basin 20 Runoff Area=5,047 sf 41.79% Impervious Runoff Depth>7.97"
Tc=6.0 min CN=84 Runoff=1.01 cfs 0.077 af

Subcatchment 21S: Catch Basin 21 Runoff Area=5,359 sf 53.80% Impervious Runoff Depth>8.34"
Tc=6.0 min CN=87 Runoff=1.11 cfs 0.086 af

Reach 2R: Swale flow Avg. Flow Depth=0.39' Max Vel=4.32 fps Inflow=8.37 cfs 0.294 af
n=0.035 L=121.0' S=0.0579 '/' Capacity=58.51 cfs Outflow=8.40 cfs 0.294 af

Reach 5R: Swale Flow Avg. Flow Depth=0.52' Max Vel=5.51 fps Inflow=9.78 cfs 0.978 af
n=0.035 L=117.0' S=0.0684 '/' Capacity=188.39 cfs Outflow=10.20 cfs 0.978 af

Reach 7R: Overland flow Avg. Flow Depth=0.26' Max Vel=1.82 fps Inflow=4.54 cfs 0.064 af
n=0.035 L=255.0' S=0.0196 '/' Capacity=75.40 cfs Outflow=4.02 cfs 0.064 af

Reach 8R: Overland flow Avg. Flow Depth=0.24' Max Vel=4.12 fps Inflow=8.39 cfs 1.523 af
n=0.035 L=53.0' S=0.1132 '/' Capacity=181.18 cfs Outflow=8.20 cfs 1.523 af

Reach 9R: Overland flow Avg. Flow Depth=0.17' Max Vel=2.78 fps Inflow=7.66 cfs 1.217 af
n=0.035 L=37.0' S=0.0811 '/' Capacity=906.07 cfs Outflow=7.66 cfs 1.217 af

Reach 100R: Reach 100 Inflow=18.58 cfs 2.423 af
Outflow=18.58 cfs 2.423 af

Reach 200R: Reach 200 Inflow=37.49 cfs 4.886 af
Outflow=37.49 cfs 4.886 af

Reach 300R: Reach 300 Inflow=62.09 cfs 7.441 af
Outflow=62.09 cfs 7.441 af

Reach 1000R: Final Reach 1000 Inflow=62.09 cfs 7.441 af
Outflow=62.09 cfs 7.441 af

Pond 8P: level spreader #108 Peak Elev=56.25' Storage=2,103 cf Inflow=7.08 cfs 1.564 af
Outflow=8.39 cfs 1.523 af

Pond 9P: level spreader #109 Peak Elev=38.28' Storage=1,442 cf Inflow=7.67 cfs 1.245 af
Outflow=7.66 cfs 1.217 af

Pond 11P: Drop inlet 1 Peak Elev=65.00' Storage=1 cf Inflow=0.36 cfs 0.026 af
12.0" Round Culvert n=0.012 L=28.8' S=0.0049 '/' Outflow=0.36 cfs 0.026 af

Pond 12P: Drop inlet 2 Peak Elev=64.25' Storage=2 cf Inflow=0.97 cfs 0.080 af
12.0" Round Culvert n=0.012 L=21.7' S=0.0055 '/' Outflow=0.97 cfs 0.080 af

Pond 13P: Drop inlet 3 Peak Elev=62.01' Storage=4 cf Inflow=2.61 cfs 0.210 af
12.0" Round Culvert n=0.012 L=24.4' S=0.0102 '/' Outflow=2.61 cfs 0.210 af

Pond 14P: Drop inlet 4 Peak Elev=59.52' Storage=2 cf Inflow=1.53 cfs 0.130 af
12.0" Round Culvert n=0.012 L=22.7' S=0.0110 '/' Outflow=1.53 cfs 0.130 af

Pond 15P: Drop inlet 5 Peak Elev=56.63' Storage=6 cf Inflow=3.67 cfs 0.295 af
12.0" Round Culvert n=0.012 L=26.2' S=0.0050 '/' Outflow=3.67 cfs 0.295 af

Pond 20CP: CB #20 Peak Elev=52.68' Storage=26 cf Inflow=2.47 cfs 0.207 af
12.0" Round Culvert n=0.012 L=62.1' S=0.0100 '/' Outflow=2.43 cfs 0.206 af

Pond 21CP: CB #21 Peak Elev=53.86' Storage=89 cf Inflow=4.73 cfs 0.380 af
12.0" Round Culvert n=0.012 L=49.1' S=0.0100 '/' Outflow=4.54 cfs 0.380 af

Pond 101P: Detention Pond #101 Peak Elev=58.81' Storage=9,068 cf Inflow=14.10 cfs 1.695 af
Primary=9.12 cfs 1.474 af Secondary=5.24 cfs 0.132 af Outflow=13.75 cfs 1.606 af

Pond 102P: Gravel Wetland #102 Peak Elev=58.31' Storage=7,982 cf Inflow=15.11 cfs 1.908 af
Primary=6.72 cfs 1.516 af Secondary=8.37 cfs 0.294 af Outflow=15.09 cfs 1.810 af

Pond 103P: Detention Pond #103 Peak Elev=52.32' Storage=8,192 cf Inflow=12.04 cfs 0.978 af
Outflow=9.78 cfs 0.978 af

Pond 104P: Gravel Wetland #104 Peak Elev=40.71' Storage=8,971 cf Inflow=12.93 cfs 1.316 af
Primary=6.81 cfs 1.147 af Secondary=4.54 cfs 0.064 af Outflow=11.36 cfs 1.211 af

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.841 degrees West
Latitude	43.174 degrees North
Elevation	0 feet
Date/Time	Thu, 18 Jun 2020 15:53:14 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.55	2.00	2.62	2.88	**1yr**	2.32	2.77	3.17	3.89	4.47	**1yr**
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.50	1.92	2.46	3.17	3.52	**2yr**	2.80	3.39	3.88	4.62	5.26	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.45	1.86	2.39	3.09	4.00	4.51	**5yr**	3.54	4.34	4.96	5.84	6.60	**5yr**
10yr	0.40	0.64	0.80	1.09	1.42	1.85	**10yr**	1.23	1.70	2.19	2.84	3.68	4.78	5.45	**10yr**	4.23	5.24	5.98	6.97	7.84	**10yr**
25yr	0.47	0.74	0.94	1.30	1.73	2.28	**25yr**	1.49	2.10	2.71	3.55	4.64	6.05	6.99	**25yr**	5.35	6.72	7.66	8.83	9.86	**25yr**
50yr	0.52	0.83	1.07	1.49	2.01	2.68	**50yr**	1.74	2.47	3.20	4.21	5.53	7.23	8.45	**50yr**	6.40	8.12	9.24	10.55	11.73	**50yr**
100yr	0.58	0.94	1.22	1.72	2.34	3.15	**100yr**	2.02	2.91	3.77	4.99	6.58	8.64	10.21	**100yr**	7.65	9.82	11.14	12.62	13.95	**100yr**
200yr	0.65	1.06	1.37	1.97	2.72	3.70	**200yr**	2.35	3.42	4.46	5.94	7.85	10.34	12.34	**200yr**	9.15	11.87	13.45	15.10	16.61	**200yr**
500yr	0.76	1.25	1.64	2.38	3.33	4.58	**500yr**	2.87	4.25	5.54	7.44	9.90	13.11	15.87	**500yr**	11.60	15.26	17.25	19.16	20.93	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.89	**1yr**	0.64	0.87	0.92	1.28	1.61	2.21	2.45	**1yr**	1.96	2.35	2.82	3.30	3.96	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.35	3.04	3.41	**2yr**	2.69	3.28	3.76	4.48	5.03	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.14	2.77	3.73	4.13	**5yr**	3.30	3.97	4.63	5.43	6.13	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.43	3.11	4.29	4.79	**10yr**	3.80	4.60	5.33	6.26	7.04	**10yr**
25yr	0.43	0.66	0.82	1.18	1.55	1.90	**25yr**	1.33	1.86	2.11	2.82	3.62	4.78	5.79	**25yr**	4.23	5.57	6.49	7.57	8.46	**25yr**
50yr	0.48	0.73	0.91	1.30	1.75	2.18	**50yr**	1.51	2.13	2.35	3.17	4.05	5.42	6.67	**50yr**	4.80	6.42	7.53	8.74	9.71	**50yr**
100yr	0.53	0.80	1.01	1.45	1.99	2.49	**100yr**	1.72	2.43	2.63	3.54	4.51	6.13	7.68	**100yr**	5.42	7.39	8.73	10.09	11.14	**100yr**
200yr	0.59	0.88	1.12	1.62	2.26	2.84	**200yr**	1.95	2.78	2.93	3.95	5.02	6.91	8.85	**200yr**	6.12	8.51	10.10	11.67	12.81	**200yr**
500yr	0.68	1.02	1.31	1.90	2.70	3.41	**500yr**	2.33	3.34	3.40	4.56	5.78	8.10	10.65	**500yr**	7.17	10.24	12.25	14.14	15.36	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.88	1.08	**1yr**	0.76	1.06	1.24	1.74	2.22	2.93	3.11	**1yr**	2.60	2.99	3.49	4.29	4.90	**1yr**
2yr	0.33	0.51	0.63	0.85	1.05	1.25	**2yr**	0.91	1.22	1.48	1.96	2.51	3.35	3.65	**2yr**	2.96	3.51	4.03	4.77	5.52	**2yr**
5yr	0.39	0.61	0.75	1.03	1.32	1.59	**5yr**	1.14	1.56	1.86	2.51	3.22	4.27	4.90	**5yr**	3.78	4.71	5.31	6.28	7.05	**5yr**
10yr	0.46	0.70	0.87	1.22	1.58	1.93	**10yr**	1.36	1.89	2.25	3.07	3.89	5.25	6.12	**10yr**	4.65	5.88	6.73	7.71	8.61	**10yr**
25yr	0.56	0.85	1.06	1.51	1.99	2.50	**25yr**	1.72	2.44	2.90	4.00	5.03	7.33	8.23	**25yr**	6.49	7.92	9.03	10.17	11.22	**25yr**
50yr	0.65	0.99	1.23	1.77	2.38	3.03	**50yr**	2.05	2.96	3.53	4.89	6.12	9.09	10.33	**50yr**	8.05	9.93	11.30	12.51	13.73	**50yr**
100yr	0.76	1.14	1.43	2.07	2.84	3.67	**100yr**	2.45	3.58	4.28	5.99	7.47	11.29	12.96	**100yr**	9.99	12.46	14.14	15.42	16.81	**100yr**
200yr	0.88	1.32	1.68	2.43	3.39	4.45	**200yr**	2.92	4.35	5.21	7.35	9.10	14.04	16.27	**200yr**	12.42	15.64	17.71	19.00	20.59	**200yr**
500yr	1.08	1.61	2.07	3.01	4.28	5.74	**500yr**	3.69	5.61	6.74	9.65	11.86	18.74	21.99	**500yr**	16.58	21.15	23.88	25.06	26.95	**500yr**

Powered by ACIS Northeast Regional Climate Center

RIP RAP CALCULATIONS

19-114 Peter Georgakilas
Hayden Drive
Dover, NH

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH
6-Aug-20

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.* Rip Rap was sized for the 25 year storm event. (Some d50 sizes and T values have been modified)

TAILWATER < HALF THE Do

La = (1.8 x Q) / Do 3/2 + (7 x Do) Q = Peak Flow & Do is Pipe Diameter
W = La + 3*Do or defined channel width
d50 = (0.02 x Q4/3) / (Tw x Do) Tw = Tailwater Depth
T = Largest Stone Size x 1.5

Culvert or Catch Basin	Tailwater (Feet) Tw	Discharge (C.F.S.) Q	Diameter of Pipe Do	Length of Rip Rap La (feet)	Width of Rip Rap W (feet)	d50-Stone Rip Rap d50(ft.)	Actual Size	Thickness
15" HDPE (Pond #101P)	0.25	6.77	1.25	17.5	21.2	0.82	1.00	1.20
15" HDPE (Pond #102P)	0.25	6.41	1.25	17.0	20.8	0.76	1.00	1.20
15" HDPE (Pond #103P)	0.25	2.16	1.25	11.5	15.3	0.18	0.50	1.20
15" HDPE (Pond #104P)	0.25	3.59	1.25	13.4	17.1	0.35	0.50	1.20
12" HDPE (Pond #11P)	0.20	0.22	1.00	7.4	10.4	0.01	0.50	1.20
12" HDPE (Pond #12P)	0.20	0.64	1.00	8.2	11.2	0.06	0.50	1.20
12" HDPE (Pond #13P)	0.20	1.72	1.00	10.1	13.1	0.21	0.50	1.20
12" HDPE (Pond #14P)	0.20	1.07	1.00	8.9	11.9	0.11	0.50	1.20
12" HDPE (Pond #15P)	0.20	2.06	1.00	10.7	13.7	0.26	0.50	1.20
12" HDPE (Pond #20CP)	0.20	1.58	1.00	9.8	12.8	0.18	0.50	1.20
12" HDPE (Pond #21CP)	0.20	2.77	1.00	12.0	15.0	0.39	0.50	1.20

Please note that the designer chose to use the 25 Year Event for the dimensional calculations.

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d50 Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d50 Size		From		To
100%		9		12
85%		8		11
50%		6		9
15%		2		3

Table 7-24 -- Recommended Rip Rap Gradation Ranges

d50 Size =	1 Feet	12 Inches
% of Weight Smaller	Size of Stone (Inches)	
Than the Given d50 Size	From	To
100%	18	24
50%	12	18
15%	4	6

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #102**

Enter the node name in the drainage analysis if applicable

4.75 ac	A = Area draining to the practice	
0.65 ac	A_I = Impervious area draining to the practice	
0.14 decimal	I = percent impervious area draining to the practice, in decimal form	
0.17 unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.82 ac-in	WQV= 1" x Rv x A	
2,986 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
299 cf	10% x WQV (check calc for sediment forebay and micropool volume)	
1,344 cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
564 cf	V_{SED} = sediment forebay volume	← ≥ 10%WQV
1,433 cf	V_{TB1} = volume of treatment bay 1 [1]	← ≥ 45%WQV
1,457 cf	V_{TB2} = volume of treatment bay 2 [1]	← ≥ 45%WQV
56.82 ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.03 cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	← <2Q_{avg}
55.29 hours	T_{ED} = drawdown time of extended detention = 2WQV/Q_{WQV}	← ≥ 24-hrs
3.00 :1	Pond side slopes	← ≥3:1
ft	Elevation of SHWT	
ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	← ≤ E_{SHWT} - 2 ft
45 & 44 ft	Length of the flow path between the inlet and outlet in each cell	← ≥ 15 ft
Angle Grate	What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6")?	
58.17 ft	Peak elevation of the 50-year storm event (E_{50})	
58.50 ft	Berm elevation of the pond	
YES	E_{50} ≤ the berm elevation?	← yes
Qualified professional that developed the planting plan: Name, Profession:		

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is less than 2 feet below SHWT, and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Stage-Area-Storage for Pond 102P: Gravel Wetland #102

Elevation (feet)	Storage (cubic-feet)
55.00	0
55.05	45
55.10	91
55.15	139
55.20	189
55.25	241
55.30	295
55.35	351
55.40	409
55.45	470
55.50	532
55.55	597
55.60	664
55.65	733
55.70	804
55.75	877
55.80	953
55.85	1,030
55.90	1,111
55.95	1,193
56.00	1,278
56.05	1,366
56.10	1,455
56.15	1,547
56.20	1,641
56.25	1,738
56.30	1,836
56.35	1,937
56.40	2,040
56.45	2,146
56.50	2,254
56.55	2,365
56.60	2,478
56.65	2,593
56.70	2,711
56.75	2,832
56.80	2,955
56.85	3,081
56.90	3,210
56.95	3,341
57.00	3,475
57.05	3,613
57.10	3,754
57.15	3,897
57.20	4,043
57.25	4,191
57.30	4,342
57.35	4,496
57.40	4,652
57.45	4,811
57.50	4,972
57.55	5,137
57.60	5,304
57.65	5,474
57.70	5,647
57.75	5,823
57.80	6,002
57.85	6,183
57.90	6,368
57.95	6,555
58.00	6,746
58.05	6,940
58.10	7,137
58.15	7,336
58.20	7,539
58.25	7,745
58.30	7,954
58.35	8,166
58.40	8,381
58.45	8,599
58.50	8,820
58.55	9,043
58.60	9,266
58.65	9,489
58.70	9,712
58.75	9,934
58.80	10,157
58.85	10,380
58.90	10,603
58.95	10,826
59.00	**11,049**

56.82
3,005 CF →

Stage-Discharge for Pond 102P: Gravel Wetland #102

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
55.00	0.00	0.00	0.00
55.05	0.00	0.00	0.00
55.10	0.00	0.00	0.00
55.15	0.00	0.00	0.00
55.20	0.00	0.00	0.00
55.25	0.00	0.00	0.00
55.30	0.00	0.00	0.00
55.35	0.00	0.00	0.00
55.40	0.00	0.00	0.00
55.45	0.01	0.01	0.00
55.50	0.01	0.01	0.00
55.55	0.01	0.01	0.00
55.60	0.01	0.01	0.00
55.65	0.01	0.01	0.00
55.70	0.02	0.02	0.00
55.75	0.02	0.02	0.00
55.80	0.02	0.02	0.00
55.85	0.02	0.02	0.00
55.90	0.02	0.02	0.00
55.95	0.02	0.02	0.00
56.00	0.02	0.02	0.00
56.05	0.02	0.02	0.00
56.10	0.02	0.02	0.00
56.15	0.02	0.02	0.00
56.20	0.02	0.02	0.00
56.25	0.02	0.02	0.00
56.30	0.03	0.03	0.00
56.35	0.03	0.03	0.00
56.40	0.03	0.03	0.00
56.45	0.03	0.03	0.00
56.50	0.03	0.03	0.00
56.55	0.03	0.03	0.00
56.60	0.03	0.03	0.00
56.65	0.03	0.03	0.00
56.70	0.03	0.03	0.00
56.75	0.03	0.03	0.00
56.80	0.03	0.03	0.00
56.85	0.03	0.03	0.00
56.90	0.03	0.03	0.00
56.95	0.03	0.03	0.00
57.00	0.03	0.03	0.00
57.05	0.06	0.06	0.00
57.10	0.11	0.11	0.00
57.15	0.17	0.17	0.00
57.20	0.25	0.25	0.00
57.25	0.34	0.34	0.00
57.30	0.43	0.43	0.00
57.35	0.54	0.54	0.00
57.40	0.65	0.65	0.00
57.45	0.76	0.76	0.00
57.50	0.89	0.89	0.00
57.55	1.02	1.02	0.00
57.60	1.16	1.16	0.00
57.65	1.30	1.30	0.00
57.70	1.45	1.45	0.00
57.75	1.60	1.60	0.00
57.80	2.20	2.20	0.00
57.85	3.15	3.15	0.00
57.90	4.34	4.34	0.00
57.95	5.73	5.73	0.00
58.00	6.67	6.67	0.00
58.05	7.28	6.75	0.53
58.10	8.34	6.83	1.51
58.15	9.68	6.91	2.77
58.20	11.25	6.99	4.26
58.25	13.12	7.07	6.05
58.30	15.23	7.14	8.08
58.35	17.57	7.22	10.35
58.40	20.15	7.29	12.85
58.45	22.93	7.37	15.56
58.50	25.93	7.44	18.49
58.55	29.15	7.51	21.64
58.60	32.59	7.59	25.00
58.65	35.83	7.66	28.17
58.70	39.18	7.73	31.45
58.75	42.65	7.80	34.85
58.80	46.22	7.87	38.35
58.85	49.90	7.94	41.97
58.90	53.68	8.01	45.68
58.95	57.56	8.07	49.49
59.00	**61.54**	**8.14**	**53.40**

56.82
0.03 CFS

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #104**

Enter the node name in the drainage analysis if applicable

2.24 ac	A = Area draining to the practice	
0.76 ac	A_I = Impervious area draining to the practice	
0.34 decimal	I = percent impervious area draining to the practice, in decimal form	
0.36 unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.80 ac-in	WQV= 1" x Rv x A	
2,889 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
289 cf	10% x WQV (check calc for sediment forebay and micropool volume)	
1,300 cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
925 cf	V_{SED} = sediment forebay volume	← ≥ 10%WQV
1,899 cf	V_{TB1} = volume of treatment bay 1 [1]	← ≥ 45%WQV
1,644 cf	V_{TB2} = volume of treatment bay 2 [1]	← ≥ 45%WQV
39.14 ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.03 cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	← <2Q_{avg}
53.51 hours	T_{ED} = drawdown time of extended detention = 2WQV/Q_{WQV}	← ≥ 24-hrs
3.00 :1	Pond side slopes	← ≥3:1
ft	Elevation of SHWT	
ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	← ≤ E_{SHWT} - 2 ft
15 & 15 ft	Length of the flow path between the inlet and outlet in each cell	← ≥ 15 ft
Angle Grate	What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6")?	
40.55 ft	Peak elevation of the 50-year storm event (E_{50})	
41.00 ft	Berm elevation of the pond	
YES	E_{50} ≤ the berm elevation?	← yes
Qualified professional that developed the planting plan: Name, Profession:		

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is less than 2 feet below SHWT, and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Stage-Area-Storage for Pond 104P: Gravel Wetland #104

Elevation (feet)	Storage (cubic-feet)
37.33	0
37.38	1
37.43	1
37.48	2
37.53	3
37.58	3
37.63	4
37.68	4
37.73	5
37.78	6
37.83	6
37.88	7
37.93	8
37.98	8
38.03	68
38.08	169
38.13	273
38.18	379
38.23	487
38.28	598
38.33	711
38.38	826
38.43	944
38.48	1,065
38.53	1,188
38.58	1,314
38.63	1,442
38.68	1,574
38.73	1,707
38.78	1,844
38.83	1,983
38.88	2,125
38.93	2,270
38.98	2,418
39.03	2,569
39.08	2,722
39.13	2,879
39.18	3,039
39.23	3,203
39.28	3,369
39.33	3,539
39.38	3,712
39.43	3,889
39.48	4,069
39.53	4,249
39.58	4,430
39.63	4,615
39.68	4,803
39.73	4,994
39.78	5,189
39.83	5,387
39.88	5,589
39.93	5,794
39.98	6,003
40.03	6,192
40.08	6,368
40.13	6,549
40.18	6,735
40.23	6,925
40.28	7,118
40.33	7,317
40.38	7,520
40.43	7,727
40.48	7,939
40.53	8,156
40.58	8,378
40.63	8,605
40.68	8,837
40.73	9,073
40.78	9,315
40.83	9,562
40.88	9,813
40.93	10,070
40.98	10,333
41.03	10,599
41.08	10,866
41.13	11,133
41.18	11,400
41.23	11,668
41.28	11,935
41.33	12,202
41.38	12,469
41.43	12,736
41.48	13,003
41.53	13,270
41.58	13,537
41.63	13,804
41.68	14,071
41.73	14,338
41.78	14,605
41.83	14,872
41.88	15,139
41.93	15,406
41.98	**15,673**

39.14
2,911 CF

Stage-Discharge for Pond 104P: Gravel Wetland #104

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
37.33	0.00	0.00	0.00
37.38	0.00	0.00	0.00
37.43	0.01	0.01	0.00
37.48	0.01	0.01	0.00
37.53	0.01	0.01	0.00
37.58	0.01	0.01	0.00
37.63	0.01	0.01	0.00
37.68	0.01	0.01	0.00
37.73	0.02	0.02	0.00
37.78	0.02	0.02	0.00
37.83	0.02	0.02	0.00
37.88	0.02	0.02	0.00
37.93	0.02	0.02	0.00
37.98	0.02	0.02	0.00
38.03	0.02	0.02	0.00
38.08	0.02	0.02	0.00
38.13	0.02	0.02	0.00
38.18	0.02	0.02	0.00
38.23	0.02	0.02	0.00
38.28	0.03	0.03	0.00
38.33	0.03	0.03	0.00
38.38	0.03	0.03	0.00
38.43	0.03	0.03	0.00
38.48	0.03	0.03	0.00
38.53	0.03	0.03	0.00
38.58	0.03	0.03	0.00
38.63	0.03	0.03	0.00
38.68	0.03	0.03	0.00
38.73	0.03	0.03	0.00
38.78	0.03	0.03	0.00
38.83	0.03	0.03	0.00
38.88	0.03	0.03	0.00
38.93	0.03	0.03	0.00
38.98	0.03	0.03	0.00
39.03	0.03	0.03	0.00
39.08	0.03	0.03	0.00
39.13	0.03	0.03	0.00
39.18	0.04	0.04	0.00
39.23	0.04	0.04	0.00
39.28	0.04	0.04	0.00
39.33	0.05	0.05	0.00
39.38	0.07	0.07	0.00
39.43	0.10	0.10	0.00
39.48	0.13	0.13	0.00
39.53	0.16	0.16	0.00
39.58	0.19	0.19	0.00
39.63	0.23	0.23	0.00
39.68	0.27	0.27	0.00
39.73	0.31	0.31	0.00
39.78	0.35	0.35	0.00
39.83	0.40	0.40	0.00
39.88	0.44	0.44	0.00
39.93	0.49	0.49	0.00
39.98	0.54	0.54	0.00
40.03	0.60	0.60	0.00
40.08	0.65	0.65	0.00
40.13	0.71	0.71	0.00
40.18	0.76	0.76	0.00
40.23	0.82	0.82	0.00
40.28	1.09	1.09	0.00
40.33	1.86	1.86	0.00
40.38	2.90	2.90	0.00
40.43	4.15	4.15	0.00
40.48	5.59	5.59	0.00
40.53	7.43	7.18	0.25
40.58	8.64	7.56	1.08
40.63	9.86	7.63	2.23
40.68	11.34	7.70	3.64
40.73	13.07	7.77	5.30
40.78	15.08	7.84	7.24
40.83	17.33	7.91	9.42
40.88	19.80	7.98	11.82
40.93	22.50	8.05	14.45
40.98	25.41	8.11	17.29
41.03	28.53	8.18	20.35
41.08	31.88	8.25	23.63
41.13	35.20	8.31	26.89
41.18	38.50	8.38	30.12
41.23	41.92	8.44	33.47
41.28	45.44	8.51	36.94
41.33	49.08	8.57	40.51
41.38	52.81	8.63	44.18
41.43	56.65	8.70	47.96
41.48	60.58	8.76	51.83
41.53	64.64	8.82	55.82
41.58	68.82	8.88	59.93
41.63	73.09	8.94	64.14
41.68	77.45	9.00	68.45
41.73	81.83	9.06	72.76
41.78	86.22	9.12	77.10
41.83	90.69	9.18	81.51
41.88	95.23	9.24	85.98
41.93	99.98	9.30	90.68
41.98	**104.93**	**9.36**	**95.57**

39.14
0.03 CFS →

Map Scale: 1:4,960 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Strafford County, New Hampshire
Survey Area Data: Version 19, Sep 16, 2019

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BzB	Buxton silt loam, 3 to 8 percent slopes	47.5	38.9%
CfB	Charlton fine sandy loam, 3 to 8 percent slopes	5.0	4.1%
EaB	Elmwood fine sandy loam, 3 to 8 percent slopes	0.6	0.5%
HcB	Hollis-Charlton fine sandy loams, 3 to 8 percent slopes	6.4	5.2%
HcC	Hollis-Charlton fine sandy loams, 8 to 15 percent slopes	2.2	1.8%
ScA	Scantic silt loam, 0 to 3 percent slopes	16.9	13.8%
ScB	Scantic silt loam, 3 to 8 percent slopes	9.1	7.4%
SfC	Suffield silt loam, 8 to 15 percent slopes	0.1	0.1%
WdB	Windsor loamy sand, 3 to 8 percent slopes	6.2	5.1%
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	10.3	8.4%
WfC	Windsor loamy fine sand, clay subsoil variant, 8 to 15 percent slopes	18.0	14.7%
Totals for Area of Interest		**122.2**	**100.0%**

John P. Hayes III CSS, CWS,
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North Hampton, NH 03862
603-205-4396
johnphayes@comcast.net

6/24/20

Christopher Berry
Berry Surveying and Engineering
335 Second Crown Point Road
Barrington NH 03825

Job # 19-022

Site Specific Soil Survey
Map M Lot 102-12 & 88-7
Middle Road Dover NH

Dear Chris,

This letter report presents the findings of a Site Specific Soil Survey conducted on the referenced property by John P. Hayes III on June 22, 2020. The soil survey was conducted in accordance with the New Hampshire Supplement of the Site-Specific Soil Mapping Standard For New Hampshire and Vermont, Version 5.0, December 2017, Special Publication # 3, published by the Society of Soil Scientist of Northern New England.

The portion of the property that is subject of the soil survey is located southerly and easterly sides of Middle road, in Dover NH. The mapped area of the pacels is approximately 30 acres in size. The plans used for these soil maps are a 100 scale plan, where 1 inch equals 100 feet, with two foot contours.

The purpose of the soil survey is to provide the client with soils information for urban and suburban or rural land planning. Soil characteristics on the property were evaluated through observation of numerous test holes and hand auger probes conducted throughout the property. Slope phases were determined with the use of the topography provided on the plan. The Site-specific Soil Map Units identified are taken from the New Hampshire State-Wide Numerical Soils Legend, Issue #10 January 2011, and are briefly described below. Official Series Descriptions (OSD) for each of these soil series are enclosed with this report. The soil map units comply with the Range In Characteristics described in the OSD. Dissimilar inclusions are noted above. Limits of the Site Specific mapping units are highlighted on the plan.

Portions of the soil map with the map unit denominator P and VP, contain poorly, and very poorly drained soils respectively. Portions of the soil map with the map unit and denominator Hc/Rk, identify the Hollis-Charlton soil complex. They are soils that have the potential to have areas of a bedrock substratum within 40 inches of the soil surface. Portions of the soil map with the map unit Wf, are a moderately well draind variant of the Windsor soil series that has a clay subsoil.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
BzB (State No. 32)	**Boxford**	The Boxford series consists of very deep, moderately well to somewhat poorly drained soils formed in clayey marine sediments. These soils are nearly level and are on terraces. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons. The hydrologic soil group is C. Slope ranges from 3% to 8%.
BzC (State No. 32)	**Boxford**	The Boxford series consists of very deep, moderately well to somewhat poorly drained soils formed in clayey marine sediments. These soils are nearly level and are on terraces. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons. The hydrologic soil group is C. Slope ranges from 8% to 15%.
BzD (State No. 32)	**Boxford**	The Boxford series consists of very deep, moderately well to somewhat poorly drained soils formed in clayey marine sediments. These soils are nearly level and are on terraces. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons. The hydrologic soil group is C. Slope ranges from 15% to 25%.
BzE (State No. 32)	**Boxford**	The Boxford series consists of very deep, moderately well to somewhat poorly drained soils formed in clayey marine sediments. These soils are nearly level and are on terraces. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons. The hydrologic soil group is C. Slopes are 25 to 50%.
ScB (State No. 33)	**Scitico**	The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
ScC (State No. 33)	**Scitico**	The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
ScD (State No. 33)	**Scitico**	The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. The hydrologic soil group is C. Slope ranges from 15% to 25%.
ScE (State No. 33)	**Scitico**	The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. The hydrologic soil group is C. Slope ranges from 25% to 50%.
HcC (State No. 82)	**Hollis-Charlton Complex (very rocky)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high. The hydrologic soil group is B. Slope ranges from 8% to 15%.
HcD (State No. 82)	**Hollis-Charlton Complex (very rocky)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high. The hydrologic soil group is B. Slope ranges from 15% to 25%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
HcC **Rk** **(State No. 82)**	**Hollis-Charlton Complex (shallow to bedrock)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high. The hydrologic soil group is C/D. Slope ranges from 8% to 15%.
HcD **Rk** **(State No. 82)**	**Hollis-Charlton Complex (shallow to bedrock)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high. The hydrologic soil group is C/D. Slope ranges from 15% to 25%.
HcE **Rk** **(State No. 82)**	**Hollis-Charlton Complex (shallow to bedrock)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high. The hydrologic soil group is C/D. Slopes are greater than 25%.
BeA **VP** **(State No. 134)**	**Maybid**	The Maybid series consists of very deep, very poorly drained soils formed in lacustrine or marine sediments. They are nearly level or level soils on lowlands. Slope ranges from 0 to 3 percent. Saturated hydraulic conductivity is moderately high or high in the surface subsoil and substratum. The hydrologic soil group is D. Slope ranges from 0% to 3%.
WfB **(State No. 327)**	**Windsor Variant (clay subsoil)**	The Windsor Varient series clay subsoil consists of moderately drained soils that have 18 to 30 inches of sandy material, with underlying silt and clay deposits, mostly of marine origin. The hydrologic soil group is A. Slope ranges from 3% to 8%.

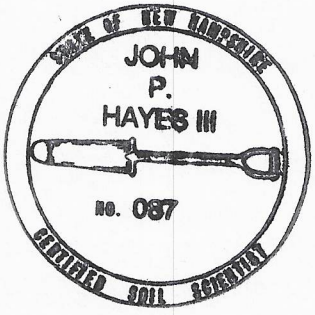
MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
WfC (State No. 327)	**Windsor Variant (clay subsoil)**	The Windsor Varient series clay subsoil consists of moderately drained soils that have 18 to 30 inches of sandy material, with underlying silt and clay deposits, mostly of marine origin. The hydrologic soil group is A. Slope ranges from 8% to 15%.
WfD (State No. 327)	**Windsor Variant (clay subsoil)**	The Windsor Varient series clay subsoil consists of moderately drained soils that have 18 to 30 inches of sandy material, with underlying silt and clay deposits, mostly of marine origin. The hydrologic soil group is A. Slope ranges from 15% to 25%.
WfE (State No. 327)	**Windsor Variant (clay subsoil)**	The Windsor Varient series clay subsoil consists of moderately drained soils that have 18 to 30 inches of sandy material, with underlying silt and clay deposits, mostly of marine origin. The hydrologic soil group is A. Slope ranges from 25% to 50%.

Slope Phases

Alpha Slope Symbol	Range
A	**0 – 3%**
B	**3 – 8%**
C	**8 – 15%**
D	**15 – 25%**
E	**25 – 50%**
F	**> 50%**

I trust that this Soil Survey and report meet your current planning needs. Please do not hesitate to contact me if you have any questions.

Sincerely:



John P. Hayes III CSS, CWS

LOCATION SCITICO CT+MA NH

Established Series
Rev. MFF-SMF
07/2003

SCITICO SERIES

The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Slope ranges from 0 to 5 percent. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. Mean annual temperature is about 50 degrees F., and mean annual precipitation is about 43 inches.

TAXONOMIC CLASS: Fine, mixed, semiactive, nonacid, mesic Typic Endoaquepts

TYPICAL PEDON: Scitico silt loam, 1 percent slope in a broad, slightly concave low area. (Colors are for moist soil unless otherwise noted.)

Ap-- 0 to 8 inches; very dark grayish brown (2.5Y 3/2) silt loam, light gray (5Y 7/1) dry; moderate fine and medium granular structure; friable, sticky, plastic; few very fine, fine and medium roots; slightly acid; clear smooth boundary. (6 to 12 inches thick)

Eg-- 8 to 11 inches; olive gray (5Y 5/2) silt loam; moderate medium blocky structure; friable, sticky, plastic; few very fine and fine roots; common fine prominent light olive brown (2.5Y 5/4), yellowish brown (10YR 5/4), and dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly acid; clear smooth boundary. (0 to 6 inches thick)

Bg1-- 11 to 18 inches; olive gray (5Y 5/2 and 5Y 4/2) silty clay loam; moderate coarse blocky structure; firm, very sticky, plastic; few fine roots between peds; continuous distinct gray (5Y 5/1) coatings on ped faces; common fine prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear smooth boundary.

Bg2-- 18 to 30 inches; dark gray (5Y 4/1) silty clay loam; moderate coarse prismatic structure parting to coarse blocky; firm, very sticky, plastic; few fine roots between peds; continuous distinct gray (5Y 5/1) coatings on vertical structure faces; few worm casts along prism faces; many fine prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear smooth boundary.

Bg3-- 30 to 38 inches; olive gray (5Y 5/2) and grayish brown (2.5Y 5/2) silty clay; weak coarse prismatic structure; firm, very sticky, plastic; few fine roots between prisms; continuous distinct gray (5Y 5/1) coatings on vertical structure faces; few worm casts along prism faces; many fine prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear smooth boundary. (Combined thickness of the Bg horizons is 10 to 30 inches.)

Cg1-- 38 to 52 inches; olive gray (5Y 5/2), dark gray (5Y 4/1), grayish brown (2.5Y 5/2), and light olive brown (2.5Y 5/4) varved silt and clay (silty clay loam weighted average texture); few yellowish brown (10YR 5/6, 5/8) masses of iron accumulation; massive separating to weak thin plates along varved bedding planes; firm, very sticky, plastic; few fine prominent yellowish brown (10YR 5/6 and 10YR 5/8) masses of iron accumulation; neutral; clear smooth boundary. (0 to 30 inches thick)

Cg2-- 52 to 65 inches; olive gray (5Y 5/2), gray (5Y 5/1), grayish brown (2.5Y 5/2), and light olive brown (2.5Y 5/4) varved silt and clay (silty clay weighted average texture); massive separating to weak thin plates along

varved bedding planes; firm, very sticky, plastic; few fine prominent dark yellowish brown (10YR 4/4 and 10YR 4/6) masses of iron accumulation; neutral.

TYPE LOCATION: Hartford County, Connecticut; town of East Windsor, 2,000 feet west of the intersection of Newberry Road and Winkler Road, 100 feet north of Newberry Road. USGS Broad Brook topographic quadrangle, latitude 41 degrees 55 minutes 20 seconds N., longitude 72 degrees 35 minutes 22 seconds W., NAD 27

RANGE IN CHARACTERISTICS: Thickness of the solum ranges from 20 to 45 inches. Rock fragments, mostly fine gravel, range from 0 to 3 percent by volume throughout. Reaction ranges from very strongly acid to neutral in the A horizon, strongly acid to neutral in the Eg and upper part of the Bg horizons, and moderately acid to slightly alkaline in the lower part of the Bg horizon and in the C horizon.

The Ap horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 to 3. Dry value is 6 or more. Undisturbed pedons have a thin A horizon with value of 2 or 3 and chroma of 1 or 2. The Ap or A horizon is silt loam or silty clay loam. It has weak or moderate granular or subangular blocky structure and is friable or very friable.

The Eg horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. It is silt loam, silty clay loam, or silty clay. The horizon has weak or moderate granular, blocky, or platy structure, or it is massive. Consistence is friable or firm.

The Bg horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is silt loam, silty clay loam, or silty clay in the upper part and silty clay loam, silty clay, or clay in the lower part. The Bg horizon has weak or moderate prismatic, blocky, or platy structure. Consistence is friable or firm.

The C horizon is neutral or has hue of 7.5YR to 5Y, value of 3 to 6, and dominant chroma of 0 to 2. Some pedons have individuals varves with chroma of 3 or 4, but they make up less than 40 percent of the horizon. Texture of individual varves is silt, silt loam, silty clay loam, silty clay, or clay, but the weighted average texture of the horizon is silty clay, clay, or silty clay loam. The C horizon is massive, or has platy structure, or weak prismatic structure separating to plates. Consistence is firm or very firm.

COMPETING SERIES: There are no other soils currently in this family.

The Binghamville, Boxford, Brancroft, Canadice, Canandaiga, Fonda, Latty, Livingston, Maybid, Munson, Parsippany, Raynham, Scantic, and Shaker series are similar soils in related families in LRRs L, R, and S. Bellingham soils have mixed mineralogy. Binghamville and Raynham soils are coarse-silty. Boxford and Brancroft soils have matrix chroma of 3 or more to a depth of 30 inches. Canadice and Parsippany soils have an argillic horizon. Canandaiga soils are fine-silty. Fonda soils have a mollic epipedon. Latty soils have carbonates in the series control section and in the substratum. Livingston soils are in a very fine family. Maybid soils have a thicker, darker A horizon that is high in organic matter. Munson soils are coarse-silty over clayey. Scantic soils are frigid. Shaker soils are coarse-loamy over clayey.

GEOGRAPHIC SETTING: Scitico soils are nearly level to very gently sloping soils on lacustrine and marine terraces. Slope ranges from 0 to 5 percent. The soils formed in silty and clayey glaciolacustrine and marine deposits. Typically, these soils are in low-lying, broad, flat or slightly concave areas. Mean annual temperature ranges from 45 to 54 degrees F., mean annual precipitation ranges from 36 to 50 inches, and the growing season ranges from 125 to 190 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Agawam, Amostown, Belgrade, Boxford, Brancroft, Elmridge, Enfield, Haven, Ninigret, Pollux, Raynham, Shaker, and Tisbury soils on nearby landscapes. The moderately well to somewhat poorly drained Boxford and Brancroft soils and the very poorly drained Maybid soils are associated in a drainage sequence. Agawam, Enfield, Haven, Ninigret, and Tisbury soils are terrace associates formed in loamy over stratified sandy and gravelly deposits. Amostown and Pollux

soils are better drained loamy soils underlain by silty lacustrine materials. The silty Belgrade soils and the loamy over clayey Elmridge soils are moderately well drained associates on nearby terraces.

DRAINAGE AND PERMEABILITY: Poorly drained. Surface runoff is slow. Permeability is moderate or moderately slow in the surface layer, moderately slow or slow in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and very slow in the substratum. Scitico soils have a water table at or near the surface much of the year.

USE AND VEGETATION: Cleared areas are used for hay or pasture. A few areas are used for silage corn and a small acreage is used for sod farming. Some areas are wooded and a few areas are in community development. Common trees are red maple, gray birch, alder, aspen, white pine, and swamp oak.

DISTRIBUTION AND EXTENT: Glaciolacustrine and marine terraces in The Connecticut Valley Lowland of Connecticut and Massachusetts and coastal areas of Massachusetts and New Hampshire; MLRAS 144A AND 145. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts.

SERIES ESTABLISHED: Hampshire County, Massachusetts, Central Part, 1980.

REMARKS: This revision reflects a change in classification to the 8th Edition of the Keys. Cation exchange activity class placement determined from a review of limited lab data and similar or associated soils.

Scitico soils were previously classified as Typic Haplaquepts and Typic Endoaquepts.

Diagnostic horizons and features recognized in this pedon are:

1. Ochric epipedon - the zone from 0 to 11 inches (Ap and Eg horizons).
2. Cambic horizon - the zone from 11 to 38 inches (Bg horizons).
3. Typic Endoaquepts subgroup - saturation in all layers from the upper boundary of saturation to a depth of 200 cm from the mineral surface layer and dominant chroma of 2 or less to a depth of 75 cm. (Eg and Bg horizons).

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LOCATION MAYBID MA +CT NH

Established Series
Rev. WHT-SMF-MFF
08/2004

MAYBID SERIES

The Maybid series consists of very deep, very poorly drained soils formed in lacustrine or marine sediments. They are nearly level or level soils on lowlands. Slope ranges from 0 to 3 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and very low to moderately high in the subsoil and substratum. Mean annual temperature is about 48 degrees F. and the mean annual precipitation is about 45 inches.

TAXONOMIC CLASS: Fine, mixed, semiactive, nonacid, mesic Typic Humaquepts

TYPICAL PEDON: Maybid silt loam forested, at an elevation of about 85 feet. (Colors are for moist soils.)

A--0 to 7 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable, slightly sticky, nonplastic; many fine, medium and coarse woody roots; moderately acid; clear smooth boundary. (6 to 10 inches thick)

Bg1--7 to 11 inches; gray (5Y 5/1) silty clay loam; moderate medium and coarse blocky structure; friable, sticky, slightly plastic; common fine, medium and coarse woody roots; moderately acid; clear wavy boundary.

Bg2--11 to 19 inches; greenish gray (5GY 5/1) silty clay; massive; firm, sticky, plastic; very few fine woody roots; few fine prominent brown (7.5YR 4/4) masses of iron accumulation; neutral; gradual smooth boundary. (Combined thickness of the Bg horizons is 6 to 22 inches.).

Cg1--19 to 27 inches; greenish gray (5GY 5/1) silty clay; massive; firm, sticky, plastic; neutral; gradual smooth boundary. (0 to 30 inches thick)

Cg2--27 to 65 inches; dark greenish gray (5GY 4/1) silty clay; massive; firm, sticky, plastic; neutral.

TYPE LOCATION: Essex County, Massachusetts; Town of Amesbury, 100 yards east of Woodward Road at the Massachusetts - New Hampshire state line. USGS Exeter, NH-MASS 7 1/2 minute quadrangle; latitude 42 degrees 52 minutes 55 seconds N., longitude 70 degrees 56 minutes 11 seconds W., NAD 27.

RANGE IN CHARACTERISTICS: Thickness of the solum ranges from 18 to 30 inches. Content of rock fragments is usually less than 1 percent by volume. The soil ranges from strongly acid to moderately acid in the A horizon and from strongly acid to neutral in the B and C horizons. At least one horizon within 40 inches is moderately acid to neutral.

The A horizon is neutral or has hue of 10YR to 5Y, value of 2 or 3, and chroma of 0 to 2. It is silt loam or silty clay loam. It is nonsticky or slightly sticky.

The upper part of the Bg horizon is neutral or has hue of 5Y, 5G, 5GY or 5BG, value of 3 to 6, and chroma of 0 to 2. Some redoximorphic features are present in some pedons. It is silt loam, silty clay loam, or silty clay. It has weak platy, weak to moderate subangular blocky or blocky, or moderate fine granular structure, or the horizon is massive. It is friable or firm and slightly sticky or sticky.

The lower part of the Bg horizon is neutral or has hue of 5Y or 5GY, value of 4 to 6, and chroma of 0 to 2. It has distinct to prominent high chroma iron accumulations that comprise less than 40 percent of the matrix. The Bg

horizon is silty clay, silty clay loam, or clay. It has weak to moderate prismatic or blocky structure, or the horizon is massive.

The Cg horizon is neutral or has hue of 5Y, 5GY, 5G, or 5BG, value of 4 to 6, and chroma of 0 or 1. It is silty clay loam, silty clay, or clay.

COMPETING SERIES: The Maybid series is the only known member of this family.

The Alden, Biddeford, Birdsall, Canandaigua, Clatsop, Defiance, Dunning, Fonda, Livingston, Madalin, Papakating, Toledo and Tughill series are in related families. Alden, Birdsall, Canadaigua, and Tughill soils have less than 35 percent clay in the particle-size control section. Biddeford soils have histic epipedons. Madalin soils have an argillic horizon. Clatsop soils have acid reaction. Defiance, Dunning, and Papakating soils have irregular decrease in organic matter with depth. In addition, the Papakating soils have less than 35 percent clay. Fonda, Livingston, and Toledo soils have ochric epipedons; the Livingston soils, in addition, have more than 60 percent clay.

GEOGRAPHIC SETTING: Maybid soils are level or nearly level soils on lowlands of silty and clayey sediments. The soils formed in water deposited material of marine or lacustrine origin. Slope ranges from 0 to 3 percent. Mean annual temperature ranges from 45 to 50 degrees F.; mean annual precipitation ranges from 40 to 50 inches; and mean growing season ranges from 120 to 180 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Belgrade, Birdsall, Boxford, Brancroft, Elmwood, Raynham, Scitico, Scio, Suffield, Swanton, Unadilla, and Whately soils. Belgrade, Birdsall, Raynham, Scio, and Unadilla soils have coarse-silty particle-size control sections. Brancroft soils are fine-silty. The moderately well and somewhat poorly drained Boxford soils, the poorly drained Scitico soils, and well drained Suffield soils are members of a drainage sequence in the same landscape. Elmwood, Swanton, and Whately soils have coarse-loamy over clayey particle-size control sections.

DRAINAGE AND PERMEABILITY: Very poorly drained. Internal drainage is very slow. Permeability is slow or very slow. Saturated hydraulic conductivity is moderately high or high in the surface layer very low to moderately high in the subsoil and substratum. The soil is intermittently ponded or has very low runoff.

USE AND VEGETATION: Mostly brush land and woodland. Woodland consists of red maple, elm, tamarack, willow, alder, black spruce, and white pine. Cattails and sedges are common in nonwooded areas.

DISTRIBUTION AND EXTENT: Glaciolacustrine or marine lowlands in MLRA 144A in Massachusetts, Connecticut, New Hampshire, and possibly eastern New York. The series is of small extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Essex County, Massachusetts, 1977.

REMARKS: The Maybid soils were formerly included with the Biddeford series which has a histic epipedon. Mineralogy and cation exchange activity class are changed in this revision from illitic to mixed based upon a review of similar soils.

Diagnostic horizons and other features recognized in this pedon are:

1. Umbric epipedon - the zone from the surface of the soil to a depth of 10 inches, when mixed (A and part of the Bg1 horizon).
2. Cambic horizon - the zone from 7 inches to a depth of 19 inches (Bg horizon).
3. Particle size class - the zone from 10 to 40 inches averages about 55 percent clay (fine).

ADDITIONAL DATA: The A horizon of the typical pedon was sampled (RT77-MA173) for base saturation (B.S.- 44 percent).

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Established Series
Rev. DGG-WHT-SMF
02/2000

BOXFORD SERIES

The Boxford series consists of very deep, moderately well to somewhat poorly drained soils formed in clayey marine sediments. These soils are nearly level and are on terraces. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons. Slope ranges from 0 to 15 percent. The mean annual temperature is about 51 degrees F. and the mean annual precipitation is about 43 inches.

TAXONOMIC CLASS: Fine, mixed, active, mesic Aquic Dystric Eutrudepts

TYPICAL PEDON: Boxford silt loam - on a 2 percent slope, in a hayfield. (Colors are for moist soil.)

Ap--0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 1 percent gravel; moderately acid; abrupt smooth boundary. (6 to 10 inches thick)

BA--9 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine roots; many pores and root channels filled with dark grayish brown (10YR 4/2) surface materials; 1 percent gravel; moderately acid; clear wavy boundary. (0 to 6 inches thick)

Bw1--12 to 17 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; common fine roots; many fine very dark grayish brown (10YR 3/2) oxide stains on faces of peds; 1 percent gravel; common medium faint grayish brown (10YR 5/2) redoximorphic depletions and dark yellowish brown (10YR 4/4) redoximorphic concentrations; moderately acid; clear wavy boundary. (3 to 9 inches thick)

Bw2--17 to 20 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; many patchy brown (10YR 4/3) coatings and many fine very dark grayish brown (10YR 3/2) oxide stains on faces of peds; 1 percent gravel; common medium faint grayish brown (10YR 5/2) redoximorphic depletions; moderately acid; clear wavy boundary. (2 to 6 inches thick)

Bw3--20 to 34 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium coarse and very coarse blocky; firm; few fine roots; many continuous grayish brown (10YR 5/2) and dark gray (10YR 4/1) coatings and common patchy black (5YR 2/1) oxide stains on faces of peds and in root channels; 1 percent gravel; common fine distinct grayish brown (10YR 5/2) redoximorphic depletions and strong brown (10YR 5/6) redoximorphic concentrations; slightly acid; gradual wavy boundary. (8 to 20 inches thick)

Bw4--34 to 44 inches; light olive brown (2.5Y 5/4) silty clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; continuous grayish brown (10YR 5/2) coatings on prism faces and discontinuous dark brown (10YR 3/3) coatings on faces of peds; common patchy black (5YR 2/1) oxide stains on faces of peds and in root channels; 1 percent gravel; slightly acid; gradual wavy boundary. (0 to 15 inches thick)

C--44 to 65 inches; light olive brown (2.5Y 5/4) silty clay loam; weak very coarse prismatic structure parting to weak medium platy; firm; continuous grayish brown (10YR 5/2) coatings on prism faces; many medium black (5YR 2/1) oxide stains; 1 percent gravel; slightly acid.

TYPE LOCATION: Essex County, Massachusetts; Town of Ipswich, 900 feet north of the intersection of Essex Road and Northgate Road and 150 feet east of Northgate Road. Latitude 42 degrees 39 minutes 26 seconds N, longitude 70 degrees 48 minutes 34 seconds W.; USGS 7 1/2 minute Ipswich quadrangle; NAD 27.

RANGE IN CHARACTERISTICS: Solum thickness ranges from 20 to 50 inches. Gravel content throughout the soil is less than 5 percent by volume. The soil ranges from very strongly acid through slightly acid in the upper part of the solum, unless limed, and from strongly acid through neutral in the lower part of the solum and in the C horizon. In undisturbed areas, many pedons have an upper sequum, 6 to 12 inches thick, consisting of thin 0e, Oa, E and Bh horizons. Some pedons have an E' and B' horizon.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 through 4, and chroma of 2 or 3. Dry value is 6 or more. It is silt loam or silty clay loam and has moderate very fine to medium granular structure.

The B horizon has hue of 10YR through 5Y. The upper part has value of 3 through 5, and chroma of 3 through 6. Texture is silt loam or silty clay loam. Structure is weak or moderate, fine or medium granular, or weak or moderate, very fine to medium subangular blocky. Consistence is friable or firm. The lower part of the B horizon has value of 4 through 6, and chroma of 3 or 4. Texture is silty clay loam or silty clay. It has weak or moderate, medium to very coarse prisms parting to weak or moderate, medium to very coarse subangular blocky or angular blocky structure. Most pedons have patchy to continuous coatings on prism faces with hue of 10YR through 5Y, value of 5 or 6, and chroma of 0 through 2. Continuous coatings are below depths of 20 inches. Coatings range from thin to thick and are mostly fine silt. Most pedons have few to many oxide stains on ped faces in the lower parts of the B horizon.

The C horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 3 or 4. Texture is silty clay loam, silty clay, or clay. Structure is weak thin to thick platy with plates arranged in very coarse prisms, weak thin to thick platy, or the horizon is massive.

COMPETING SERIES: There are no other known series in the same family.

The Brancroft, Buxton, Minoa, Munson, and Suffield series are in related families. The Brancroft and Minoa soils have less than 35 percent clay. Buxton soils are frigid.
The Munson soils have a coarse-silty over clayey particle-size control section. Suffield soils do not have redoximorphic depletions with chroma of 2 or less within 24 inches of the surface and have a coarse-silty over clayey particle size particle size control section.

GEOGRAPHIC SETTING: Boxford soils formed in silty and clayey marine sediments. Slopes range from 0 to 15 percent. The climate is humid temperate. Mean annual temperature ranges from 45 to 57 degrees F.; mean annual precipitation ranges from 35 to 50 inches and the mean growing season ranges from 130 to 195 days.

GEOGRAPHICALLY ASSOCIATED SOILS: The well drained Suffield, poorly drained Scitico, and the very poorly drained Maybid soils are in the drainage sequence with Boxford soils. Other soils nearby on the landscape are the silty Belgrade, Hartland, and Raynham soils, and the loamy over sandy Agawam soils.

DRAINAGE AND PERMEABILITY: Moderately well drained to somewhat poorly drained. Permeability is slow in the upper part of the B horizon and slow to very slow in the lower part of the B and in the C horizons.

USE AND VEGETATION: About half the soils are cleared and used for growing forage crops for livestock. Small areas are used for silage corn and vegetables. The remaining portion is forested with dominantly white pine and a mixture of northern hardwoods. Some areas are used for urban structures.

DISTRIBUTION AND EXTENT: MLRAs 144A and 145 in New Hampshire and Massachusetts and MLRA 149B in southeastern Massachusetts. Extent is about 15,000 acres.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Hampshire County, Massachusetts, 1980.

REMARKS: Diagnostic horizons and features recognized in this pedon are:

1. Ochric epipedon - the zone from the surface of the soil to a depth of about 9 inches (Ap horizon).

2. Cambic horizon - the zone from 9 inches to a depth of about 44 inches (Bw horizon).

3. Fine particle size - weighted average of more than 35 percent clay in the particle-size control section.

ADDITIONAL DATA: Typical pedon sampled for characterization, S78 MA-9-4.

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development costs may be greater than on less sloping Windsor soils. (Capability unit IVs–26)

Windsor loamy sand, 15 to 60 percent slopes (WdE).—This soil typically lies on terrace breaks beside major streams in the county. The profile of this soil is similar to that described as representative for the series, but part of the original surface layer has been lost through erosion.

Included in mapping are small areas of gravelly Hinckley soils.

Steepness and droughtiness are major limitations to most uses of this soil. The hazard of erosion is severe where protective vegetation is removed.

This soil is not suitable for row or hay crop production. It is mainly forested, but timber management is limited by the short, steep slopes. A good cover of sod or forest vegetation is needed to control erosion. This soil is a potential source of sand for borrow material. (Capability unit VIIs–26)

Windsor Series, Clay Subsoil Variant

The Windsor series, clay subsoil variant, consists of well-drained, stone-free soils that formed in more than 18 inches and less than 30 inches of sandy material and the thick underlying silt and clay deposits, mostly of marine origin. These nearly level to sloping soils are on marine terraces, mostly in the southeastern part of the county.

A representative profile of a Windsor soil, clay subsoil variant, in a cultivated area has a very dark grayish-brown loamy fine sand surface layer 10 inches thick. The next layer extends to a depth of 24 inches and is yellowish-brown loamy fine sand in the upper part and light olive-brown fine sand in the lower part. The next series of layers extends to a depth of about 42 inches. In sequence from the top, the upper 2 inches is olive, firm very fine sandy loam, the next 4 inches is olive silt loam, and the lower 12 inches is very firm, olive-gray silty clay loam.

Soils of the Windsor series, clay subsoil variant, have moderately slow permeability and moderate available water capacity. Septic tank filter fields do not function well, because the subsoil has moderately slow permeability.

Representative profile of a Windsor loamy fine sand, clay subsoil variant (slope of 5 percent) in a hayfield about four-tenths mile southeast of the Grange Hall on Lee Hook Road in the town of Lee:

Ap—0 to 10 inches, very dark grayish-brown (10YR 3/2) loamy fine sand; weak, fine, granular structure; very friable; many roots; slightly acid; abrupt, smooth boundary.

B21—10 to 16 inches, yellowish-brown (10YR 5/6) loamy fine sand; single grain; loose; common roots; medium acid; clear, wavy boundary.

B22—16 to 24 inches, light olive-brown (2.5Y 5/4) fine sand; single grain; loose; few roots; medium acid; abrupt, smooth boundary.

IIA'2—24 to 26 inches, olive (5Y 4/3) very fine sandy loam; weak, thin, platy structure; firm; few roots; medium acid; clear, wavy boundary.

IIC1—26 to 30 inches, olive (5Y 5/3) silt loam; moderate, fine and medium, angular blocky structure; firm; few roots; medium acid; clear, wavy boundary.

IIC2—30 to 42 inches, olive-gray (5Y 5/2) silty clay loam; gray (5Y 5/1) clay coatings on peds; moderate, coarse, prismatic structure; very firm; many fine, dark manganeselike stains along channels; many fine pores; medium acid.

The A horizon texture is loamy sand or loamy fine sand. Hue is 10YR, value is 3 or 4, and chroma is 2 to 4. The B horizon ranges from loamy sand to sand. The upper part of the B horizon has a hue of 7.5YR to 2.5Y; a value of 3 to 5; and a chroma of 3 to 6. The lower part of the B horizon has a hue of 10YR or 2.5Y. The IIC horizon ranges from silt loam to silty clay. Hue is 2.5Y or 5Y, and value is 4 to 6. Reaction of the sandy upper horizons is strongly acid to medium acid. In the underlying material, reaction ranges from strongly acid to slightly acid.

Soils of the Windsor series, clay subsoil variant, are near Elmwood, Buxton, and Windsor soils. They are better drained and have coarser textures in the upper part of the profile than Elmwood or Buxton soils. They resemble sandy Windsor soils, except for the presence of silt and clay deposits at a depth of about 2 feet.

Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes (WfB).—This gently rolling soil occupies small areas on marine or lacustrine terraces. It has the profile described as representative of the series.

Included in mapping are areas of moderately well drained soils that formed in the same soil material as this soil.

Because of the sandy nature of the surface layer and the upper part of the subsoil, row crops and grasses suffer in some places from lack of moisture during dry periods; however, this soil retains more moisture available to crops than the droughty Windsor loamy sands. Erosion is a hazard in the more sloping areas. The moderately slowly permeable subsoil is a limitation to use of this soil for residential and industrial development.

The soil is easily cultivated and generally produces satisfactory growth of corn, truck crops, small grain, grasses, and legumes. Erosion control practices include diversions, contour farming, and stripcropping. Cropping systems generally include row crops, cover crops, and grasses and legumes in the rotation. Adding manure and returning crop residue to the soil help to maintain soil tilth, provide additional organic matter, and conserve moisture.

About half the acreage of this soil is forested. The rest is used for truck crops, hay, and pasture. The potential for developing open-land and woodland wildlife habitat is good. (Capability unit IIs–4)

Windsor loamy fine sand, clay subsoil variant, 8 to 15 percent slopes (WfC).—This soil is in rolling areas on marine or lacustrine terraces. It consists of about 2 to 2½ feet of loamy fine sand and fine sand over silty clay loam and silty clay.

Included in mapping are some areas of soils where depth to silt and clay deposits is greater than 40 inches.

Erosion is a hazard if the surface layer is disturbed during cultivation or construction work. Droughtiness is also a limitation to crop production. Slope and the moderately slowly permeable subsoil are limitations to use for residential and industrial development.

This soil is suited to most general crops, but its use is limited by slope and the hazard of erosion. Diversions, contour farming, and stripcropping are needed to control erosion if it is used for row or truck crops (fig. 14). These practices are also needed in cropping systems that include cover crops and grasses and legumes in the

Most areas of this soil are scrubby forest or are idle. It is not well suited to cultivation. It is suited to adapted trees, and it has some limited potential for grazing or for woodland wildlife habitat. There is some demand for this soil for use in residential development. (Capability unit IVs–26)

Hinckley gravelly loamy sand, 15 to 60 percent slopes (HbE).—This steep soil lies in areas on terrace breaks adjacent to streams and on kames and eskers. It has a profile similar to that described as representative for the series, but the surface layer is thinner and the surface layer and subsoil have a higher content of gravel.

Included in mapping are areas of soils that have a yellowish-red to strong-brown subsoil. Areas of sandy Windsor soils are also included.

Most of this soil is forested. It is too droughty, erodible, low in fertility, and steep for row or hay crops. It is also too steep for residential and industrial development. Much of this soil is covered with timber of poor quality and by low-growing shrubs that provide the necessary cover to control erosion. (Capability unit VIIs–27)

Hollis Series

The Hollis series consists of shallow, somewhat excessively drained soils that formed in a thin mantle of loamy glacial till. These soils are less than 20 inches deep over bedrock. Rock outcrops are a prominent feature of the landscape. Hollis soils are scattered throughout the county and do not occur in a characteristic pattern. They occupy both smooth and irregular hilltops throughout the county and are on knolls in the seacoast lowlands. Slope ranges from about 3 to 60 percent. In Strafford County Hollis soils are mapped in complexes with Charlton soils and with Gloucester soils.

A representative profile of a Hollis soil in a forested area has a layer of fresh and partially decayed leaves and needles 2 inches thick overlying a dark-brown fine sandy loam mineral surface layer 6 inches thick. The subsoil, to a depth of about 14 inches, is yellowish-brown fine sandy loam that contains some gravel. Unweathered quartzite bedrock is at a depth below 14 inches.

Hollis soils have moderate permeability above the bedrock and moderate available water capacity. As these soils thaw in spring, water flows underground over the bedrock and appears at the surface as seep spots. Shallow depth to bedrock is a limitation for many uses. Woodcrop productivity is fair to good.

Representative profile of a Hollis fine sandy loam (slope of 10 percent) in a forested area of Hollis-Charlton fine sandy loams, 8 to 15 percent slopes, 650 feet west of junction of State Route 202 and Pond Hill Road, 330 feet south of road in the town of Barrington:

O1—2 inches to 1 inch, recent accumulation of leaves and conifer needles.

O2—1 inch to 0, partially decomposed leaves and needles containing many fungal hyphae.

Ap—0 to 6 inches, dark-brown (10YR 3/3) fine sandy loam (value is 5.5 when dry and crushed); weak, fine, granular structure; very friable; many roots; strongly acid; abrupt, wavy boundary.

B2—6 to 14 inches, yellowish-brown (10YR 5/6) fine sandy loam; weak, fine, granular structure; very friable; common roots; 10 to 15 percent subangular coarse fragments 1 to 3 inches in size; strongly acid; abrupt, smooth boundary.

R—14 inches, unweathered quartzite bedrock.

The A horizon is generally fine sandy loam but ranges from loam to sandy loam. It is 10YR in hue and is 2 or 3 in value and chroma. The B horizon is fine sandy loam or sandy loam. Hue is 10YR or 7.5YR, value is 4 to 6, and chroma is 4 to 8. Consistence is friable or very friable. Depth to bedrock ranges from about 10 to 20 inches.

Hollis soils are near Charlton and Gloucester soils. Hollis and Charlton soils formed in similar material. Hollis soils are shallower to bedrock than Charlton and Gloucester soils, and they typically are finer textured in the B horizon than Gloucester soils.

Hollis-Charlton fine sandy loams, 3 to 8 percent slopes (HcB).—This complex consists of shallow Hollis soils and deep Charlton soils. These soils mainly occupy cleared fields on the seacoast lowlands and the central uplands. The profile of the Hollis soils of this complex is similar to that described as representative for the series, but the mineral surface layer is generally thicker. The Charlton soils have a profile similar to that described as representative for the Charlton series. Fifty to 60 percent of this complex is made up of Hollis soils, 30 to 40 percent is Charlton soils, and the rest is included soils.

Included in mapping are areas of moderately deep soils, areas of soil that are yellowish red to strong brown throughout the profile, areas of wetter soils in depressions, and areas of soils that are more gently sloping. Areas of Buxton soils are common inclusions in the Durham, Dover, and Rollinsford areas. In some areas Hollis soils are underlain with rippable bedrock.

Because of the shallow depth over bedrock, the Hollis soils lack adequate moisture for plant growth. Conservation practices are generally needed to control erosion when these soils are cultivated or disturbed during construction work. Shallowness to bedrock is a limitation when these soils are used for residential and industrial development.

The soils in this complex are better suited to grasses and legumes than to corn and truck crops. Because of the variations in soil depth, an investigation is needed to determine if a specific area is suited to corn.

For optimum crop growth, truck crops require irrigation. Diversions, stripcropping, or contour farming are practices needed to control erosion when these soils are used extensively for row crops. These practices may also be needed in cropping systems that include cover crops and grasses and legumes in the rotation. In places the location and construction of diversions is limited by the variable depth to bedrock.

Most areas of soils are in hay or pasture. A few spots are wooded. Some areas near the seacoast are in the path of expanding community development. (Capability unit IIIe–56)

Hollis-Charlton fine sandy loams, 8 to 15 percent slopes (HcC).—This complex consists of shallow Hollis soils and deep Charlton soils. These rolling soils are mainly in cleared fields on uplands. The Hollis soils have a profile described as representative for the series. The Charlton soils have a thinner mineral surface layer than the soil described as representative for the Charlton series. Fifty to 60 percent of the complex is Hollis soils, 30 to 40 percent is Charlton soils, and the rest is included soils. Seep spots are common in some areas.

Included in mapping are areas of moderately deep soils and areas of soils that are yellowish red to strong brown throughout the profile. Areas of Buxton soils are common inclusions in the Durham, Dover, and Rollinsford areas. In some areas Hollis soils are underlain with rippable bedrock.

The Hollis soils are shallow to bedrock and lack adequate moisture for plant growth. If they are cultivated or are disturbed by construction work, erosion control measures are generally needed. Shallowness is the major limitation to most community development uses.

These soils are better suited to grasses and legumes than to corn and truck crops. Because of the variations in soil depth and the irregular slopes, an investigation is needed to determine the suitability of any specific area for corn or truck crops. Alfalfa is suited only to the deeper soils.

Diversion, stripcropping, or contour farming are necessary to control erosion if these soils are used for row crops. These practices are also needed in cropping systems that include cover crops and grasses and legumes in the rotation. The location and construction of diversions are limited by the variable depth of the soils and the irregular slopes.

Most areas of these soils are in hay and pasture. A few areas are forested. Some areas near the seacoast are in the path of expanding community development. (Capability unit IVe–56)

Hollis-Charlton fine sandy loams, 15 to 25 percent slopes (HcD).—This complex consists of soils that are mainly in long, narrow areas in small fields of the central uplands. They have a profile similar to that described as representative for their respective series, but the mineral surface layer is thinner. Fifty to 60 percent of this complex is shallow Hollis soils, 30 to 40 percent is deep Charlton soils, and the rest is included soils. There are very few rock outcrops.

Included in mapping are areas of moderately deep soils and areas of soils that are yellowish red to strong brown throughout the profile. In some areas the Hollis soils are underlain with rippable bedrock.

The Hollis soils lack adequate moisture for plant growth. Shallow depth to bedrock and moderately steep slopes present serious limitations to farm use and to most nonfarm uses. The soils of this complex have a high erosion hazard. They are not suited to cultivated crops. They are well suited to hay and pasture plants. When renovating hayfields, reseeding should be in strips across the slope to control erosion. Deep-rooted plants, such as alfalfa, do not do well in the shallow areas.

These soils are used mostly for forestry, hay, or pasture. They have some potential for the development of open-land and woodland wildlife habitat. (Capability unit VIe–56)

Hollis-Charlton very rocky fine sandy loams, 3 to 8 percent slopes (HdB).—This complex consists of shallow Hollis soils and deep Charlton soils. The profile of these soils is similar to that described as representative for their respective series, but they have a darker colored mineral surface layer. Hollis soils occupy 40 to 60 percent of this unit, Charlton soils 30 to 40 percent, and included soils the rest. These soils have outcrops of bedrock 30 to 100 feet apart and covering 10 to 25 percent of the surface. There are also some stones on the surface.

Included in mapping are areas of Sutton, Leicester, and Buxton soils, which are common in depressions in the southern part of the county. Also included are areas of nearly level, very rocky Hollis soils, areas of moderately deep soils, and areas of soils that are yellowish red to strong brown throughout the profile. Some areas of soils are underlain by rippable bedrock.

Shallow depth of soil, rockiness, and stoniness in some areas are severe limitations to row and hay crop production. Rock outcrops are so numerous that cultivation is not practical. These conditions are also severe limitations for most nonfarm uses.

Most areas of these soils are forested. A small acreage is in unimproved pasture (fig. 8). Some areas can be cleared for hay or improved pasture. Limitations to use of these soils in community development are severe. (Capability unit VIs–57)

Hollis-Charlton very rocky fine sandy loams, 8 to 15 percent slopes (HdC).—This complex consists of shallow Hollis soils and deep Charlton soils. The profile of these soils is similar to that described as representative for their respective series, but they have a darker colored mineral surface layer. The Hollis soils make up 40 to 60 percent of this unit, the Charlton soils 30 to 40 percent, and included soils the rest. These soils have outcrops of bedrock 30 to 100 feet apart and covering 10 to 25 percent of the surface. A few stones are on the surface.

Included in mapping are areas of Sutton and Woodbridge soils that occupy depressions. Also included are areas of moderately deep soils, areas of soils that are yellowish red to strong brown throughout the profile, and areas of soils that are underlain by rippable bedrock.

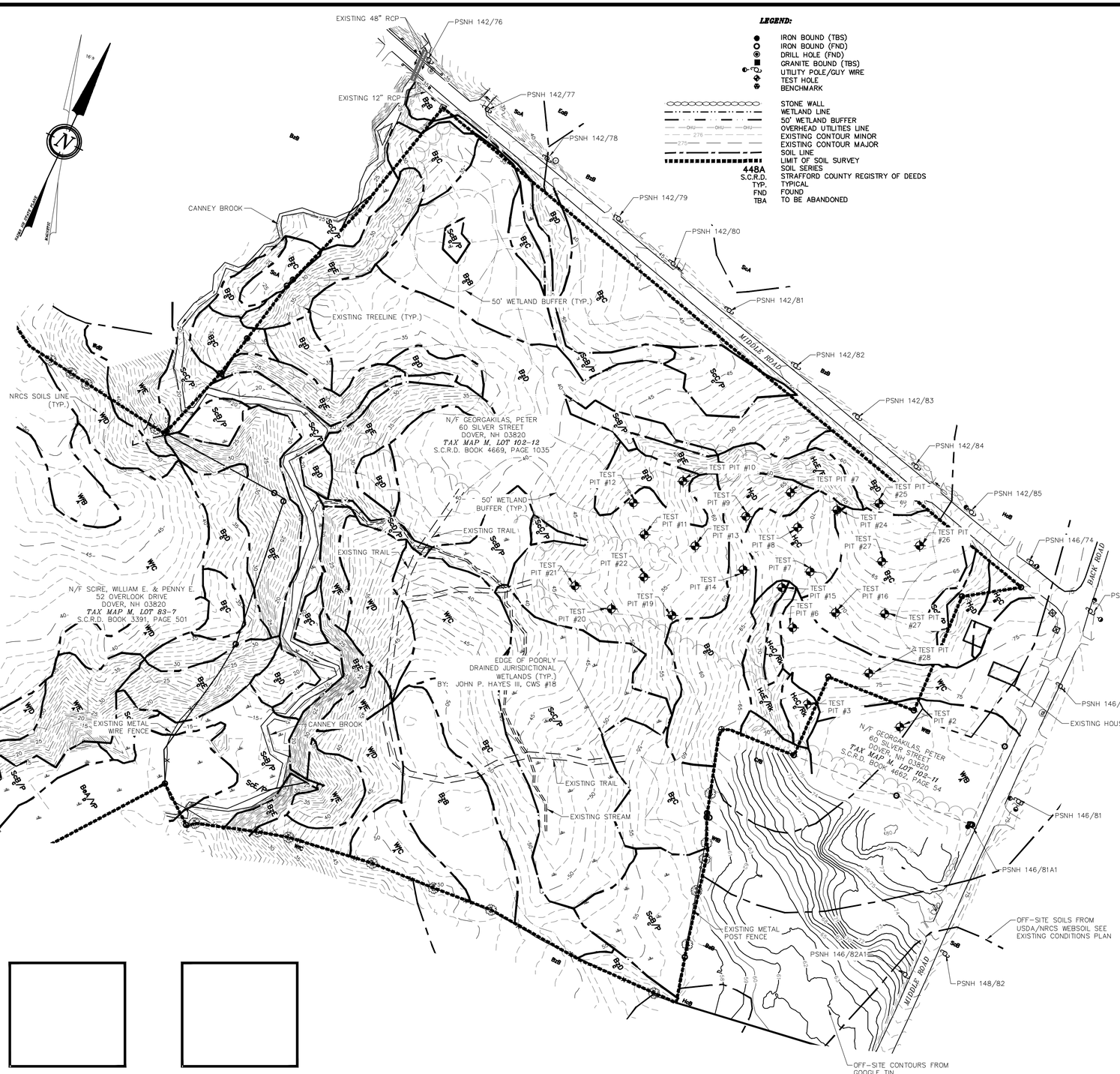
Shallowness, rockiness, and stones on the surface in places are major limitations of these soils for farm and nonfarm uses.

Most areas of these soils are in forest and unimproved pasture. They are suited to forestry, unimproved pasture, or woodland wildlife habitat. Limitations to use of these soils for community development are severe. (Capability unit VIs–57)

Hollis-Charlton very rocky fine sandy loams, 15 to 25 percent slopes (HdD).—This complex consists of shallow Hollis soils and deep Charlton soils that are typically in the central part of the county. The profile of these soils is similar to that described as representative for their respective series, but they have a thinner mineral surface layer because of erosion. The Hollis soils make up 40 to 60 percent of this unit, Charlton soils 30 to 40 percent, and included soils the rest. These soils have outcrops of bedrock 30 to 100 feet apart and covering 10 to 25 percent of the surface. A few stones are on the surface.

Included in mapping are areas of moderately deep soils and areas of soils that are yellowish red to strong brown throughout the profile. Some areas of soils in this complex are underlain by rippable bedrock.

Because of the rock outcrops, shallowness, and moderately steep slopes, use of these soils is limited to forestry, pasture, and woodland wildlife habitat. Most areas of these soils are forested. They are too steep, too rocky, and too stony for use in community development. (Capability unit VIs–57)

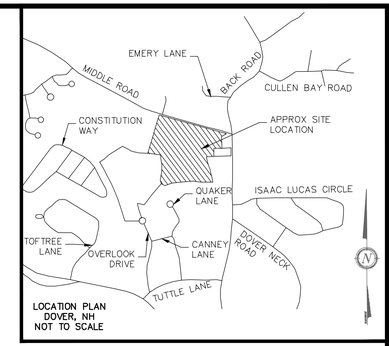


LEGEND:

- IRON BOUND (TBS)
- IRON BOUND (FND)
- DRILL HOLE (FND)
- GRANITE BOUND (TBS)
- UTILITY POLE/GUY WIRE
- TEST HOLE
- BENCHMARK
- STONE WALL
- WETLAND LINE
- 50' WETLAND BUFFER
- OHU — OHU — OHU — OVERHEAD UTILITIES LINE
- 276 — EXISTING CONTOUR MINOR
- 275 — EXISTING CONTOUR MAJOR
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A — SOIL SERIES
- S.C.R.D. — STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. — TYPICAL
- FND — FOUND
- TBA — TO BE ABANDONED

JOHN P. HAYES, III CWS #18

JOHN P. HAYES, III CSS #87



LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, A PORTION OF THIS PARCEL DOES FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD. REF.: FEMA COMMUNITY #330145, MAP #33017C0320E, DATED: SEPTEMBER 30, 2015.

6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW SITE SPECIFIC SOILS MAP ON TAX MAP M, LOT 102-12 AS OF THE DATE OF THE SURVEY. SEE DETAIL SHEET AND SOILS REPORT FOR MORE INFORMATION.

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
BzB	BOXFORD	C
BzC	BOXFORD	C
BzD	BOXFORD	C
BzE	BOXFORD	C
ScB/P	SCITICO (POORLY DRAINED)	C
ScC/P	SCITICO (POORLY DRAINED)	C
ScD/P	SCITICO (POORLY DRAINED)	C
ScE/P	SCITICO (POORLY DRAINED)	C
HcC	HOLLIS-CHARLTON COMPLEX (VERY ROCKY)	B
HcD	HOLLIS-CHARLTON COMPLEX (VERY ROCKY)	B
HcC/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcD/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
HcE/Rk	HOLLIS-CHARLTON COMPLEX (SHALLOW TO BEDROCK)	C
BeA/VP	MAYBID (VERY POORLY DRAINED)	D
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfC	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfD	WINDSOR VARIANT (CLAY SUBSOIL)	A
WfE	WINDSOR VARIANT (CLAY SUBSOIL)	A

SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD & P = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

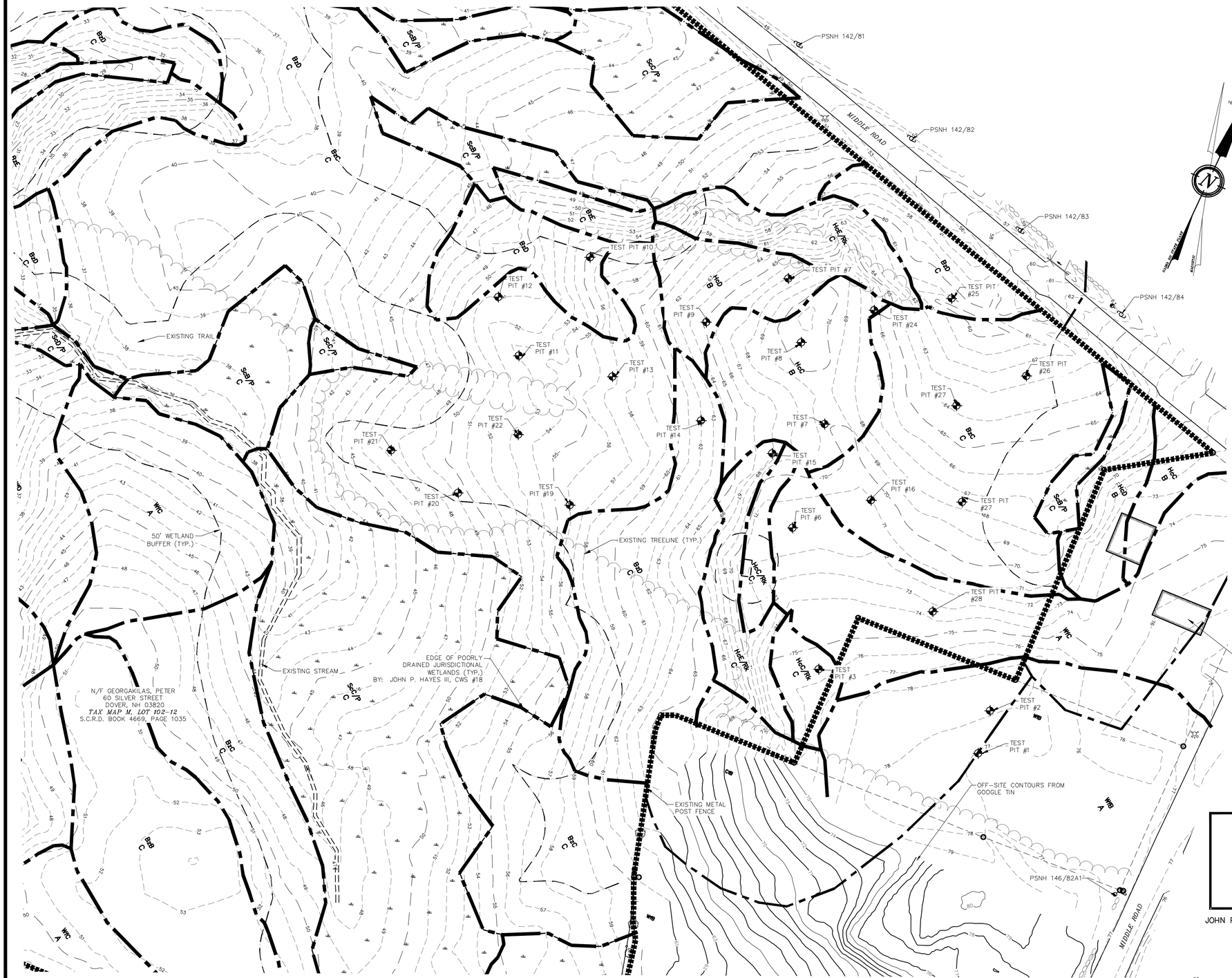
SITE SPECIFIC SOILS MAP OVERVIEW

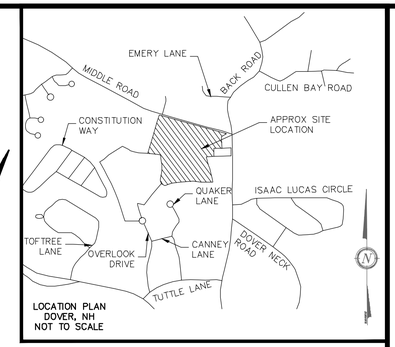
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER





LOCATION PLAN
DOVER, NH
NOT TO SCALE

NOTES:

1.) OWNER: PETER GEORGAKILAS
60 SILVER STREET
DOVER, NH 03820

2.) TAX MAP M, LOT 102-12

3.) LOT AREAS: 1,244,008 Sq. Ft., 28.56 Ac.

4.) S.C.R.D. BOOK 4669, PAGE 1035

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6.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

7.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SPRING OF 2020, WITH A BETTER ERROR OF CLOSURE OF 1 PART IN 10,000.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE DETAIL SITE SPECIFIC SOILS MAP ON TAX MAP M, LOT 102-12 AS OF THE DATE OF THE SURVEY. SEE DETAIL SHEET AND SOILS REPORT FOR MORE INFORMATION.

LEGEND:

- IRON BOUND (TBS)
- IRON BOUND (FND)
- DRILL HOLE (FND)
- GRANITE BOUND (TBS)
- UTILITY POLE/GUY WIRE
- TEST HOLE
- BENCHMARK
- STONE WALL
- WETLAND LINE
- 50' WETLAND BUFFER
- OHU — OHU — OHU — OVERHEAD UTILITIES LINE
- 276 — EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- SOIL LINE
- LIMIT OF SOIL SURVEY
- 448A S.C.R.D. SOIL SERIES
- TYP. STRAFFORD COUNTY REGISTRY OF DEEDS
- FND TYPICAL
- TBA FOUND
- TO BE ABANDONED

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SITE SPECIFIC SOILS MAP DETAIL
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14245
LICENSED PROFESSIONAL ENGINEER

TEST PIT #1
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–22" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22–26" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
26–60" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED: 60"
E.S.H.W.T.: 36"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A

TEST PIT #2
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24–60" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED: 49"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A

TEST PIT #3
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
14–30" 10YR 5/4 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, BLOCKY, FRIABLE
TERMINATED: 30"
E.S.H.W.T.: NONE
RESTRICTIVE LAYER: N/A
REFUSAL: 30"
GROUND WATER OBSERVED: N/A

TEST PIT #4
0–8" 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 10YR 5/6 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18–30" 2.5Y 6/3 LIGHT YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
30–42" 2.5Y 6/2 LIGHT BROWNISH GRAY, LOAMY SAND, GRANULAR, FRIABLE
42–72" 10YR 5/6 LIGHT BROWNISH GRAY, STRATIFIED SAND, GRANULAR, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 30"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A

TEST PIT #5
0–8" 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18–24" 2.5Y 6/3 LIGHT YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE,
24–38" 2.5Y 6/2 LIGHT BROWNISH GRAY, LOAMY FINE SAND, GRANULAR, FRIABLE
38–68" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LOAM, BLOCKY, FIRM

TERMINATED: 68"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: 38"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #6
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
12–18" 10YR 5/6 YELLOWISH BROWN, LOAMY SAND, GRANULAR, BLOCKY, FRIABLE

TERMINATED: 18"
E.S.H.W.T.: NONE
RESTRICTIVE LAYER: 18"
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED: N/A

TEST PIT #7
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–32" 2.5Y 5/6 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/4 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A

TEST PIT #8
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32–74" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 74"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: @ 22"
REFUSAL: 60"
GROUND WATER OBSERVED: 30"

TEST PIT #9
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–18" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18–32" 2.5Y 5/4 YELLOWSH BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/2 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: NONE
GROUND WATER OBSERVED: N/A

TEST PIT #10
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–13" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
13–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 13"
RESTRICTIVE LAYER: 13"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #11
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–20" 2.5Y 5/3 YELLOWISH BROWN, SILT CLAY LOAM, BLOCKY, FIRM
20–72" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 12:
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #12
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM GRANULAR, FRIABLE
12–22" 2.5Y 5/3 GRAYISH BROWN, SAND, SINGLE GRAIN, LOOSE
22–42" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 42"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 42"
REFUSAL: 42"
GROUND WATER OBSERVED: N/A

TEST PIT #13
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWSH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–24" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LOAM, BLOCKY, FIRM
24–64" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #14
0–10" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10–16" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16–24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24–70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SAND, MASSIVE, FRIABLE

TERMINATED: 70"
E.S.H.W.T.: 24"
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE N/A
GROUND WATER OBSERVED: N/A

TEST PIT #15
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32–72" 2.5Y 5/4 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE, FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #16
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILT CLAY LAOM, GRANULAR, FRIABLE
18–52" 5Y 5/3 OLIVE, SILT CLAY, BLOCKY, FIRM

TERMINATED: 52"
E.S.H.W.T.: 18"
RESTRICTIVE LAYER: 18"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A

TEST PIT #17
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12–15" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
15–72" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE. FRIABLE

TERMINATED: 72"
E.S.H.W.T.: 15"
RESTRICTIVE LAYER: 15"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #18
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–24" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
24–64" 5Y 5/3 OLIVE, FINE SILTY CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: @ 14"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A

TEST PIT #19
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–13" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
13–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 13"
RESTRICTIVE LAYER: 13"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #20
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
18–60" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 60"
E.S.H.W.T.: 12"
RESTRICTIVE LAYER: 12"
REFUSAL: N/A
GROUND WATER OBSERVED: 38"

TEST PIT #21
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–60" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 60"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: 40"

TEST PIT #22
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–22" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
22–72" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 72"
E.S.H.W.T.: 14"
RESTRICTIVE LAYER: 14"
REFUSAL: N/A
GROUND WATER OBSERVED: 38"

TEST PIT #23
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–16" 10YR 4/4 DARK YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
16–24" 10YR 5/6 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, BLOCKY, FRIABLE

TERMINATED: 24"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A

TEST PIT #24
0–8" 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8–16" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
16–20" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
20–74" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 74"
E.S.H.W.T.: 20"
RESTRICTIVE LAYER: 20"
REFUSAL: 74"
GROUND WATER OBSERVED: N/A

TEST PIT #25
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–18" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
18–64" 2.5Y 6/2 GRAYISH BROWN, SILT CLAY, BLOCKY, FIRM

TERMINATED: 64"
E.S.H.W.T.: 18"
RESTRICTIVE LAYER: 18"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #26
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–14" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
14–20" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
20–38" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 38"
E.S.H.W.T.: 20"
RESTRICTIVE LAYER: 20"
REFUSAL: 38"
GROUND WATER OBSERVED: N/A

TEST PIT #27
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–12" 10YR 4/4 DARK YELLOWISH BROWN, SILT LOAM, GRANULAR, FRIABLE
12–15" 2.5Y 5/3 LIGHT OLIVE BROWN, SILTY CLAY LOAM, BLOCKY, FIRM
15–77" 5Y 5/3 OLIVE, SILTY CLAY, BLOCKY, FIRM

TERMINATED: 77"
E.S.H.W.T.: 15"
RESTRICTIVE LAYER: 15"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #27
0–8" 10YR 3/3 DARK BROWN, FINE LOAMY SAND, GRANULAR, FRIABLE
8–20" 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20–32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE FRIABLE
32–52" 2.5Y 5/2 GREYISH BROWN, GRAVELLY FINE SANDY LOAM, MASSIVE FRIABLE

TERMINATED: 52"
E.S.H.W.T.: 32"
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: 52"

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

TEST PIT DATA
LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : N/A
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 – 114

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

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Inspection and Maintenance Manual

Stormwater System Management

Open-space Subdivision
Tax Map M, Lot 102-12

Prepared for

Peter Georgakilas
60 Silver Street
Dover, NH 03820

Land of

Peter Georgakilas
60 Silver Street
Dover, NH 03820

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863

File Number
DB2019-114

August 11, 2020

Inspection and Maintenance Manual

Stormwater System Management

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Inspection & Maintenance Plans Attached – 2 Pages

Stormwater Practice Design Plans Attached – 3 Pages

Control of Invasive Plants, NH Department of Agriculture Attached – 4 Pages

NHDES Green SnoPro Utilization Chart Attached – 1 Page

UNHSC Checklist for Inspection of Gravel Wetland Attached – 2 Pages

Introduction

The Best Management Practices (BMP) described in this manual are specified in more detail within the plan set giving design details and specifications. The New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA) is included by reference to this manual. Additional details, construction specifications, and example drawings are provided within this reference. (http://des.nh.gov/organization/divisions/water/stormwater/) See also, additional references for the University of New Hampshire Stormwater Center regarding maintenance of the Subsurface Gravel Wetlands. https://www.unh.edu/unhsc/design-and-maintenance-subsurface-gravel-wetlands
https://www.unh.edu/unhsc/sites/default/files/media/unhsc_gravel_wetland_spec_6-2016.pdf

The BMP's are covered below in the general order in which the storm water flows. Each BMP has a description and maintenance consideration listed. A Check List table is proved after the narrative to summarize the maintenance responsibilities and schedule. A Log Form is also provided for the owners use.

For details regarding the design of the Storm Water System see also Drainage Analysis & Sediment and Erosion Control Plan also published by Berry Surveying & Engineering originally dated August 11, 2020, as revised. See also plan set completed for Graystone Builders, Inc. originally dated August 11, 2020, as revised.

Peter Georgakilas, owner, is responsible for the Stormwater System Operation and Maintenance. A significant step in this responsibility is the Inspection and Maintenance of each component of the system. Ongoing, semi-annual, and annual inspection and maintenance requirement are documented below and must be taken seriously. Failure of any component of the system can result in surface water run-off ponding and/or freezing in the roadway and parking lots, leaving the developed site untreated, and/or causing violations to issued permits. The owner must maintain, and have available, plans of the Stormwater System in order properly inspect and maintain the system. (Reduced copies attached.) Peter Georgakilas, as the owner / operator, is responsible to ensure that any subsequent owner, Homeowners Association, or subcontractor has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection &

Maintenance Logs, provided to the City of Dover, Community Services, DPW, Engineering Department, with the Annual Report.

The owner of Tax Map M, Lots 102-12, Peter Georgakilas, is proposing the development of a thirteen lot open space subdivision with limited common areas There will be two detention ponds and two subsurface wetlands to manage and treat the surface water runoff.

The following drainage features will all require periodic inspections and maintenance based on this manual in addition to deep sump catch basins throughout:

Catch Basins

Conveyance Swales and roadside ditches

Sediment Forebays

Detention Pond #101 w/ Outlet Structure and sediment sump.

Subsurface Gravel Wetland #102 w/ Inlet Structures, outlet structure, and emergency spillway.

Outlet Protection and Level Spreader

Detention Pond #103 w/ Outlet Structure and sediment sump.

Subsurface Gravel Wetland #104 w/ Inlet Structures, outlet structure, and emergency spillway.

Outlet Protection and Level Spreader

Drop Inlets and Catch Basins

Design Intent: There are four drop inlets and two catch basins on the proposal. There is no deep sump catch basins designed into the site design.

Description: Drop Inlets and Catch Basins are being specified to collect runoff and route it into culverts. These culverts are located under driveways and under the roadway. The sumps that are required in the pre-casting process and for boot installation requirements, will be filled with washed stone.

Maintenance Considerations: The surface grates of the drainage structures will be cleaned of materials twice per year at a minimum. Culvert pipes will be inspected to ensure that surface water runoff is capable of leaving the structures. Any materials found to be in the structure will be remover, i.e. gross solids and vegetation.

Conveyance & Treatment Swales

Project Intent: The swales are individually designed in the drainage analysis and specified on the design plans. Temporary check dams will be installed as specified and removed upon completion of the project.

Description: "Swales are stabilized channels designed to convey runoff at non-erosive velocities." (NHDES SWM) A conveyance swale is intended to move surface water runoff from one point to another where as a treatment swale will slow the velocity to a point where sediment will settle out of the stormwater flow. A treatment swale will be constructed to a width of between four and eight feet and have a minimum length of 100 feet. The flow characteristics will also meet design criteria. A conveyance swale will be designed so that there is the capacity to convey the 10 year 24 hour storm event.

Maintenance Considerations: Grassed swales will be inspected twice annually, removing accumulated sediment and gross solids. Grass will be mowed periodically but to a depth of not less than 4 inches. Any damage to the vegetation will be repaired and woody vegetation and invasive vegetation will be removed.

Sediment Forebay

Design Intent: A Sediment Forebay is designed to pre-treat surface water runoff from the paved surfaces on the northeasterly portion of the property. A second sediment forebay has been designed on the westerly end of the rain garden to pre-treat runoff from that segment of new pavement.

Description: A sediment forebay is designed to reduce the velocity of incoming surface water runoff allowing sediment to fall out of suspension initially pre-treating the runoff before it is sent to a treatment structure. This earthen basin will have vegetated side-slopes and will a check dam to further reduce and pretreat the runoff. At the point of incoming runoff, the basin will be protected by rip rap outlet protection construction and the outgoing edge will be protected with rip rap. The check dam will be constructed from one side of the basin to the other and cause runoff to either go through or over. The volume of the forebay is generally one-tenth the volume of the Water Quality Volume (WQV). Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-4 Pretreatment Practices 1, Sediment Forebays.

Maintenance Considerations: The basin and slopes will be periodically mowed, at least twice per year ensuring that woody material does not get an opportunity to grow. Sediment accumulated in the basin will be removed and properly disposed of when it reaches half the height of the check dam. Erosion or other damage to the basin will be repaired and revegetated. (See Outlet Protection below.)

Detention Ponds

Description: Detention Ponds are also constructed ponds with the purpose of detaining runoff but not necessarily for infiltration purposes. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities of the existing soil. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 3B, In-ground Infiltration Basin and Section 4-6, Conveyance Practices, 2. Detention Basins.

Maintenance Considerations:
Infiltration Basins and Detention Ponds should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four hour period.

Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the infiltration system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the basin to determine measures required to restore the infiltration function. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation should be inspected to ensure healthy condition. Invasive species need to be removed along with dead or diseased vegetation.

Subsurface Gravel Wetland

Description: A Gravel Wetland (NHDES SWM 4-3 Treatment Practice 2D) or Subsurface Gravel Wetland consists of a forebay and multiple flow-through treatment cells. During smaller rain events, the surface water runoff is intended to pass from the forebay, into the gravel media through perforated pipes and structures where it passes through an anaerobic environment where the Water Quality Volume will have 24-72 hours of contact time. The forebay is required to contain 10% of the WQV and each of the two cell must contain 45% of the WQV. During larger storm events, the system works as a detention pond. The design of a Subsurface Gravel Wetland will be constructed in accordance with the most current version of the Design Specifications provided by the UNH Stormwater Center and SWM Volume 2, Section 4-3 Treatment Practices, 2d Gravel Wetlands.

Maintenance Considerations: The outlet configuration of the anaerobic subsurface gravel consists of a small discharge orifice that is located in a threaded cap. This goose-neck feature is designed to be disassembled to allow cleaning. This outlet orifice is located within a concrete outlet structure that also contains a control stack used to control and detain runoff in the system. Although this is designed to be "clean water" after the filtering process, the outlet structure in general is going to require periodic maintenance to ensure that it is discharging runoff properly. If the Subsurface Gravel Wetland retains runoff on the surface for more than 72 hours the performance is not correct and maintenance is required.

Debris will need to be removed from the inlet and outlet structures as well as any buildup of sediment. The surface of the ponded area is intended to have wetland

plants which may require periodic replanting, depending on the sediment loading. Sediment buildup in the forebay must be removed to maintain the minimum required volume. See also 9 and 10 of the attached UNHSC Subsurface Gravel Wetland Design Specifications 2009, and / or UNHSC Subsurface Gravel Wetland Design Specifications 2016 with Maintenance Guidelines and Checklist. See also Design and Maintenance of Subsurface Gravel Wetlands, (for NHDOT) by UNHSC. (Check List, Page 24 & 25, Attached)

Outlet Protection & Level Spreaders

Description: Outlet Protection consists of a riprap apron or preformed scour hole that is designed to provide velocity reduction of the surface water run-off that is leaving a culvert. The design is dependent on the culvert size, soil conditions, velocity, and quantity of the run-off. There are to be no bend or curves at the intersection of the conduit and apron. Level spreaders are intended to provide a level lip where surface water runoff is allowed to continue downhill closer to sheet flow. The level lip is to be constructed as level as possible for the entire length.

Maintenance Considerations: The riprap outlet protection will be inspected annually for damage, which must be corrected immediately. Any sediment buildup will be removed and disposed of correctly. Sediment and subsequent vegetation will build up in the Level Spreader. This material will be cleaned out along with any gross solids and disposed of properly. (See invasive species below) Any rip rap that has been displaced from the original construction will be repaired, especially recreating the level lip.

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;

- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Annual Report

Description: The owner is responsible to keep an **I & M Activity Log** that documents inspection, maintenance and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner (s) have copies of the Stormwater System Operation and Maintenance Plan & Inspection and Maintenance Manual, copies of past logs and check lists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the City of Dover, Community Services, Engineering Department with copies of both logs and check lists no later than December 15th of each year and made available to NHDES upon request. Upon an ownership change, the Annual Report will include the Transfer of Ownership Responsibility Forms duplicated from the form found below.

The plans that accompanies this manual includes a plan sheet, "Inspection & Maintenance Plan" and copies of the Stormwater Treatment Design Sheets. The owner will also maintain a complete set of the approved original design plans.

Respectfully
BERRY SURVEYING & ENGINEERING

James F. Hayden
Design Engineer / Project Manager

Kenneth A. Berry, PE, LLS
CPSWQ, CPESC, CESSWI
Principal, VP – Technical Operations

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Peter Georgakilas
60 Silver Street
Dover, NH 03820

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Pavement Sweeping	Three Times Per Year	N/A	N/A
		Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas.	Parcel will be free of litter/trash.
		Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
		Invasive Species	Two times per year.	Inspect for Invasive Species	Remove and dispose invasive species.
		Closed Drainage System:			
		Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
		Drop Inlets & Catch Basins	2 times per year	Check for sediment accumulation & clogging.	Any accumulated Sediment or debris.

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Subsurface Gravel Wetland,	2 times per year	Check for sediment and debris accumulation buildup.	Remove sediment & debris when required. Remove Invasive Species
		Subsurface Gravel Wetland	See Attached Checklist	See Attached Checklist	See Attached Checklist
		Riprap Outlet Protection	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.
		Winter Maintenance	Ongoing	Remove snow as directed.	Ongoing
		Post Winter Maintenance	Annually	Remove excess sand, gross solids, and repair vegetation and plantings	Parcel will be free of excess sand, litter/trash.
		Annual Report	1 time per year	Submit Annual Report to Dover Engineering Dept. and kept on file by the owner.	Report to be submitted on or before December 15th each year.

See also attached, UNHSC Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device.

Inspection Check List: Page 3

The following drainage features will all require periodic inspections and maintenance based on this manual in addition to deep sump catch basins throughout:

Catch Basins

Conveyance Swales and roadside ditches

Sediment Forebays

Detention Pond #101 w/ Outlet Structure and sediment sump.

Subsurface Gravel Wetland #102 w/ Inlet Structures, outlet structure, and emergency spillway.

Outlet Protection and Level Spreader

Detention Pond #103 w/ Outlet Structure and sediment sump.

Subsurface Gravel Wetland #104 w/ Inlet Structures, outlet structure, and emergency spillway.

Outlet Protection and Level Spreader

Inspection Notes:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Peter Georgakilas
60 Silver Street
Dover, NH 03820

BMP / System	Date Inspected	Inspector	Cleaning/Repair (List Items & Comments)	Repair Date	Performed By:

See also attached Checklist for Inspection of Gravel Wetland

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Deicing Log Form

Peter Georgakilas
60 Silver Street
Dover, NH 03820

Date	Amount Applied	Performed By:	Date	Amount Applied	Performed By:

STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN CERTIFICATION

Owner	Responsibility
Name: Peter Georgakilas Owner Address: 60 Silver Street Dover, NH 03820 Telephone: 603-661-8679 E-mail: atrcasju@yahoo.com	The owner is responsible for the conduct of all construction activities, and ultimate compliance with all the provisions of the Stormwater System Operation & Maintenance Plan and the implementation of the Inspection and Maintenance Manual.

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____ Date: _____

Printed Name:

Representing:

Peter Georgakilas
60 Silver Street
Dover, NH 03820

Control of Invasive Plants

New Hampshire
Department of Agriculture,
Markets & Food
Douglas Cygan
603-271-3488
doug.cygan@agr.nh.gov

This guide lists garden plants and weeds which are already causing significant changes to natural areas in the Mid-Atlantic. **Measures for controlling each species are indicated by number, e.g., (3), in the text with a full explanation at the end of this article.** Click on the word Control: to jump to that section. Then click your "back" button to return to the text. Following each section suggested alternative plants are given. These alternatives are native plants, well adapted and needing little care, attractive to birds and butterflies, and an important part of the food web for our indigenous species.

INVASIVE TREES

NORWAY MAPLE (*Acer platanoides*) has large leaves similar to sugar maple. To easily confirm that the plant is Norway maple, break off a leaf and if it's truly Norway maple it will exude milky white sap. Fall foliage is yellow. (Exception: cultivars such as 'Crimson King,' which have red leaves in spring or summer, may have red autumn leaves.) The leaves turn color late, usually in late October after native trees have dropped their foliage. This tree suppresses growth of grass, garden plants, and forest understory beneath it, at least as far as the drip-line. Its wind-borne seeds can germinate and grow in deep shade. The presence of young Norway maples in our woodlands is increasing.

Control: (1); (7), (8), (9), or (10); (11) in mid-October to early November, before the leaves turn color.

TREE OF HEAVEN (*Ailanthus altissima*), is incredibly tough and can grow in the poorest conditions. It produces huge quantities of wind-borne seeds, grows rapidly, and secretes a toxin that kills other plants. Its long compound leaves, with 11-25 lance-shaped leaflets, smell like peanut butter or burnt coffee when crushed. Once established, this tree cannot be removed by mechanical means alone.

Control: (1) - seedlings only. Herbicide - use Garlon 3a (9) with no more than a 1" gap between cuts, or (10); plus (11) on re-growth. Or paint bottom 12" of bark with Garlon 4 Ultra (in February or March to protect surrounding plants). USE MAXIMUM STRENGTH SPECIFIED ON LABEL for all herbicide applications on Ailanthus. Glyphosate is not effective against Ailanthus.

INVASIVE SHRUBS

AUTUMN OLIVE (*Eleagnus umbellata*): Formerly recommended for erosion control and wildlife value, these have proved highly invasive and diminish the overall quality of wildlife habitat.

Control: (1) - up to 4" diameter trunks; (7) or (10) or bury stump. Do not mow.

MULTIFLORA ROSE (*Rosa multiflora*), formerly recommended for erosion control, hedges, and wildlife habitat, becomes a huge shrub that chokes out all other vegetation and is too dense for many species of birds to nest in, though a few favor it. In shade, it grows up trees like a vine. It is covered with white flowers in June. (Our native roses have fewer flowers, mostly pink.) Distinguish multiflora by its size, and by the presence of very hard, curved thorns, and a fringed edge to the leaf stalk.

Control: (1) - pull seedlings, dig out larger plants at least 6" from the crown and 6" down; (4) on extensive infestations; (10) or (11). It may remain green in winter, so herbicide may *applied when other plants are dormant. For foliar application, mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants.*

BUSH HONEYSUCKLES (*Lonicera spp.*), including Belle, Amur, Morrow's, and Tatarian honeysuckle. (In our region, assume that any honeysuckle is exotic unless it is a scarlet-flowered vine). Bush honeysuckles create denser shade than native shrubs, reducing plant diversity and eliminating nest sites for many forest interior species.
Control: (2) on ornamentals; (1); on shady sites only, brush cut in early spring and again in early fall (3); (4) during the growing season; (7); or (10) late in the growing season.

BLUNT-LEAVED PRIVET (*Ligustrum* obtusifolium). *Control:* (1); (7) or (10); or trim off all flowers. Do not cut back or mow.

BURNING BUSH, WINGED EUONYMUS (*Euonymus alatus*), identified by wide, corky wings on the branches.
Control: (1); (7) or (10); or trim off all flowers.

JAPANESE BARBERRY (*Berberis thunbergii*), and all cultivars and varieties.
Control: (1); (7) or (10); or trim off all flowers.

INVASIVE WOODY VINES

All of these vines shade out the shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle. DO NOT PLANT NEXT TO OPEN SPACE.

JAPANESE HONEYSUCKLE (*Lonicera japonica*), including Hall's honeysuckle, has gold-and-white flowers with a heavenly scent and sweet nectar in June. This is probably the familiar honeysuckle of your childhood. It is a rampant grower that spirals around trees, often strangling them.
Control: (1); (3); (10); (11) in fall or early spring when native vegetation is dormant. Plan to re-treat repeatedly.

ORIENTAL BITTERSWEET (*Celastrus orbiculatus*) has almost completely displaced American bittersweet (*C. scandens*). The Asian plant has its flowers and bright orange seed capsules in clusters all along the stem, while the native species bears them only at the branch tips.
Control: (1); keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits; to eradicate use Garlon 3a (10).

JAPANESE KNOTWEED, MEXICAN BAMBOO (*Polygonum cuspidatum*) can grow in shade. The stems have knotty joints, reminiscent of bamboo. It grows 6-10' tall and has large pointed oval or triangular leaves.
Control: Cut at least 3 times each growing season and/or treat with Rodeo (10) or (11). In gardens, heavy mulch or dense shade may kill it.

INVASIVE HERBACEOUS PLANTS

GARLIC MUSTARD (*Alliaria petiolata*, *A. officinalis*), a white-flowered biennial with rough, scalloped leaves (kidney-, heart- or arrow-shaped), recognizable by the smell of garlic and taste of mustard when its leaves are crushed. (The odor fades by fall.)
Control: Pull before it flowers in spring (1), removing crown and roots. Tamp down soil afterwards. Once it has flowered, cut (2), being careful not to scatter seed, then bag and burn or send to the landfill. (11) may be appropriate in some settings.

JAPANESE STILT GRASS (*Microstegium vimineum*) can be identified by its lime-green color and a line of silvery hairs down the middle of the 2-3" long blade. It tolerates sun or dense shade and quickly invades areas left bare or disturbed by tilling or flooding. An annual grass, it builds up a large seed bank in the soil.

Control: Easily pulled in early to mid-summer (1) - be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to landfill. Mowing weekly or when it has just begun to flower may prevent it from setting seed (3). Use glyphosate (11) or herbicidal soap (less effective) on large infestations. Follow up with (5) in spring.

MILE-A-MINUTE VINE, DEVIL'S TAIL TEARTHUMB (*Polygonum perfoliatum*), a rapidly growing annual vine with triangular leaves, barbed stems, and turquoise berries in August which are spread by birds. It quickly covers and shades out herbaceous plants.
Control: same as for stilt grass.

SPOTTED KNAPWEED (*Centaurea maculosa*), a biennial with thistle-like flowers.
Control: Do NOT pull (1) unless the plant is young and the ground is very soft - the tap root will break off and produce several new plants. Wear sturdy gloves. (2); (6); (10) or (11).

CONTROL MEASURES

(1) PULL seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.
(2) DEADHEAD to prevent spread of seeds of invasive plants. Cut off seeds or fruits before they ripen. Bag, and burn or send to a landfill.
(3) MOW or CUTTING at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year.
(4) CONTROLLED BURNING during the spring, repeated over several years, allows native vegetation to compete more effectively with the invasive species. This requires a permit. Spot treatment with glyphosate in late fall can be used to make this method more effective.
(5) Use a CORN-BASED PRE-EMERGENCE HERBICIDE on annual weeds. This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.
(6) In lawns, SPOT TREAT with BROAD-LEAF WEEDKILLER. Good lawn-care practices (test soil; use lime and fertilizer only when soil test shows a need; mow high and frequently; leave clippings on lawn) reduce weed infestations.
(7) CUT DOWN the tree. Grind out the stump, or clip off re-growth.
(8) GIRDLE tree: cut through the bark and growing layer (cambium) all around the trunk, about 6" above the ground. Girdling is most effective in spring when the sap is rising, and from middle to late summer when the tree is sending down food to the roots. Clip off sucker sprouts.
(9) FRILL: Using a machete, hatchet or similar device, hack scars (several holes in larger trees) downward into the cambium layer, and squirt in glyphosate (or triclopyr if recommended in text above). Follow label directions for Injection and Frill Applications. This is most effective from middle to late summer. Clip off any sucker sprouts or treat with glyphosate.
(10) CUT STEM / CUT STUMP WITH GLYPHOSATE (or triclopyr if specified above). Follow label directions for Cut Stump Application. Clip off sucker sprouts or paint with glyphosate. See Note on Herbicides.
(11) FOLIAR SPRAY WITH GLYPHOSATE herbicide (see Note on Herbicides). Use a backpack or garden sprayer or mist blower, following label directions. Avoid overspray and/or dripping onto non-target plants, because glyphosate kills most plants except moss. If it rolls off waxy or grass-like foliage, use additional sticker-spreader. Deciduous trees, shrubs, and perennials move nutrients down to the roots in late summer. Glyphosate is particularly effective at this time and when plants have just gone out of flowering. Several invasive species retain their foliage after native plants have lost theirs, and resume growth earlier in spring than most natives. This allows you to treat them without harming the natives. However, the plant must be actively growing for the herbicide to work. Retreatments may be necessary the following year if suckering occurs or the plant hasn't been entirely killed.

NOTE ON HERBICIDES: It is highly recommended that small populations try to be controlled using non-chemical methods wherever feasible. However, for large infestations, and for a few plants specified above, herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is the least environmentally damaging herbicide in most cases. Add food coloring for visibility, and a soap-based sticker such as Cide-Kick. Glyphosate is ineffective on some

plants; for these, triclopyr (Garlon) may be indicated. When using herbicides, read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

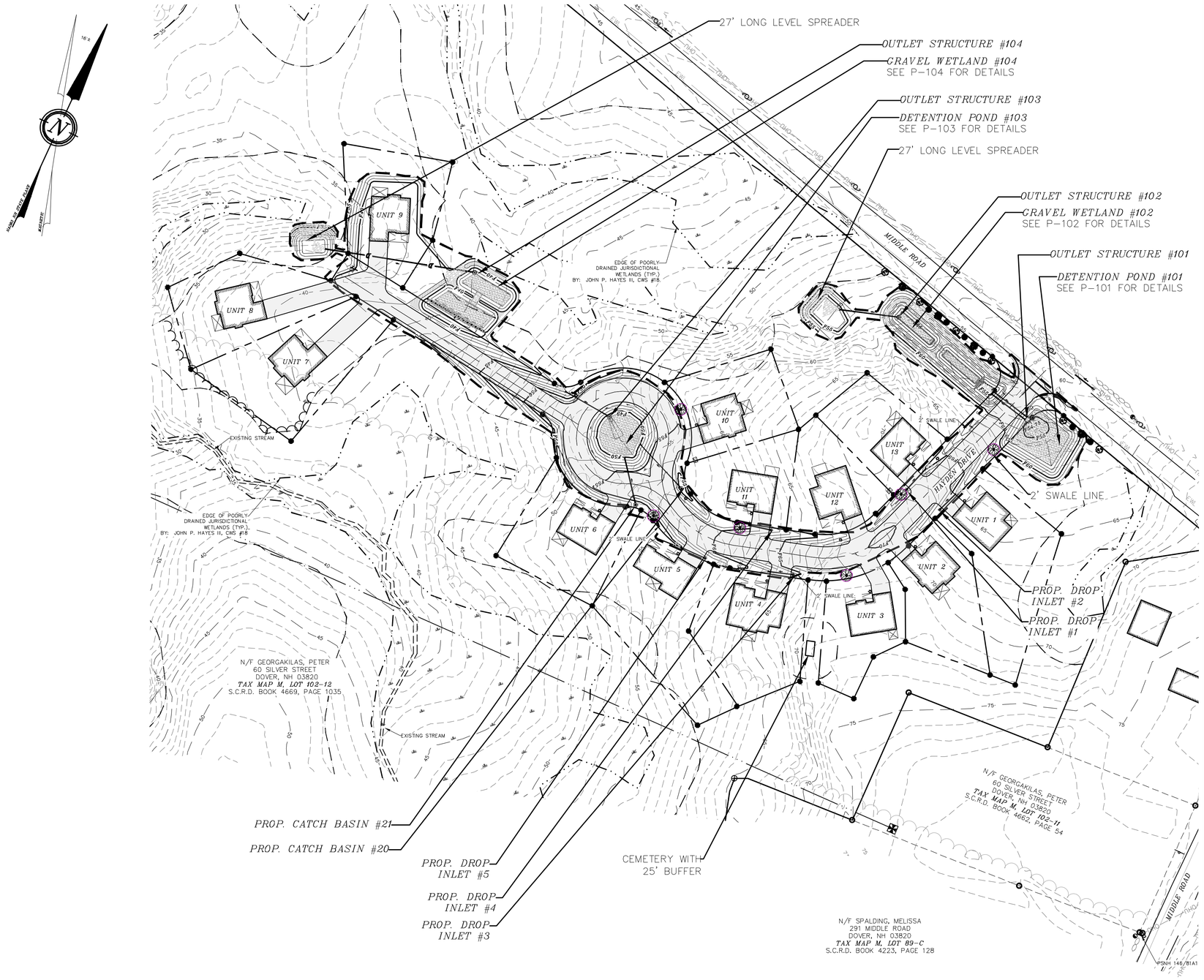
Pavement Temp. (°F) and Trend (↑ ↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only				Not recommended
	Frz. Rain	Apply chemical				Not recommended
30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
20 - 25 ↑	Snow or frz. Rain	Plow and Apply chemical				3.25 for frz. Rain
20 - 25 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↓	Snow or Frz. Rain	Plow and apply chemical				3.25 for frz. Rain
0 to 15 ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed
< 0	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed

Table 19. Application Rates for Deicing

These rates & table format are based on road application guidelines (Mn Snow & Ice Control Field Handbook, Manual 2005-1). Develop your own application rates by adjusting your current rates incrementally downward toward these guidelines. Where temperature categories overlap, select the rate most applicable to your situation.

NOTES:

1. OWNER: PETER GEORGAKILAS
   60 SILVER STREET
   DOVER, NH 03820
2. TAX MAP M, LOT 102-12
3. LOT AREA: 1,244,008 Sq. Ft., 28.56 Ac.
4. S.C.R.D. BOOK 4669, PAGE 1035
5. EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE.
6. THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE DRAINAGE INFRASTRUCTURE THAT WILL REQUIRE PERIODIC INSPECTIONS AND MAINTENANCE. THIS PLAN IS INTENDED TO TO BE ATTACHED THE THE STORMWATER SYSTEM MANAGEMENT: INSPECTION AND MAINTENANCE MANUAL PUBLISHED ON EVEN DATE.



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

CITY OF DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

DRAINAGE OPERATIONS: INSPECTION & MAINTENANCE PLAN

LAND OF
PETER GEORGAKILAS
MIDDLE ROAD
DOVER, N.H. 03820
TAX MAP M, LOT 102-12

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : AUGUST 11, 2020
FILE NO. : DB 2019 - 114

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14748
LICENSED PROFESSIONAL ENGINEER

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)		Comments/Corrective Action
1st Year Post-Construction Monitoring (After every major storm for the first three months)			
Plants are stable, roots not exposed	**S**	**U**	
Vegetation is established and thriving	**S**	**U**	
No evidence of holes in the wetland soil causing short-circuiting	**S**	**U**	
No evidence of erosion at inlet and outlet structures	**S**	**U**	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)			
1. Standing Water			
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	**S**	**U**	
2. Short Circuiting & Erosion			
No evidence of animal burrows or other holes	**S**	**U**	
No evidence of erosion	**S**	**U**	
3. Drought Conditions (As needed)			
Water plants as needed	**S**	**U**	
Dead or dying plants	**S**	**U**	
4. Sedimentation Chamber or Forebay Inlet Inspection			
No evidence of sediment accumulation, trash, and debris.	**S**	**U**	
Good condition, no need for repair	**S**	**U**	
5. Vegetation Coverage			
50 % coverage established throughout system by first year	**S**	**U**	
Robust coverage by year 2 or later	**S**	**U**	
6. Inlet and Outlet Controls			
Flow is unobstructed in openings (grates, orifices, etc)	**S**	**U**	
Structures are operational with no evidence of deterioration	**S**	**U**	
7. Vegetation removal (once every 3 years)			
Prune dead, diseased, or decaying plants	**S**	**U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	

Welcome to New Hampshire's Watershed Report Cards built from the 2018, 305(b)/303(d)

Each Watershed Report Card covers a single 12 digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2018 Consolidated Assessment and Listing Methodology (CALM) at https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/documents/r-wd-19-04.pdf.

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at ftp://pubftp.nh.gov/DES/wmb/WaterQuality/SWQA/2018/GIS

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit. (https://www.des.nh.gov/organization/divisions/water/wmb/swqa/assessment-viewers.htm)

How are assessments coded in the report card?

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL^ Needed	5-P	5-M or 5-T					

* TMDL stands for Total Maximum Daily Load studies (http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm)

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030903

HUC 12 NAME BELLAMY RIVER

(Locator map on next page only applies to this HUC12)

Assessment Cycle 2018

Good		Full Support Good
Marginal		Full Support Marginal
Likely Good		Insufficient Information – Potentially Full Support
No Data		No Data
Likely Bad		Insufficient Information – Potentially Not Support
Poor		Not Support Marginal
Severe		Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHEST600030903-01-01	E*01-01	BELLAMY RIVER NORTH	5-P	2-G	2-G	5-M
NHEST600030903-01-03	E*01-03	BELLAMY RIVER SOUTH CLEMENT POINT	5-P	2-G	2-G	5-M
NHEST600030903-01-04	E*01-04	BELLAMY RIVER SOUTH	5-P	2-G	2-G	5-M
NHIMP600030903-01	I*01	BELLAMY RIVER	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-02	I*02	BELLAMY RIVER - SAWYERS MILL DAM POND	5-M	5-M	3-ND	4A-M
NHIMP600030903-03	I*03	CANNEY BROOK - WILDLIFE POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-04	I*04	BELLAMY RIVER IV DAM	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-05	I*05	KNOX MARSH BROOK	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-06	I*06	UNNAMED BROOK - THORNWOOD COMMONS POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-07	I*07	UNNAMED BROOK - BELLAMY RIVER WILDLIFE POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-08	I*08	UNNAMED BROOK - FARM POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-09	I*09	UNNAMED BROOK - WEBSTER BROOK DAM	3-ND	3-ND	3-ND	4A-M
NHIMP600030903-10	I*10	UNNAMED BROOK - FARM POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030903-01	L*01	BARBADOES POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030903-02	L*02	BELLAMY RESERVOIR	5-M	3-ND	3-ND	4A-M
NHLAK600030903-03	L*03	SWAINS LAKE	5-P	3-PNS	3-ND	4A-M
NHLAK600030903-04	L*04	WINKLEY POND	5-P	3-ND	3-ND	4A-M
NHLAK600030903-05	L*05	BRANCH MALLEGO BROOK POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030903-06	L*06	FARM POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030903-07	L*07	UNNAMED POND	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-01	R*01	MADLA BROOK	5-P	3-ND	3-ND	4A-M
NHRIV600030903-02	R*02	MALLEGO BROOK	5-P	3-ND	3-ND	4A-M
NHRIV600030903-03	R*03	CALEF BROOK	3-ND	3-PAS	3-PAS	4A-M
NHRIV600030903-05	R*05	UNNAMED BROOK - TO SWAINS LAKE	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-06	R*06	BELLAMY RIVER - UNNAMED BROOK	5-M	3-ND	3-ND	4A-M
NHRIV600030903-07	R*07	BELLAMY RIVER	5-P	4A-P	4A-P	4A-M
NHRIV600030903-08	R*08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	5-P	4A-P	3-PNS	4A-M
NHRIV600030903-09	R*09	BELLAMY RIVER - UNNAMED BROOK	5-M	4A-P	3-ND	4A-M

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030903

HUC 12 NAME BELLAMY RIVER

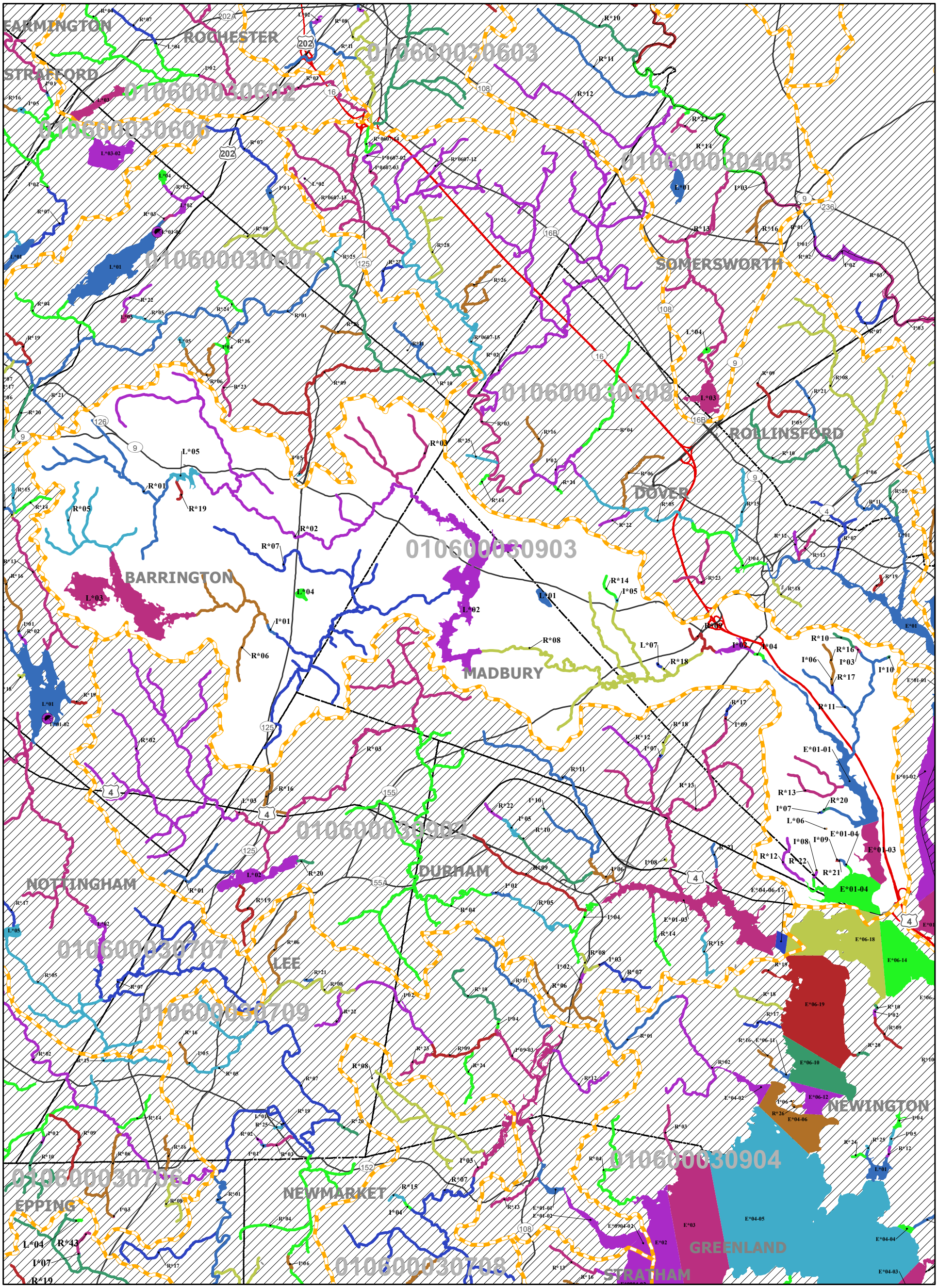
(Locator map on next page only applies to this HUC12)

Assessment Cycle 2018

Good		Full Support Good
Marginal		Full Support Marginal
Likely Good		Insufficient Information – Potentially Full Support
No Data		No Data
Likely Bad		Insufficient Information – Potentially Not Support
Poor		Not Support Marginal
Severe		Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHRIV600030903-10	R*10	CANNEY BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-11	R*11	VARNEY BROOK - CANNEY BROOK	3-ND	4A-P	4A-M	4A-M
NHRIV600030903-12	R*12	UNNAMED BROOK - TO BELLAMY RIVER ROYALLS COVE	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-13	R*13	GARRISON BROOK	3-ND	4A-P	3-ND	4A-M
NHRIV600030903-14	R*14	KNOX MARSH BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-16	R*16	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-17	R*17	VARNEY BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-18	R*18	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-19	R*19	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-20	R*20	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-21	R*21	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030903-22	R*22	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M

AUIDs For HUC12: 010600030903 - Bellamy River



HUC12 Boundaries
Town Boundaries
Major Roads
Interstate Highway
US Highway
State Highway

Assessment Unit Coloring
AUs Ending with:
0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

Abbrv. Label	HUC 12
L* 03	010 700060201

AUID = NH L AK 700060201 - 03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.8 1.6 2.4 3.2 Miles

Scale:1:78,820

S:\WD-Watershed\WQ_Planning\305b_303d\2018\AUIDs\HUC12Maps

Assessment Unit ID NHRIV600030903-11

Assessment Unit Name VARNEY BROOK - CANNEY BROOK

Primary Town DOVER

Size 2.9160 MILES

Beach N

Assessment Unit Category*~ 4A-P

2018, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	*Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority
Aquatic Life Integrity	3-ND	AMMONIA (TOTAL)	N	1998	N/A	3-ND	
		Benthic-Macroinvertebrate Bioassessments (Streams)	N			3-ND	
		Dissolved oxygen saturation	N			3-ND	
		Fishes Bioassessments (Streams)	N			3-ND	
		Oxygen, Dissolved	N			3-ND	
		PH	N	2001	N/A	3-ND	
		PHOSPHORUS (TOTAL)		1998	NLV	3-ND	
Fish Consumption	4A-M	Mercury	N			4A-M	
Potential Drinking Water Supply	2-G	ESCHERICHIA COLI	N	2012	2012	3-PNS	
		FECAL COLIFORM	N	2017	2017	3-PNS	
Primary Contact Recreation	4A-P	Escherichia coli	N	2012	2012	4A-P	
Secondary Contact Recreation	4A-M	Escherichia coli	N	2012	2012	4A-M	
Wildlife	3-ND						

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

List of ORW and Impaired (4A and 5) Waters for CGP NOIs 5/10/12							
(Outstanding Resource Waters and Impairments on the 2010 305(b)/303(d) that need, or have a completed, TMDL. File last update May 10, 2012.)							
Assessment Unit ID	**Assessment Unit Name**	**Impairment Name**	**Pollutant allocated in TMDL (if different than "Impairment Name")**	**CGP eNOI Equivalent (to Impairment Name)**	**TMDl Approval Date**	**TMDL Name**	**Outstanding Resource Water (ORW) (AUIDs not shown are non ORWs) {See http://www2.des.state.nh.us/gis/onestop/ if your AUID says "Review OneStop GIS ORW Layer"}**
NHRIV600030902-16	WENDYS BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-01	MADLA BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-02	MALLEGO BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-06	BELLAMY RIVER - UNNAMED BROOK	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030903-06	BELLAMY RIVER - UNNAMED BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-07	BELLAMY RIVER	Dissolved oxygen saturation		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030903-07	BELLAMY RIVER	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030903-07	BELLAMY RIVER	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030903-07	BELLAMY RIVER	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	Aluminum		METALS (OTHER THAN MERCURY)			Non-ORW
NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	Benthic-Macroinvertebrate Bioassessments (Streams)		CAUSE UNKNOWN - IMPAIRED BIOTA			Non-ORW
NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-09	BELLAMY RIVER - UNNAMED BROOK	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030903-09	BELLAMY RIVER - UNNAMED BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030903-11	VARNEY BROOK - CANNEY BROOK	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW

Cycle	Assessment Unit ID (AUID)	Assessment Unit Name	Town(s) Primary Town is Listed First	Water Size	Size Unit	Designated Use Description	Parameter Name	NHDES Category	Threatened	TMDL Priority
2018	NHRIV600030903-07	BELLAMY RIVER	BARRINGTON, LEE, MADBURY	11.507	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030903-07	BELLAMY RIVER	BARRINGTON, LEE, MADBURY	11.507	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX	MADBURY, DOVER	9.454	MILES	Aquatic Life Integrity	Aluminum	5-M	N	LOW
2018	NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX	MADBURY, DOVER	9.454	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-P	N	LOW
2018	NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX	MADBURY, DOVER	9.454	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030903-09	BELLAMY RIVER - UNNAMED BROOK	DOVER	0.756	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030904-06	PICKERING BROOK	PORTSMOUTH, GREENLAND	6.432	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600030904-06	PICKERING BROOK	PORTSMOUTH, GREENLAND	6.432	MILES	Aquatic Life Integrity	Copper	5-P	N	LOW
2018	NHRIV600030904-06	PICKERING BROOK	PORTSMOUTH, GREENLAND	6.432	MILES	Aquatic Life Integrity	Iron	5-P	N	LOW
2018	NHRIV600030904-06	PICKERING BROOK	PORTSMOUTH, GREENLAND	6.432	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030904-06	PICKERING BROOK	PORTSMOUTH, GREENLAND	6.432	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030904-09	KNIGHT BRANCH	NEWINGTON	0.565	MILES	Aquatic Life Integrity	Aluminum	5-M	N	LOW
2018	NHRIV600030904-11	MCINTYRE BROOK - PEASE AIR FORCE	NEWINGTON	0.621	MILES	Aquatic Life Integrity	Manganese	5-M	N	LOW
2018	NHRIV600030904-12	PEVERLY BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.131	MILES	Aquatic Life Integrity	Arsenic	5-M	N	LOW
2018	NHRIV600030904-12	PEVERLY BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.131	MILES	Aquatic Life Integrity	Cadmium	5-M	N	LOW
2018	NHRIV600030904-12	PEVERLY BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.131	MILES	Aquatic Life Integrity	Manganese	5-M	N	LOW
2018	NHRIV600030904-12	PEVERLY BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.131	MILES	Aquatic Life Integrity	Zinc	5-M	N	LOW
2018	NHRIV600031001-01	PICKERING BROOK -FLAGSTONE BROOK	NEWINGTON	2.720	MILES	Aquatic Life Integrity	Aluminum	5-M	N	LOW
2018	NHRIV600031001-01	PICKERING BROOK -FLAGSTONE BROOK	NEWINGTON	2.720	MILES	Aquatic Life Integrity	Iron	5-M	N	LOW
2018	NHRIV600031001-03	SAGAMORE CREEK	PORTSMOUTH	0.975	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600031001-03	SAGAMORE CREEK	PORTSMOUTH	0.975	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600031001-04	LOWER HODGSON BROOK	PORTSMOUTH	0.951	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-P		LOW
2018	NHRIV600031001-04	LOWER HODGSON BROOK	PORTSMOUTH	0.951	MILES	Aquatic Life Integrity	Chloride	5-P	N	LOW
2018	NHRIV600031001-04	LOWER HODGSON BROOK	PORTSMOUTH	0.951	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600031001-04	LOWER HODGSON BROOK	PORTSMOUTH	0.951	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600031001-05	UPPER HODGSON BROOK	PORTSMOUTH	1.572	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-P	N	LOW
2018	NHRIV600031001-05	UPPER HODGSON BROOK	PORTSMOUTH	1.572	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600031001-05	UPPER HODGSON BROOK	PORTSMOUTH	1.572	MILES	Aquatic Life Integrity	Manganese	5-M	N	LOW
2018	NHRIV600031001-05	UPPER HODGSON BROOK	PORTSMOUTH	1.572	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	N	LOW
2018	NHRIV600031001-05	UPPER HODGSON BROOK	PORTSMOUTH	1.572	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Aluminum	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Arsenic	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Chromium (total)	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Copper	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Iron	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Lead	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Manganese	5-M	N	LOW
2018	NHRIV600031001-06	GRAFTON DITCH	PORTSMOUTH	1.305	MILES	Aquatic Life Integrity	Zinc	5-M	N	LOW
2018	NHRIV600031001-07	PAULS BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.515	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-M	N	LOW
2018	NHRIV600031001-07	PAULS BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.515	MILES	Aquatic Life Integrity	Chloride	5-P	N	LOW
2018	NHRIV600031001-07	PAULS BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.515	MILES	Aquatic Life Integrity	DDD	5-M	N	LOW
2018	NHRIV600031001-07	PAULS BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.515	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600031001-08	RAILWAY BROOK - PEASE AIR FORCE BASE	NEWINGTON	0.638	MILES	Aquatic Life Integrity	Iron	5-M	N	LOW
2018	NHRIV600031001-09	BORTHWICK AVE TRIBUTARY	PORTSMOUTH	1.340	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600031001-09	BORTHWICK AVE TRIBUTARY	PORTSMOUTH	1.340	MILES	Aquatic Life Integrity	Iron	5-M	N	LOW
2018	NHRIV600031001-09	BORTHWICK AVE TRIBUTARY	PORTSMOUTH	1.340	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600031001-09	BORTHWICK AVE TRIBUTARY	PORTSMOUTH	1.340	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600031001-10	NEWFILEDS DITCH	PORTSMOUTH	1.315	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600031001-10	NEWFILEDS DITCH	PORTSMOUTH	1.315	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600031002-01	BERRYS BROOK	PORTSMOUTH, GREENLAND, RYE	9.372	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600031002-01	BERRYS BROOK	PORTSMOUTH, GREENLAND, RYE	9.372	MILES	Aquatic Life Integrity	pH	5-M	N	LOW

SWPPP Cut Sheet:

Filtrexx® Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Sediment control is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for **perimeter control** of sediment and other soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities.

APPLICATION

Filtrexx® Sediment control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Sediment control is effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.
- On frozen ground where trenching of silt fence is impossible.
- On paved surfaces where trenching of silt fence is impossible.

INSTALLATION

1. Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx® Soxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be Filtrexx® Certified™, or use pre-filled Filtrexx® Sediment control products manufactured by a Filtrexx® Certified Manufacturer™ as determined by Filtrexx® International, LLC (440-926-2607 or visit www.filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx® Certified™ Seal.
3. Sediment control will be placed at locations indicated on plans as directed by the Engineer.
4. Sediment control should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second Sediment control shall be constructed at the top of the slope.
5. Effective Soxx™ height in the field should be as follows: 8" Diameter Sediment control = 6.5" high, 12" Diameter Sediment control = 9.5" high, 18" Diameter SiltSoxx™ = 14.5" high, 24" Diameter Sediment control = 19" high.
6. Stakes shall be installed through the middle of the Sediment control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) hard wood stakes. In the event staking is not possible, i.e., when Sediment control is used on pavement, heavy concrete blocks shall be used behind the Sediment control to help stabilize during rainfall/runoff events.
7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
8. Loose compost may be backfilled along the upslope side of the Sediment control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
9. If the Sediment control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for

establishment of permanent vegetation. The Engineer will specify seed requirements.

10. Filtrexx® Sediment control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrexx® Sediment control installation (Figure 1.1).

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased

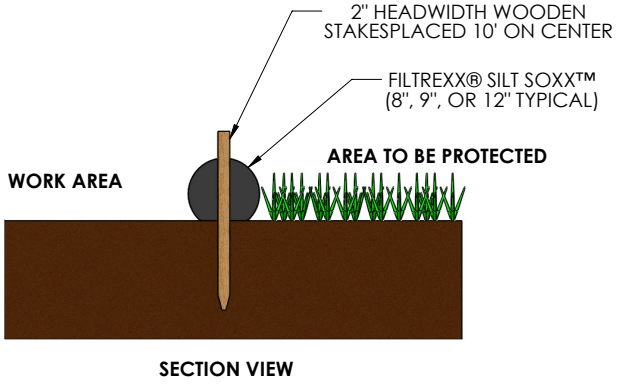
1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

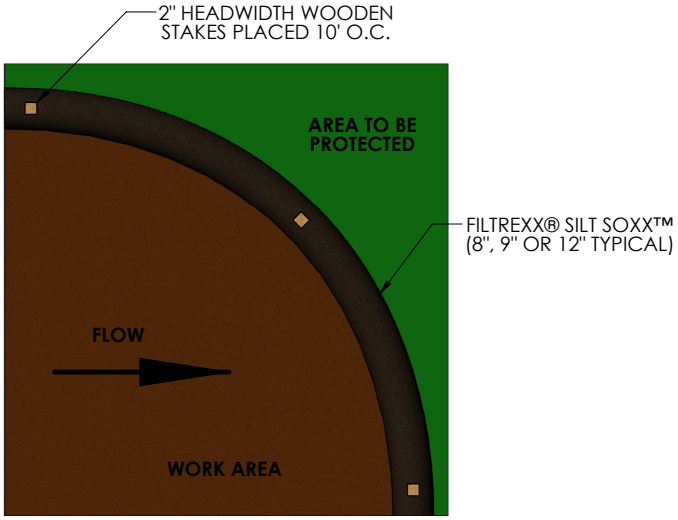
* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

FILTREXX® SILT SOXX™

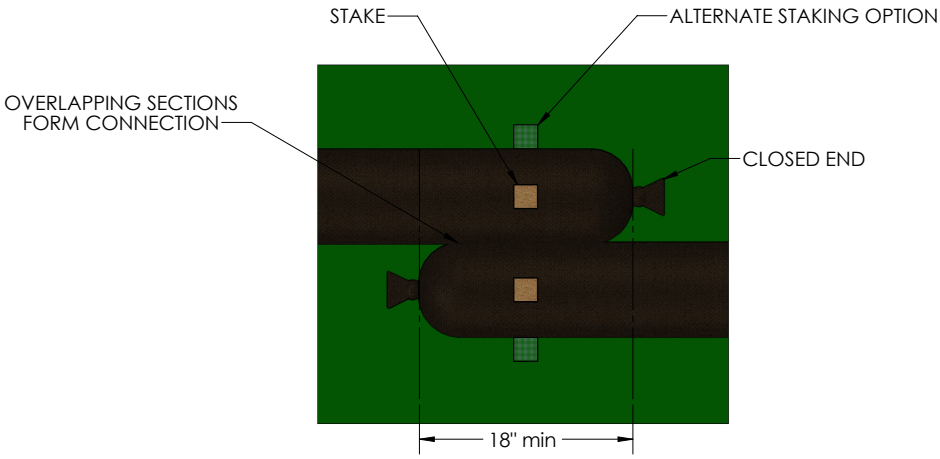


SECTION VIEW

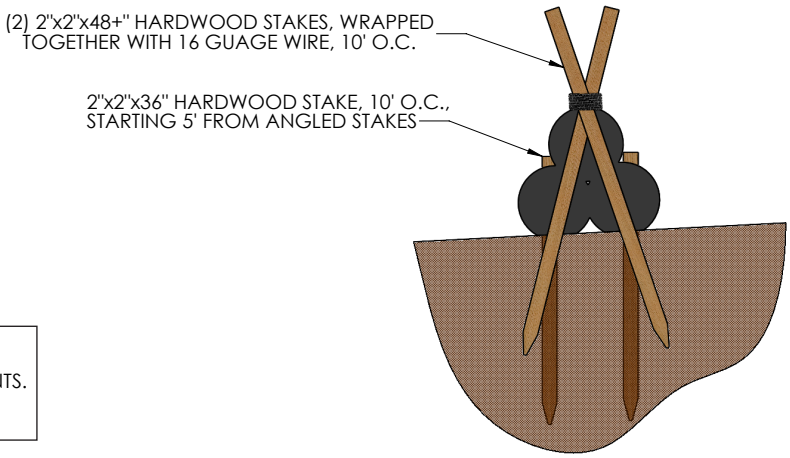


TOP VIEW

COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL



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

SWPPP Cut Sheet:

Filtrexx® Inlet Protection

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Inlet protection is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for storm drain **inlet protection** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) on and around construction activities.

APPLICATION

Drain inlets are located in areas that receive runoff from surrounding lands, often exposed and disturbed soils, and are located at a low point, or in a sump. Inlet protection used around drain inlets (or *Drain* Inlet protection) should completely enclose the circumference of the drain and where possible should not be placed on a grade or slope. Inlet protection used around drain inlets should never be the only form of site sediment control and should be accompanied by erosion control/slope stabilization practices, such as Slope protection or rolled erosion control blankets (RECB). Inlet protection should never be placed where they divert runoff flow from the drain inlet, or on top of the inlet, which can cause flooding. Under high runoff and sediment loading conditions placement of 1-2 in (25-50 mm) diameter rock (AASHTO #2) may be placed around the outer circumference of the Inlet protection up to ½ the height of the Inlet protection. This will slow runoff velocity as it contacts the Inlet protection and will reduce sediment build-up and clogging of the Inlet protection.

Curb inlets are generally located on paved surfaces and are designed to rapidly drain storm runoff from roadways to prevent flooding that poses a hazard to vehicular traffic. Inlet protection devices should be placed in a manner which intercepts runoff prior to entering the inlet, but does not block or divert runoff from the inlet. To prevent diversion of runoff, Inlet protection used around curbs (or *Curb* Inlet protection) should be used in low points, or sumps, and minor slopes or grades. Inlet protection should never be placed in or on the curb inlet drain, or placed in a manner than obstructs vehicular traffic. Inlet protection height should be at least 1 in (25 mm) lower than top of curb inlet to allow for overflow into the drain and not over the curb. Maximum sediment removal efficiency occurs when minor ponding exists behind Inlet protection but should never lead to flooding.

Curb sediment containment systems are used to reduce the sediment and pollutant load flowing to a curb inlet. They are generally placed on paved surfaces perpendicular to runoff flow and should be lower than the height of the curb. Curb sediment containment systems should never cause flooding or placed where they are a hazard to vehicular traffic. Inlet protection used for curb sediment containment (or *Curb Sediment Containment* Inlet protection) can be placed on a grade but should never be placed directly upslope from curb inlet where it may inadvertently divert runoff from entering curb inlet.

INSTALLATION

1. Inlet protection used for inlet protection to reduce sediment and soluble pollutants entering storm drains shall meet Filtrexx® FilterSoxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be a Filtrexx® Certified™ Installer as determined by Filtrexx® International, LLC (440-926-2607 or visit web site at Filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current list of installers can be found at www.filtrexx.com). Look for the Filtrexx® Certified™ Installer Seal.

3. Filtrexx® Inlet protection shall be placed at locations indicated on plans as directed by the Engineer. Inlet protection should be installed in a pattern that allows complete protection of the inlet area.
4. Installation of curb Inlet protection will ensure a minimal overlap of at least 1 ft (300mm) on either side of the opening being protected. The Inlet protection will be anchored to the soil behind the curb using staples, stakes or other devices capable of holding the Inlet protection in place.
5. Standard Inlet protection for curb inlet protection and curb sediment containment will use 8 in (200mm) diameter Inlet protection, and drain inlets on soil will use 12 in (300mm) or 18 in (450mm) diameter Inlet protection. In severe flow situations, larger Inlet protection may be specified by the Engineer. During curb installation, Inlet protection shall be compacted to be slightly shorter than curb height.
6. If Inlet protection becomes clogged with debris and sediment, they shall be maintained so as to assure proper drainage and water flow into the storm drain. In severe storm events, overflow of the Inlet protection may be acceptable in order to keep the area from flooding.
7. Curb and drain Inlet protection shall be positioned so as to provide a permeable physical barrier to the drain itself, allowing sediment to collect on the outside of the Inlet protection.
8. For drains and inlets that have only curb cuts, without street grates, a spacer is required in order to keep the Inlet protection away from the drain opening. This spacer should be a hog wire screen bent to overlap the grate opening and keep the sock from falling into the opening. Use at least one spacer for every 4 ft (1.2m) of curb drain opening. The wire grid also prevents other floatable waste from passing over the Inlet protection.
9. Stakes shall be installed through the middle of the drain Inlet protection on 5 ft (1.5m) centers, using 2 in (50mm) x 2 in (50mm) x 3 ft (1m) wood stakes.
10. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Inlet protection should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Inlet protection may be required or sediment removal may be necessary. Inlet protection shall be inspected until contributing drainage area has been permanently stabilized and construction activity has ceased

1. The Contractor shall maintain the Inlet protection in a functional condition at all times and it shall be routinely inspected.
2. If the Inlet protection has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Inlet protection when accumulation has reached 1/2 of the effective height of the Inlet protection, or as directed by the Engineer. Alternatively, for drain Inlet protection a new Soxx™ may be placed on top of the original increasing the sediment storage capacity without soil disturbance.
4. Inlet protection shall be maintained until disturbed area above or around the device has been permanently stabilized and construction activity has ceased.
5. Regular maintenance includes lifting the Inlet protection and cleaning around and under them as sediment collects.
6. The FilterMedia™ will be removed from paved areas or dispersed on site soil or behind curb once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

Table 2.4 Spacing for Curb Sediment Containment Systems.

Grade (%)	Spacing (ft)	Spacing (mm)
0.5	100	30
1.0	50	15
2.0	25	8
3.0	16	5
4.0	13	4
5.0	10	3

Source: Fifield, 2001.

Figure 2.1. Engineering Design Drawing for Curb and Drain Inlet Protection

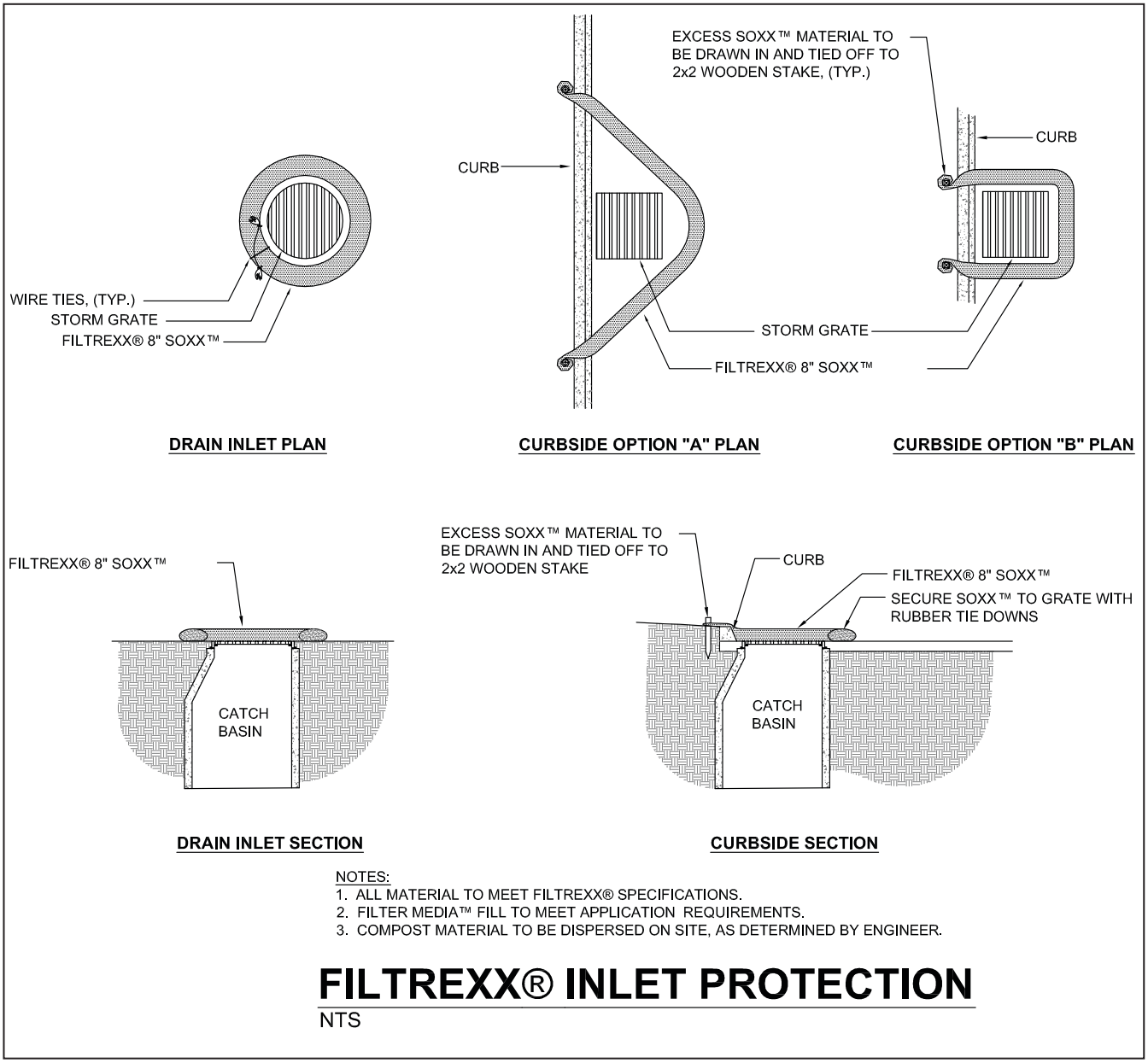
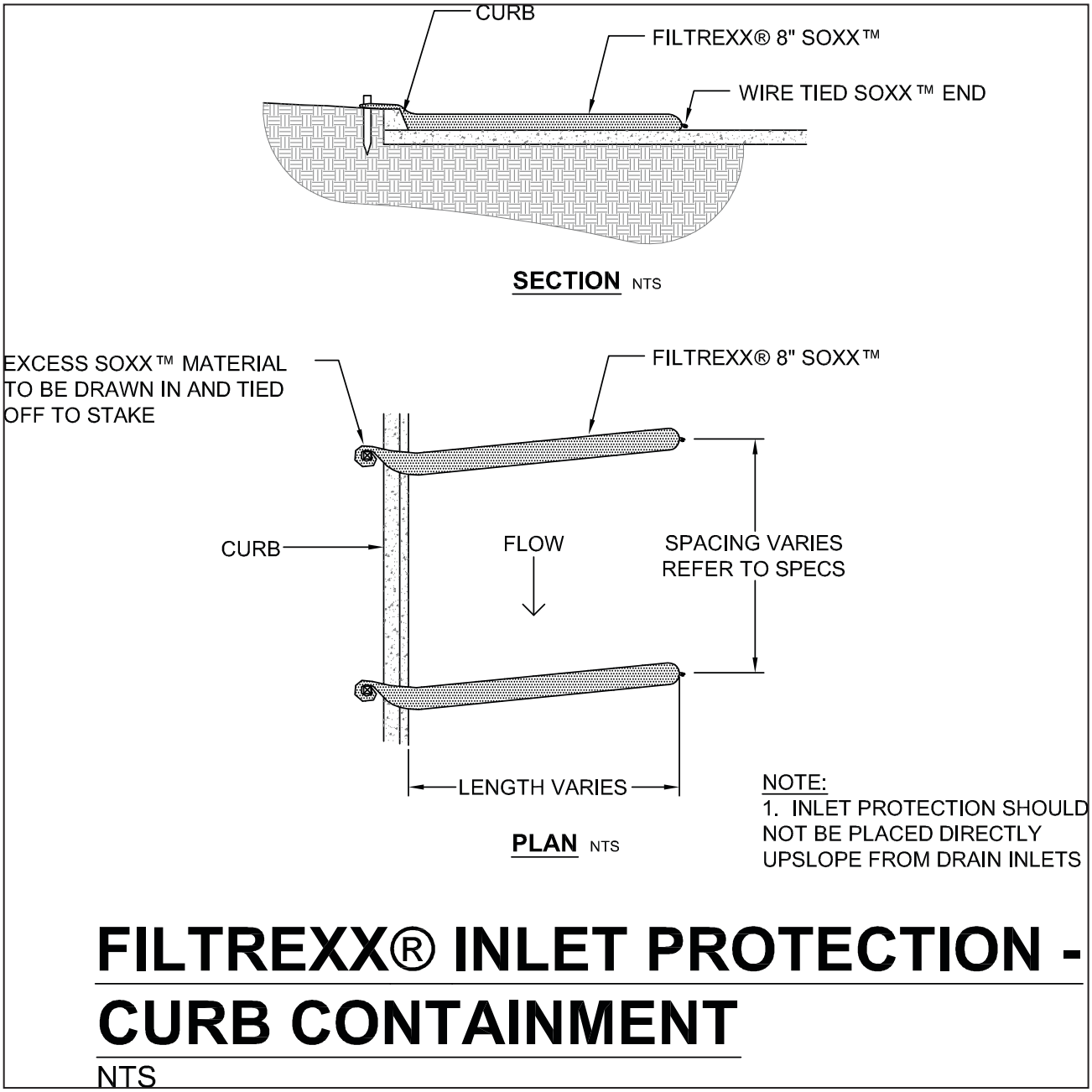


Figure 2.2. Engineering Design Drawing for Curb Sediment Containment Inlet Protection



CIVILWORKS NEW ENGLAND

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

August 26, 2020

City of Dover
288 Central Ave
Dover, NH 03820

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

Re: Site Review & Conditional Use Permit Applications
Crosby Road - Tax Map G, Lot 1-M
Civilworks New England Reference No. 19034

Dear Mr. Parker:

On behalf of our clients, DBS Holdings, LLC, we are pleased to resubmit the following Site Plan and Conditional Use application(s) and supplemental materials based on our meeting with planning staff. All plans and supplemental materials listed below will be delivered to the Planning Department electronically (PDF), via email. Eight (8) sets of all other application materials and plans will be delivered to the office of the Planning Dept.

We have relocated the 14,000 sq. ft. building closer to the road/further from the wetlands to reduce the building area with the wetland buffer. We have addressed the June 4 TRC Committee Notes (**Responses in Bold)** as follows:

Planning Comments:

- Impact fees will be assessed $2,044. **Noted**
- W/S investment fees applicable. **Noted**
- Stamp and signature of PE, LLS, and architect needed on each plan submission. **Noted**
- Update all references to site regulations from 149 to 153. **Revised Plans.**
- What steps can be taken to reduce wetlands buffer impacts? The wetlands ordinance requires that the applicant demonstrate need, avoidance and minimization. **Need: Maintain the building outside of the existing sewer easement; provide area for firetruck access, maintain adequate parking, and provide stormwater attenuation while minimizing building footprints in wetlands setbacks. Avoidance: Met with planning staff to discuss wetland buffer avoidance. As an outcome of that productive meeting the building was moved 6 feet closer to Crosby Road and reduced the pavement area accordingly thereby reducing the amount of building wetland buffer impacts.**

- Revise Plans:
- Indicate wetlands buffer placard placed once every 50'. **See Sheet 6, note 4**
- Update zoning to indicate new "Commercial Manufacturing" zone. **Existing Conditions Plan, Note Sheet #4 and Site Plan #5 have been revised.**
- Add project file number to title block (P20-33) on all sheet. **Project # added to plans.**
- To include the proposed site plan on the neighborhood plan. **The proposed site plan has been added to the Neighborhood Plan.**
- To correct the parking calculations to indicate "allowed" parking and note the max is 19, not 22. **Parking Calculations have been added to Sheet 5 and revised to indicate Maximum Allowed.**
- Note what the concrete pads are on the back of the buildings. **The concrete pads on the back of the building provide egress to grade. Door symbols have been shown in the plan view.**
- Consider flipping the parking and the building, so the parking is in the buffer, not the buildings. **We considered flipping the parking and the building. After reviewing the plan and meeting with planning staff, it was decided that moving the building and parking forward on the lot, out of the wetland buffer to the furthest extent practical would be an acceptable solution to reducing building wetland buffer impacts.**
- Replace the OHE with UGE on Crosby Road. **The Utility Plan, Sheet 7, has been revised to depict the OHE as UGE. The requested waiver to allow OHE has been withdrawn.**
- To update lighting table to Indicate Uniformity ratio, and meet min and max requirements. **The lighting table has been updated.**
- Dumpster screening needs to be solid not chain link with privacy slats. Consider placing both dumpsters in one location. **Detail Sheet 10, has been revised. The Chain Link Fence Detail has been replaced with a Solid Fence Detail.**
- Revise the Landscape Plan so all trees are minimum 3.5" – 4" caliper and meet site requirement regs. **The landscape plan shall be revised as requested.**
- Add a Fire Lane parallel to Crosby Road in front of units 1-5. "**Fire Lane" has been added as requested.**
- Add Common Site plan notes 24, 27, 28, and 29. **Common Site Plan Notes have been added as requested.**

Fire/Inspection Comments:

- Clarify the installation of the OHP across Crosby Road. **The OHP across Crosby Road has been revised to UGE.**
- Clarify the UGE distribution on Utility Plan and provide the location of the pad-mount transformer. **The Transformer location and UGE distribution have been clarified on the Utility Plan.**
- Water Meters appear to be located on the exterior of the building. **Water meter locations have been removed. A water meter is planned to be installed in each unit.**

- Clarify Water supply to stand-alone unit. **The water supply to the stand alone unit has been revised with a 1" water service.**
- Indicate location of FDC. **The Fire Department Connection has been shown.**
- Identify accessible parking and signage for the structures. **Parking and signage locations have been added and are shown on sheet 5.**
- Provide accessibly design compliance statement regarding all applicable accessibility regulations and w/ RSA 155-A :5. **A note has been added to sheet 4 of the plan set (note 34).**
- Discuss the installation of No Parking Fire Lane along building. **No parking fire lane signage has been added and is shown on sheet 5.**

Police Department Comments:

- How will you discourage overflow parking on Crosby Road? **Based on our experience we have provided sufficient on-site parking. If in the future on-street parking on Crosby Road becomes problematic the owner will work with the City of Dover to install no parking signs if required.**
- Sheet 4, general note 1: correct address for DBS Holdings. **The address has been updated.**

Engineering Comments:

- Explain the Drainage. **Roof runoff will be captured and routed through a treatment swale and a level spreader before it discharges into the Crosby road roadside ditch.**
- UGE vs OH. **The plan has been revised to use underground electric from Crosby Road.**
- Is there any industrial pretreatment required on the sewer? **No industrial pretreatment is anticipated.**
- Show the water and sewer size and type. **The water and sewer size and type have been shown on sheet 7.**
- Hydrants? Condition of existing ones. **Existing hydrant shall be flow tested by the contractor prior to construction as noted on the Utility Plan.**
- Condition of existing water main? **Existing water main shall be flow tested by the contractor prior to construction as noted on the Utility Plan.**
- Should there be individual water services to each unit? For shut off from nonpayment. **Individual water services have been provided.**
- Follow our trench details.. 12 inch of stone over the sewer. **The detail has been updated on sheet 12.**
- Hinge Lids on the sewer MHs. **Hinge lids will be installed on the proposed sewer manholes. A detail has been provided.**

Economic Development Comments:

- Are the colors in the rendering accurate? The renderings look bland. **The colors in the renderings are accurate.**

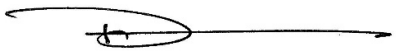
- Happy to have some smaller start up/ accelerator spaces being built. **We concur.**
- Need better landscaping on the side of the building. Some architectural amenities to break up the flat large walls would be appreciated. **Due to the limited nature of the lot and parking and driveway configuration there is limited space for landscaping. After meeting with Donna Benton it was decided that additional trees could be placed along the northern property line, perpendicular to Crosby Road to break large flat walls.**
- Could the parking be in the back of the building rather than the front? **In the meeting with planning staff site configuration was discussed, it was determined that due to the many site constraints, keeping the parking in front of the building would minimize wetland buffer impacts.**

We are transmitting the following:

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

We look forward to discussing this application with the Technical Review Committee and Conservation Commission. Please call with any questions or comments.

Sincerely,



Douglas J. LaRosa, Project Manager
CIVILWORKS NEW ENGLAND
DJL

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: June 4, 2019]

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

APPLICANT AND OWNER INFORMATION

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

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner: SAME

PROPERTY INFORMATION

Address of Property: Crosby Road

Assessor's Map # G Lot(s) # 1 - M

Zoning District(s) CM Overlay District(s) Wetland Protection District

Size of Parcel: 166,633 sq. ft. 3.83 ac. Property Deed: Book 4658 Page: 36

Existing Use of Property: Vacant - Commercial Manufacturing

SITE PLAN INFORMATION

Describe Proposed Use: Commercial Building for Warehouse & Office Spaces

Area of Parcel to be Developed: 53,241 sq. ft.

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

Number of Parking Spaces: Existing 0 Proposed 15

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

Number of Employees Total: 3 In Maximum Shift: 1

Disposition of Parcel:

Building Footprint Building 1 - 14,000 sq. ft.
Building 2 - 2,100

Total Building Area 16,100 sq. ft.

Paved Area 21,056 sq. ft.

Building Setbacks:

Front Yard 35 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? ON PROPERTY

City Sewer? ✓ Yes ___ No How far is city sewer from the property? ON PROPERTY

BUILDING INFORMATION

Type of Building to be Built: Metal & Wood Construction

Height of Building: 18' & 22' (refer to Architect Plans) Finished Floor Elevation: 98.55

Number of Seats (where applicable) N/A

Estimated value of construction: $285,000 Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

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

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

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin M. McEneaney, LLS
McEneaney Survey Associates of New England

Address 24 Chestnut Street Dover, NH 03820 Telephone #: 603-742-0911

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

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Stephen J. Haight, P.E.
CIVILWORKS NEW ENGLAND

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

Professional License #: Stephen J. Haight, P.E. #7978 E-mail address: shaight@civilworksne.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) JSN Associates, LLC

Address One Autumn Street Portsmouth, NH 03801 Telephone #: 603-433-8639

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Jennifer Martel, LLA NH#00155
Ironwood Landscape Architecture

Address 55 Main Street, Suite 129 Newmarket, NH 03857 Telephone #: 603-772-0590

Professional License #: Jennifer Martel, LLA NH#00155 E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Joseph W. Noel

Address P.O. Box 174 South Berwick, ME 03908 Telephone #: 207-384-5587

Professional License #: NH CWS #86 E-mail address: jwnoel@aol.com

CONSERVATION EASEMENT HOLDER N/A

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: 5/7/2020

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 5/7/2020

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: 5/7/2020

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: 5/7/2020

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

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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

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

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

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

APPLICANT: DBS Holdings, LLC File Number: P20-_____

PROJECT TITLE: Sullivan Commercial Buildings Site Development

PROPERTY LOCATION: Crosby Road Tax Map: G Lot: 1-M

	Where/How Provided	Reviewed
1. Completed and signed Application form	X	
2. Plan Review Fees are provided	X	
3. Electronic copy of the engineered/surveyed plan layout	X	
4. Electronic copy of supplementary materials and application	X	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	X (Standard)	
6. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
7. Conditional Use Permit applications	X	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	X	
9. A colored architectural plan showing all sides of buildings	X	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	All materials provided in PDF format only per City	
Location map at appropriate scale	Sheet 3, 5	
Proposed Project name and title and Planning File #	All Sheets	
Date, north arrow and scale	Sheets 3, 5, 6, 7	
Names of all abutting property owners	Sheets 3, 5, 6, 7	
Name and address of owners and/or applicants	Sheets 1, 3, 5	
Signature & stamp of NH licensed land surveyor and/or engineer	Upon approvals	
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	Sheets 3, 5	
Location and widths of existing & proposed easements & right of ways	N/A	
Location and width of existing and proposed access/egress ways	Sheets 3, 5	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	N/A	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Sheet 3	
Existing and proposed topographic information at two foot intervals	Sheet 3, 6	
Existing and proposed buildings and structure locations	Sheets 3, 5, 6, 7	
Minimum building setbacks or build to lines on all lots	Sheets 3, 5	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Sheets 3, 5, 6, 7	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Sheets 3, 5, 7	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	Sheet 4, Utilities Note #10	
Existing and proposed stormwater lines and facilities	Sheet 3, 5	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Sheet 13, 14	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	Sheet 3, 5, 6, 7	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Sheet 2	
Existing natural features and/or significant vegetation on property	N/A	
Depict existing contours up to 100 ft. beyond project limits	Sheet 3, 6	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	Sheet 17	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Sheet 5 Site Plan & Sheet 4 Site Notes, Parking Calculations	
Location, material and size of existing and proposed pavement area	Sheet 5, 10	
Location of proposed fire lanes	N/A	
Specify finished floor elevations of buildings	Sheet 6	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	Sheet 5	
Depict all service, storage, loading bays and utility areas	Sheet 5	
All applicable Dover Common Site Plan notes	Sheet 4	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Provided with Application	
Stormwater Management System Operation and Maintenance Plan	Provided with Application	
Letter to Serve from Public and Private Utilities	Provided with Application	
Erosion and Sedimentation Control Plan	Provided with Application	
Landscape Operation and Maintenance Plan	Sheet 17	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	N/A	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	Upon Request	

REVIEWED BY: _____ DATE_____ TRC DATE_____

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

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

APPLICANT AND OWNER INFORMATION

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

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner: SAME

PROPERTY INFORMATION

Assessor's Map # G Lot(s) # 1 M

Address of Property: Crosby Road

Zoning District(s) CM Overlay District(s) Wetland Protection District

Existing Use of Property: Vacant (Commercial Manufacturing)

CONDITIONAL USE PERMIT INFORMATION

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

☐ Conservation District	☐ RCM Use Overlay District	☐ I-1 District Uses
☐ Groundwater Protection	☐ Off-Street Parking and Loading	☐ Alternative Treatment Center
☒ Wetland Protection District	☐ Central Business District	☐ Heritage Residential District

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

Construction of two (2) commercial buildings with associated parking/pavement will impact the wetland buffer by approximately 28,910 s.f., for all construction disturbance including grading, drainage and utility work, with a building impact area of 7,058 s.f. for the buildings, associated paved areas and concrete pads.

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

Name of Professional That Prepared Plans: CIVILWORKS NEW ENGLAND

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

Professional License #: Stephen J. Haight, P.E. #7978 E-mail address: shaight@civilworksne.com

SIGNATURES

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

Signature of Property Owner: _____ Date: 5/7/2020

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 5/7/2020

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
G	1 M	DBS Holdings, LLC	71 Danielle Lane Dover, NH 03820

Applicant (if different from owner): SAME

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Stephen J. Haight, P.E.	Civilworks New England	P.O. Box 1166 Dover, NH 03821
Kevin M. McEneaney, LLS	McEneaney Survey Associates	24 Chestnut Street Dover, NH 03820

Conservation Easement Holder: N/A

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

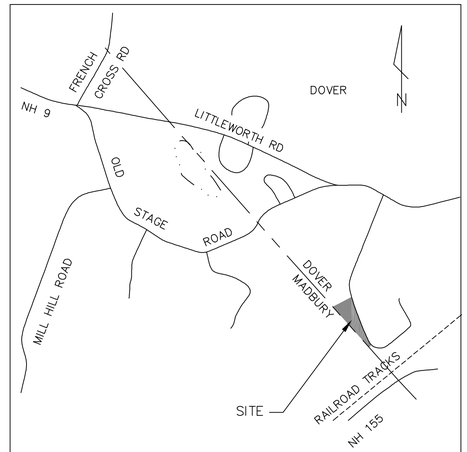
SULLIVAN COMMERCIAL BUILDINGS
SITE DEVELOPMENT

TAX MAP G, LOT 1-M

CROSBY ROAD

DOVER, NH

AUGUST 26, 2020



LOCATION PLAN
(NO SCALE)

OWNER/APPLICANT

DBS HOLDING LLC
71 DANIELLE LANE
DOVER, NH 03820

DBS HOLDING LLC: _____ DATE _____

SITE CIVIL ENGINEER

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

LAND SURVEYOR

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

ARCHITECT

JSN ASSOCIATES
ONE AUTUMN STREET
PORTSMOUTH, NH 03801
(603) 433-8639

LANDSCAPE ARCHITECT

IRONWOOD LANDSCAPE ARCHITURE & PLANNING
55 MAIN STREET #129
NEWMARKET, NH 03857
(603) 772-0590

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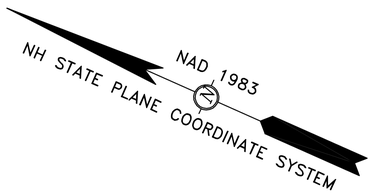
PLANNING FILE NO.: P20-33

ABUTTERS LIST
(WITHIN 200 FT)

TAX MAP	LOT NO.	NAME & ADDRESS
G 1-N	G 1-N	FORUM COURT CONDOMINIUMS 113 CROSBY RAOD, SUITE 1 DOVER, NH 03820
G 1-P	G 1-P	NASH GERALD & TAMPOSI SAMUEL C/O TANA PROPERTIES 40 TEMPLE STREET NASHUA, NH 03060
G 1-A	G 1-A	180 CROSBY ROAD, LLC 180 CROSBY ROAD DOVER, NH 03820
G 1-G	G 1-G	BRENNAN LIAM & MARY B TRUSTEES BRENNAN FAMILY REVOCABLE TRUST 65 DUNVEGAN WOODS HAMPTON, NH 03842
G 1-K	G 1-K	MCQUADE & MCQUADE INVESTMENTS PO BOX 1409 DOVER, NH 03820
G 1-I	G 1-I	MCQUADE & MCQUADE INVESTMENTS PO BOX 1409 DOVER, NH 03820
G 35-D	35-D	CITY OF DOVER 288 CENTRAL AVE. DOVER, NH 03820
3 45	45	TEMPLE FAMILY REVOCABLE TRUST ROGER C. & JEAN C. TEMPLE, CAROLYN T. AMAZEEN 303 KNOX MARSH ROAD MADBURY, NH 03823
3 46	46	WATSON, DOUGLAS J WATSON, BETTY J 63 PINE STREET ROLLINSFORD, NH 03869
3 50	50	TANA PROPERTIES LMTD PARTNERSHIP 20 TRAFALGAR SQUARE, SUITE 602 NASHUA, NH 03060

SITE

TAX MAP	LOT NO.	NAME & ADDRESS
G 1-M	3 1-M	DBS HOLDINGS LLC 78 DANIELLE LANE DOVER, NH 03820



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	ADDED PROPOSED SITE	SJH	8/26/20

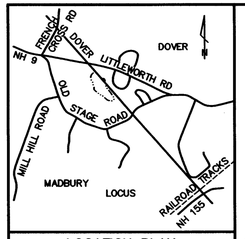
DATE: 4-27-20
SCALE: 1"=100'
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

NEIGHBORHOOD PLAN

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

2



LOCATION PLAN
(NO SCALE)

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	13°49'16"	360.00'	86.84'	86.63'	S30°45'06"E
C2	85°56'49"	25.00'	37.50'	34.08'	S305°18'41"W

No.	Bearing	Distance
L1	S48°17'06"W	11.57'

SANITARY SEWER
STRUCTURE SCHEDULE

SMH A
RIM = 98.8
INV. IN 8" PVC = 94.5
INV. IN 8" PVC = 92.6 OUTSIDE DROP
INV. OUT 8" PVC = 92.5
(NOTE PIPE AND BOTTOM NEED TO BE CLEANED)

REFERENCE PLANS:

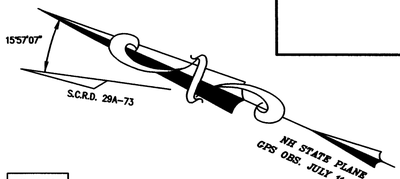
1.) SUBDIVISION PLAN OF LAND FOR FORUM DEVELOPMENT, LOT-1 CROSBY ROAD INDUSTRIAL PARK, DOVER, N.H., COUNTY OF STRAFFORD. SCALE: 1" = 60'; DATED: NOVEMBER 18, 1985, REVISED THROUGH 4/17/86; BY: RICHARD P. MILLETTE AND ASSOCIATES. RECORDED S.C.R.D. PLAN 29A-73.

2.) CONDOMINIUM SITE PLAN FOR FORUM COURT, LOT-1B CROSBY ROAD INDUSTRIAL PARK, COUNTY OF STRAFFORD, DOVER, N.H.. SCALE: 1" = 40'; DATED: JULY 23, 1987; BY: RICHARD P. MILLETTE AND ASSOCIATES. RECORDED S.C.R.D. PLAN 31-143.

3.) BOUNDARY PLAN FOR PETER THEODORE IN DOVER, N.H. SCALE: 1" = 100'; DATED: NOVEMBER 16, 1987; BY: SEACOAST ENGINEERING ASSOCIATES, INC. RECORDED S.C.R.D. PLAN 33-69.

4.) WETLANDS LOCATION PLAN - CROSBY ROAD, DOVER, NEW HAMPSHIRE, ASSESSOR'S PARCEL G-1M FOR BLUESTONE PROPERTIES. SCALE: 1" = 50'; DATED: NOVEMBER 16, 2017; BY: JAMES VERRA AND ASSOCIATES, INC. NOT RECORDE

5.) SUBDIVISION PLAN LOTS 1, 2, 3 AND COMPOSITE PLAN OF CROSBY ROAD INDUSTRIAL PARK, DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: JUNE 30, 1985, REVISED THROUGH 8/12/85; BY: LECLERC STOWELL ASSOCIATES. RECORDED S.C.R.D. PLAN 27A-2.



C / 1K
MCQUADE & MCQUADE INVESTMENTS
P.O. Box 1409
DOVER, NH 03820
1371 / 725

C / 1C
LIAM & MARY B. BRENNAN, TRUSTEES
BRENNAN FAMILY REVOCABLE TRUST
65 DUNVEGAN WOODS
HAMPTON, NH 03842
4238 / 561

C / 1A
180 CROSBY ROAD, L.L.C.
180 CROSBY ROAD
DOVER, NH 03820
2738 / 887

C / 1I
MCQUADE & MCQUADE INVESTMENTS
P.O. Box 1409
DOVER, NH 03820
1840 / 248

UP 364/11.5 11.5
UP 13 364A/10
UP 14 364A/9
IRON ROD FOUND WITH CIVIL CONSULTANTS CAP
DRIVE
EDGE OF PAVEMENT
DOUBLE YELLOW LINE
CROSBY ROAD
{PUBLIC; 75' WIDE R.O.W.}
GAS MAIN
GRAVEL DRIVE
C1
C2

(8) 12" RCP CULVERTS INV. = 94.7
RETAINING WALL
SMH A
S23°50'27"E 844.04'
35' FRONT SETBACK LINE
36" RCP CULVERT INV. = 92.2
2' WIDE DITCH
20' WIDE x 200' LONG SEWER EASEMENT (S.C.R.D. VOL. 1362, PAGE 466)
EXISTING BUILDING
(8) 12" RCP CULVERTS INV. = 94.8
50' WETLAND BUFFER (TYP.)
SOIL TEST PIT No. 5
IRON PIPE FOUND, UP 8"
IRON PIPE FOUND, UP 6"
N = 248,239.999
E = 1,184,266.992
(SEE NOTE 8)

C / 1P
GERALD NASH & SAMUEL TAMPOSI
c/o TANA PROPERTIES
40 TEMPLE STREET
NASHUA, NH 03060
1227 / 726

C / 1M

PARCEL AREA
166,633 S.F.
3.83 Ac.

N66°09'33"E 327.77'
N41°42'36"W 1012.18'
CITY LINE
TOWN LINE
DOVER
MADBURY

TELEPHONE RISER CONCRETE PAD FOR TRANSFORMER
HEADWALL TOP ELEV. = 96.6
(8) 12" RCP CULVERTS INV. = 95.4
TBM BOLT ON HYDRANT 816 ELEV. = 99.68
10' WIDE WATER MAIN EASEMENTS PER REFERENCE PLAN No. 1.
(8) 12" RCP CULVERTS INV. = 95.3

C / 1N
FORUM COURT CONDOMINIUMS
113 CROSBY ROAD, SUITE 1
DOVER, NH 03820
1329 / 441

LOT CORNER
N = 248,995.612
E = 1,183,593.525
(SEE NOTE 8)

3 / 46
DOUGLAS J. WATSON
BETTY J. WATSON
63 PINE STREET
ROLLINSFORD, NH 03869
4287 / 332

3 / 45
TEMPLE FAMILY REVOCABLE TRUST
ROGER C. & JEAN C. TEMPLE, CAROLYN T. AMAZEEN
303 KNOX MARSH ROAD
MADBURY, NH 03823
4592 / 797

3 / 50
TANA PROPERTIES LIMITED PARTNERSHIP
20 TRAFALGAR SQUARE, SUITE 602
NASHUA, NH 03063
1800 / 240

LEGEND

S.F. - SQUARE FEET
Ac. - ACRE
(TYP.) - TYPICAL
± - MORE OR LESS
W/ - WITH
ø - DIAMETER
S.C.R.D. - STRAFFORD COUNTY REGISTRY OF DEEDS
SMH - SEWER MANHOLE
UP - UTILITY POLE
R.O.W. - RIGHT OF WAY
ELEV - ELEVATION
INV. - INVERT
WETLAND
WF 18 - WETLAND FLAG IDENTIFICATION NUMBER
EDGE OF WETLAND
126 - EXISTING CONTOUR

NOTES:

1.) OWNER OF RECORD:
G / 1 M — DBS HOLDING LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOL. 4658, PAGE 36

2.) G / 1 M - DENOTES TAX MAP AND PARCEL NUMBER.

3.) ZONING DISTRICT IS COMMERCIAL MANUFACTURING (CM) DISTRICT.

4.) DIMENSIONAL REGULATIONS:

MINIMUM LOT SIZE	= 20,000 S.F.
MAXIMUM LOT COVERAGE	= 50 PERCENT
MINIMUM FRONTAGE	= 100 FEET
BUILDING REQUIREMENTS:	
FRONT SETBACK	= 35 FEET
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 10 FEET
MAXIMUM BUILDING HEIGHT	= 50 FEET

5.) THE INTENT OF THIS PLAN IS TO DEPICT AND DESCRIBE THE SUBJECT PARCEL "EXISTING CONDITIONS". INFORMATION SHOWN IS BASED ON SURVEY FIELD DATA TAKEN DURING JULY 2019 BY THIS OFFICE.

6.) PARCEL AREA: 166,633 S.F. / 3.83 Ac.

7.) THE SUBJECT PARCEL IS LOCATED OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0320; SUFFIX E; MAP NUMBER 33017C0320E; EFFECTIVE DATE SEPTEMBER 30, 2015.

8.) BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON JULY 11, 2019.

9.) VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON JULY 11, 2019.

10.) JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY JOSPEPH W. NOEL, N.H.C.W.S. #86. DURING SEPTEMBER 2017, RE-VERIFIED IN AUGUST 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES OF NEW ENGLAND.

11.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND DURING JULY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		
1	8/25/20	REVISE ZONING DISTRICT, ADD PLANNING #	RJM	KMM

19-2228	EXIST. COND.	19-06
PROJECT NO	TYPE	FIELDBOOK & PAGES

ATTENTION:

HIGH PRESSURE GAS MAIN EXISTS WITHIN THE RIGHT OF WAY OF CROSBY ROAD; PRIOR TO ANY EARTH MOVING ACTIVITY CONTACT DIGSAFE AT "811" OR 1-888-344-7233 TO VERIFY LOCATION.

"I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION, BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS."

TOPOGRAPHIC PLAN

EXISTING CONDITIONS PLAN
PREPARED FOR
DBS HOLDING LLC
TAX MAP G, LOT No. 1 M
CROSBY ROAD
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 20-33

DRAWN BY: RJM	FILE: \\MSA\2228\19-2228 NAD83
SCALE: 1" = 40'	DATE: AUGUST 15, 2019

40 20 0 20 40 80 120 160

STATE OF NEW HAMPSHIRE — No. 861 KEVIN M. McENEANEY — LICENSED LAND SURVEYOR — SIGNATURE

McEneaney Survey Associates
OF NEW ENGLAND
P.O. Box 681 - 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742-0911

SURVEYING - PLANNING - CONSULTING

GENERAL NOTES

1. OWNERS OF RECORD:
   G/1–M — DBS HOLDING LLC, 71 DANIELLE LANE, DOVER, NEW HAMPSHIRE 03820, S.C.R.D. VOL. 4658, PAGE 36
2. G/1–M - DENOTES TAX MAP AND PARCEL NUMBER.
3. ZONING DISTRICT: COMMERCIAL MANUFACTURING (CM).

	EXIST
MINIMUM LOT SIZE	= 20,000 S.F.
MAXIMUM COVERAGE	= 50%
MINIMUM FRONTAGE	= 100 FEET
FRONT SETBACK	= 35 FEET
ABUT A STREET SETBACK	= 35 FEET
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 10 FEET
MAXIMUM BUILDING HEIGHT	= 50 FEET

4. THE SUBJECT PARCEL IS LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0320; SUFFIX E; MAP NUMBER 33017C0320E; EFFECTIVE DATE SEPTEMBER 30, 2015.
5. BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON JULY 11, 2019.
6. VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON JULY 11, 2019
7. JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BYJOSPEPH W. NOEL, N.H.C.W.S. #86. DURING SEPTEMBER 2017 AND RE-VERIFIED IN AUGUST 2019 AND FIELD LOCATED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND.
8. PARCEL IS SUBJECT TO AND BENEFIT FROM EASEMENTS OF RECORD.
9. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

DEMOLITION NOTES:

1. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
2. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY DEMOLITION/ CONSTRUCTION ACTIVITIES. (811).
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, UTILITIES AND PAVEMENT ON THE SITE TO THE LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT AND POLES.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NOT ALREADY OBTAINED BY THE OWNER AND ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
8. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
9. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES, AND CODES.
10. EXISTING ("OLD") WATER SERVICES TO THE SUBJECT SITE SHALL BE DISCONNECTED AND SHUT-OFF AT THE WATER MAIN.
11. EXISTING SEWER SERVICES TO BE CUT AND PERMANENTLY CAPPED AT PROPERTY LINE.
12. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.

SITE NOTES:

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A PLAN REFERENCED AND PREPARED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND. (SEE EXISTING CONDITIONS PLAN IN THIS PLAN SET)
2. THE INTENT OF THIS PLAN IS TO SHOW THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF COMMERCIAL BUILDINGS, SITE ACCESS DRIVE, PARKING AREAS, UTILITY INSTALLATION, AND DRAINAGE IMPROVEMENTS.
3. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
4. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
5. ALL ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
7. STRIPE PARKING AREAS AS SHOWN INCLUDING HANDICAP SYMBOLS AND PAINTED ISLANDS. ALL MARKINGS SHALL BE CONSTRUCTED USING WHITE TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M-248-TYPE N.
8. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS, AND THE AMERICAN WITH DISABILITIES ACT, LATEST EDITIONS.
9. PAINTED ISLANDS SHALL BE 4 INCHES WIDE DIAGONAL LINES 3 FEET ON CENTER.
10. ON-SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
11. ALL LAYOUT SHALL BE PERFORMED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
12. SEE DETAILS FOR SIGN LEGENDS.
13. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS. SUCH MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.
14. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTORS' RESPONSIBILITY TO PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO DUST CONTROL AND SILT BARRIERS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES OR UTILITIES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION PHASE CAUSED BY HIMSELF, HIS EMPLOYEES, HIS SUBCONTRACTORS OR EMPLOYEES OF SAME. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY FACILITIES FOR THE PROTECTION OF THE WORK, WORKERS AND PUBLIC SAFETY.
16. BUILDING ADDRESSES TO BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
17. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
18. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.
19. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
20. THE SUBJECT PARCEL(S) IS (ARE) SERVED BY MUNICIPAL WATER AND SEWER.
21. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBANCE ACTIVITY OCCURS.
22. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
23. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
24. THE PURPOSE OF THE SITE STRUCTURES IS TO PROVIDE COMBINED COMMERCIAL/ OFFICE/WAREHOUSE SPACE.
25. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY AND SUNDAY WORK HOURS 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.
26. 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.
27. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
27 THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: N/A
28. LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS.
    CONDITIONAL USE PERMIT: PENDING
29. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
30. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
31. APPLICANT SHALL COMPLETE LAND USE TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. COMPLETED 6/1/2020.
32. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLW DEVICE.
33. 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.
34. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH THE APPILCABLE ACCESSIBILITY REGULATIONS. IHE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH THE APPLICABLE ACCESSIBILITY REGULATIONS (I.E. IBC, ANSI 117.1) AND NH RSA 155-A:5.

GRADING NOTES:

1. ALL ROAD (INCLUDING PARKING LOT AND DRAINAGE) WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR CONSTRUCTION OF THE CITY OF DOVER, N.H. AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION", LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING PER THE ABOVE REFERENCED "STANDARD SPECIFICATIONS".
3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.
4. ALL DRAINAGE PIPES SHALL BE HDPE OR APPROVED EQUAL UNLESS OTHERWISE NOTED.
5. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 6" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS.
6. ALL SITEWORK CONSTRUCTION SHALL BE ADVANCED USING "BEST MANAGEMENT PRACTICES" SANCTIONED BY THE USDA SCS AND NHDES.
7. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED, UTILIZED AND MAINTAINED UNTIL BASE MATERIALS ARE CONSTRUCTED.
8. CONTRACTOR SHALL PROVIDE A FINISH GRADED SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND UNDER RAISED STRUCTURES.
9. DENSITY REQUIREMENTS:

LOCATION	MINIMUM DENSITY
BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREA	90%

   * ALL PERCENTAGES SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH AASHTO STANDARD 180, METHOD C. FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH AASHTO STANDARD T-191, T-204, OR T-238 AND T-239.

10. SEE GENERAL EROSION CONTROL NOTES ON DETAIL SHEET.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND AS SHOWN ON PLAN. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED AND UPSTREAM AREAS HAVE BEEN STABILIZED.
12. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
13. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED FOR THIS PROJECT. THE SWPPP MUST INCLUDE THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE SITE. PARTIES RESPONSIBLE FOR DEVELOPING THE SWPPP SHOULD REFER TO THE EPA NPDES CONSTRUCTION GENERAL PERMITS NOTICE OF INTENT FOR A COMPLETE OUTLINE OR REQUIRED ELEMENTS. THESE PLANS AND THE STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN PREPARED FOR THIS PROJECT MAY BE UTILIZED IN FULFILLING THE REQUIREMENTS.
14. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
15. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE AND APPROVED CONSTRUCTION SIGN SHALL BE IN PLACE PRIOR TO ANY EARTH DISTURBING ACTIVITY.

UTILITY NOTES:

1. THE PROJECT SITE IS SERVED BY CITY WATER AND SEWER.
2. THE BEST AVAILABLE INFORMATION WAS USED TO DETERMINE THE LOCATION AND SIZE OF EXISTING UTILITIES. THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. THE EXACT SIZE AND LOCATION OF UTILITIES SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING WORK. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATIONS WITH THE RESPECTIVE UTILITY OWNERS PRIOR TO WORK BEING PERFORMED. CALL DIGSAFE AT 1-888-388-7233 OR "811".
4. ALL PROPOSED UTILITY SERVICES SHALL BE UNDERGROUND WITHIN THE SITE.
5. UNDERGROUND ELECTRIC, TELEPHONE, AND CABLE TV CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH/PER EVERSOURCE, VERIZON, COMCAST, AND UNITIL STANDARDS.
6. PROPOSED INSTALLATION OF UNDERGROUND CONDUITS FOR TELEPHONE, ELECTRIC AND GAS SERVICE SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTS ARE AS FOLLOWS:
   ELECTRIC: EVERSOURCE 1.800.362.7764
   CABLE: COMCAST 603.334.3615
   GAS: UNITIL 866.933.3821
7. SEE ELECTRICAL DRAWINGS AND DETAILS FOR OUTDOOR LIGHTING CONDUIT LOCATIONS.
8. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. SEWAGE LOADING (PER ENV. - Wq 1008.03 TABLE 1008-1)

OFFICE:	900 S.F. x 5 GPD/100 S.F.	= 45 GPD
WAREHOUSE:		
(DRY GOODS)	24 EMPLOYEES @ 10 GAL	= 240 GPD
TOTAL SEWAGE FLOW		= 285 GPD

11. THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109-30 OF THE CODE OF THE CITY OF DOVER AND THE 2009 STATE BUILDING CODE.
12. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED.
13. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
14. ALL ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
15. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
16. APPROVED BACKFLOW PREVENTORS SHALL BE INSTALLED ON BOTH FIRE AND DOMESTIC WATER LINES.
17. ALL UNUSED WATER SERVICES SHALL BE REMOVED BACK TO THE CORPORATION AT THE MAIN.

LEGEND

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

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20–33

NO.	REVISION	APP'D	DATE
1	REV. PER TRC COMMENTS	SJH	8/26/20

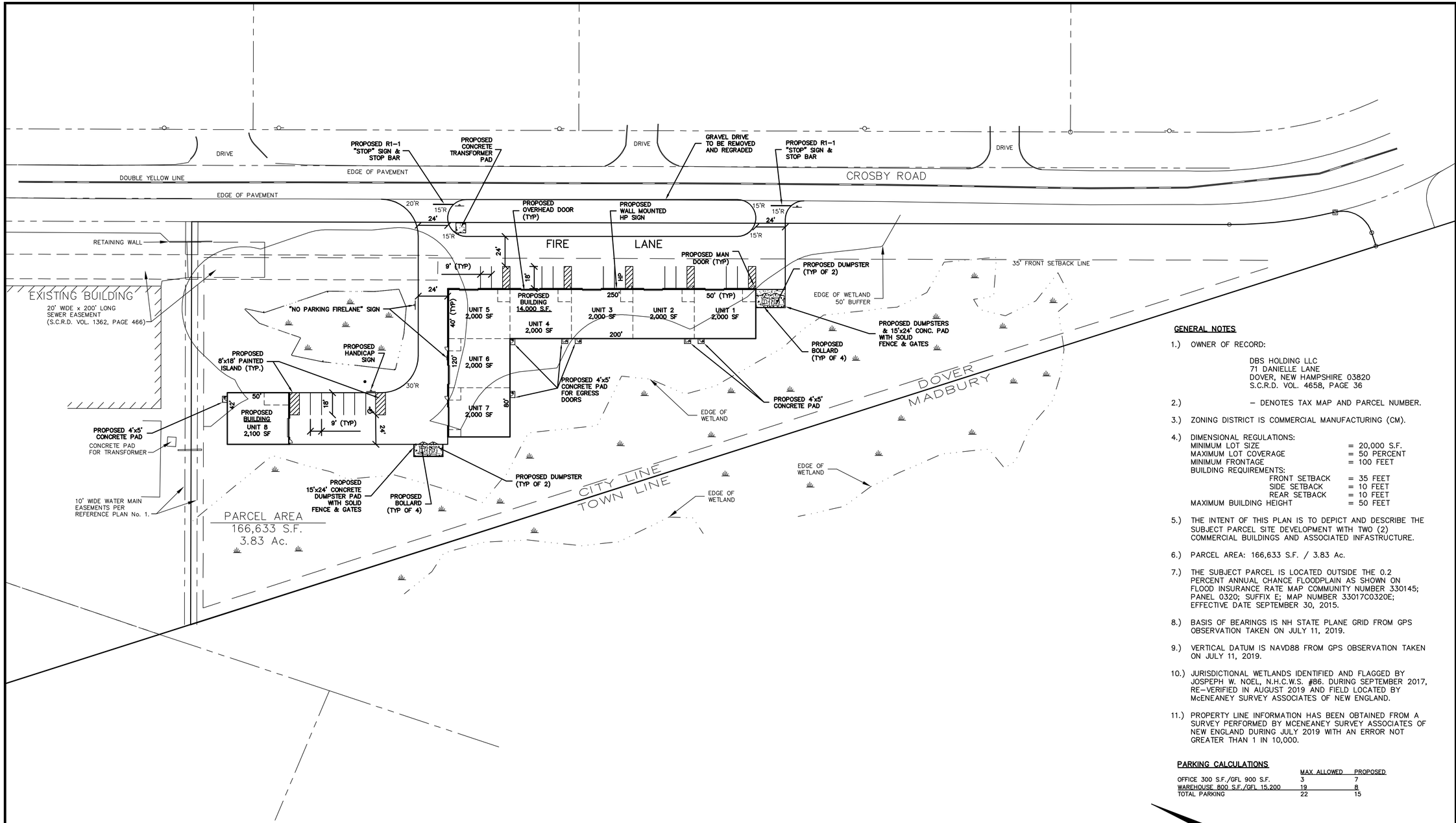
DATE: 4–27–20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DJL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NOTE SHEET

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820



GENERAL NOTES

1.) OWNER OF RECORD:

DBS HOLDING LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOL. 4658, PAGE 36

2.) – DENOTES TAX MAP AND PARCEL NUMBER.

3.) ZONING DISTRICT IS COMMERCIAL MANUFACTURING (CM).

4.) DIMENSIONAL REGULATIONS:

MINIMUM LOT SIZE	= 20,000 S.F.
MAXIMUM LOT COVERAGE	= 50 PERCENT
MINIMUM FRONTAGE	= 100 FEET
BUILDING REQUIREMENTS:	
FRONT SETBACK	= 35 FEET
SIDE SETBACK	= 10 FEET
REAR SETBACK	= 10 FEET
MAXIMUM BUILDING HEIGHT	= 50 FEET

5.) THE INTENT OF THIS PLAN IS TO DEPICT AND DESCRIBE THE SUBJECT PARCEL SITE DEVELOPMENT WITH TWO (2) COMMERCIAL BUILDINGS AND ASSOCIATED INFASTRUCTURE.

6.) PARCEL AREA: 166,633 S.F. / 3.83 Ac.

7.) THE SUBJECT PARCEL IS LOCATED OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0320; SUFFIX E; MAP NUMBER 33017C0320E; EFFECTIVE DATE SEPTEMBER 30, 2015.

8.) BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON JULY 11, 2019.

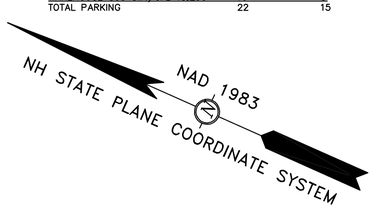
9.) VERTICAL DATUM IS NAVD88 FROM GPS OBSERVATION TAKEN ON JULY 11, 2019.

10.) JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY JOSPEPH W. NOEL, N.H.C.W.S. #86. DURING SEPTEMBER 2017, RE–VERIFIED IN AUGUST 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES OF NEW ENGLAND.

11.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND DURING JULY 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

PARKING CALCULATIONS

	MAX ALLOWED	PROPOSED
OFFICE 300 S.F./GFL 900 S.F.	3	7
WAREHOUSE 800 S.F./GFL 15,200	19	8
TOTAL PARKING	22	15



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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PLANNING FILE NO.: P20-33

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CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
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DATE: 4-27-20
SCALE: 1"=40'
DRAWN BY: CAD
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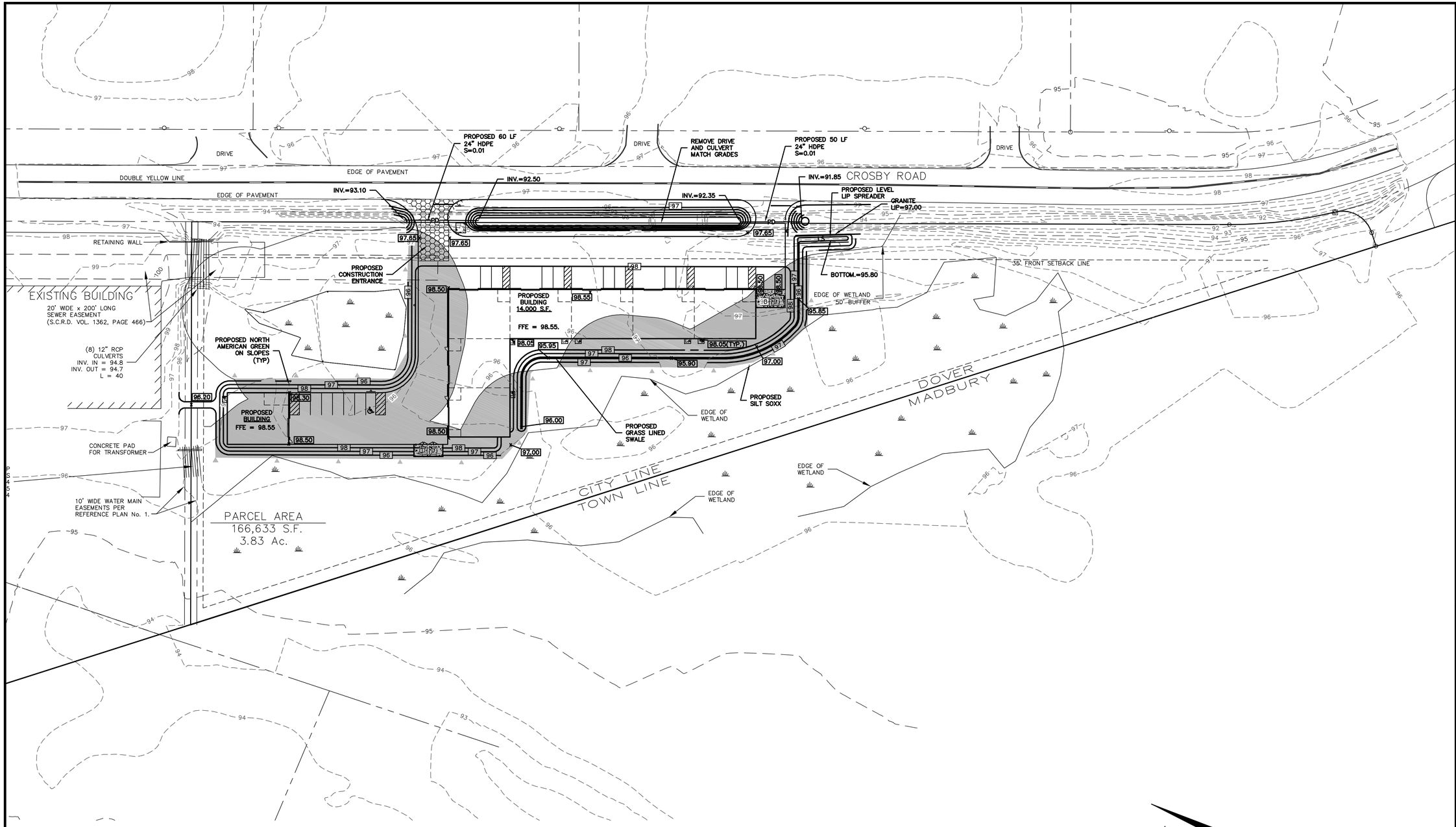
DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

SITE PLAN

5



ATTENTION:

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

GENERAL NOTES

1. SEE NOTE SHEET #4 FOR ADDITIONAL GRADING, DRAINAGE NOTES.
2. WETLAND BUFFER IMPACT
3. SQUARE FEET OF IMPACT = 28,910 S.F.
4. INSTALL CITY OF DOVER, WETLAND BUFFER PLACARDS ,(▲ SYMBOL) EVERY 50' ALONG THE LIMIT OF WETLAND BUFFER IMPACT/WETLAND BUFFER AS SHOWN.

NAD 1983
NH STATE PLANE COORDINATE SYSTEM

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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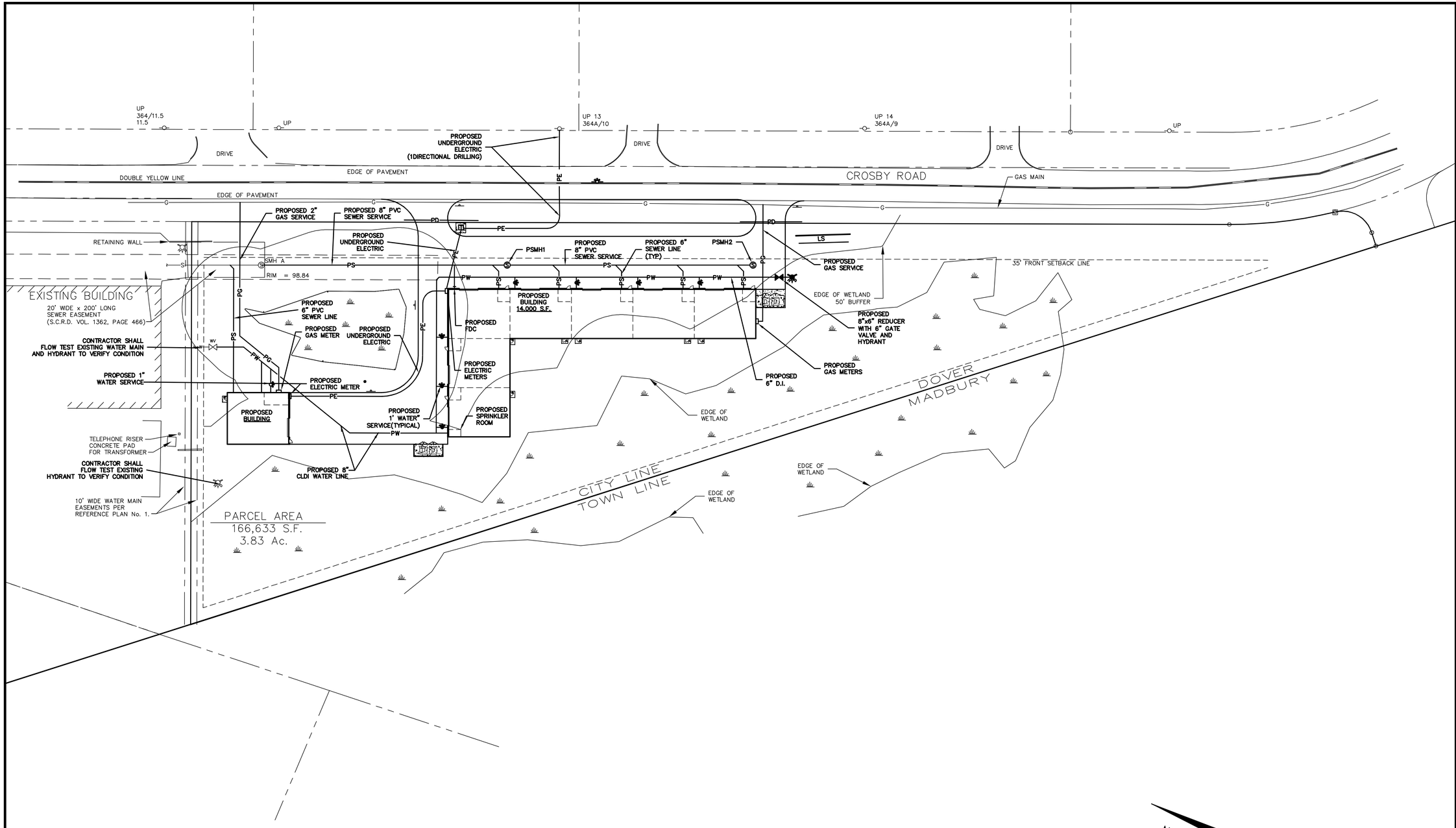
GRADING & EROSION CONTROL PLAN

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

6



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UTILITY PLAN

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

7

DESCRIPTION

THE INTENT OF THIS PLAN IS TO SHOW THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF COMMERCIAL BUILDING, SITE ACCESS DRIVE, PARKING AREAS, UTILITY INSTALLATION, AND DRAINAGE IMPROVEMENTS.

PROJECT NAME AND LOCATION

SULLIVAN COMMERCIAL BUILDINGS — LATITUDE N43°07'18"
CROSBY ROAD — LONGITUDE W70°49'58"
DOVER, NH 03820

DISTURBED AREA

±53,484 square feet

SEQUENCE OF MAJOR ACTIVITIES

1. CONTRACTOR SHALL PREPARE THE SWPPP, FILE FOR AND OBTAIN THE NOI A MINIMUM OF 2 WEEKS PRIOR TO COMMENCEMENT OF SITE WORK.
2. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
3. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
4. SELECTIVE DEMOLITION.
5. REGRADE SITE TO SUBGRADE.
6. SWALES AND PONDS (AS APPLICABLE) SHALL BE CONSTRUCTED EARLY ON IN THE CONSTRUCTION SEQUENCE AND BEFORE ROUGH GRADING OF THE SITE AND ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. INSTALL DRAINAGE STRUCTURES AND CONTROLS, PROVIDE BYPASS FOR DITCH.
8. INSTALL UNDERGROUND UTILITIES AND FOUNDATIONS FOR STRUCTURES.
9. PLACE GRAVELS AND FINE GRADE.
10. STABILIZE, ROADWAYS & PARKING LOTS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
11. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
12. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
13. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 3.5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
14. WHEN ALL SITE WORK IS COMPLETE AND ALL DISTURBED AREAS ARE STABILIZED REMOVE TEMPORARY EROSION CONTROL MEASURES AND FILE THE EPA – N.O.T.

DEFINITIONS

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED.

1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
3. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES OF EROSION AND SEDIMENT CONTROLS

A. *GENERAL*

1. *Silt Fence*

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

Physical Property	Test	Requirements
Filtering Efficiency	VTM–51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM–52	Extra Strength 50 lb/lin in (min)
Standard Strength 30 lb/lin in (min)		
Flow Rate	VTM–51	0.3 gal/sf/min (min)

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

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

b. The height of a silt fence shall not exceed thirty–six (36) inches.
c. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at support post, with a minimum six (6) inch overlap, and securely sealed.
d. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet.
e. Posts for silt fences shall be 2–inch diameter wood with a minimum length of 5 feet.
f. Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.
g. A trench shall be excavated approximately four (4) inches wide and four (4) inches deep along the line of posts and upslope from the barrier.
h. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.
i. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
j. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (i) applying.
k. The trench shall be backfilled and the soil compacted over the filter fabric.
l. Silt fences shall be removed when they have served their useful purpose, but not before the upslope areas has been permanently stabilized.

2. *Sequence of Installation*

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

3. *Maintenance*

a. Check dams, silt soxx and silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
c. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one third (1/3) the height of the barrier.
d. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

B. MULCHING

1. *Timing*

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

a. Apply mulch prior to any storm event. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
b. Required Mulching within a specified time period. The time period can range from 14 to 21 days of inactivity on a area, the length of time varying with site conditions. Professional judgement shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

2. *Application Rate*

Mulch shall be applied at a rate of between 1.5 to 2 tons per acre, or 90 to 100 pounds per 1000 square feet.

3. *Guidelines for Winter Mulch Application. When mulch is applied to provide protection over winter (past the growing season) it shall be at a rate of 6,000 pounds of hay or straw per acre. A tackifier may be added to the mulch.*

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

5. *Excelsior Matting Excelsior Matting shall be used in place of mulch on all slopes steeper than 3:1.*

C. *TEMPORARY GRASS COVER*

1. *Seedbed Preparation*

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

2. *Seeding*

a. Utilize annual rye grass at a rate of 40 lbs/acre.
b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. *Maintenance*

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

D. *PERMANENT SEEDING*

1. *Bedding – stones larger than 1 ½ ", trash, roots, and other debris interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 4" to prepare a seedbed and mix fertilizer into the soil.*

2. *Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied: Agricultural Limestone @ 100 lbs. per 1,000 s.f. 10–20–20 fertilizer @ 12 lbs. per 1,000 s.f.*

3. *Seed Mixture (recommended)*

Rate:

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

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

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

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

E. *STORM DRAIN INLET PROTECTION*

1. *Straw/Hay Bale Inlet Structure*

a. Bales shall be either wire bound or string tied with the bindings oriented around the sides rather than over and under the bales.
b. Bales shall be placed lengthwise in a single row surrounding the inlet, with the ends of adjacent bales pressed together.
c. The filter barrier shall be entrenched and backfilled. A trench shall be excavated around the inlet the width of bale to a minimum depth of four (4) inches. After the bales are staked, the excavated soil shall be backfilled and compacted against the filter barrier.
d. Each bale shall be securely anchored and held in place by at least two (2) stakes or rebars driven through the bale.
e. Loose straw/hay shall be wedged between bales to prevent water from entering between bales.
f. All structures should be inspected after every rainstorm and repairs made as necessary.
g. Sediment should be removed from the devices after the sediment has reached a maximum of one–third the depth of the trap.
h. Haybales should be removed and the area repaired as soon as the contributing drainage area to the inlet has been completely stabilized.

TIMING OF CONTROLS/MEASURES

As indicated in the sequence of Major Activities the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Areas where construction activity temporarily ceases for more than twenty one (21) days will be stabilized with a temporary seed and mulch within fourteen (14) days of the last disturbance. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established. All areas shall be stabilized within 72 hours of achieving finish grade.

WASTE DISPOSAL

A. *WASTE MATERIALS*

All waste materials will be collected and stored in securely lidded receptacles. All trash and construction debris from the site will be deposited in a dumpster. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal by the superintendent.

B. *HAZARDOUS WASTE*

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices by the superintendent.

C. *SANITARY WASTE*

All sanitary waste will be collected from the portable units a minimum of once per week by a licensed sanitary waste management contractor.

SPILL PREVENTION

A. *MATERIAL MANAGEMENT PRACTICES*

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances during construction to stormwater runoff:

Good Housekeeping:

The following good housekeeping practices will be followed on site during the construction project:

- *An effort will be made to store only sufficient amounts of products to do the job.*
- *All materials stored on site will be stored in a neat, orderly manner in their proper (original if possible) containers and, if possible, under a roof or other enclosure.*
- *Manufacturer's recommendations for proper use and disposal will be followed.*
- *The site superintendent will inspect daily to ensure proper use and disposal of materials.*
- *Substances will not be mixed with one another unless recommended by the manufacturer.*
- *Whenever possible all of a product will be used up before disposing of the container.*

Hazardous Products:

The following practices will be used to reduce the risks associated with hazardous materials:

- *Products will be kept in their original containers unless they are not resealable.*
- *Original labels and material safety data will be retained for important product information.*
- *Surplus product that must be disposed of will be discarded according to the manufacturer's recommended methods of disposal.*

B. *PRODUCT SPECIFICATION PRACTICES*

The following product specific practices will be followed on site:

Petroleum Products:

All on site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt based substances used on site will be applied according to the manufacturer's recommendations.

Fertilizers:

Fertilizers used will be applied only in the minimum amounts directed by the specifications. Once applied fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed or enclosed trailers. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid

Paints:

spills.
All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be disposed of properly according to manufacturer's instructions or state and local regulations.

Concrete Trucks:

Concrete trucks will discharge and wash out surplus concrete or drum wash water in a contained area on site.

C. *SPILL CONTROL PRACTICES*

In addition to good housekeeping and material management practices discussed in the previous section the following practices will be followed for spill prevention and cleanup:

- *Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.*
- *Materials and equipment necessary for spill cleanup will be kept in the material storage area on site. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic or metal trash containers specifically for this purpose.*
- *All spills will be cleaned up immediately after discovery.*
- *The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.*
- *Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.*
- *The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause, and the cleanup measures will be included.*
- *The site superintendent responsible for day–to–day site operations will be the spill prevention and cleanup coordinator.*

The project proponent is required to manage construction to meet the requirements and intent of RSA 430:53 and AGR 3800 relative to controlling invasive species and controlling fugitive dust in accordance with ENV–A 1002.
AGR 3800 Prohibited Invasive Plant Species Rules

The rule, Agr 3800, states : "No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1, New Hampshire prohibited invasive species list". A complete copy of the rules can be accessed on the internet at http://agriculture.nh.gov/topics/plants_insects.htm.

Env–A 1002 FUGITIVE DUST: Precautions to Prevent, Abate, and Control Fugitive Dust.
(a) Any person engaged in any activity within the state that emits fugitive dust, other than those listed in Env–A 1002.02(b), shall take precautions throughout the duration of the activity in order to prevent, abate, and control the emission of fugitive dust.

(b) Precautions required by (a), above, shall include but not be limited to the following:

(1) The use of water or hydrophilic material on operations or surfaces, or both;

(2) The application of asphalt, water or hydrophilic material, or tarps or other such covers to material stockpiles;

(3) The use of hoods, fans, fabric filters, or other devices to enclose and vent areas where materials prone to producing fugitive dust are handled;

(4) The use of containment methods for sandblasting or similar operations; and

(5) The use of vacuums or other suction devices to collect airborne particulate matter.

PER 153–10 F:
All site improvements which require blasting of land shall meet the following requirements prior to any blasting occurring.

1. The Applicant shall prepare a pre–blast survey of all structures within five (500) feet of the external boundaries of the proposed lot to be developed. This survey, along with a monitoring plan, shall be on file with the Dover Fire and Rescue. Upon recommendations of the Chief , the planning Board may require a pre–blast survey of all structures within one thousand (1000) feet.
2. The Applicant shall hold a neighborhood meeting to review the blasting plan and pre–blast survey, with representatives of the Fire and Rescue and the blasting company in attendance, prior to any on–site blasting. Abutters within on thousand (1000) feet of the external boundary of the project parcel shall be notified by certified mail (paid for by the applicant) of the meeting no less than ten (10) days prior to the meeting.
3. Permit holders shall be in compliance with NFPA 495, The Code for the Manufacture, Transportation, Storage and Use of Explosive Material, in addition to all other ordinances and codes set forth in the City of Dover Fire Prevention Code, which specifically prohibits the overnight storage of explosive or blasting agents. Further all storage magazines shall be locked in the open position at the end of the days' operation, for easy inspection by City Officials.
4. blasting permits may be obtained by calling the Dover Fire and Rescue during normal business hours. The permits are only active for the dates and time specified on the permit.
5. Permit holders shall hold insurance against claims for damages for personal injury and property which may arise from performance of the work.
6. Hours of operation for the blasting shall be no earlier than 8:00 am and no later than 6:00 pm Monday through Friday, excluding federal holidays.

MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

The project proponent is responsible for the maintenance of all stormwater facilities during construction and the property owner is responsible after construction is complete.

CATCH BASINS & STORMWATER TREATMENT STRUCTURES

1. Catch basins & Stormwater treatment structures should be inspected on a monthly basis and/or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system.

WINTER CONSTRUCTION NOTES

1. All proposed post–development vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The placement of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt.
2. All slopes which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th shall be stabilized with stone or erosion control blankets.
3. After October 15th, incomplete road surfaces shall be protected with a minimum of 3–inches of crushed gravel per NHDOT item 403.3, or if construction is to continue through the winter season be cleared of any accumulated snow after each storm event.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20–33

NO.	REVISION	APP'D	DATE
1	REV. PER TRC COMMENTS	SJH	8/26/20

DATE: 4–27–20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

EROSION CONTROL NOTES

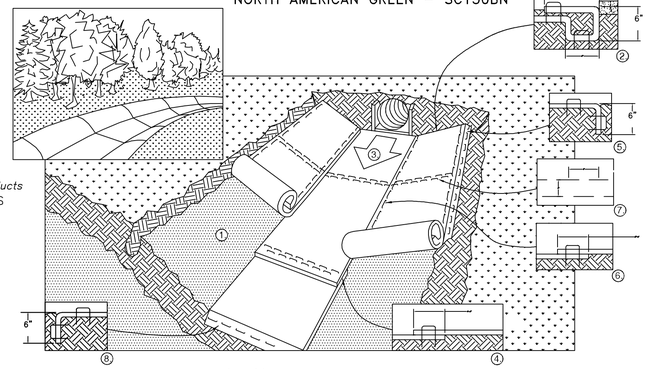
SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

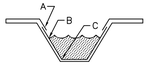
8

CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" – 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



CRITICAL POINTS

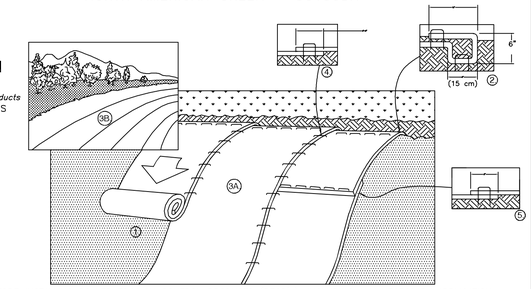
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

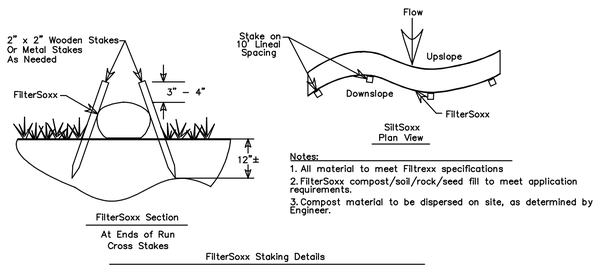
SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



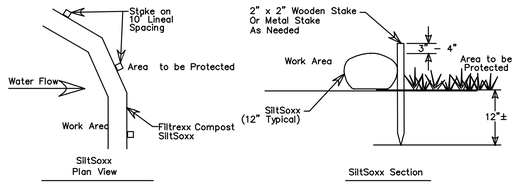
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

NOTE: THE USE OF WELDED PLASTIC OR BIODEGRADABLE PLASTIC NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED. THE USE OF WILDLIFE FRIENDLY ORGANIC MATERIALS IS RECOMMENDED.



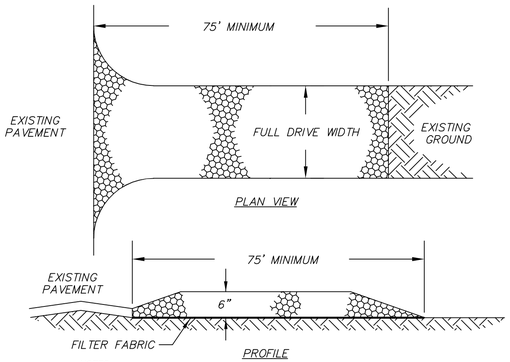
Notes:
1. All material to meet Filtrexx specifications
2. FilterSoxx compost/soil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.

FilterSoxx Staking Details



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

SiltSoxx Details
NOT TO SCALE



NOTES:

1. *SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.*
2. *TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.*

STABILIZED CONSTRUCTION ENTRANCE

1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE THREE (3) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN SEVENTY-FIVE (75) FEET. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED.
   E. GEOTEXTILE: TO BE PLACED OVER THE ENTIRE AREA TO BE COVERED WITH AGGREGATE.
   F. CRITERIA FOR GEOTEXTILE: THE FABRICS SHALL BE TREVIA SPUNBOND 1135, MIRAFI 600X OR EQUAL.
2. MAINTENANCE
   THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:

Blanding's turtle (state endangered)
- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land

Wood turtle (special concern)
- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land

Eastern box turtle (state endangered)
- Small terrestrial turtle with highly domed shell
- Irregular yellow or orange markings over brown/black base

Spotted turtle (state threatened)
- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 *Please report promptly, noting specific location and date – Photographs strongly encouraged*

ALL OUTSIDE CONSTRUCTION PERSONNEL SHALL RECEIVE TRAINING IN THE IDENTIFICATION OF RARE TURTLE SPECIES AND MADE AWARE OF THEIR PROTECTED STATUS.

THE USE OF WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED

THE USE OF EROSION CONTROL BERM, WHITE FILTREXX DEGRADABLE WOVEN SILT SOCK, OR 'WILDLIFE FRIENDLY' WOVEN ORGANIC MATERIAL (E.G. COCO OR JUTE MATTING SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT) ARE ACCEPTABLE FOR USE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

NO.	REVISION	APP'D	DATE
1	REV. PER TRC COMMENTS	SJH	8/26/20

DATE: 4-27-20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY: SJH
PROJECT NO: 19034
FILE: SITE.DWG

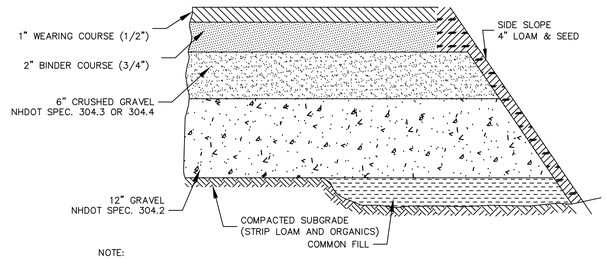
CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

DETAIL SHEET

9



NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER BASED UPON SITE CONDITIONS.

TYPICAL PAVEMENT SECTION

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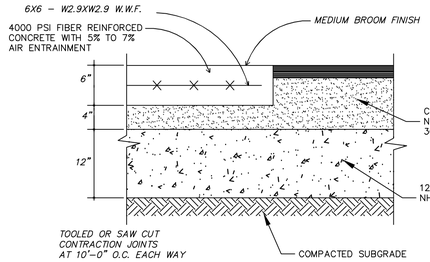
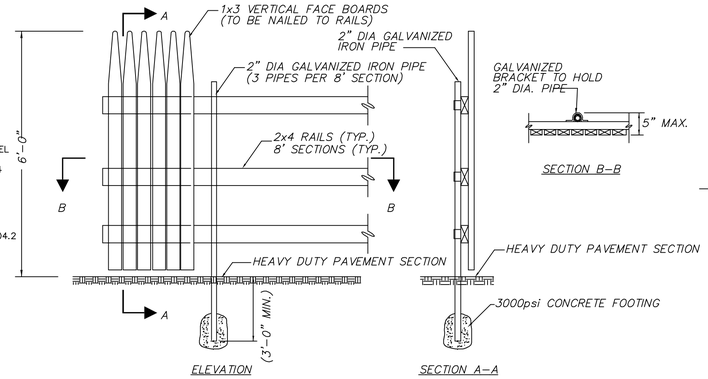


NOTE: PITCH CONCRETE PAD GRADING TO CENTER

DUMPSTER DETAIL

NOT TO SCALE



SOLID FENCE DETAIL & DUMPSTER ENCLOSURE

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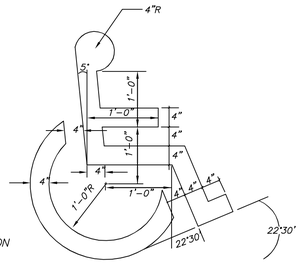

NOTE: SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES

PAINTED HANDICAP SYMBOL

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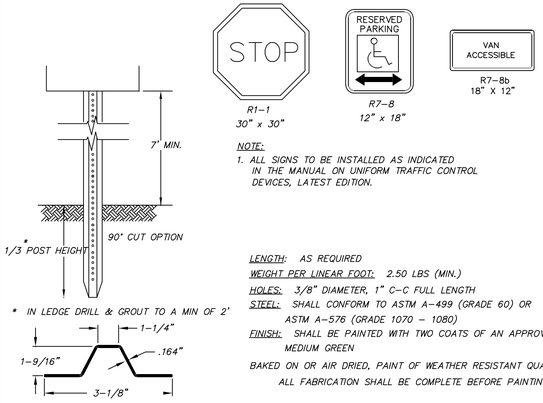
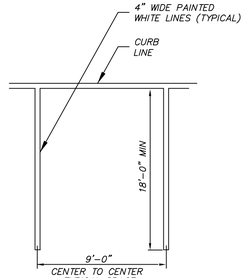


NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN
BAKED ON OR AIR DRIED. PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

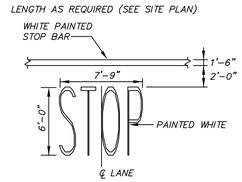
SIGN LEGEND & SIGN POST

NOT TO SCALE



STANDARD PARKING STALL

NOT TO SCALE

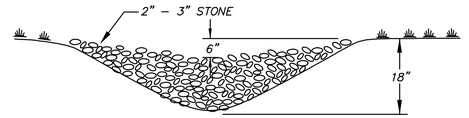


NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS. APPLY TWO COATS.

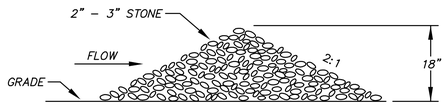
STOP BAR & LEGEND

PAVEMENT MARKINGS

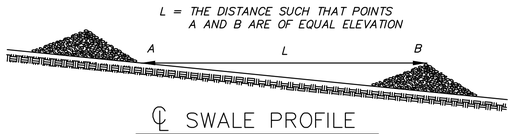
NOT TO SCALE



SWALE SECTION



SWALE PROFILE



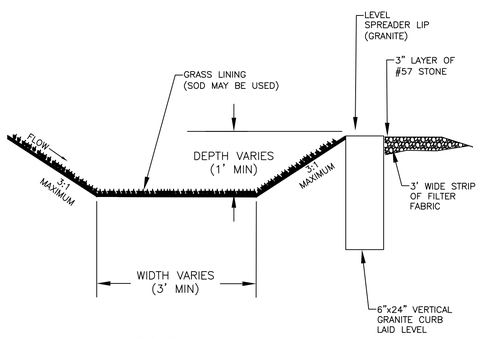
℄ SWALE PROFILE

CONSTRUCTION SPECIFICATIONS
1. STRUCTURE SHALL BE INSTALLED ACCORDING TO THE DIMENSION SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. SEEDING, FERTILIZING AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATE VEGETATIVE BMP.
4. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

MAINTENANCE
1. TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREA PREPARED, SEEDED AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

CHECK DAM DETAIL

NOT TO SCALE



SECTION

LEVEL SPREADER

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CONSTRUCTION SPECIFICATIONS:
1. LEVEL SPREADERS SHALL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE ENGINEER.
2. CONSTRUCT LEVEL GRANITE LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF SEDIMENT-FREE RUNOFF (CONVERTING CHANNEL FLOW TO SHEET FLOW).
3. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT ON FILL).
4. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSIOR PROTECTIVE MATERIAL. ALONG THE LIP, EACH STRIP SHALL OVERLAP THE EROSION STOP BY AT LEAST SIX INCHES.
5. THE ENTRANCE CHANNEL SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING SPREADER.
6. STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREAS. WATER SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
7. THE LEVEL SPREADER SHALL BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND TO DETERMINE THAT THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHALL BE REMOVED. IF RILLING HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHALL BE REPAIRED AND RE-VEGATATED.
8. THE VEGETATION SHALL BE MOWED OCCASIONALLY TO CONTROL WEEDS AND THE ENCROACHMENT OF WOODY VEGETATION. CLIPPING SHALL BE REMOVED AND DISPOSED OF OUTSIDE THE SPREADER AND AWAY FROM THE OUTLET AREA.
9. FERTILIZATION SHALL BE DONE AS NECESSARY TO KEEP THE VEGETATION HEALTHY AND DENSE.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	REV. DUMPSTER FENCE	SJH	8/26/20

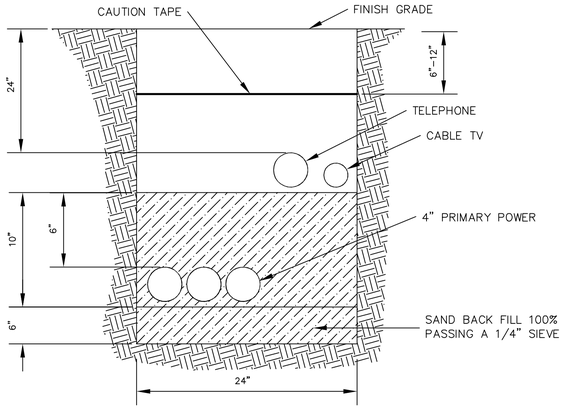
DATE: 4-27-20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

DETAIL SHEET

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

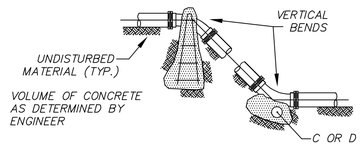
10

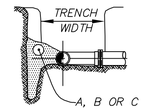


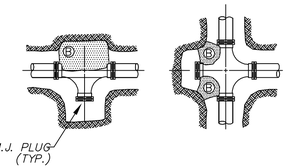
1. TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.
2. LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.
3. FOR COMPLETE SPECIFICATIONS SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".
4. CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

UTILITY TRENCH

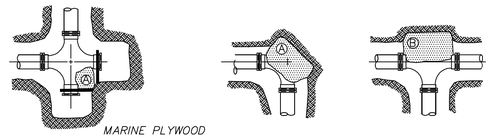
NOT TO SCALE



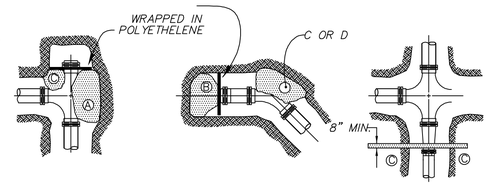




TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE		PIPE SIZE			
			4"	6"	8"	10"	12"
	A	90°	0.89	2.19	3.82	11.14	17.24
	B	180°	0.65	1.55	2.78	8.38	12.00
	C	45°	0.48	1.19	2.12	6.02	9.32
	D	22-1/2°	0.25	0.60	1.06	3.08	4.74
	E	11-1/4°	0.13	0.30	0.54	1.54	2.38

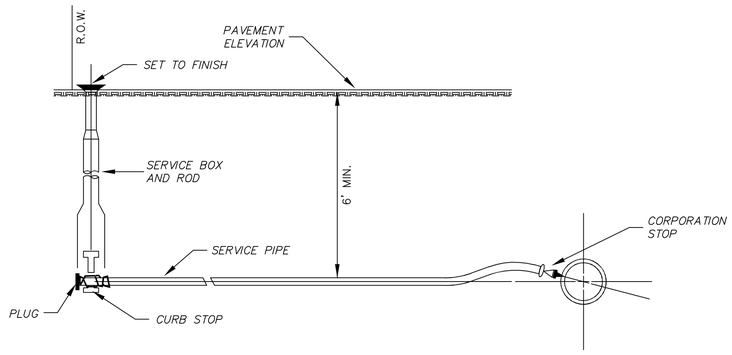


NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.



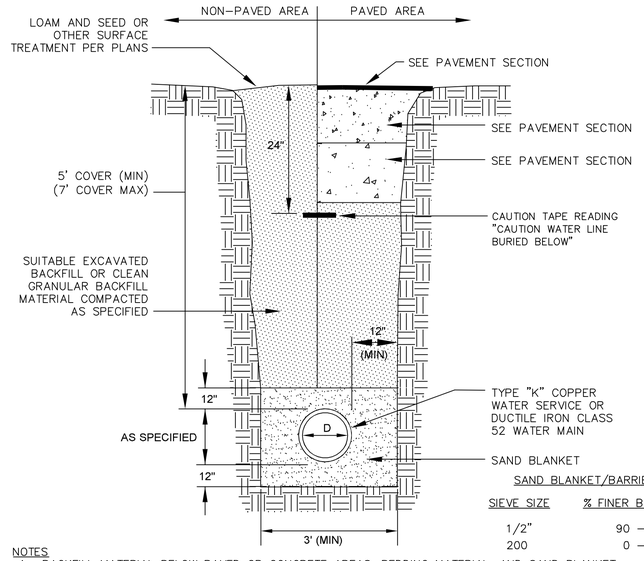
THRUST BLOCK DETAIL

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



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

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

WATER MAIN TRENCH

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	REV. PER TRC COMMENTS	SJH	8/26/20

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DETAIL SHEET

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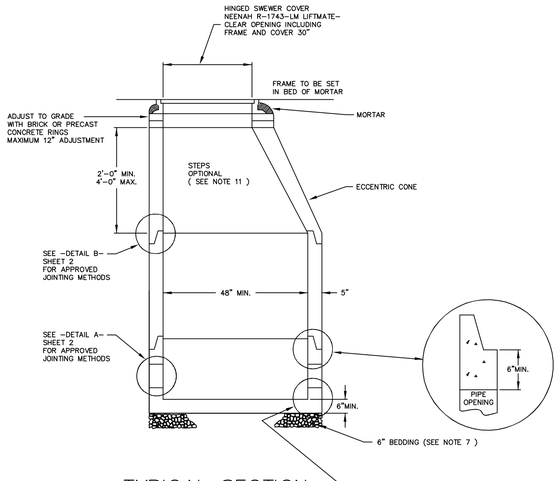
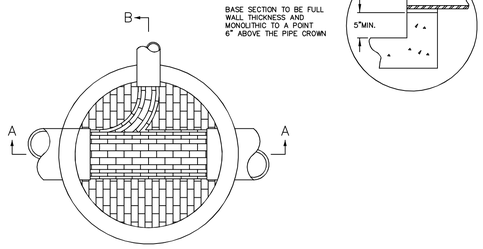
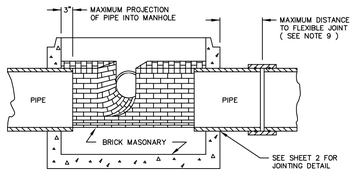


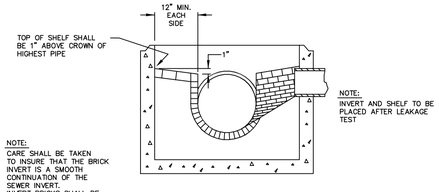
TYPICAL SECTION



PLAN



SECTION A–A



SECTION B–B

NOTES:

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

2.) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.

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

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

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

6.) FRAMES AND COVERS. MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30–INCH CLEAR OPENING A 3–INCH (MINIMUM HEIGHT) LETTER "S" FOR SEWER OR "D" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.

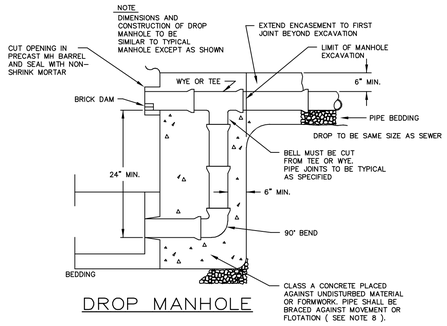
7.) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33
100% PASSING 1 INCH SCREEN 0–10% PASSING # 4 SIEVE
90–100% PASSING 3/4 INCH SCREEN 0– 5% PASSING # 8 SIEVE
20–55% PASSING 3/8 INCH SCREEN
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1 1/2 INCH TO 1/2 INCH SHALL BE USED.

8.) CONCRETE: FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

9.) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:
RCP & CI PIPE – ALL SIZES – 48"
AC & VC PIPE – UP THROUGH 12" DIA –18"
AC & VC PIPE – LARGER THAN 12" DIA – 36"
DI PIPE – NONE REQUIRED
PVC (ASTM 3034) – UP THROUGH 15" DIA. – NONE REQUIRED
PVC (ASTM F 679) – LARGER THAN 15" DIA. – 48" – 60"
PVC (ASTM F 789) – ALL SIZES – 48" – 60"
ABS (ASTM D 2680) – ALL SIZES – SAME AS VC ABOVE

– UNDER SEVERE CONDITIONS WHEN DIFFERENTIAL SETTING CANNOT BE CONTROLLED WITHIN NORMAL LIMITS, VARIATIONS IN THE STUB LENGTH MAY BE NECESSARY. OTHER PLASTIC PIPES SHALL BE REVIEWED ON A CASE BY CASE BASIS.

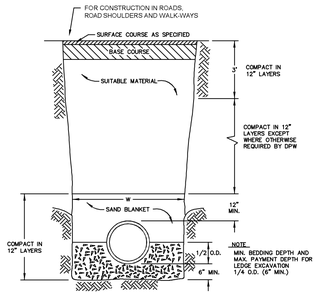
10.) SHALLOW MANHOLE. IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H–20 LOADS.



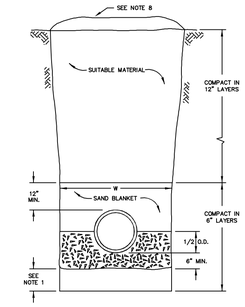
DROP MANHOLE

STANDARD MANHOLE SHEET 1

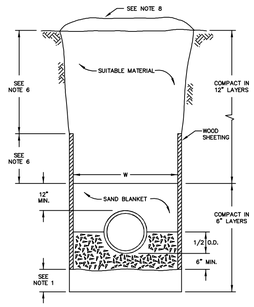
STANDARD TRENCH SECTION



LEDGE CONSTRUCTION



EARTH CONSTRUCTION



EARTH CONSTRUCTION WITH SHEETING

NOTES:

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

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

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

– CRUSHED STONE 1/2 INCH – 1 1/2 INCH MAY BE USED INSTEAD OF SCREENED GRAVEL WHERE ALLOWED BY THE ENGINEER.

3.) SAND BLANKET : CLEAN SAND FREE FROM ORGANIC MATTER SO GRADED THAT 90–100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE.

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

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

5.) BASE COURSE , IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, (D.O.T.).

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

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

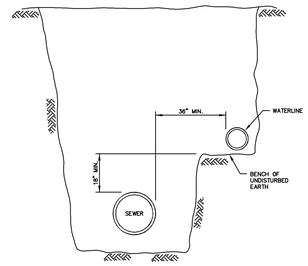
8.) FOR CROSS COUNTRY CONSTRUCTION , BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

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

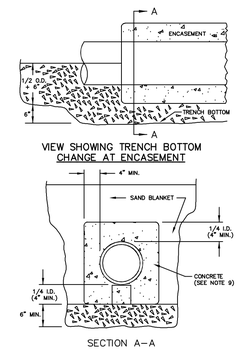
10.) NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION (NH DES) DESIGN STANDARDS REQUIRE 10 FT. SEPARATION. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FT. HORIZONTAL FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED.

A. IF THE WATERLINE CAN BE KEPT AT LEAST 18 INCHES ABOVE AND 3 FEET TO ONE SIDE OF THE SEWER, AS SHOWN AND SUPPORTED ON A BENCH OF ORIGINAL SOIL, NO OTHER PROTECTION IS REQUIRED.

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



WATER AND SEWER IN SAME TRENCH

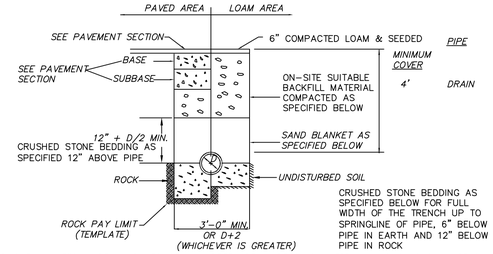


VIEW SHOWING TRENCH BOTTOM
CHANGE AT ENCASEMENT

SECTION A–A

CONCRETE FULL ENCASEMENT

(SEE NOTE 11)

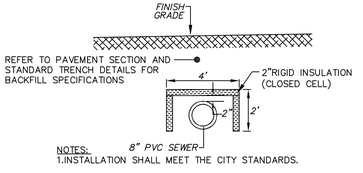


BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET & BEDDING		3/4" CRUSHED STONE BEDDING	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100	1"	100
200	0 – 15	3/4"	90 – 100
(FOR WATER MAIN BEDDING)		1/2"	20 – 50
		3/8"	0 – 20
		# 4	0 – 5

DRAINAGE TRENCH

NOT TO SCALE



NOTES:
1.INSTALLATION SHALL MEET THE CITY STANDARDS.

SEWER INSULATION DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20–33

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

NO.	REVISION	APP'D	DATE
1	REV. PER TRC COMMENTS	SJH	8/26/20

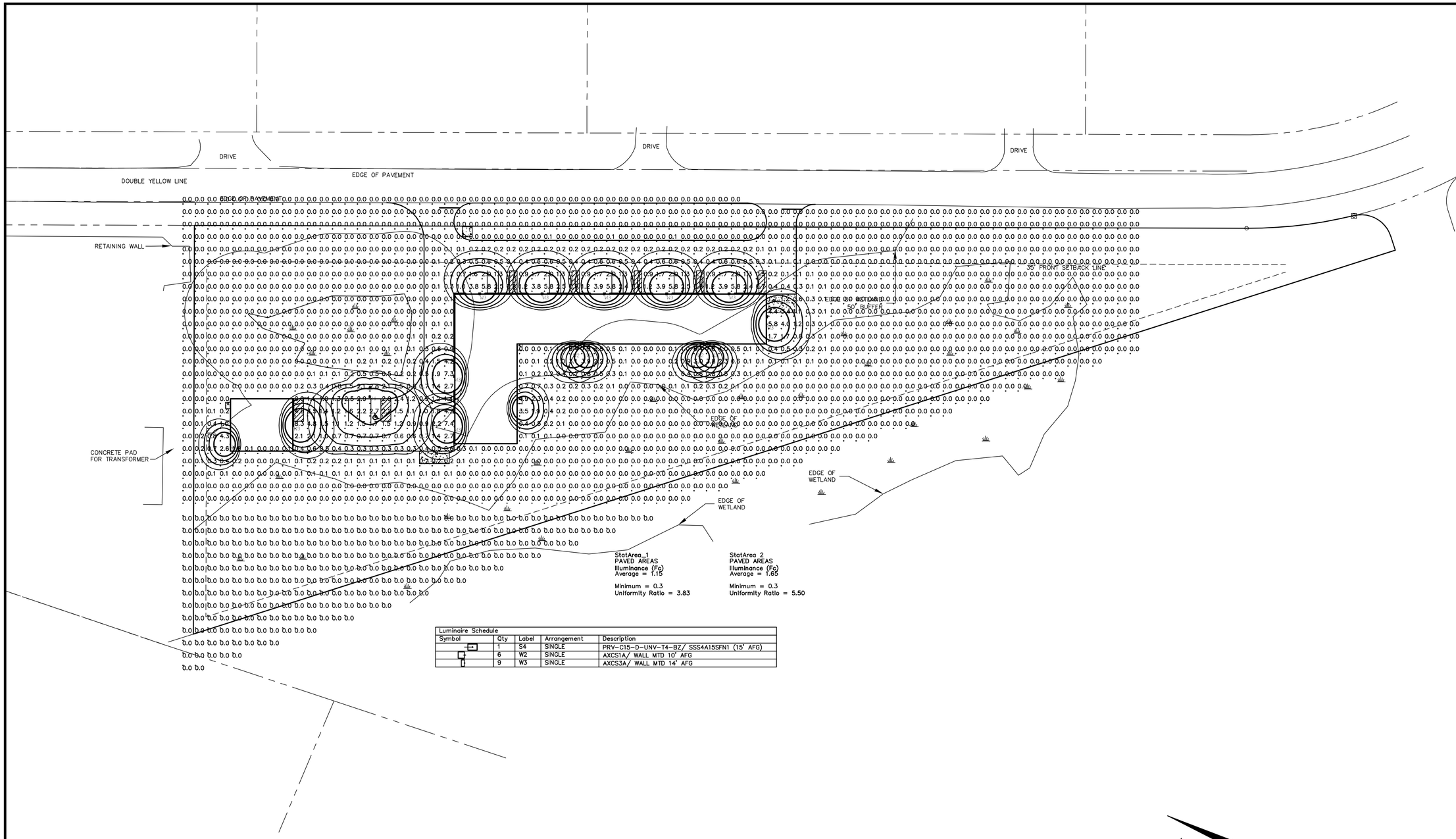
DATE: 4–27–20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

DETAIL SHEET

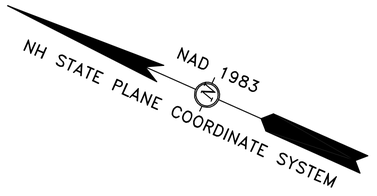
SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03835

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

12



Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	1	S4	SINGLE	PRV-C15-D-UNV-T4-BZ/ SSS4A15SFN1 (15' AFG)
	6	W2	SINGLE	AXCS1A/ WALL MTD 10' AFG
	9	W3	SINGLE	AXCS3A/ WALL MTD 14' AFG



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	REVISED PER TRC COMMENTS	SJH	8/26/20

DATE: 4-27-20
SCALE: 1"=40'
DRAWN BY: CAD
DESIGN BY: DJL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

LIGHTING PLAN

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

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Lumark

DESCRIPTION

The Prevail LED area, site luminaire combines optical performance, energy efficiency and long term reliability in an advanced, patent pending modern design. Utilizing the latest LED technology, the Prevail luminaire delivers unparalleled uniformity resulting in greater pole spacing. A versatile mount standard arm facilitates ease of installation for both retrofit and new installations. With energy savings greater than 62%, the Prevail fixture replaces 150-450W metal halide fixtures in general area lighting applications such as parking lots, walkways, roadways and building areas.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Construction
Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. A one-piece silicone gasket seals the door to the fixture housing. The optics is mounted on a versatile, aluminum plate that dissipates heat from the LEDs resulting in longer life of the fixture. The fixture is IP66 and 3G vibration rated (ANSI C136.31) to insure strength of construction and longevity in the selected application.

Optics
Precision molded, high efficiency optics are precisely designed to shape the distribution, maximizing efficiency and application spacing. Available in Type II, III, IV and V distributions with lumen packages ranging from 6,100 to 18,900 nominal lumens. Light engine configurations consist of 1 or 2 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L92/60,000 hours at 25°C) per ESNA TM-21. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed.

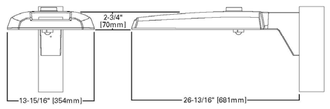
Electrical
LED drivers are mounted to the fixture for optimal heat sinking and ease of maintenance. Thermal management incorporates both conduction and convection to transfer heat rapidly away from the LED source for optimal efficiency and light output. Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Available in 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. 10kV/10 kA surge protection standard. 0-10V dimming driver is standard with leads external to the fixture. Suitable for ambient temperatures from -40°C to 40°C. Optional 50°C HA (high ambient) available. Standard NEMA 3-PIN twistlock photocontrol receptacle and NEMA 7-PIN twistlock photocontrol receptacles are available as options.

Mounting
Standard pole mount arm is bolted directly to the pole and the fixture slides onto the arm and locks in place with a bolt facilitating quick and easy installation. The versatile, patented, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables wiring of the fixture without having to access the driver compartment. A knock-out on the standard mounting arm enables round pole mounting. Wall mount and mast arm mounting options are available. Mast arm adapter fits 2-3/8" O.D. tenon.

Finish
Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard color is bronze. Additional colors available in white, grey, black, dark platinum and graphite metallic.

Warranty
Five-year warranty.

DIMENSIONS



PRV PREVAIL

LED

AREA / SITE / ROADWAY LUMINAIRE

CERTIFICATION DATA

UL and cUL Wet Location Listed
IP66-Rated
3G Vibration Rated
ISO 9001
DesignLights Consortium® Qualified*
Dark Sky Approved (3000K CCT and warmer only)

ENERGY DATA

Electronic LED Driver
0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 and 60Hz,
347V/60Hz, 480V/60Hz
-40°C Minimum Temperature Rating
+40°C Ambient Temperature Rating

EPA
Effective Projected Area (Sq. Ft.): 0.75

SHIPPING DATA

Approximate Net Weight:
20 lbs. (9.09 kgs.)

Steel Poles

SSS SQUARE
STRAIGHT STEEL

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

FEATURES

- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for non-grounded mounted installations (e.g., installations on bridges or buildings) are not included in this document. The information contained herein is for general guidance only and is not a replacement for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Eaton's Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Eaton or visit www.eaton.com/lighting for available options, accessories and ordering information.

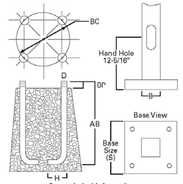
ORDERING INFORMATION

SAMPLE NUMBER: SSA5A20SFM1XG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	4=4" 5=5" 6=6"	A=0.120" M=0.188" X=0.250"	10=10' 15=15' 20=20' 25=25' 30=20' 35=35' 39=39'	S=Square Steel Base	F=Dark Bronze G=Galvanized Steel J=Summit White K=Carbon Bronze L=Dark Platinum R=Hartford Green S=Silver T=Graphite Metallic V=Grey W=White X=Custom Color Y=Black	2=2-3/8" O.D. Tenon (4" Long) 3=3-1/2" O.D. Tenon (5" Long) 4=4" O.D. Tenon (6" Long) 9=3" O.D. Tenon (4" Long) 6=2-2/8" O.D. Tenon (6" Long) 7=4" O.D. Tenon (10" Long) A=Type A Drilling C=Type C Drilling E=Type E Drilling F=Type F Drilling G=Type G Drilling J=Type J Drilling K=Type K Drilling M=Type M Drilling N=Type N Drilling R=Type R Drilling S=Standard Upsweep Arm Z=Type Z Drilling	1=Single 2=2 at 180° 3=Triple[2] 4=4 at 90° 5=2 at 90° X=None	X=None 2=2' 3=2.5' 4=4' 6=6' 8=8'	A=1/2" Tapped Hub[3] B=3/4" Tapped Hub[3] C=Convenience Outlet[4] E=GFCI Convenience Outlet[4] G=Ground Lug H=Additional Hand Hole[5] V=Vibration Dampener

NOTES: 1. All shaft sizes nominal. **2.** Square poles are 3 at 90°, round poles are 3 at 120°. **3.** Tapped Hub is located 5' below the pole top and on the same side of pole as hand hole, unless specified otherwise. **4.** Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. **5.** Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS



Lumark

DESCRIPTION

The Lumark Axcent LED wall mount luminaire provides a flush-mounted, architectural design with high performing, energy-efficient illumination resulting in up to 95% energy and maintenance savings over traditional sources. The die-cast aluminum construction along with stainless steel hardware, gasketed housing, and sealed optical compartment make the Axcent impervious to contaminants. The Axcent replaces 70W to 450W metal halide equivalents making it ideal for pathway illumination, building entrances, vehicle ramps, schools, tunnels, stairways, loading docks and floodlighting applications.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Construction
Low-profile LED design with rugged die-cast aluminum housing. Matching housing styles incorporate both a full cutoff and refractive lens design. External fin design on the back of the fixture extracts heat from the surface resulting in a thermally optimize design for longer luminaire life. One-piece silicone gasket seals the fixture, keeping out moisture and dusts in compliance with IP66 rating. The fixture is 3G vibration rated (ANSI C136.31) and UL/cUL listed ensuring reliability and durability in wall mount applications.

Optical
Silicone-sealed optical LED chamber incorporates a custom engineered reflector providing high-efficiency illumination. Refractive lens models incorporate a molded lens assembly designed for maximum forward throw. Optional glare free lens is available for visual comfort at reduced lumen values. Available in Type IV distribution with lumen packages ranging from 1,800 to 17,300 nominal lumens. Light engine configurations consist of high-efficiency, discrete LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life. Offered in standard 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 5000K CCT / 70CRI min and 3000K / 80CRI min are available.

Electrical
LED driver is mounted to the die-cast aluminum housing for optimal heat sinking. Integral LED electronic driver incorporates 6kV surge protection. Class 1 electronic drivers have a power factor >90% and THD<20%. 120-277V 50/60Hz standard operation with optional 347V 60Hz or 480V 60Hz options available. 480V is compatible for use with 480V Wye systems only. 0-10V dimming driver is standard with leads external to the fixture to accommodate controls capability such a dimming and occupancy. 10kV/10kA surge protection option is available.

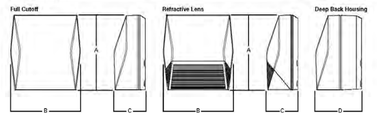
Mounting
Steel wedge mounting plate fits directly to 4" standard j-box or directly to wall with the "Hook-N-Lock" mechanism for quick installation. Secure with two captive, corrosion resistant, stainless steel set screws, which are concealed but accessible from bottom of fixture. Optional floodlight kits available in slipfitter, knuckle and trunnion mount configurations. Optional pole mount configuration provides a quick-mount solution to round and square poles. The easy installation arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8".

Emergency Egress
Optional integral cold weather battery emergency egress includes emergency operation test switch, an AC-ON indicator light and a premium, maintenance-free battery pack. The separate emergency lighting LEDs are wired to provided redundant emergency lighting. Listed to UL Standard 924, Emergency Lighting.

Finish
The Axcent is protected with five state super TGIC polyester powder coat paint in carbon bronze and five other color finishes. Super TGIC power coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty
Five-year warranty.

DIMENSIONS



Dimensional Data

	AXCS Small	AXCL Large
A	8" [202mm]	11-1/2" [292mm]
B	7-1/2" [190mm]	10-3/4" [273mm]
C	3-5/8" [94mm]	4-7/8" [124mm]
D	6-1/8" [155mm]	7-1/8" [181mm]

AXCS / AXCL
AXCENT

14-123W
LED

APPLICATIONS:
WALL / SURFACE / INVERTED
FLOODLIGHTING / PATHWAY /
SITE LIGHTING

CERTIFICATION DATA

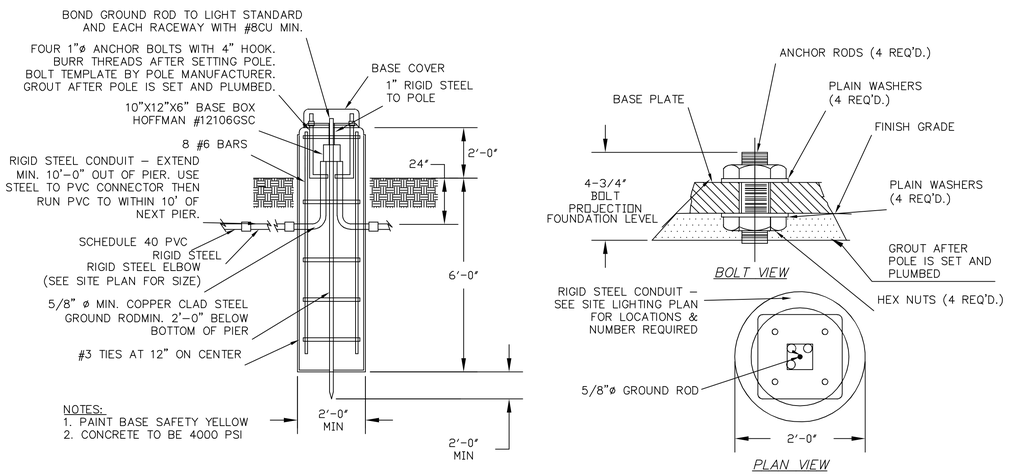
3G Vibration Rated
DesignLights Consortium® Qualified*
FCC Class A
IP66 Rated
ISO9001, UL/cUL Wet Location Listed
LM79/LM80 Compliant
ROHS Compliant
Title 24 Compliant
UL924 Listed (CBP Models)

TECHNICAL DATA

-40°C Minimum Ambient Temperature
+40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

SHIPPING DATA:

Approximate Net Weight:
Small fixture=5 lbs. [2.26 kgs.]
Small with sensor or CBP=10 lbs. [4.40 kgs.]
Large fixture=12 lbs. [5.45 kgs.]
Large with sensor or CBP=17 lbs. [7.73 kgs.]
Large with sensor & CBP=21 lbs. [9.54 kgs.]



LIGHT POLE BASE

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	REVISED PER TRC 6/4/20 COMMENTS	SJH	8/26/20

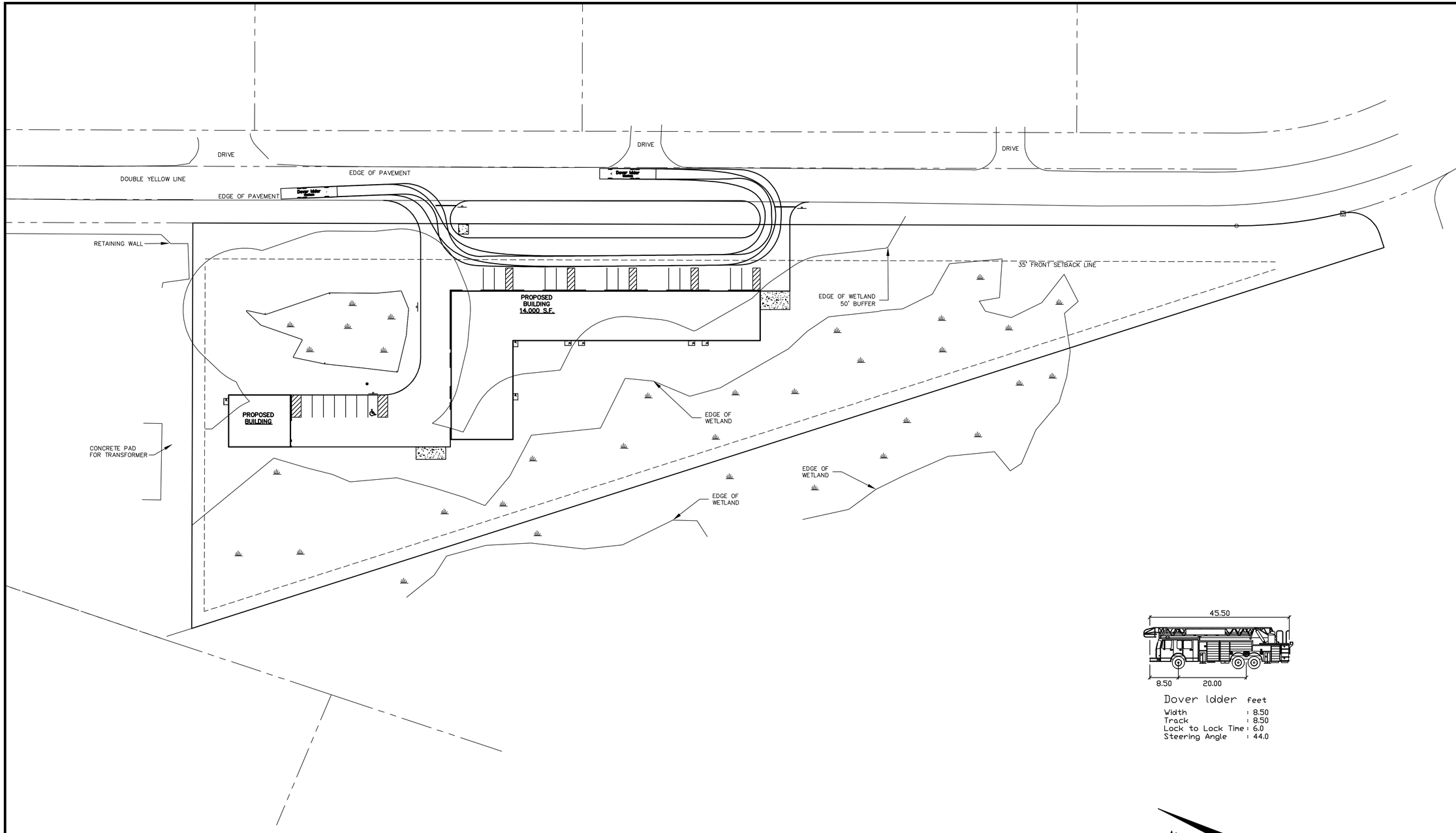
DATE: 4-27-20
SCALE: AS SHOWN
DRAWN BY: CAD
DESIGN BY: DGL
APPROVED BY: SJH
PROJECT NO: 19034
FILE: SITE.DWG

DETAIL SHEET

DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

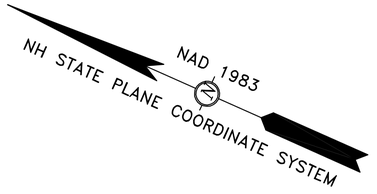
SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03835

14



Dover ladder feet

Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 44.0



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P20-33

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE
1	REVISED PER TRC COMMENTS	SJH	8/26/20

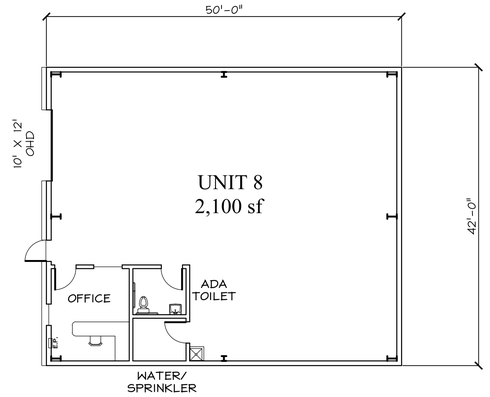
DATE: 4-27-20
SCALE: 1"=40'
DRAWN BY: CAD
DESIGN BY: DJL
APPROVED BY:SJH
PROJECT NO:19034
FILE: SITE.DWG

DOVER LADDER MOVEMENT PLAN

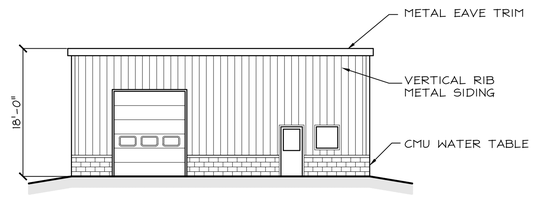
DBS HOLDINGS LLC
71 DANIELLE LANE
DOVER, NH 03820

SULLIVAN COMMERCIAL BUILDINGS
CROSBY ROAD
DOVER, NH 03820

15



1 A1.0 FLOOR PLAN - SMALL BUILDING
Scale: 3/32" = 1'

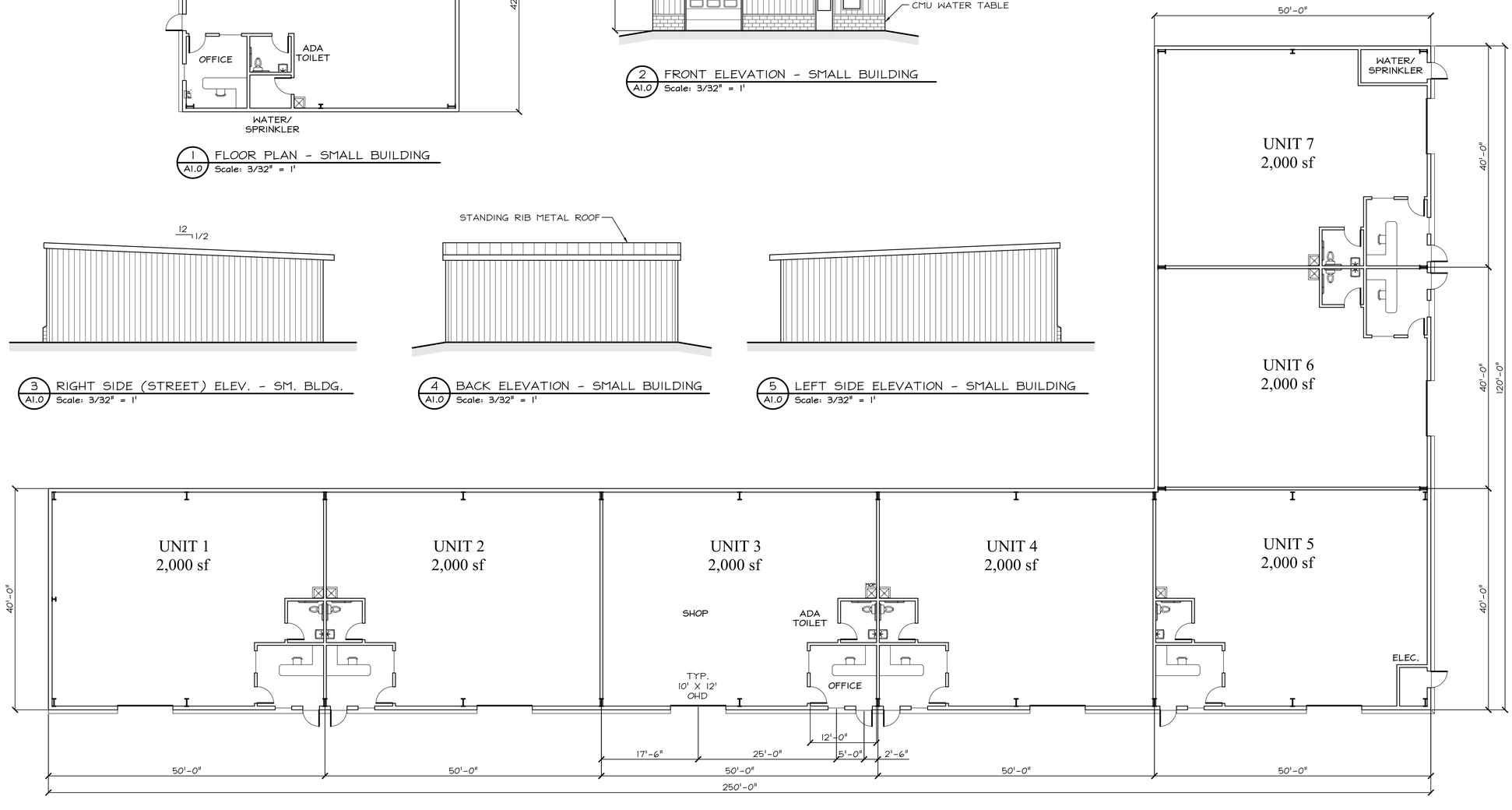


2 A1.0 FRONT ELEVATION - SMALL BUILDING
Scale: 3/32" = 1'

3 A1.0 RIGHT SIDE (STREET) ELEV. - SM. BLDG.
Scale: 3/32" = 1'

4 A1.0 BACK ELEVATION - SMALL BUILDING
Scale: 3/32" = 1'

5 A1.0 LEFT SIDE ELEVATION - SMALL BUILDING
Scale: 3/32" = 1'



6 A1.0 FLOOR PLAN - LARGE BUILDING
Scale: 3/32" = 1'

JSN Associates, LLC
Consulting Structural Engineers
One Autumn Street
Portsmouth, NH 03801
Phone: (603) 433 - 8639
www.jsneng.com

Client:
Civilworks
Dover, NH

Sullivan Commercial Buildings
Crosby Road
Dover, NH

For Approval
04-30-2020

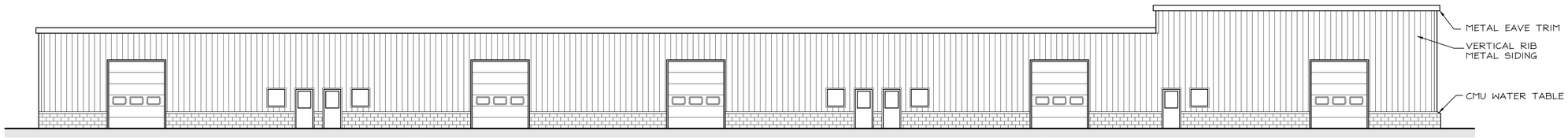
Date:	-
Scale:	As Noted
Design By:	RB
Approved By:	-

Revisions

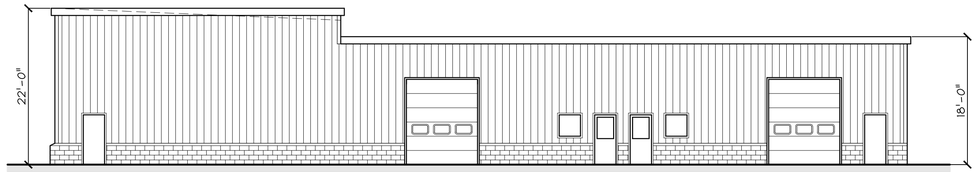
Floor Plans

A1.0

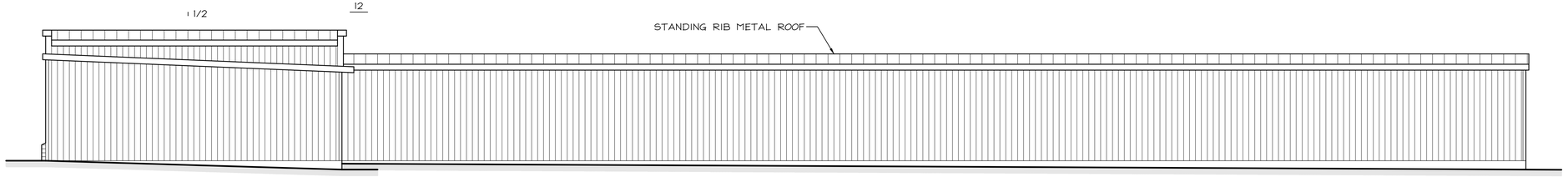
Project No: 200412



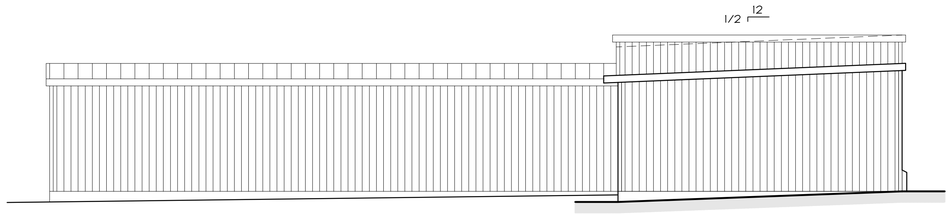
1 A2.0 FRONT (STREET) ELEVATION - LARGE BUILDING
Scale: 3/32" = 1'



2 A2.0 RIGHT SIDE ELEVATION - LARGE BUILDING
Scale: 3/32" = 1'



3 A2.0 BACK ELEVATION - LARGE BUILDING
Scale: 3/32" = 1'



4 A2.0 LEFT SIDE ELEVATION - LARGE BUILDING
Scale: 3/32" = 1'

JSN Associates, LLC
Consulting Structural Engineers
One Autumn Street
Portsmouth, NH 03801
Phone: (603) 433 - 8639
www.jsneng.com

Client:
Civilworks
Dover, NH

Sullivan Commercial Buildings
Crosby Road
Dover, NH

For Approval
04-30-2020

Date:	-
Scale:	As Noted
Design By:	RB
Approved By:	-

Revisions

Elevations

A2.0

Project No: 200412

DRIVE

DRIVE

EDGE OF PAVEMENT

CROSBY ROAD

DOUBLE YELLOW LINE

EDGE OF PAVEMENT

DRIVE

LOAM & SEED
DISTURBED AREAS

7 Ep
2 VdC
6 Ar
3 VdC
3 VdC
3 VdC
7 Ep
3 VdC
3 VdC
7 Ep
6 Ep
TRANSFORMER
6 PvH
7 Ep
10 PvH
7 Ep
10 PvH
7 Ep
10 PvH
7 Ep
10 PvH
10 PvH

ASPHALT PAVEMENT

DRIVE

LOAM & SEED
DISTURBED AREAS

8 Qa

2 Qa

PROPOSED
BUILDING
14,000 S.F.
FFE = 98.55.

DUMPSTER PAD

LOAM & SEED
DISTURBED AREAS

PARCEL AREA
166,633 S.F.
3.83 Ac.

PROPOSED
BUILDING
2,100 S.F.

ASPHALT PAVEMENT

DUMPSTER PAD

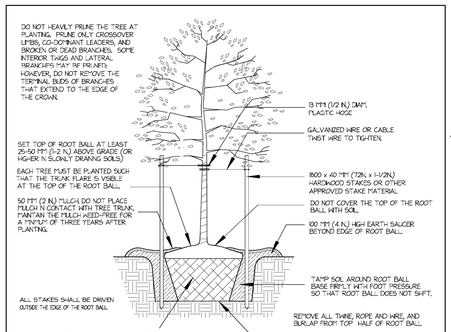
10 0 5 10 20 30 50 70

NOT TO SCALE

CITY LINE
TOWN LINE

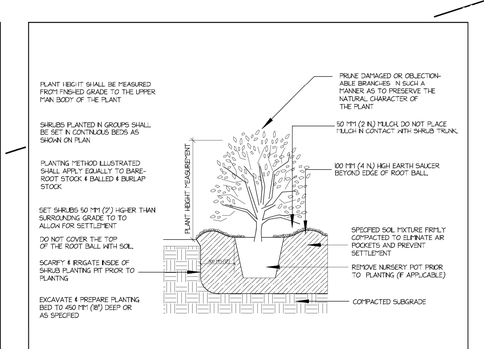
DOVER
MADBURY

Key	Qty	Botanical Name	Common Name	Size/Condition	Remarks
Trees					
Ar	6	Acer rubrum	RED MAPLE	3-3.5" B&B	
Qa	10	Quercus alba	WHITE OAK	3-3.5" B&B	
Shrubs					
VdC	17	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY	#20 3-4'	Spaced 6' O.C.
Ornamental Grasses					
PvH	66	Panicum virgatum 'Heavy Metal'	HEAVY METAL SWITCH GRASS	#2	Spaced 3' O.C.
Perennials					
Ep	55	Echinacea purpurea	PURPLE CONEFLOWER	#1	Spaced 3' O.C.



DECIDUOUS TREE PLANTING DETAIL

TYPICAL INSTALLATION - 3" (75MM) CALIPER OR LESS



SHRUB PLANTING DETAIL

TYPICAL INSTALLATION

LANDSCAPE NOTES

-Contractor responsible for all final measurements.

-Design is for planning purposes only.

-All work to conform to the standards set by the City of Dover, NH

-The design is based on a plan provided by Civilworks NE and may require adjustment due to actual field conditions.

-The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.

-The contractor shall locate and verify the existence of all utilities prior to starting work. Contractor shall obtain a Dig-Safe Ticket prior to the start of work.

-Owner/Contractor responsible for verifying location of all property lines, easements, right of ways, restrictive covenants, zoning matters, or engineering issues such as land support, geology, and hydrology.

-The contractor shall verify layout and grades and inform the client of any discrepancies or changes in layout and/or grade relationships prior to construction.

-The client shall procure any required permits prior to construction.

-Contractor shall notify owner immediately is at any point during demolition or construction a site condition is discovered which may negatively impact the completed project.

This includes but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the site and the plan.

If a contractor is aware of a potential site issue and does not bring it to the attention of the owner immediately, they are responsible for the labor and material associated with correcting the problem.

-Substitutions and changes are not to be made without prior approval by the Owner or Designer.

-All material shall conform to the guidelines established by the current American Standard for Nursery Stock, published by the American Assoc. of Nurserymen.

-Landscaping beds shall have a minimum of 3" of shredded bark mulch applied, unless otherwise noted.

-All plants shall be installed as per details and the contract specified.

-All plants must be nursery grown.

-Plant material shall bear the same relationship to finished grade as to the original planting grade prior to digging.

-If a discrepancy exists between the number of plants on the supplied list and the number shown on the drawings, the greater number shall apply.

-All plants shall be watered thoroughly twice during the first 24 hour period after planting. All plants shall be watered weekly, or more often, if necessary during the first growing season.

-All daylilies and ornamental grasses shall be deadheaded and cut back every season.

-All disturbed areas will be dressed with a minimum of 4" of topsoil and planted as noted on the plans or seeded except plant beds.

-In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.

-Snow shall be stored a minimum of 5' from shrubs and trunks of trees.

-Landscape Architect not responsible for the means and methods of the contractor.

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LICENSED LANDSCAPE ARCHITECT
STATE OF NEW HAMPSHIRE

LANDSCAPE PLAN

DATE 05/7/2020

SCALE N.T.S.

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