



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, October 14, 2021**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:00 AM: Subdivision/Site Plan using Transfer of Development Rights for Settlement on 6th LLC., Assessor's Map B, Lot 5, zoned R-40, located at Sixth Street. (Proposal is to construct a private roadway with access to a proposed 13 single family lots with 3 open space, non-buildable lots. A related CUP application will also appear before the Planning Board. (P21-43) *[This item was previously heard on August 12, 2021]*
2. 11:00 AM – 11:45 PM: Site Review for Diamond Capital, LLC., Assessor's Map 14, Lots 17 & 17A, zoned Gateway, located at 71 & 73 Rutland Street. (Proposal is to retain the two current structures as well as new construction of 8 townhouses in a single building). (P21-64)



BERRY SURVEYING & ENGINEERING

335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

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

September 22, 2021

RE: "Settlement on 6th"
Settlement on 6th LLC
Sixth Street
Transfer of Development Rights Subdivision
Map B, Lot 5

Mrs. Benton,

On behalf of Settlement on 6th LLC, Berry Surveying and Engineering (BS&E) submits to TRC a proposed TDR subdivision off Sixth Street. The plans and design have been revised based on comments made by the first TRC on August 12, 2021. Our responses are in **bold**.

Planning:

- Will need revised current use map or pay tax
A revised current use map will be provided.
- Treat as an open space subdivision utilizing TDR
Project will be treated as an open space subdivision, utilizing TDR. A yield plan has been included.
- Consider making lots 5-9 and 5-8 duplex each and reducing units by losing lots 2, and 10
Former lot 2 and 11 have been eliminated. There is now 11 units proposed.
- Water and Sewer Investment Fees
Applicant understands the water and sewer fees.
- Impact fees (\$8,895 x SF unit)
Applicant understands the impact fees.
- CUP will go to Conservation Commission then Planning Board
The CUP has been before the Conservation Commission and found to be reasonable with no major concerns.
- Provide yield plan and cost analysis
A yield plan and cost analysis are now provided.

- Include public transit on traffic analysis
The public transit is included in the traffic analysis under the Sixth Street Roadway Description.
- If board voted no on TDR, which three units would be lost?
1 unit along Wildcat Drive will be removed. The two in the southern corner will remain regardless.
- Provide:
 - Letters to Serve
Letters to serve will be provided when acquired.
 - COA documents to review
COA documents will be provided when acquired.
- Revise plan to:
 - Add owner's signatures
Owner's signature will be provided on the finals plans.
 - Add professional signature and stamps
All professional signatures and stamps will be provided on the final plans.
 - Include calculation to confirm each lot has no more wetlands buffer than allowed and that 170-27.D is factored in.
The minimum upland area for lots is based on a predetermined minimum required area. In the case of TDR there is no pre-determined minimum lot size and therefore cannot be a minimum required upland area.
 - Indicate what access is to? RG maintenance?
The access roads are for the rain gardens and have been called as so on the plans.
 - Lots 1 and 2 should share driveway
There is now only one unit where Lots 1 and 2 were originally.
 - Encroachment will need to be removed
 - Add lot sizes to sheet 9 as well
Lot sizes have been added to sheet 9
 - Fix title block street name spacing on Sheet 19
Street name spacing has been revised.
 - Increase lot size to open space #4?
Open space calculations are shown on the subdivision plan to show that the required open space has been provided.
 - OSS buffer of 50' and 100' apply
The required 30' TDR buffers are shown on the plans



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- Remove shed encroachment before plans are signed
Applicant if filing for a lot line revision with Lot 4-M to remove the encroachment.
- Clearer aerial on sheet 1 possible?
A clearer aerial has been provided on sheet 1.
- Add "no cut no disturb" to 50' perimeter buffer callouts
Note 38 has been added to sheet 18 stating that all 50' wetland buffers are to be no cut, no disturb.
- Confirm grading and drainage easement for lots 6 & 7 are not in buffer
The easement has been revised to be outside the buffer.
- Can stormwater treatment on OS 2 be changed to not cut into buffer?
- Will need permit numbers eventually
Permit numbers will be included when acquired.
- Show wetland buffer placards to be installed every 25 feet rather than 50'
Wetland placards have been revised to be every 25'.
- On sheet 52 move Blandings turtle down with other turtles?
Detail sheet has been revised to bring all the turtles together.
- Waiver needed– 50' buffer to 30' TDR or less
Relief is being sought for the 30' TDR buffer.

Engineering Comments:

- Investigate gravity sewer to the RR easement or Cottonwood
The contractor will investigate the sewer prior to construction.
- Move no outlet sign closer to the entrance.
Outlet sign has been moved closer to the entrance, to station 0+60
- Check the invert grades on cb1 and 2. They are the same
The inverts of cb1 and cb2 are correct.
- Suggest adding another cb at 7+10 to realign pipe to give more room for other utilities
The utilities have been revised to allow for at least 5' of separation to the drain line at station 7+10.
- Move the water into the row around sta 700
Water line has been moved into the roadway at station 7+00.



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- The drainline is too close to the easementline by lot 5-7
The easement line and drain line have been revised.
- Concerned about ice build-up on the roadway since the entire cul-de-sac drains toward the center. Could we maintain the crown and add another cb online?
We looked at crowning the cul-de-sac but due to the proposed profile and existing grade, the cul-de-sac has a high point in the middle and a low point at the neck. This will result in the addition of multiple catch basins or the re design of the road which would have major design implications. Because of this we have kept the cul-de-sac at a super elevation and added a rain garden to help with storm water mitigation.
- Can the maintenance roads have a gravel base with a loam and gravel top coat to grow grass on?
The callout for the access road has been revised to include a loam and gravel top coat.
- Stagger trees around easement by lot 8 and 9
The trees around the easement have been revised accordingly.
- Should the FM take two 45 bends then have the cleanout manhole?
The proposed forcemain is designed to exit the cleanout manhole at a 90 degree angle with no proposed bends.

Fire/Inspections Comments:

- Sheet 9 Note 10 indicate the lots to be TDR
The project is not proposing reduced units. The applicant will pay the different TDR fee to allow for this.
- Sheet 17 TDR note top right appears to imply two TDR units whereas the calculated units appears to be three from sheet 9.
All notes regarding the amount of units to be purchased have been revised to be the same.
- Clarify UGE and pedestal for UGE to polelights
UGE to the proposed lights is now shown on the plans.
- Clarify compliance with NFPA 1 Chapter 18 access road requirements.
Note 39 has been added to the overview site plan stating that the project is to comply with NFPA 1 Chapter 18.

Economic Development: N/A

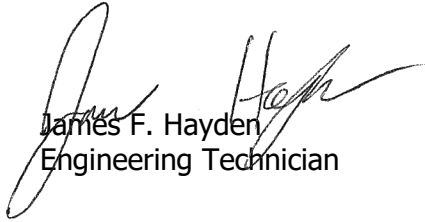


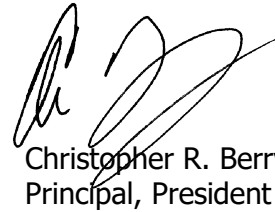
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Planning Board Comments:

- Garbage/recycling
Note 36 on the Site Plan is included, stating that trash pickup will be private.
- Provide rendering of model home
Renderings for the houses are provided.
- Maintenance plan should include low salt
Language regarding the use of low salt for winter maintenance has been included in the maintenance manual.

BERRY SURVEYING & ENGINEERING


James F. Hayden
Engineering Technician


Christopher R. Berry
Principal, President



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SHEET 1 ~ NEIGHBORHOOD PLAN
SHEET 2 ~ BOUNDARY PLAN*
SHEETS 3-5 ~ EXISTING CONDITIONS PLANS
SHEET 6 ~ YIELD PLAN
SHEETS 7-9 ~ SITE SPECIFIC SOILS MAPS
SHEET 10 ~ LOT LINE REVISIONS PLAN
SHEETS 11-16 ~ SUBDIVISION PLANS*
SHEETS 17-18 ~ EASEMENT PLANS*
SHEETS 19-21 ~ SITE PLANS
SHEETS 22-23 ~ GRADING & DRAINAGE PLANS
SHEETS 24-32 ~ STORMWATER BMP PLANS (P-101 – P-107)
SHEETS 33-34 ~ EROSION AND SEDIMENT CONTROL PLANS
SHEETS 35-39 ~ UTILITY PLANS
SHEETS 40-42 ~ CROSS SECTIONS
SHEETS 43-44 ~ SIGHT DISTANCE PLANS
SHEET 45 ~ FIRE TRUCK TURNING TEMPLATES
SHEETS 46-47 ~ EROSION & SEDIMENT CONTROL DETAILS (E-101 – E-102)
SHEETS 48-49 ~ CONSTRUCTION DETAILS (C-101 – C-102)
SHEETS 50-51 ~ DRAINAGE CONSTRUCTION DETAILS (D-101 – D-102)
SHEETS 52-54 ~ UTILITY CONSTRUCTION DETAILS (U-101 – U-103)
SHEET 55 ~ LANDSCAPING CONSTRUCTION DETAILS (L-101)
SHEET 56 ~ WLDLIFE IDENTIFICATION PLAN (W-101)

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

SURVEYOR OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
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ENGINEER OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
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WETLAND SCIENTIST: FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS
38 GARLAND ROAD
STRAFFORD, NH 03820
(603) 969-5574

SOIL SCIENTIST: JOHN P. HAYES, III, CSS
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.

#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

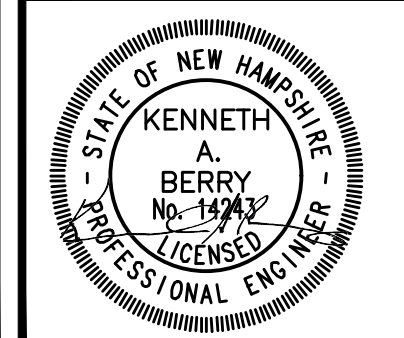
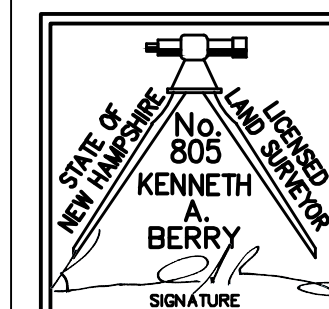
TRANSFER OF DEVELOPMENT RIGHTS SUBDIVISION
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : AS SHOWN

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011



LOCATION PLAN
DOVER, NH
NOT TO SCALE

COUNTY FARM
CROSS ROAD

APPROX.
LOCATION

LONG HILL
ROAD

ROUTE 16

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 SUBDIVISION PLAN, THE SUBDIVISION 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 SUBDIVISION APPROVAL.

EVERSOURCE WORK NUMBER: 6171870

- ~ NHDES ALTERATION OF TERRAIN PERMIT
- ~ US EPA NOI & SWPPP
- ~ NATURAL HERITAGE BUREAU
- ~ NH DIVISION OF HISTORICAL RESOURCES
- ~ NHDES WETLAND IMPACT PERMIT
- ~ NHDES SEWER DISCHARGE PERMIT
- ~ CONDITIONAL USE PERMIT

(PENDING)
(PENDING)
NHB 21-0034
12690
(PENDING)
(PENDING)
(PENDING)

OWNER'S SIGNATURE

DATE _____

APPROVED DOVER

ABBREVIATION LEGEND:

BITUM. BITUMINOUS
E.O.P. EDGE OF PAVEMENT
B.C.C. BITUMINOUS CONCRETE CURB
E.S.H.W.T. ESTIMATED 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
RCP REINFORCED CONCRETE PIPE
CMP CORRUGATED METAL PIPE
C.L.D.I. CONCRETE LINED DUCTILE IRON
RECB ROLLED EROSION CONTROL BLANKET
F.G. FINISHED GRADE
E.G. EXISTING GRADE
E.T.W. EDGE OF TRAVELED WAY
T.B.R. TO BE REMOVED
PL. PROPERTY LINE
EL. EASEMENT LINE
R.O.W. RIGHT OF WAY
CL. CENTER LINE
CF. CUBIC FEET
P.C. POINT OF CURVATURE
P.T. POINT OF TANGENCY
P.V.C. POINT OF VERTICAL CURVATURE
P.V.I. POINT OF VERTICAL INTERSECTION
P.V.T. POINT OF VERTICAL TANGENCY
EX. EXISTING
PROP. PROPOSED
R&R REMOVE AND REPLACE
STA. STATION
'/, FOOT / FOOT

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)

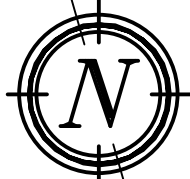
EXISTING LEGEND:

IRON BOUND ~FND~
IRON PIPE ~FND~
DRILL HOLE ~FND~
STEEL STAKE ~FND~
UTILITY POLE / GUY WIRE
SINGLE POST SIGN
CURB STOP
GATE VALVE
FIRE HYDRANT
SEWER MANHOLE
EXISTING SPOT ELEVATION
BUILDING SETBACK LINE
PERIMETER BOUNDARY
EXISTING WATER LINE
EXISTING SEWER LINE
EXISTING DRAIN LINE
OVERHEAD UTILITIES
EXISTING CONTOUR MINOR
EXISTING CONTOUR MAJOR
NRCS SOIL DELINEATION
SOIL TYPE
TEST PIT

PROPOSED LEGEND:

UTILITY POLE
SEWER MANHOLE W/STRUCTURE
CATCH BASIN W/STRUCTURE
SIGNAGE
CHECK DAM-MATERIAL AS SPECIFIED
FLOW ARROW
TEMPORARY BENCHMARK (T.B.M.)
DETAIL SHEET / DETAIL
MATCH POINT
MATCH LINE
CONTOUR MINOR, PROPOSED
CONTOUR MAJOR, PROPOSED
DRAIN CULVERT W/ FLARED END SECTION (F.E.S.)
SHOULDER
CENTER LINE
BUILDING SETBACK LINE
TRANSFORMER / J.BOX
UNDERGROUND UTILITY
UNDER DRAIN
SILT FENCE / EROSION MIX BERM
FILTREXX 8" - 12" SILT SOXX AS SPECIFIED
ORANGE CONSTRUCTION PERIMETER FENCE
RIP RAP
STORMWATER BEST MANAGEMENT PRACTICE
BERM
GATE VALVE
CURB STOP
HYDRANT
THRUST BLOCKS
PROPOSED SPOT ELEVATION
PROPOSED WATER LINE
PROPOSED SEWER LINE
PROPOSED UNDER GROUND LP TANK

GIS SKETCH
DOVER, NH
SCALE: 1" = 400' ±



NAD83 NH STATE PLANE
MAGNETIC



SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R1-1	30"x30"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT - FHWA	1	RED	WHITE	WHITE	SQUARE (1)
R2-1	24"x30"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT - FHWA	1	WHITE	GREEN	GREEN	SQUARE (1)
R6-1R	36"x12"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT - FHWA	1	BLACK W/ WHITE ARROW	BLACK	WHITE	SQUARE (1)
R8-31	24"x30"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT - FHWA	1	WHITE	BLACK	BLACK	U-CHANNEL (1)
W14-2	30"x30"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT - FHWA	1	YELLOW	BLACK	BLACK	SQUARE (1)

ABUTTERS WITHIN 200':

N/F MERKLEY, MARY B.
98 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 12
S.C.R.D. BOOK 2160, PAGE 276
N/F FARMHAVEN DEVELOPMENT
ASSOCIATES, LLC
242 CENTRAL AVE
DOVER, NH 03820
TAX MAP B, LOT 21-33
S.C.R.D. BOOK 4808, PAGE 822
N/F WORKMAN, MARSHALL K. &
CATHERINE A.
151 COTTONWOOD DRIVE
DOVER, NH 03820-6027
TAX MAP B, LOT 4-51
S.C.R.D. BOOK 3359, PAGE 166
N/F DODIER, SCOTT B. & SARAH
147 COTTONWOOD DRIVE
DOVER, NH 03820
TAX MAP B, LOT 4-52
S.C.R.D. BOOK 2303, PAGE 535
N/F EWER-GRAY, KAREN L.
P.O. BOX 1858
DOVER, NH 03821
TAX MAP B, LOT 4-M
S.C.R.D. BOOK 2205, PAGE 1

ABUTTERS WITHIN 200':

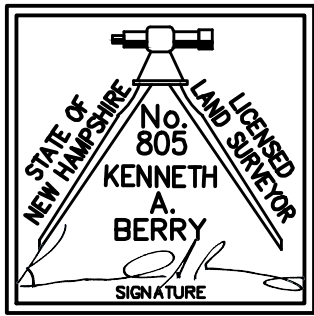
N/F SEAVER, PAUL J. & PENNY L.
30 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-H
S.C.R.D. BOOK 3500, PAGE 327
N/F TORR, ZACHARY J. & MEAGAN L.
62 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-D
S.C.R.D. BOOK 4471, PAGE 958
N/F SIGNH, RAGHBIR
15 OLIVE MEADOW LANE
DOVER, NH 03820
TAX MAP B, LOT 6-C-OPN
S.C.R.D. BOOK 4436, PAGE 810
N/F SIGNH, RAGHBIR
15 OLIVE MEADOW LANE
DOVER, NH 03820
TAX MAP B, LOT 6-C-2
S.C.R.D. BOOK 4436, PAGE 810
N/F LACOURSE, MICHAEL & ABIGAIL L.
591 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-F
S.C.R.D. BOOK 4619, PAGE 598

ABUTTERS WITHIN 200':

N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-A
S.C.R.D. BOOK 1105, PAGE 224
N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-N
S.C.R.D. BOOK 1105, PAGE 224
N/F CONWAY, RICHARD P. JR.
583 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-C
S.C.R.D. BOOK 4077, PAGE 721
N/F RANALLI, ANNE M.
583 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40
S.C.R.D. BOOK 4248, PAGE 925
N/F LACOURSE, MICHAEL & ABIGAIL L.
591 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-F
S.C.R.D. BOOK 4619, PAGE 598

ABUTTERS WITHIN 200':

N/F KURSHINSKY, THOMAS J. &
KURSHINSKY-RIECKS, AMANDA J.
350 LONG HILL ROAD
DOVER, NH 03820
TAX MAP A, LOT 40-E
S.C.R.D. BOOK 2060, PAGE 355
N/F MCGANN, MELISSA A. & THOMAS J.
26 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-H-2
S.C.R.D. BOOK 4673, PAGE 100
N/F HESTER, TAMARA
571 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 41
S.C.R.D. BOOK 3934, PAGE 453
N/F BROWN, RUTH A. & KARL E.
570 SIXTH STREET
DOVER, NH 03820
TAX MAP B, LOT 4-A
S.C.R.D. BOOK 2160, PAGE 276
N/F VERRILLE, CAITLIN & WILKIE, RORY
568 SIXTH STREET
DOVER, NH 03820
TAX MAP B, LOT 4-J
S.C.R.D. BOOK 4613, PAGE 638



BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : AS SHOWN
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 805
LICENSED PROFESSIONAL ENGINEER

SHEET 1 OF 56

NEIGHBORHOOD PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

PLAN REFERENCES:

- "CHESTER MORGAN PROPERTY, LIMITED SUBDIVISION, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: JANUARY, 1974
S.C.R.D. PLAN #16-39
- "SUBDIVISION OF LAND OF GEORGE & GAIL SAMUELS, COUNTY FARM CROSS ROAD & SIXTH STREET, DOVER, N.H."
BY: LECLERC STOWELL ASSOCIATES
DATED: FEBRUARY, 1984
S.C.R.D. PLAN #24A-29
- "PROPOSED SUBDIVISION LAND OF MATT R. & HELLEN R. WILLIAMS, COUNTY FARM CROSS ROAD, DOVER, N.H."
BY: BERRY SURVEYING & ENGINEERING
DATED: MARCH 11, 1994
PLAN #44-19
FILE NO. DB 1994-01
- "PROPOSED SUBDIVISION PLAN FOR LEIGH E. JERRY ON COUNTY FARM CROSS ROAD, TAX MAP B, LOT 6H IN DOVER, NH"
BY: BRUCE L. POHOPEK
DATED: AUGUST 25, 2000
S.C.R.D. PLAN #61-21
- "LOT LINE ADJUSTMENT PLAN PREPARED FOR DAVID G. TORR OF LANDS IDENTIFIED AS TAX MAP B, LOTS 6D & 6G HAVING A PHYSICAL ADDRESS OG #62 COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: JASON POHOPEK DESIGN & CONSTRUCTION, LLC
DATED: JULY 1, 2015
S.C.R.D. PLAN #111-011
- "OPEN SPACE SUBDIVISION OF LAND PREPARED FOR RAGHIB SINGH, TAX MAP B, LOT NO. 6-G, COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: MCNEANEY SURVEY ASSOCIATES, INC.
DATED: AUGUST 10, 2017
S.C.R.D. PLAN #115-60
- "SURVEY PLAN FOR CHESTER & VIOLA BOLSTRIDGE IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: OCTOBER 8, 1984
S.C.R.D. PLAN #25-10

PLAN REFERENCES:

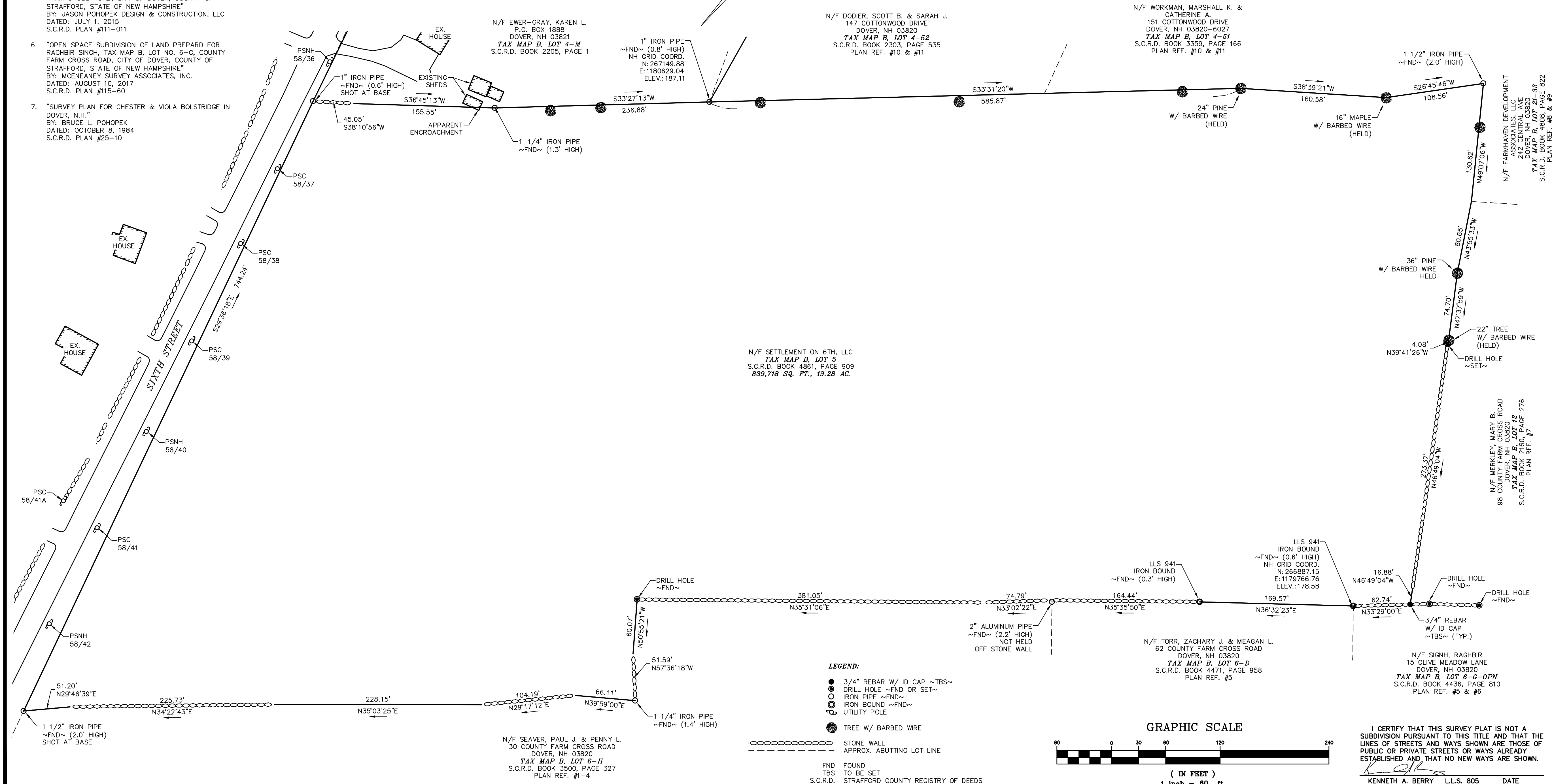
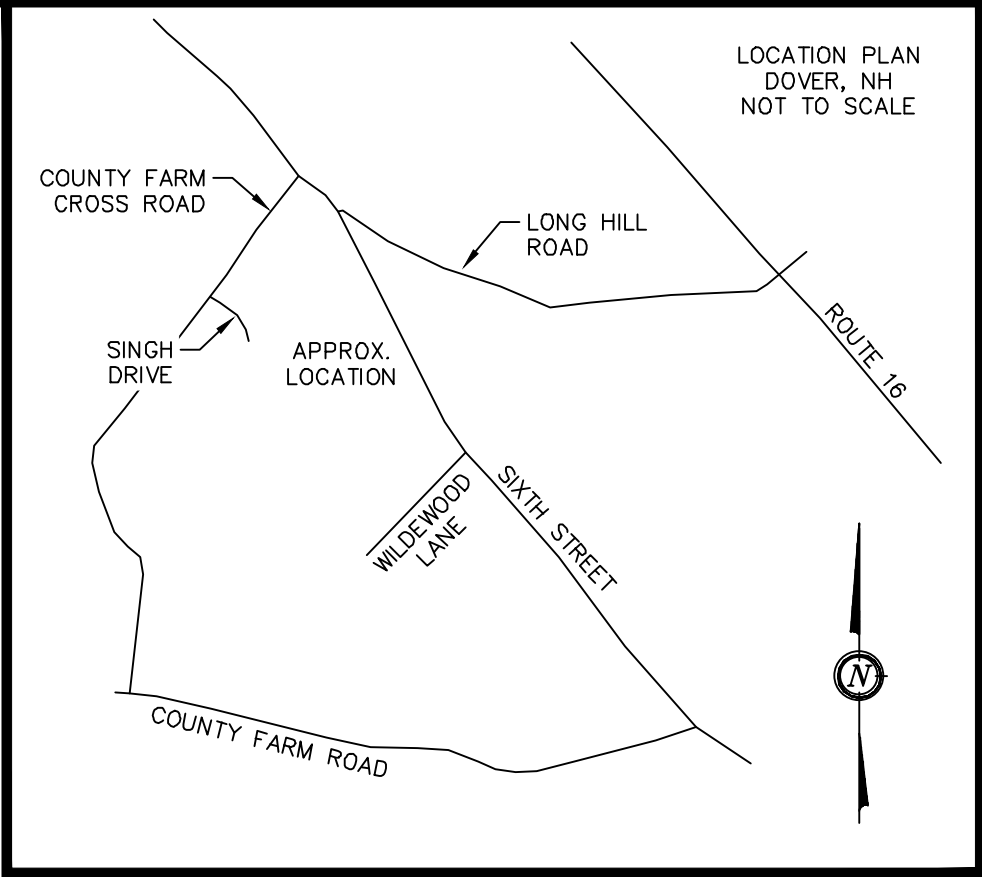
- "LOT LINE ADJUSTMENT FOR MPL N.H.2. INC AND GREGORIOS & HELEN KUTRELAKOS, UPPER SIXTH STREET IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: JANUARY 26, 1995
S.C.R.D. PLAN #45-77
- "OPEN SPACE SUBDIVISION PLAN, HAVEN FARM AT ALDEN WOODS, BOXWOOD LANE & WILDEWOOD LANE, DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: AUGUST 20, 2004
S.C.R.D. PLAN #80-35
- "PLAN OF LAND BETHARLENE WEEDEN, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: OCTOBER, 1983
S.C.R.D. PLAN # 31A-80
- "ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE"
BY: MCNEANEY SURVEY ASSOCIATES, INC.
DATED: APRIL 27, 1998
S.C.R.D. PLAN #54-34

PLAN REFERENCES:

- "PLAN OF LOT NO. 1, RALPH GROER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: JUNE, 1975
S.C.R.D. PLAN # 17-9
- "PLAN OF LOTS NO. 4A & 4B, RALPH GROVER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: JANUARY, 1979
S.C.R.D. PLAN #17-9
- "PLAN OF LOTS 1, 2, & 3, WARREN WEEDEN, SIXTH STREET & LONG HILL ROAD, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: NOVEMBER, 1977
S.C.R.D. PLAN #17D-34

NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 909
- THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES OF TAX MAP B, LOT 5 IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT AND ORIGINAL LEGAL DESCRIPTIONS, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
- NH STANDARD PROPERTY SURVEY WITH A CLOSURE BETTER THAN 1:10,000.



REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

BOUNDARY PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 60 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
L.L.S. 805
SIGNATURE

WETLAND NOTE:

THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:

- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
- U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
- COWARDIN, LEWIS M., GOLET, FRANCIS C. AND LAROE, EDWARD T., CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
- FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
- NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE, 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA

LEGEND:

- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- TREE W/ BARBED WIRE
- STONE WALL
- APPROX. ABUTTING LOT LINE
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- NRCS SOIL LABEL/DELINEATION LINE
- FND
- S.C.R.D.
- STRAFFORD COUNTY REGISTRY OF DEEDS

N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-A
S.C.R.D. BOOK 1105, PAGE 224
PLAN REF. #12

PROJECT BENCHMARK
T.B.M. PKSET
ELEV.: 193.17
N: 267561.51
E: 1180987.69

N/F CONWAY, ROCHARD P. JR.
579 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-G
S.C.R.D. BOOK 4077, PAGE 721
PLAN REF. #13

N/F RANALLI, ANNE M.
583 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40
S.C.R.D. BOOK 4248, PAGE 925
PLAN REF. #13

N/F LACOURSE, MICHAEL &
ABIGAIL L.
581 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-F
S.C.R.D. BOOK 4619, PAGE 598
PLAN REF. #14

N/F KURSHINSKY, THOMAS J. &
KURSHINSKY, JESSICA ANN
330 LONG HILL ROAD
DOVER, NH 03820
TAX MAP A, LOT 40-B
S.C.R.D. BOOK 4661, PAGE 355
PLAN REF. #14

FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163

PLAN REFERENCES:

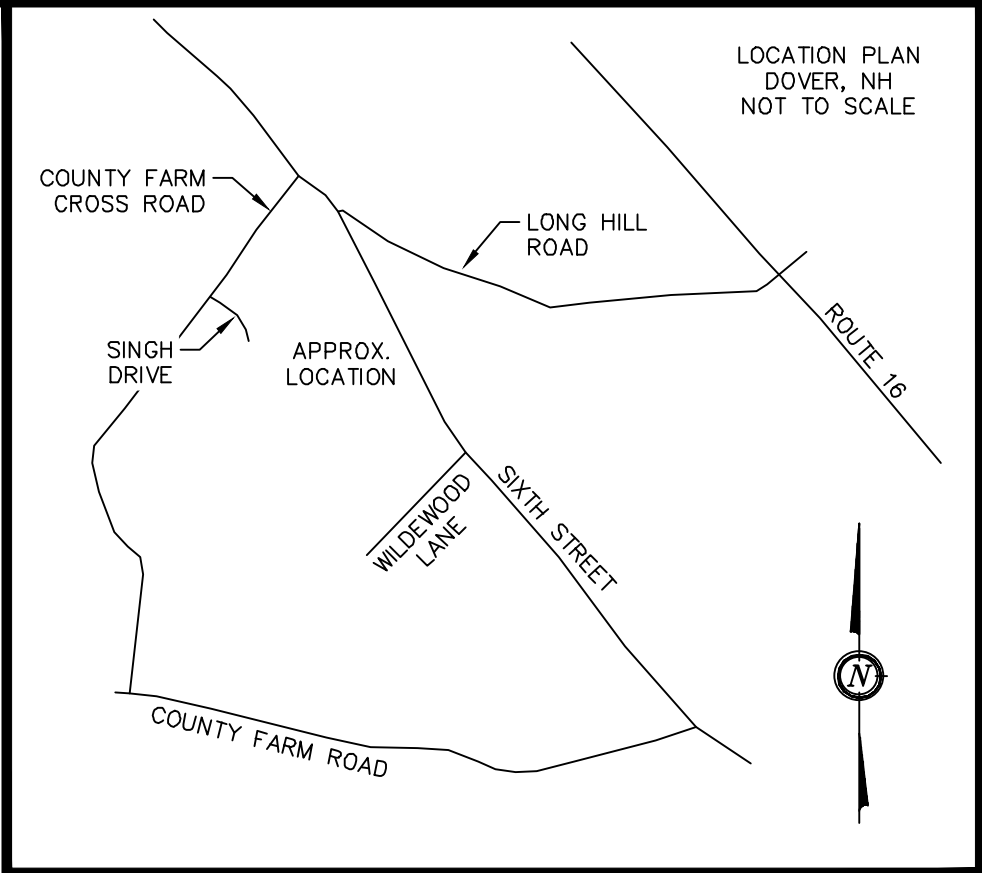
- "CHESTER MORGAN PROPERTY, LIMITED SUBDIVISION, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: JANUARY, 1974
S.C.R.D. PLAN #16-39
- "SUBDIVISION OF LAND OF GEORGE & GAIL SAMUELS, COUNTY FARM CROSS ROAD & SIXTH STREET, DOVER, N.H."
BY: LECLEERC STOWELL ASSOCIATES
DATED: FEBRUARY, 1984
S.C.R.D. PLAN #24A-29
- "PROPOSED SUBDIVISION LAND OF MATT R. & HELLEN R. WILLIAMS, COUNTY FARM CROSS ROAD, DOVER, N.H."
BY: BERRY SURVEYING & ENGINEERING
DATED: MARCH 11, 1994
PLAN #44-19
FILE NO. DB 1994-01
- "PROPOSED SUBDIVISION PLAN FOR LEIGH E. JERRY ON COUNTY FARM ROSS ROAD, TAX MAP B, LOT 6H IN DOVER, NH"
BY: BRUCE L. POHOPEK
DATED: AUGUST 25, 2000
S.C.R.D. PLAN #61-21
- "LOT LINE ADJUSTMENT PLAN PREPARED FOR DAVID G. TORR OF LANDS IDENTIFIED AS TAX MAP B, LOTS 6D & 6G HAVING A PHYSICAL ADDRESS OG #62 COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: JASON POHOPEK DESIGN & CONSTRUCTION, LLC
DATED: JULY 1, 2015
S.C.R.D. PLAN #111-011

PLAN REFERENCES:

- "OPEN SPACE SUBDIVISION OF LAND PREPARED FOR RAGHIB SINGH, TAX MAP B, LOT NO. 6-G, COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: MCENEANEY SURVEY ASSOCIATES, INC.
DATED: AUGUST 10, 2017
S.C.R.D. PLAN #115-60
- "SURVEY PLAN FOR CHESTER & VIOLA BOLSTRIDGE IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: OCTOBER 8, 1984
S.C.R.D. PLAN #25-10
- "LOT LINE ADJUSTMENT FOR MPL N.H.2. INC AND GREGORIOS & HELEN KUTRELAKOS, UPPER SIXTH STREET IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: JANUARY 26, 1995
S.C.R.D. PLAN #45-77
- "OPEN SPACE SUBDIVISION LAND, HAVEN FARM AT ALDEN WOODS, BOXWOOD LANE & WILDEWOOD LANE, DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: AUGUST 20, 2004
S.C.R.D. PLAN #90-35
- "PLAN OF LAND BETHARLENE WEEDEEN, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: OCTOBER, 1983
S.C.R.D. PLAN # 31A-90

PLAN REFERENCES:

- "ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE"
BY: MCENEANEY SURVEY ASSOCIATES, INC.
DATED: APRIL 27, 1998
S.C.R.D. PLAN #54-34
- "PLAN OF LOT NO. 1, RALPH GROER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: JUNE, 1975
S.C.R.D. PLAN # 17-9
- "PLAN OF LOTS NO. 4A & 4B, RALPH GROVER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
TAX MAP B, LOT 4-51
DATED: JANUARY, 1979
S.C.R.D. PLAN #17-9
- "PLAN OF LOTS 1, 2, & 3, WARREN WEEDEEN, SIXTH STREET & LONG HILL ROAD, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: NOVEMBER, 1977
S.C.R.D. PLAN #170-34



NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

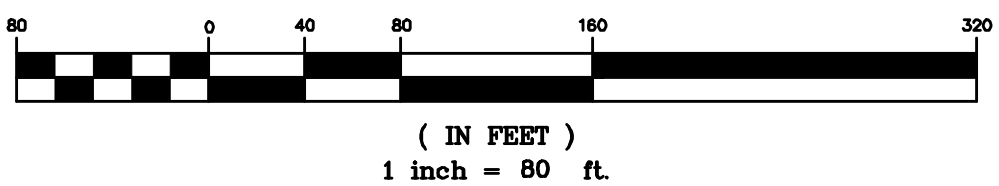
APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'
- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
- VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
- THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.
- A TOPOGRAPHICAL SURVEY WAS PERFORMED BY THIS OFFICE FEBRUARY OF 2021. TOPOGRAPHY SHOWN IN 1' INTERVALS.
- THE SUBJECT PARCEL IS IN CURRENT USE.
- SEE SHEETS # 4 & 5 FOR FURTHER EXISTING CONDITIONS DETAIL.

SOIL DATA:

- GIC ~ GLOUCESTER FINE SANDY LOAM, 8 TO 15% SLOPES
- GsC ~ GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES
- Sb ~ SAUGATUCK LOAMY SAND
- ScA ~ SCANTIC SILT LOAM, 0 TO 3% SLOPES
- ScB ~ SCANTIC SILT LOAM, 3 TO 8% SLOPES
- WdB ~ WINDSOR LOAMY SAND, 3 TO 8% SLOPES
- NRCS, SEE WEBSOIL
SEE 40 SCALE EXISTING CONDITIONS FOR SOIL LINES

GRAPHIC SCALE



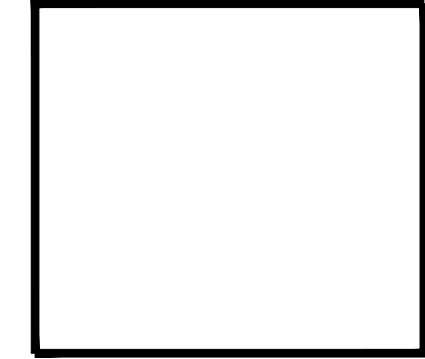
REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

EXISTING CONDITIONS PLAN OVERVIEW
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

SHEET 3 OF 56

FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163



SEE OVERVIEW FOR WETLAND
NOTE

N/F DODIER, SCOTT B. & SARAH J.
147 COTTONWOOD DRIVE
DOVER, NH 03820
TAX MAP B, LOT 4-52
S.C.R.D. BOOK 2303, PAGE 535
PLAN REF. #10 & #11

N/F WORKMAN, MARSHALL K. &
CATHERINE A.
151 COTTONWOOD DRIVE
DOVER, NH 03820-6027
TAX MAP B, LOT 4-51
S.C.R.D. BOOK 3359, PAGE 166
PLAN REF. #10 & #11

N/F FARMHAVEN DEVELOPMENT
ASSOCIATES, LLC
245 COTTONWOOD DRIVE
DOVER, NH 03820
TAX MAP B, LOT 27-33
S.C.R.D. BOOK 4808, PAGE 622
PLAN REF. #6 & #9

N/F MERKLEY, MARY B.
98 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 12
S.C.R.D. BOOK 2160, PAGE 276
PLAN REF. #7

N/F SEAVER, PAUL J. & PENNY L.
30 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-H
S.C.R.D. BOOK 3500, PAGE 327
PLAN REF. #1-4

N/F TORR, ZACHARY J. & MEAGAN L.
62 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-D
S.C.R.D. BOOK 4471, PAGE 958
PLAN REF. #5

N/F SIGHN, RAGHBIR
15 OLIVE MEADOW LANE
DOVER, NH 03820
TAX MAP B, LOT 6-C-OPN
S.C.R.D. BOOK 4436, PAGE 810
PLAN REF. #5 & #6

NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'
- SEE EXISTING CONDITIONS OVERVIEW PLAN FOR
ADDITIONAL NOTES AND PLAN REFERENCES.

SOIL DATA:

GIC ~ GLOUCESTER FINE SANDY LOAM, 8 TO 15%
SLOPES

GsC ~ GLOUCESTER VERY STONY FINE SANDY LOAM, 8
TO 15% SLOPES

Sb ~ SAUGATUCK LOAMY SAND

ScA ~ SCANTIC SILT LOAM, 0 TO 3% SLOPES

ScB ~ SCANTIC SILT LOAM, 3 TO 8% SLOPES

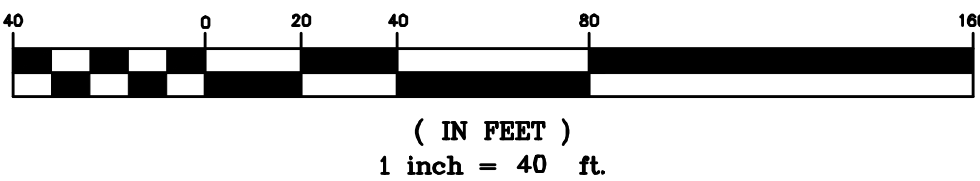
WdB ~ WINDSOR LOAMY SAND, 3 TO 8% SLOPES

NRCS, SEE WEBSOIL

LEGEND:

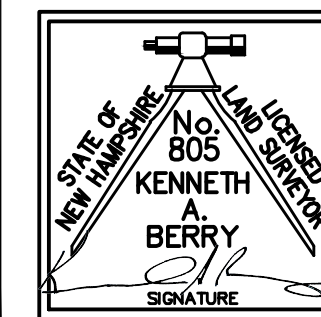
- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- TREE W/ BARBED WIRE
- TEMPORARY BENCHMARK
- ✕ MATCH POINT
- ✕ FIRE HYDRANT
- ✕ WATER VALVE
- STONE WALL
- APPROX. ABUTTING LOT LINE
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- NRCS SOIL LABEL/DELINEATION LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- MATCH LINE
- OHU --- OHU --- OHU --- OVERHEAD UTILITIES
- WATER LINE
- FND
- FOUND
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

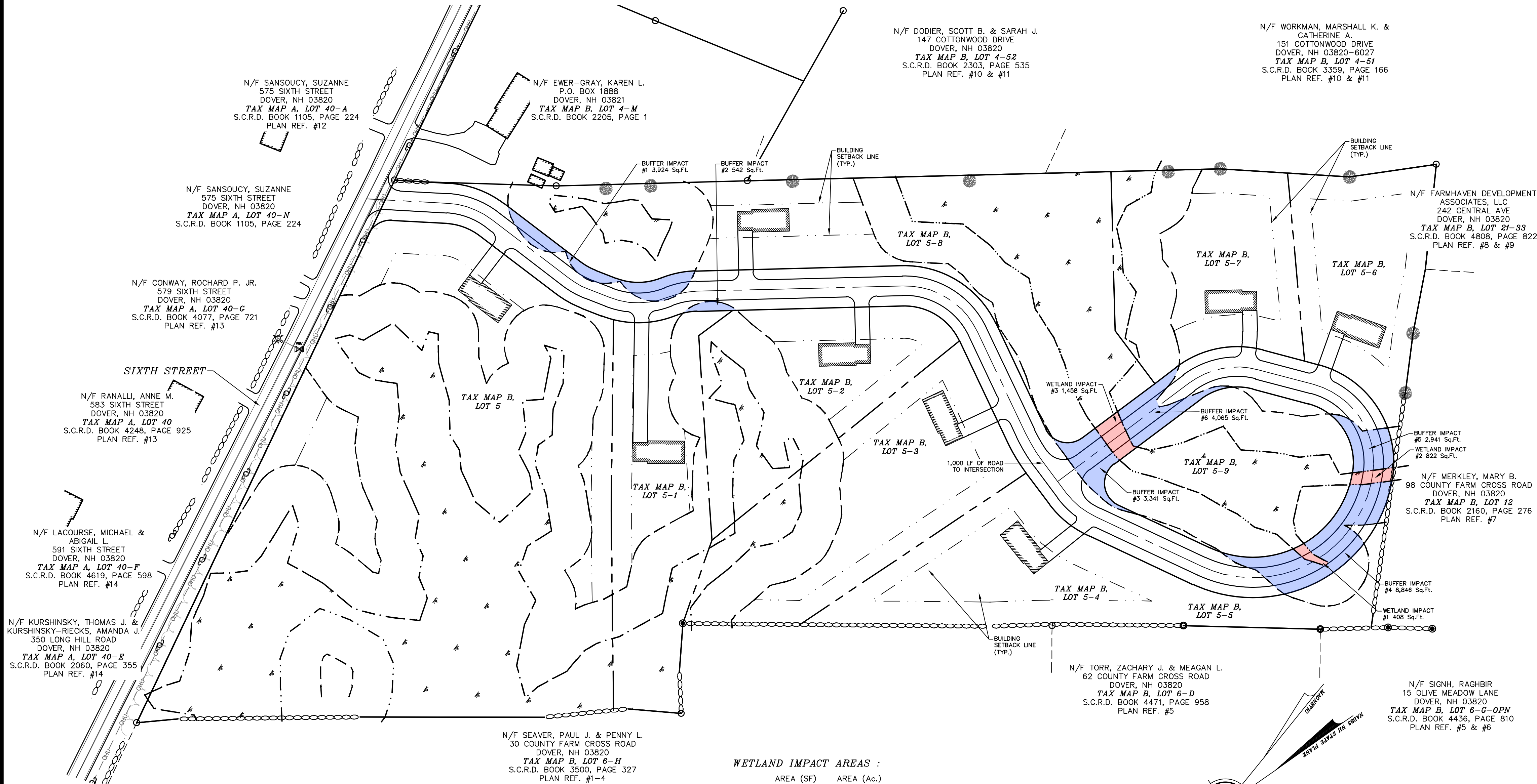
GRAPHIC SCALE



EXISTING CONDITIONS PLAN - SOUTHWEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011





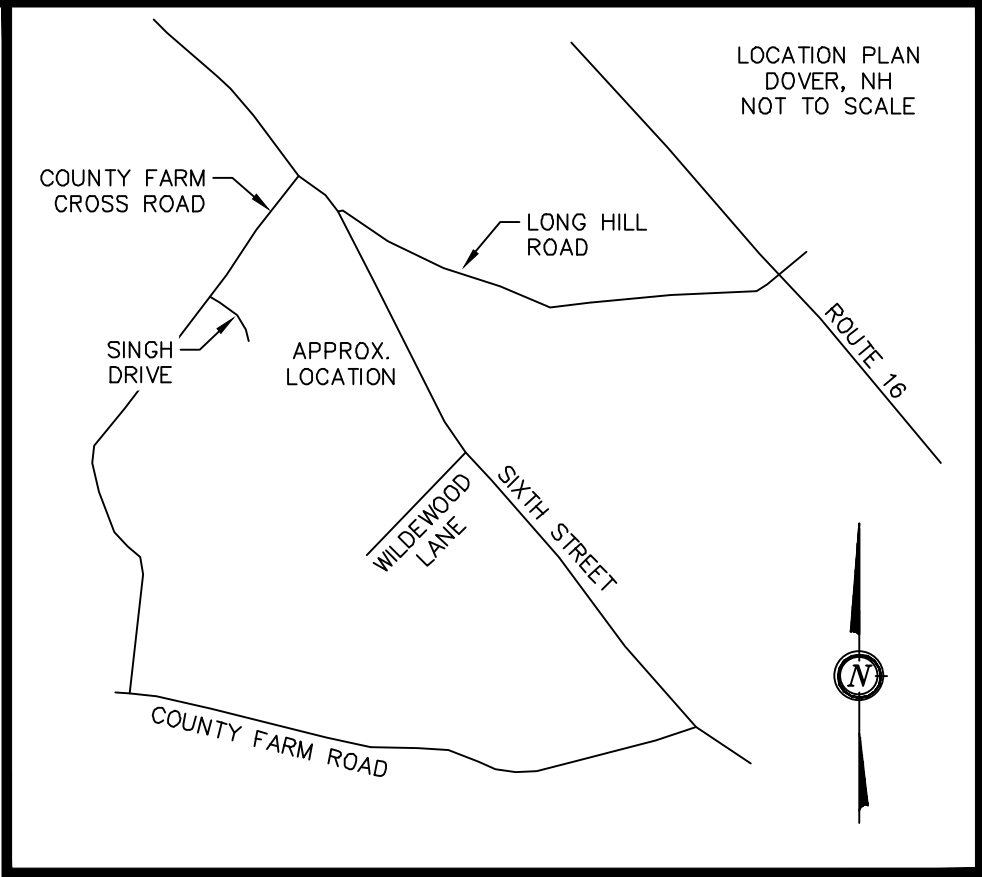
R-40 LOT YIELD :				
	LOT AREA (SF)	LOT AREA (Ac.)	CONTIGUOUS UPLAND AREA (SF)	CONTIGUOUS UPLAND OUTSIDE BUFFER (SF)
TAX MAP B, LOT 5:	257,300	5.91	144,891	31,020
TAX MAP B, LOT 5-1:	52,086	1.20	40,577	24,116
TAX MAP B, LOT 5-2:	51,478	1.18	43,413	24,005
TAX MAP B, LOT 5-3:	47,195	1.08	40,035	24,571
TAX MAP B, LOT 5-4:	40,756	0.94	40,702	40,756
TAX MAP B, LOT 5-5:	40,808	0.94	40,808	37,398
TAX MAP B, LOT 5-6:	41,692	0.96	41,374	200.00
TAX MAP B, LOT 5-7:	52,110	1.20	47,559	33,262
TAX MAP B, LOT 5-8:	112,011	2.57	66,177	24,181
TAX MAP B, LOT 5-9:	145,343	3.34	ROAD	ROAD

WETLAND IMPACT AREAS :

	AREA (SF)	AREA (Ac.)
#1	408	0.01
#2	822	0.02
#3	1,458	0.03
TOTAL	2,688	0.06

BUFFER IMPACT AREAS :

	AREA (SF)	AREA (Ac.)
#1	3,924	0.09
#2	542	0.01
#3	3,341	0.08
#4	8,846	0.20
#5	2,941	0.07
#6	4,065	0.09
TOTAL	23,660	0.54



NOTES:

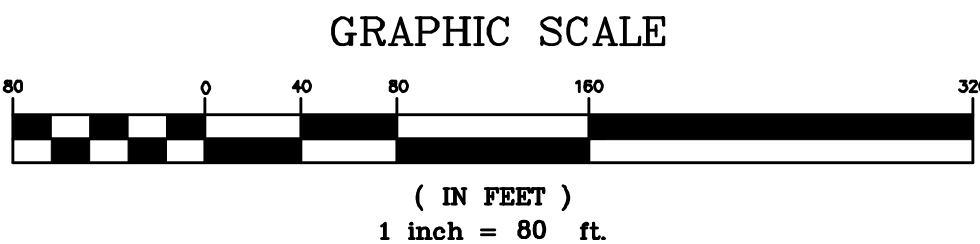
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 100%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.
 - THE INTENT OF THIS PLAN IS TO SHOW THE R-40 YIELD PLAN OF TAX MAP B, LOT 5.
 - ALL LOTS WILL BE SERVICED BY MUNICIPAL WATER AND SEWER.

REVISED PER AOT AND TRC COMMENTS	
9-23-21	DATE
#1	REVISION

R-40 YIELD PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
SIGNATURE



SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B

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

TEST PIT #1
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
6-14 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
14-24 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
24-62 10YR 5/2 GRAYISH BROWN, VERY FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ 24"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 24"
P = 20 MIN./IN.

TEST PIT #2
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
6-12 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
12-20 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
20-62 10YR 5/2 GRAYISH BROWN, VERY FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 20"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 20"
P = 24 MIN./IN.

TEST PIT #3
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
5-13 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
13-28 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
28-62 10YR 5/2 GRAYISH BROWN, FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 13"
RESTRICTIVE LAYER @ 28"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 28"
P = 24 MIN./IN.

TEST PIT #4
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
5-12 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
12-26 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
26-64 10YR 5/2 GRAYISH BROWN, FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 26"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 26"
P = 24 MIN./IN.

TEST PIT #5
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
12-20 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
20-65 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 65"
E.S.H.W.T. @ 20"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ 22"
P = 18 MIN./IN.

TEST PIT #6
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAM, GRANULAR, FRIABLE
18-32 2.5Y5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 32"
RESTRICTIVE LAYER @ 32"
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 8 MIN./IN.

TEST PIT #7
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-20 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
20-38 2.5Y5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38-68 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 6 MIN./IN.

TEST PIT #8
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-12 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
12-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-65 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
NOTE: TERMINATED @ 65" MANY STONES IN PROFILE 18-65"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 6 MIN./IN.

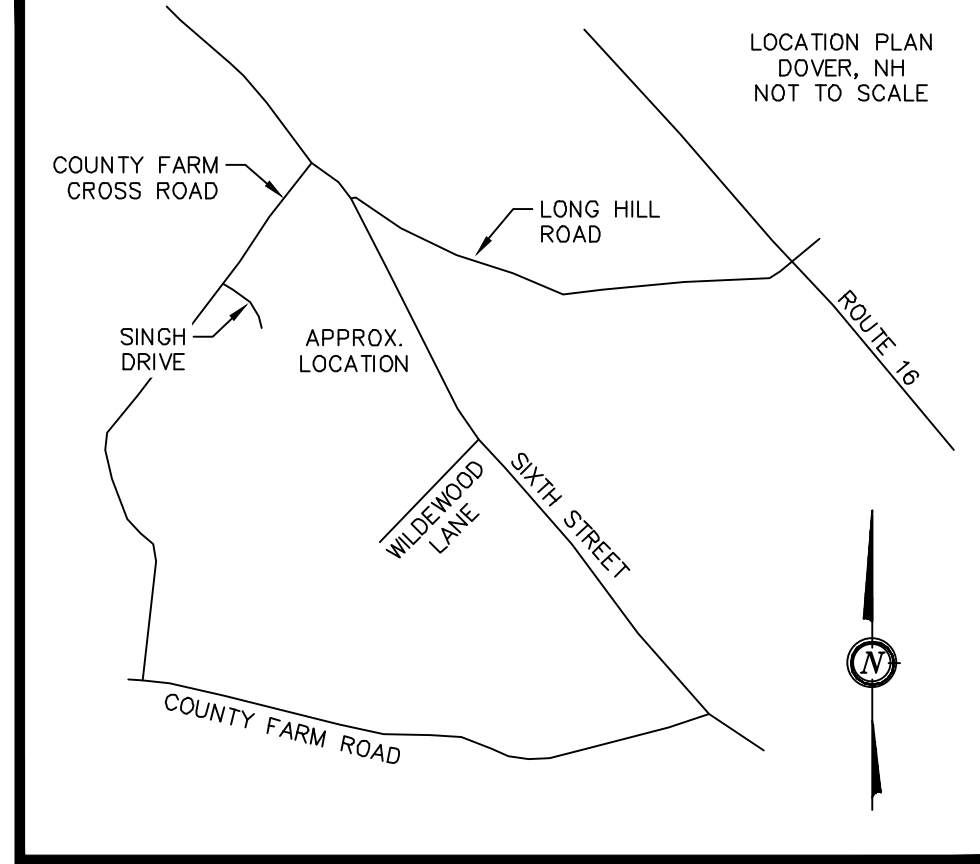
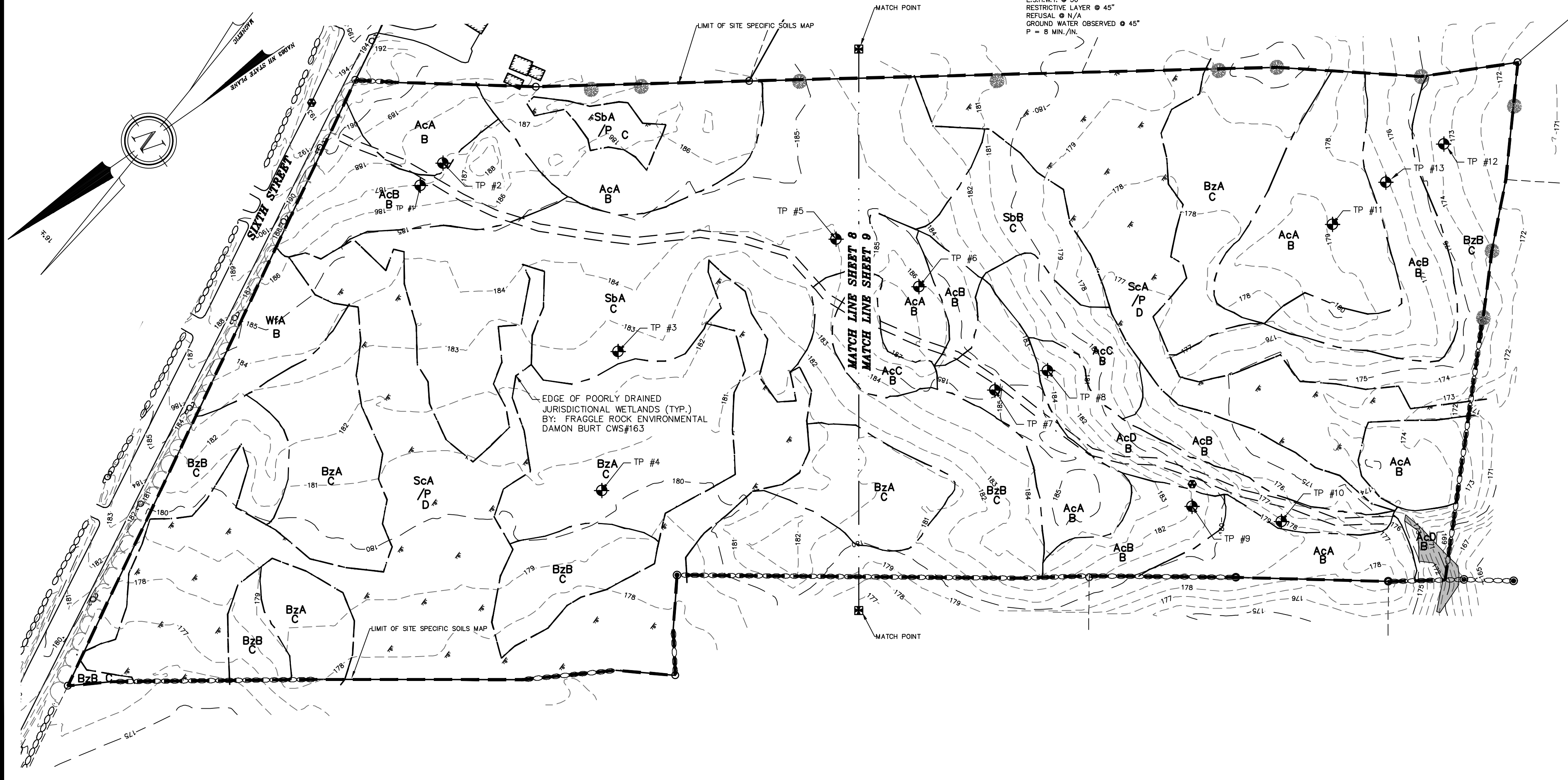
TEST PIT #9
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-65 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
NOTE: TERMINATED @ 65" MANY STONES IN PROFILE 18-65"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 6 MIN./IN.

TEST PIT #10
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-64 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 64" NOTE: MANY STONES IN PROFILE 18-64"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ 22"
P = 6 MIN./IN.

TEST PIT #11
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
18-36 2.5Y5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
36-45 2.5Y 5/3 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
45-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 36"
RESTRICTIVE LAYER @ 45"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 45"
P = 6 MIN./IN.

TEST PIT #12
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-16 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
16-24 10YR 4/4 DARK YELLOWISH BROWN, LOAMY FINE SAND, GRANULAR, FRIABLE
24-70 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 28"
P = 10 MIN./IN.

TEST PIT #13
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
30-45 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
45-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ 45"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 45"
P = 8 MIN./IN.



NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310C, DATED: SEPTEMBER 30, 2015.
- VERTICAL DATUM BASED ON NAD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
- THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING SOIL CONDITIONS OF TAX MAP B LOT 5.

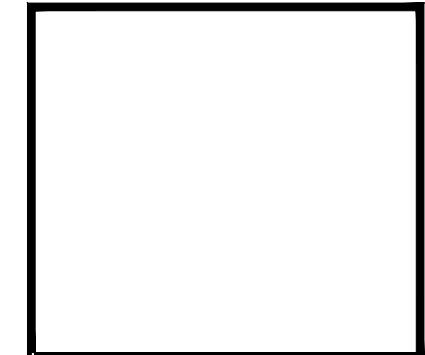
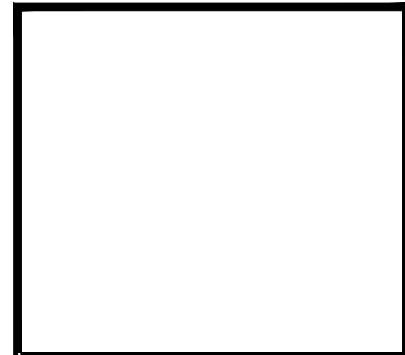
LEGEND:

- IRON BOUND ~FND~
- DRILL HOLE ~FND~
- IRON PIPE ~FND~
- TREE W/ BARBED WIRE
- TEST PIT
- MATCH POINT
- NRCS SOIL DELINEATION LINE
- STONE WALL
- WETLAND LINE
- MATCH LINE
- SOIL LINE
- LIMIT OF SOIL SURVEY
- SOIL SERIES
- STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. FND

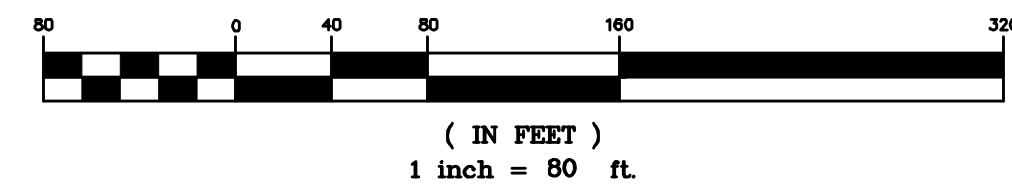
WETLAND NOTE:

THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:

- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
- U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
- COWARDIN, LEWIS M., GOLET, FRANCIS C. AND LAROE, EDWARD T. CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
- FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION B.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
- NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE, 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA



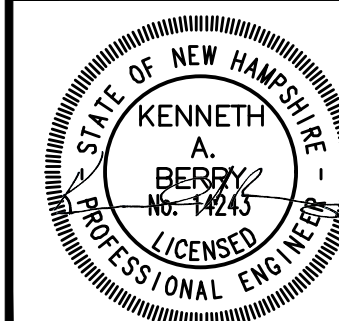
GRAPHIC SCALE



REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

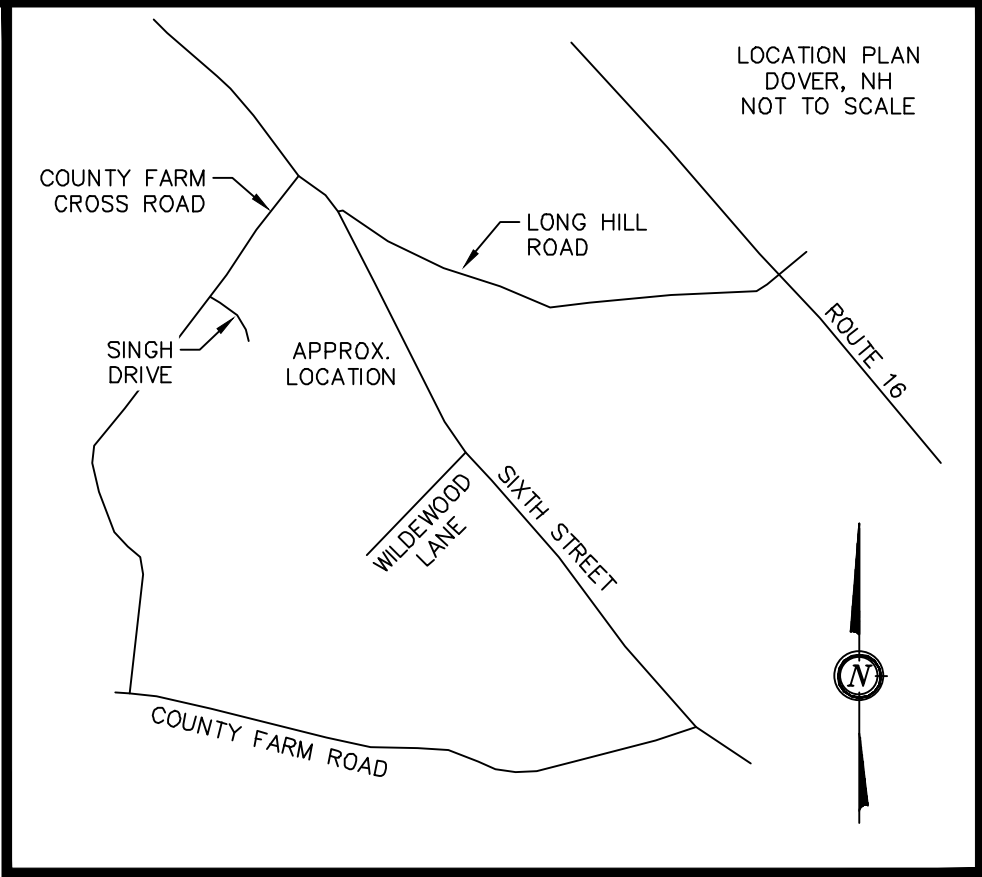
SITE SPECIFIC SOILS MAP OVERVIEW
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



SITE SPECIFIC SOILS LEGEND

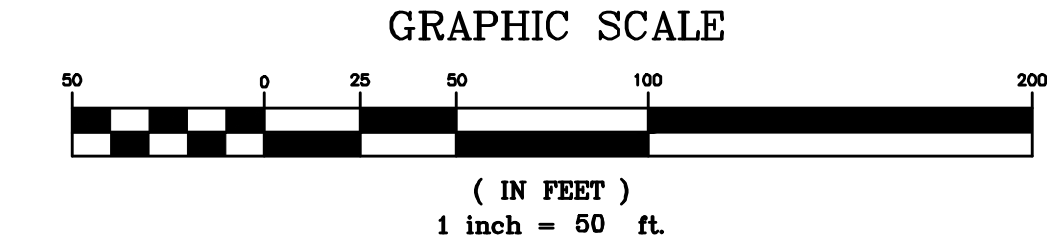
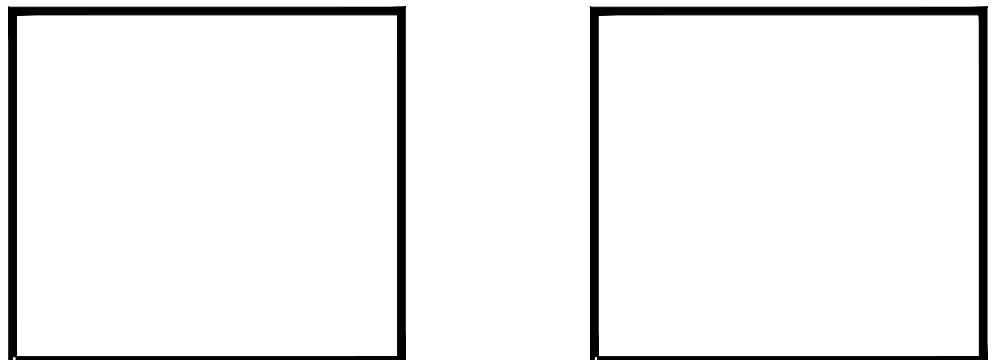
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
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 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING SOIL CONDITIONS OF TAX MAP B LOT 5.

- LEGEND:**
- IRON BOUND~FND~
 - DRILL HOLE ~FND~
 - IRON PIPE ~FND~
 - TREE W/ BARBED WIRE
 - TEST PIT
 - MATCH POINT
 - NRCS SOIL DELINEATION LINE
 - STONE WALL
 - WETLAND LINE
 - WATCH LINE
 - SOIL LINE
 - LIMIT OF SOIL SURVEY
 - SOIL SERIES
 - STRAFFORD COUNTY REGISTRY OF DEEDS
 - TYPICAL
 - FND
 - FOUND

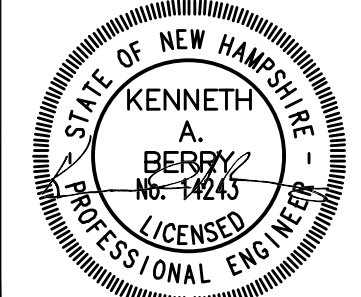
- WETLAND NOTE:**
- THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:
- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
 - U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
 - COWARDIN, LEWIS M., GOLET, FRANCIS C. AND LAROE, EDWARD T, CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USEWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
 - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
 - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA

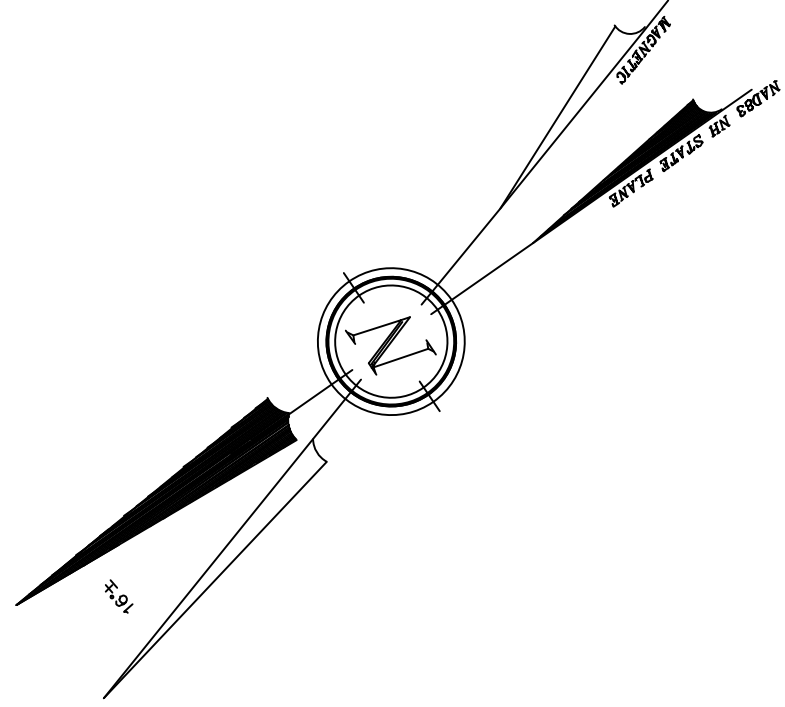


REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

SITE SPECIFIC SOILS MAP - NORTHEAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



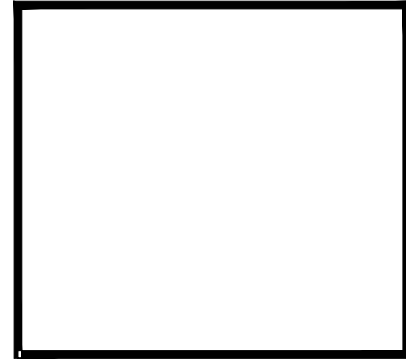


WETLAND NOTE:

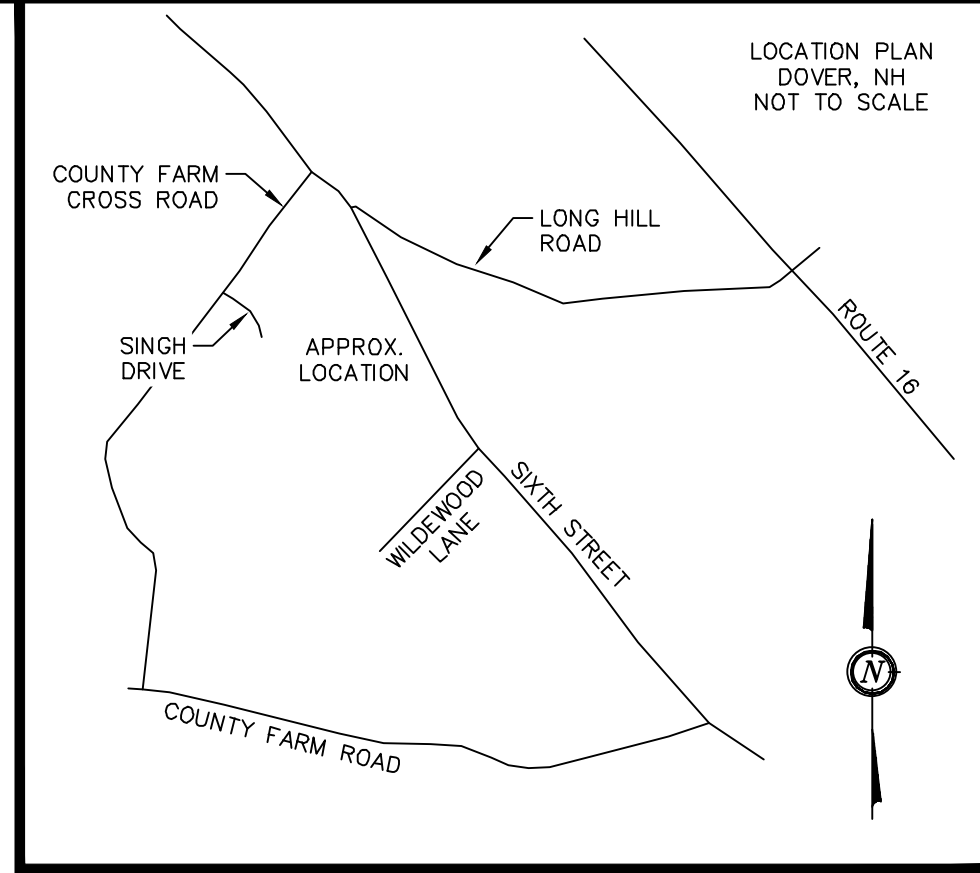
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1. CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
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 4. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
 5. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2017 VERSION 4. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA



FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163



JOHN P. HAYES III, CSS #87



NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
1. TAX MAP B, LOT 5
 2. LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
 3. S.C.R.D. BOOK 4861, PAGE 409
 4. I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 5. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 6. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING SOIL CONDITIONS OF TAX MAP B LOT 5.

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
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AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
SeB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B

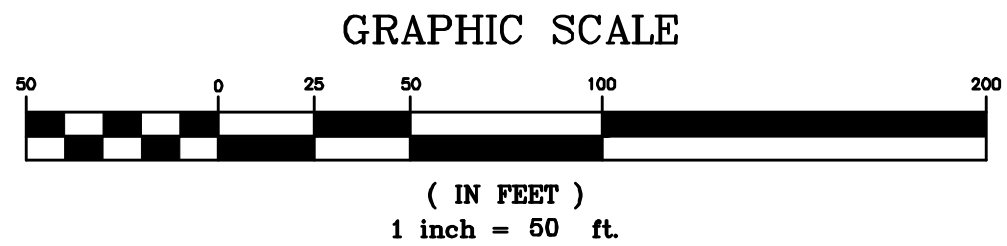
SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+

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

LEGEND:

- IRON BOUND~FND~
- DRILL HOLE ~FND~
- IRON PIPE ~FND~
- TREE W/ BARBED WIRE
- TEST PIT
- MATCH POINT

- NRCS SOIL DELINEATION LINE
- STONE WALL
- WETLAND LINE
- MATCH LINE
- SOIL LINE
- LIMIT OF SOIL SURVEY
- SOIL SERIES
- STRAFFORD COUNTY REGISTRY OF DEEDS
- TYPICAL
- FOUND



REVISOR
#1

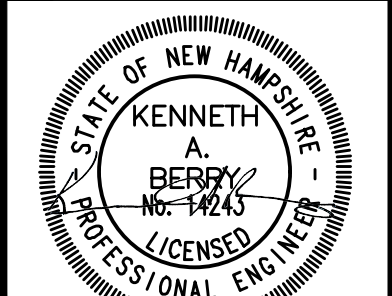
DATE

9-23-21

REVISED PER AOT AND TRC COMMENTS

SITE SPECIFIC SOILS MAP - SOUTHWEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



PLAN REFERENCES:

- "CHESTER MORGAN PROPERTY, LIMITED SUBDIVISION, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: JANUARY, 1974
S.C.R.D. PLAN #16-39
- "SUBDIVISION OF LAND OF GEORGE & GAIL SAMUELS, COUNTY FARM CROSS ROAD & SIXTH STREET, DOVER, N.H."
BY: LECLEERC STOWELL ASSOCIATES
DATED: FEBRUARY, 1984
S.C.R.D. PLAN #24A-29
- "PROPOSED SUBDIVISION LAND OF MATT R. & HELLEN R. WILLIAMS, COUNTY FARM CROSS ROAD, DOVER, N.H."
BY: BERRY SURVEYING & ENGINEERING
DATED: MARCH 11, 1994
PLAN #44-19
FILE NO. DB 1994-01
- "PROPOSED SUBDIVISION PLAN FOR LEIGH E. JERRY ON COUNTY FARM ROSS ROAD, TAX MAP B, LOT 6H IN DOVER, NH"
BY: BRUCE L. POHOPEK
DATED: AUGUST 25, 2000
S.C.R.D. PLAN #61-21
- "LOT LINE ADJUSTMENT PLAN PREPARED FOR DAVID G. TORR OF LANDS IDENTIFIED AS TAX MAP B, LOTS 6D & 6G HAVING A PHYSICAL ADDRESS OG #62 COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: JASON POHOPEK DESIGN & CONSTRUCTION, LLC
DATED: JULY 1, 2015
S.C.R.D. PLAN #111-011

PLAN REFERENCES:

- "OPEN SPACE SUBDIVISION OF LAND PREPARD FOR RAGHIB SINGH, TAX MAP B, LOT NO. 6-G, COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE"
BY: MCNEANEY SURVEY ASSOCIATES, INC.
DATED: AUGUST 10, 2017
S.C.R.D. PLAN #115-60
- "SURVEY PLAN FOR CHESTER & VIOLA BOLSTRIDGE IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: OCTOBER 8, 1984
S.C.R.D. PLAN #25-10
- "LOT LINE ADJUSTMENT FOR MPL N.H.2. INC AND GREGORIOS & HELEN KUTRELAKOS, UPPER SIXTH STREET IN DOVER, N.H."
BY: BRUCE L. POHOPEK
DATED: JANUARY 26, 1995
S.C.R.D. PLAN #45-77
- "OPEN SPACE SUBDIVISION PLAN, HAVEN FARM AT ALDEN WOODS, BOXWOOD LANE & WILDEWOOD LANE, DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: AUGUST 20, 2004
S.C.R.D. PLAN #80-35
- "PLAN OF LAND BETHARLENE WEEDEN, DOVER, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: OCTOBER, 1983
S.C.R.D. PLAN # 31A-90

PLAN REFERENCES:

- "ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE"
BY: MCNEANEY SURVEY ASSOCIATES, INC.
DATED: APRIL 27, 1998
S.C.R.D. PLAN #54-34
- "PLAN OF LOT NO. 1, RALPH GROER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: JUNE, 1975
S.C.R.D. PLAN # 17-9
- "PLAN OF LOTS NO. 4A & 4B, RALPH GROVER, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: JANUARY, 1979
S.C.R.D. PLAN #17-9
- "PLAN OF LOTS 1, 2, & 3, WARREN WEEDEN, SIXTH STREET & LONG HILL ROAD, DOVER, NEW HAMPSHIRE"
BY: ROBERT W. McCRONE
DATED: NOVEMBER, 1977
S.C.R.D. PLAN #17D-34
- "BOUNDARY PLAN LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5"
BY: BERRY SURVEYING & ENGINEERING
DATED: JUNE 10, 2021
TO BE RECORDED SIMULTANEOUSLY

WETLAND NOTE:

- THE WETLAND DELIEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:
- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
 - U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
 - COWARDIN, LEWIS M., GOLET, FRANCOIS C. AND LAROE, EDWARD T. CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979
 - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
 - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA

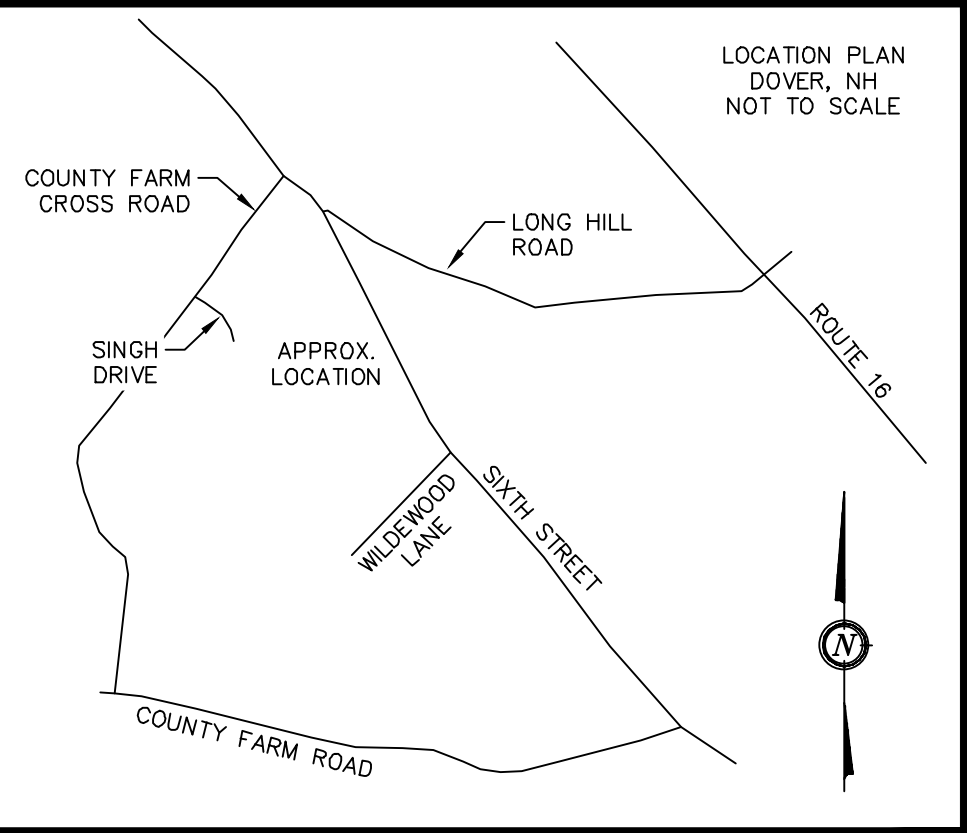
FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163

N/F EWER-GRAY, KAREN L.
P.O. BOX 1888
DOVER, NH 03821
TAX MAP B, LOT 4-M
S.C.R.D. BOOK 2205, PAGE 1
EX. LOT AREA: 90,279 Sq. Ft., 2.07 Ac.
PROP. LOT AREA 93,306 Sq. Ft., 2.14 Ac.

N/F SETTLEMENT ON 6TH LLC
4 HALL STREET
DOVER, NH 03820
TAX MAP B, LOT 5
S.C.R.D. BOOK 4861, PAGE 409
EX. LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
PROP. LOT AREA 836,691 Sq. Ft., 19.21 Ac.

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- STONE WALL
- PERIMETER BOUNDARY
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- PROPOSED PROPERTY LINE
- TO BE SET
- FND FOUND
- STRAFFORD COUNTY REGISTRY OF DEEDS

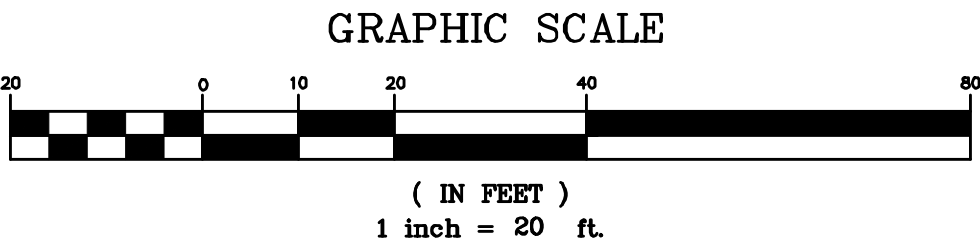


NOTES:

- OWNER: A.) SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- B.) KAREN EWER-GRAY
P.O. BOX 1888
DOVER, NH 03821
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- A.) TAX MAP B, LOT 5
B.) TAX MAP B, LOT 4-M
 - A.) LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
B.) LOT AREA: 90,279 Sq. Ft., 2.07 Ac.
 - A.) S.C.R.D. BOOK 4861, PAGE 409
B.) S.C.R.D. BOOK 2205, PAGE 1
 - ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.
 - THE INTENT OF THIS PLAN IS TO SHOW THE LOT LINE REVISION BETWEEN LOTS 5 & 4-M. THIS PLAN SHEET WAS NOT ORIGINALLY PUBLISHED ON JUNE 10, 2021. ADDITIONAL BOUNDARY MONUMENTS WERE DISCOVERED AND LOCATED BETWEEN THEN AND REVISION #1.

APPROVED DOVER

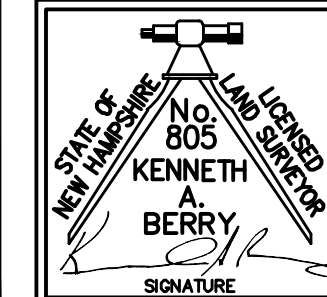
I CERTIFY THAT THIS PLAT EXCEEDS THE
MINIMUM REQUIREMENT FOR ACCURACY AND
COMPLETENESS OF THE STATE OF N.H. AND
OF THE CITY OF DOVER, N.H. - 1:10,000-
Kenneth A. Berry
KENNETH A. BERRY L.L.S. 805 DATE



REVISED PER AOT AND TRC COMMENTS	DATE	REVISION	DESCRIPTION
	9-23-21	#1	

LOT LINE REVISION
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



WETLAND NOTE:

THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:

- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
- U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
- COWARDIN, LEWIS M., GOLET, FRANCIS C. AND LAROE, EDWARD T, CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
- FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
- NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE, 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA

FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163

PLAN REFERENCES:

- "CHESTER MORGAN PROPERTY, LIMITED SUBDIVISION, DOVER, N.H." BY: FREDERICK E. DREW ASSOCIATES DATED: JANUARY, 1974 S.C.R.D. PLAN #16-39
- "SUBDIVISION OF LAND OF GEORGE & GAIL SAMUELS, COUNTY FARM CROSS ROAD & SIXTH STREET, DOVER, N.H." BY: LECLEERC STOWELL ASSOCIATES DATED: FEBRUARY, 1984 S.C.R.D. PLAN #24A-29
- "PROPOSED SUBDIVISION LAND OF MATT R. & HELLEN R. WILLIAMS, COUNTY FARM CROSS ROAD, DOVER, N.H." BY: BERRY SURVEYING & ENGINEERING DATED: MARCH 11, 1994 PLAN #44-19 FILE NO. DB 1994-01
- "PROPOSED SUBDIVISION PLAN FOR LEIGH E. JERRY ON COUNTY FARM ROSS ROAD, TAX MAP B, LOT 6H IN DOVER, NH" BY: BRUCE L. POHOPEK DATED: AUGUST 25, 2000 S.C.R.D. PLAN #61-21
- "LOT LINE ADJUSTMENT PLAN PREPARED FOR DAVID G. TORR OF LANDS IDENTIFIED AS TAX MAP B, LOTS 6D & 6G HAVING A PHYSICAL ADDRESS OG #62 COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE" BY: JASON POHOPEK DESIGN & CONSTRUCTION, LLC DATED: JULY 1, 2015 S.C.R.D. PLAN #111-011

PLAN REFERENCES:

- "OPEN SPACE SUBDIVISION OF LAND PREPARED FOR RAGHIBIR SINGH, TAX MAP B, LOT NO. 6-G, COUNTY FARM CROSS ROAD, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES, INC. DATED: AUGUST 10, 2017 S.C.R.D. PLAN #115-60
- "SURVEY PLAN FOR CHESTER & VIOLA BOLSTRIDGE IN DOVER, N.H." BY: BRUCE L. POHOPEK DATED: OCTOBER 8, 1984 S.C.R.D. PLAN #25-10
- "LOT LINE ADJUSTMENT FOR MPL N.H.2. INC AND GREGORIOS & HELEN KUTRELAKOS, UPPER SIXTH STREET IN DOVER, N.H." BY: BRUCE L. POHOPEK DATED: JANUARY 26, 1995 S.C.R.D. PLAN #45-77
- "OPEN SPACE SUBDIVISION PLAN, HAVEN FARM AT ALDEN WOODS, BOXWOOD LANE & WILDEWOOD LANE, DOVER, NEW HAMPSHIRE" BY: TRITECH ENGINEERING CORPORATION DATED: AUGUST 20, 2004 S.C.R.D. PLAN #80-35
- "PLAN OF LAND BETHARLENE WEEDEN, DOVER, N.H." BY: FREDERICK E. DREW ASSOCIATES DATED: OCTOBER, 1983 S.C.R.D. PLAN # 31A-90

PLAN REFERENCES:

- "ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES, INC. DATED: JUNE, 1975 S.C.R.D. PLAN #54-34
- "PLAN OF LOT NO. 1, RALPH GROER, DOVER, NEW HAMPSHIRE" BY: ROBERT W. McCRONE DATED: JUNE, 1975 S.C.R.D. PLAN #17-9
- "PLAN OF LOTS NO. 4A & 4B, RALPH GROVER, DOVER, NEW HAMPSHIRE" BY: ROBERT W. McCRONE DATED: JANUARY, 1979 S.C.R.D. PLAN #17-9
- "PLAN OF LOTS 1, 2, & 3, WARREN WEEDEN, SIXTH STREET & LONG HILL ROAD, DOVER, NEW HAMPSHIRE" BY: ROBERT W. McCRONE DATED: NOVEMBER, 1977 S.C.R.D. PLAN #17D-34
- "LOT LINE REVISION LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5" BY: BERRY SURVEYING & ENGINEERING DATED: JUNE 10, 2021 TO BE RECORDED SIMULTANEOUSLY
- "BOUNDARY PLAN LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5" BY: BERRY SURVEYING & ENGINEERING DATED: JUNE 10, 2021 TO BE RECORDED SIMULTANEOUSLY

TDR UNIT CALCULATIONS

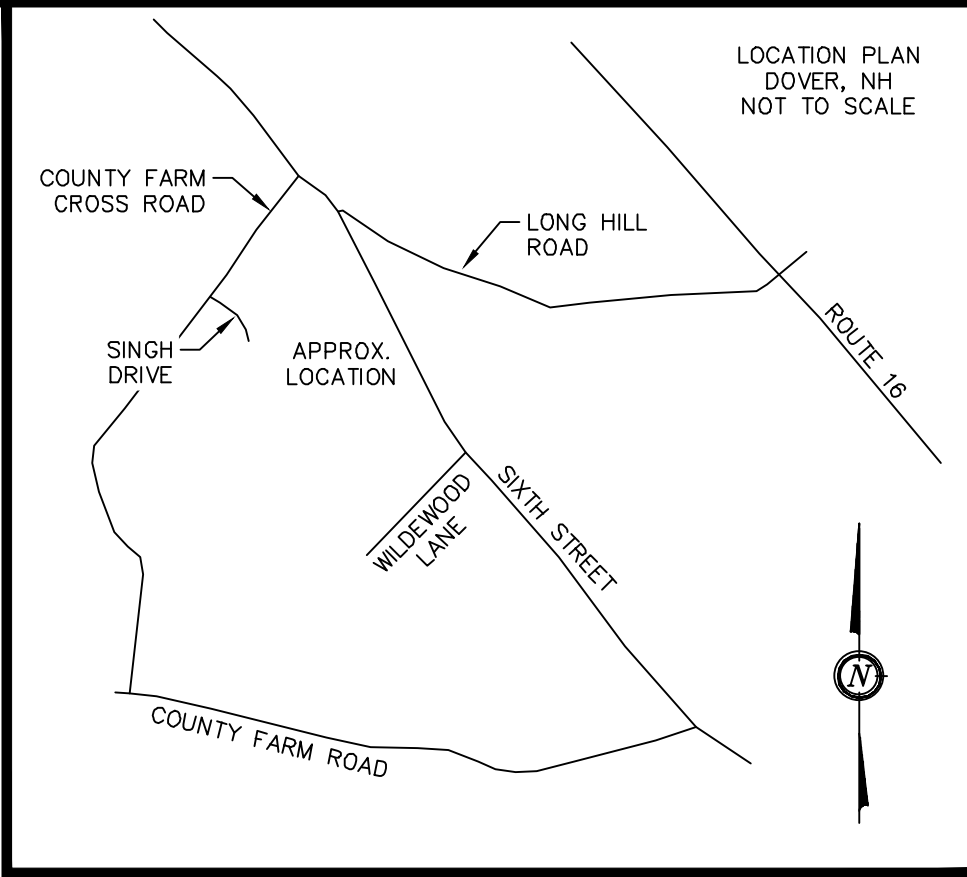
- 1.) $839,718 \text{ SF} - 191,276 \text{ (CONSERVATION)} = 648,442$
- 2.) $649,502 * .85 = 551,176$
- 3.) $552,077 * .75 = 413,382$
- 4.) $413,382 \text{ SF} / 40,000 \text{ SF} = 10.33 \text{ UNITS}$
- 5.) REMAINING 1 UNITS TO BE PURCHASED, THUS ALLOWING FOR 11 UNITS

THE PLANNING BOARD APPROVED THE USE OF THE TDR WHICH INCLUDES ADDITIONAL UNITS PER CHAPTER 170.27.2 (PENDING)

OPEN SPACE CALCULATIONS

- PROPOSED NUMBER OF UNITS = 11
REQUIRED 20,000 SF OF OPEN SPACE PER UNIT
REQUIRED OPEN SPACE = 220,000 SF
PROVIDED OPEN SPACE = 251,311 SF
REQUIRED UPLANDS OPEN SPACE = 110,000 SF
PROVIDED UPLANDS OPEN SPACE = 202,872 SF

N/F WORKMAN, MARSHALL K. & CATHERINE A.
151 COTTONWOOD DRIVE
DOVER, NH 03820-6027
TAX MAP B, LOT 4-51
S.C.R.D. BOOK 3359, PAGE 166
PLAN REF. #10 & #11



NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409

- ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'

ZONING: TRANSFER OF DEVELOPMENT RIGHTS (TDR)
LOT SIZE: N/A Sq. Ft.
MAX. LOT COVERAGE: N/A
MINIMUM FRONTAGE: 40'
FRONT SETBACK: 20'
ABUT A STREET SETBACK: 20'
SIDE SETBACK: 10'
REAR SETBACK: 30'

- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
- VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
- THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.
- THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW OF A TDR SUBDIVISION OF TAX MAP B, LOT 5 AND LOT LINE REVISION WITH TAX MAP B LOT 4-M.
- ALL LOTS WILL BE SERVICED BY MUNICIPAL WATER AND SEWER.
- THIS IS A TDR SUBDIVISION. THE PLANNING BOARD APPROVED THE USE OF THE TDR ALLOWING FOR INCREASED DENSITY BY 1 UNIT AND ALLOW THE USE OF THE TDR ORDINANCE.
- WILDCAT DRIVE IS PROPOSED TO BE PRIVATE. REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES. 155-48B THERE ARE NO CITY SERVICES PROVIDED UNLESS THE ROADWAY CONFORMS WITH PUBLIC ROAD SPECIFICATIONS AND THE PLANNING BOARD HAS REVIEWED AND AGREED TO AMEND THE APPROVAL TO ALLOW A PUBLIC ROADWAY.
- IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE OWNER SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE CITY OF DOVER.

REVISED PER AOT AND TRC COMMENTS

DESCRIPTION

DATE

REVISION

#1

OVERVIEW SUBDIVISION PLAN

LAND OF

SETTLEMENT ON 6TH, LLC

SIXTH STREET

DOVER, N.H.

TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING

335 SECOND CROWN POINT ROAD

BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 80 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011

NEW STATE OF NH

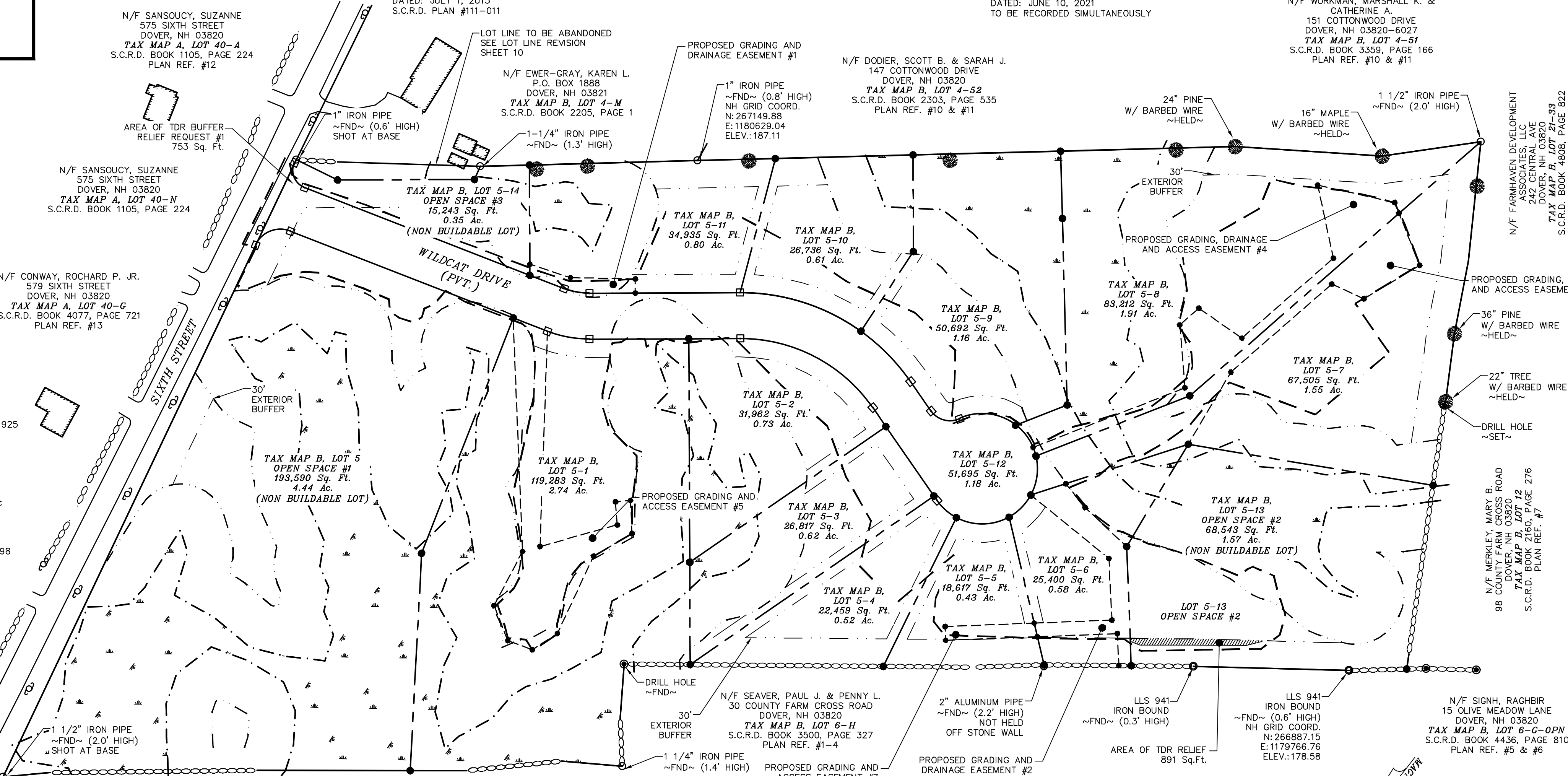
NO. 805

KENNETH A. BERRY

LAND SURVEYOR

SIGNATURE

SHEET 11 OF 56



ADDITIONAL NOTES:

- AS-BUILT PLANS OF THE SUBDIVISION SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR ERSI FORMAT TO THE CITY OF DOVER ENGINEERS OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILE SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
- THE CURRENT USE OF THE PROPERTY IS VACANT LAND IN CURRENT USE. ALL PROPOSED LOTS WILL BE FOR RESIDENTIAL SINGLE FAMILY HOMES.
- FINAL LOT NUMBERS SHALL BE ASSIGNED BY THE ASSESSING OFFICE. ADDRESSES TO BE ASSIGNED BY BUILDING OFFICIAL.
- THIS IS A MULTI PAGE PLAN SET WITH ADDITIONAL ENGINEERING INFORMATION PROVIDED AND ON FILE AT THE CITY OF DOVER PLANNING OFFICE. SHEETS 2, 10-11, 13-14 & 17-18 WILL BE RECORDED AT THE S.C.R.D.
- WRITTEN DIMENSIONS 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.

ADDITIONAL NOTES:

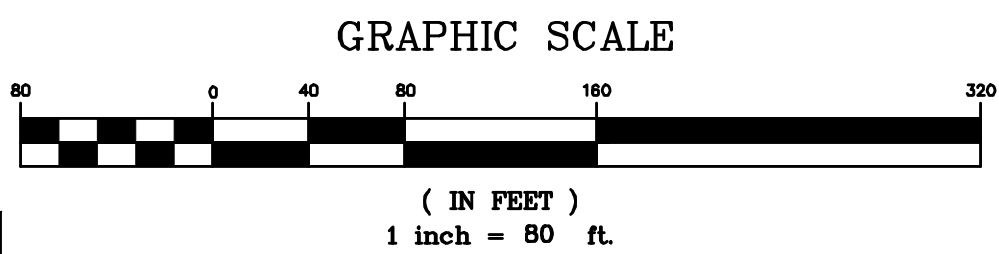
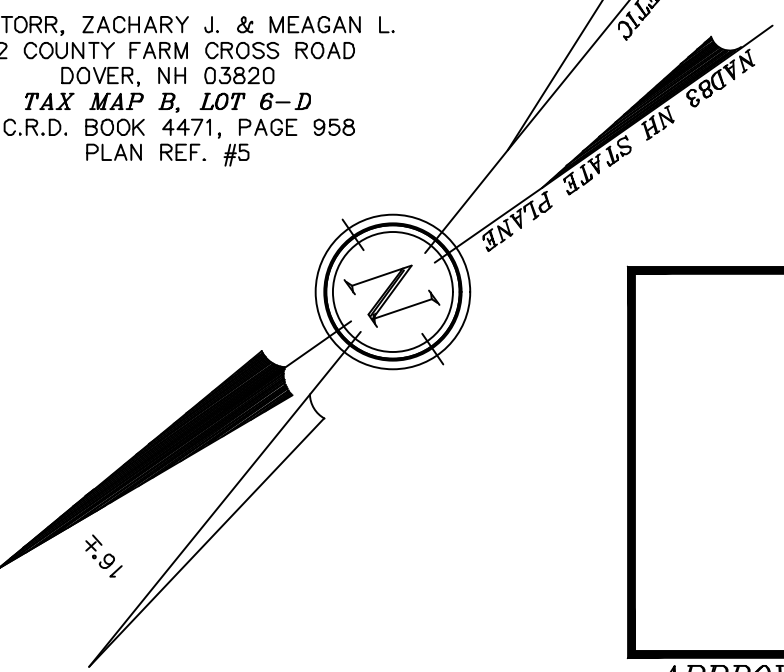
- THE CONSTRUCTION HOURS FOR EARTH WORK SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-5PM, WITH NO SATURDAY OR SUNDAY HOURS. HOURS OF CONSTRUCTION SHALL BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR.
- ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", AND "CITY OF DOVER STANDARD SPECIFICATIONS"

CONDITIONAL USE PERMITS:
CONSTRUCTION WITHIN THE 50' BUFFER (11,394 Sq. Ft. PROPOSED): PENDING
TDR REQUESTS:
REDUCTION IN 30' BUFFER IN OPEN SPACE #2 TO 20' ALONG GW #102: PENDING
PURCHASE OF 1 ADDITIONAL UNITS: PENDING
USE OF TDR LOT SIZING AND BUFFER REQUIREMENTS: PENDING

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- GRANITE BOUND ~TBS~
- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- TREE W/ BARBED WIRE
- STONE WALL
- PERIMETER BOUNDARY
- APPROX. ABUTTING LOT LINE
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- PROPOSED PROPERTY LINE
- PROPOSED EASEMENT LINE
- TBS
- FND
- S.C.R.D.
- TO BE SET
- FOUND
- STRAFFORD COUNTY REGISTRY OF DEEDS

N/F TORR, ZACHARY J. & MEAGAN L.
62 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-D
S.C.R.D. BOOK 4471, PAGE 958
PLAN REF. #5



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 L.L.S. 805 DATE

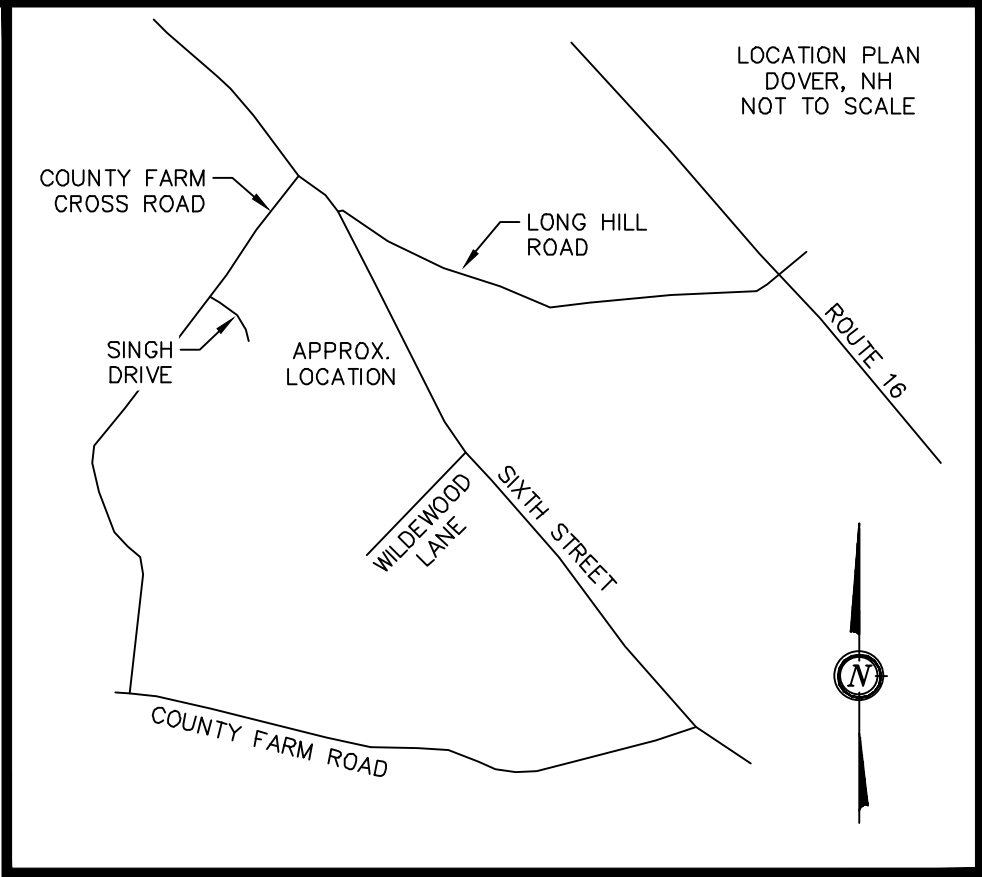
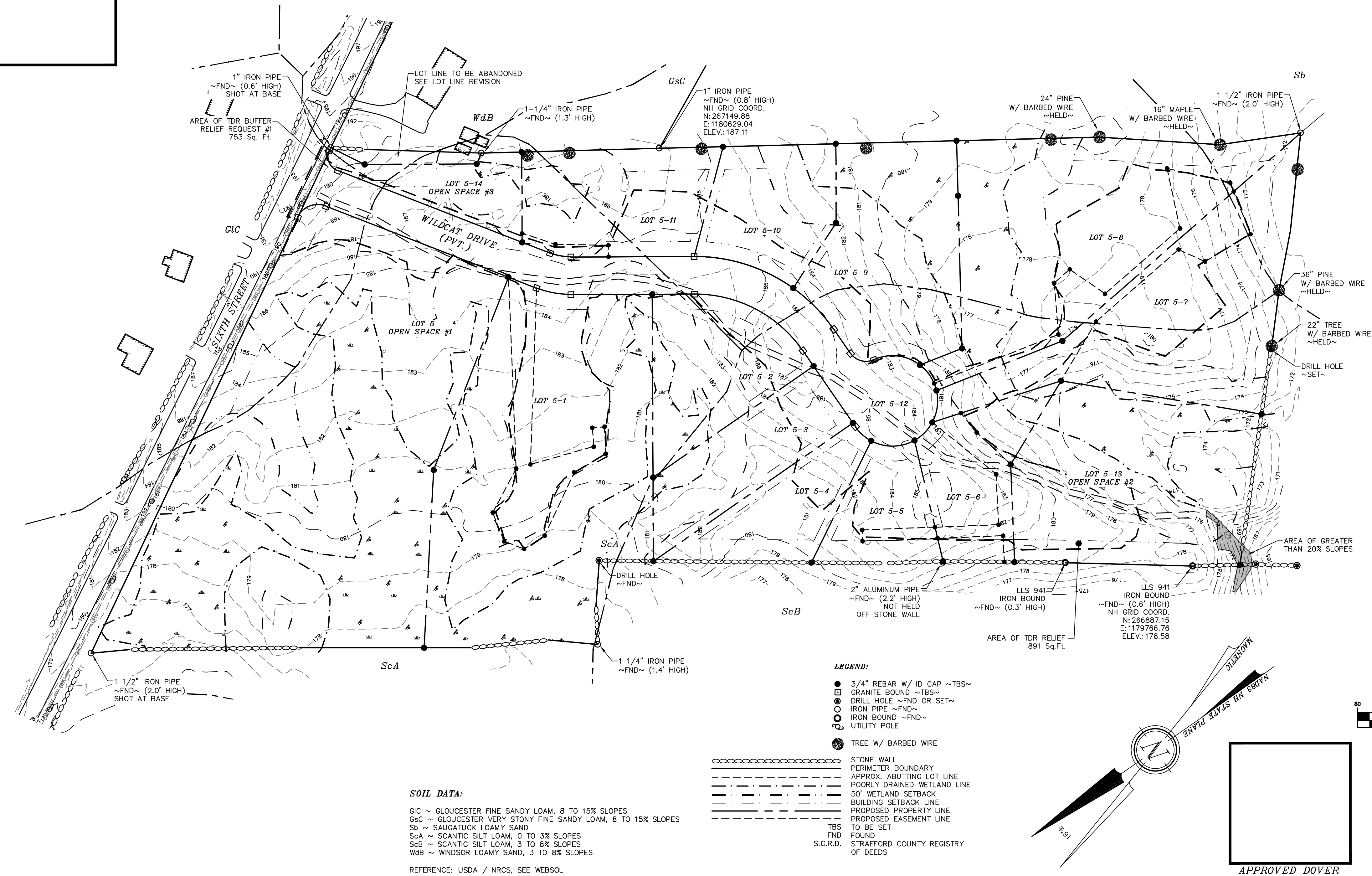
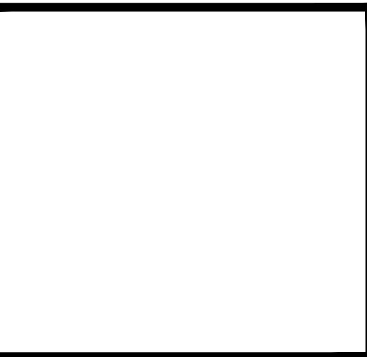
APPROVED DOVER

WETLAND NOTE:

THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:

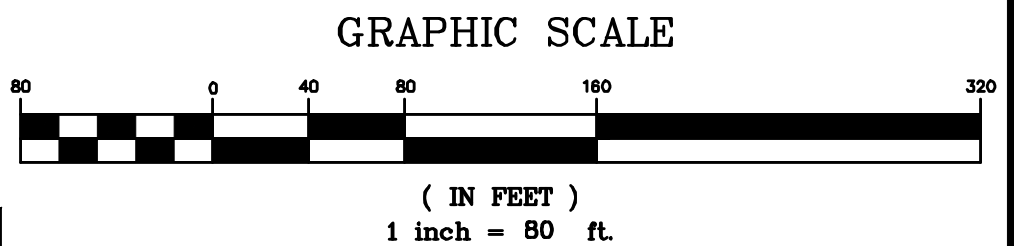
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FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163



NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
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FRONT SETBACK: 40'
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SIDE SETBACK: 25'
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MINIMUM FRONTAGE: 40'
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 - THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.
 - THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW SUBDIVISION TOPO.



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 L.L.S. 805 DATE

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

TOPOGRAPHIC OVERVIEW SUBDIVISION PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
L.L.S. 805
SIGNATURE

TRANSFER OF DEVELOPMENT RIGHTS (TDR)

CALCULATIONS

USING SINGLE FAMILY DETACHED METHOD

LOT SIZE: 840,778 Sq. Ft.

WETLAND AREA: 192,276 Sq. Ft.

BASE LOT SIZE = 840,778 Sq. Ft. - 191,276 Sq. Ft. = 649,502 Sq. Ft.

BASE LOT SIZE IS REDUCED BY 15% TO ACCOUNT FOR

ROADWAY, PROVIDING NET AREA

NET AREA = 649,502 Sq. Ft. * 0.85 = 552,077 Sq. Ft.

PARCEL WETLAND PERCENTAGE = (192,276 Sq. Ft. / 840,778 Sq. Ft.) * 100% = 22.9%

WETLANDS FACTOR IS 0.75

DEVELOPABLE AREA = 552,077 Sq. Ft. * 0.75 = 414,058 Sq. Ft.

R-40 ZONE = 40,000 Sq. Ft. MIN LOT SIZE

DEVELOPABLE AREA / MIN LOT SIZE = TDR BASE NUMBER

TDR BASE NUMBER = 414,058 Sq. Ft. / 40,000 Sq. Ft. = 10.35

10 UNITS ALLOWED BY RIGHT

1 UNITS TO BE PURCHASED VIA TRANSFER OF DEVELOPMENT RIGHTS

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- GRANITE BOUND ~TBS~
- 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- TREE W/ BARBED WIRE

- STONE WALL
- PERIMETER BOUNDARY
- APPROX. ABUTTING LOT LINE
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- PROPOSED PROPERTY LINE
- PROPOSED EASEMENT LINE
- TBS TO BE SET
- FND FOUND
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

N/F RANALLI, ANNE M.
583 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40
S.C.R.D. BOOK 4248, PAGE 925
PLAN REF. #13

N/F LACOURSE, MICHAEL &
ABIGAIL L.
581 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-F
S.C.R.D. BOOK 4619, PAGE 598
PLAN REF. #14

N/F CONWAY, ROCHARD P. JR.
579 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-G
S.C.R.D. BOOK 4077, PAGE 721
PLAN REF. #13

N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-N
S.C.R.D. BOOK 1105, PAGE 224
PLAN REF. #13

N/F SEAVER, PAUL J. & PENNY L.
30 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-H
S.C.R.D. BOOK 3500, PAGE 327
PLAN REF. #14

N/F EWER-GRAY, KAREN L.
P.O. BOX 1888
DOVER, NH 03821
TAX MAP B, LOT 4-M
S.C.R.D. BOOK 2205, PAGE 1
APPARENT ENCROACHMENT

EDGE OF POORLY DRAINED
JURISDICTIONAL WETLANDS (TYP.)
BY: FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT CWS#163

1" IRON PIPE
~FND~ (0.8" HIGH)
NH GRID COORD.
N: 267149.88
E: 1180629.04
ELEV.: 187.11

MATCH POINT
(TYP.)

TAX MAP B,
LOT 5-11
34,935 Sq. Ft.
0.80 Ac.

TAX MAP B,
LOT 5-12
51,695 Sq. Ft.
1.18 Ac.

TAX MAP B,
LOT 5
OPEN SPACE #1
193,590 Sq. Ft.
4.44 Ac.
(NON BUILDABLE LOT)

TAX MAP B,
LOT 5-1
119,283 Sq. Ft.
2.74 Ac.

TAX MAP B,
LOT 5-2
31,962 Sq. Ft.
0.73 Ac.

TAX MAP B,
LOT 5-4
26,817 Sq. Ft.
0.62 Ac.

TAX MAP B,
LOT 5-5
22,459 Sq. Ft.
0.52 Ac.

NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

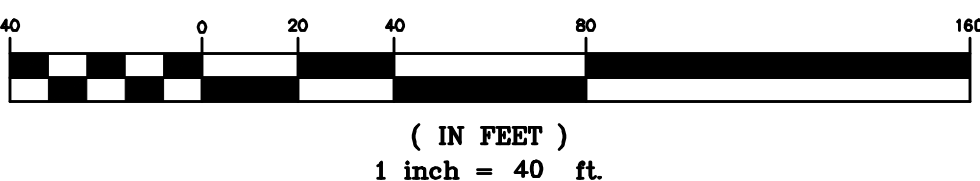
APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 100%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'

ZONING: TRANSFER OF DEVELOPMENT RIGHTS (TDR)
LOT SIZE: N/A Sq. Ft.
MAX. LOT COVERAGE: N/A
MINIMUM FRONTAGE: 40'
FRONT SETBACK: 20'
ABUT A STREET SETBACK: 20'
SIDE SETBACK: 10'
REAR SETBACK: 30'

- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
- VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
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- THE INTENT OF THIS PLAN IS TO SHOW THE TDR SUBDIVISION PLAN OF TAX MAP B, LOT 5.
- ALL LOTS WILL BE SERVICED BY MUNICIPAL WATER AND SEWER.
- THIS IS A TDR SUBDIVISION. THE PLANNING BOARD APPROVED THE USE OF THE TDR ALLOWING FOR INCREASED DENSITY BY 1 UNIT AND ALLOW THE USE OF THE TDR ORDINANCE.
- WILDCAT DRIVE IS PROPOSED TO BE PRIVATE. REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES. 155-488 THERE ARE NO CITY SERVICES PROVIDED UNLESS THE ROADWAY CONFORMS WITH PUBLIC ROAD SPECIFICATIONS AND THE PLANNING BOARD HAS REVIEWED AND AGREED TO AMEND THE APPROVAL TO ALLOW A PUBLIC ROADWAY.
- SEE OVERVIEW SUBDIVISION FOR PLAN REFERENCES AND ADDITIONAL NOTES.

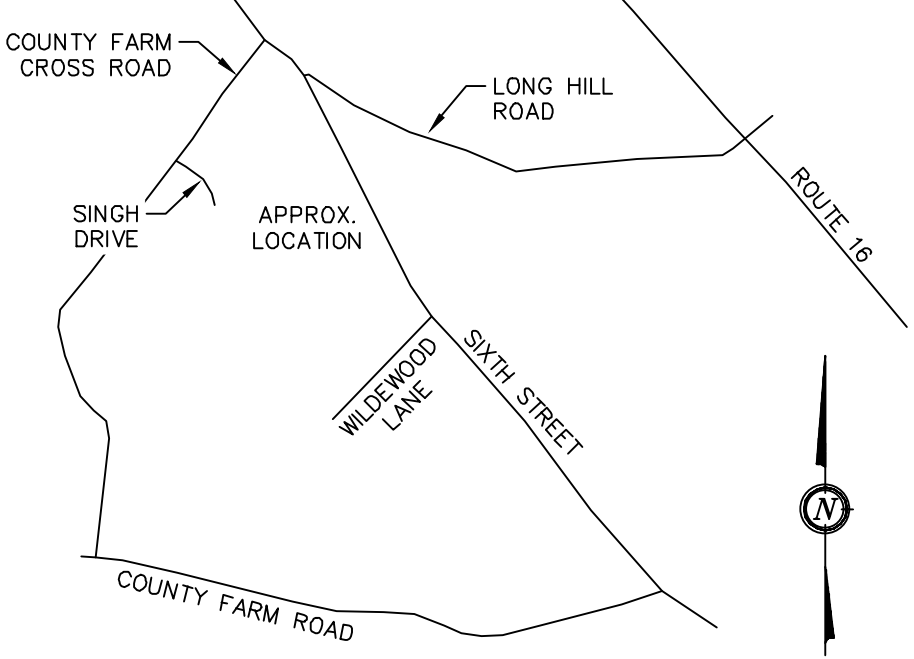
GRAPHIC SCALE



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 L.L.S. 805 DATE

LOCATION PLAN
DOVER, NH
NOT TO SCALE



REVISION DATE

#1	9-23-21

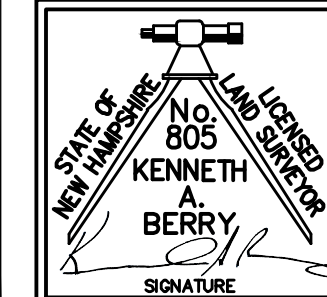
DETAIL TDR SUBDIVISION PLAN EAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

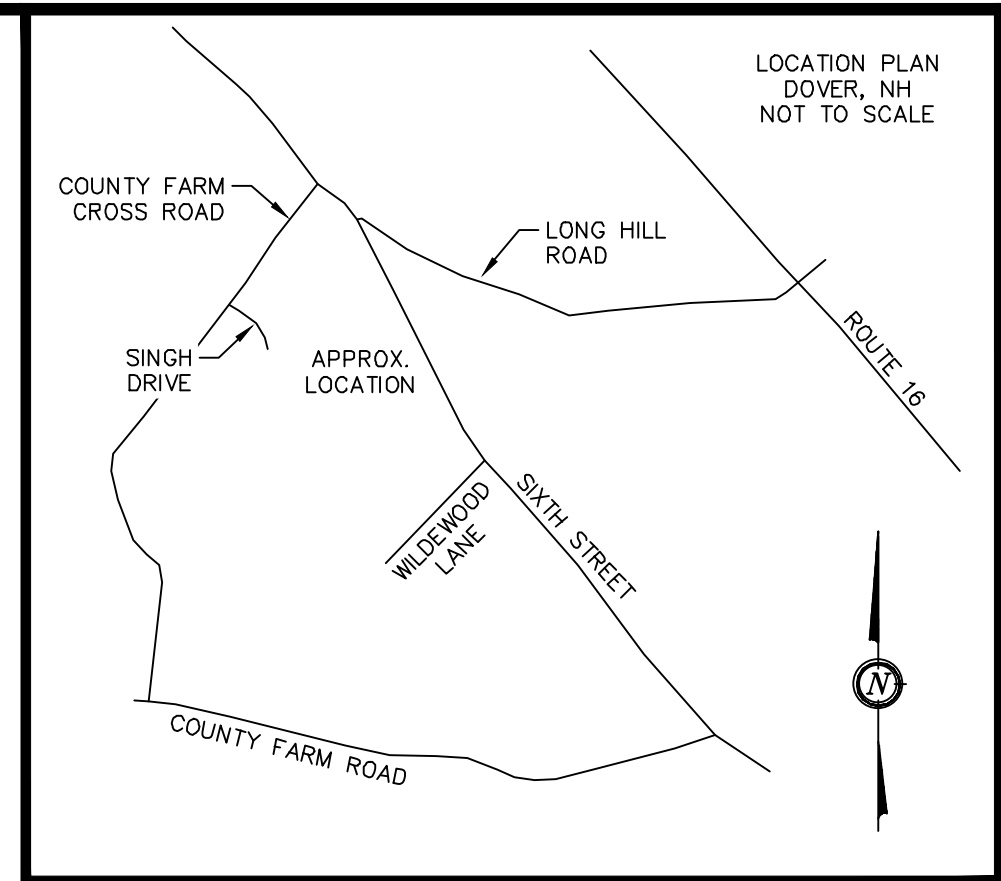
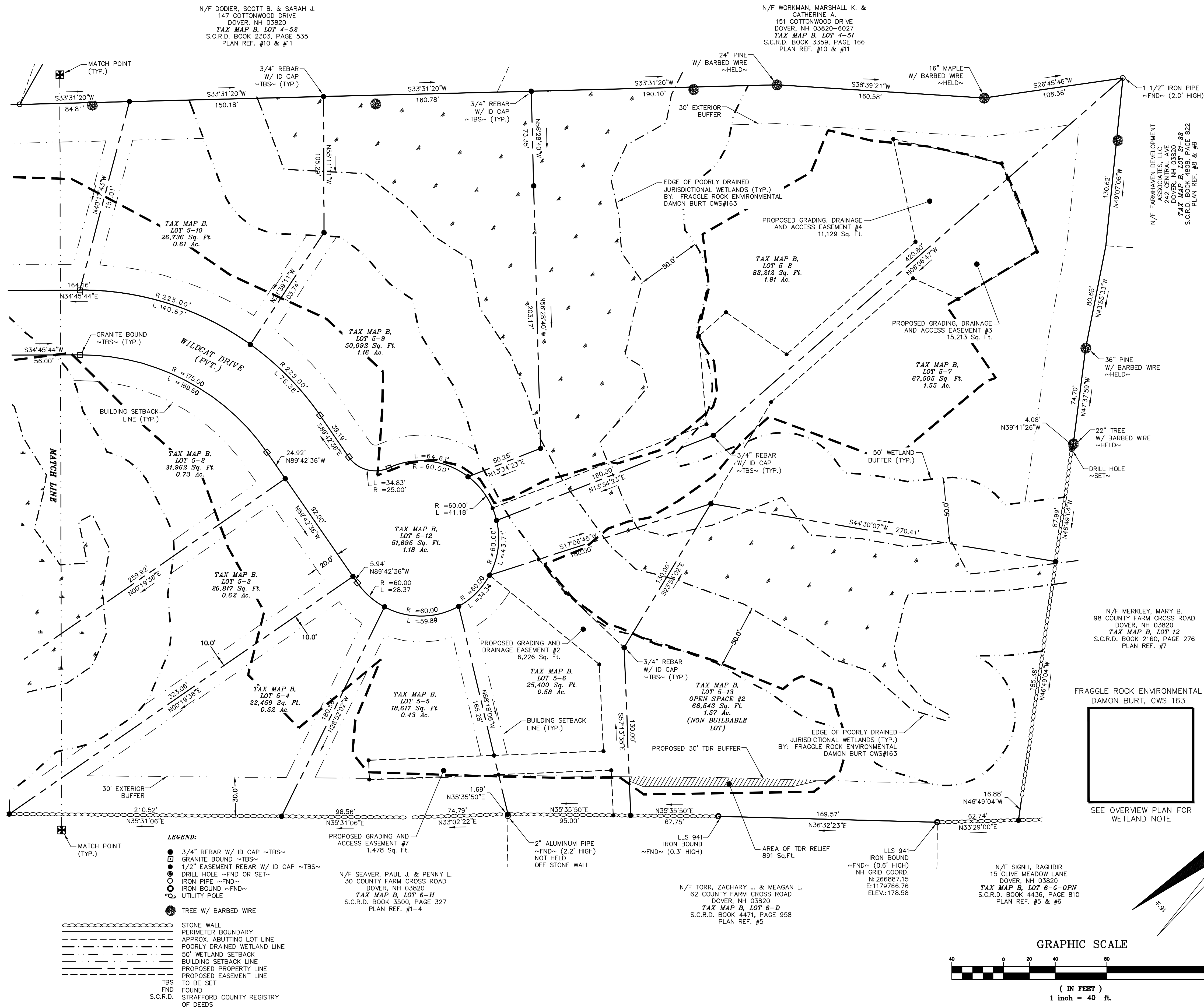
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 40 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011





NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

1. TAX MAP B, LOT 5
2. LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
3. S.C.R.D. BOOK 4861, PAGE 409
4. ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'

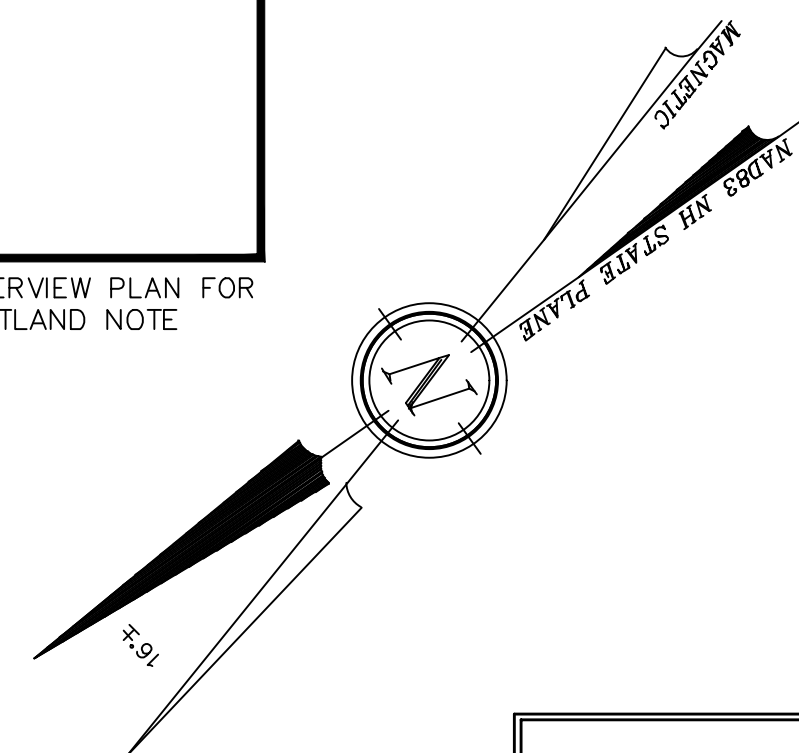
ZONING: TRANSFER OF DEVELOPMENT RIGHTS (TDR)
LOT SIZE: N/A Sq. Ft.
MAX. LOT COVERAGE: N/A
MINIMUM FRONTAGE: 40'
FRONT SETBACK: 20'
ABUT A STREET SETBACK: 20'
SIDE SETBACK: 10'
REAR SETBACK: 30'

5. I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C03010E, DATED: SEPTEMBER 30, 2015.
6. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS, HORIZONTAL COORDINATES BASED ON NAD83, COORDINATES GATHERED USING TOPCON HIRER SR SURVEY GRADE GPS RECEIVERS.
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10. WILDCAT DRIVE IS PROPOSED TO BE PRIVATE, REFER TO THE HOA DOCUMENTS FOR ROAD & DRAINAGE RESPONSIBILITIES. 155-48B THERE ARE NO CITY SERVICES PROVIDED UNLESS THE ROADWAY CLOSURES WITH THIS PERC ROAD SPECIFICATIONS AND THE PLANNING BOARD HAS REVIEWED AND AGREED TO AMEND THE APPROVAL TO ALLOW A PUBLIC ROADWAY.
11. SEE OVERVIEW SUBDIVISION FOR PLAN REFERENCES AND ADDITIONAL NOTES.

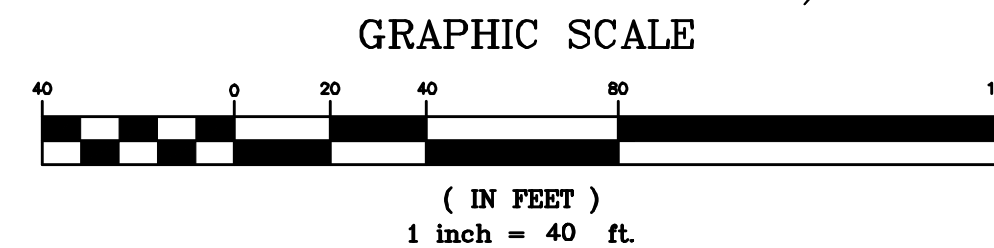
N/F MERKLEY, MARY B.
98 COUNTY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 12
S.C.R.D. BOOK 2160, PAGE 276
PLAN REF. #7

FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163

SEE OVERVIEW PLAN FOR
WETLAND NOTE



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 L.L.S. 805 DATE

#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

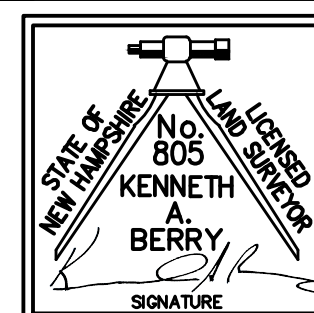
TDR SUBDIVISION PLAN WEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : 1 IN. EQUALS 40 FT.

DATE : JUNE 10, 2021

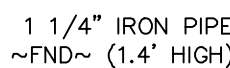
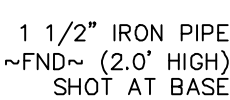
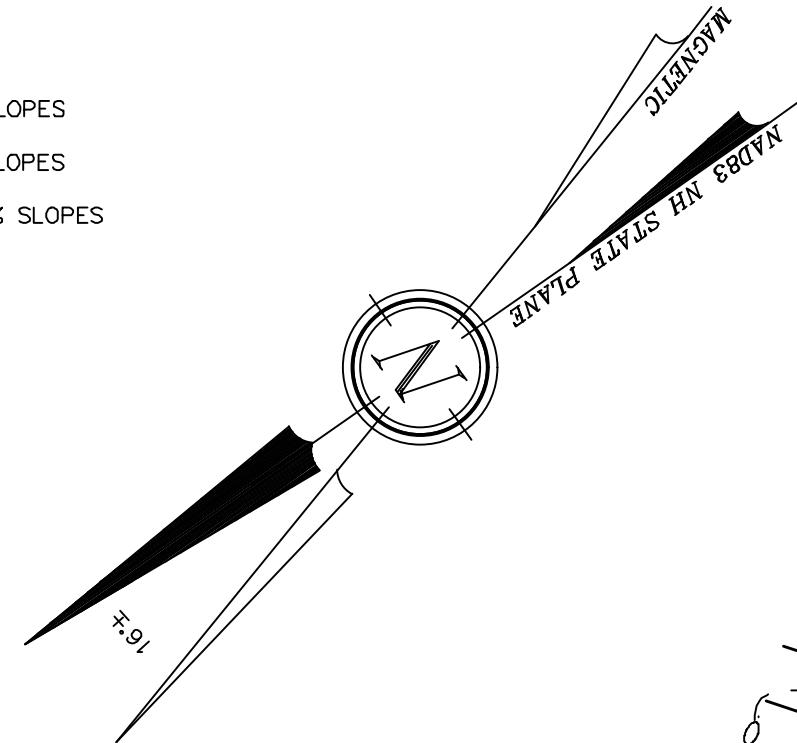
FILE NO. : DB 2021-011



GIC ~ GLOUCESTER FINE SANDY LOAM, 8 TO 15% SLOPES
 GsC ~ GLOUCESTER VERY STONY FINE SANDY LOAM TO 15% SLOPES
 Sb ~ SAUGATUCK LOAMY SAND
 ScA ~ SCANTIC SILT LOAM, 0 TO 3% SLOPES
 ScB ~ SCANTIC SILT LOAM, 3 TO 8% SLOPES
 WdB ~ WINDSOR LOAMY SAND, 3 TO 8% SLOPES
 NRCS, SEE WEBSOIL

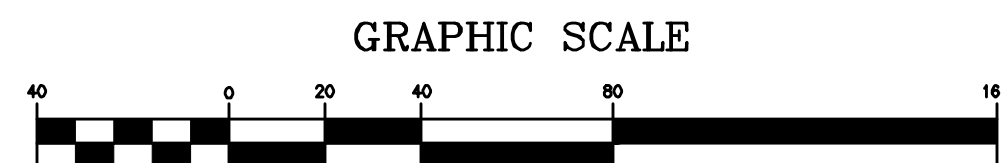
- 3/4" REBAR W/ ID CAP ~TBS~
- ▣ GRANITE BOUND ~TBS~
- 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
- DRILL HOLE ~FND OR SET~
- IRON PIPE ~FND~
- IRON BOUND ~FND~
- UTILITY POLE
- TREE W/ BARBED WIRE
- TEST PIT

	STONE WALL
	PERIMETER BOUNDARY
	APPROX. ABUTTING LOT LINE
	POORLY DRAINED WETLAND LINE
	50' WETLAND SETBACK
	BUILDING SETBACK LINE
	PROPOSED PROPERTY LINE
	PROPOSED EASEMENT LINE
	NRCS SOIL LINE AND LABEL
	TO BE SET FOUND
	S.C.R.D.

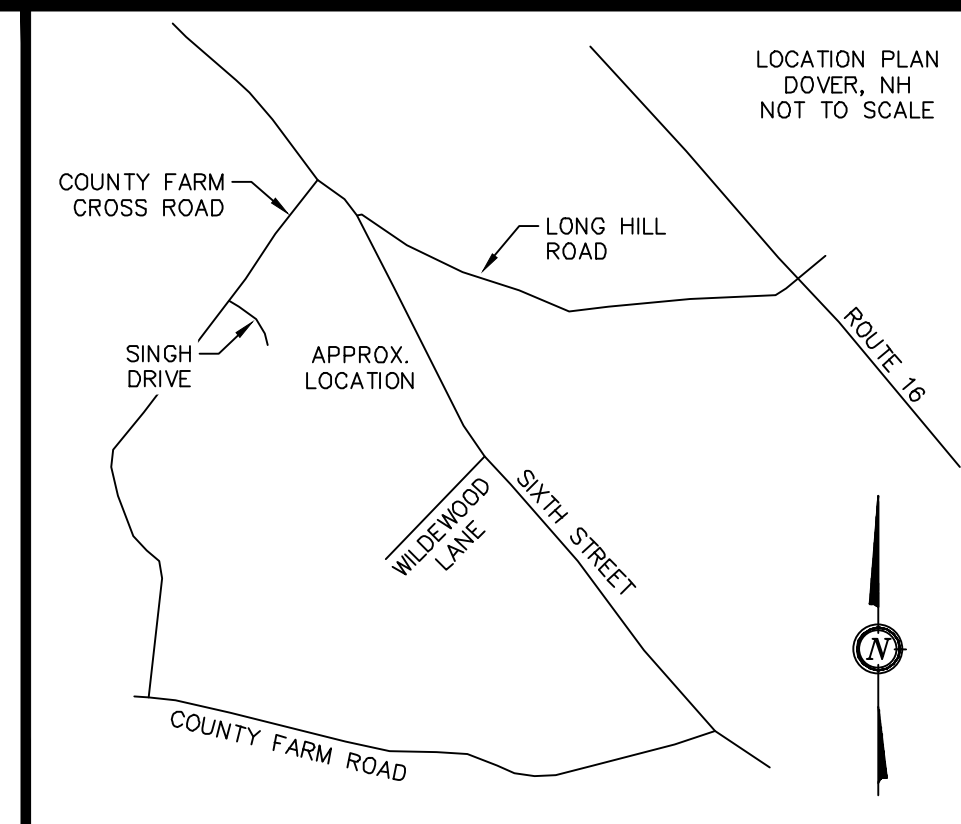


FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS 163

SEE OVERVIEW PLAN FOR
WETLAND NOTE



(IN FEET)
1 inch = 40 ft.



OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

1. TAX MAP B, LOT 5
2. LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
3. S.C.R.D. BOOK 4861, PAGE 409
4. ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 40'
ABOUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'

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11. SEE SHEET # FOR TEST PIT DATA.

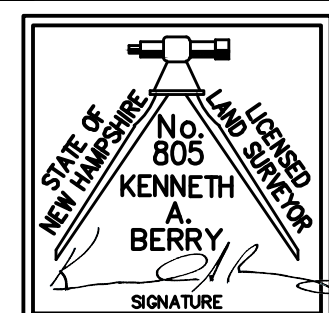
DETAIL TOPOGRAPHIC TDR SUBDIVISION PLAN EAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : 1 IN. EQUALS 40 FT.

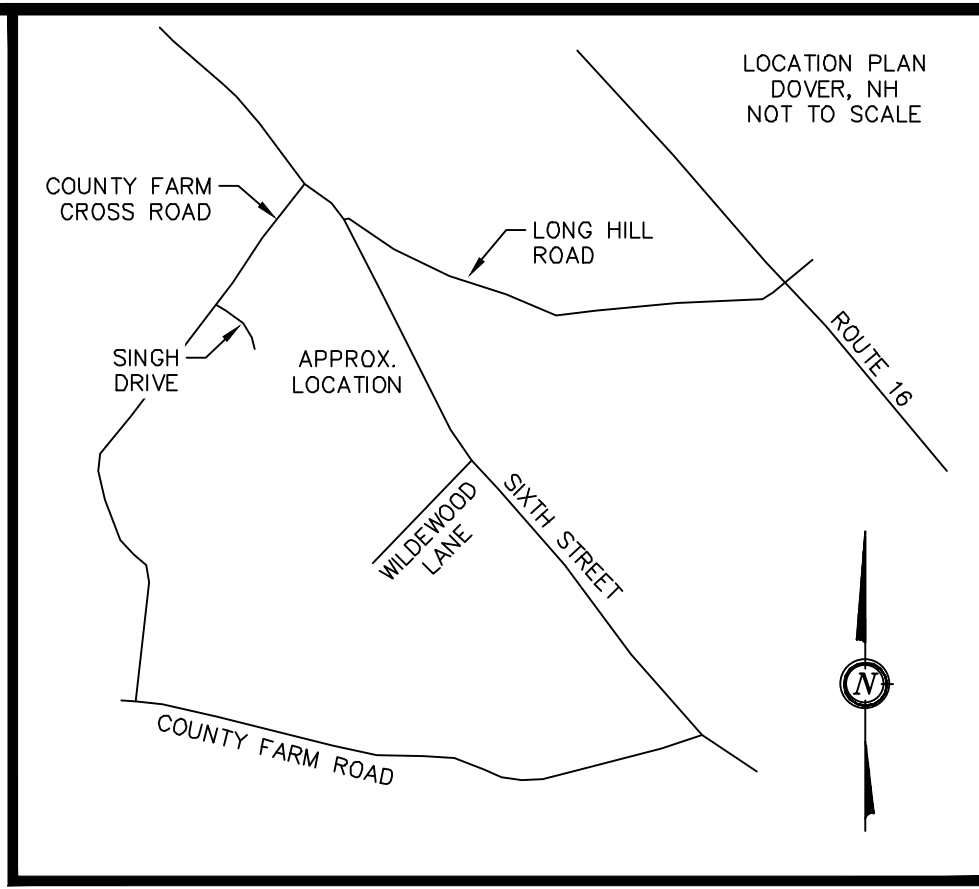
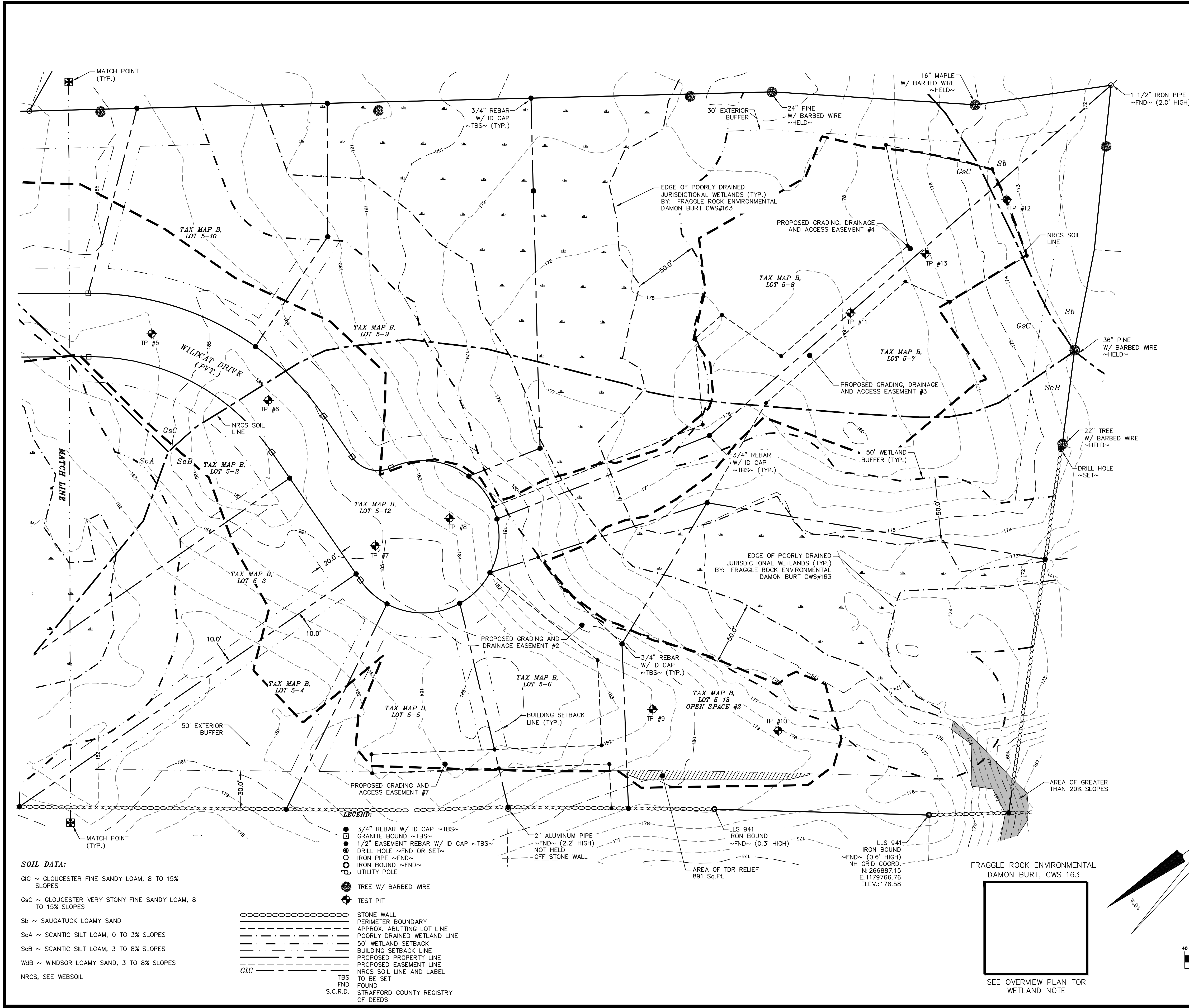
DATE : JUNE 10, 2021

FILE NO. : DB 2021-011



SHEET 15 OF 56

#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION



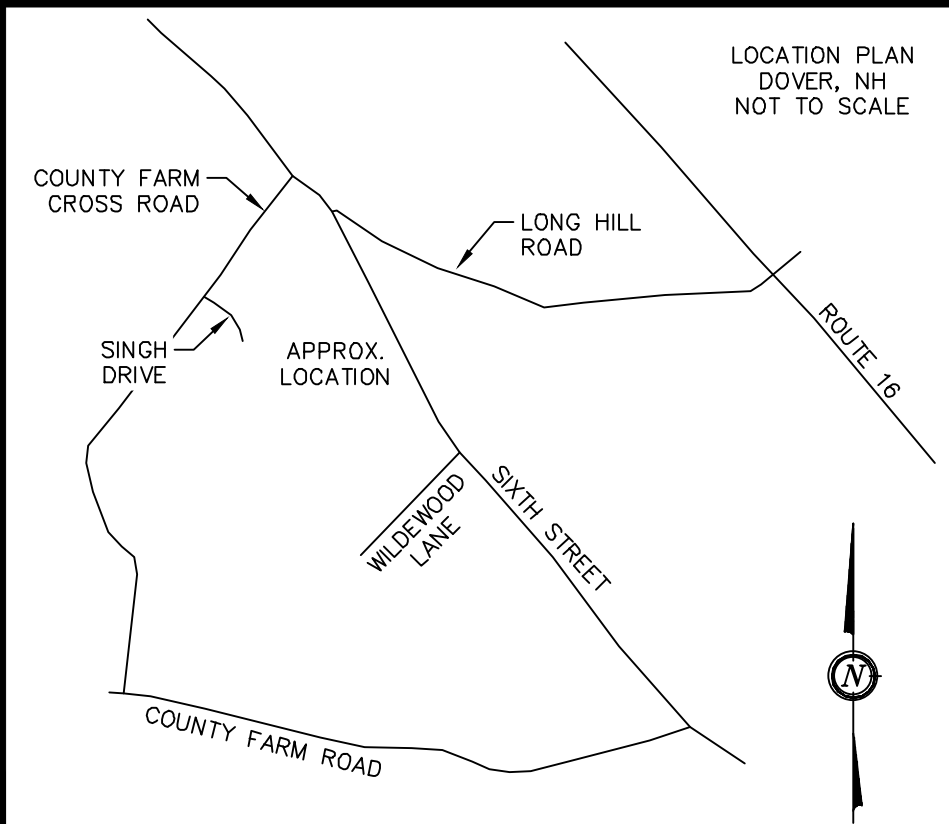
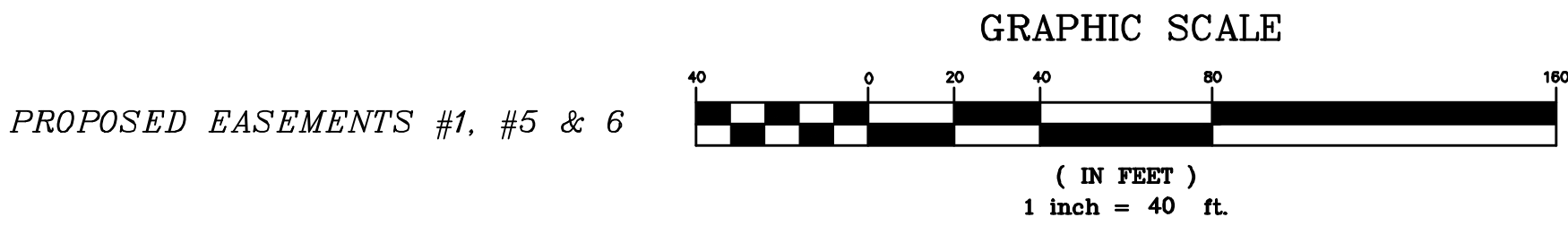
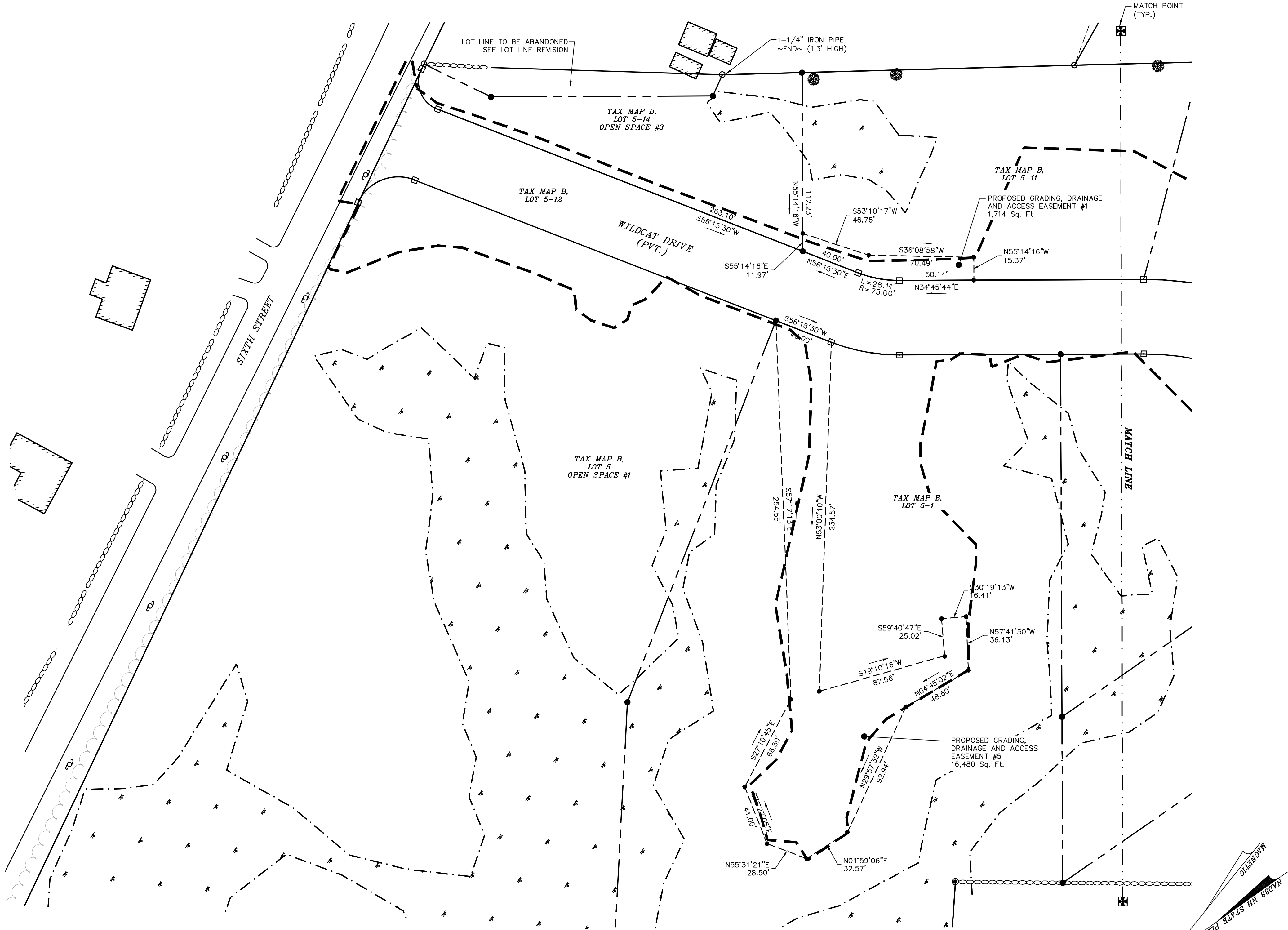
- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - ZONING: RURAL RESIDENTIAL, R-40
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 - SEE SHEET 6 FOR TEST PIT DATA.

REVISED PER AOT AND TRC COMMENTS	
REVISION	DATE
#1	9-23-21

DETAIL TOPOGRAPHIC TDR SUBDIVISION PLAN WEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
A. BERRY
SIGNATURE



NOTES:

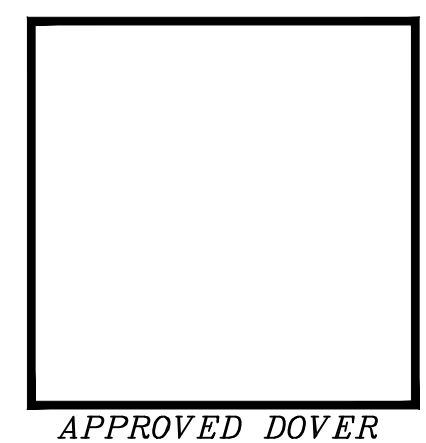
OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED EASEMENT RELATING TO THE PROPOSED SUBDIVISION.
- SEE SUBDIVISION SHEETS FOR ALL OTHER STANDARD SUBDIVISION NOTES, ZONING NOTES AND PLAN REFERENCES.

LEGEND:

- 3/4" REBAR W/D CAP (TBS)
- 1/2" REBAR W/EASEMENT ID CAP (TBS)
- GRANITE BOUND (TBS)
- PROPOSED BOUNDARY LINE
- - - PROPOSED EASEMENT LINE
- . - POORLY DRAINED WETLAND LINE
- - - TO BE SET
- TBS TO BE SET
- FND FOUND
- TYP TYPICAL
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS



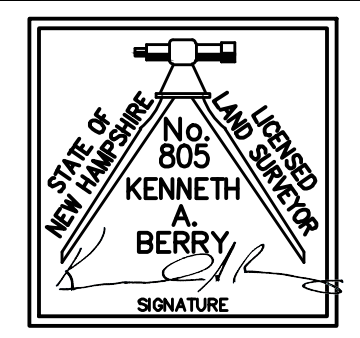
I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE CITY OF DOVER, N.H. - 1:10,000-

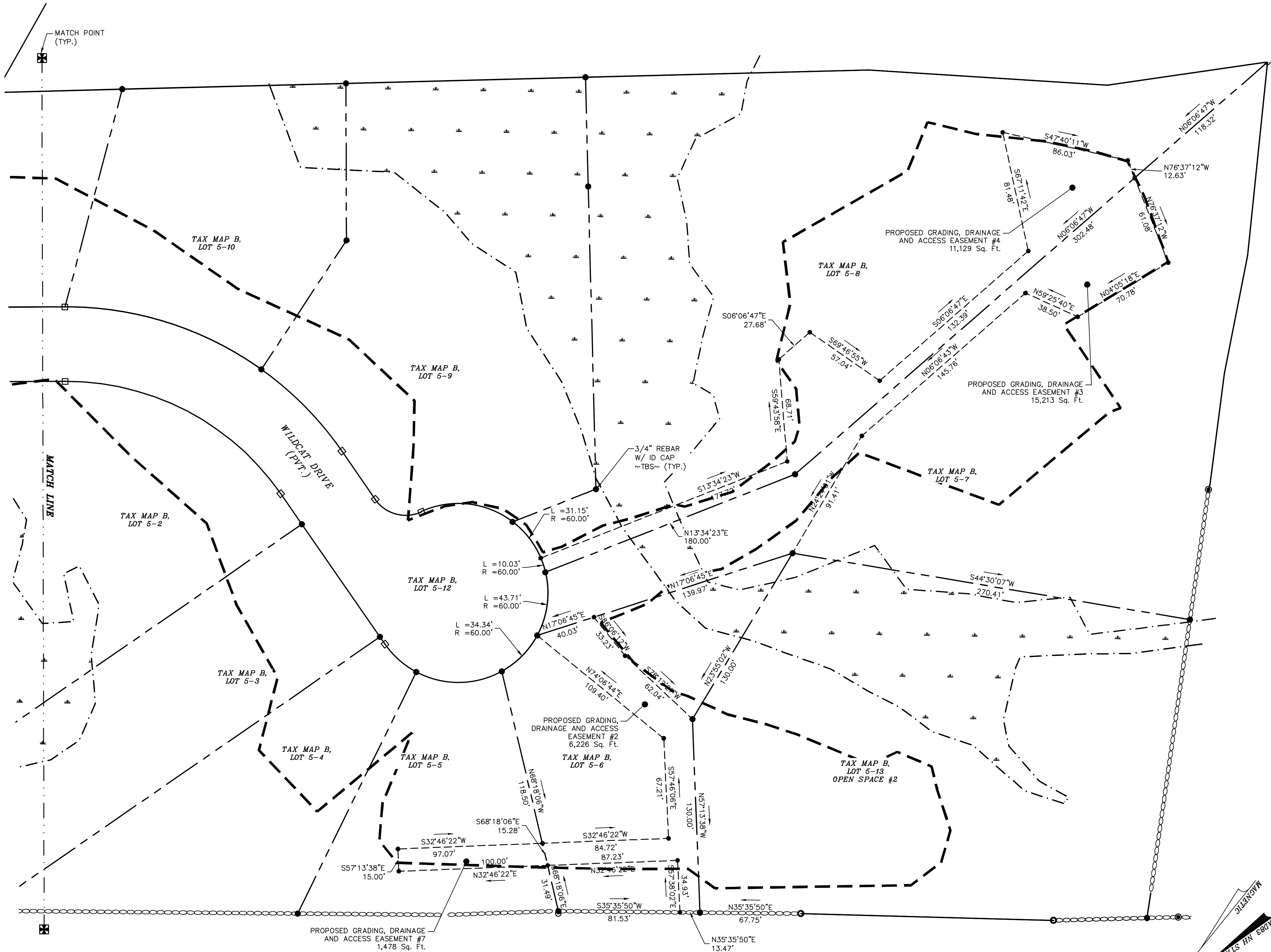
KENNETH A. BERRY L.L.S. 805 DATE

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

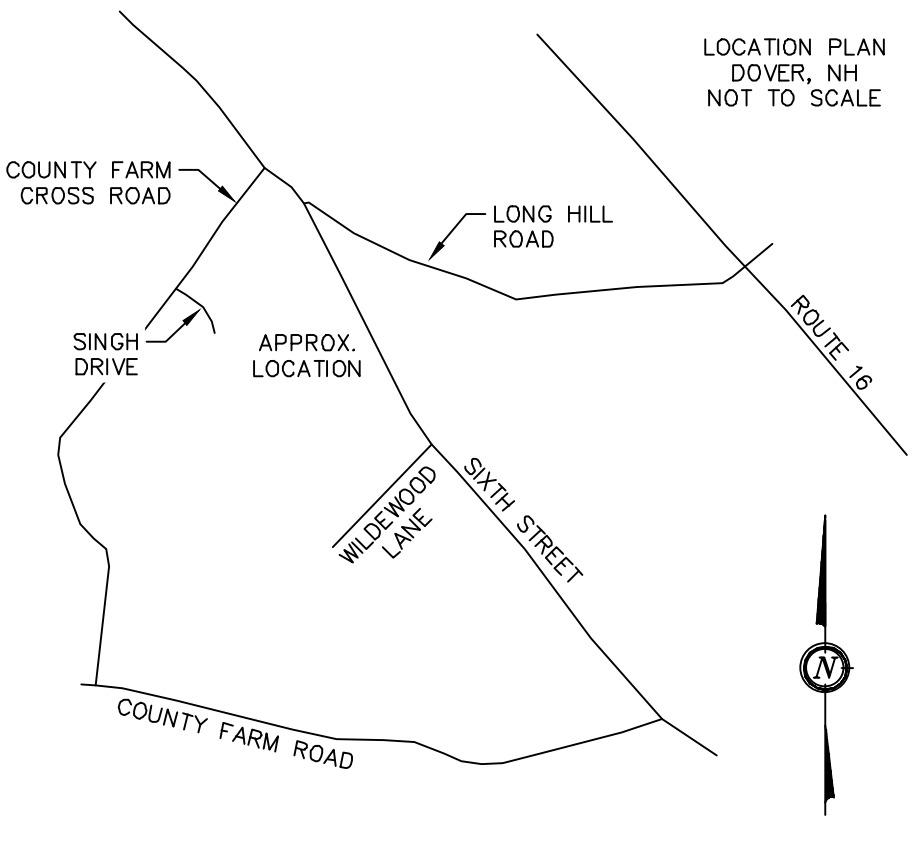
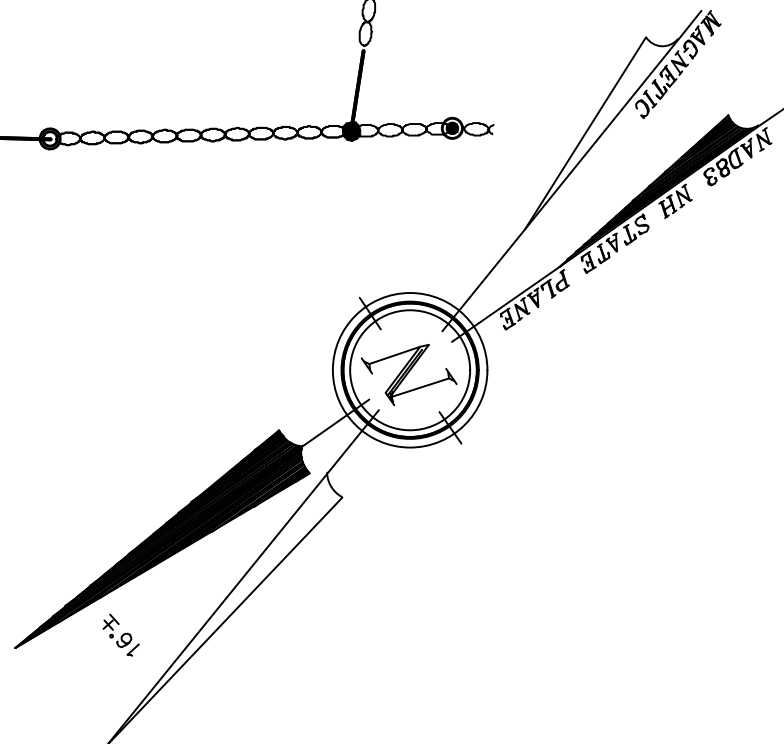
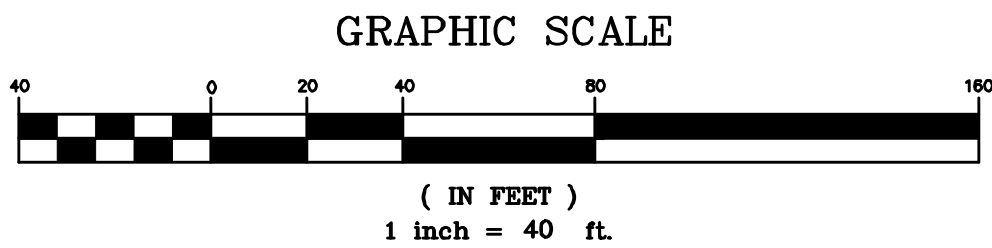
EASEMENT PLAN EAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



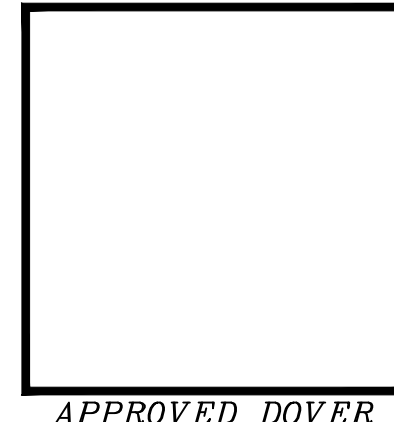


PROPOSED EASEMENTS #2 - #4, #7



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED EASEMENT RELATING TO THE PROPOSED SUBDIVISION.
 - SEE SUBDIVISION SHEETS FOR ALL OTHER STANDARD SUBDIVISION NOTES, ZONING NOTES AND PLAN REFERENCES.

- LEGEND:**
- 3/4" REBAR W/ID CAP (TBS)
 - 1/2" REBAR W/EASEMENT ID CAP (TBS)
 - GRANITE BOUND (TBS)
 - - - PROPOSED BOUNDARY LINE
 - - - PROPOSED EASEMENT LINE
 - - - POORLY DRAINED WETLAND LINE
 - TBS TO BE SET
 - FND FOUND
 - TYP TYPICAL
 - S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS



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 L.L.S. 805 DATE

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

EASEMENT PLAN WEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

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

NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- S.C.R.D. BOOK 4861, PAGE 409
- ZONING: RURAL RESIDENTIAL, R-40
LOT SIZE: 40,000 Sq. Ft.
MAX. LOT COVERAGE: 10%
MINIMUM FRONTAGE: 150'
FRONT SETBACK: 150'
ABUT A STREET SETBACK: 40'
SIDE SETBACK: 25'
REAR SETBACK: 30'

- ZONING: TRANSFER OF DEVELOPMENT RIGHTS (TDR)
LOT SIZE: N/A Sq. Ft.
MAX. LOT COVERAGE: N/A
MINIMUM FRONTAGE: 40'
FRONT SETBACK: 20'
ABUT A STREET SETBACK: 20'
SIDE SETBACK: 10'
REAR SETBACK: 30'
- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVOBS ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN FEBRUARY OF 2021, WITH AN ERROR OF CLOSURE BETTER THEN 1 PART IN 10,000.

N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-A
S.C.R.D. BOOK 1105, PAGE 224
PLAN REF. #12

N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-N
S.C.R.D. BOOK 1105, PAGE 224
PLAN REF. #13

N/F CONWAY, ROCHARD P. JR.
579 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-G
S.C.R.D. BOOK 4077, PAGE 721
PLAN REF. #13

N/F RANALLI, ANNE M.
583 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40
S.C.R.D. BOOK 4248, PAGE 925
PLAN REF. #13

NOTES: CONTINUED:

- THE INTENT OF THIS PLAN IS TO SHOW THE TDR SUBDIVISION PLAN OF TAX MAP B, LOT 5.
- ALL LOTS WILL BE SERVICED BY MUNICIPAL WATER AND SEWER.
- ALL ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.
- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
- APPROVED BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
- 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.
- BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING INSPECTOR AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
- THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
NHDES ALTERATION OF TERRAIN PERMIT (PENDING)
US EPA NOI & SWPPP (PENDING)
NHB 21-0034 (PENDING)
NH DIVISION OF HISTORICAL RESOURCES 12690 (PENDING)
NHDES WETLAND IMPACT PERMIT (PENDING)
NHDES SEWER DISCHARGE PERMIT (PENDING)
CONDITIONAL USE PERMIT (PENDING)

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

NOTES CONTINUED:

- LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT: NONE
- THE SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6PM, 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.
- 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.
- FROM GROUND BREAKING THE SITE SHALL REMAIN ACCESSIBLE YEAR ROUND IN ALL WEATHER CONDITIONS.
- 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.
- 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.
- ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS. NOT APPLICABLE.
- A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED, AND THE APPROVED CONSTRUCTION SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS. NOT APPLICABLE.
- 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.

I/F EWER-GRAY, KAREN L.
P.O. BOX 1888
DOVER, NH 03821
TAX MAP B, LOT 4-M
S.C.R.D. BOOK 2205, PAGE 1

N/F DODDIE, SCOTT B. & SARAH J.
147 COTTONWOOD DRIVE
DOVER, NH 03820
TAX MAP B, LOT 4-52
S.C.R.D. BOOK 2303, PAGE 535
PLAN REF. #10 & #11

NOTES CONTINUED:

- TRASH PICKUP WILL BE THROUGH THE USE OF PRIVATE PICKUP.
- STREET TREES ARE TO BE PLANTED ON THE BOUNDARY LINES BETWEEN UNITS, IF TREES ARE NOT LEFT DURING CONSTRUCTION.
- ALL 50' WETLAND BUFFERS ARE TO BE NO CUT, NO DISTURB AREAS, WITH THE EXCEPTION OF APPROVED AREAS BY THE PLANNING BOARD FOR ROAD AND DRAINAGE CONSTRUCTION.
- SITE IS TO COMPLY WITH NFPA 1 CHAPTER 18.

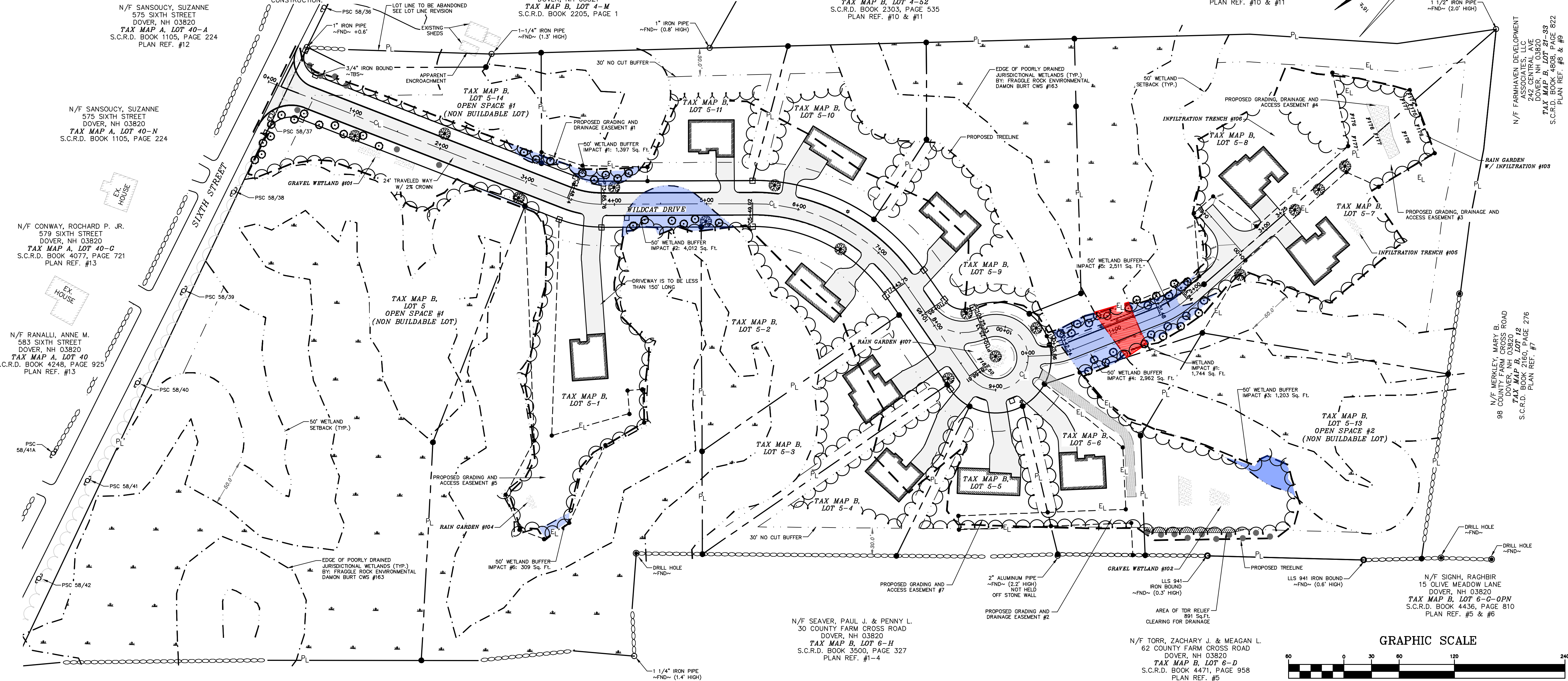
CONDITIONAL USE PERMITS: CONSTRUCTION WITHIN THE 50' BUFFER (11,394 Sq. Ft. PROPOSED): PENDING
TDR REQUESTS: REDUCTION IN 30' BUFFER IN OPEN SPACE #2 TO 20' ALONG GW #102: PENDING PURCHASE OF 1 ADDITIONAL UNITS: PENDING USE OF TDR LOT SIZING AND BUFFER REQUIREMENTS: PENDING

THIS SINGLE FAMILY DETACHED DEVELOPMENT USES TRANSFER OF DEVELOPMENT (TDR) CHAPTER 170-27.2.

TDR UNIT CALCULATIONS

- $839,718 \text{ SF} - 191,276 \text{ (CONSERVATION)} = 648,442$
- $649,502 * .85 = 551,176$
- $552,077 * .75 = 413,382$
- $413,382 \text{ SF} / 40,000 \text{ SF} = 10.33 \text{ UNITS}$
- REMAINING 1 UNITS TO BE PURCHASED, THUS ALLOWING FOR 11 UNITS

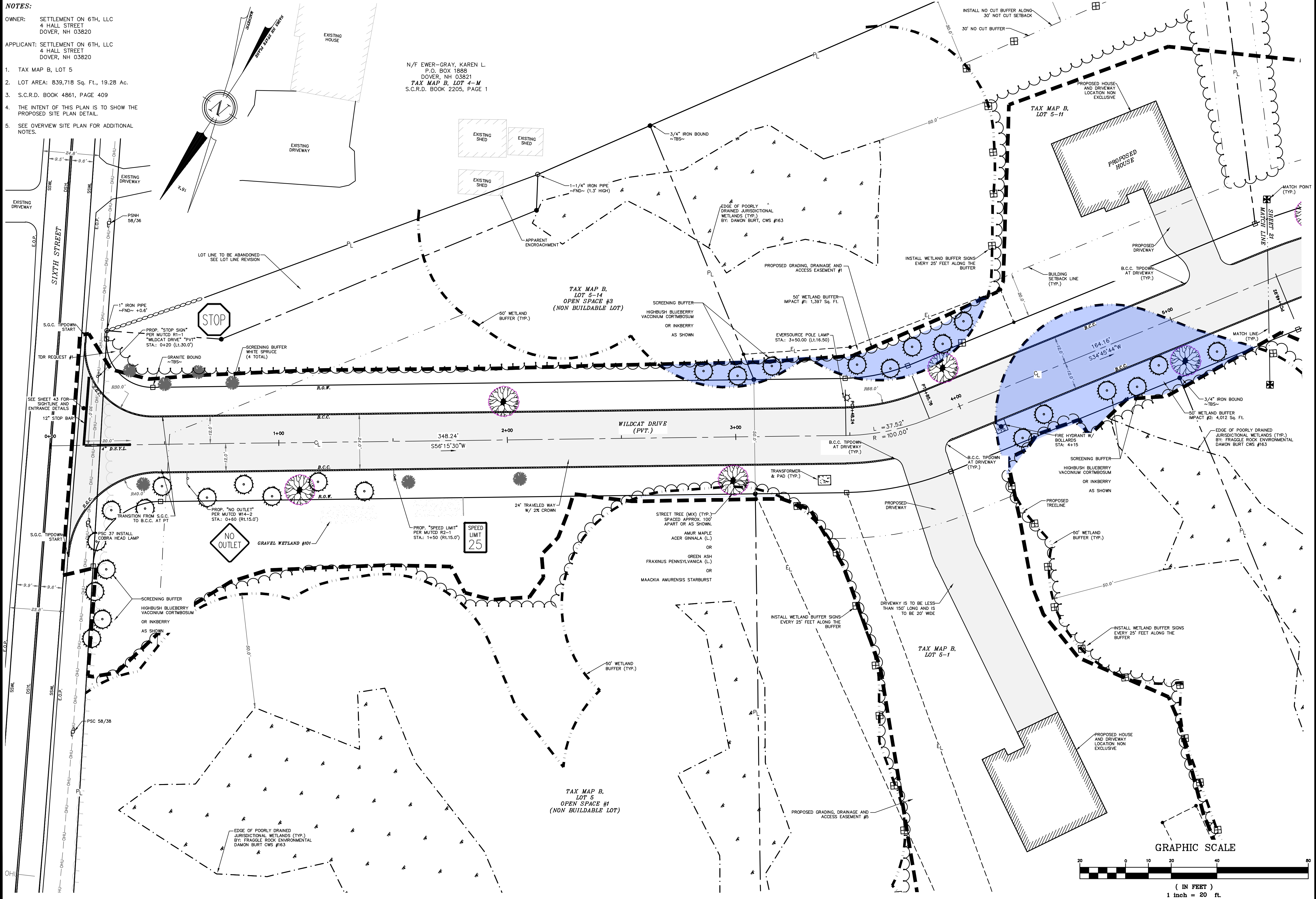
THE PLANNING BOARD APPROVED THE USE OF THE TDR WHICH INCLUDES ADDITIONAL UNITS PER CHAPTER 170.27.2 (PENDING)



OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

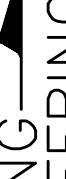
APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

1. TAX MAP B, LOT 5
2. LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
3. S.C.R.D. BOOK 4861, PAGE 409
4. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED SITE PLAN DETAIL.
5. SEE OVERVIEW SITE PLAN FOR ADDITIONAL NOTES.



#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

DETAIL SITE PLAN WILDCAT DRIVE 0+00-5+50
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5



STATE OF NEW HAMPSHIRE
 KENNETH A. BERRY
 No. 5464
 LICENSED PROFESSIONAL ENGINEER

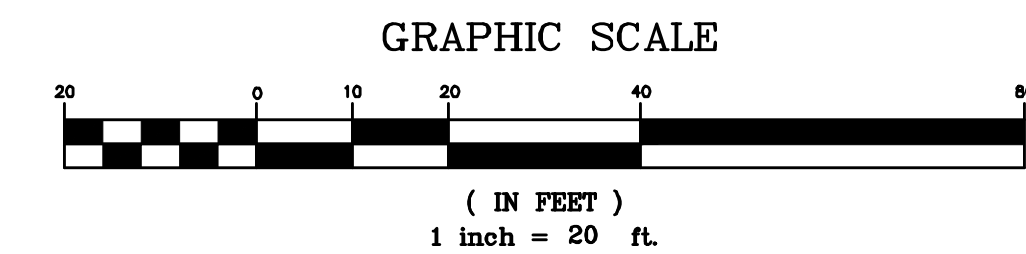
BERRY SURVEYING & ENGINEERING
 335 SECOND CROWN POINT ROAD
 BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
 DATE : JUNE 10, 2021
 FILE NO. : DB 2021-011

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

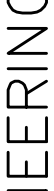
APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

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#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

DETAIL SITE PLAN WILDCAT DRIVE 5+00-END
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET,
DOVER, NH.
TAX MAP B, LOT 5



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

SCALE : 1 IN. EQUALS 20 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011

NOTES:

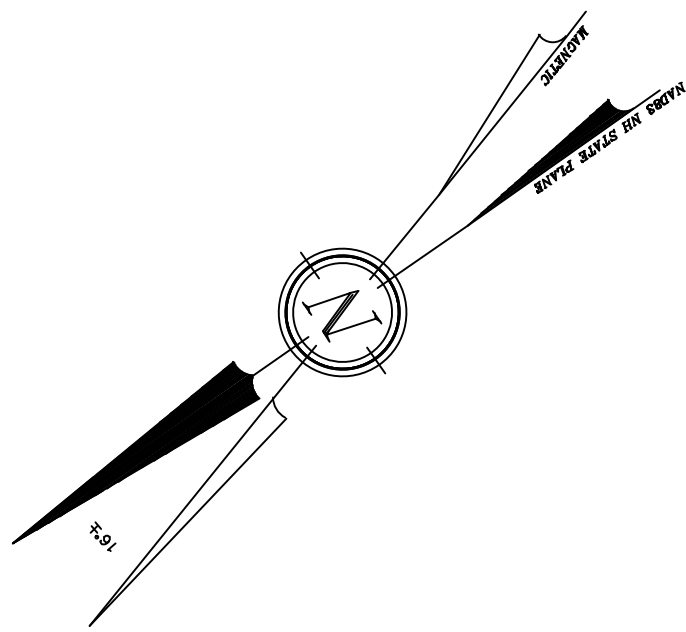
- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 3.) TAX MAP B, LOT 5
- 4.) LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- 5.) S.C.R.D.: BOOK 4861, PAGE 409
- 6.) THE INTENT OF THIS PLAN IS TO PROVIDE AN OVERVIEW OF GRADING AND ENGINEERING OF WILDCAT DRIVE AND TAX MAP B, LOT 5.
- 7.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
- 8.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.
- 9.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 10.) SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.

LOT DEVELOPMENT DESIGN PRESUMPTION:
THE FRONT OF EACH LOT, WITH THE EXCEPTION OF 5-1 & 5-2, FROM THE RIDGE LINE OF THE HOUSE, WILL BE FILLED AND DRAIN TO THE ROAD AND INFRASTRUCTURE.

GRAPHIC SCALE



(IN FEET)
1 inch = 60 ft.



NOTES:

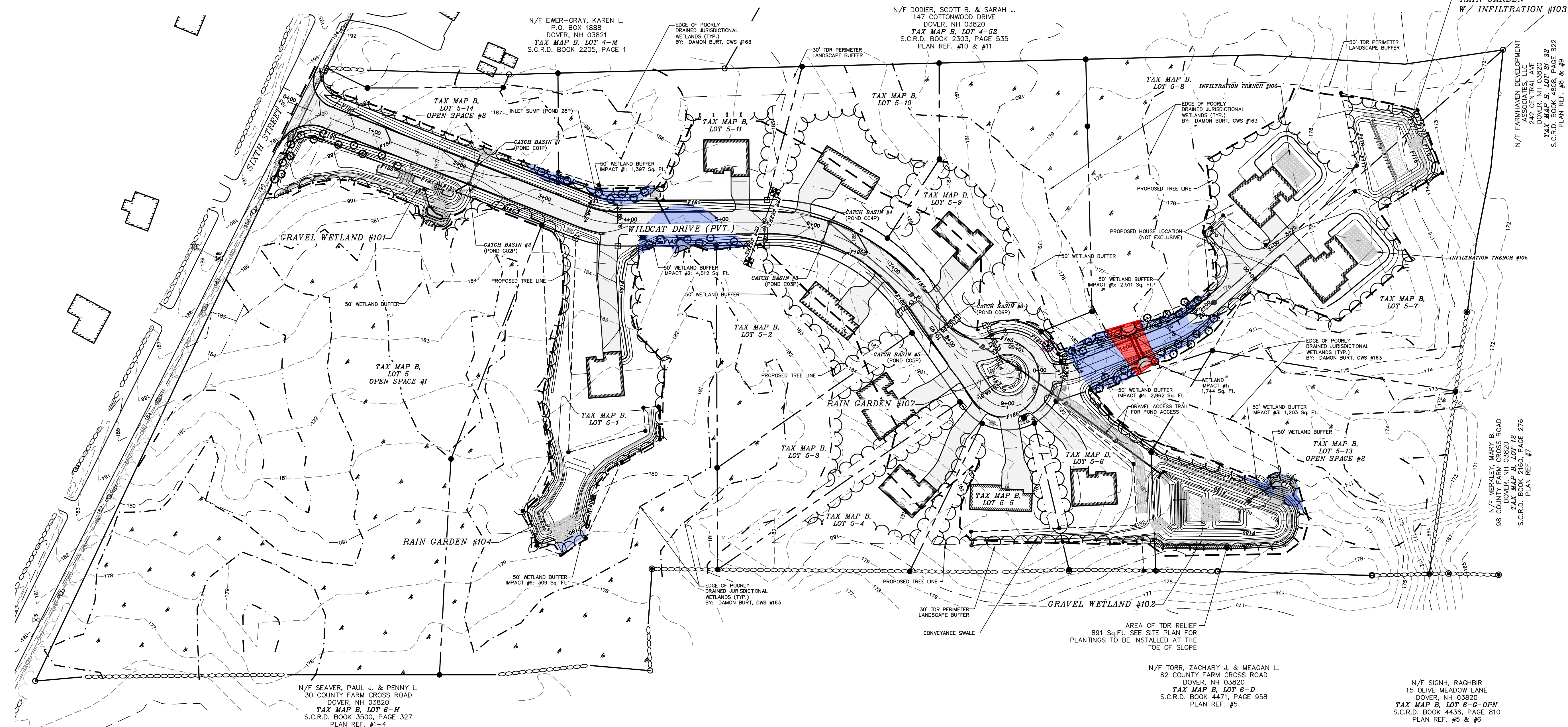
- 1.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.
- 2.) CONTRACTOR SHALL TAKE SPECIAL CARE IN NOT DISTURBING EXISTING MONUMENTS BOUNDS, AND OR BENCHMARKS WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION
- 3.) 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
- 4.) 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.
- 5.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- 6.) 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.
- 7.) 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).
- 8.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH [T] SHALL BE THERMOPLASTIC.
- 9.) 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.
- 10.) 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.

NOTES CONTINUED:

- 11.) 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".
- 12.) 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.
- 13.) 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.
- 14.) ALL BASINS AND DRAINS ARE TO HAVE BOOTS INSTALLED ON ALL INLETS AND OUTLETS.
- 15.) ALL TREATMENT SWALE TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS UNLESS OTHERWISE INSTRUCTED BY THE DESIGN ENGINEER DURING CONSTRUCTION.
- 16.) 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.
- 17.) 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.
- 18.) BUILDING ADDRESSES SHALL BE DETERMINED BY THE BUILDING OFFICIAL.
- 19.) 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.
- 20.) COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH CITY OF DOVER CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
- 21.) 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.
- 22.) SEE DETAILS CONCERNING SITE LAYOUT, DRAINAGE, UTILITY, AND SEDIMENT AND EROSION CONTROLS.
- 23.) SEE EROSION & SEDIMENT CONTROL PLANS, SHEETS 29 & 30, FOR PHASING DESIGN AND LIMITS OF CONSTRUCTION.

N/F WORKMAN, MARSHALL K. & CATHERINE A.
151 COTTONWOOD DRIVE
DOVER, NH 03820-6027
TAX MAP B, LOT 4-51
S.C.R.D. BOOK 3359, PAGE 166
PLAN REF. #10 & #11

RAIN GARDEN
W/ INFILTRATION #103



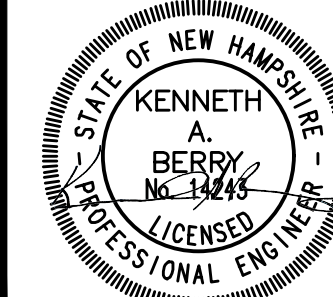
OVERVIEW GRADING & DRAINAGE PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

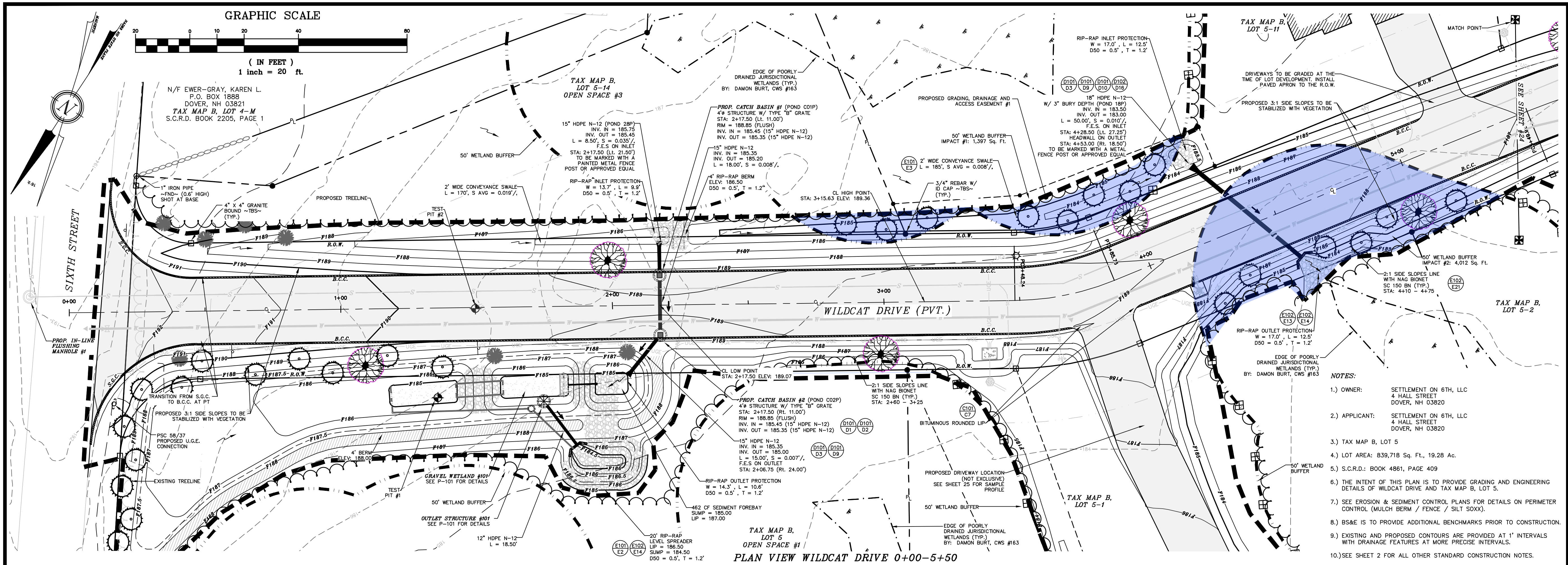
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.

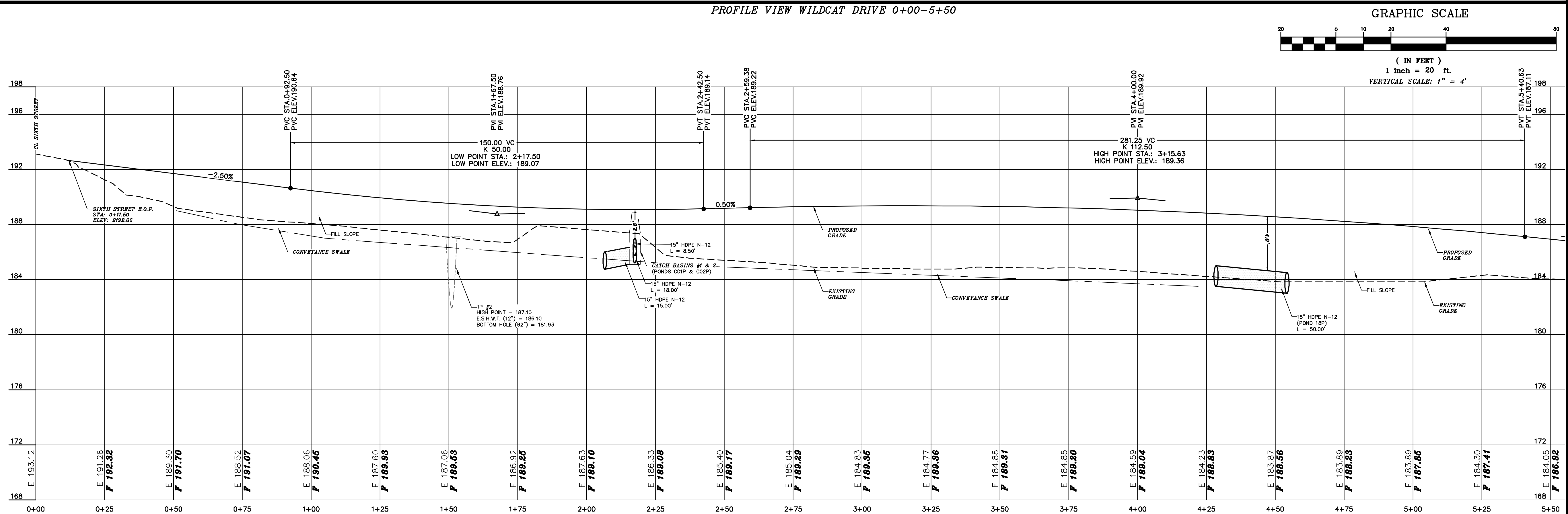
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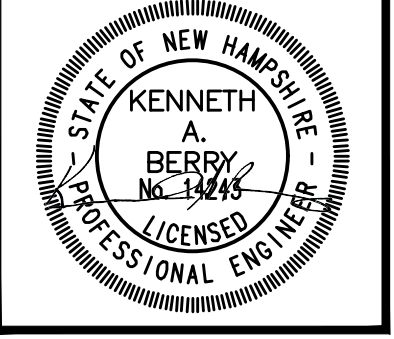
PROFILE VIEW WILDCAT DRIVE 0+00-5+50

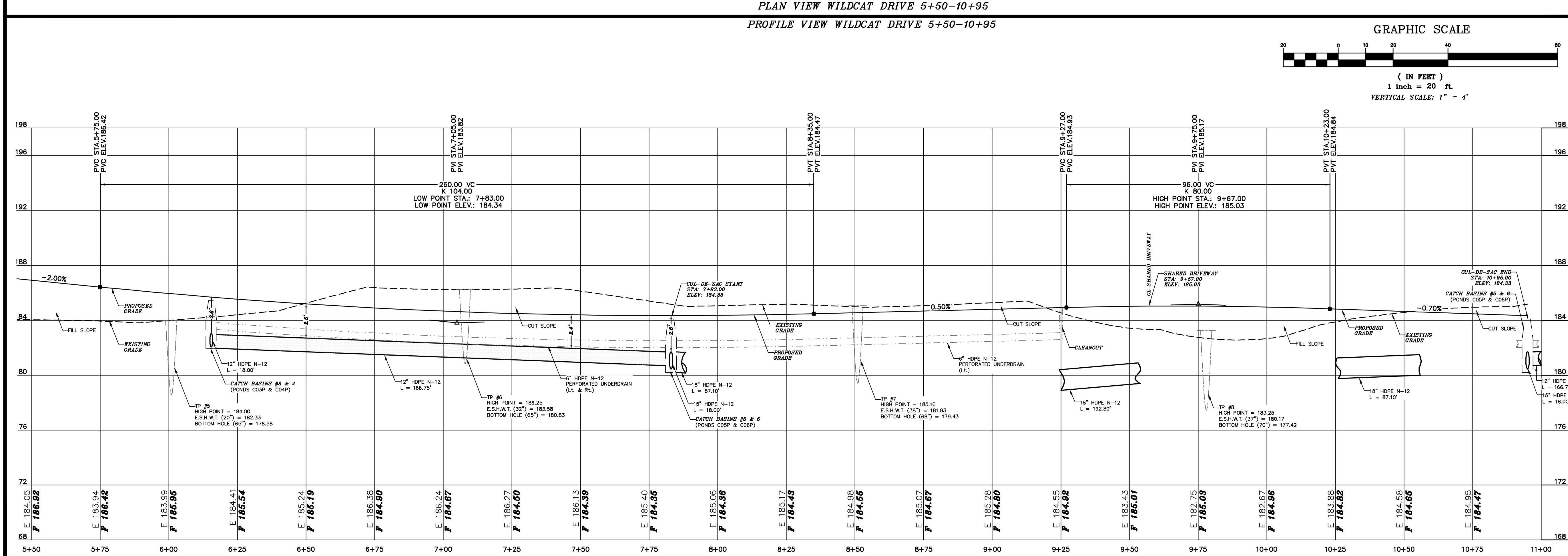
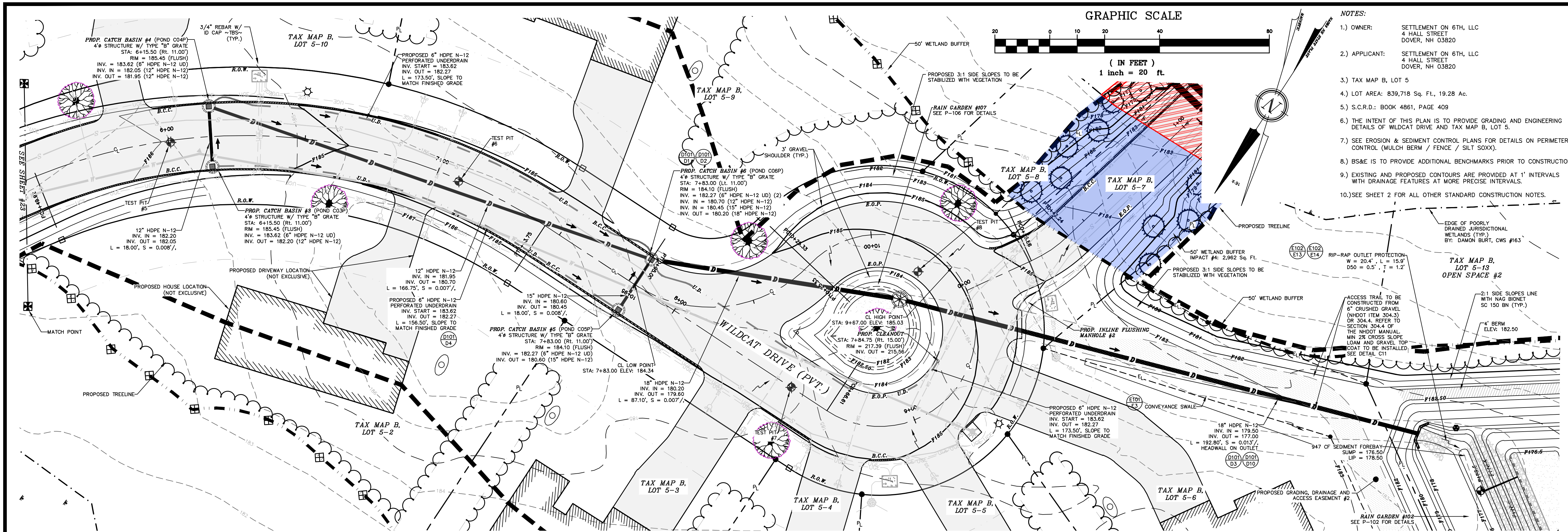


REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

GRADING PLAN & PROFILE WILDCAT DRIVE 0+00 - 5+50
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
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FILE NO. : DB 2021-011





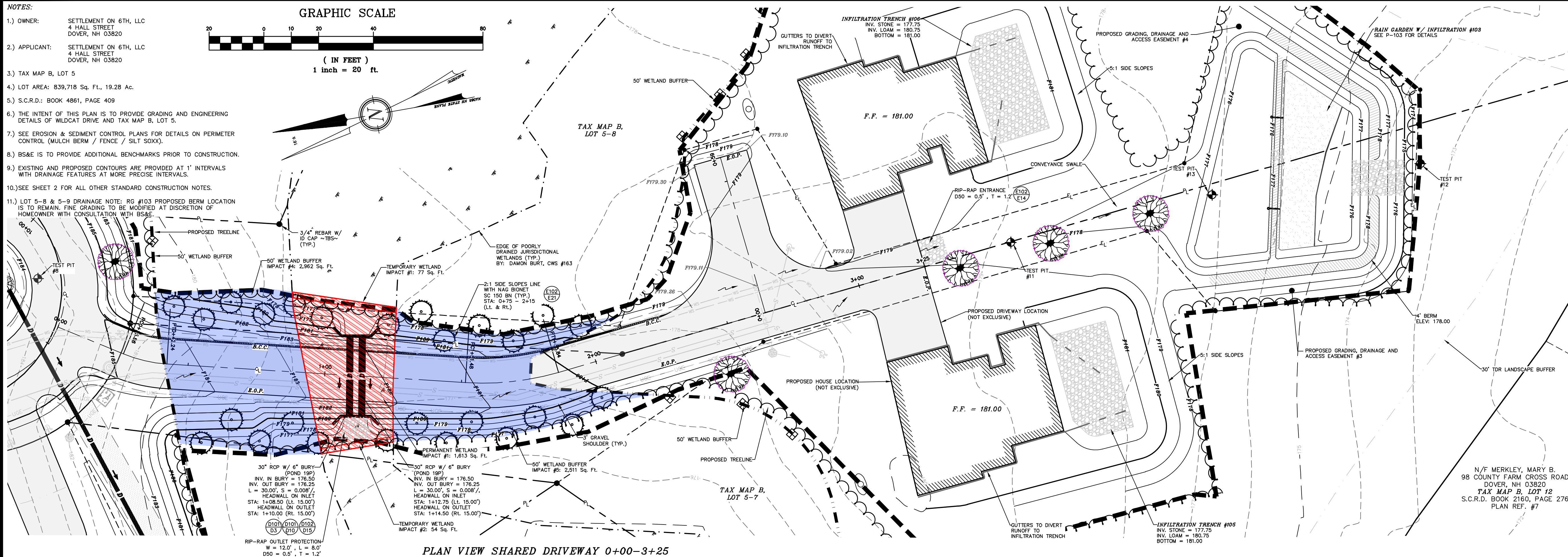
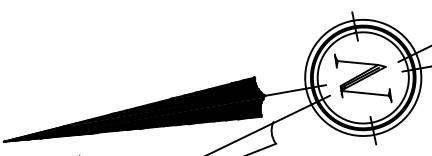
REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

GRADING PLAN & PROFILE WILDCAT DRIVE 5+50-10+95
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE: 1 IN. EQUALS 20 FT.
DATE: JUNE 10, 2021
FILE NO.: DB 2021-011

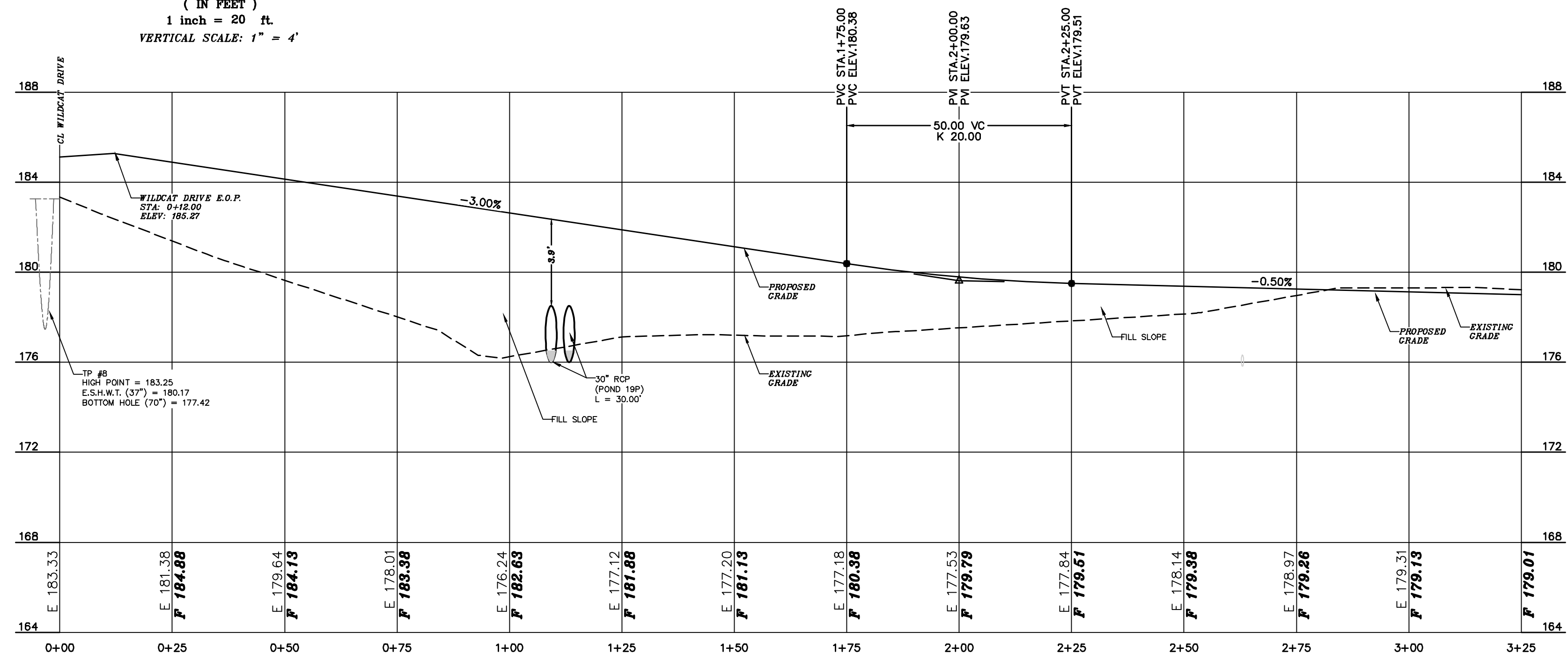
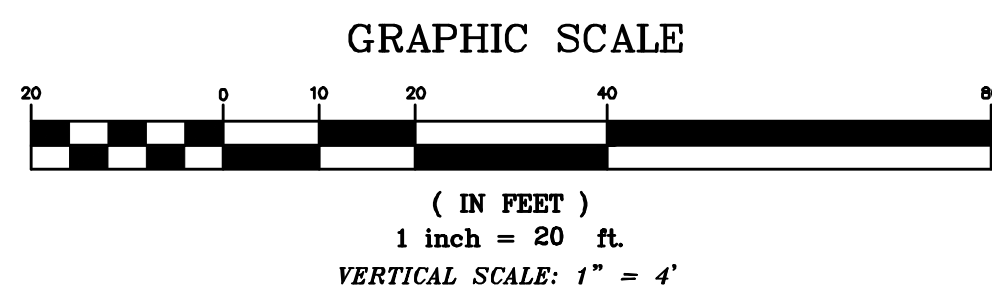
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
LICENSED PROFESSIONAL ENGINEER
NO. 12443

- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 3.) TAX MAP B, LOT 5
- 4.) LOT AREA: 839,718 Sq. Ft., 19.28 Ac.
- 5.) S.C.R.D.: BOOK 4861, PAGE 409
- 6.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF WILDCAT DRIVE AND TAX MAP B, LOT 5.
- 7.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
- 8.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION
- 9.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 10.) SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.

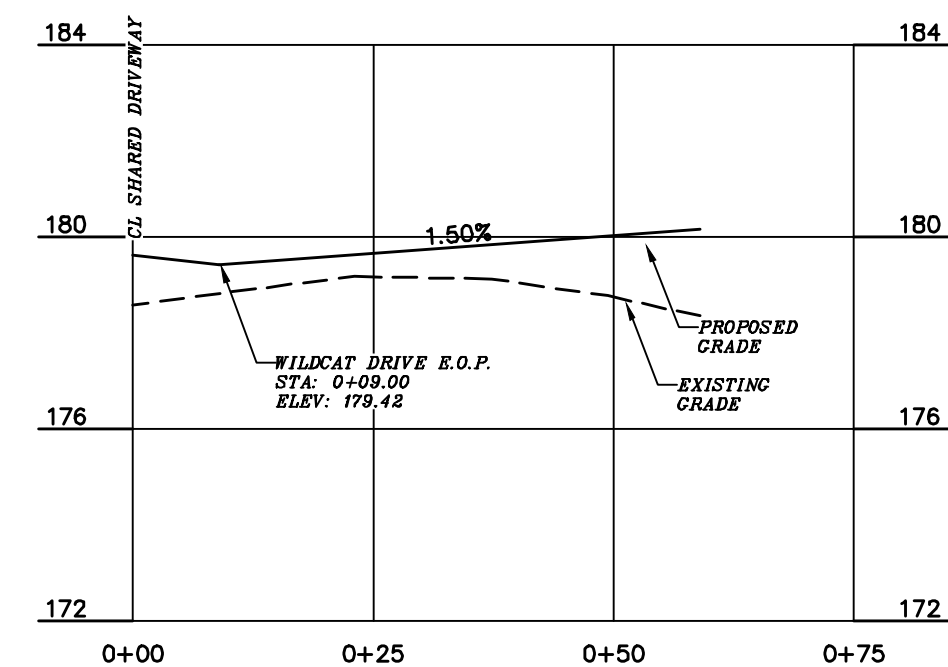
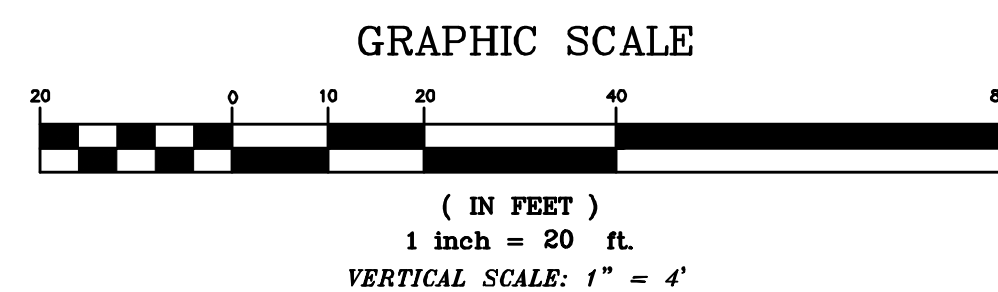


PLAN VIEW SHARED DRIVEWAY 0+00-3+25

PROFILE VIEW SHARED DRIVEWAY 0+00-3+25



PROFILE VIEW SHARED DRIVEWAY 0+00-3+25



PROFILE VIEW HAMMERHEAD TURNAROUND

#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

GRADING PLAN & PROFILE SHARED DW 0+00-3+25
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

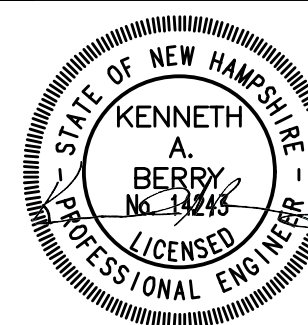
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603) 332-2888
SCALE : 1 IN. EQUALS 20 FT.

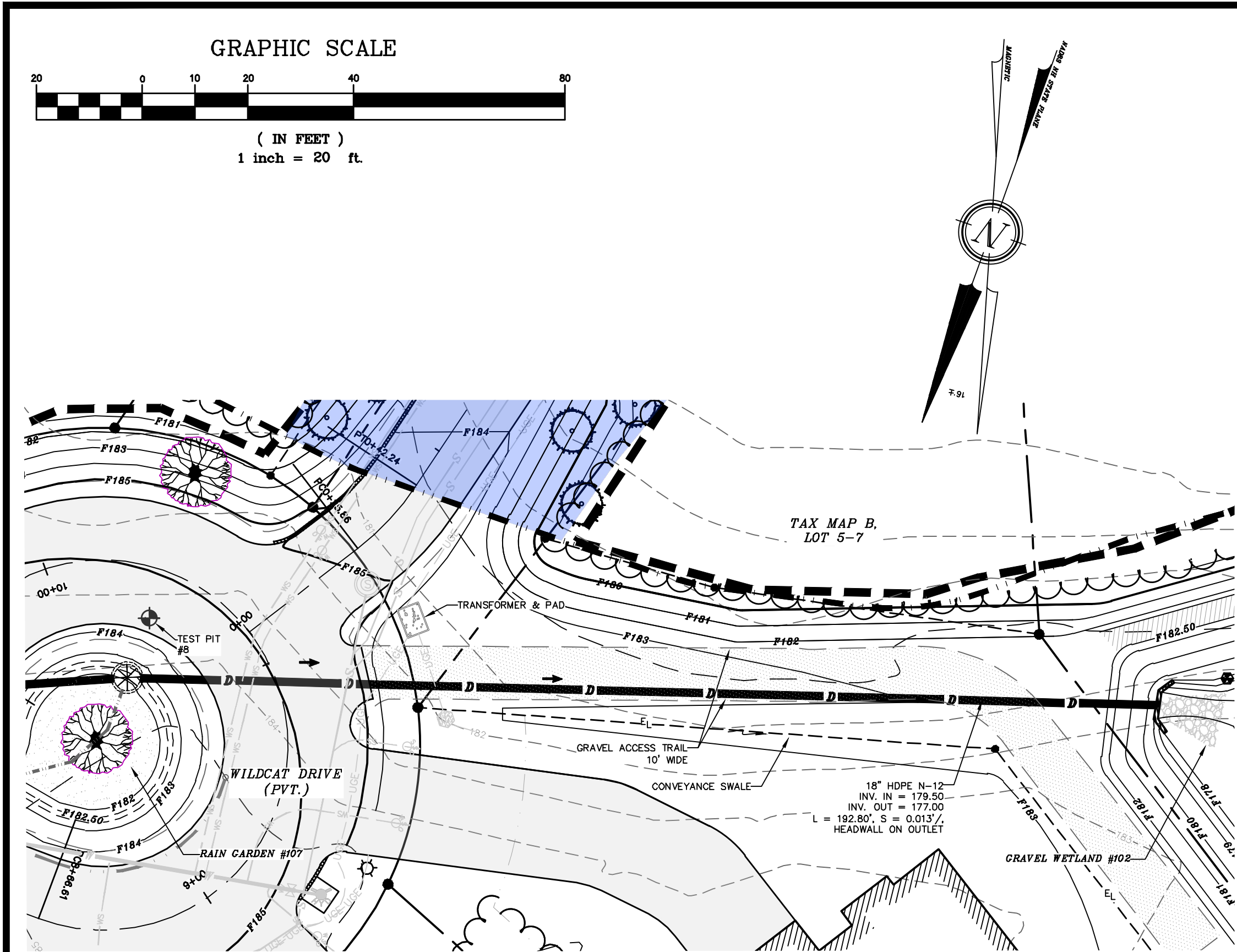
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DATE : JUNE 10, 2021

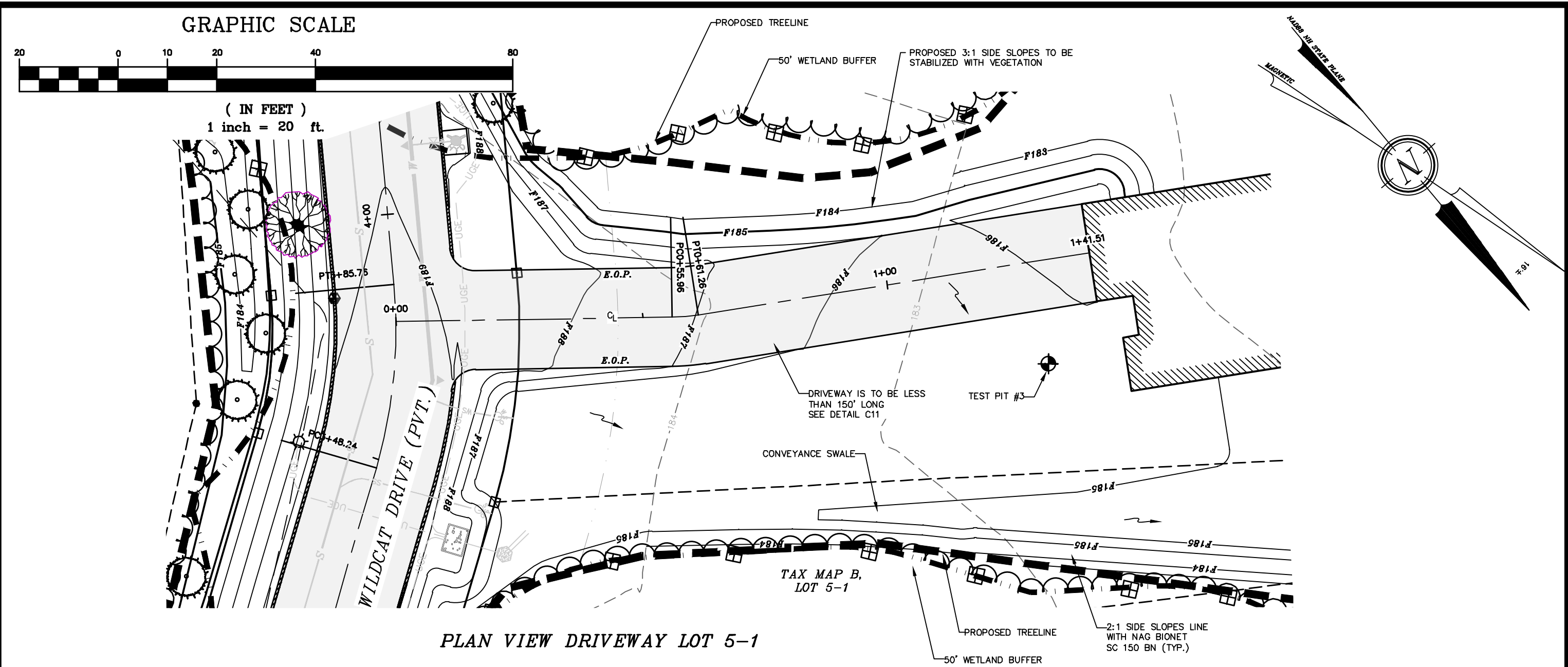
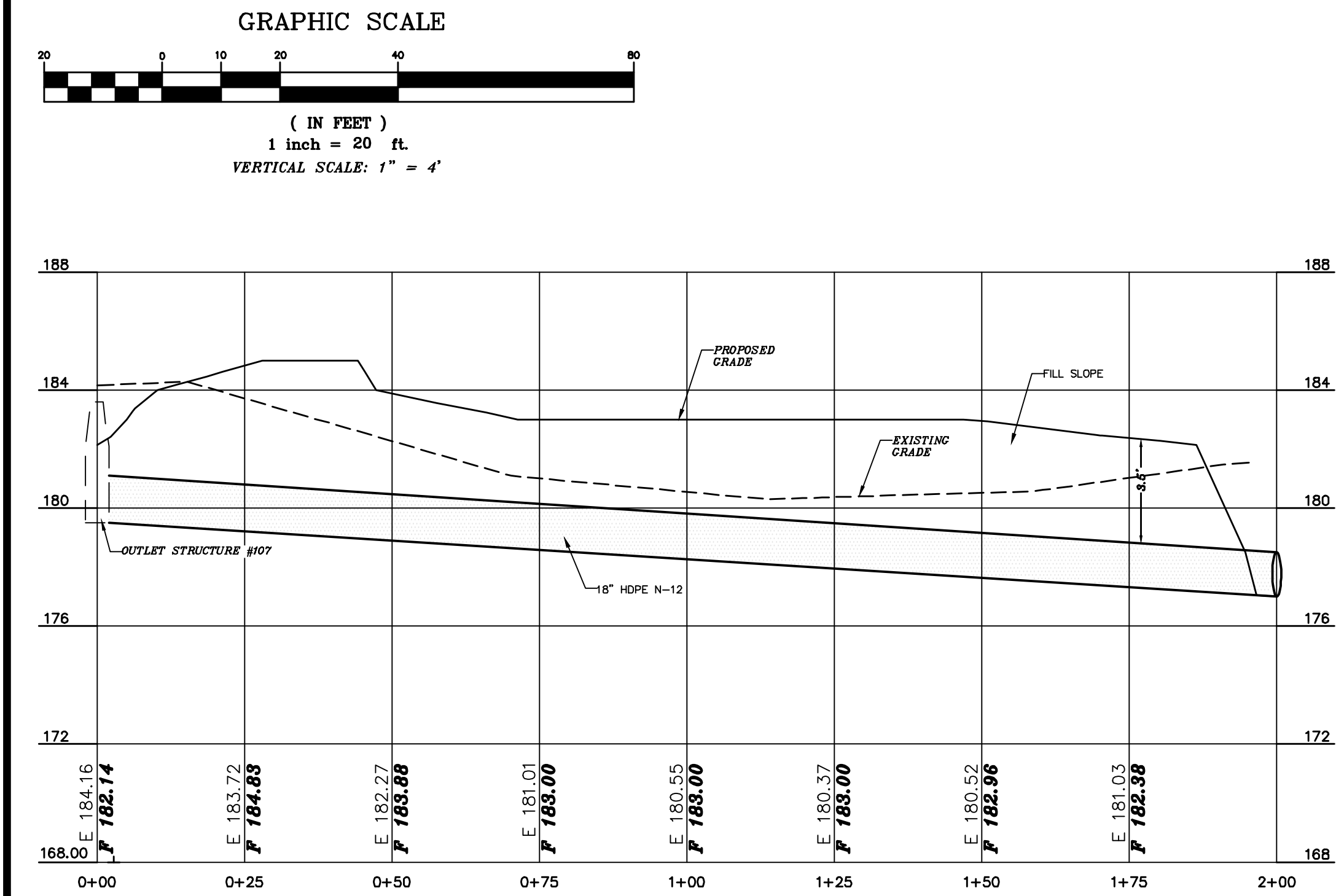
FILE NO : DB 2021-011

FILE NO. : DB 2021-011

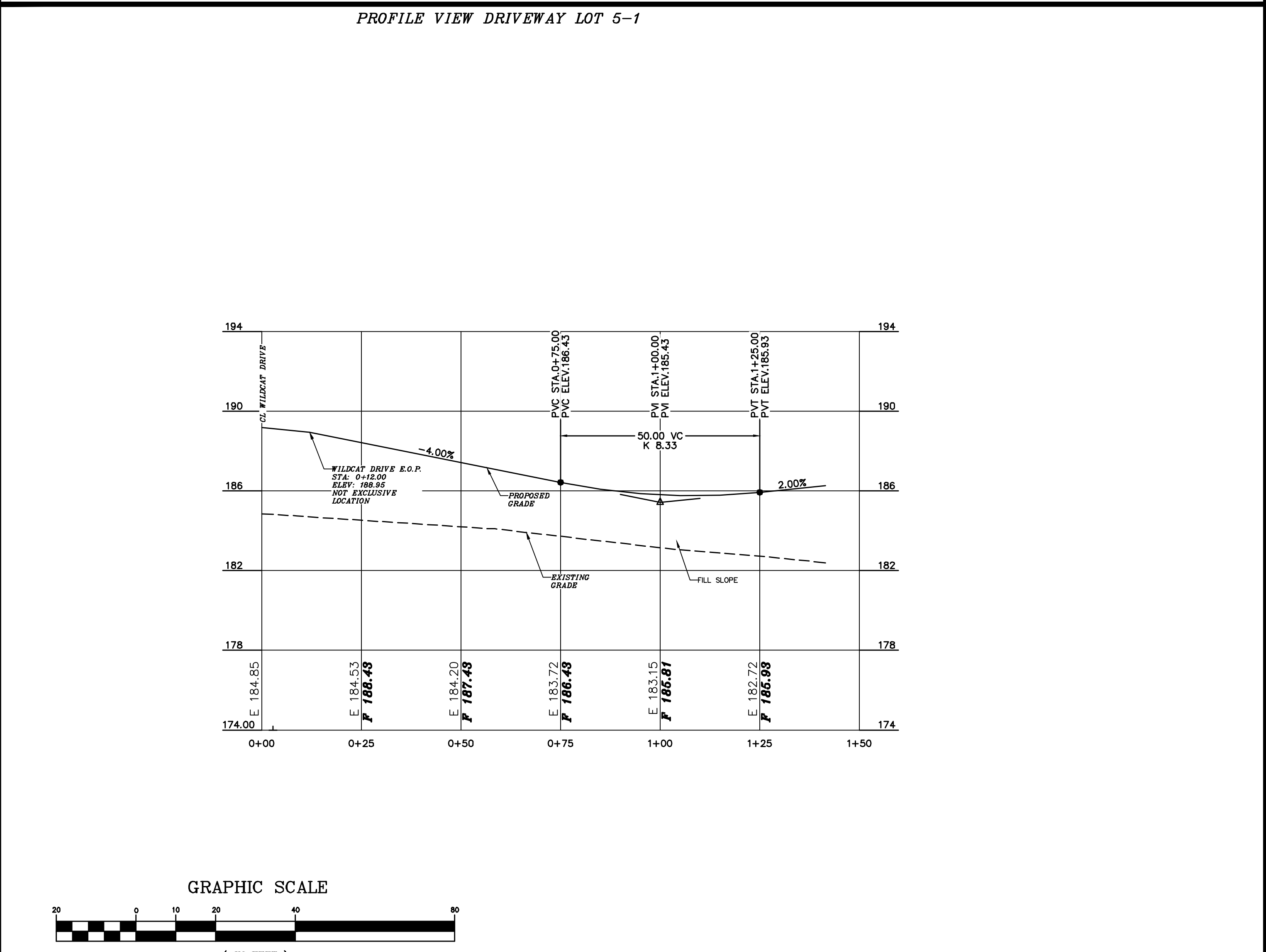




PLAN VIEW DRAINAGE PIPE AND ACCESS ROAD
PROFILE VIEW DRAINAGE PIPE AND ACCESS ROAD



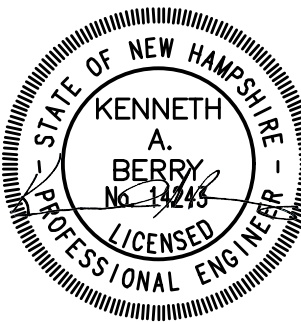
PLAN VIEW DRIVEWAY LOT 5-1
PROFILE VIEW DRIVEWAY LOT 5-1



REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

PIPE PROFILE & LOT 5-1 DRIVEWAY PROFILE
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



<u>ACTIVITY</u>	<u>CLOGGING AND SYSTEM PERFORMANCE</u>	<u>FREQUENCY</u>
-----------------	--	------------------

VEGETATION

ANNUALLY, OR AS
NEEDED

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

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

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

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STONE - SECTION 702 OF NHDOT
NHDOT STANDARD SPECIFICATIONS

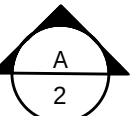
DESIGN REFERENCES

1 UNH STORMWATER CENTER

CONSTRUCTION NOTE: THE DESIGN ENGINEER IS TO BE ON SITE PRIOR TO AND DURING THE PLACEMENT OF THE RESERVOIR STONE, AND TO WITNESS THE INSTALLATION OF THE UNDER-DRAIN AND INTER-CHAMBER PIPES. PLEASE PROVIDE 24 HOURS NOTICE PRIOR TO REQUESTED INSPECTION.



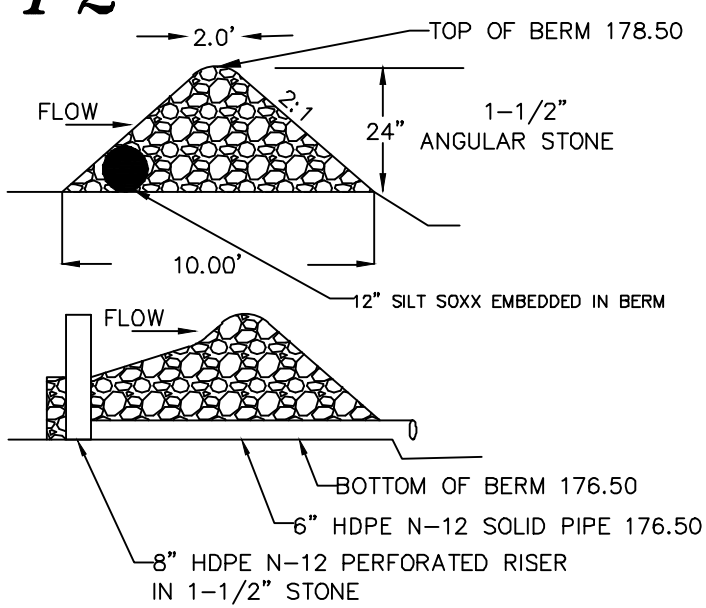
(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



P1

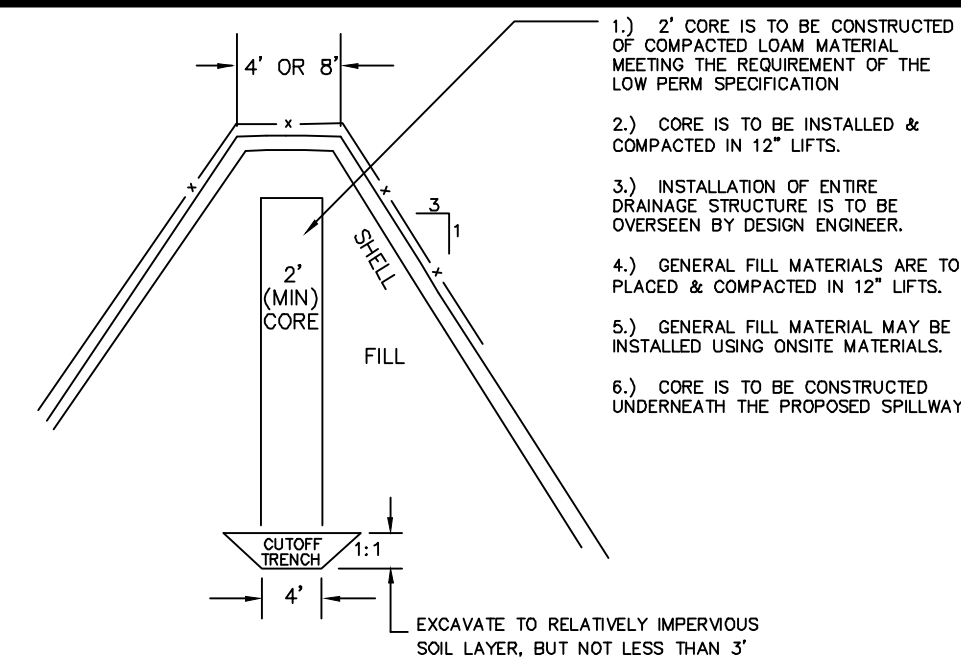
P2

STONE BERM FOR FOREBAY



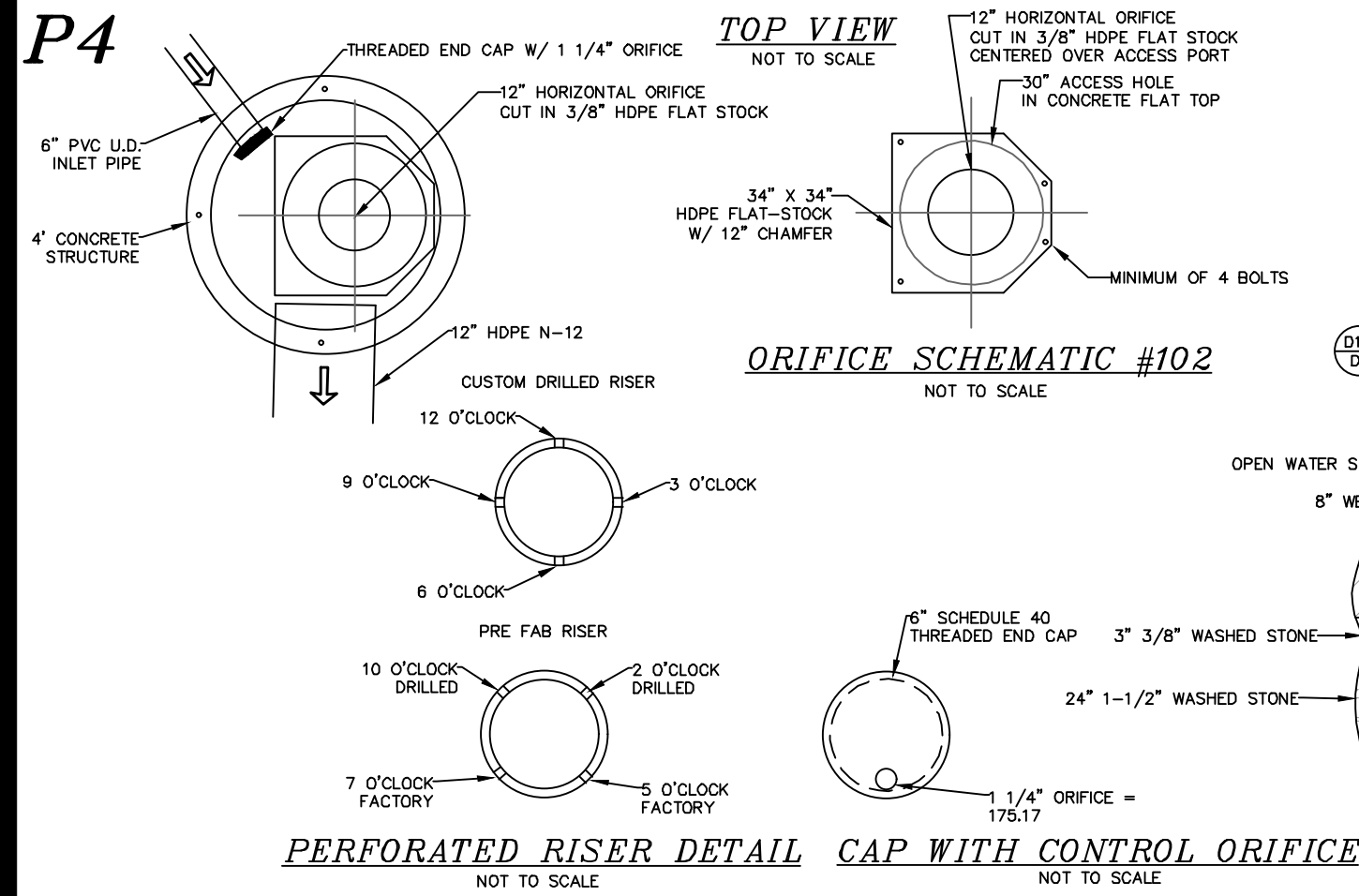
P3

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 MEETING THE REQUIREMENT OF THE LOW PERM SPECIFICATION
- 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 BE 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.

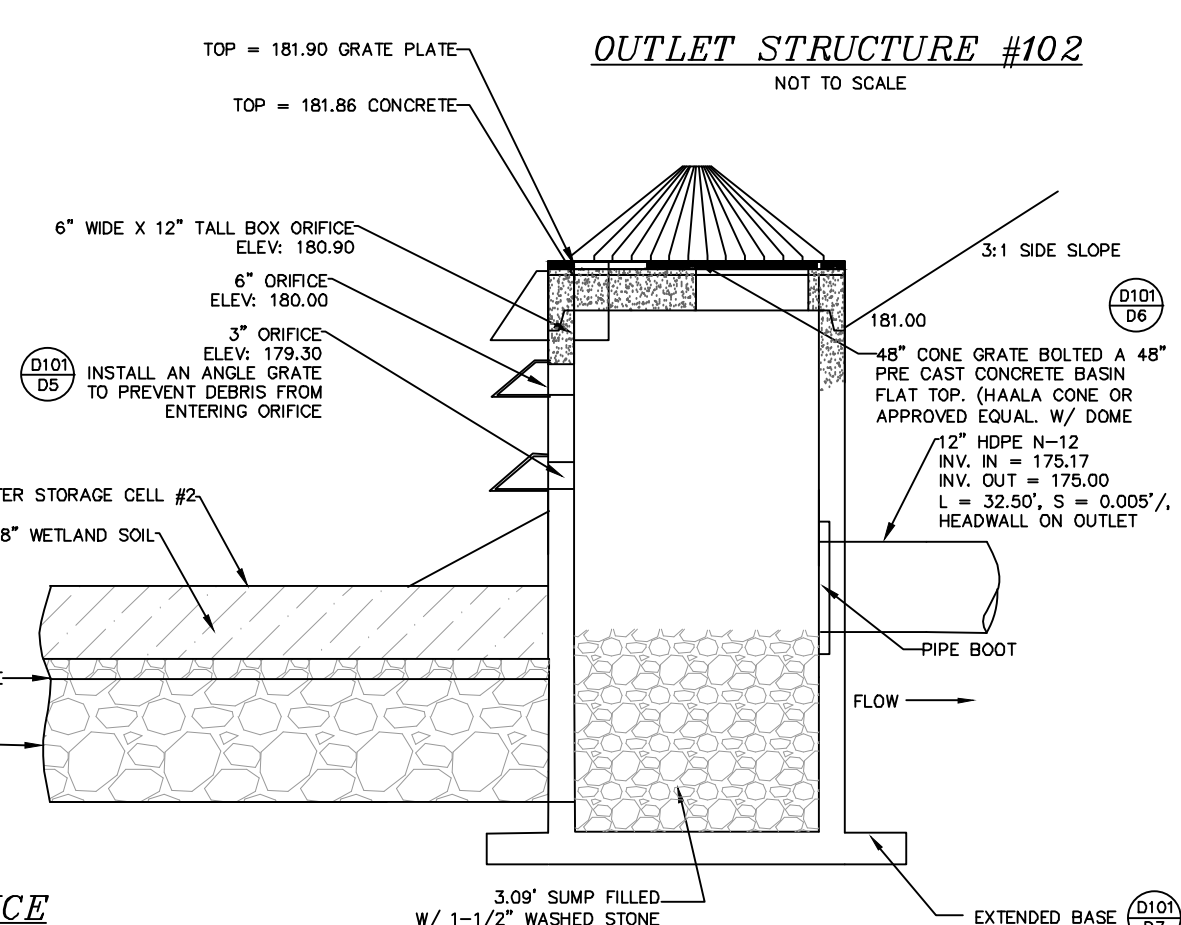
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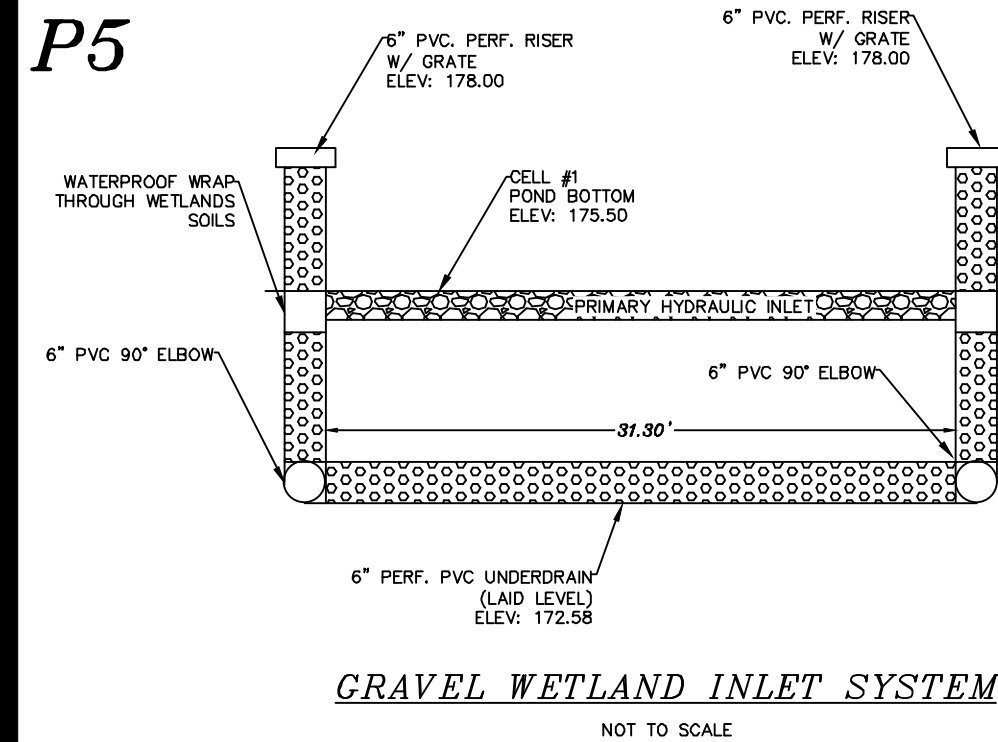
ORIFICE SCHEMATIC #102

PERFORATED RISER DETAIL CAP WITH CONTROL ORIFICE

OUTLET STRUCTURE #102

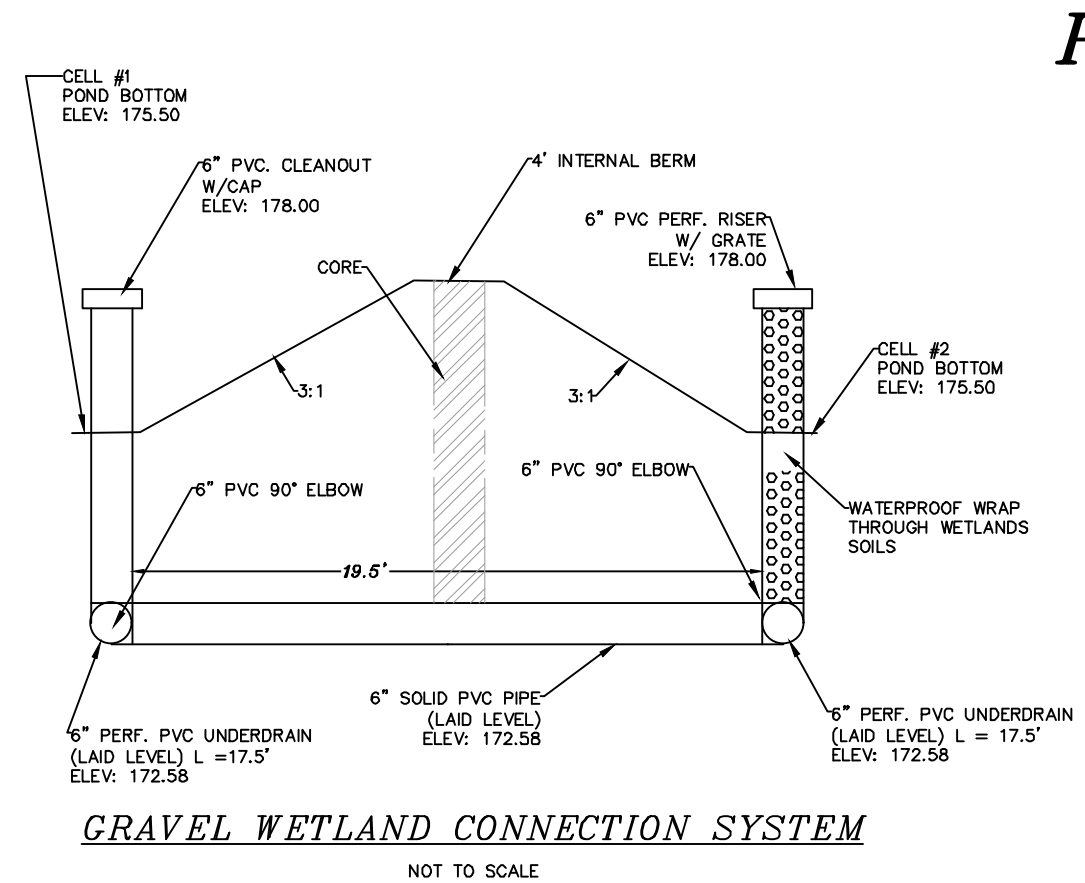


P5



GRAVEL WETLAND INLET SYSTEM

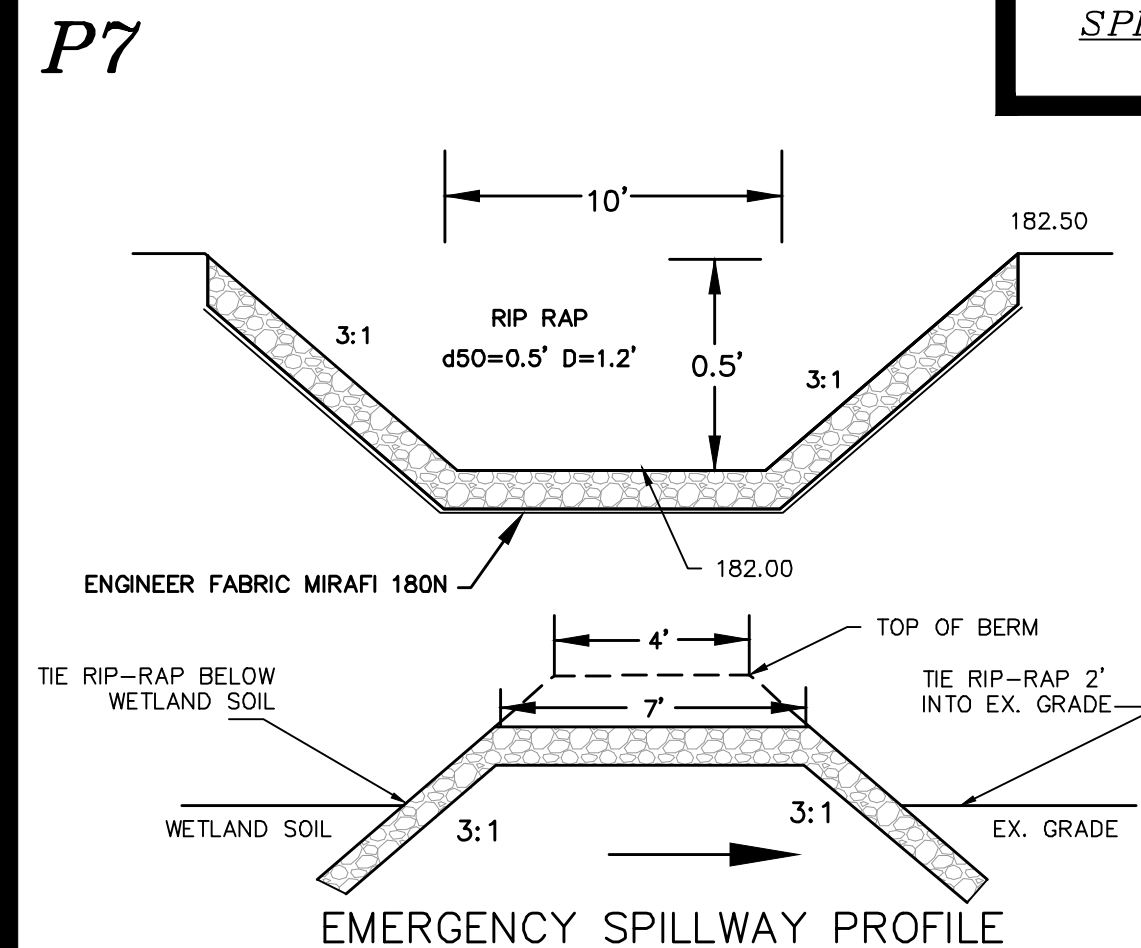
P6



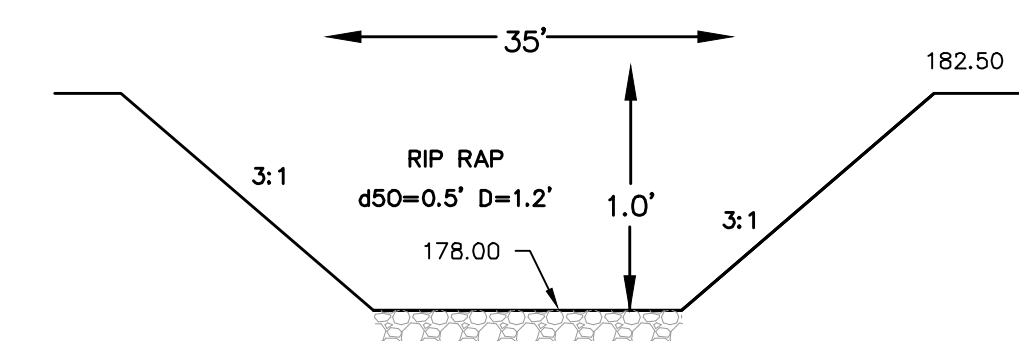
GRAVEL WETLAND CONNECTION SYSTEM

NOT TO SCALE

P7



EMERGENCY SPILLWAY PROFILE



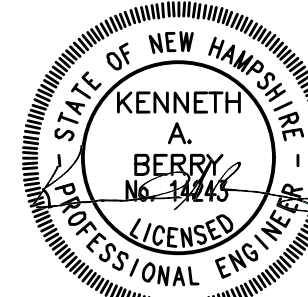
GRAVEL WETLAND CELL
SPILLWAY PROFILE

P-102

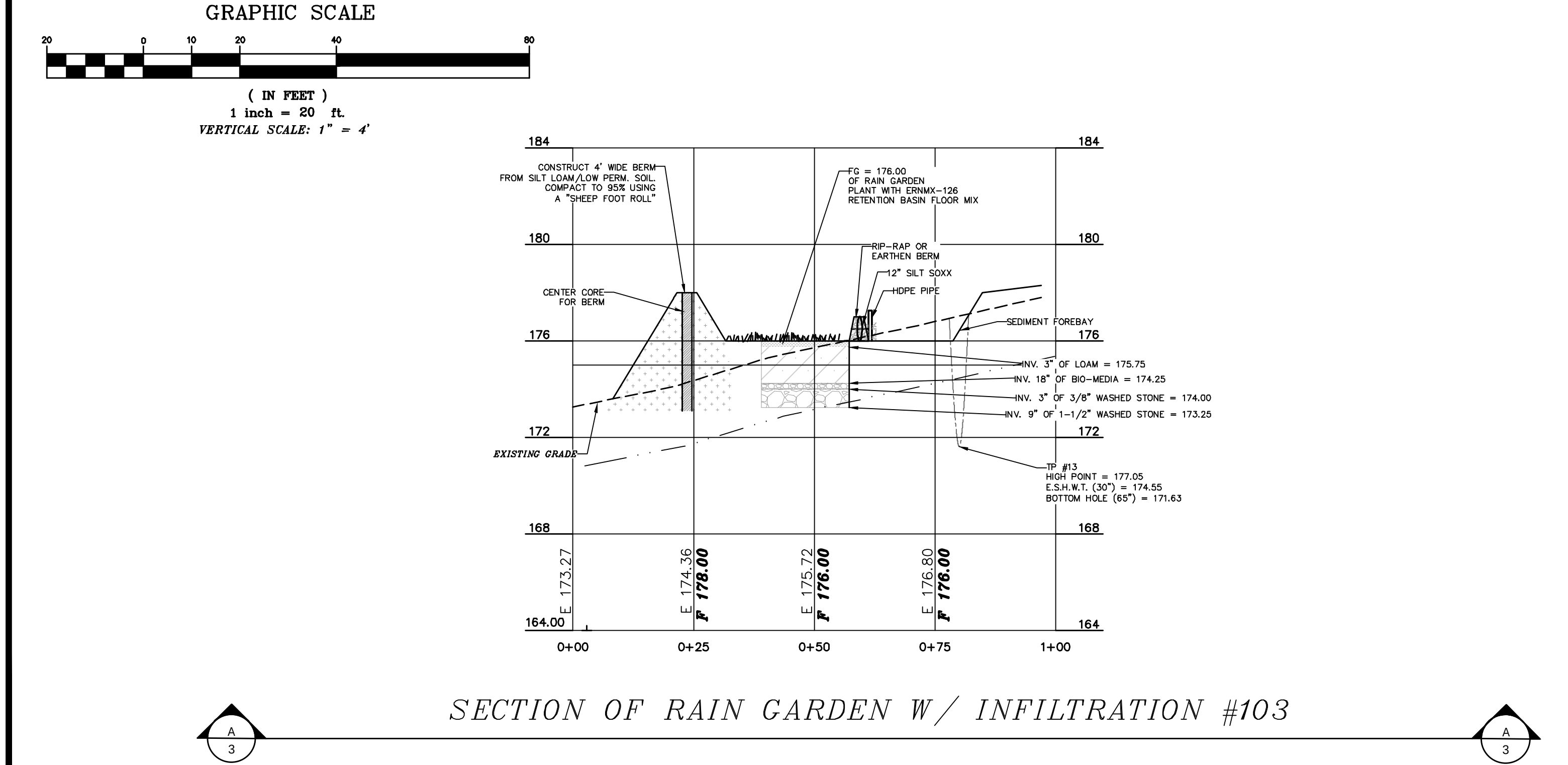
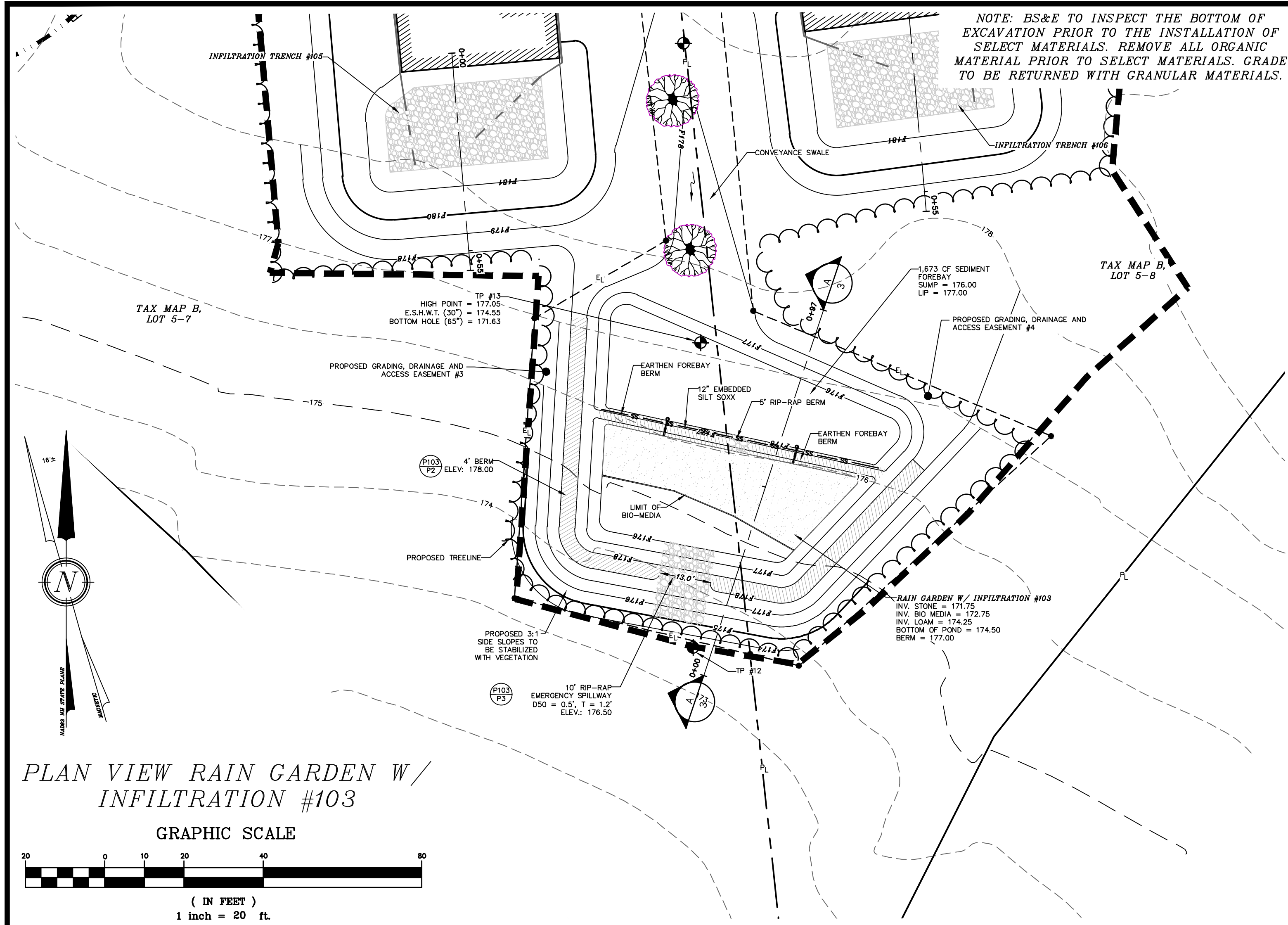
REVISION #1	DATE	9-23-21	REVISED PER AOT AND TRC COMMENTS
			DESCRIPTION

RAVEL WETLAND #102
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021



SHEET 28 OF 56



BIORETENTION FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Bioretention Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5

3/8" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 - 100
# 4	22 - 55
# 8	0 - 10

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

RAIN GARDEN MIX

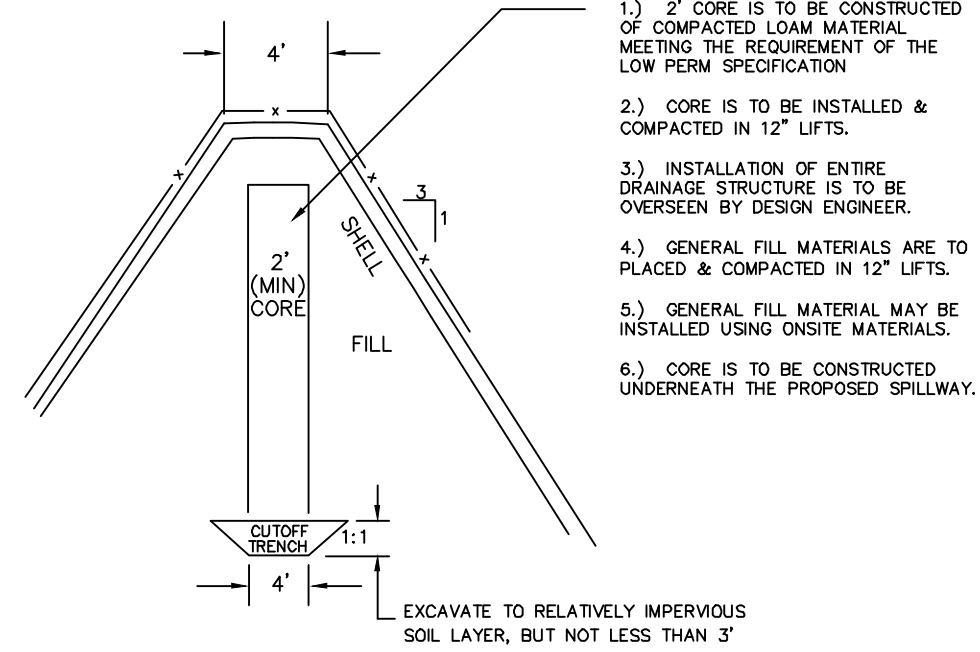
THE GRASS THAT IS PLANTED WITHIN A RAIN GARDEN BIO-FILTRATION SYSTEM WITHIN THE BIO-MEDIA MUST CONSIST OF A COMBINATION OF WARM SEASON GRASS SEED AND COLD SEASON GRASS SEED IN ORDER FOR THE GRASS TO START GROWING FOR STABILIZATION AND CONTINUE GROWING IN THE SANDY WELL-DRAINED ENVIRONMENT. PLANTING SPECIFICATION WILL MEET THE REQUIREMENTS AS OUTLINED IN "VEGETATION NEW HAMPSHIRE SAND AND GRAVEL PITS" MIX 1 (WARM SEASON GRASSES) (15 LBS/AC) AND INCLUDE ANNUAL AND PERENNIAL RYE GRASS SEED (15 LBS/AC); THE NEW ENGLAND NATIVE WARM SEASON GRASS MIX (23 LBS/AC) BY NEW ENGLAND WETLAND PLANTS, INC.; RAIN GARDEN MIX 180 (15 LBS/AC & 15 LBS/AC OF RYE) / RAIN GARDEN GRASS MIX 180-1 (20 LBS/AC & 10 LBS/AC OF RYE) BY ERNST CONSERVATION SEEDS; OR APPROVED EQUAL.

- NOTES**
- WHEN CONTRACTOR EXCAVATES RAIN GARDEN AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
 - SOL BIORETENTION FILTER MEDIA SHALL BE AS SHOWN ABOVE. "BIO MEDIA" MEANS BIORETENTION FILTER MEDIA.
 - COMPACTION IS NOT TO OCCUR IN THE RAIN GARDEN AREAS PRIOR TO CONSTRUCTION. SCARIFICATION REQUIRED IN THE EVENT COMPACTION TAKES PLACE.
 - DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
 - DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
 - DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

- MAINTENANCE REQUIREMENTS**
- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 0.25 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.
 - PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
 - AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
 - VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

- DESIGN REFERENCES**
- UNH STORMWATER CENTER
 - NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

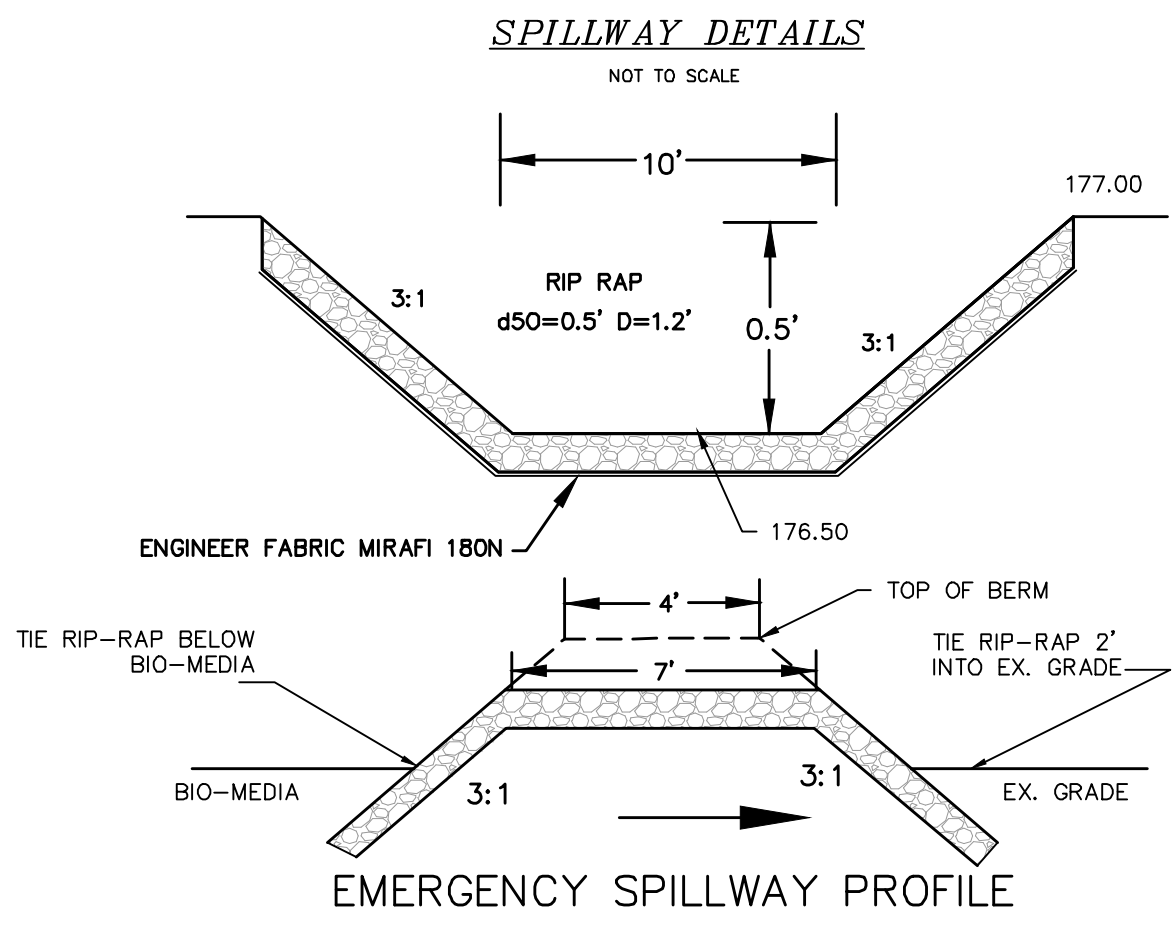
P2



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

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	

P3



REVISED PER AOT AND TRC COMMENTS		DATE	DESCRIPTION
#1			

RAIN GARDEN W/ INFILTRATION #103

LAND OF SETTLEMENT ON 6TH, LLC

SIXTH STREET

DOVER, N.H.

TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING

335 SECOND CROWN POINT ROAD

BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011

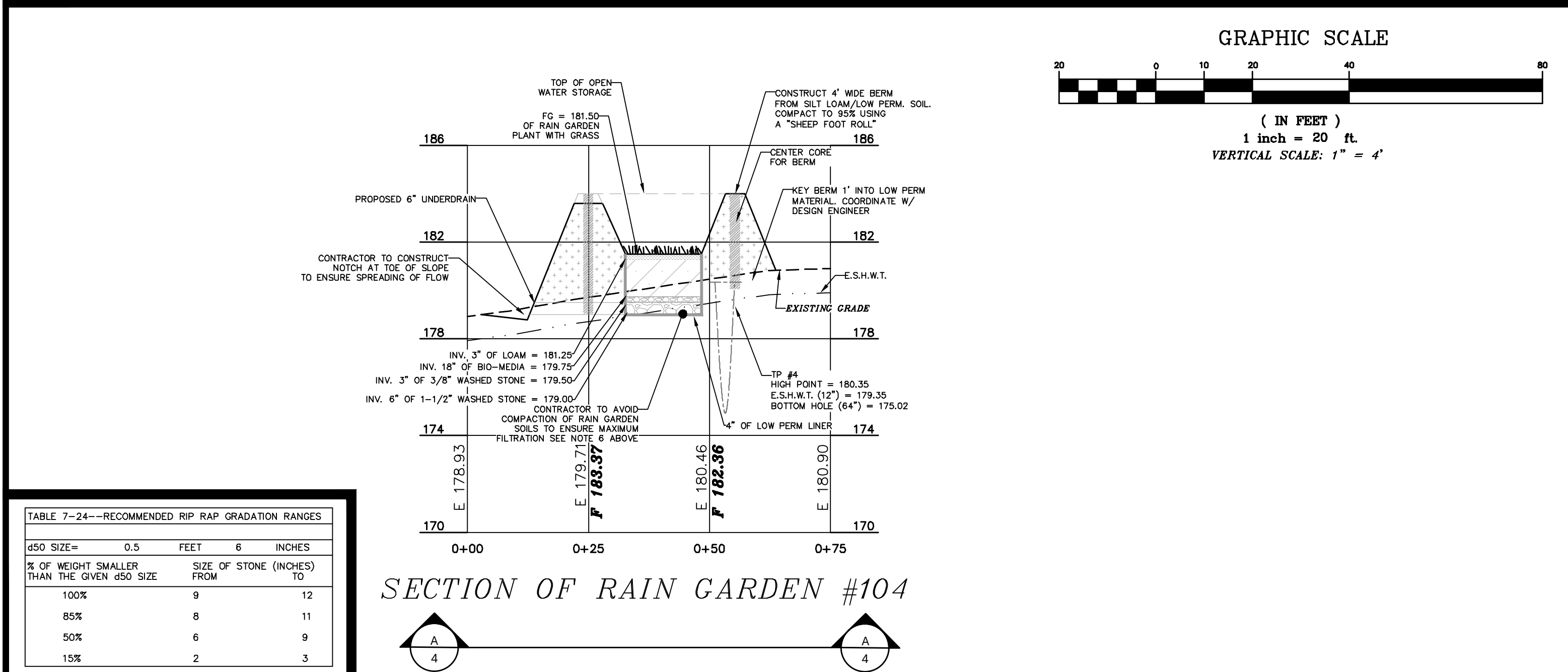
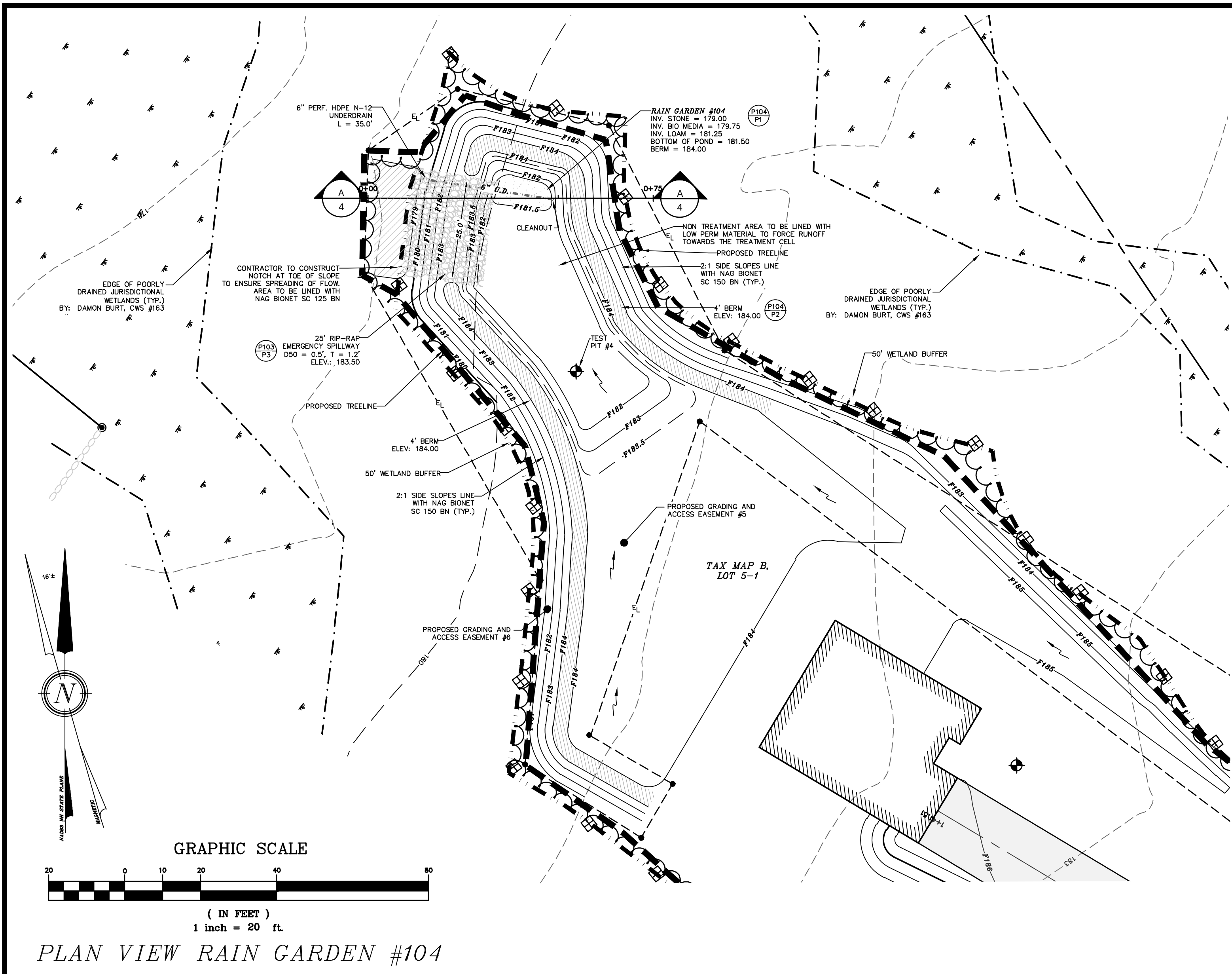
STATE OF NEW HAMPSHIRE

KENNETH A. BERRY

NO. 12443

REGISTERED PROFESSIONAL ENGINEER

SHEET 29 OF 56



BIORETENTION FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Bioretention Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5

3/8" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 - 100
# 4	22 - 55
# 8	0 - 10

1-1/2" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 - 100
# 4	20 - 55
1/2"	0 - 15
3/8"	0 - 5

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

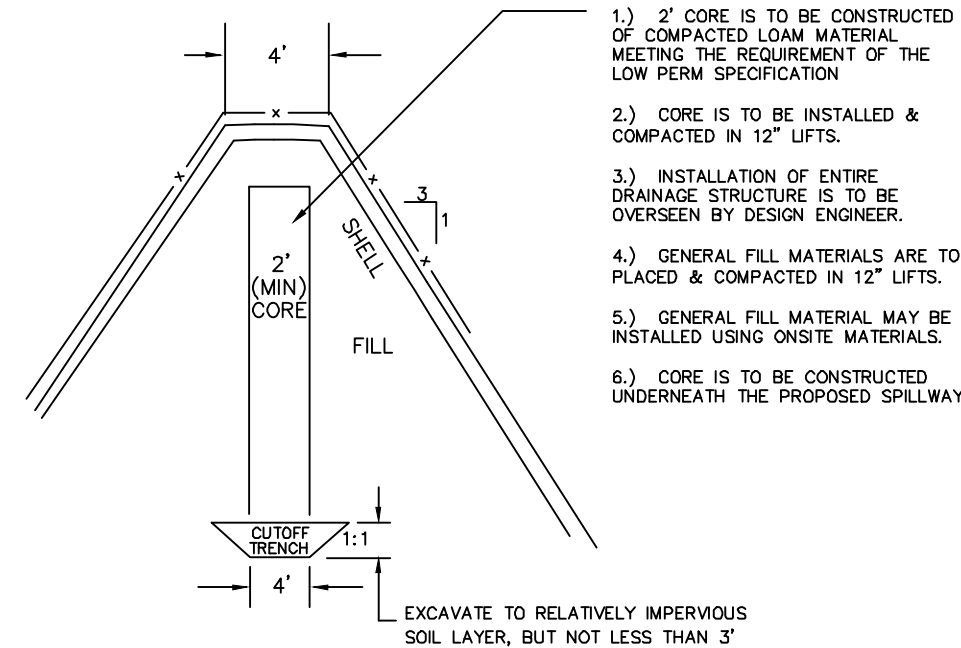
* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT STANDARD SPECIFICATIONS

RAIN GARDEN MIX

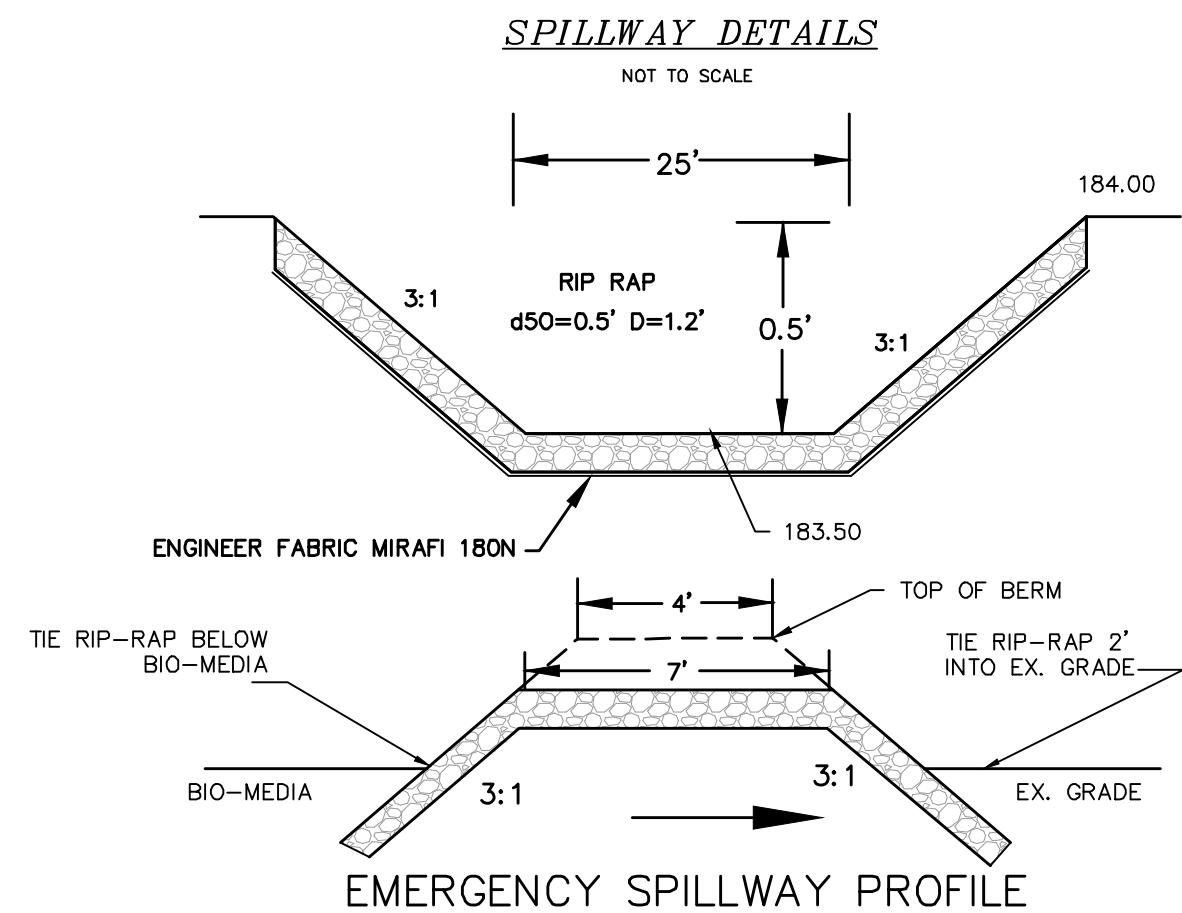
THE GRASS THAT IS PLANTED WITHIN A RAIN GARDEN BIO-FILTRATION SYSTEM WITHIN THE BIO-MEDIA MUST CONSIST OF A COMBINATION OF WARM SEASON GRASS SEED AND COLD SEASON GRASS SEED IN ORDER FOR THE GRASS TO START GROWING FOR STABILIZATION AND CONTINUE GROWING IN THE SANDY WELL-DRAINED ENVIRONMENT. PLANTING SPECIFICATION WILL MEET THE REQUIREMENTS AS OUTLINED IN "VEGETATION NEW HAMPSHIRE SAND AND GRAVEL PITS" MIX 1 (WARM SEASON GRASSES) (15 LBS/AC) AND INCLUDE ANNUAL AND PERENNIAL RYE GRASS SEED (15 LBS/AC); THE NEW ENGLAND NATIVE WARM SEASON GRASS MIX (23 LBS/AC) BY NEW ENGLAND WETLAND PLANTS, INC.; RAIN GARDEN MIX 180 (15 LBS/AC & 15 LBS/AC OF RYE) / RAIN GARDEN GRASS MIX 180-1 (20 LBS/AC & 10 LBS/AC OF RYE) BY ERNST CONSERVATION SEEDS; OR APPROVED EQUAL.

P2

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



P3



NOTES

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MAINTENANCE REQUIREMENTS

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DESIGN REFERENCES

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- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

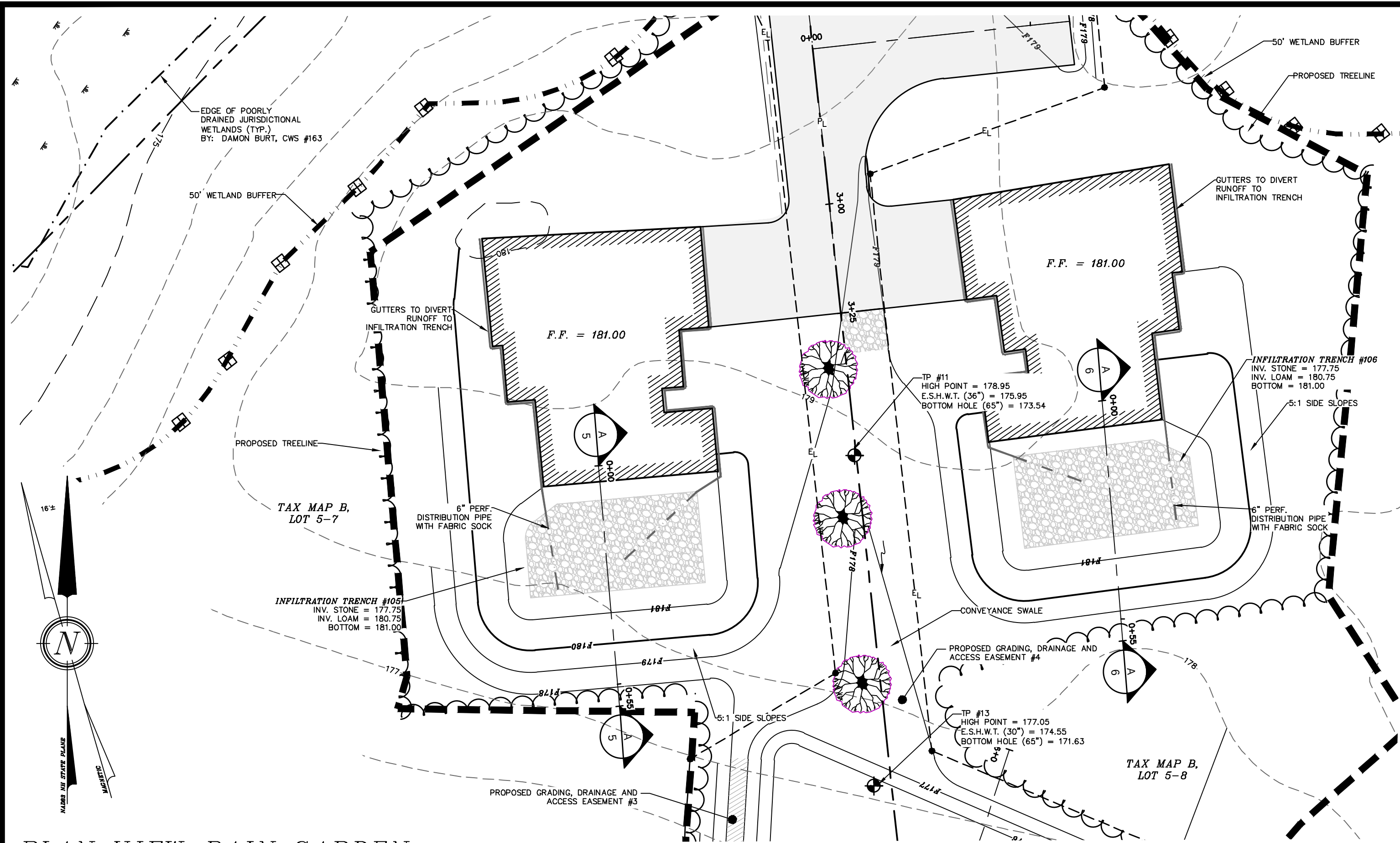
P1

REVISED PER AOT AND TRC COMMENTS		DESCRIPTION	
#1	9-23-21	REVISION	DATE

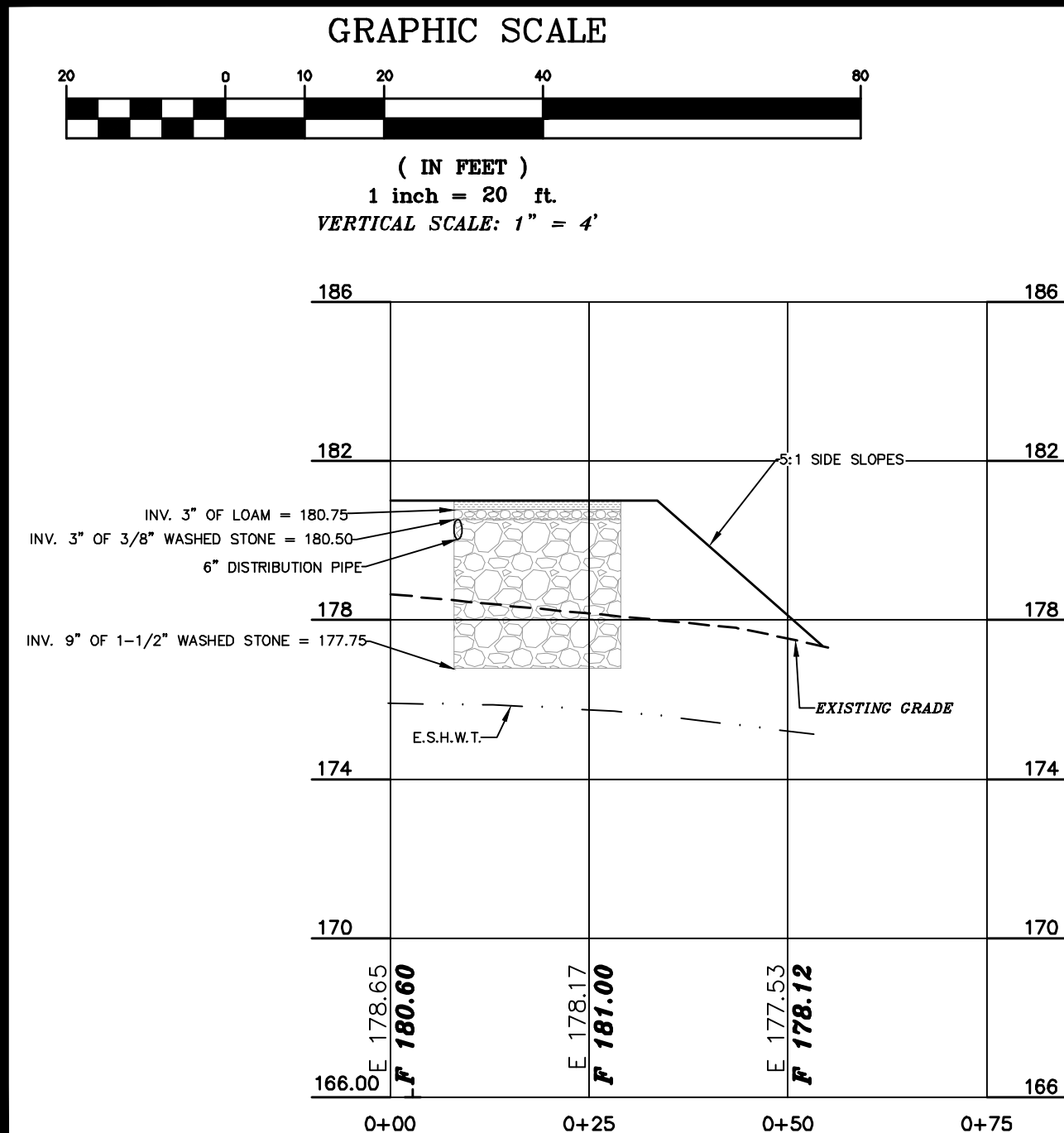
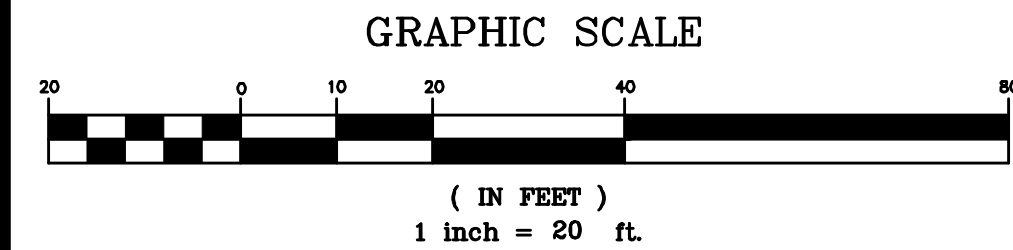
RAIN GARDEN #104 LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5	
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BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603)332-2863 SCALE : 1 IN. EQUALS 20 FT. DATE : JUNE 10, 2021 FILE NO. : DB 2021-011	
STATE OF NEW HAMPSHIRE KENNETH A. BERRY No. 12443 LICENSED PROFESSIONAL ENGINEER	
SHEET 30 OF 56	

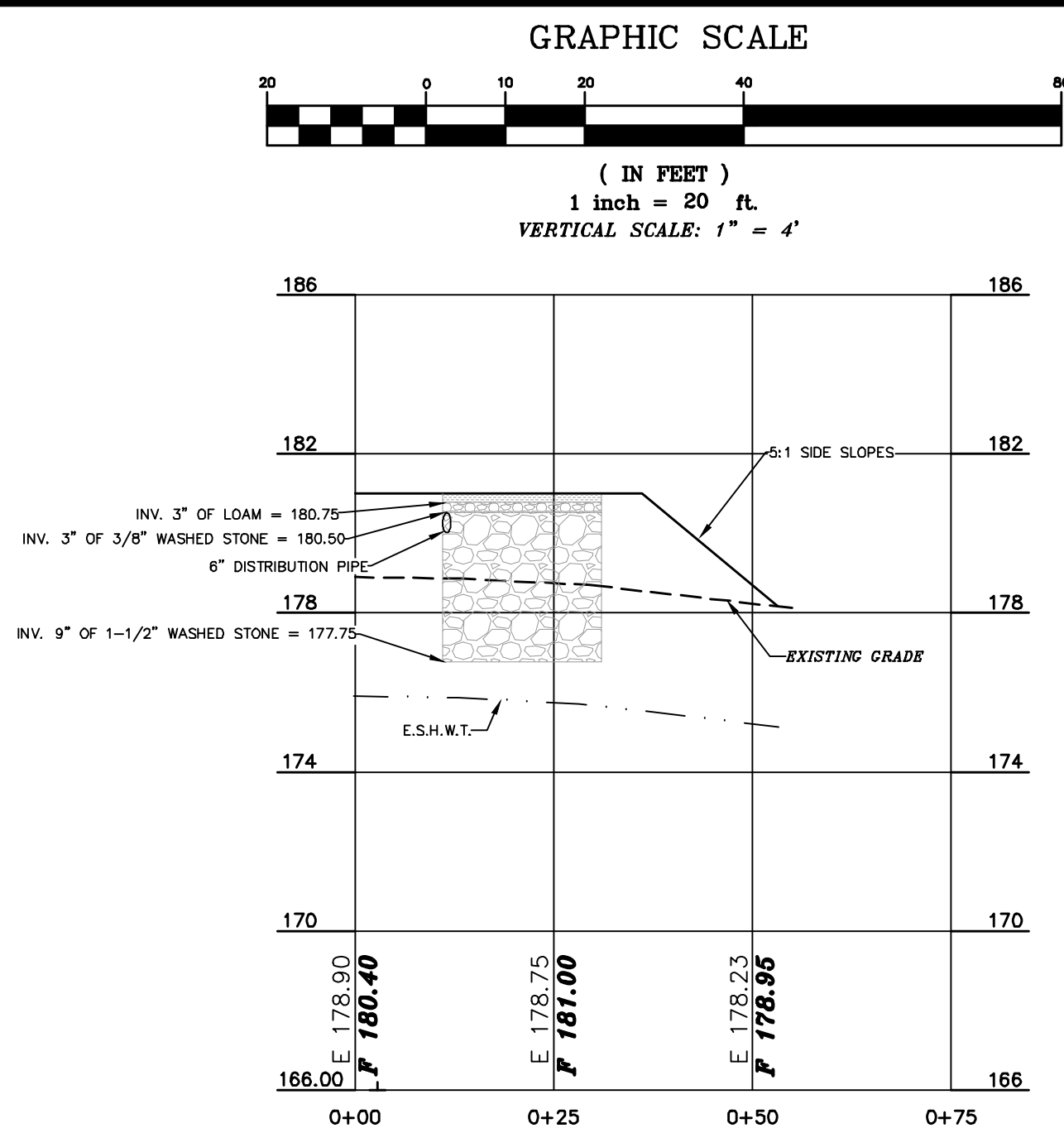
P-104



PLAN VIEW RAIN GARDEN #105 & #106



SECTION OF RAIN GARDEN #105



SECTION OF RAIN GARDEN #106

BIORETENTION FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Bioretention Filter Media Option A			
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Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
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3/8" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
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3/8"	95 - 100
# 4	22 - 55
# 8	0 - 10

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

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

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

RAIN GARDEN MIX

THE GRASS THAT IS PLANTED WITHIN A RAIN GARDEN BIO-FILTRATION SYSTEM WITHIN THE BIO-MEDIA MUST CONSIST OF A COMBINATION OF WARM SEASON GRASS SEED AND COLD SEASON GRASS SEED IN ORDER FOR THE GRASS TO START GROWING FOR STABILIZATION AND CONTINUE GROWING IN THE SANDY WELL-DRAINED ENVIRONMENT. PLANTING SPECIFICATION WILL MEET THE REQUIREMENTS AS OUTLINED IN 'VEGETATION NEW HAMPSHIRE SAND AND GRAVEL PITS' MIX 1 (WARM SEASON GRASSES) (15 LBS/AC) AND INCLUDE ANNUAL AND PERENNIAL RYE GRASS SEED (15 LBS/AC); THE NEW ENGLAND NATIVE WARM SEASON GRASS MIX (23 LBS/AC) BY NEW ENGLAND WETLAND PLANTS, INC.; RAIN GARDEN MIX 180 (15 LBS/AC & 15 LBS/AC OF RYE) / RAIN GARDEN GRASS MIX 180-1 (20 LBS/AC & 10 LBS/AC OF RYE) BY ERNST CONSERVATION SEEDS; OR APPROVED EQUAL.

P2

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	

NOTES

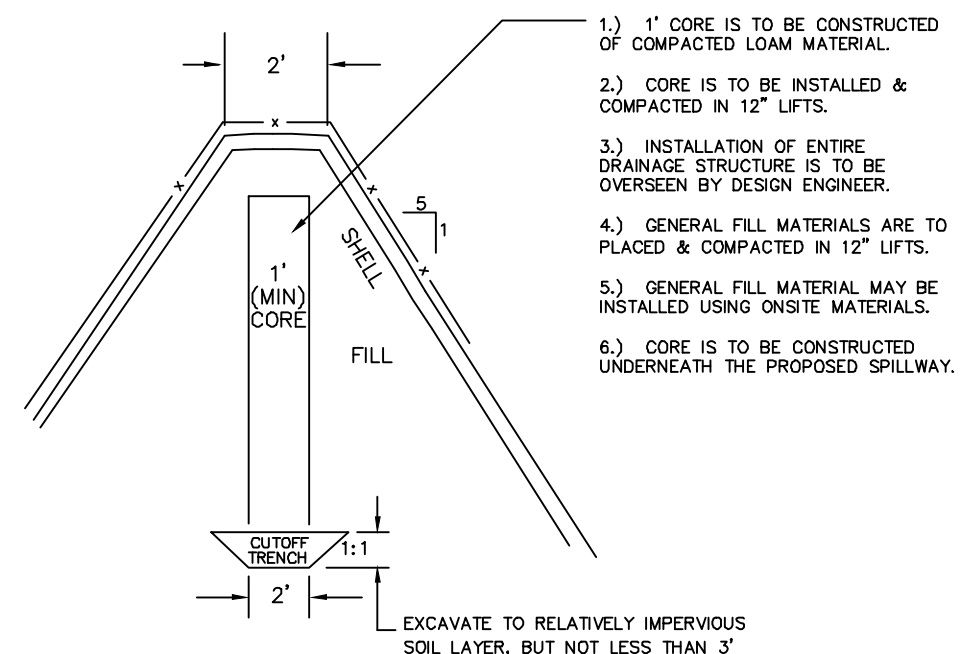
- WHEN CONTRACTOR EXCAVATES RAIN GARDEN AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL. SOIL BIORETENTION FILTER MEDIA SHALL BE AS SHOWN ABOVE. "BIO MEDIA" MEANS BIORETENTION FILTER MEDIA.
- COMPACTION IS NOT TO OCCUR IN THE RAIN GARDEN AREAS PRIOR TO CONSTRUCTION. SCARIFICATION REQUIRED IN THE EVENT COMPACTION TAKES PLACE.
- DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 0.25 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

- UNH STORMWATER CENTER
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

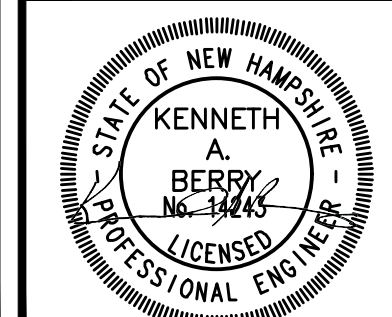


LOW PERMEABILITY MATERIAL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	95 - 100
#40	60 - 95
#100	40 - 60
#200	25 - 45

P1

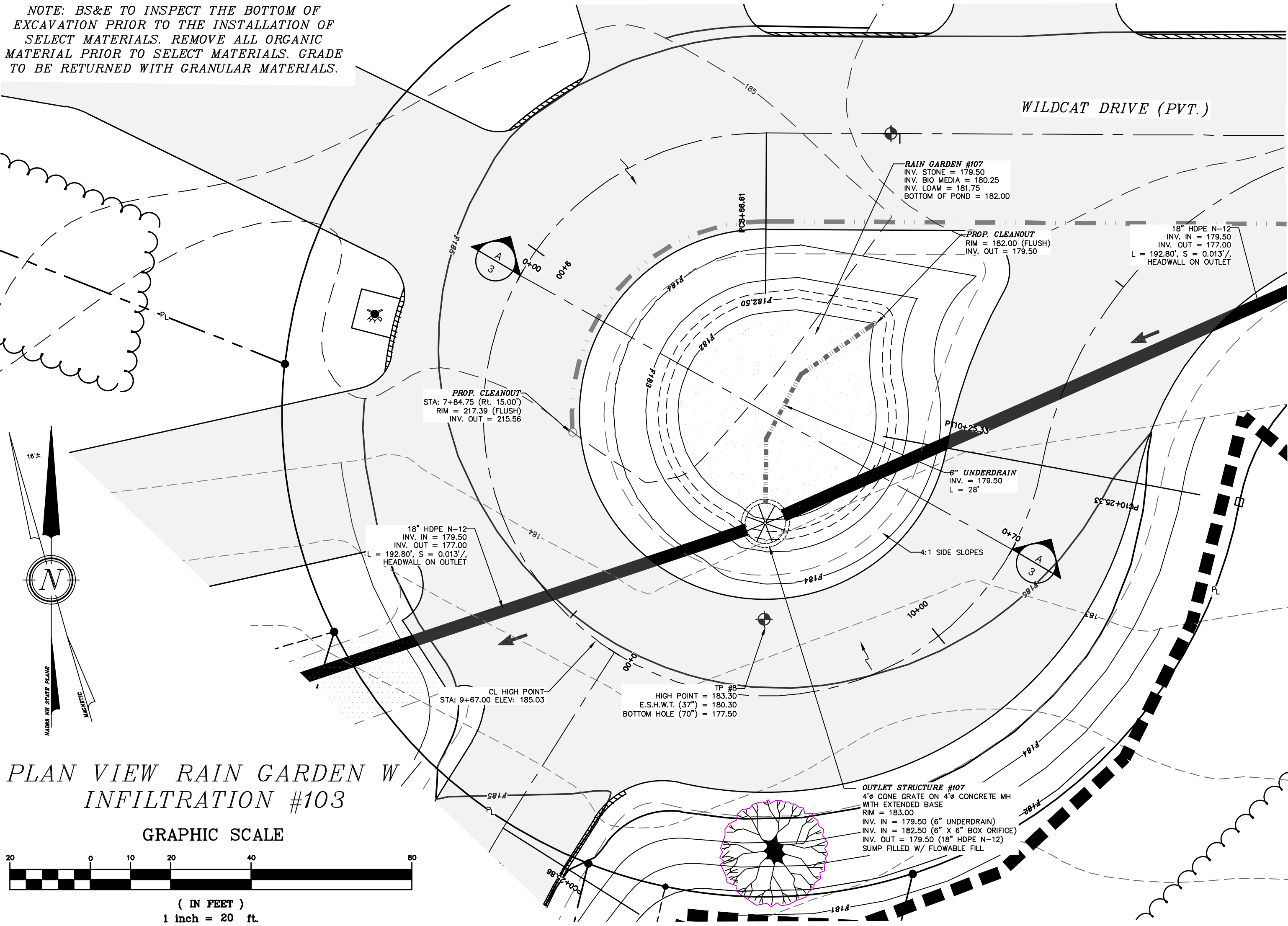
RAIN GARDEN #105 & #106
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



P-105 & P-106

NOTE: BS&E TO INSPECT THE BOTTOM OF EXCAVATION PRIOR TO THE INSTALLATION OF SELECT MATERIALS. REMOVE ALL ORGANIC MATERIAL PRIOR TO SELECT MATERIALS. GRADE TO BE RETURNED WITH GRANULAR MATERIALS.



BIORETENTION FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Bioretention Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5

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 STANDARD SPECIFICATIONS

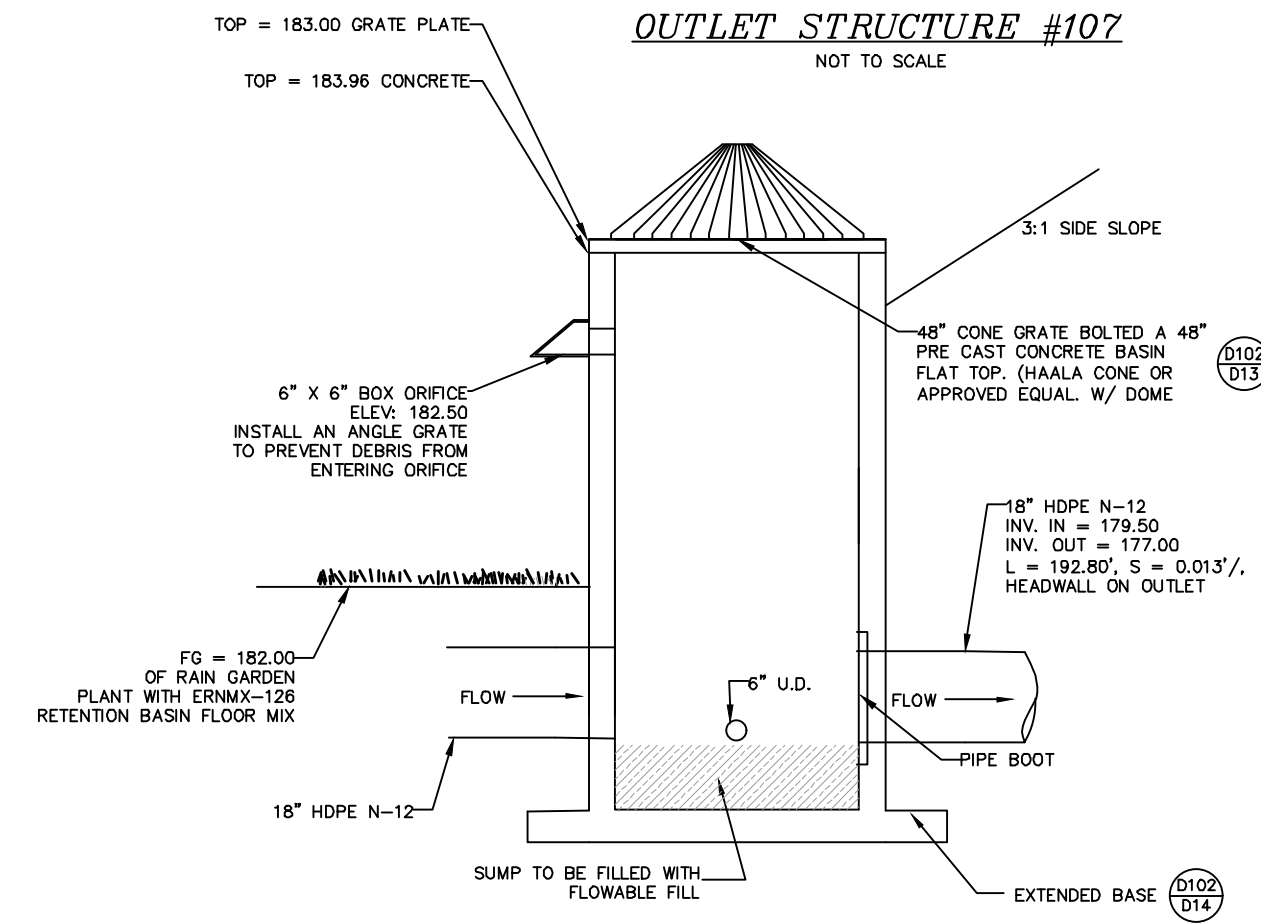
1-1/2" WASHED CRUSHED STONE*	
SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 - 100
1"	20 - 55
1/2"	0 - 15
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* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT STANDARD SPECIFICATIONS

RAIN GARDEN MIX

THE GRASS THAT IS PLANTED WITHIN A RAIN GARDEN BIO-FILTRATION SYSTEM WITHIN THE BIO-MEDIA MUST CONSIST OF A COMBINATION OF WARM SEASON GRASS SEED AND COLD SEASON GRASS SEED IN ORDER FOR THE GRASS TO START GROWING FOR STABILIZATION AND CONTINUE GROWING IN THE SANDY WELL-DRAINED ENVIRONMENT. PLANTING SPECIFICATION WILL MEET THE REQUIREMENTS AS OUTLINED IN "VEGETATION NEW HAMPSHIRE SAND AND GRAVEL PITS" MIX 1 (WARM SEASON GRASSES) (15 LBS/AC) AND INCLUDE ANNUAL AND PERENNIAL RYE GRASS SEED (15 LBS/AC); THE NEW ENGLAND NATIVE WARM SEASON GRASS MIX (23 LBS/AC) BY NEW ENGLAND WETLAND PLANTS, INC.; RAIN GARDEN MIX 180 (15 LBS/AC & 15 LBS/AC OF RYE) / RAIN GARDEN GRASS MIX 180-1 (20 LBS/AC & 10 LBS/AC OF RYE) BY ERNST CONSERVATION SEEDS; OR APPROVED EQUAL.

P2



NOTES

- WHEN CONTRACTOR EXCAVATES RAIN GARDEN AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
- SOL BIORETENTION FILTER MEDIA SHALL BE AS SHOWN ABOVE. "BIO MEDIA" MEANS BIORETENTION FILTER MEDIA.
- COMPACTION IS NOT TO OCCUR IN THE RAIN GARDEN AREAS PRIOR TO CONSTRUCTION. SCARIFICATION REQUIRED IN THE EVENT COMPACTION TAKES PLACE.
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- DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

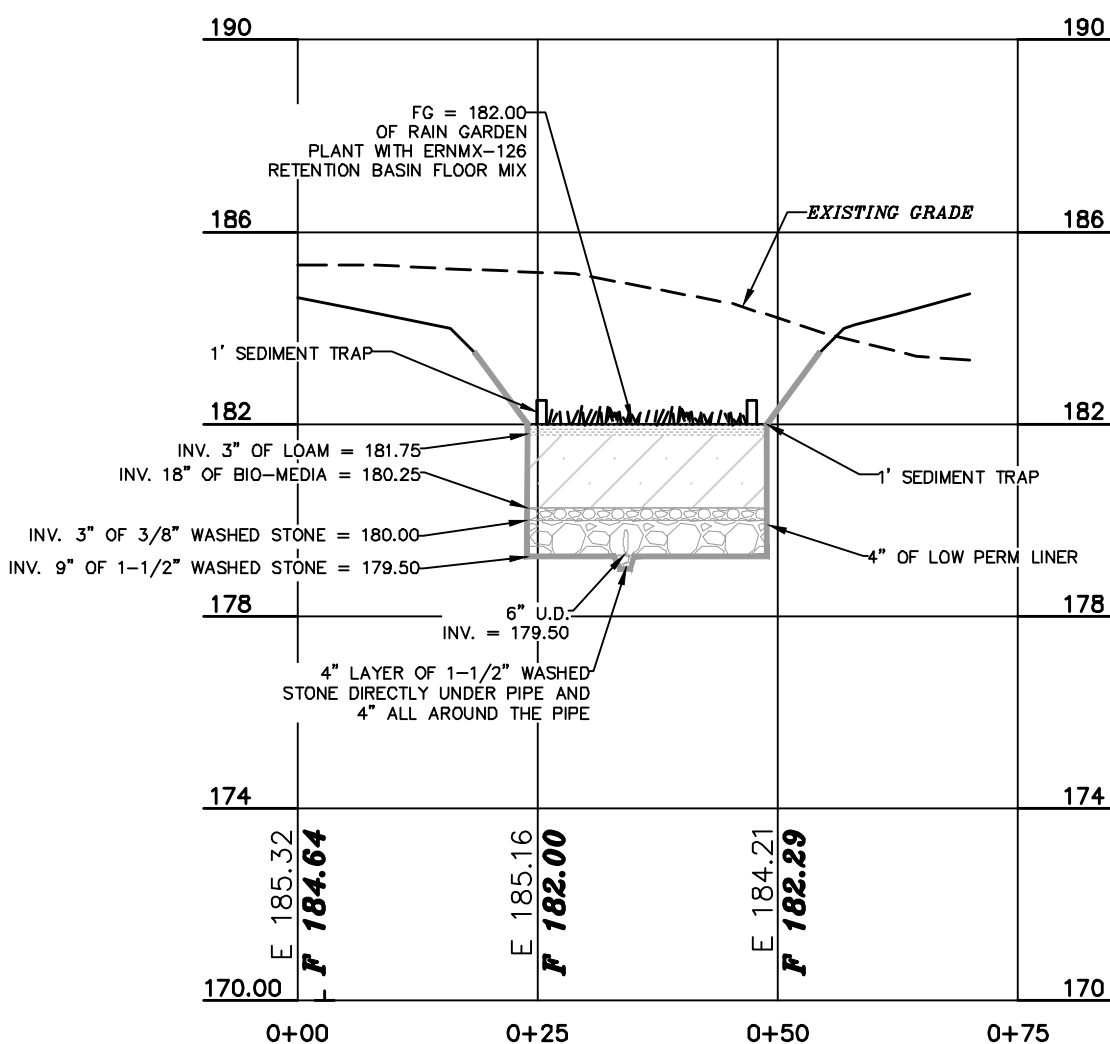
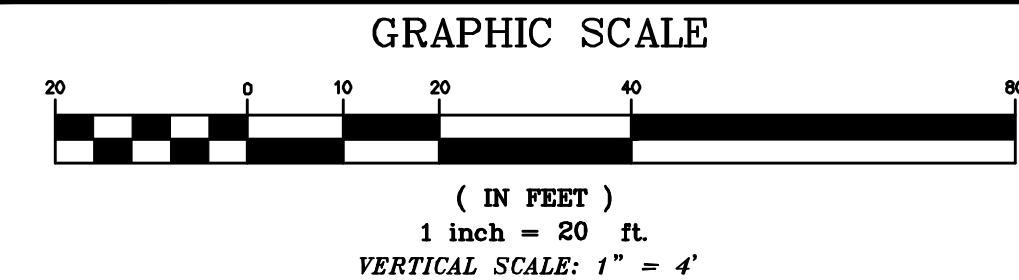
MAINTENANCE REQUIREMENTS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 0.25 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAINAGE TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

- UNH STORMWATER CENTER
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

P1



P-107

REVISED PER AOT AND TRC COMMENTS

DESCRIPTION

9-23-21

DATE

#1

REVISION

RAIN GARDEN #107

LAND OF

SETTLEMENT ON 6TH, LLC

SIXTH STREET

DOVER, N.H.

TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING

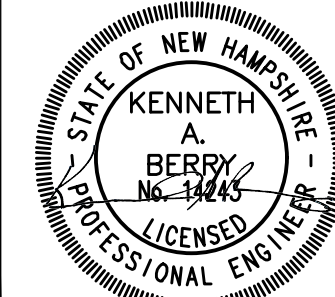
335 SECOND CROWN POINT ROAD

BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011



SOILS & DEWATERING:

AsB ACTON (VERY STONY)
BzA BUXTON
DaA DEERFIELD
GsA GLOUCESTER (VERY STONY)
SsA SAUGATUCK
ScA SCANTIC
WzA WINDSOR

SILT LOAM K= 0.43
SILT LOAM K= 0.28
SILT LOAM K= 0.17
SILT LOAM K= 0.17
SILT LOAM K= 0.20
SILT LOAM K= 0.49
SILT LOAM K= 0.17

SEE SITE SPECIFIC SOILS MAP (SSSM)

SEE WEBSOIL USDA-NRCS
ERODIBILITY FACTOR - K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. &
ROCKINGHAM COUNTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

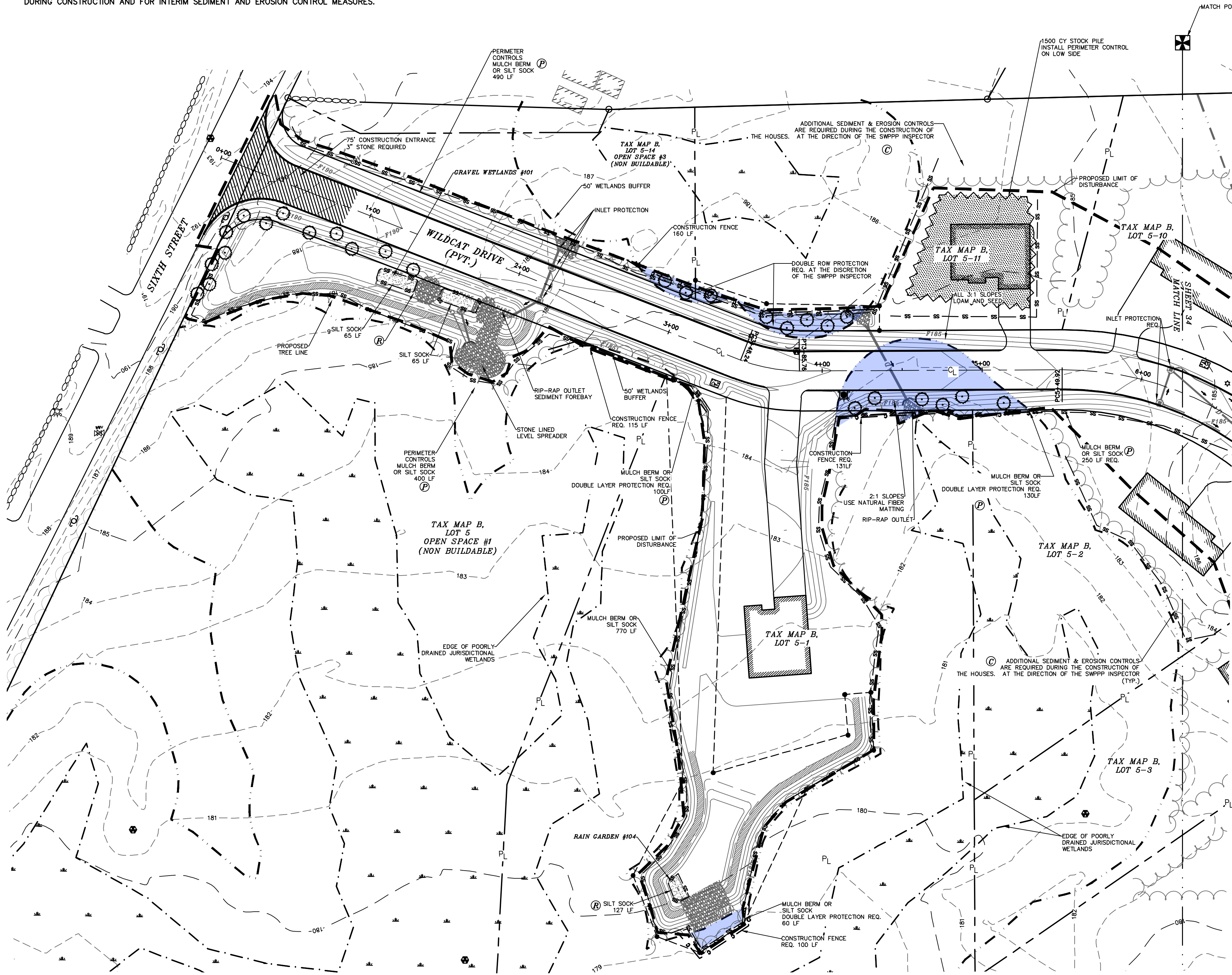
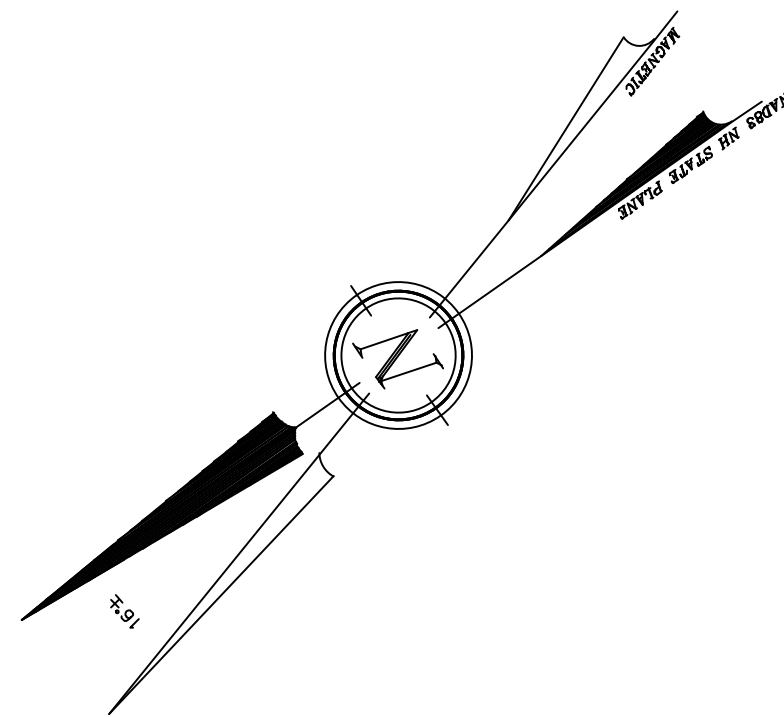
CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) 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 EARLIEST 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.

LEGEND:

- (R) RAIN GARDEN BIO-MEDIA PROTECTION
(P) PERIMETER CONTROL
(C) RESIDENTIAL/ROADWAY CONSTRUCTION
(FND) IRON PIPE (FND)
(FND) IRON BOUND (FND)
(FND) REBAR (FND)
(FND) UTILITY POLE
(FND) GUY WIRE
(W) WELL
(B) BENCHMARK
(T) CONIFEROUS TREE
(D) DECIDUOUS TREE
SILT FENCE
FILTREXX SILT SOXX
TREE LINE
CONSTRUCTION FENCE



NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- THE PROJECT PARCEL IS TAX MAP B, LOT 5
- LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- 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.
- 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.
- ALL DRAINAGE PIPE IS TO BE HDPE N-12. INDIVIDUAL PIPE SIZES ARE SPECIFIED ON GRADING AND DETAIL PLAN SHEETS, GREEN PIPE.
- 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.
- 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 PERFORMED ON ALL DRAINAGE PRACTICES.
- 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. SEE ALSO CITY OF DOVER ADDITIONAL INSPECTION REQUIREMENTS BELOW.
- SILT FENCE MAY BE SUBSTITUTED WITH FILTREXX SILT SOXX OR EROSION CONTROL MIX BERM. SILT FENCE IS NOT A SUBSTITUTE FOR FILTREXX SILT SOXX OR APPROVED EQUAL.
- 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&S PLAN IS INITIAL GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.
- CITY OF DOVER: IN ACCORDANCE WITH SITE PLAN REVIEW REGULATIONS (153-14) THE FOLLOWING STORMWATER MEASURES ARE REQUIRED.
 - ALL PROPOSED BMPs WILL CONFORM TO THE NH STORMWATER MANUAL VOLUME 3.
 - EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY COMMUNITY SERVICE.
 - TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN CALENDAR DAYS FOR EXPOSED SOILS AREAS THAT ARE WITHIN ONE HUNDRED FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.
 - ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL STABILIZATION IS ACCOMPLISHED.
 - COMMUNITY SERVICES DEPARTMENT OR THEIR DESIGNATED AGENT SHALL HAVE ACCESS TO THE SITE TO COMPLETE ROUTINE INSPECTIONS AND SHALL BE NOTIFIED 24-HOURS PRIOR TO INSTALLATION OF A STORMWATER BMP IN ORDER TO SCHEDULE AN INSPECTION, DURING NORMAL WORKING HOURS.
 - THE PLANNING BOARD OR COMMUNITY SERVICES MAY REQUIRE THE DESIGN ENGINEER AND/OR AN INDEPENDENT, THIRD-PARTY INSPECTION AND OVERSIGHT OF THE CONSTRUCTION OF STORMWATER MANAGEMENT FACILITIES AND EROSION AND SEDIMENT CONTROL AT THEIR DISCRETION. THE OWNER / APPLICANT IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH INSPECTIONS.
 - ALL SWPPP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORMWATER INSPECTOR (CESSW), OR A CERTIFIED PROFESSIONAL IN STORMWATER QUALITY (CPSWQ). INSPECTION REPORTS WILL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.
- CONTRACTOR IS REQUIRED TO HAVE A CONSTRUCTION ENTRANCE. 3" STONE IS REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE ROADWAY, SIDEWALKS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO SIXTH STREET.
- CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.
- FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV-A 1000.
- CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51-57 AND AGR 3800, RELATING TO INVASIVE SPECIES.
- 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.
- WINTER STABILIZATION NOTES ARE INCLUDED ON SHEET E-102 TO INCLUDE THE LIMIT OF ONE ACRE OF UNSTABILIZED SOIL AFTER OCTOBER 15TH.

DISTURBANCE PER PHASE:

PHASE 1: 253,000 Sq. Ft., 5.80 Ac. TOTAL DISTURBANCE

- WILDCAT DRIVE
- ALL STORMWATER BMPs
- FRONT YARD LOT FILL

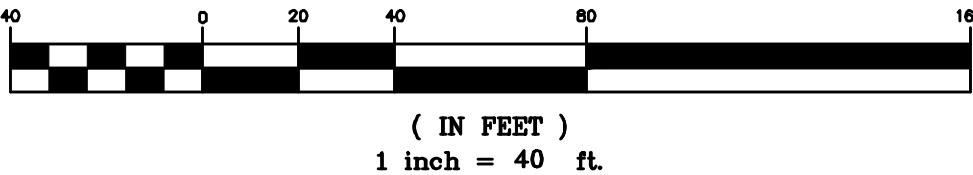
PHASE 2: 90,000 Sq. Ft., 2.07 Ac. TOTAL DISTURBANCE (RESIDENTIAL CONSTRUCTION)

CONSTRUCTION OF REMAINING RESIDENTIAL LOTS

BS&E TO STAKEOUT THE LIMIT OF DISTURBANCE PER PHASE 1 PRIOR TO CONSTRUCTION.

REMAINING RESIDENTIAL CONSTRUCTION MAY BEGIN ONCE WILDCAT DRIVE AND STORMWATER BMPs AREA STABILIZED.

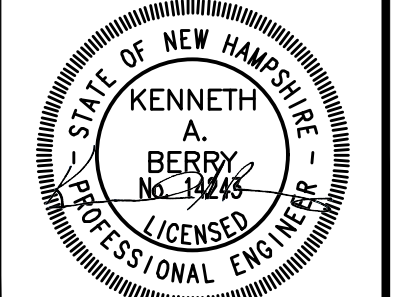
GRAPHIC SCALE

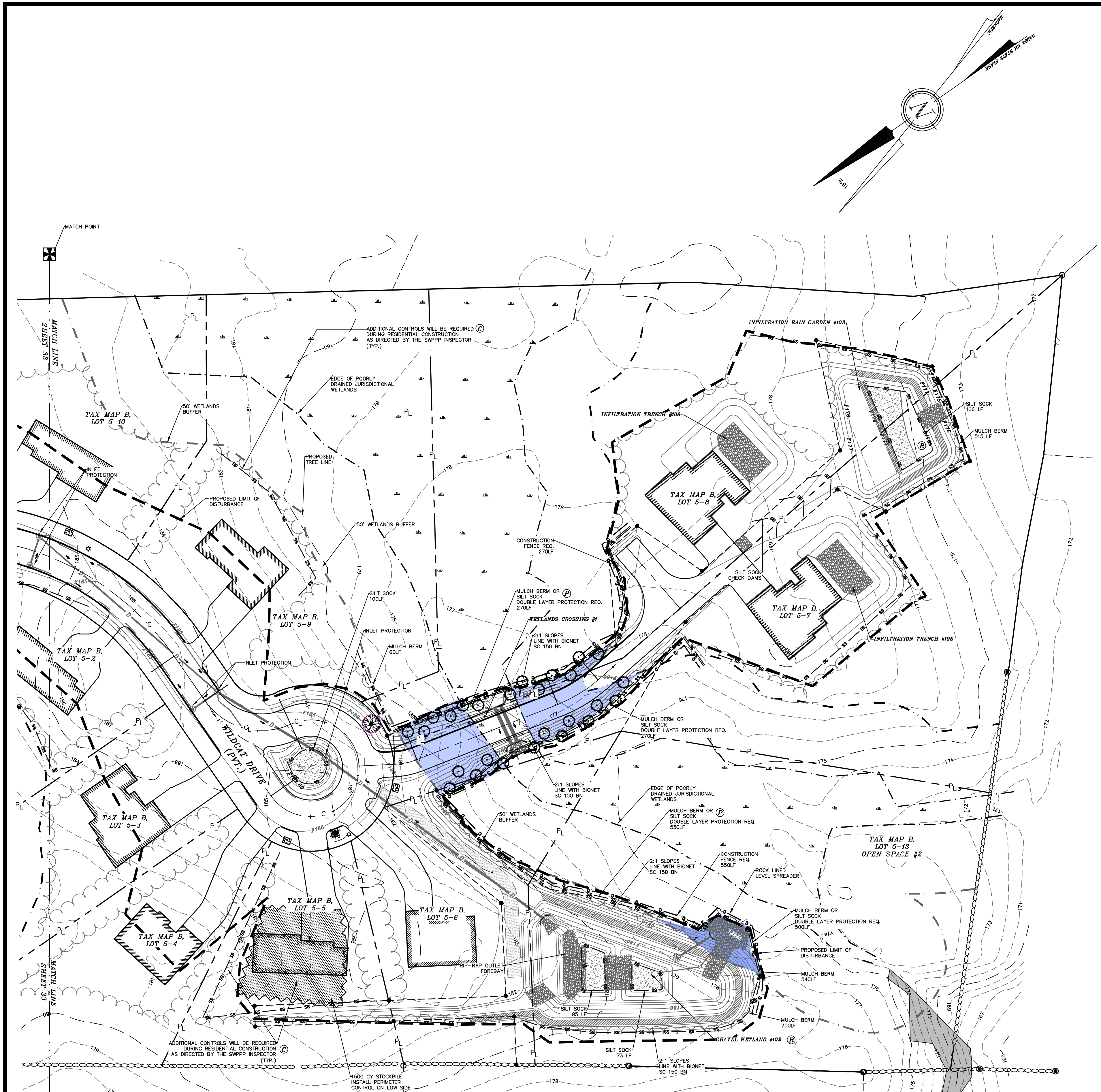


REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

EROSION AND SEDIMENT CONTROL PLAN EAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

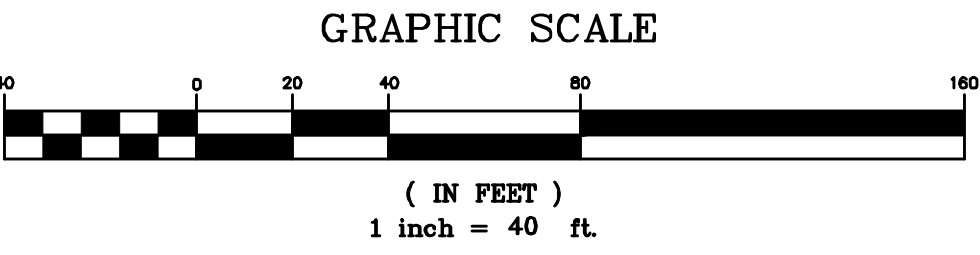




- NOTES:
- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
 - 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
 - 3.) THE PROJECT PARCEL IS TAX MAP B, LOT 5
 - 4.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
 - 5.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE 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.
 - 6.) 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.
 - 7.) ALL DRAINAGE PIPE IS TO BE HDPE N-12. INDIVIDUAL PIPE SIZES ARE SPECIFIED ON GRADING AND DETAIL PLAN SHEETS, GREEN PIPE.
 - 8.) 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.
 - 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 PERFORMED ON ALL DRAINAGE PRACTICES.
 - 10.) A CONSTRUCTION ENTRANCE IS REQUIRED AND THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING IT.
 - 11.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE ROAD AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO SIXTH STREET.
 - 12.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.
 - 13.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV-A 1000.
 - 14.) CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51-57 AND AGR 3800, RELATING TO INVASIVE SPECIES.
 - 15.) 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.
 - 16.) ADDITIONAL PERIMETER CONTROL WILL BE REQUIRED AT THE EDGE OF DISTURBANCE FOR RESIDENTIAL CONSTRUCTION.

LEGEND:

- RAIN GARDEN BIO-MEDIA
- PROTECTION
- PERIMETER CONTROL
- RESIDENTIAL/ROADWAY CONSTRUCTION
- IRON PIPE (FND)
- IRON BOUND (FND)
- REBAR (FND)
- UTILITY POLE
- GUY WIRE
- WELL
- BENCHMARK
- CONIFEROUS TREE
- DEODUOUS TREE
- SILT FENCE
- FILTREXX SILT/SS
- TREE LINE
- CONSTRUCTION FENCE



EROSION AND SEDIMENT CONTROL PLAN WEST LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5		
REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14248
LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

SHEET 34 OF 56

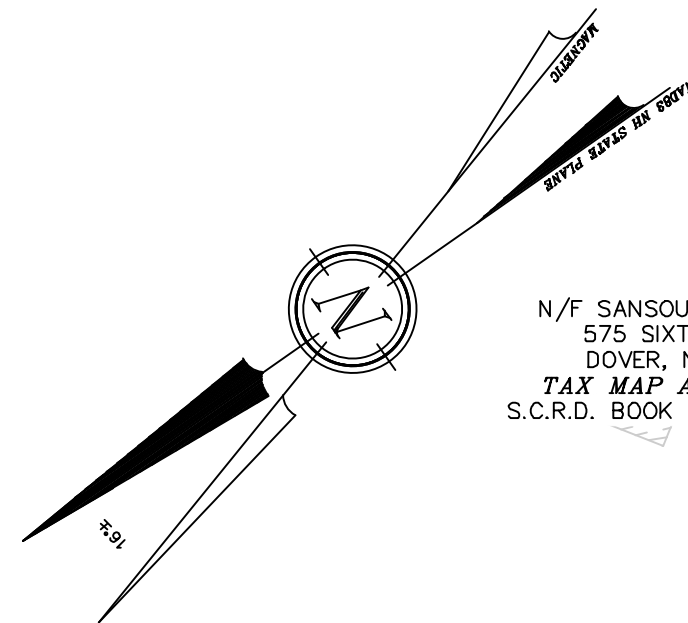
NOTES:

- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 3.) TAX MAP B, LOT 5
- 4.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- 5.) S.C.R.D.: BOOK 4861, PAGE 409
- 6.) THE INTENT OF THIS PLAN IS TO PROVIDE AN OVERVIEW OF UTILITY AND ENGINEERING OF WILDCAT DRIVE AND TAX MAP B, LOT 5.
- 7.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
- 8.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.
- 9.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 10.) ALL LOTS WILL BE EQUIPPED WITH APPROVED 1,000 GALLON PUMP CHAMBER AND APPROVED PUMP COMBINATION.
- 11.) SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.

GRAPHIC SCALE



(IN FEET)
1 inch = 60 ft.



N/F SANSOUCY, SUZANNE
575 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 40-A
S.C.R.D. BOOK 1105, PAGE 224

N/F VANDINI, NORMAN & SHARON
569 SIXTH STREET
DOVER, NH 03820
TAX MAP A, LOT 67
S.C.R.D. BOOK 1452, PAGE 214

N/F VERRILLE, CAITLIN &
WILKIE, RORY
568 SIXTH STREET
DOVER, NH 03820
TAX MAP B, LOT 4-J
S.C.R.D. BOOK 4613, PAGE 368

N/F BROWN, RUTH A. & CARL E.
570 SIXTH STREET
DOVER, NH 03820
TAX MAP B, LOT 4-A
S.C.R.D. BOOK 955, PAGE 345

N/F EWER-GRAY, KAREN L.
P.O. BOX 1888
DOVER, NH 03821
TAX MAP B, LOT 4-M
S.C.R.D. BOOK 2205, PAGE 1

N/F DODIER, SCOTT B. & SARAH J.
147 COTTONWOOD DRIVE
DOVER, NH 03820
TAX MAP B, LOT 4-52
S.C.R.D. BOOK 2303, PAGE 535
PLAN REF. #10 & #11

N/F WORKMAN, MARSHALL K. &
CATHERINE A.
151 COTTONWOOD DRIVE
DOVER, NH 03820-6027
TAX MAP B, LOT 4-51
S.C.R.D. BOOK 3359, PAGE 166
PLAN REF. #10 & #11

N/F FARMHAVEN DEVELOPMENT
ASSOCIATES, LLC
242 CENTRAL AVE
DOVER, NH 03820
TAX MAP B, LOT 5-8
S.C.R.D. BOOK 4803, PAGE 822
PLAN REF. #9 & #10

N/F MERKLEY, MARY B.
98 COUNTRY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 12
S.C.R.D. BOOK 2160, PAGE 276
PLAN REF. #7

N/F TORR, ZACHARY J. & MEAGAN L.
62 COUNTRY FARM CROSS ROAD
DOVER, NH 03820
TAX MAP B, LOT 6-D
S.C.R.D. BOOK 4471, PAGE 958
PLAN REF. #5

N/F SIGNH, RAGHBIR
15 OLIVE MEADOW LANE
DOVER, NH 03820
TAX MAP B, LOT 6-G-OPN
S.C.R.D. BOOK 4436, PAGE 810
PLAN REF. #5 & #6

NOTES:

- 1.) THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE OVERVIEW PRIVATE UTILITIES WITHIN THE SITE PLAN.
- 2.) 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.
- 3.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
- 4.) PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES, TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL MEETING THE ENGINEERS SPECIFIC RECOMMENDED CRITERIA.
- 5.) IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER (NOT ALLOWED IN CITY R.O.W.), EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATION. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
- 6.) PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION. VOIDS BETWEEN STONES AND CLUMPS OF MATERIAL SHALL BE FILLED WITH FINE MATERIALS.
- 7.) FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE DOVER DPW.
- 8.) CONTRACTOR TO CONTACT DOVER DPW A MINIMUM OF TWO WEEKS PRIOR TO ANY CONSTRUCTION TO COORDINATE ALL WORK CONCERNING INSTALLATION OF ANY PROPOSED WATER LINE IMPROVEMENTS.
- 9.) ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL CONFORM TO CITY OF DOVER STANDARDS. ALL HIGHWAY CONSTRUCTION WILL MEET THE CITY OF DOVER STANDARDS.
- 10.) CONTRACTOR SHALL COORDINATE ALL ELECTRICAL INSTALLATIONS WITH EVERSOURCE AT (800) 662-7764. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL. A 48-HOUR MINIMUM NOTICE IS REQUIRED.

NOTES CONT:

- 11.) ALL SEWER INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF NHDES & DOVER DPW SEWER DIVISION STANDARDS. ALL PVC SEWER PIPE IS TO CONFORM WITH ENV-WQ 704.05 (c)-(e) AND CONFORM WITH ASTM D3034. PVC JOINT SEALS SHALL CONFORM WITH ASTM D3121.
- 12.) CONTRACTOR SHALL COORDINATE ALL TELECOMMUNICATIONS INSTALLATIONS WITH FAIRPOINT COMMUNICATIONS AT (603) 427-5525.
- 13.) CONTRACTOR SHALL COORDINATE ALL CABLE INSTALLATIONS WITH METROCAST.
- 14.) CONTRACTOR SHALL COORDINATE ALL GAS INSTALLATIONS WITH UNITIL.
- 15.) ALL SEWER MANHOLE RIMS & COVERS ARE TO BE NH STANDARD.
- 16.) ALL WATER SERVICES ARE TO BE WITNESSED WITH A 2"x4" PAINTED BLUE. ALL SEWER SERVICES ARE TO BE WITNESSED WITH A 2"x4" PAINTED YELLOW, IS STUBBED PRIOR TO BUILDING CONSTRUCTION.
- 17.) CURB BOXES SHOULD BE PLACED IN THE LAWN AREA, OR IF PLACED IN PAVEMENT, A ROAD BOX IS REQUIRED.
- 18.) SEE EXISTING CONDITIONS PLAN FOR DATUM. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS.
- 19.) MINIMUM SLOPE FOR ALL SEWER SERVICE CONNECTIONS IS TO BE NO LESS THAN 0.02'/%.
- 20.) ALL SEWER INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF NHDES & DOVER DPW SEWER DIVISION STANDARDS. ALL PVC SEWER PIPE IS TO CONFORM WITH ENV-WQ 704.05 (c)-(e) FOR SDR 35 GRAVITY SEWER PIPE, CONFORM WITH ENV-WQ 704.08 FOR SDR 21 / 11 / 9 FORCE MAIN PRESSURE PIPE, AND CONFORM WITH ASTM D3034. PVC JOINT SEALS SHALL CONFORM WITH ASTM D3121. THE FORCE MAIN SHALL BE TESTED IN ACCORDANCE WITH ENV-WQ 704.09.
- 21.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
- 22.) CONTRACTOR TO TRANSFER TEMPORARY BENCHMARK TO A SUITABLE BENCHMARK TO CONTROL CONSTRUCTION. ANY ELEVATION DISCREPANCIES ARE TO BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 23.) LOTS 1 THROUGH 11 WILL UTILIZE A LIBERTY LSG2000 SERIES OMNIVORE GRINDER 2HP PUMP WITH CONTROLS AS SPECIFIED ON SHEET U-103, OR EQUAL UTILITY DETAILS AND A 1,000 GALLON HOLDING TANK. HYDRAULIC ANALYSIS FOR WILDCAT DRIVE DATED XXXXXX BY LIBERTY PUMPS. THE SYSTEM FOR EACH LOT MUST BE DESIGNED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CITY OF DOVER ENGINEER, DPW, COMMUNITY SERVICES.

OVERVIEW UTILITY PLAN

LAND OF

SETTLEMENT ON 6TH, LLC

SIXTH STREET

DOVER, N.H.

TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING

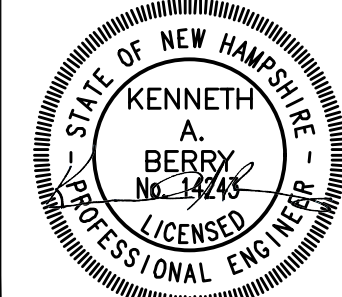
335 SECOND CROWN POINT ROAD

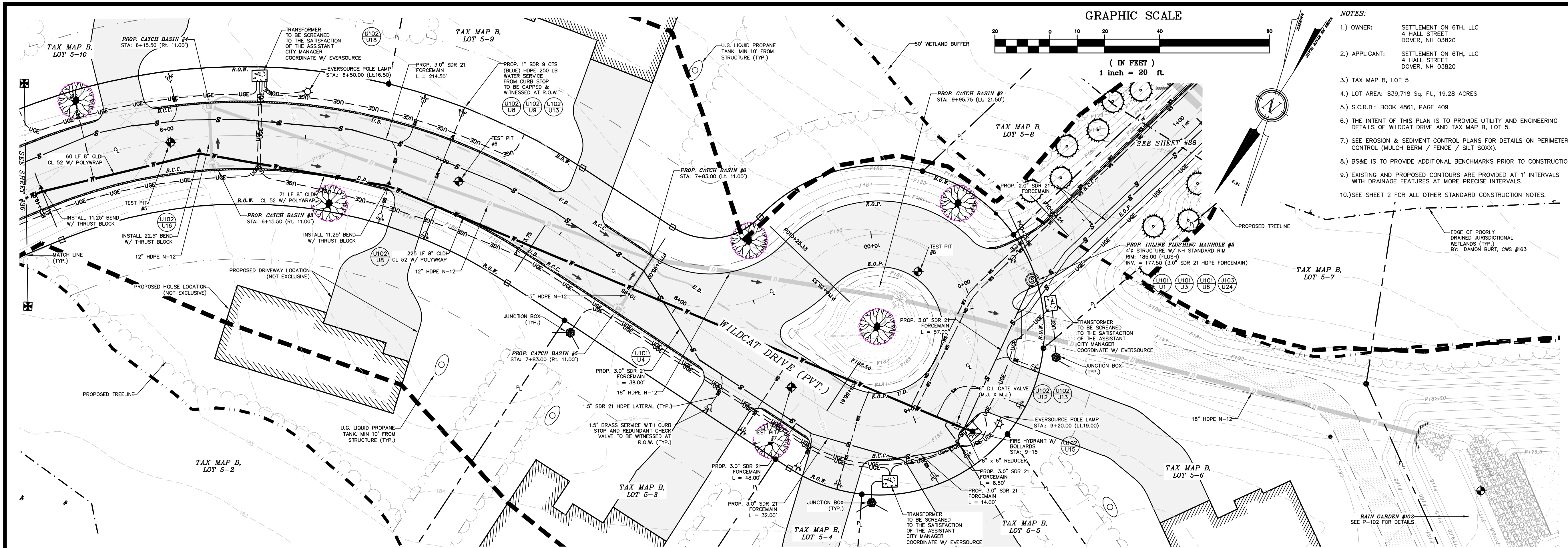
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011

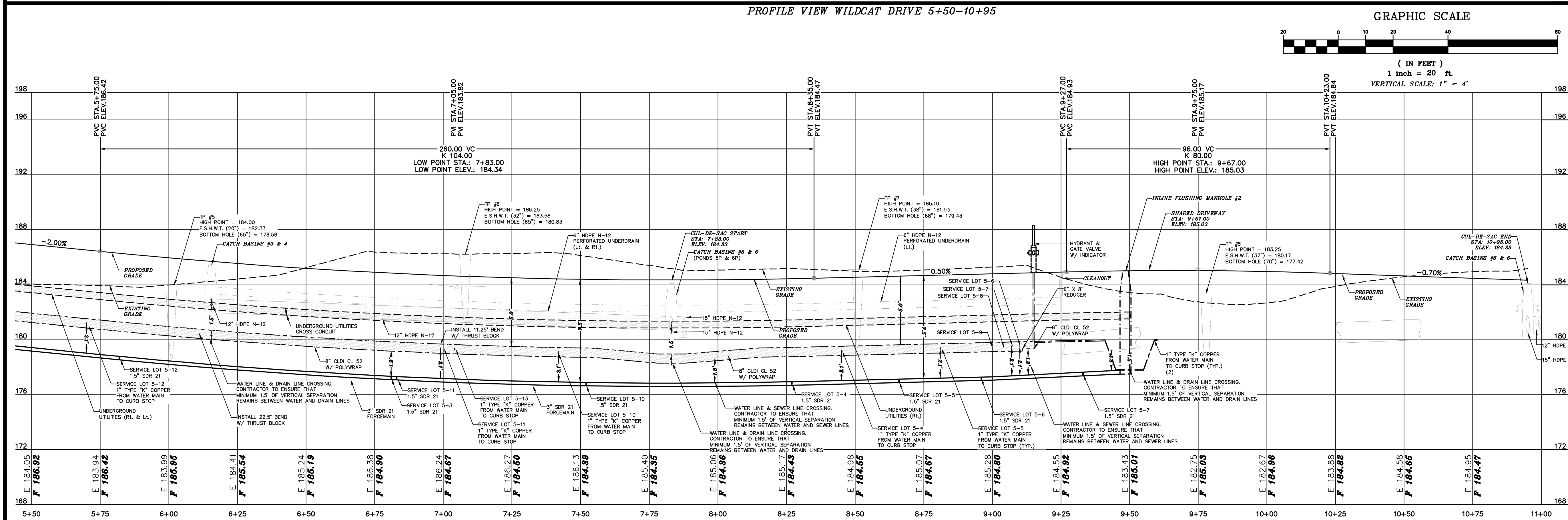




- NOTES:
- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
 - 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
 - 3.) TAX MAP B, LOT 5
 - 4.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
 - 5.) S.C.R.D.: BOOK 4861, PAGE 409
 - 6.) THE INTENT OF THIS PLAN IS TO PROVIDE UTILITY AND ENGINEERING DETAILS OF WILDCAT DRIVE AND TAX MAP B, LOT 5.
 - 7.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
 - 8.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.
 - 9.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
 - 10.) SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.

PLAN VIEW WILDCAT DRIVE 5+50-10+95

PROFILE VIEW WILDCAT DRIVE 5+50-10+95



REVISION		DESCRIPTION	
#1	9-23-21		

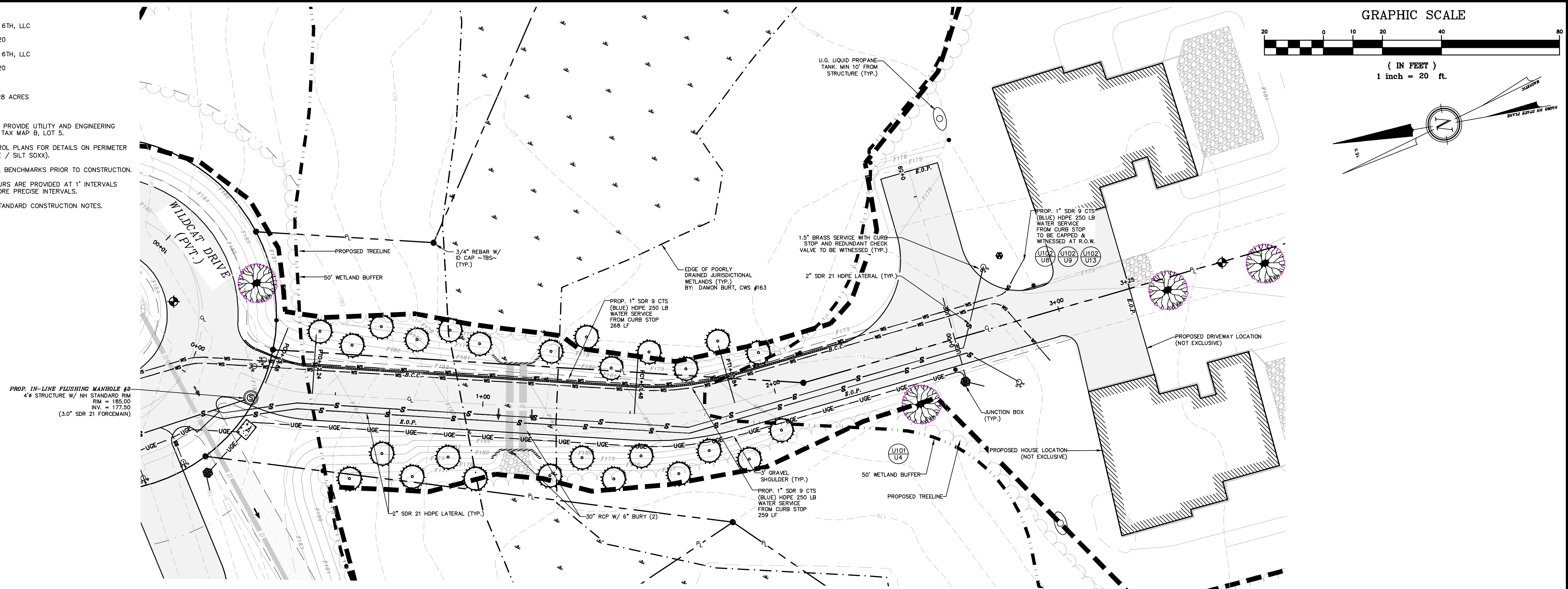
GRADING PLAN & PROFILE WILDCAT DRIVE 5+50-10+95
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE: 1 IN. EQUALS 20 FT.
DATE: JUNE 10, 2021
FILE NO.: DB 2021-011

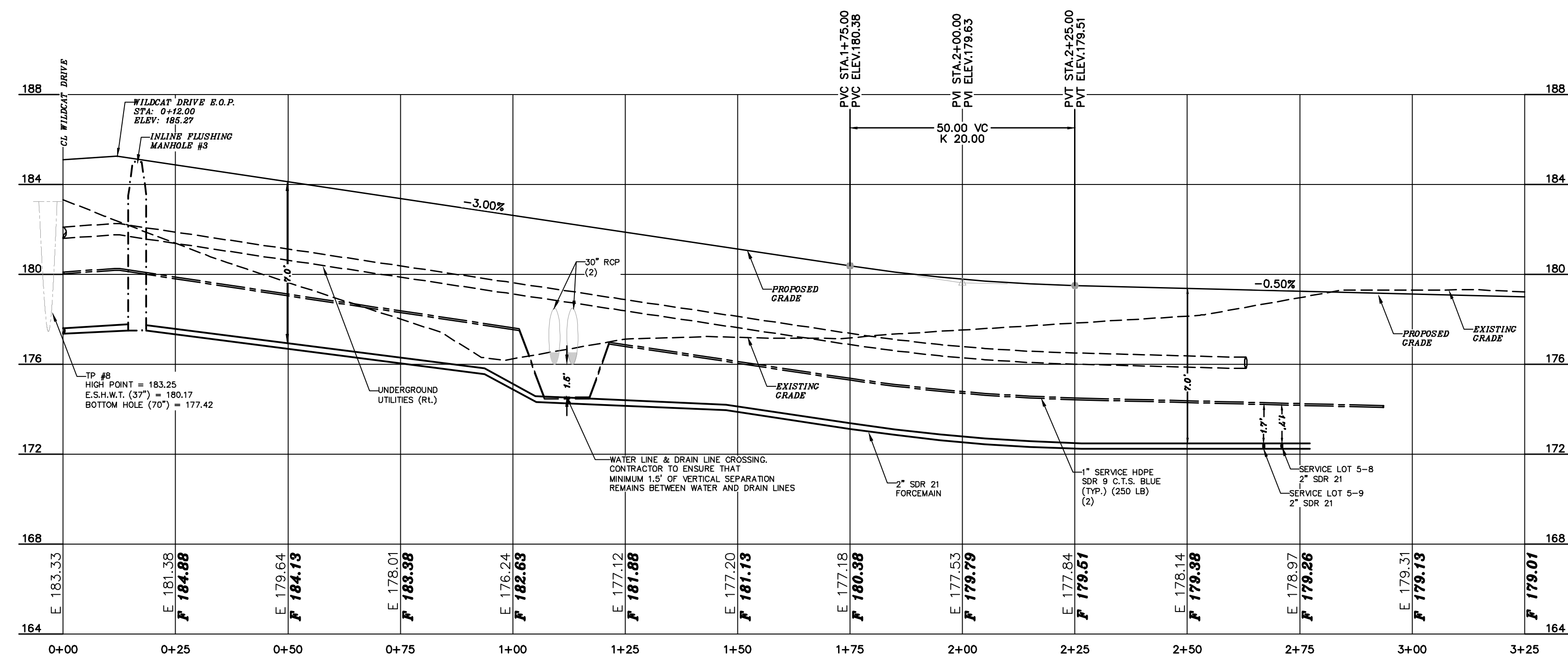
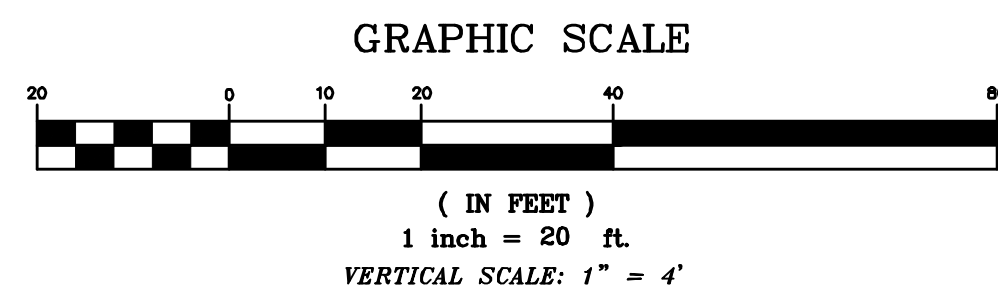
KENNETH A. BERRY
REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
NO. 14243

SHEET 37 OF 56

- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 3.) TAX MAP B, LOT 5
- 4.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- 5.) S.C.R.D.: BOOK 4861, PAGE 409
- 6.) THE INTENT OF THIS PLAN IS TO PROVIDE UTILITY AND ENGINEERING DETAILS OF WILDCAT DRIVE AND TAX MAP B, LOT 5.
- 7.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
- 8.) BSAE IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION
- 9.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 10.) SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.



PROFILE VIEW SHARED DRIVEWAY 0+00-3+20



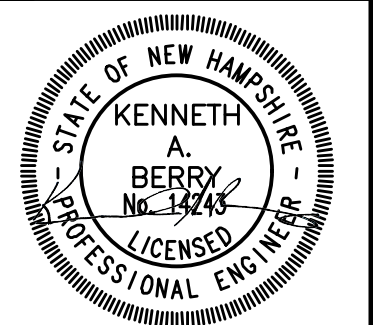
UTILITY PLAN & PROFILE SHARED DW 0+00--3+25
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : 1 IN. EQUALS 20 FT.

DATE : JUNE 10, 2021

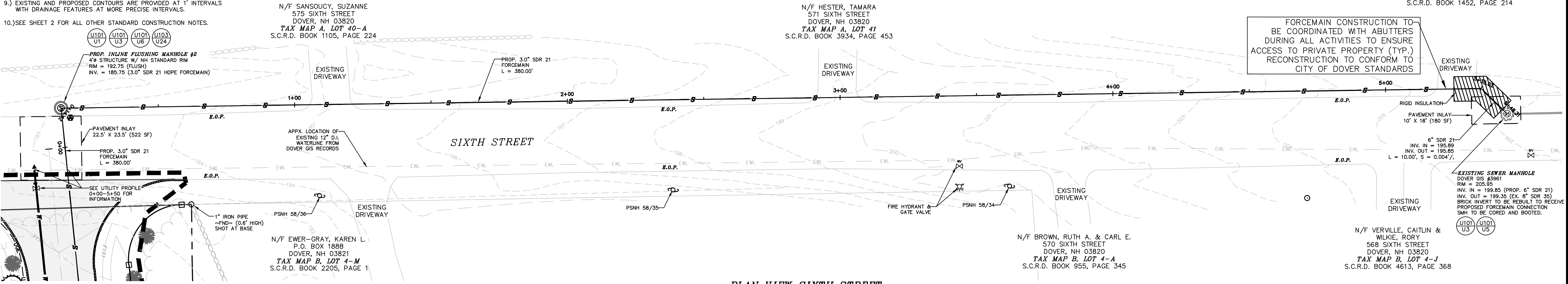
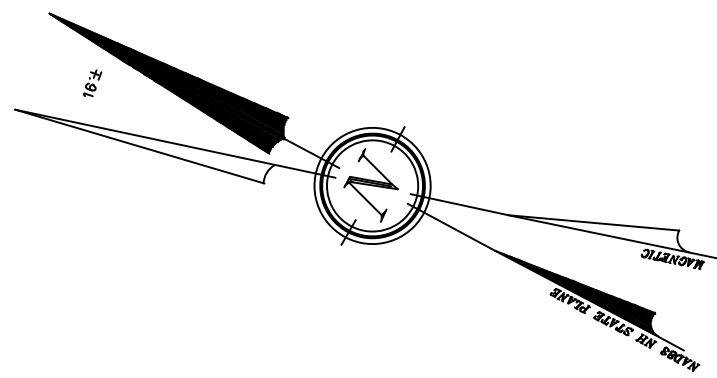
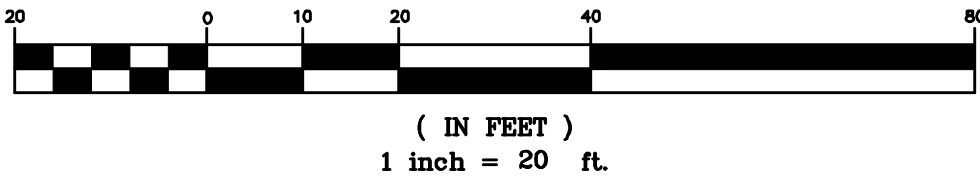
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NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
- LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
- S.C.R.D.: BOOK 4861, PAGE 409
- THE INTENT OF THIS PLAN IS TO PROVIDE UTILITY AND ENGINEERING DETAILS OF WILDCAT DRIVE AND SIXTH STREET.
- SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).
- BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.
- EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- SEE SHEET 2 FOR ALL OTHER STANDARD CONSTRUCTION NOTES.

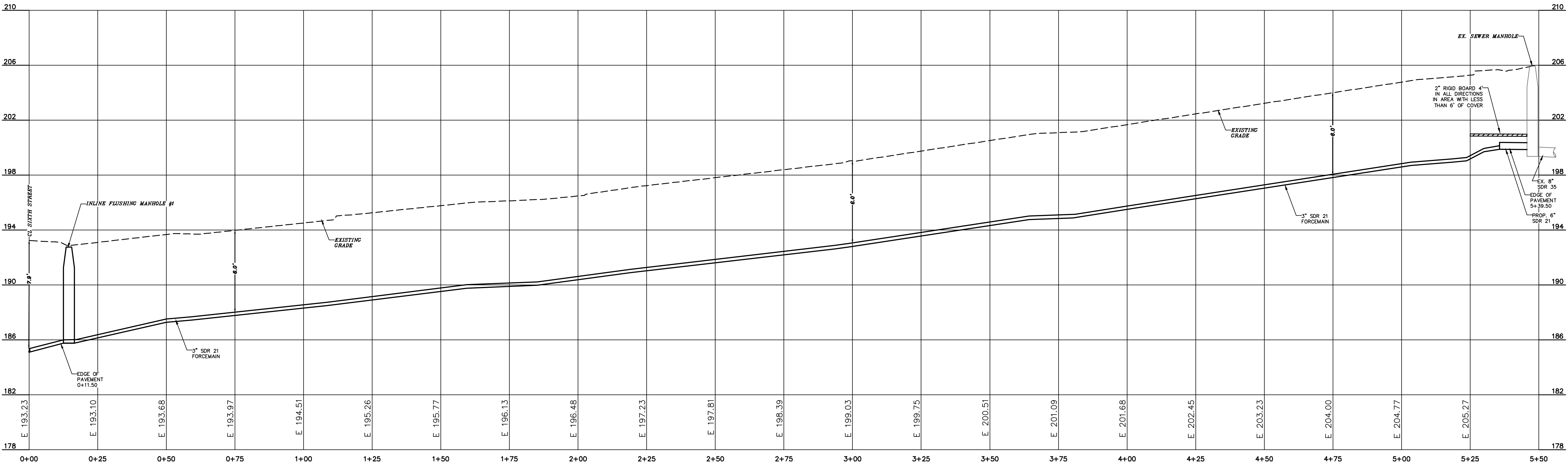
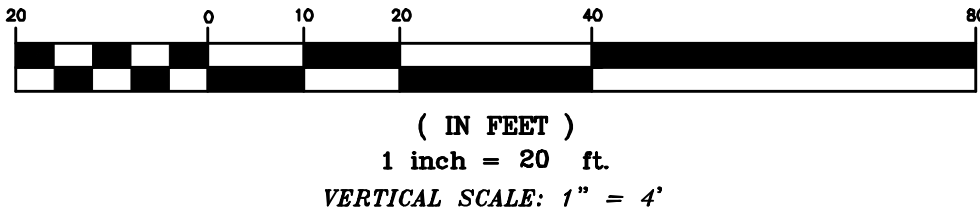
GRAPHIC SCALE



PLAN VIEW SIXTH STREET

PROFILE VIEW SIXTH STREET

GRAPHIC SCALE



REVISED PER AOT AND TRC COMMENTS

9-23-21

#1

REVISION

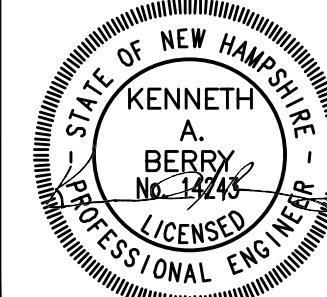
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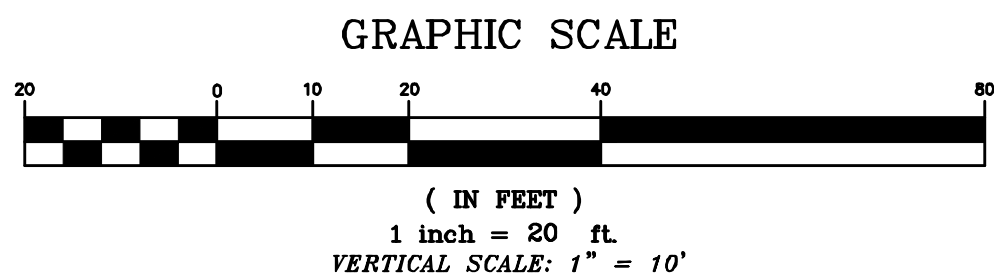
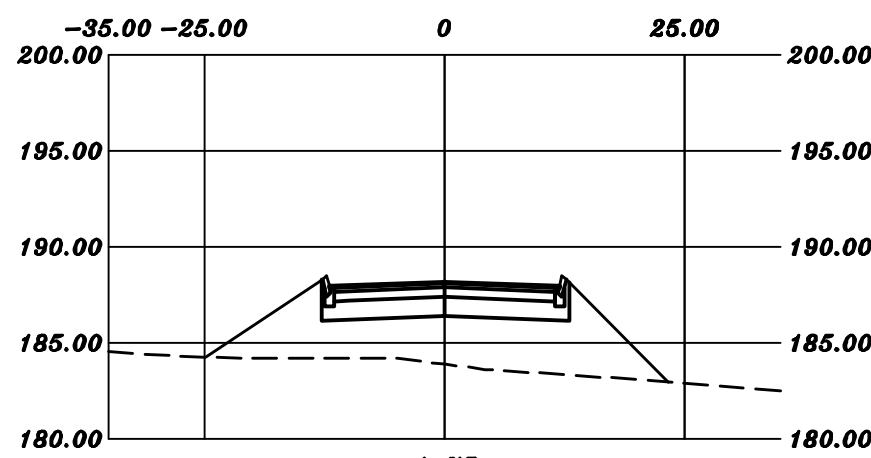
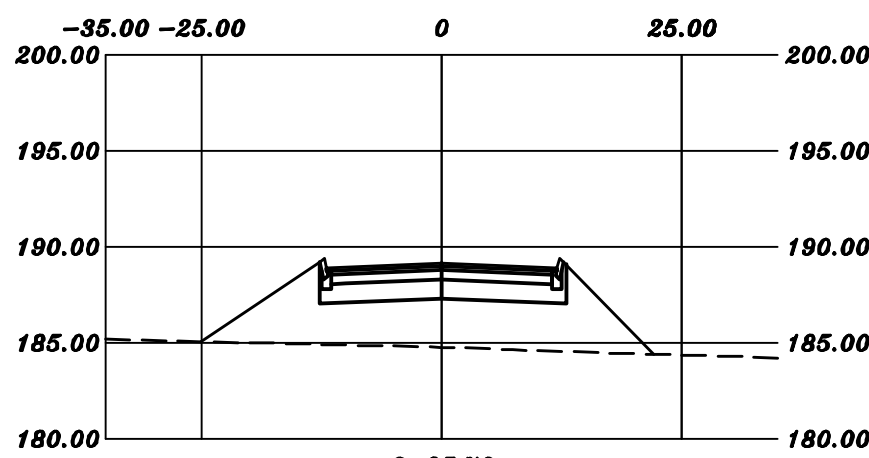
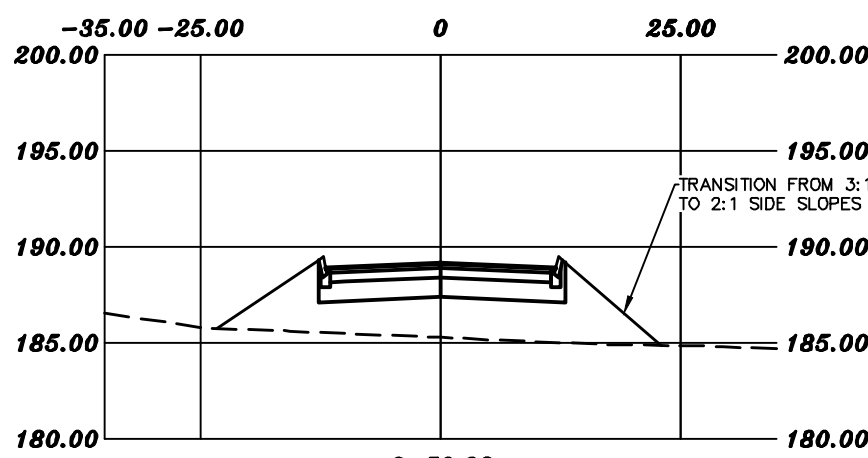
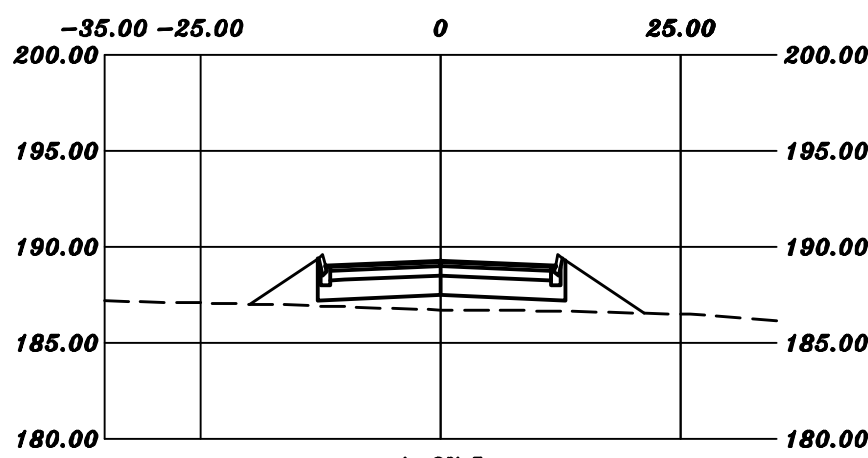
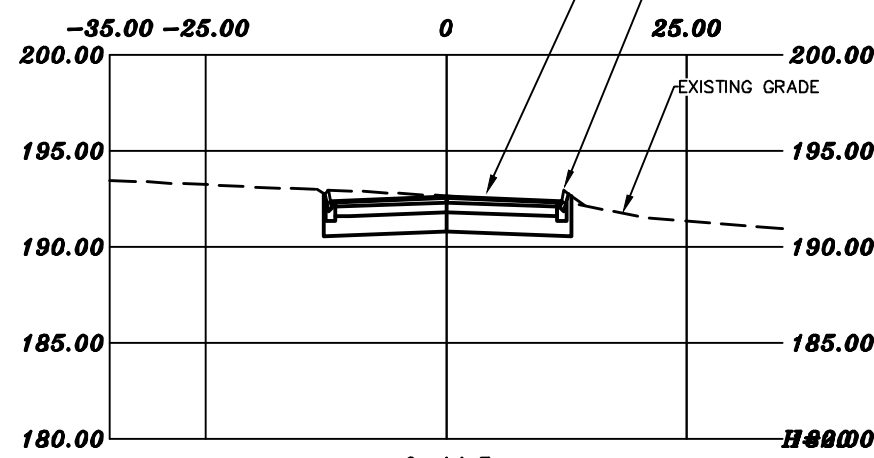
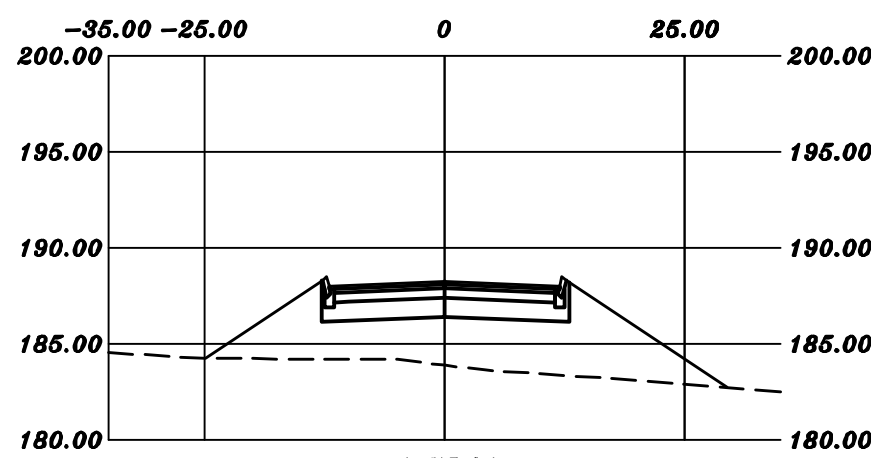
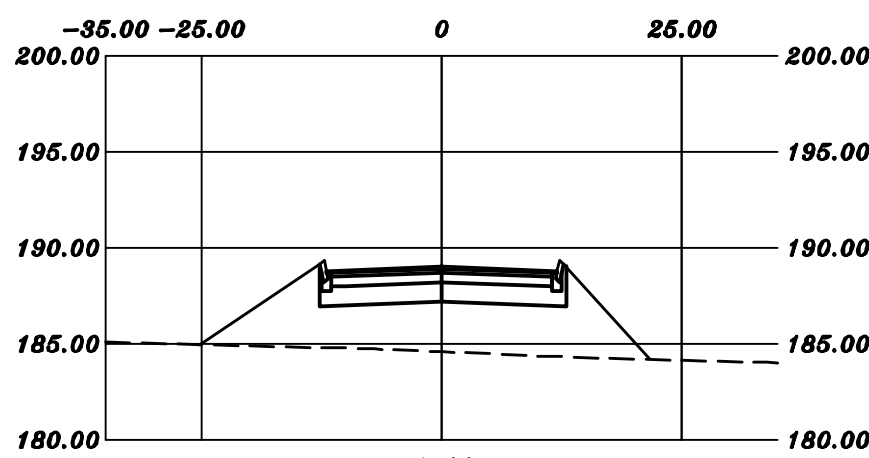
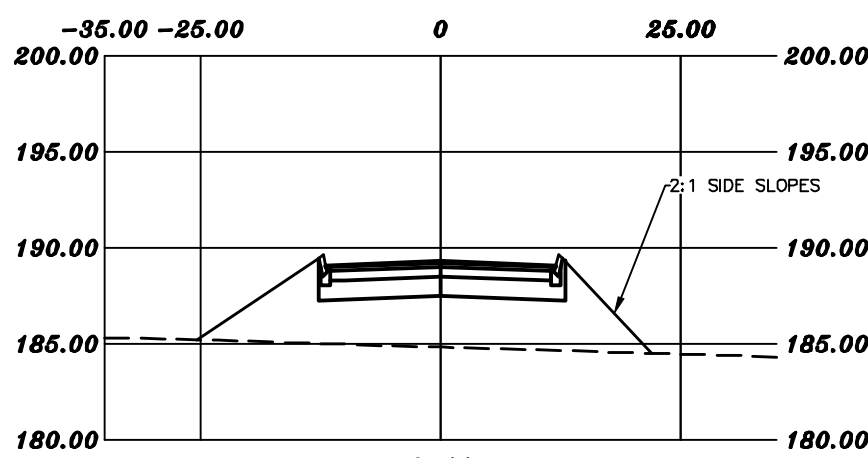
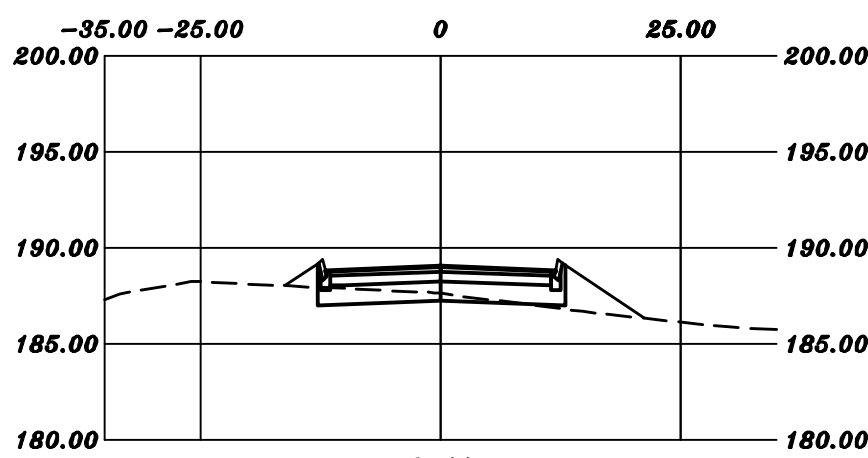
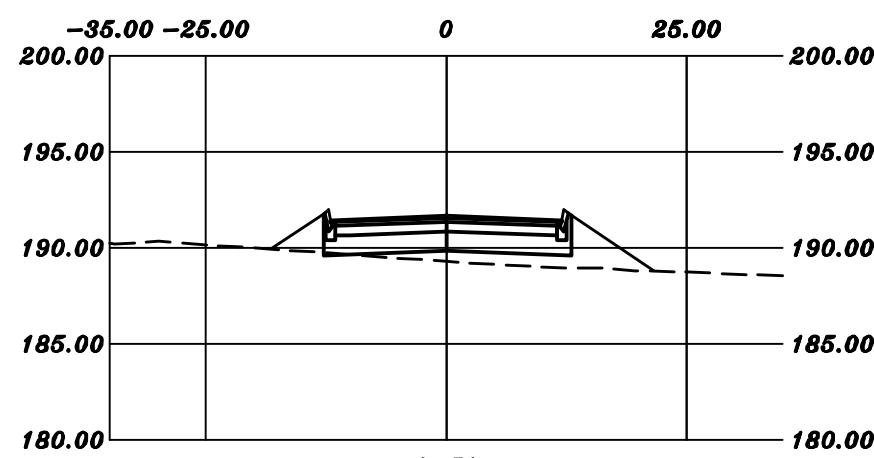
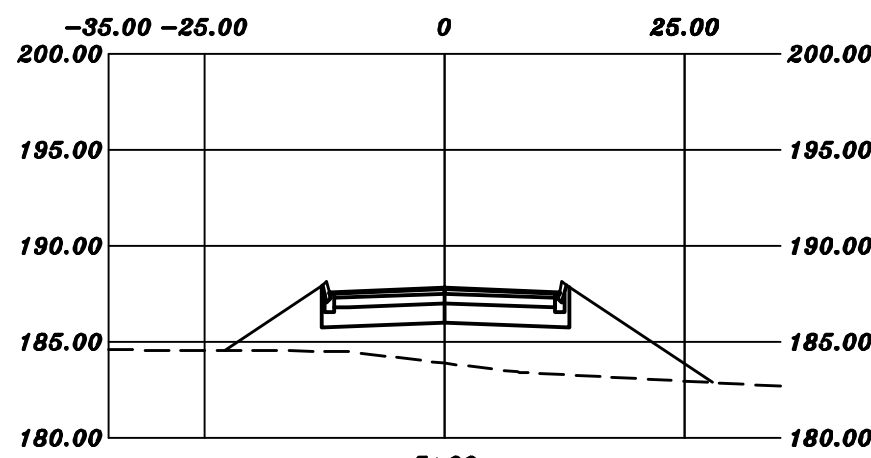
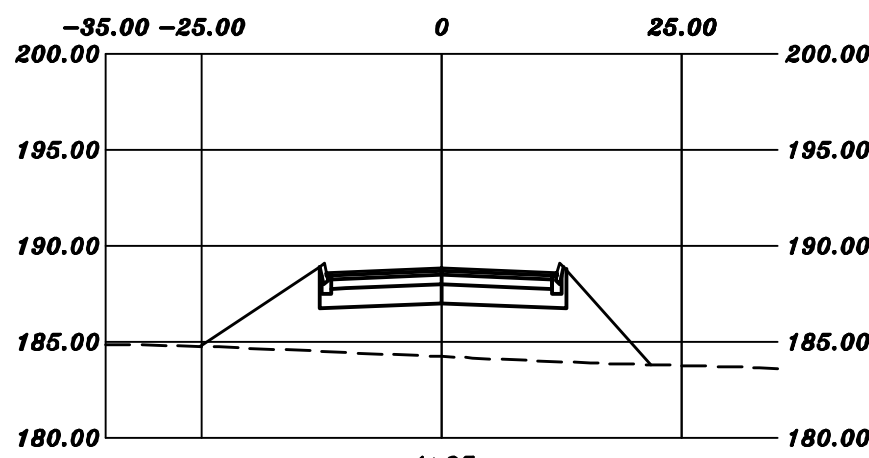
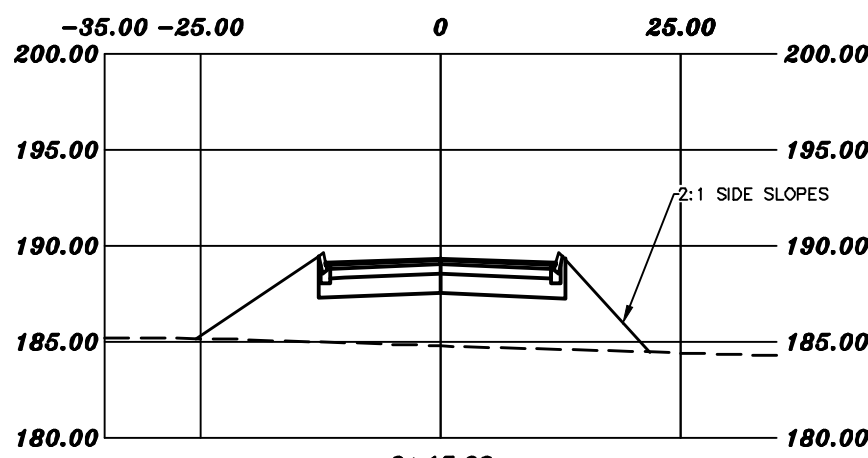
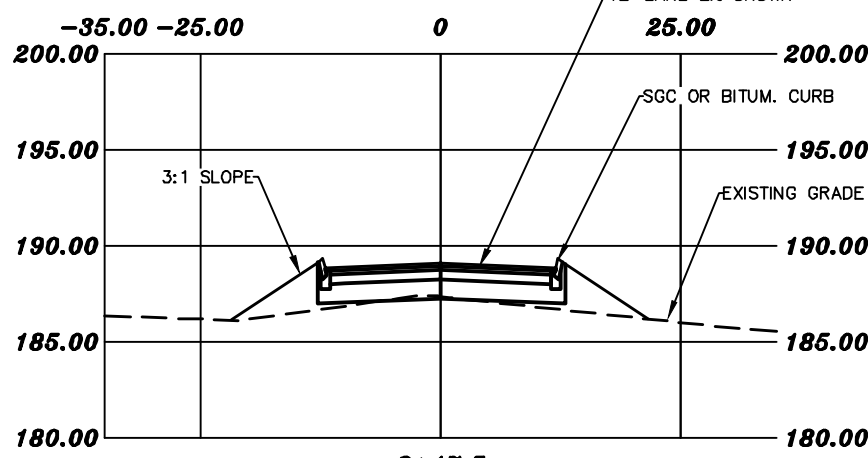
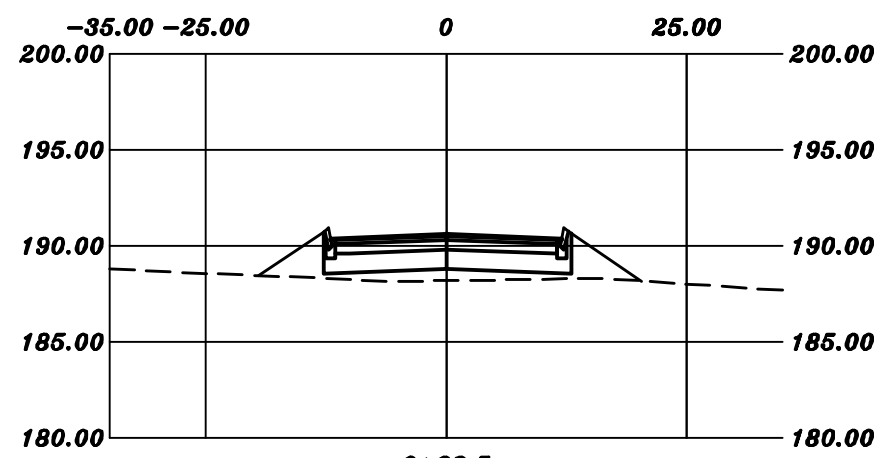
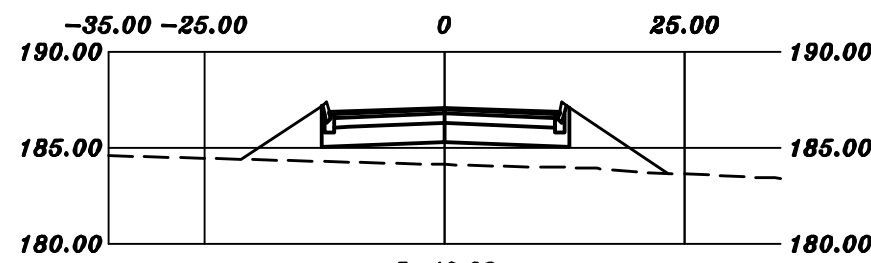
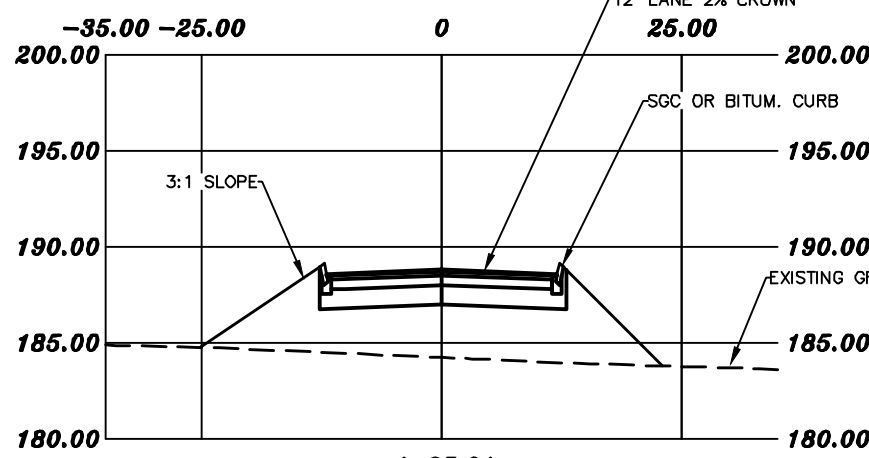
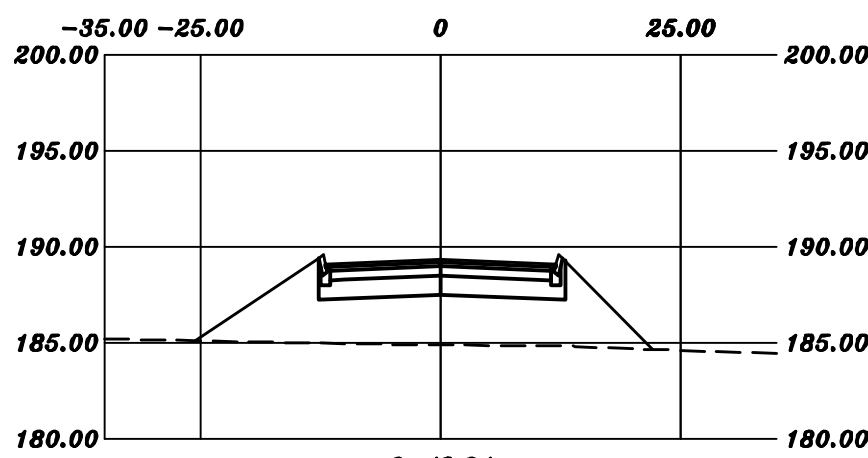
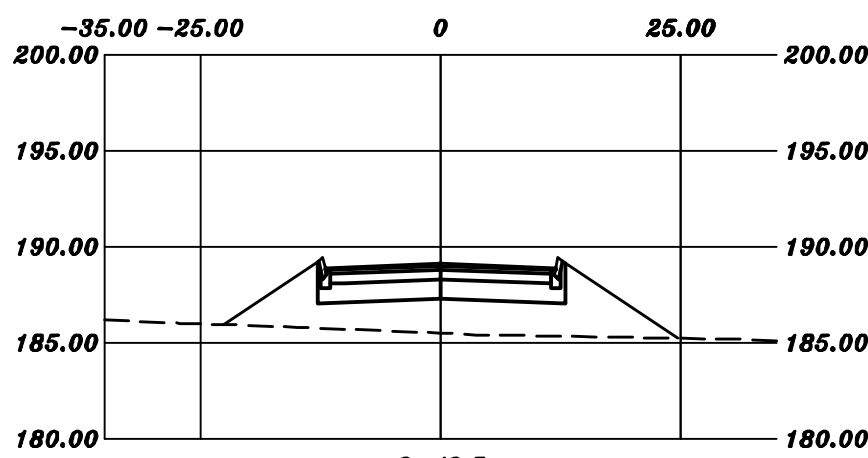
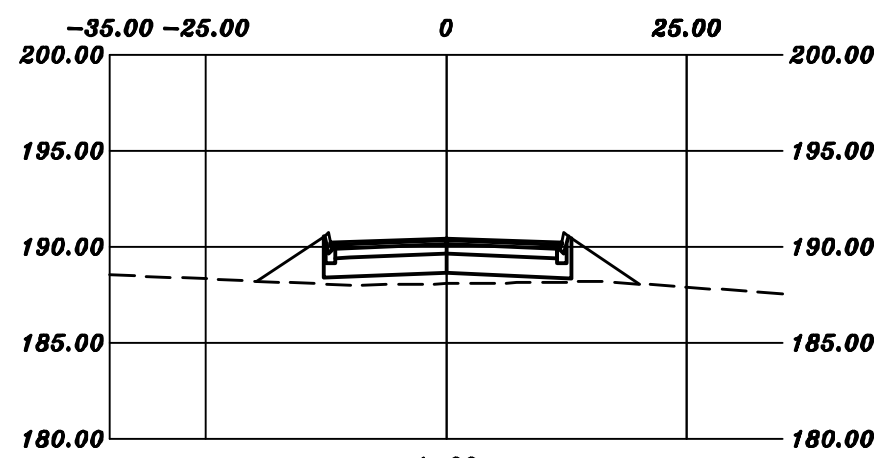
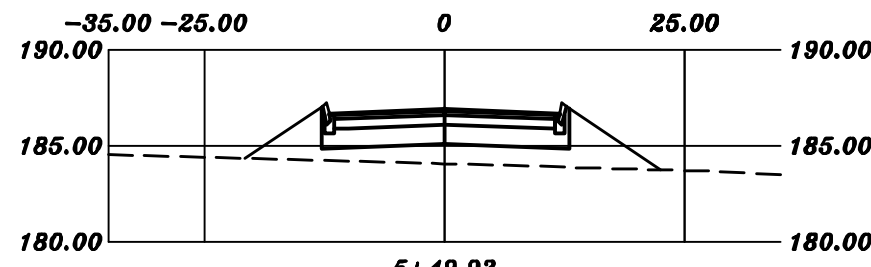
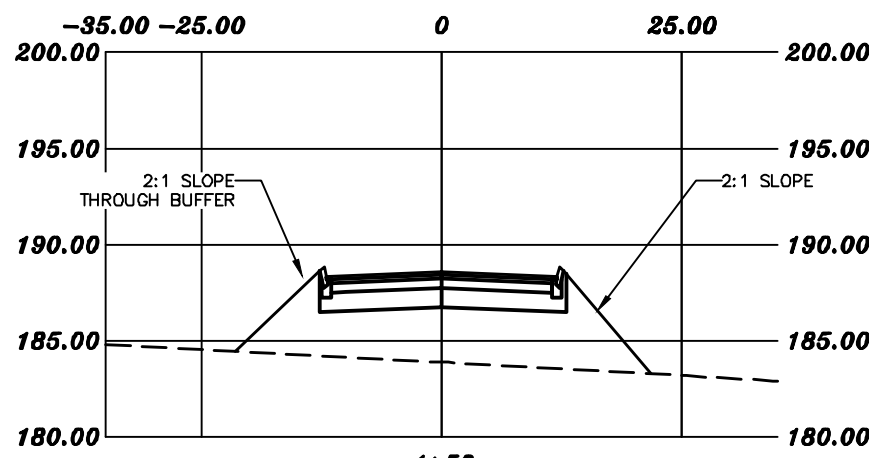
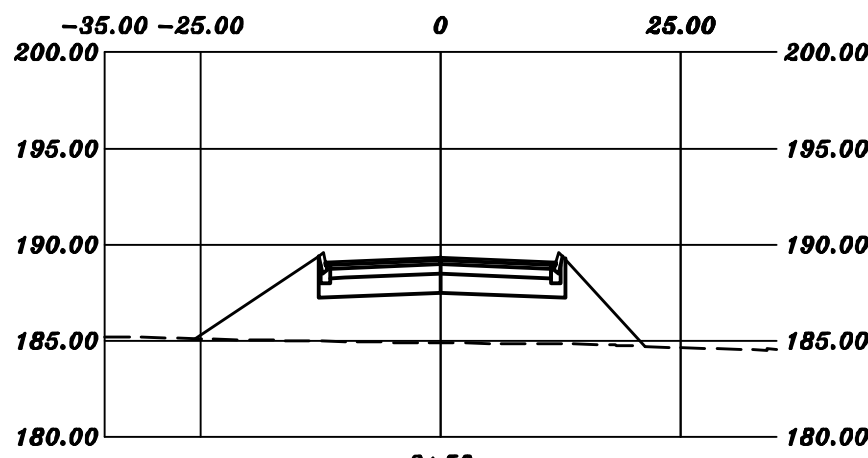
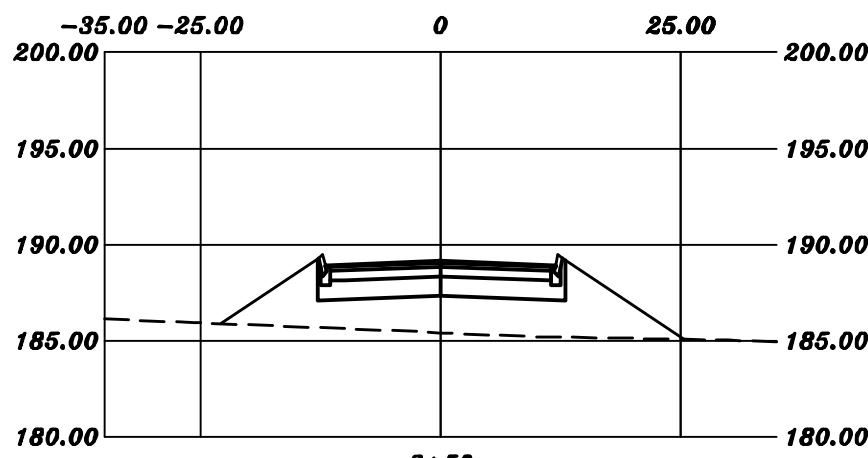
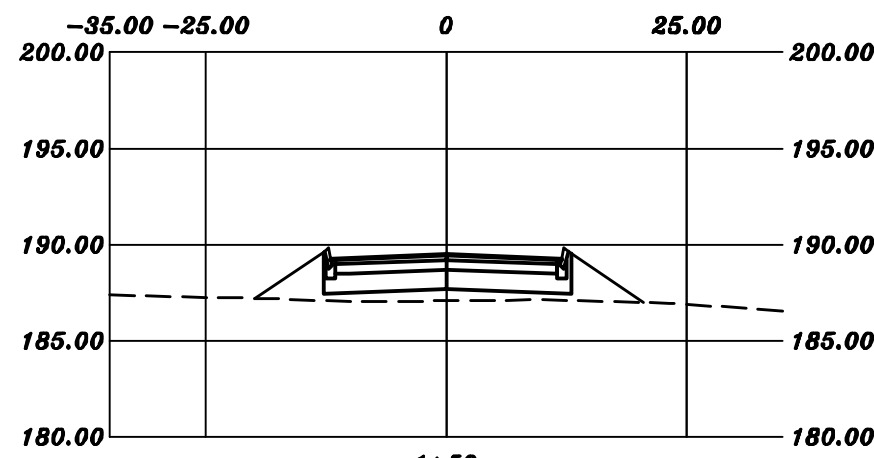
DESCRIPTION

SIXTH STREET FORCEMAIN PROFILE
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



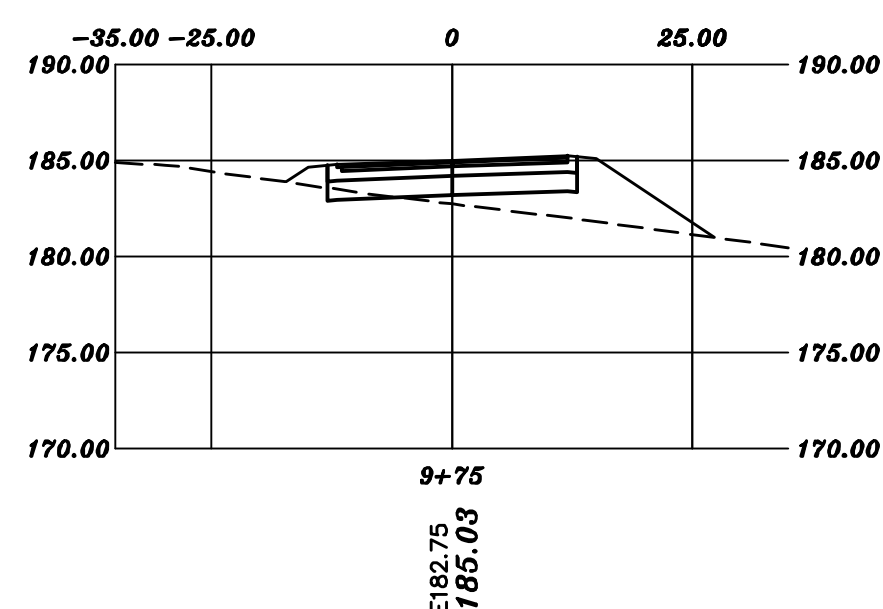
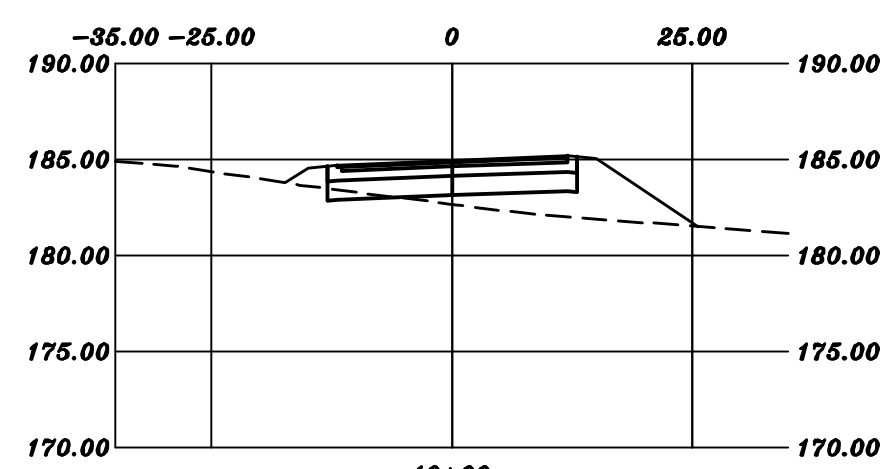
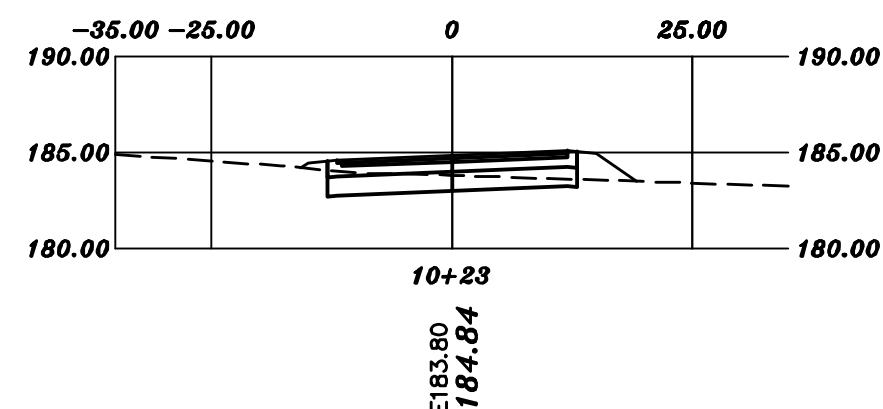
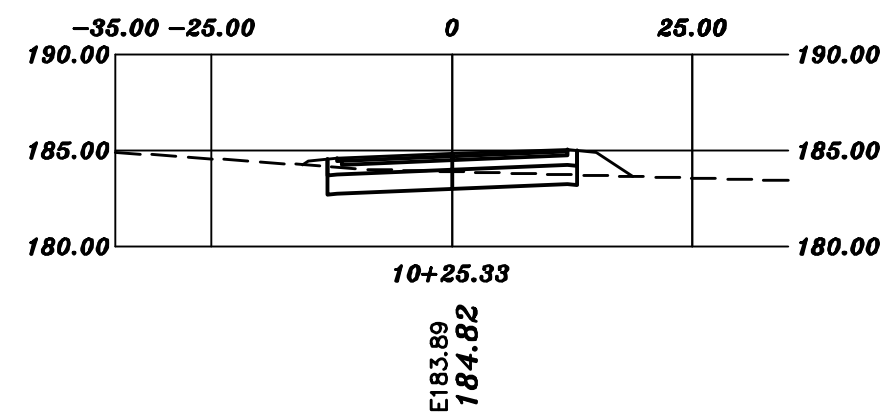
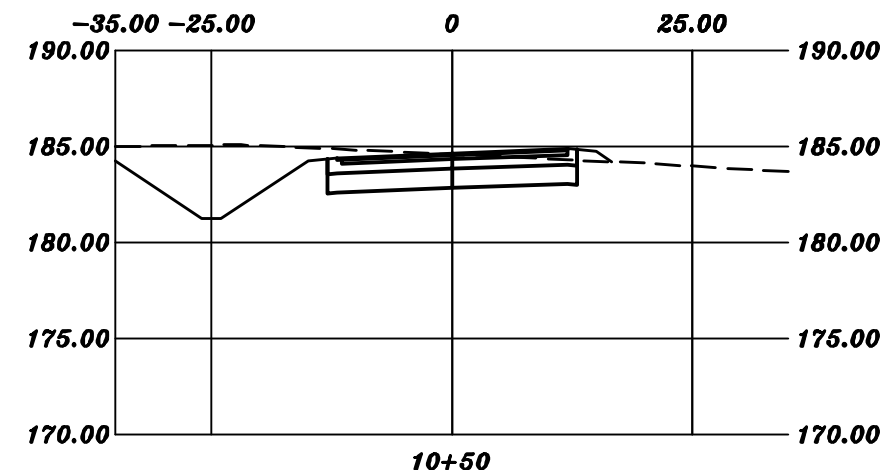
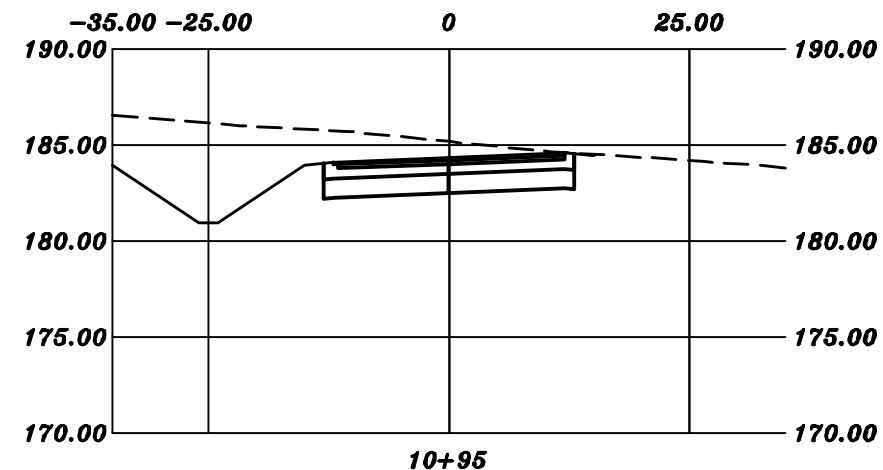
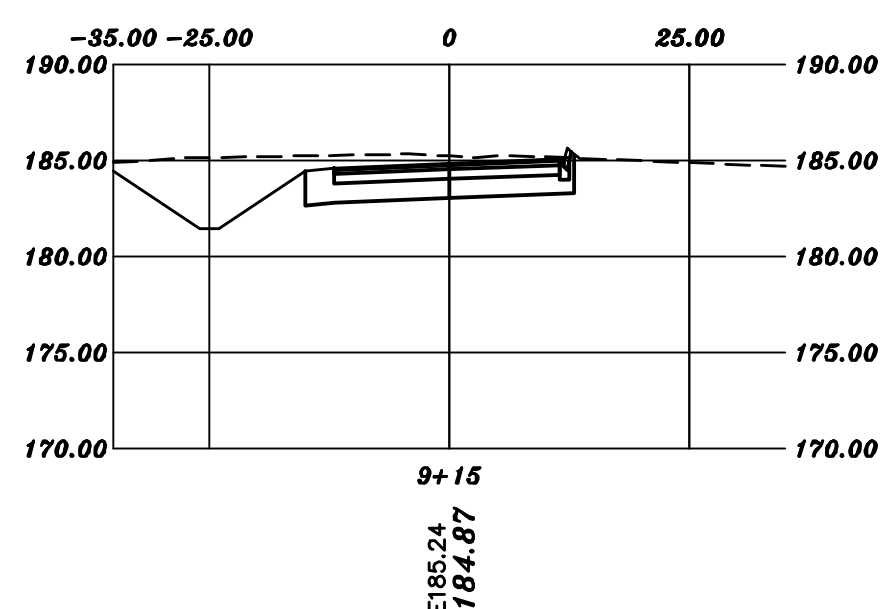
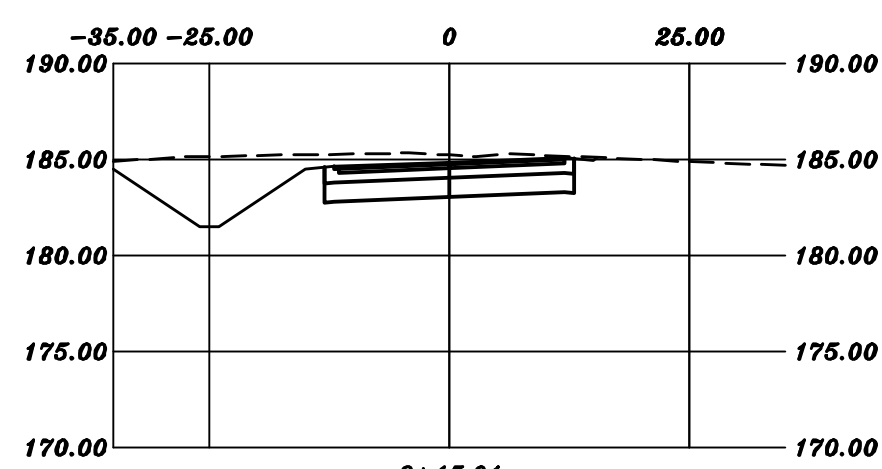
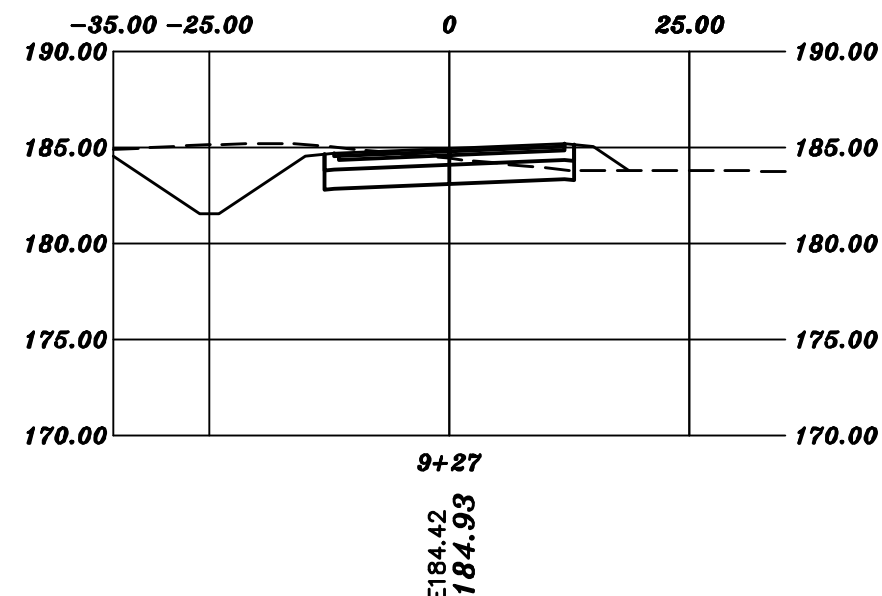
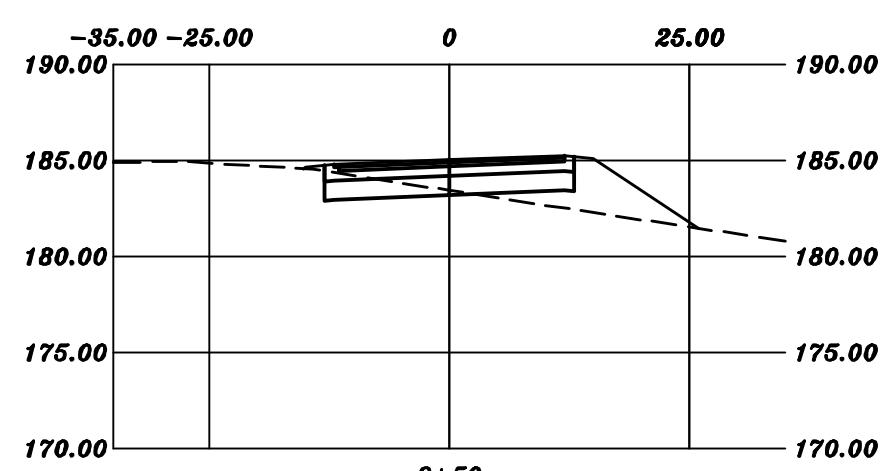
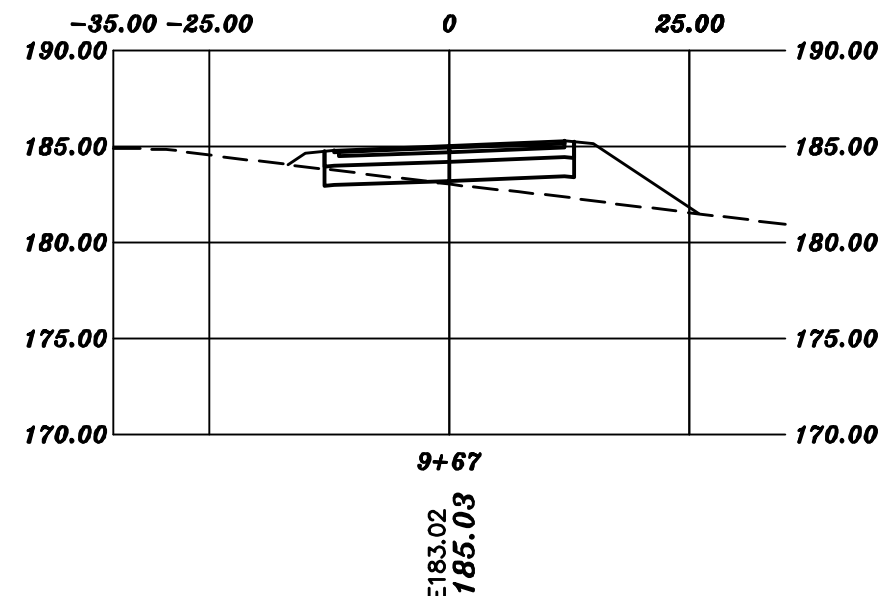
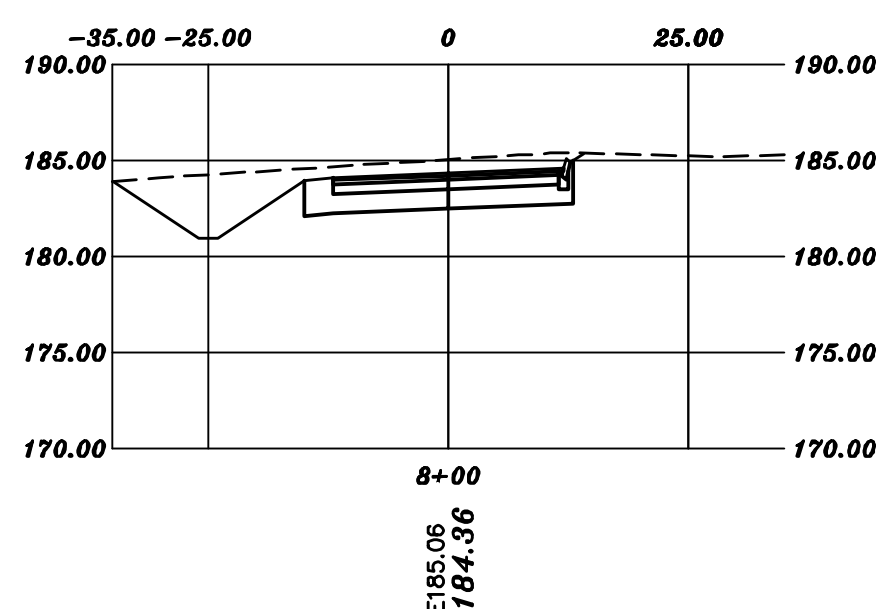
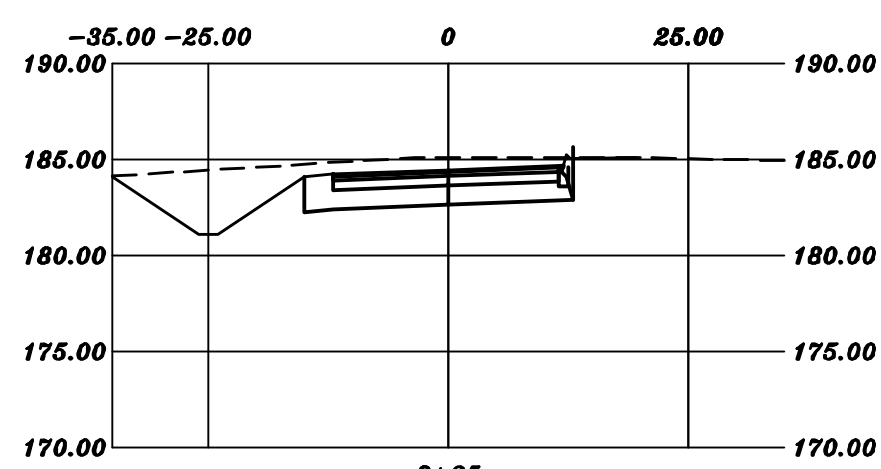
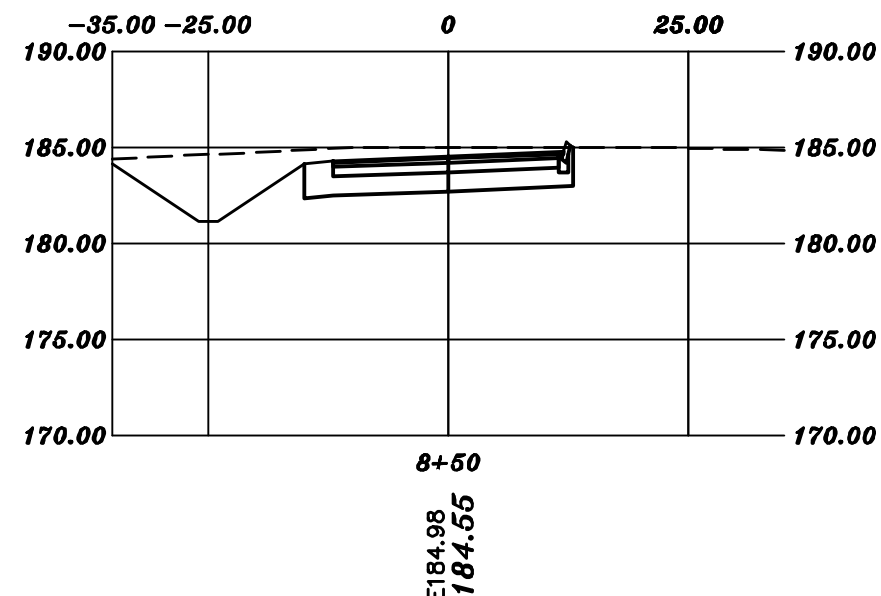
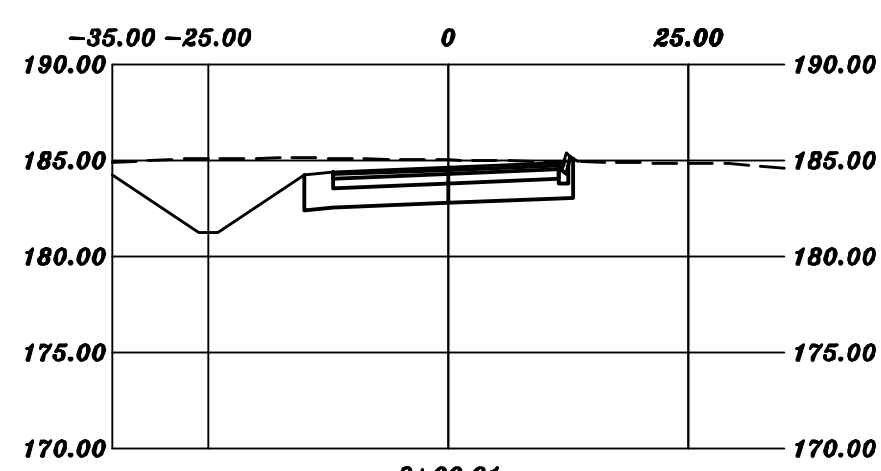
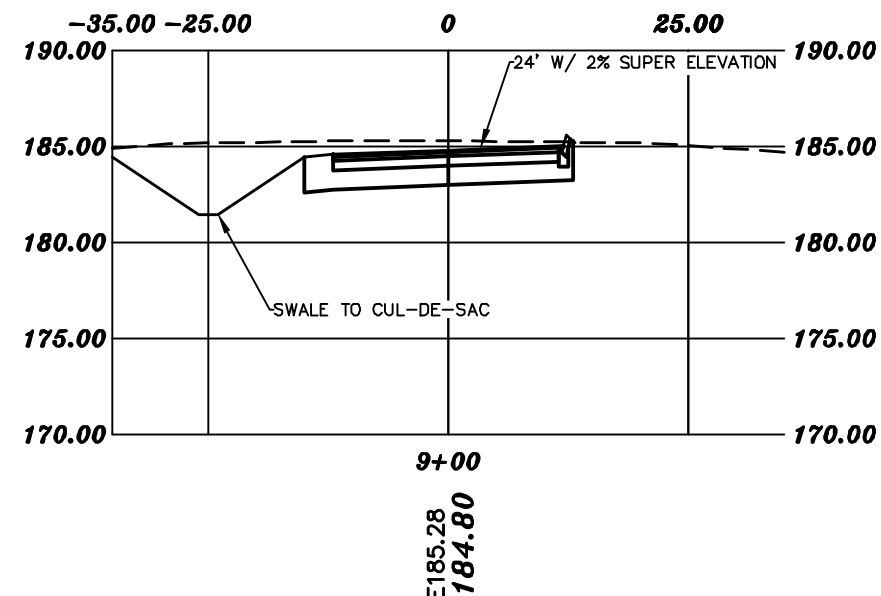
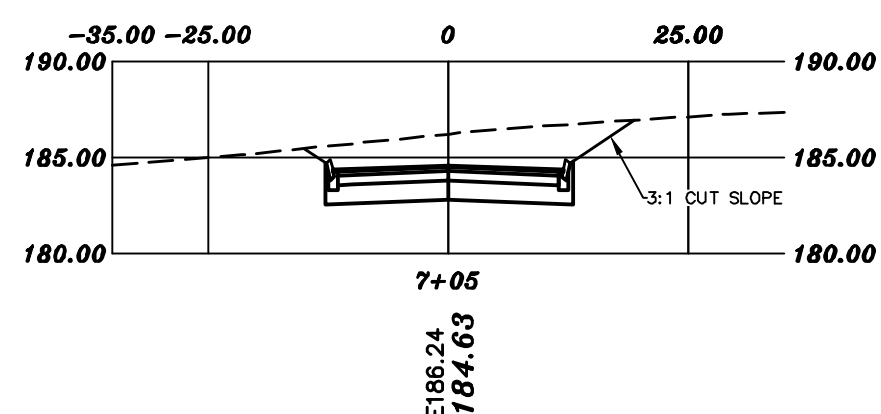
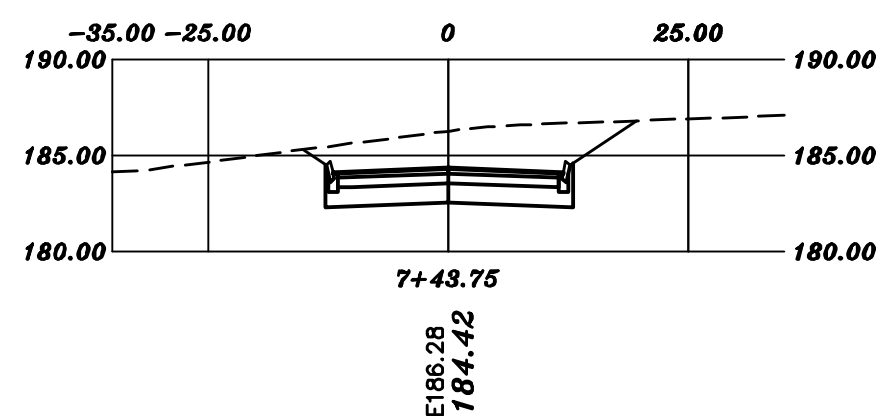
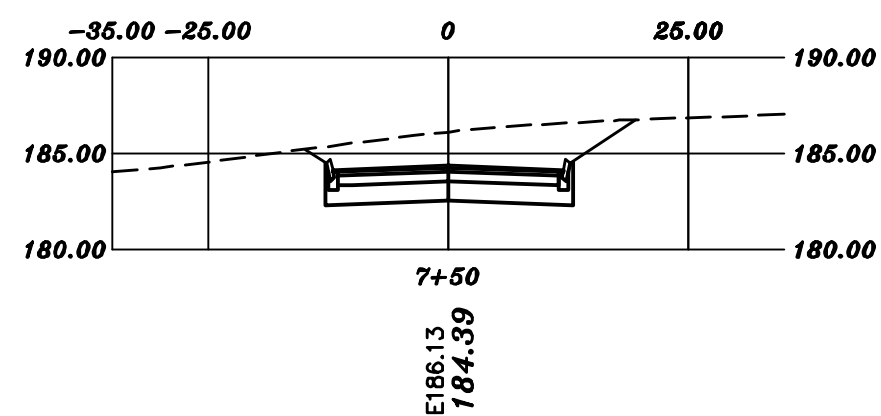
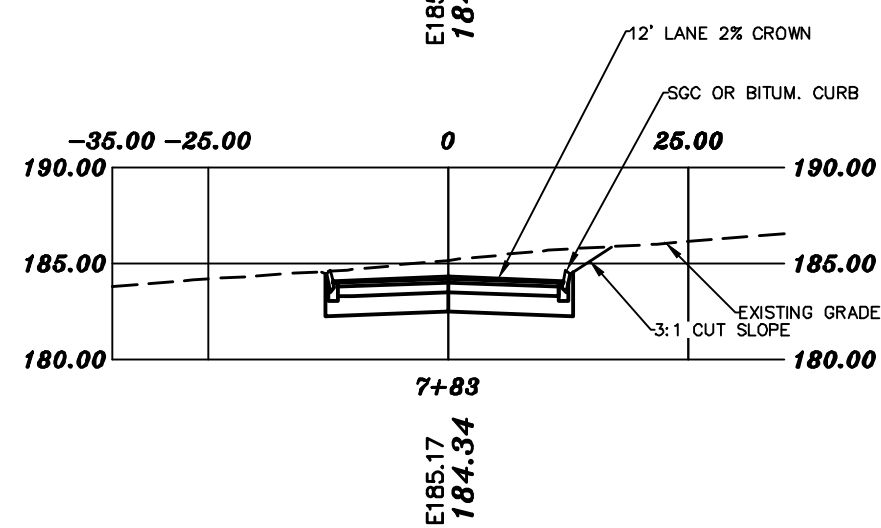
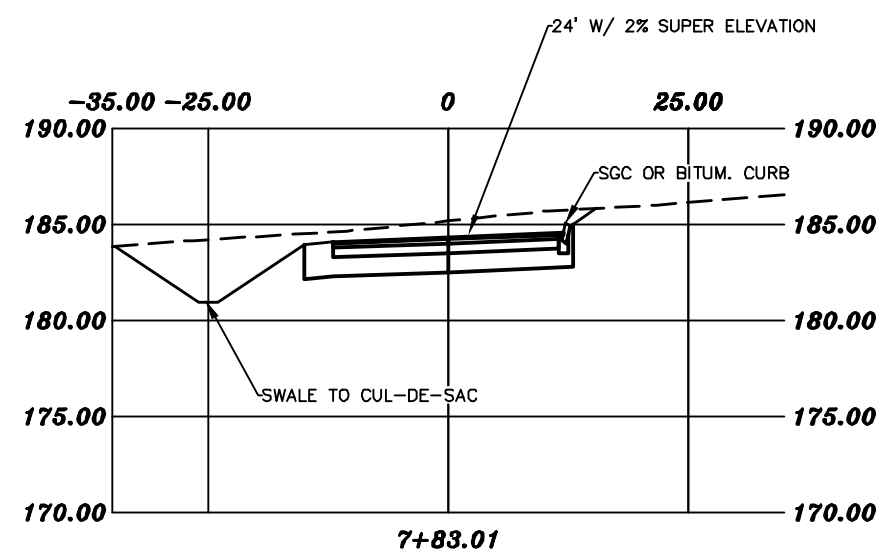
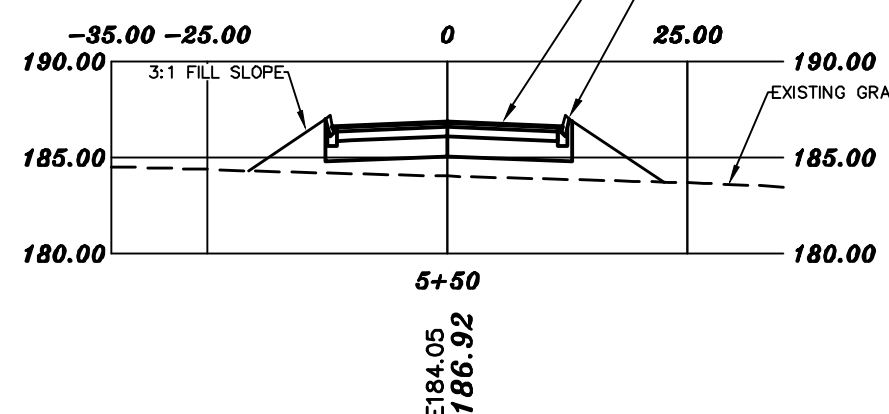
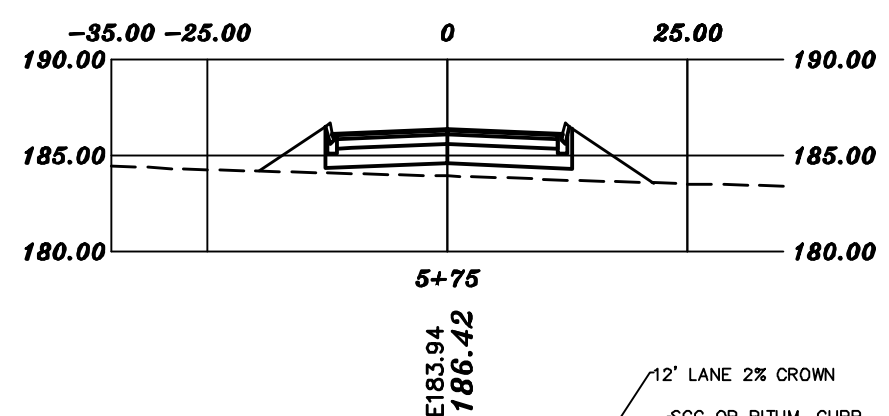
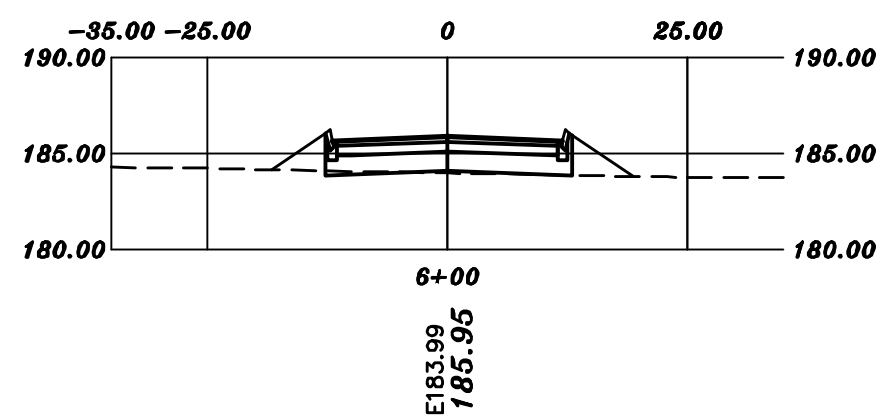
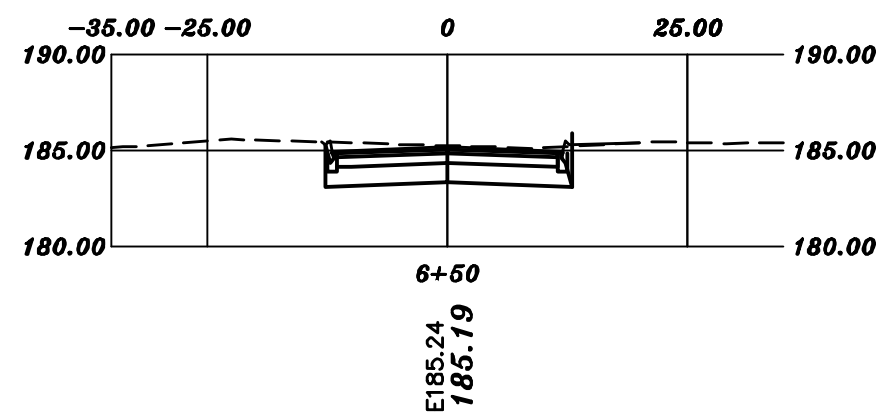
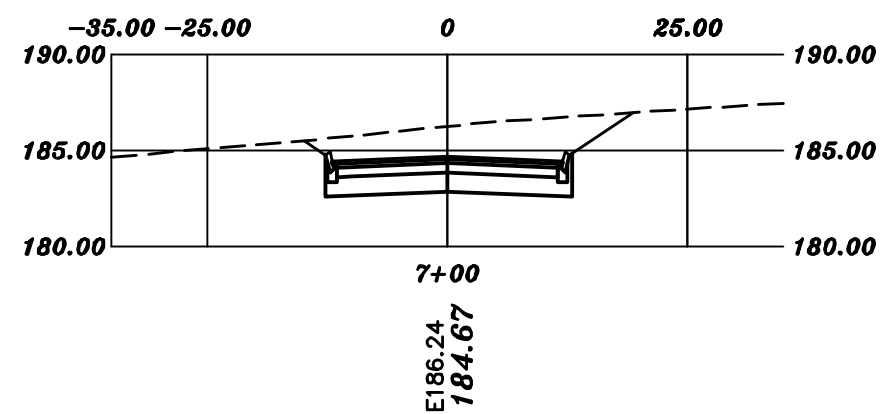
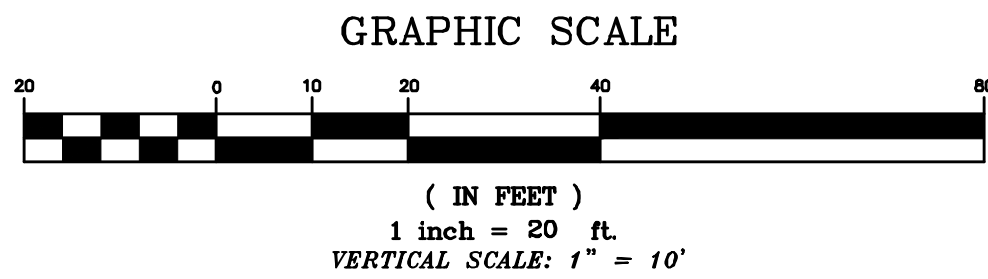


REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

CROSS SECTIONS WILDCAT DRIVE 0+00 - 5+49
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 13243
LICENSED PROFESSIONAL ENGINEER -

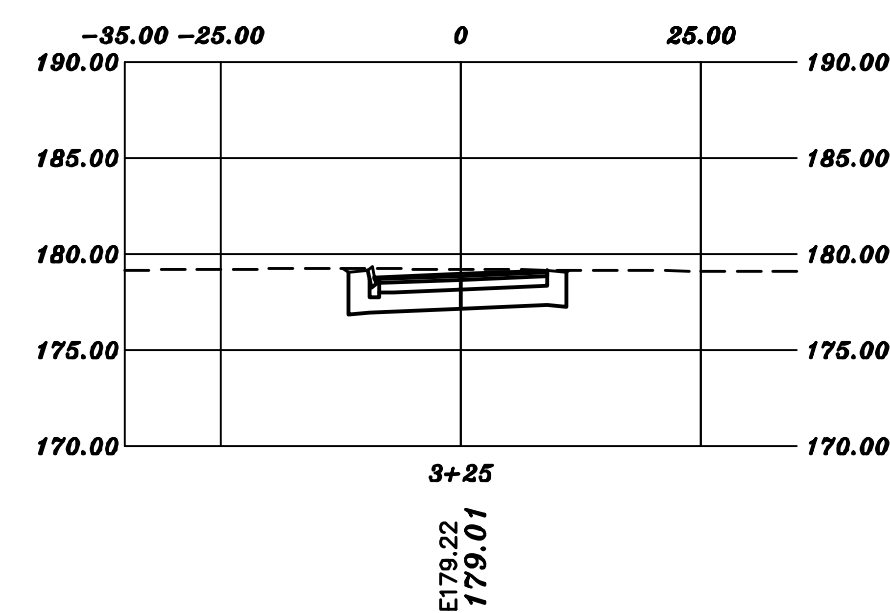
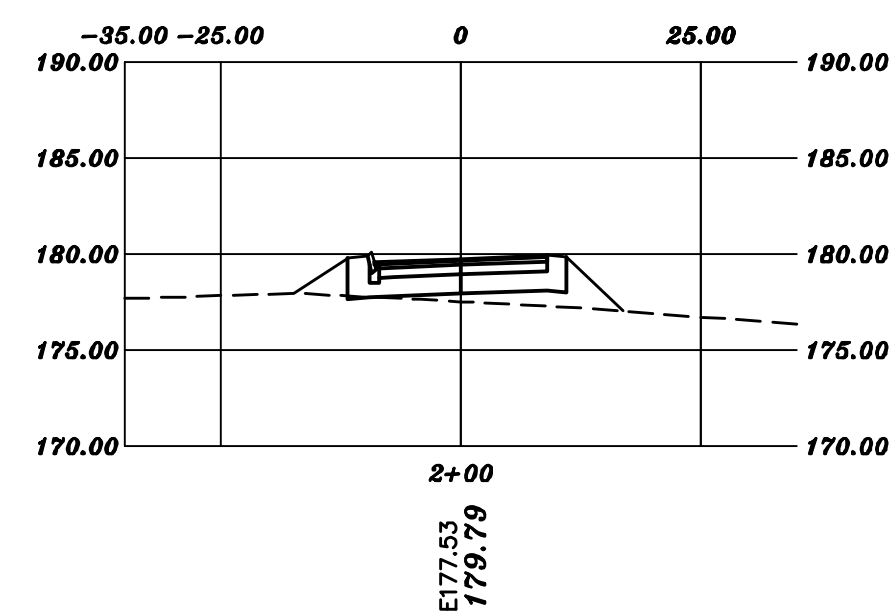
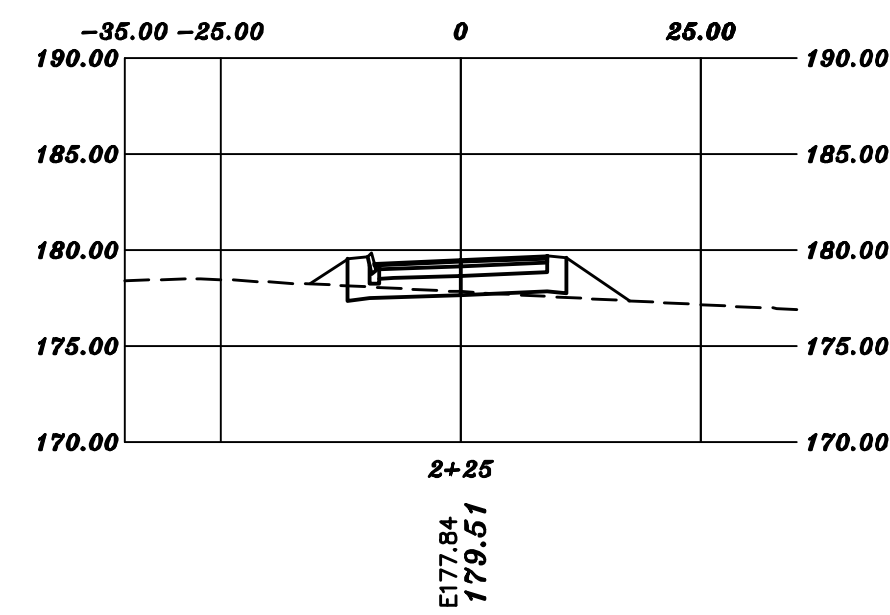
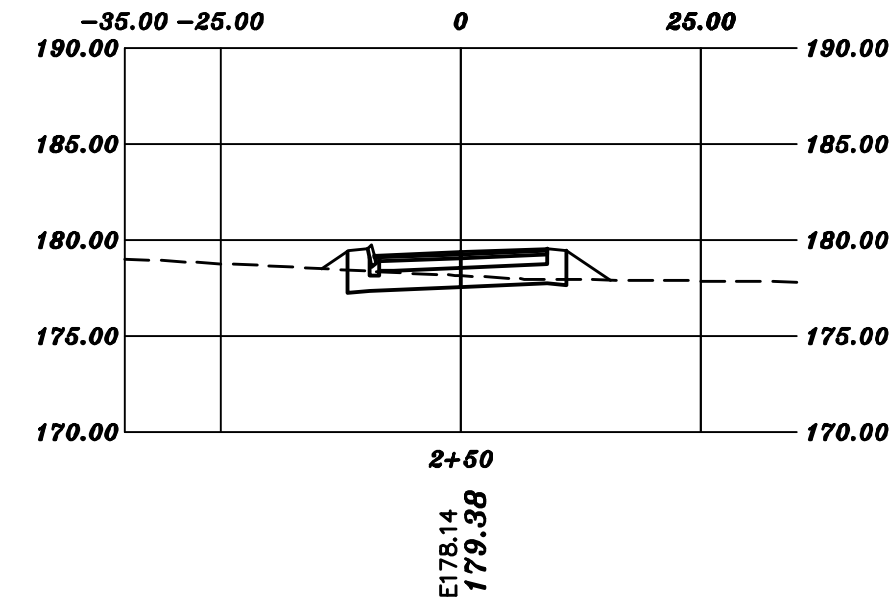
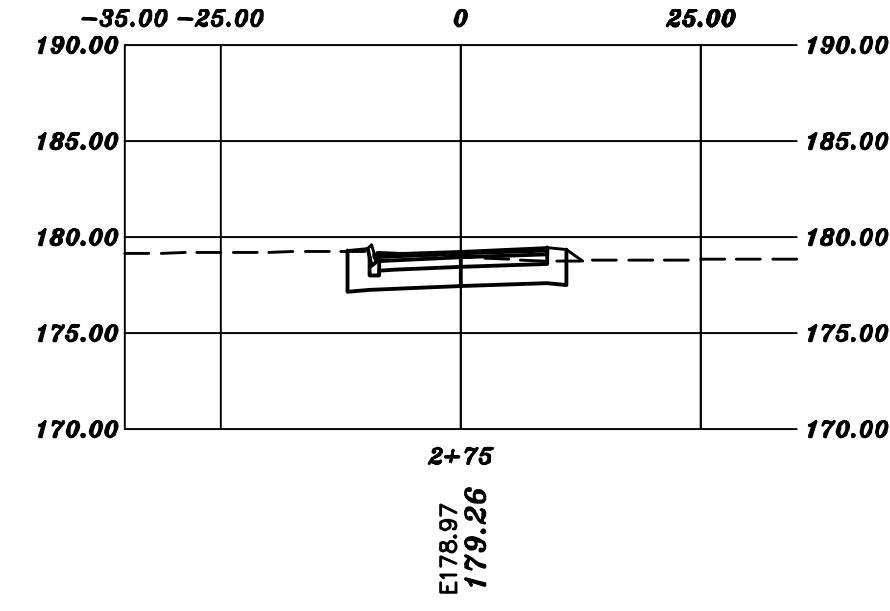
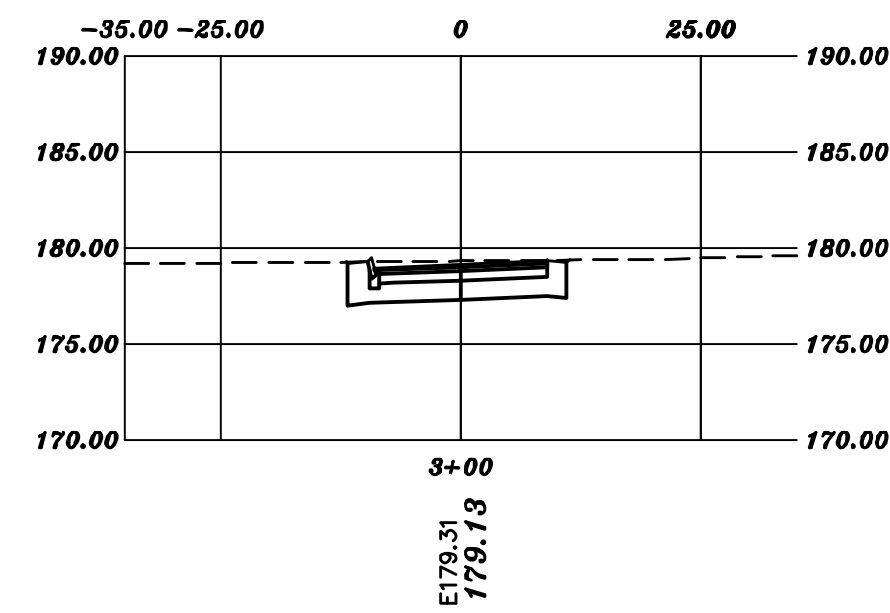
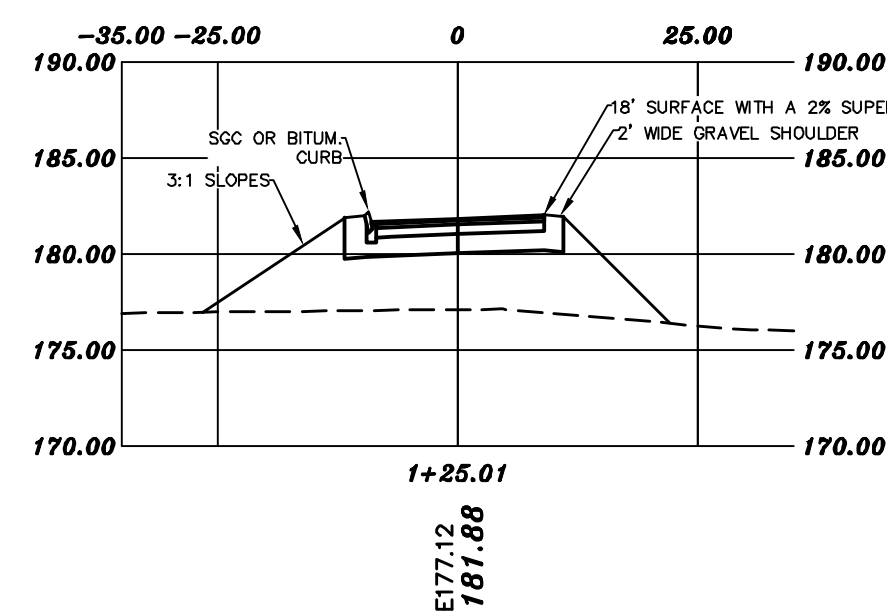
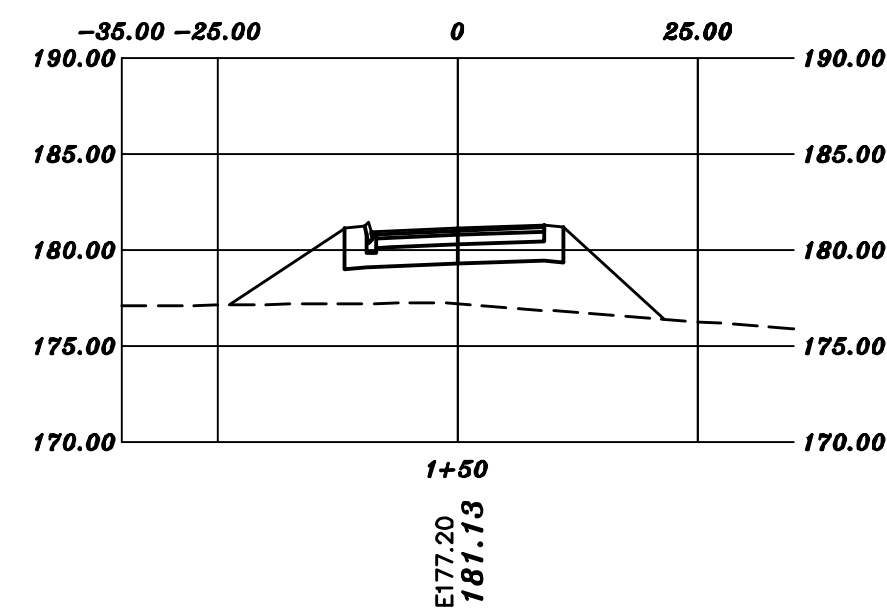
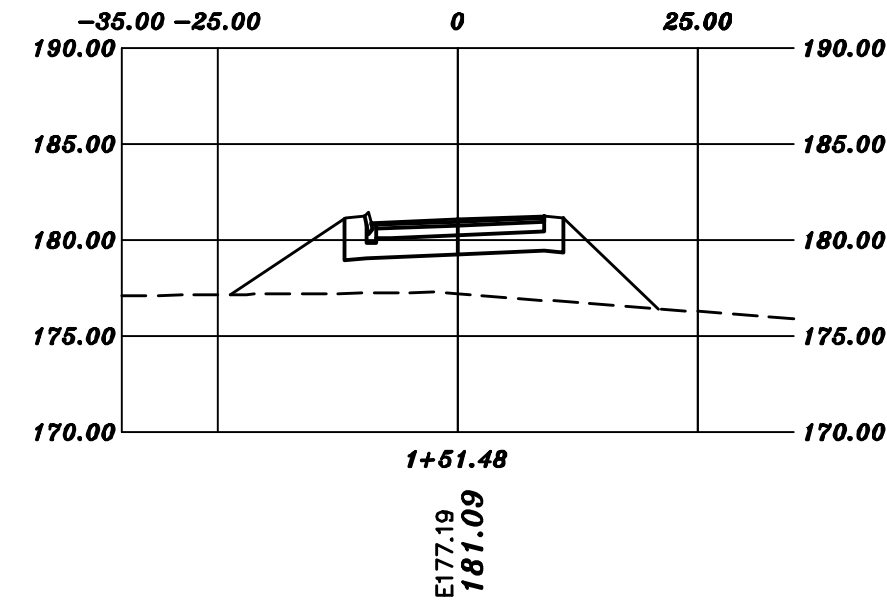
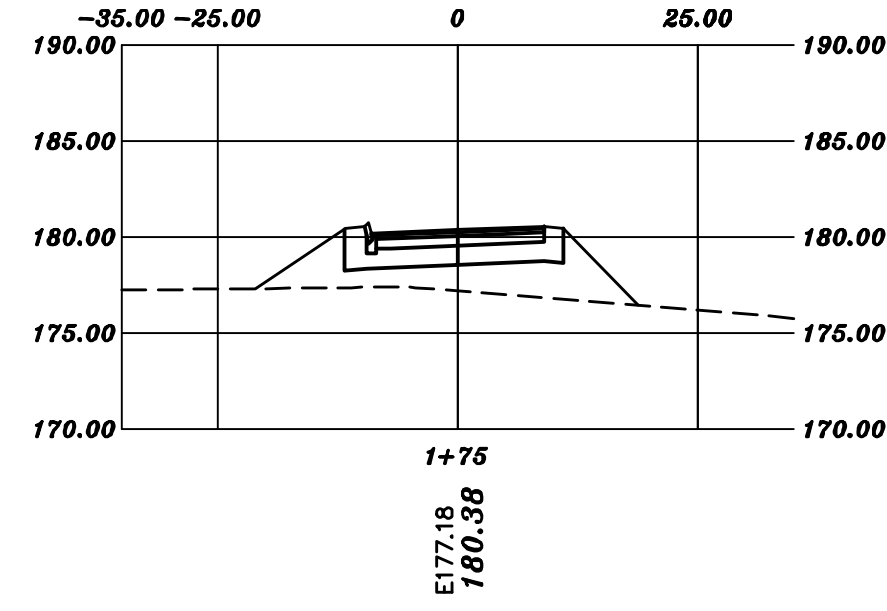
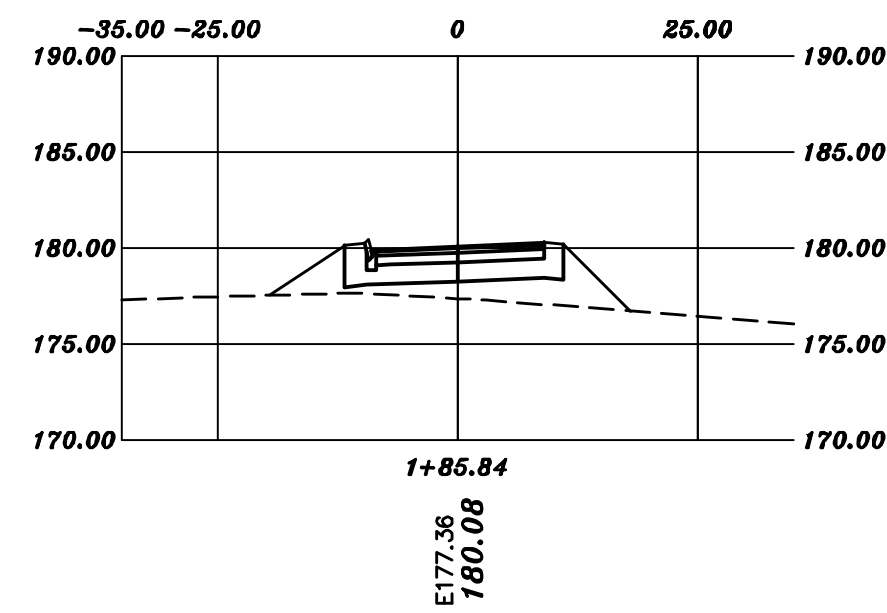
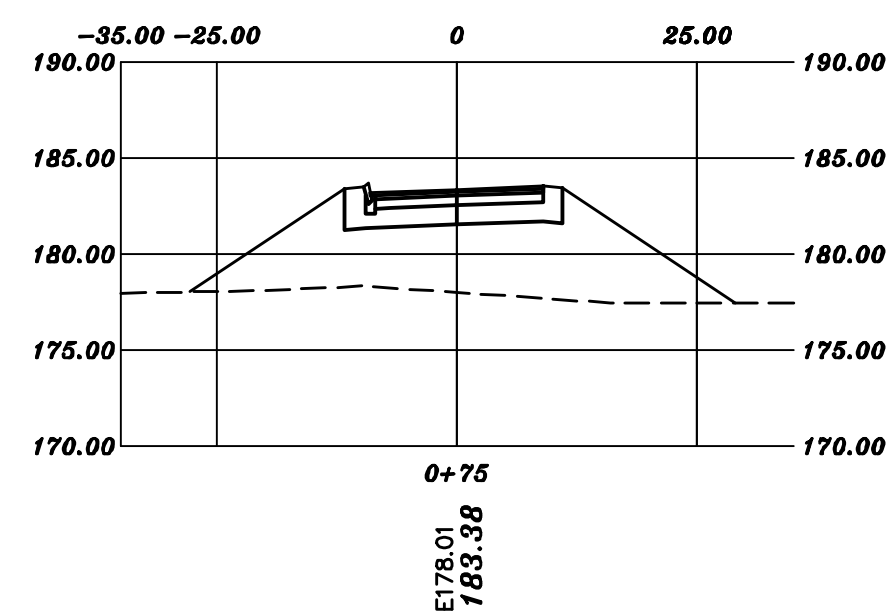
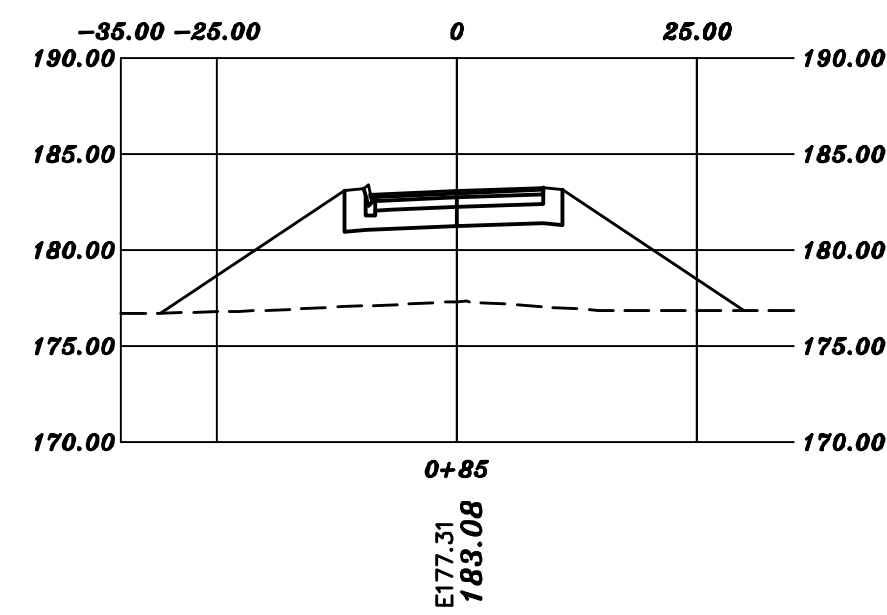
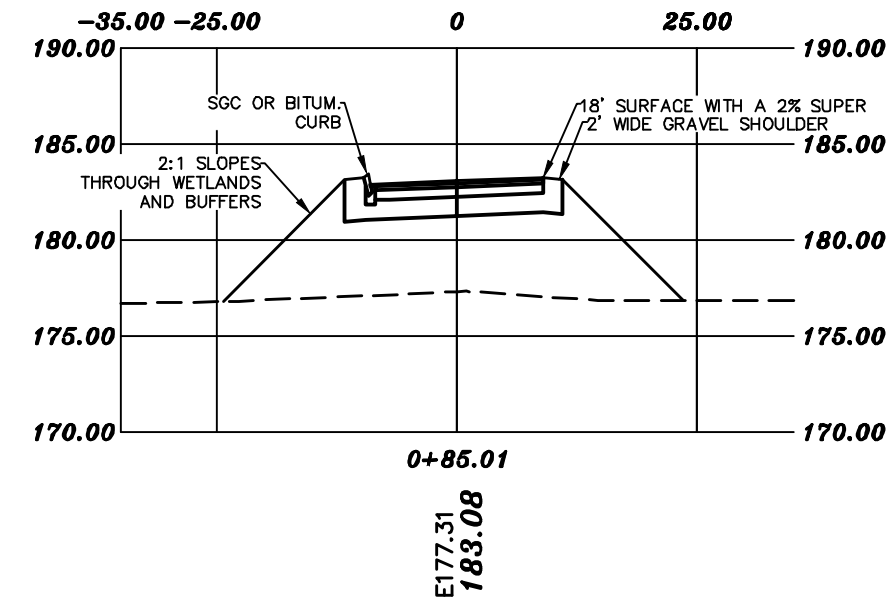
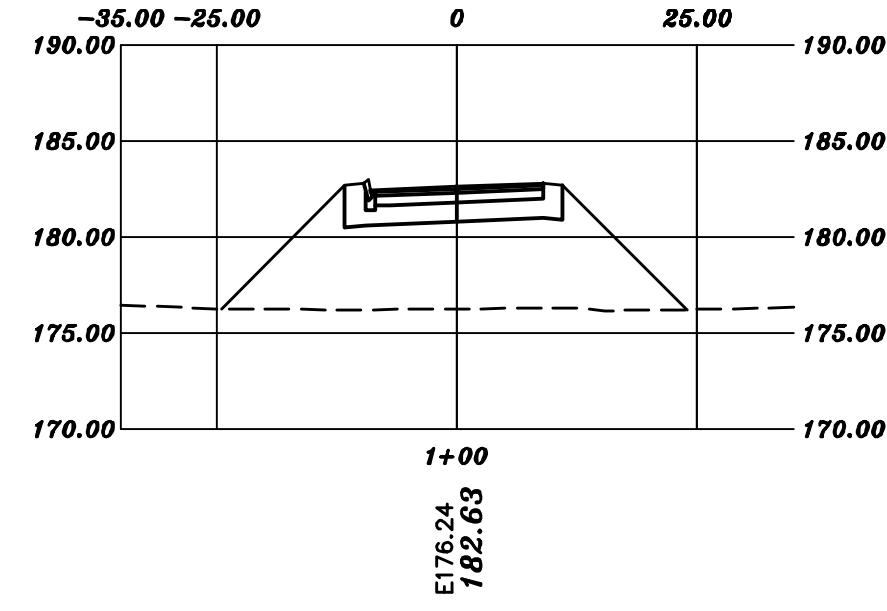
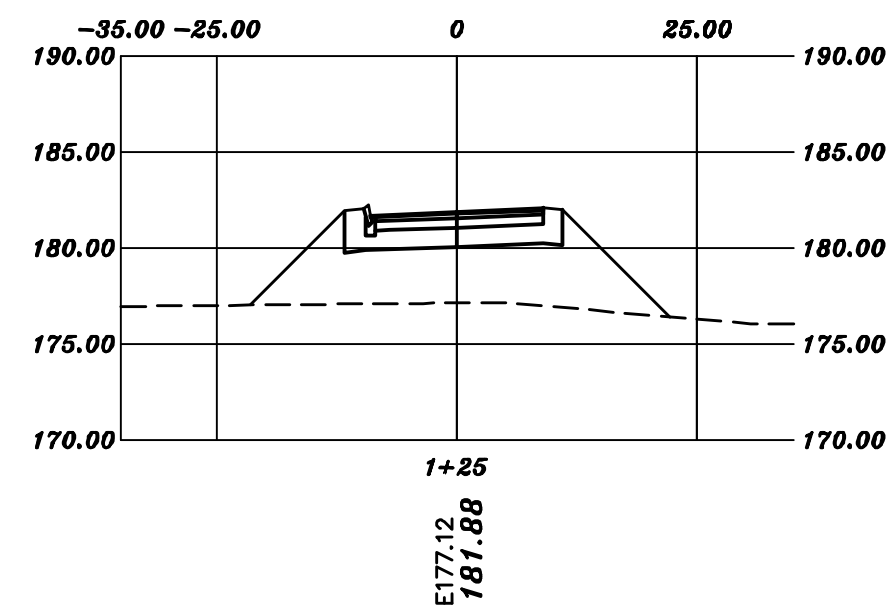
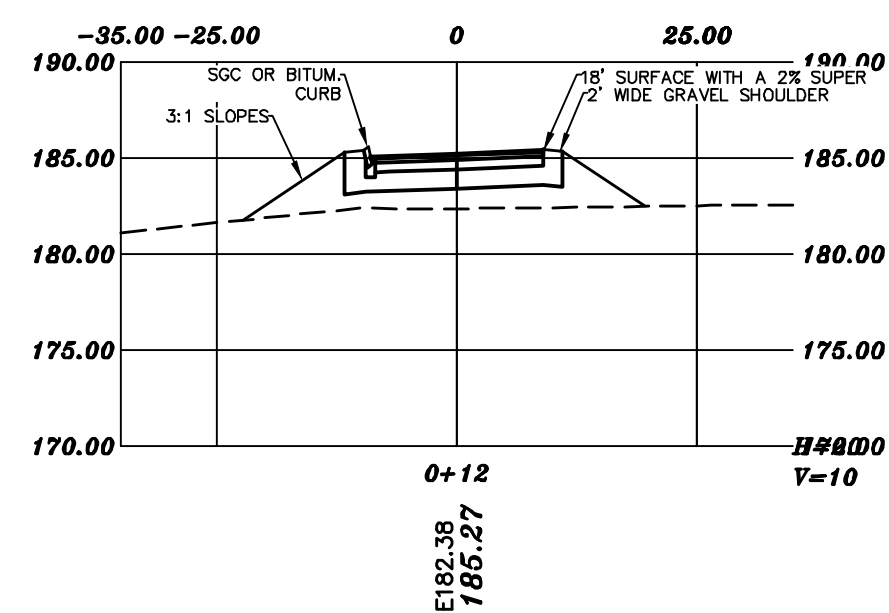
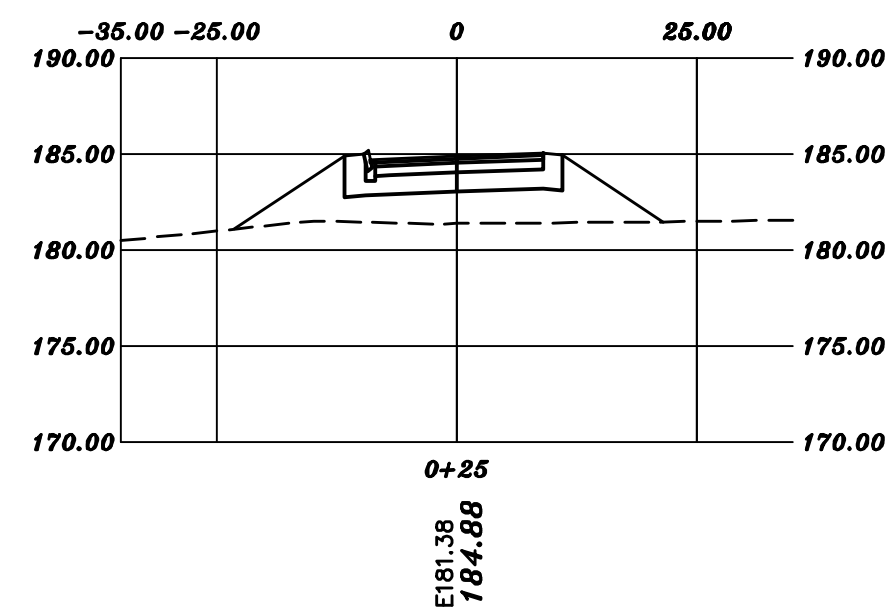
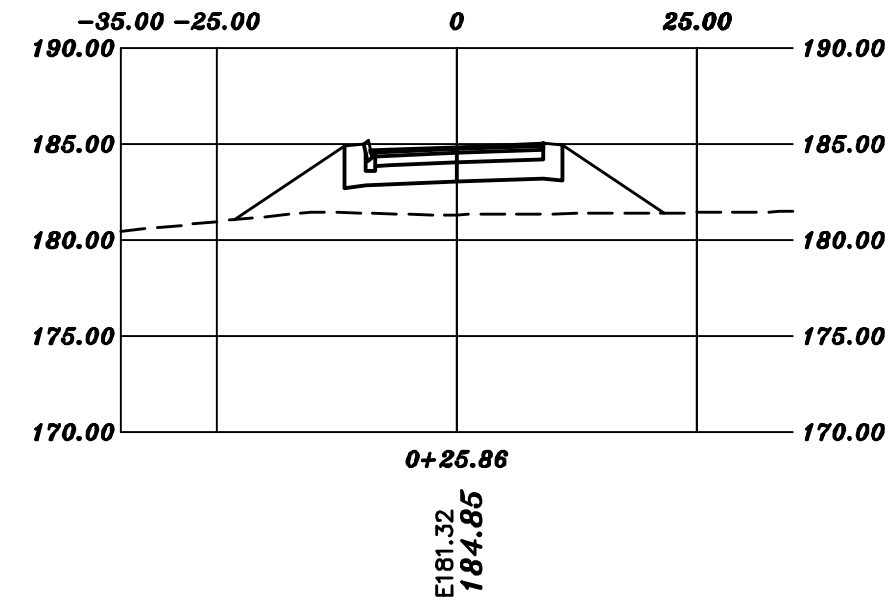
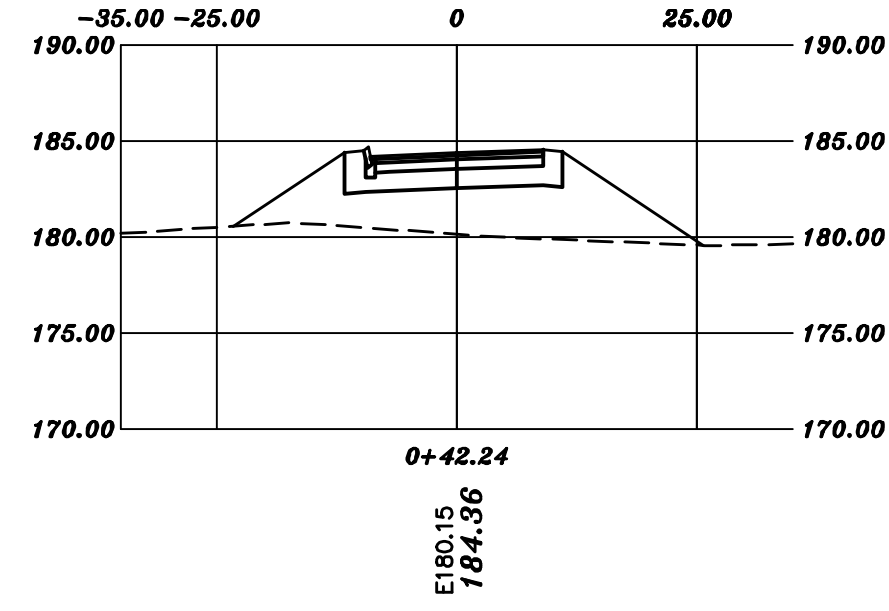
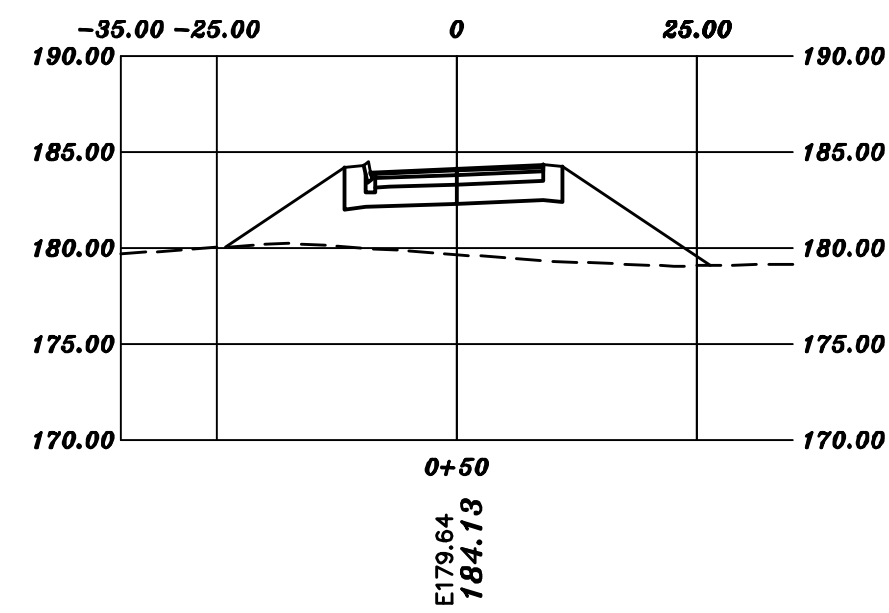
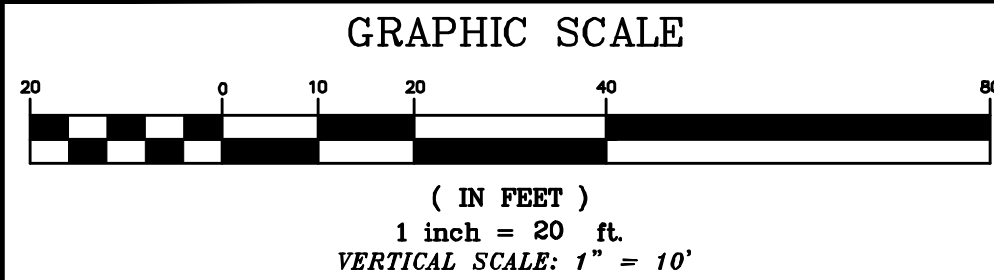


REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

CROSS SECTIONS WILDCAT DRIVE 5+50 - END
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

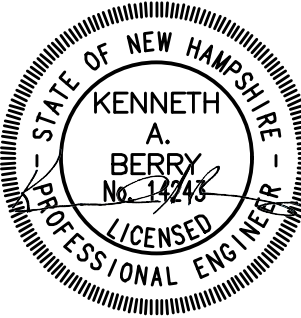
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 1243
LICENSED PROFESSIONAL ENGINEER



REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

CROSS SECTIONS SHARED DRIVEWAY
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



NOTES:

- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 1A.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) TAX MAP B, LOT 5
- 3.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- 4.) R.C.R.D. BOOK 4861, PAGE 409
- 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 WILDCAT 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 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 8.) 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.

NOTES CONT.:

- 9.) 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.
- 10.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- 11.) 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.
- 12.) 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).
- 13.) ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.
- 14.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH (T) SHALL BE THERMOPLASTIC.
- 15.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEED. 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.
- 16.) THE SPEED LIMIT ON SIXTH STREET IS 30 MPH.

LEGEND:

- DRILL HOLE ~FND OR SET~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
○ UTILITY POLE
- TREE W/ BARBED WIRE
- ✱ FIRE HYDRANT
- ✱ WATER VALVE
- STONE WALL
- APPROX. ABUTTING LOT LINE
- POORLY DRAINED WETLAND LINE
- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- MATCH LINE
- OVERHEAD UTILITIES
- WATER LINE
- FND FOUND
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS

SIGHT DISTANCE REQUIREMENT:

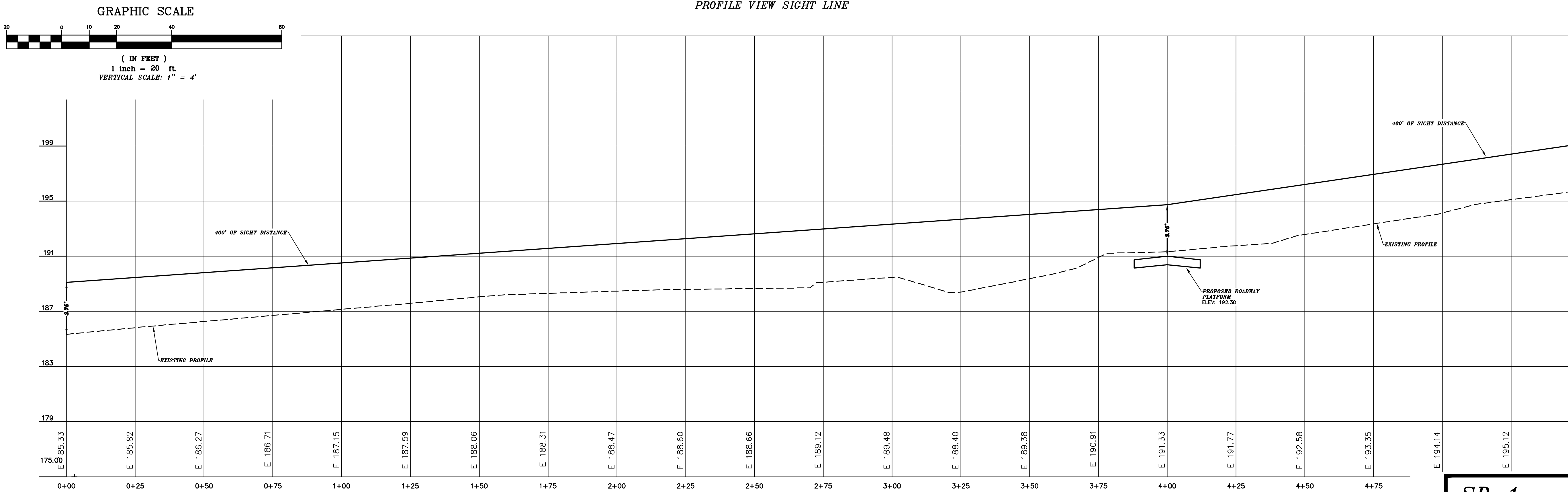
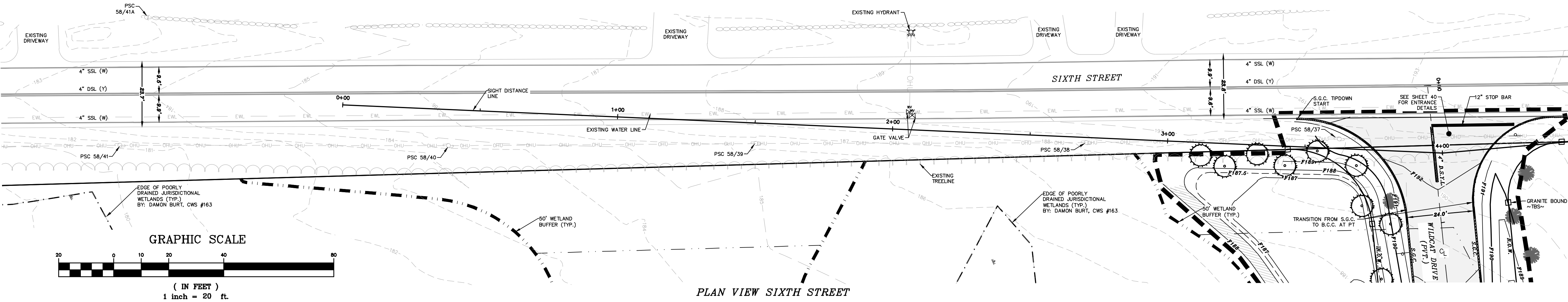
DESIGN SPEED: 30 MPH / 85TH ASSUMED 40 MPH

FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (2011) EXHIBIT 3.1

305' REQUIRED BY AASHTO

400' PROVIDED, NHDOT STANDARD SIGHT DISTANCE

SIXTH STREET AADT (2019): 3,125 (NHDOT)



SD-1

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

ROADWAY ACCESS PLAN SOUTHBOUND

LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
LICENSED PROFESSIONAL ENGINEER
NO. 19443

NOTES:

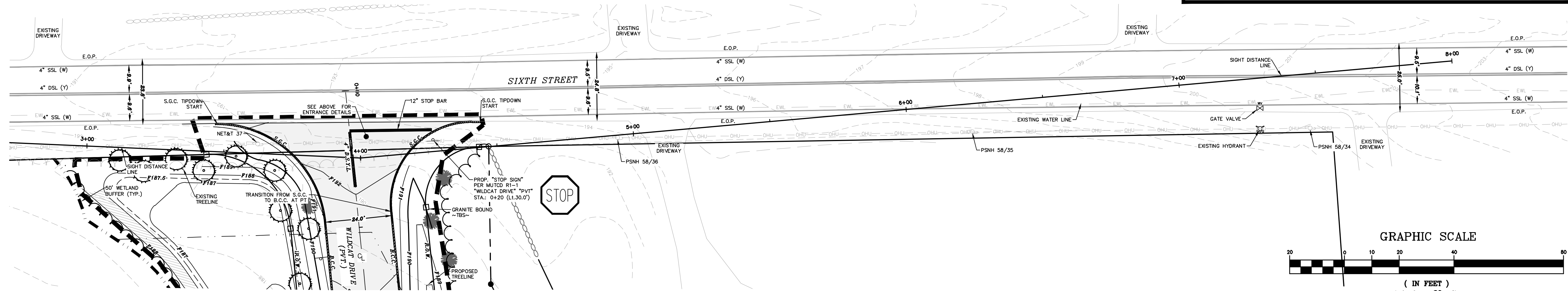
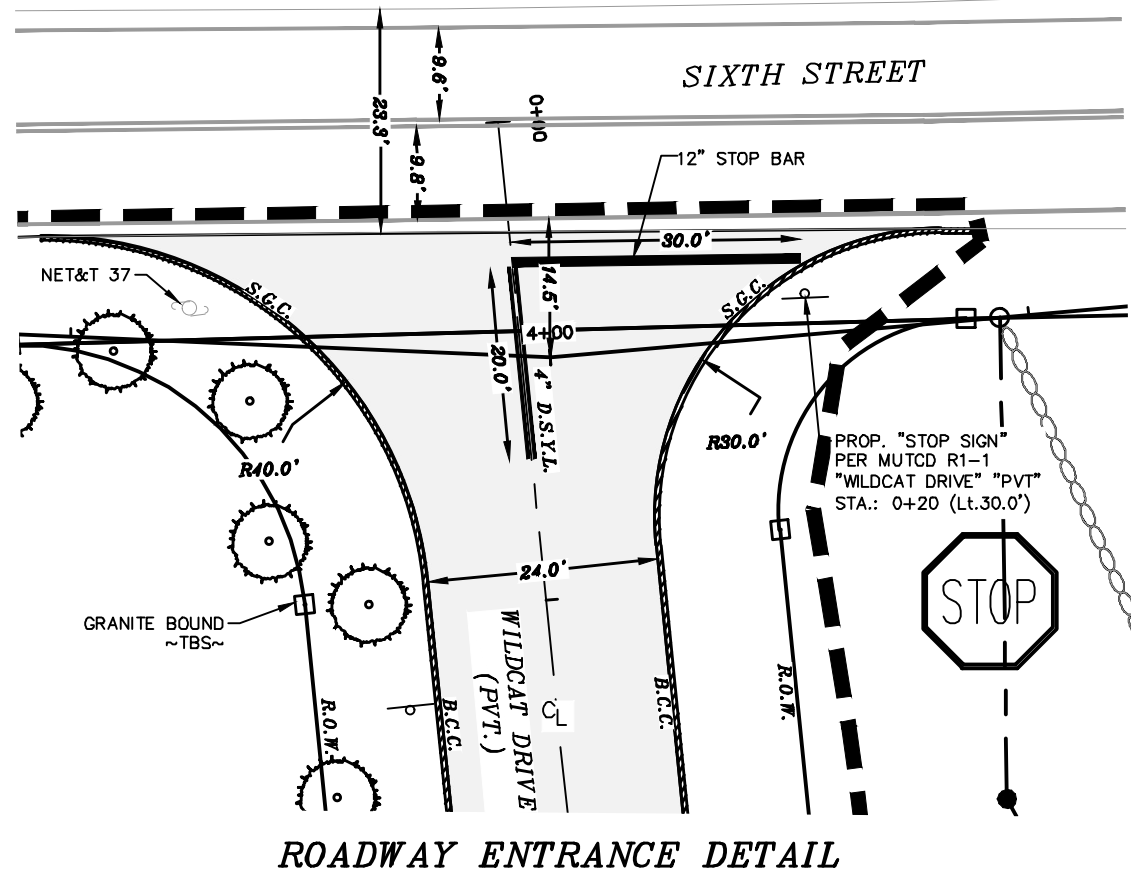
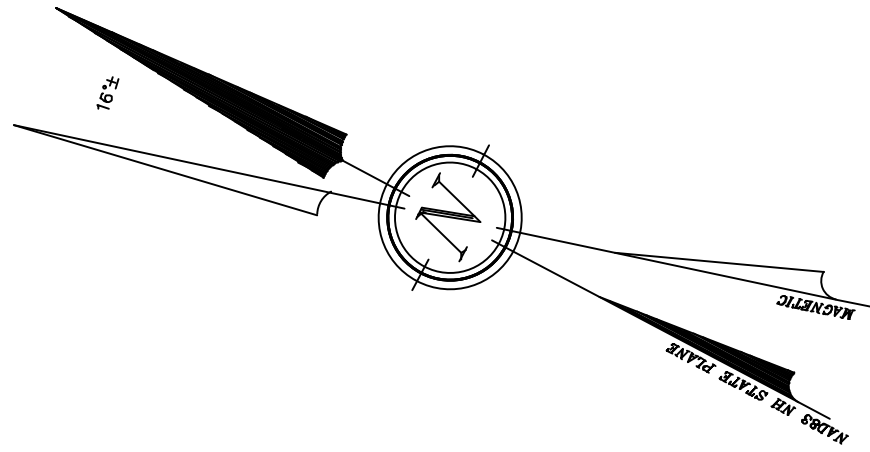
- 1.) OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 1A.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) TAX MAP B, LOT 5
- 3.) LOT AREA: 839,718 Sq. Ft., 19.28 ACRES
- 4.) R.C.R.D. BOOK 4861, PAGE 409
- 5.) THIS IS A RESIDENTIAL SUBDIVISION.
- 6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED ROADWAY KNOWN AS WILDCAT 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 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.
- 8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2018, CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

NOTES CONT.:

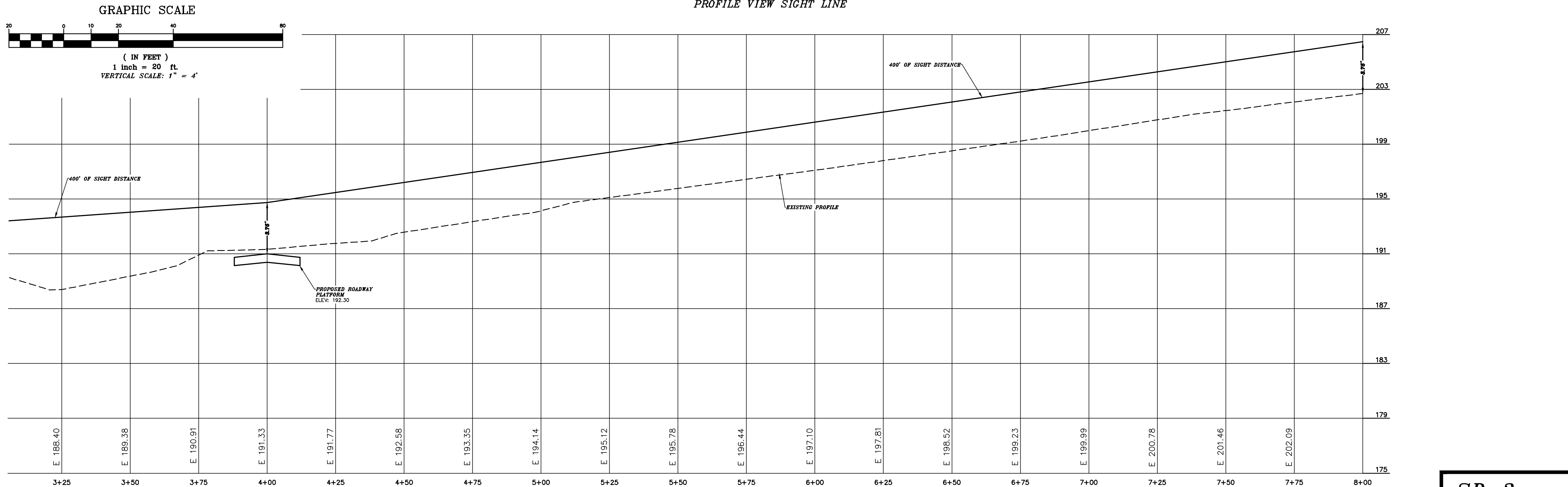
- 9.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
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LEGEND:

- DRILL HOLE ~FND OR SET~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
○ UTILITY POLE
- TREE W/ BARBED WIRE
- FIRE HYDRANT
- WATER VALVE
- STONE WALL
- APPROX. ABUTTING LOT LINE
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- 50' WETLAND SETBACK
- BUILDING SETBACK LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- MATCH LINE
- OVERHEAD UTILITIES
- WATER LINE
- FOUND
- FND
S.C.R.D.
STRAFFORD COUNTY REGISTRY OF DEEDS



PLAN VIEW SIXTH STREET
PROFILE VIEW SIGHT LINE



SD-2

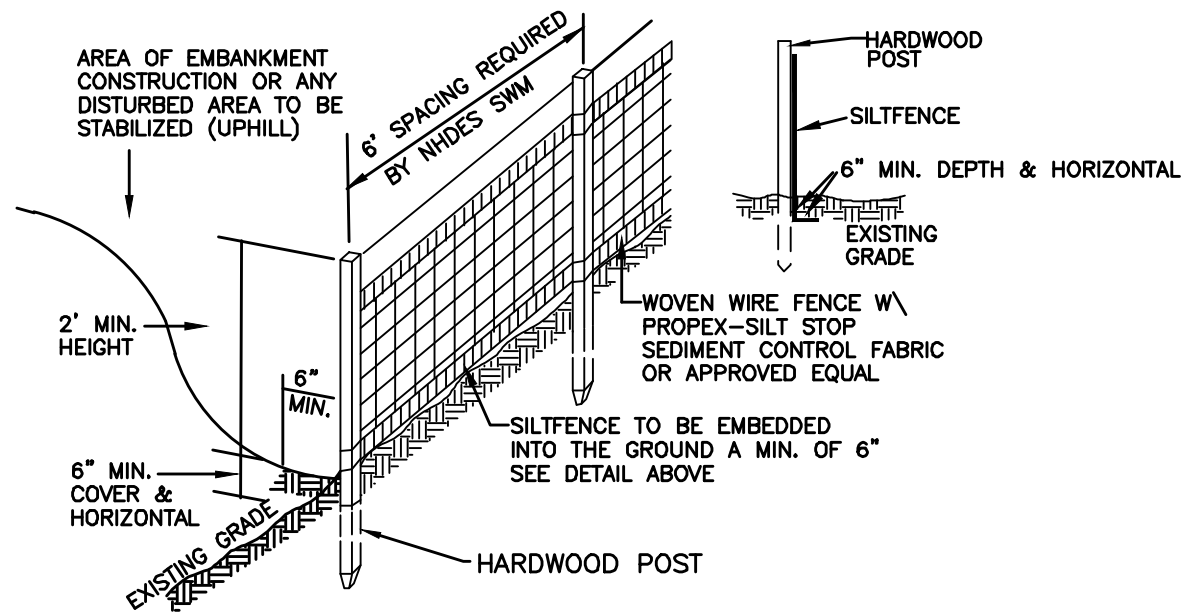
REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

ROADWAY ACCESS PLAN NORTHBOUND
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 19443
LICENSED PROFESSIONAL ENGINEER

E1

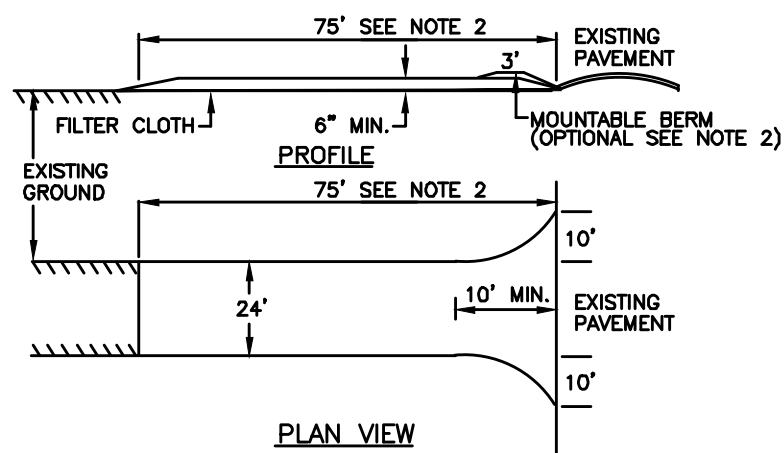


SILT FENCE CONSTRUCTION SPECIFICATIONS

- 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 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
- 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.
- 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.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
- SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
- THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
- TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, SILT FENCE, PAGE 90.

SILT FENCE MAINTENANCE

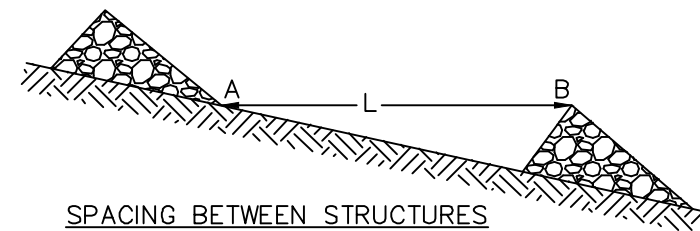
- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
- IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH SIX-INCHES IN DEPTH.
- 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 SCALEE5 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

- STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- 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.
- THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- 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.
- 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.
- TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CONSTRUCTION EXIT, PAGE 124.

STONE CHECK DAM
NOT TO SCALE

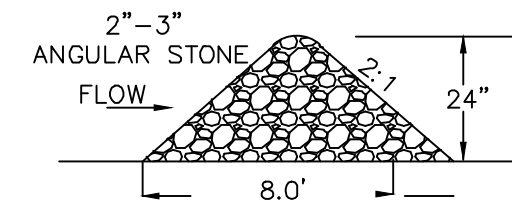
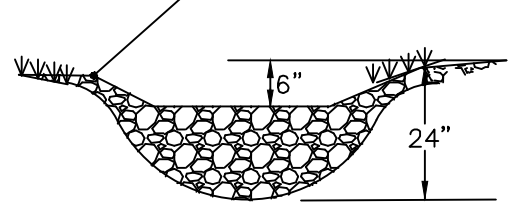
THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.



SPACING BETWEEN STRUCTURES

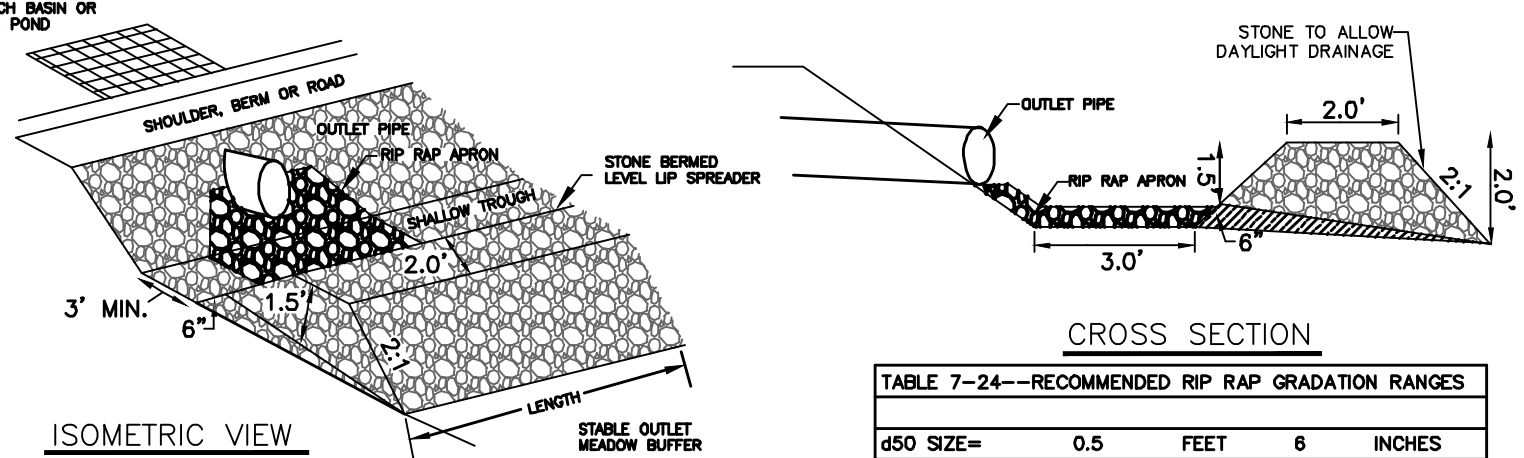
- CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
- THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THAN ONE ACRE.
- THE MAXIMUM HEIGHT OF THE DAM SHOULD BE TWO FEET.
- THE CENTER OF THE DAM SHOULD BE AT LEAST SIX INCHES LOWER THAN THE OUTER EDGES.
- THE MAXIMUM SPACING IS AS SHOWN ON THE PROJECT SITE PLANS.
- CHECK DAMS WILL NOT BE USED IN A FLOWING STREAM.
- TEMPORARY CHECK DAMS WILL BE REMOVED ONCE THE SWALE OR DITCH IS DETERMINED STABLE.
- TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CHECK DAMS, PAGE 114.

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



STONE GRADE STABILIZATION STRUCTURE

E2



CROSS SECTION

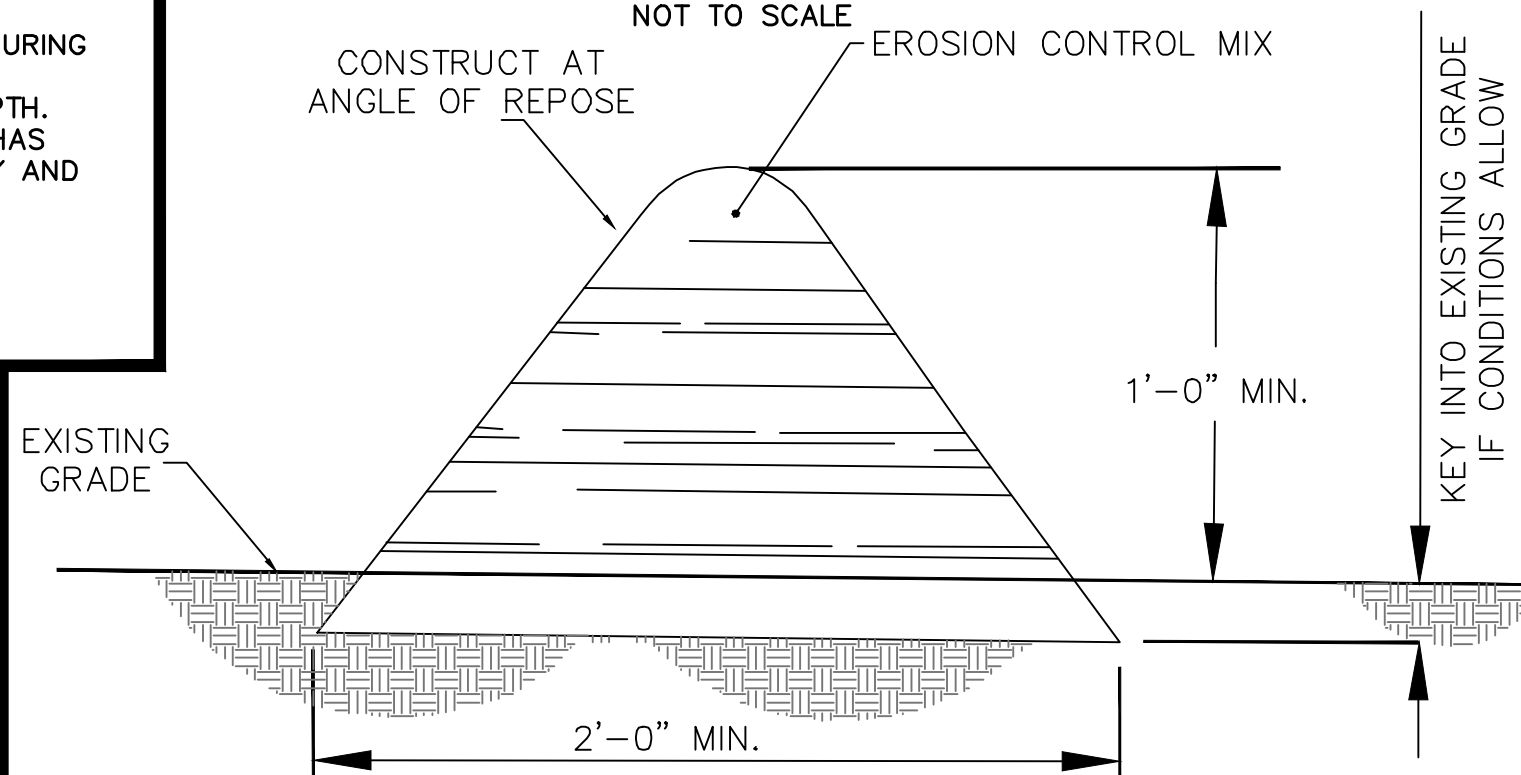
450 SIZE=	0.5 FEET	8 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN 450 SIZE	SIZE OF STONE FROM	SIZE OF STONE TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

- CONSTRUCT THE LEVEL SPREADER LIP ON A 0% GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
- LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
- 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.
- THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
- 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.
- REFERENCE IS MADE TO NHDES SWM VOL. 2, 4-6, STONE BERM LEVEL SPREADERS, PAGE 162

STONE BERM LEVEL SPREADER

NOT TO SCALE

E6

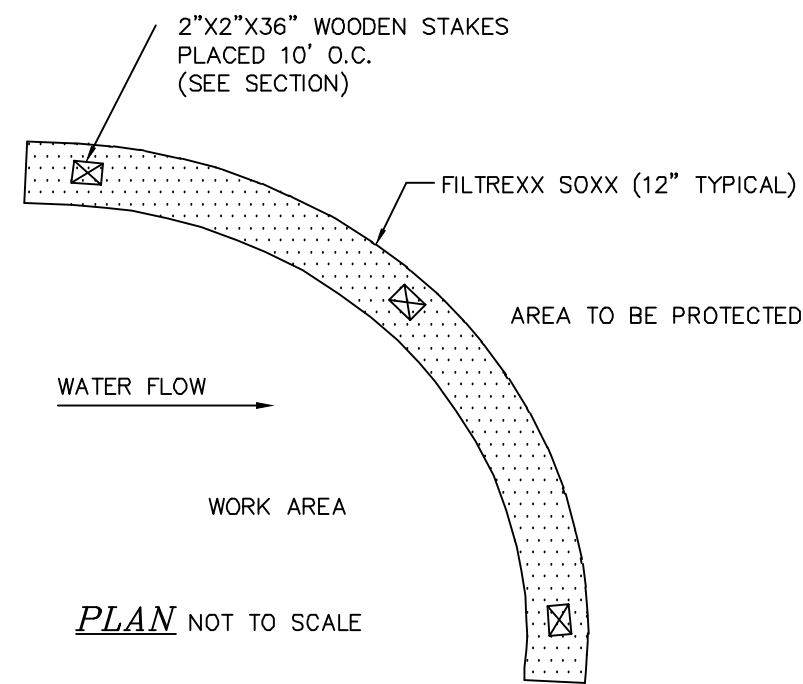
EROSION CONTROL MIX BERM
NOT TO SCALE

EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

- 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.
- THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSELY AS POSSIBLE.
- THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%.
- 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 FROM GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
- THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
- 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.
- THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
- THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
- TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, EROSION CONTROL MIX BERMS, PAGE 106.

E9

E10



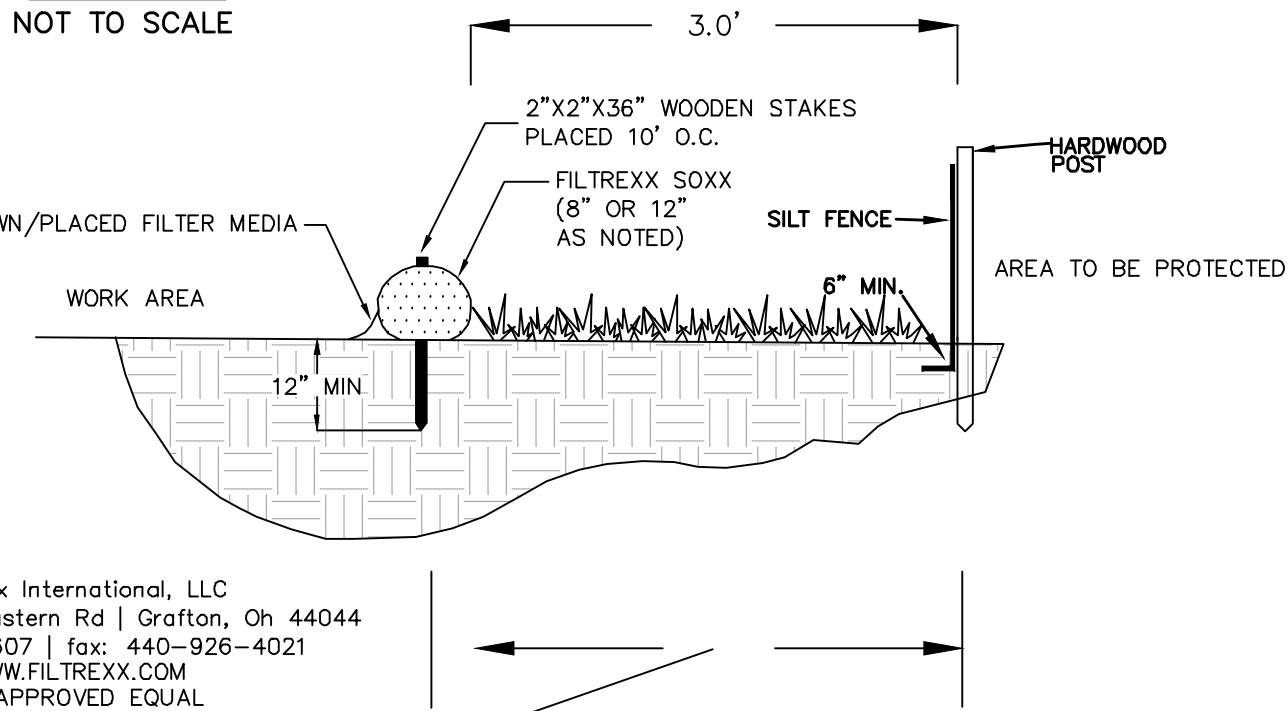
PLAN NOT TO SCALE

NOTES

- ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
- FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
- COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
- SILT/STOCK MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
- SILT/STOCK COMPOST/STOCK/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
- FILTREXX SOXX IS A REGISTERED TRADEMARK OF FILTREXX INTERNATIONAL, LLC.
- SILT FENCE IS NOT A SUBSTITUTION FOR SILT SOXX AND ANY EQUAL SUBSTITUTION TO BE APPROVED.
- TO BE CONSTRUCTED IAW FILTREXX, SECTION 1: EROSION & SEDIMENT CONTROL (PAGE 323) - CONSTRUCTION ACTIVITIES, SWPPP CUT SHEET: FILTREXX SEDIMENT CONTROL.

FILTREXX SEDIMENT CONTROL

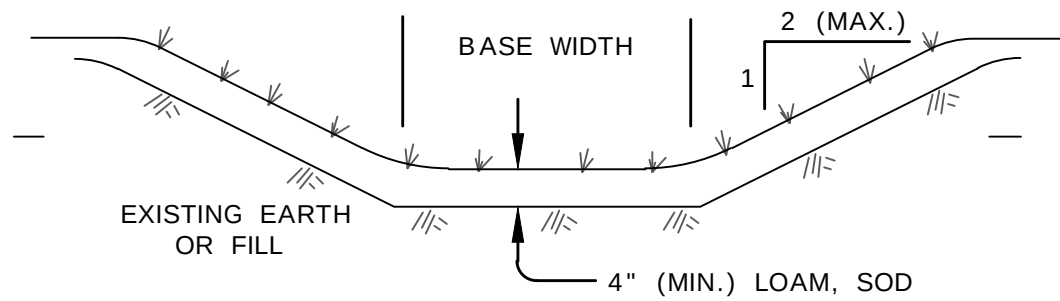
NOT TO SCALE



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

E3

GRASS CONVEYANCE SWALE
NOT TO SCALE

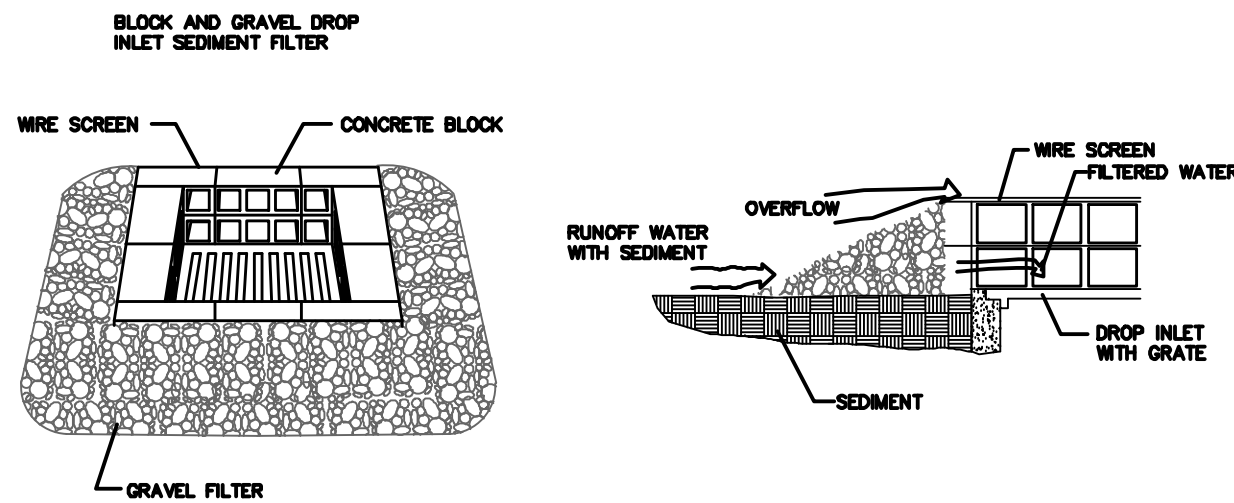
INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATIONS, VEGETATION LOSS, & INVASIVE SPECIES. REPAIR AS NECESSARY.

MOW GRASS ANNUALLY TO A DEPTH OF 4".

INSTALL STABILIZATION MATTING DURING CONSTRUCTION

TO BE CONSTRUCTED IAW NH SWM #2 CHAPTER 4, #5 TREATMENT SWALES, PAGE 123.

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.

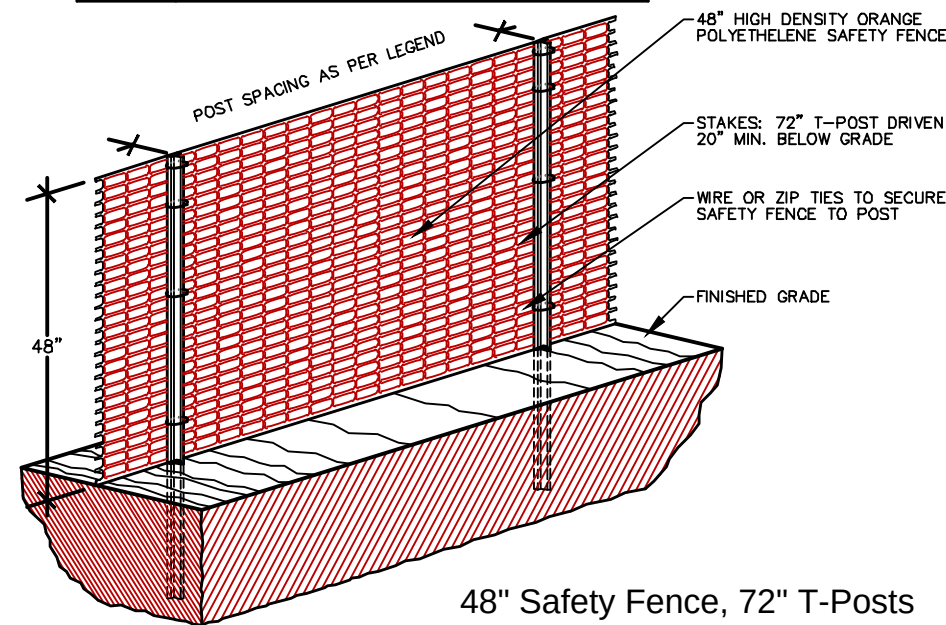
TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

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

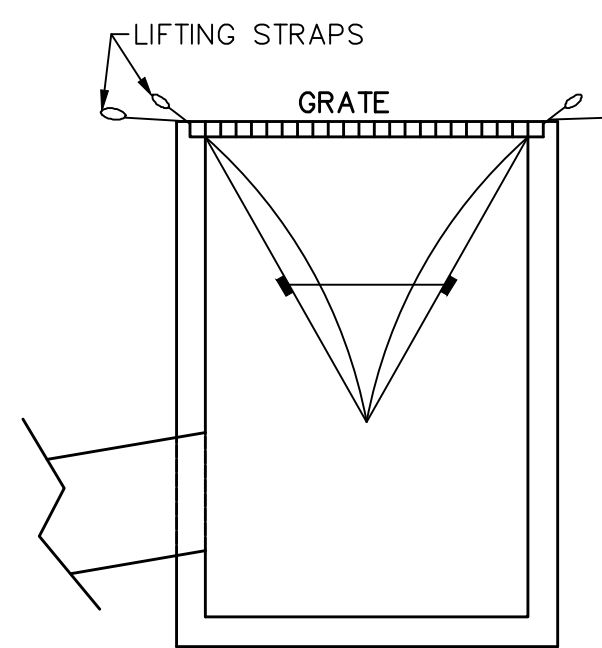
- ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
- ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE AS PER PLAN.
- WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
- SAFETY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

E8

TEMPORARY EROSION CONTROL MEASURES

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
- ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDING WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. (SEE SEED SPECIFICATIONS THIS SHEET)
- 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.
- 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.
- 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.
- PER THE EPA CDP 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.
- DITCHES, SWALES, AND BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
- ROADWAYS, DRIVEWAYS AND CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADE.
- STABILIZATION MEANS:
 - A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED.
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED, OR
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- 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.
- 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)

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 NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

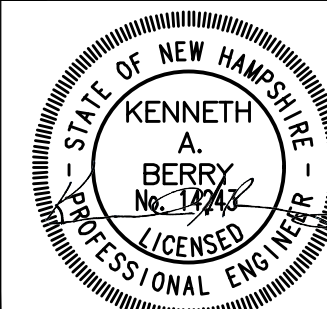
SILTSACK DETAIL
NOT TO SCALE

E-101

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

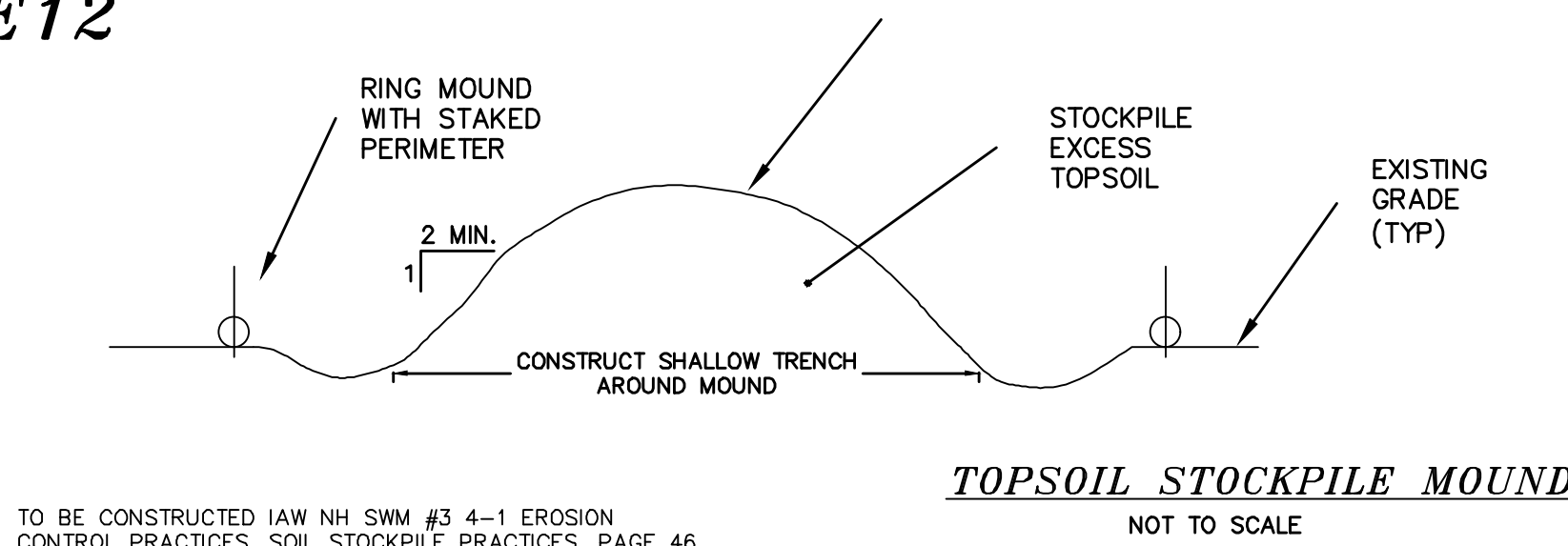
EROSION & SEDIMENT CONTROL DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
AS NOTED
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

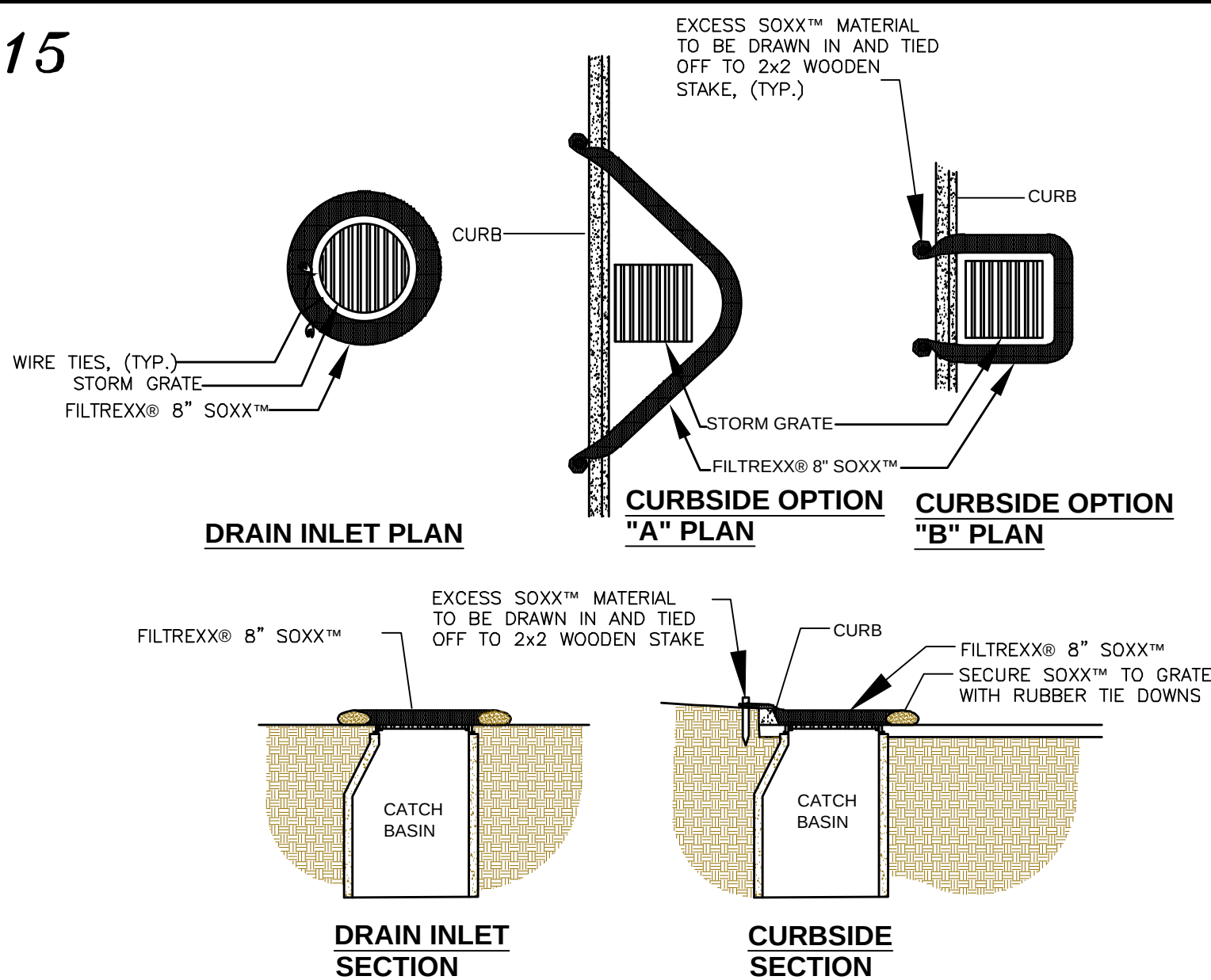


SHEET 46 OF 56

E12



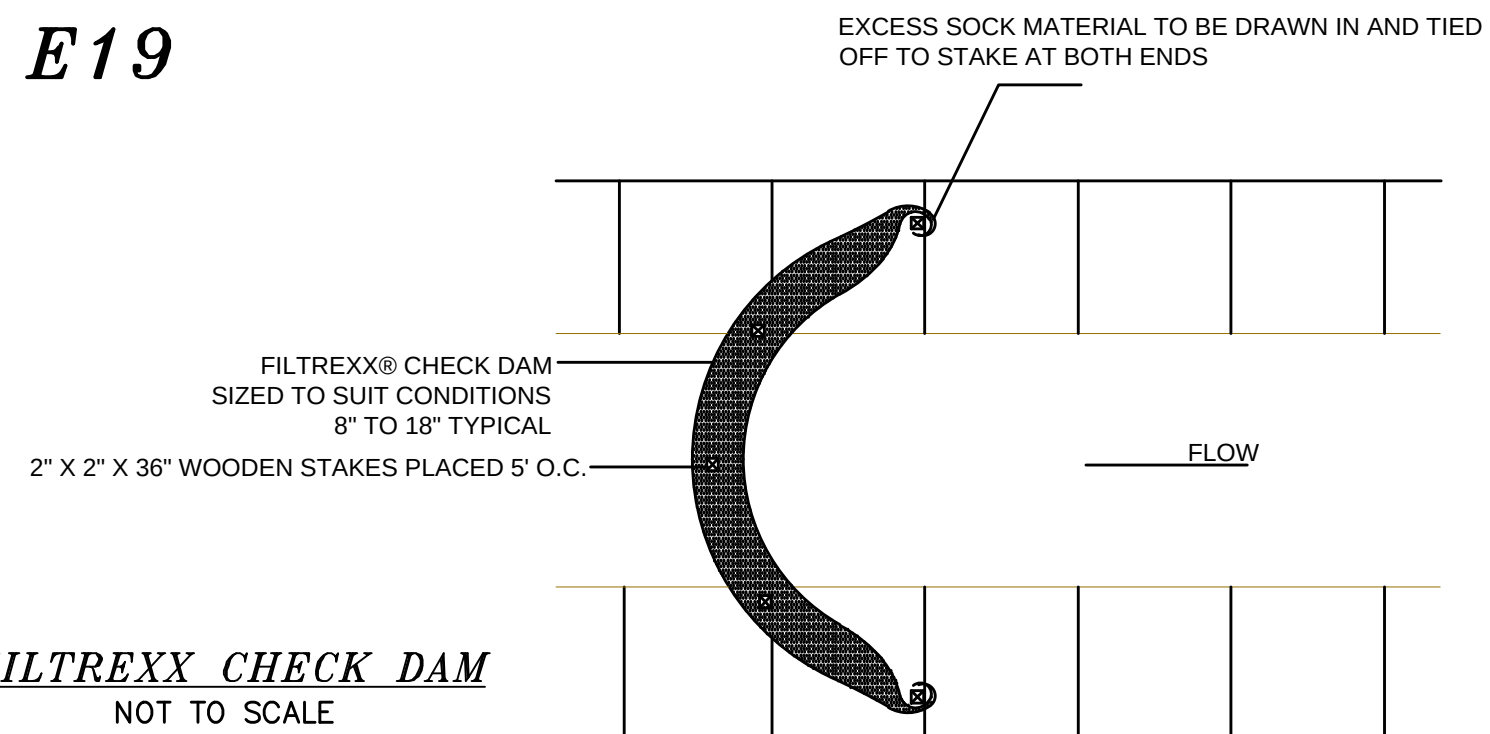
E15



- 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.

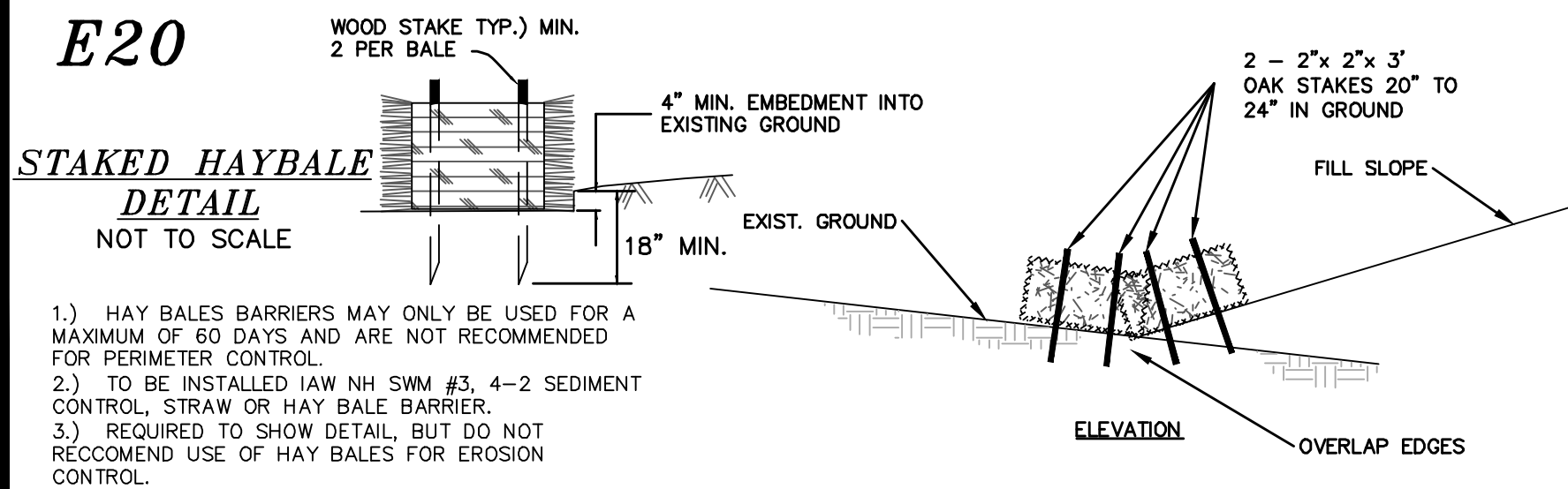
FILTREXX INLET PROTECTION
NOT TO SCALE

E19



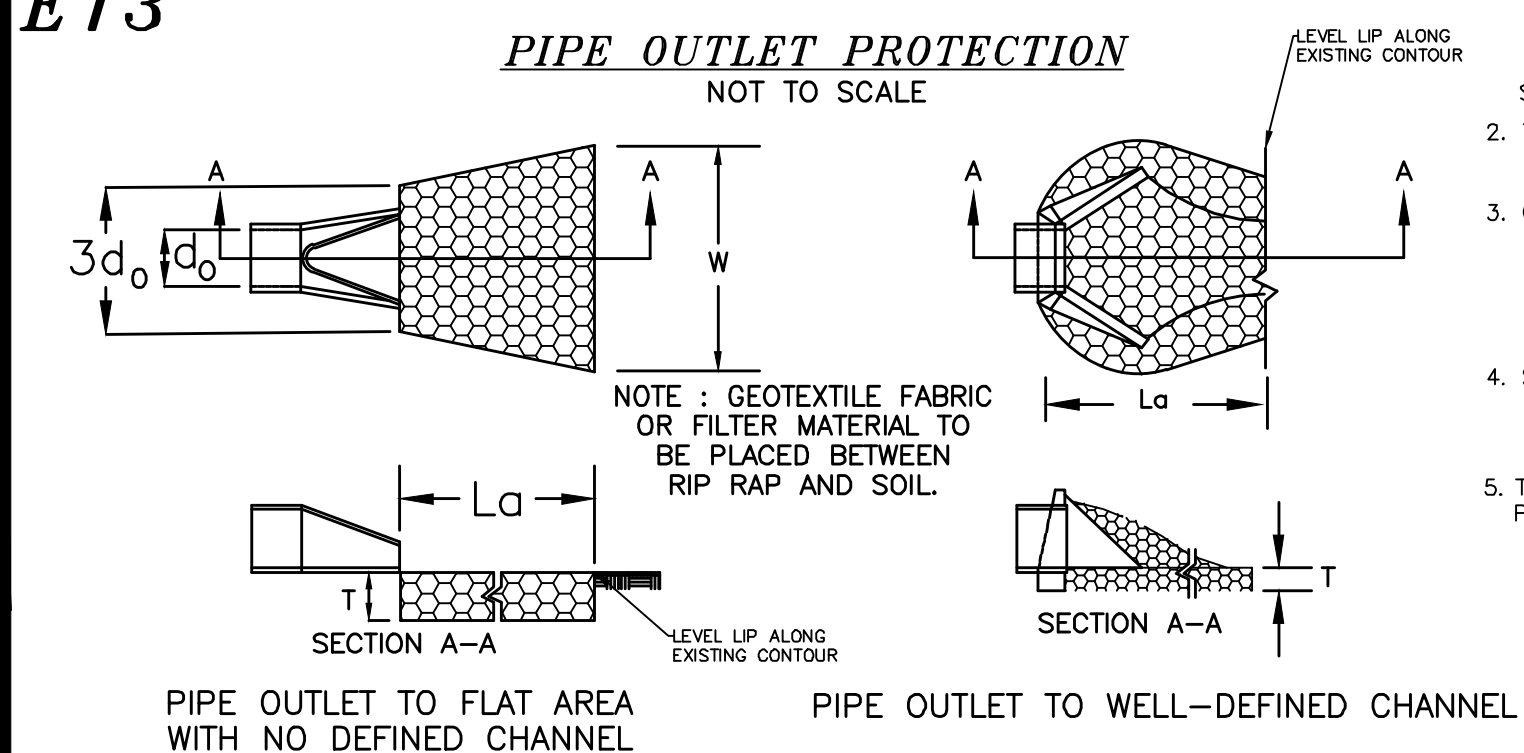
- NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
 2. CHECK DAM SHOULD BE USED IN AREAS THAT DRAIN 1 ACRE OR LESS.
 3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED ½ THE HEIGHT OF THE CHECK DAM.
 4. CHECK DAM CAN BE DIRECT SEED AT THE TIME OF INSTALLATION.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

E20



- 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 RECOMMEND USE OF HAY BALES FOR EROSION CONTROL.

E13



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.

E16

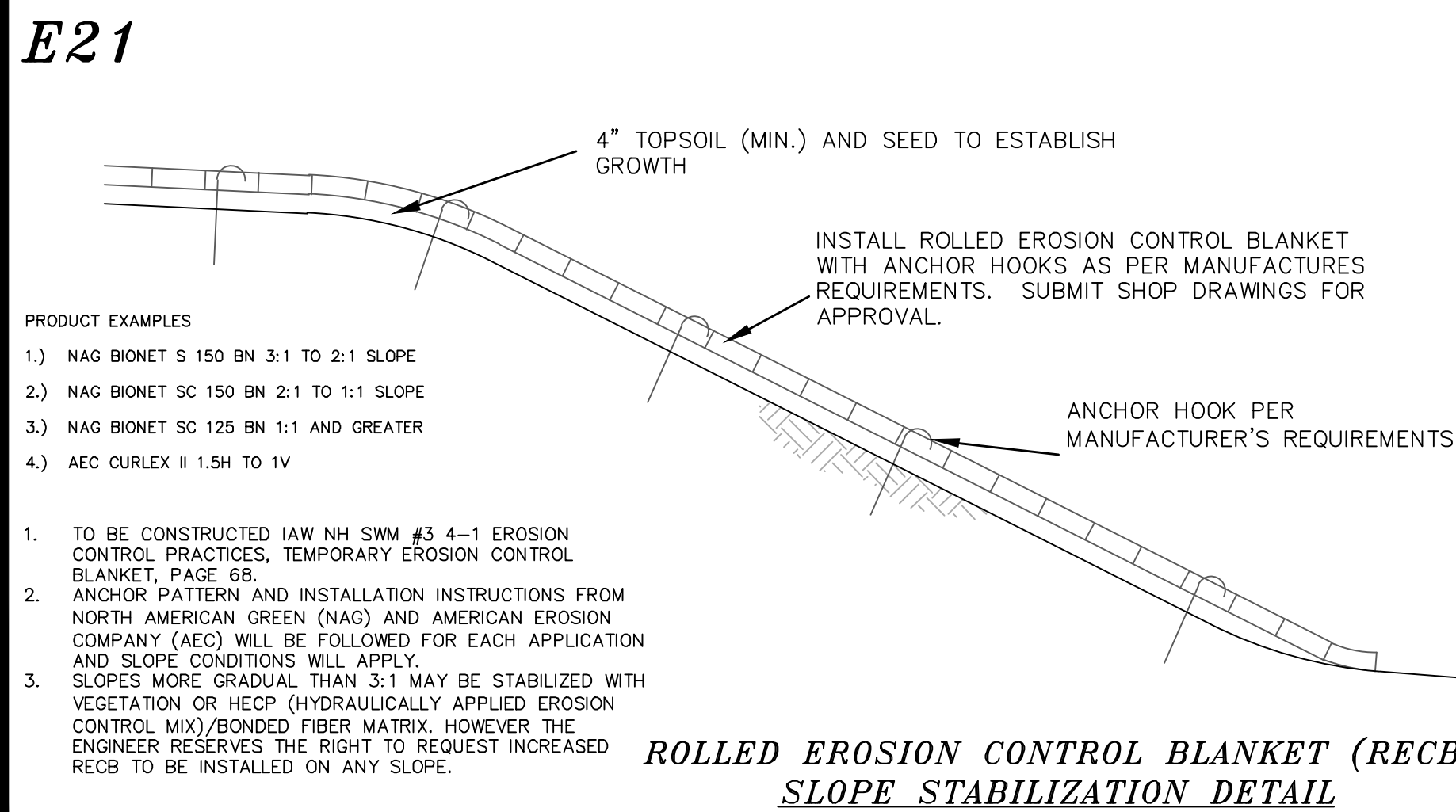
NOTE: Temporary seed mix for stabilization of turf shall be winter type or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AREAS	A	FAIR	GOOD	GOOD	FAIR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	B	POOR	GOOD	GOOD	FAIR
LIGHTLY USED PARKING LOTS, GOLF COURSES, UNIMPAVED LANDS, AND LOW INTENSITY USE RECREATION SITES	C	FAIR	GOOD	GOOD	FAIR
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL IS ESSENTIAL FOR GOOD TURF)	D	GOOD	GOOD	GOOD	FAIR
GRAVEL PIT, SEE NH-PW-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.	E	GOOD	GOOD	GOOD	FAIR
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7-36	F	FAIR	GOOD	GOOD	FAIR
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.	G	FAIR	GOOD	GOOD	FAIR

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.)
4. MULCH
 - A. MULCH 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 SEEDING AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
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.
7. SEE RAIN GARDEN AND INFILTRATION DETAIL SHEETS FOR SPECIFIC PLANTING INSTRUCTIONS AND SEEDING.

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 CUREX II 1.5H TO 1V

1. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 60.
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.
3. SLOPES MORE GRADUAL THAN 3:1 MAY BE STABILIZED WITH VEGETATION OR HECF (HYDRAULICALLY APPLIED EROSION CONTROL MIX)/BONDED FIBER MATRIX. HOWEVER THE ENGINEER RESERVES THE RIGHT TO REQUEST INCREASED RECB TO BE INSTALLED ON ANY SLOPE.

PIPE OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

- 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
% 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	

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. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.
- 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. SEE BEST MANAGEMENT PRACTICES FOR BLASTING ON SHEET C-102.
- 7.) START BUILDING CONSTRUCTION.
- 8.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. INSTALL RAIN GARDENS. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
- 9.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 45 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. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.
- 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 MANAGER (CESSW), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT. EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSPECTED WEEKLY AND AFTER 0.5" OF RAINFALL.
- 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.
- 16.) LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

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 SEED 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.

E22

WINTER STABILIZATION NOTES

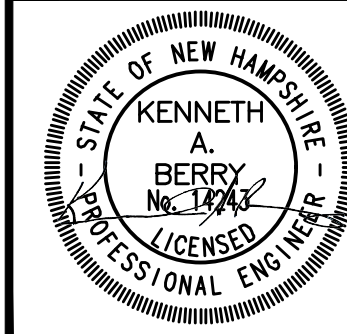
1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CUREX 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 SEED 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.
5. ENV-WQ 1505.06 COLD WEATHER SITE STABILIZATION (B)(1) LIMITS ARE OF EXPOSURE TO ONE ACRE OF UNSTABILIZED SOIL WITHOUT OBTAINING A WAIVER AND WINTER CONSTRUCTION PLAN.

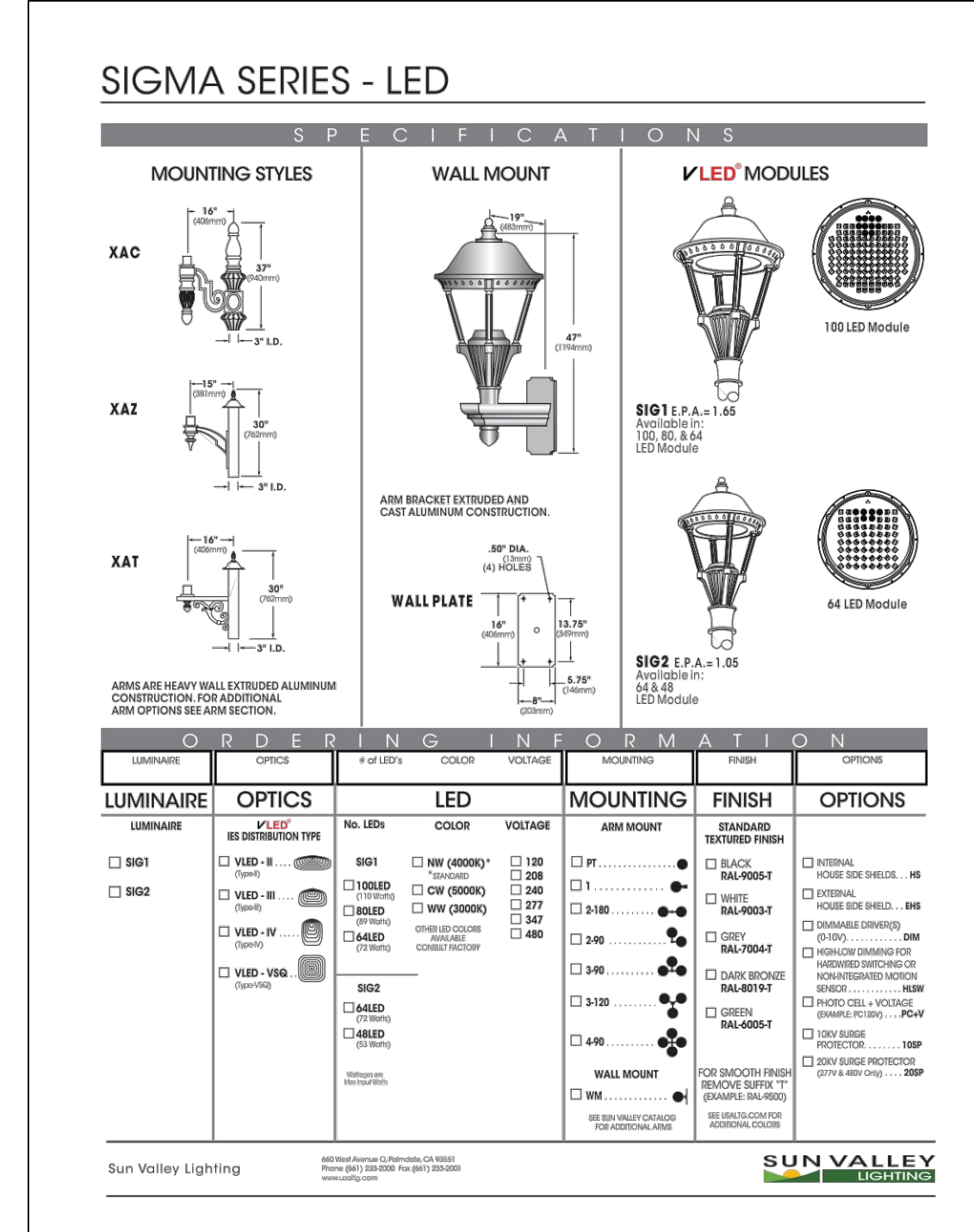
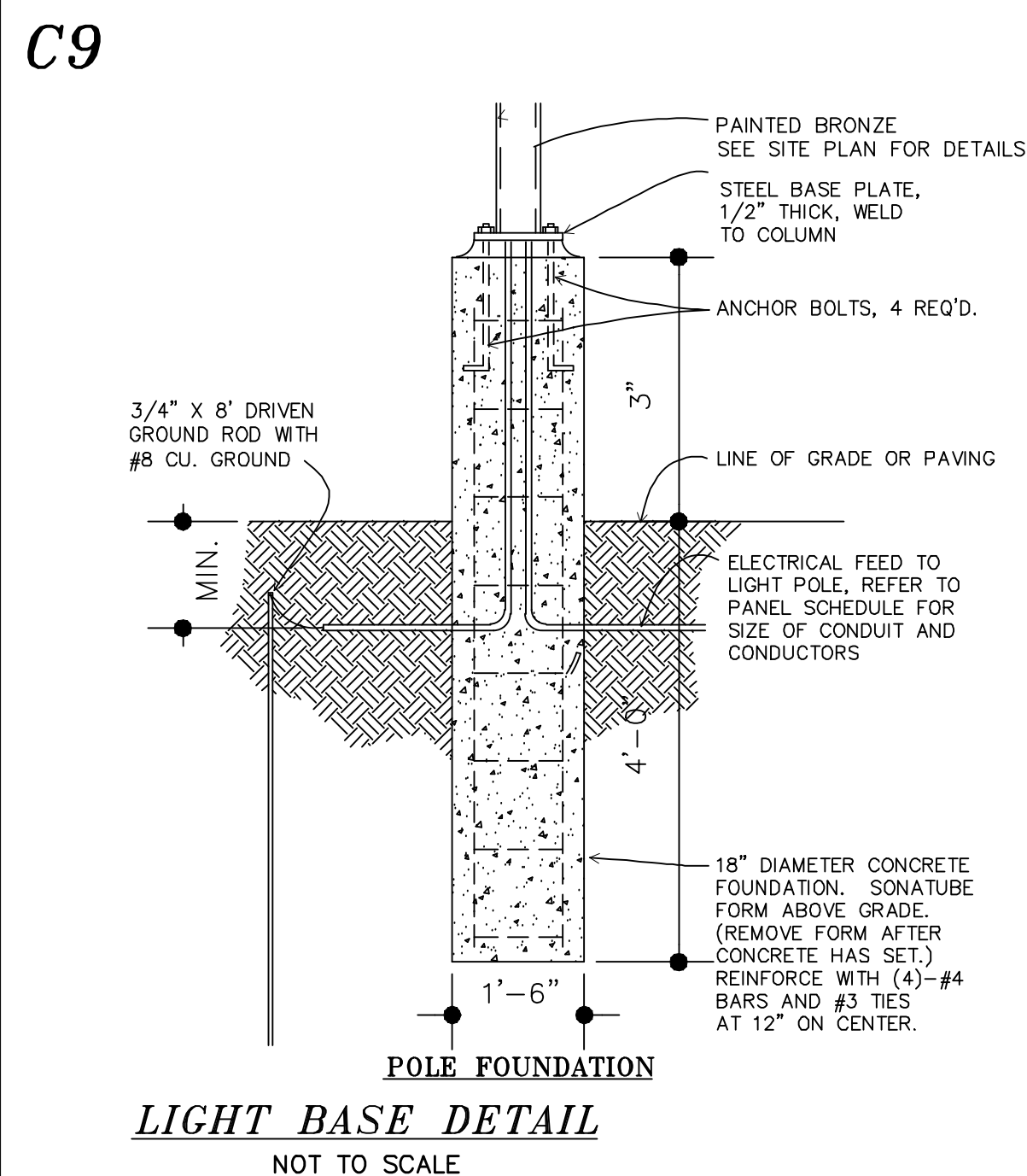
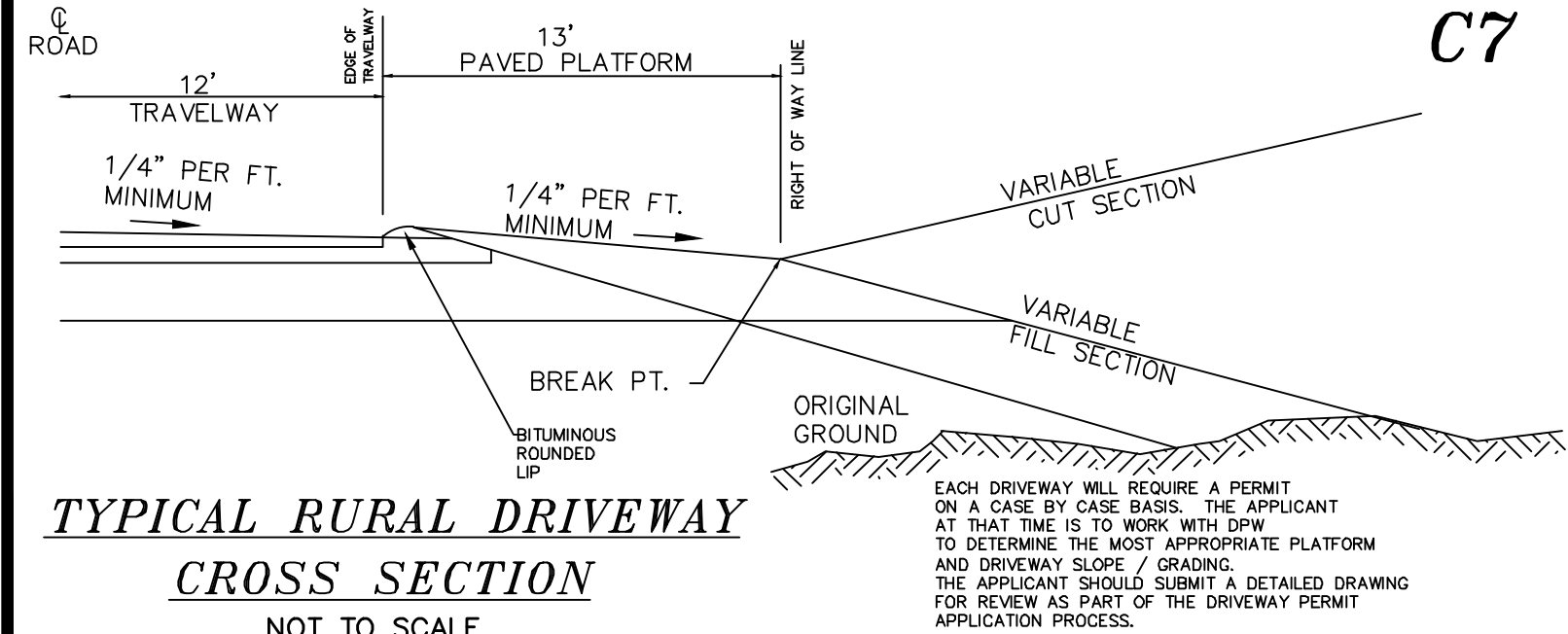
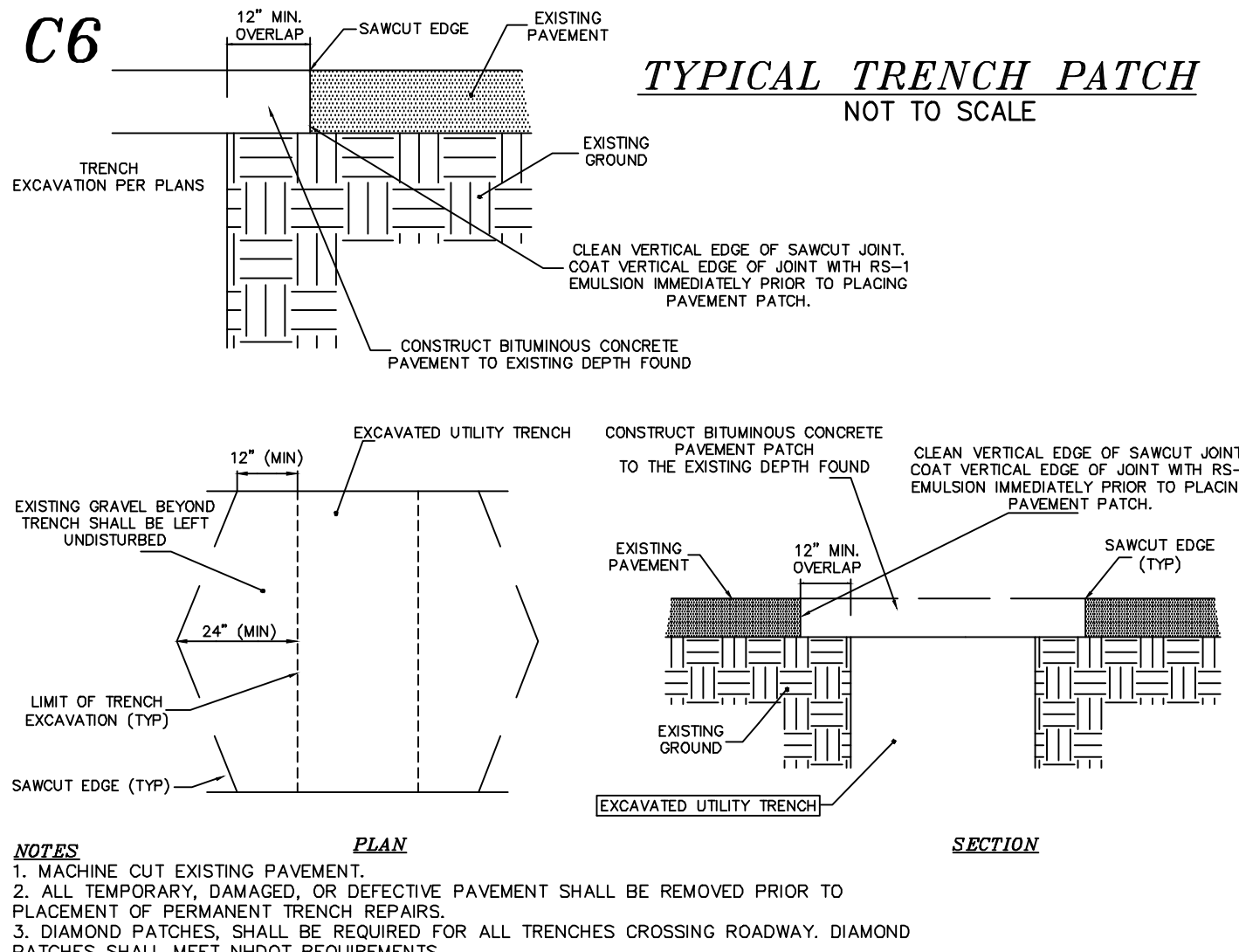
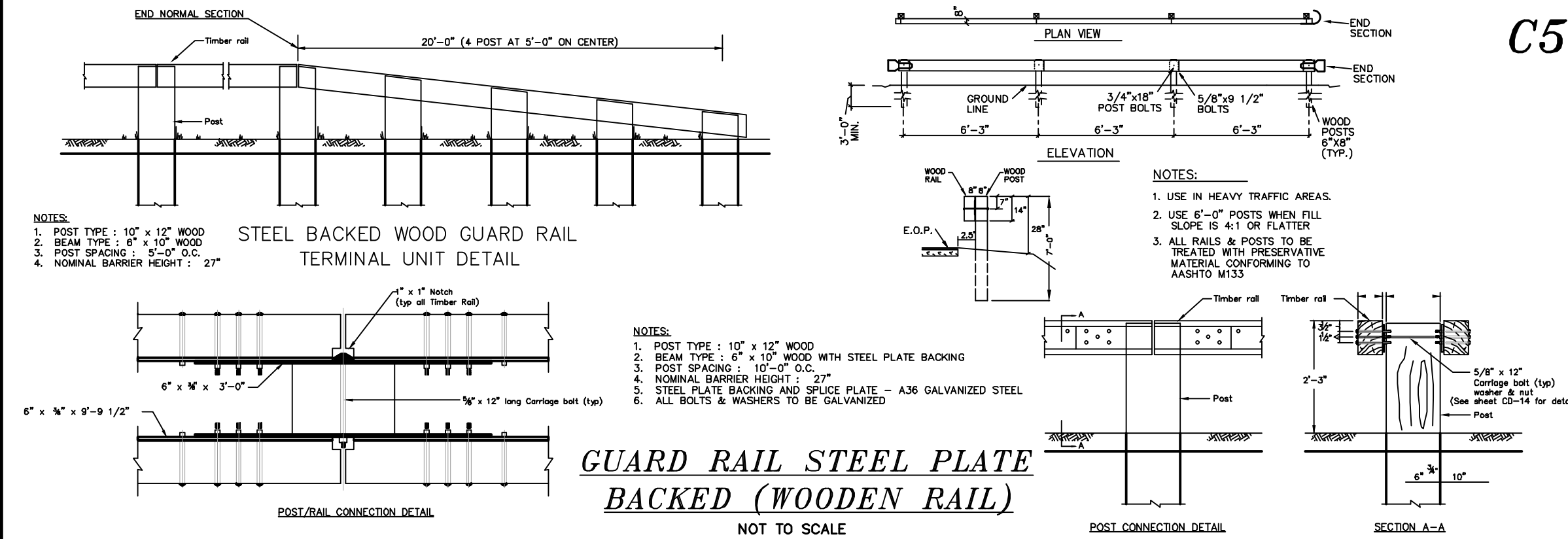
E-102

REVISED PER AOT AND TRC COMMENTS	DATE	REVISION	DESCRIPTION
	9-23-21	#1	

EROSION & SEDIMENT CONTROL DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603)332-2863	AS NOTED	DATE : JUNE 10, 2021	FILE NO. : DB 2021-011
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#1	9-23-21	REVISED PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5



BERRY SURVEYING & ENGINEERING

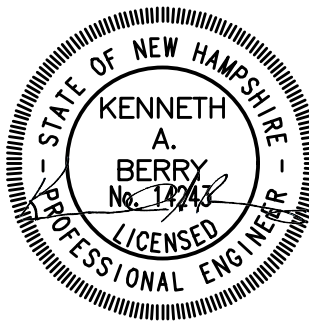
 335 SECOND CROWN POINT ROAD

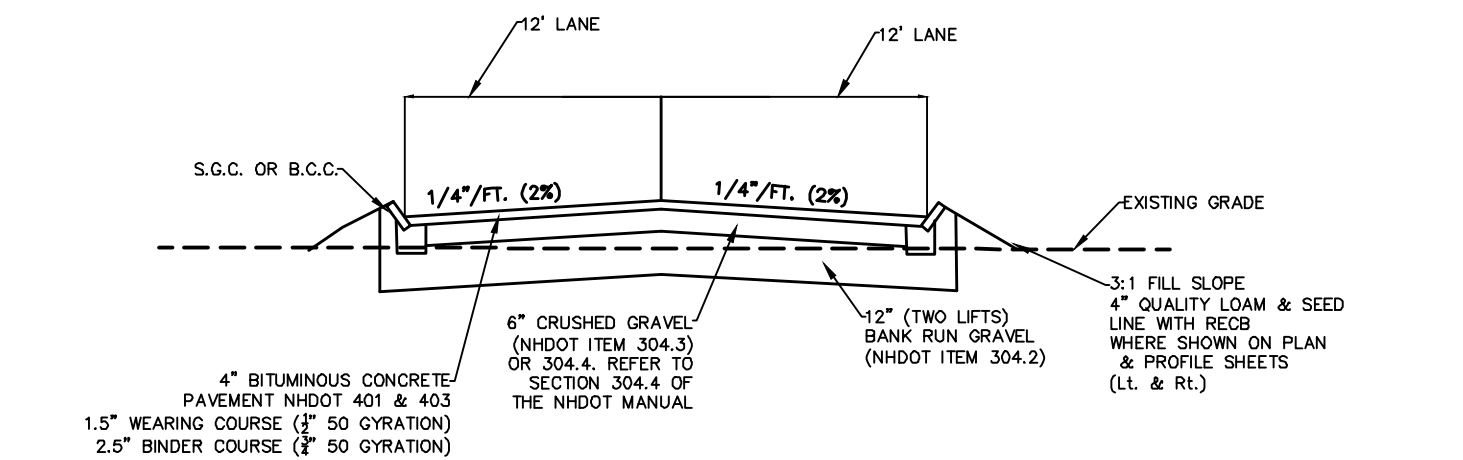
 BARRINGTON, NH 03825 (603)332-2863

 SCALE : AS SHOWN

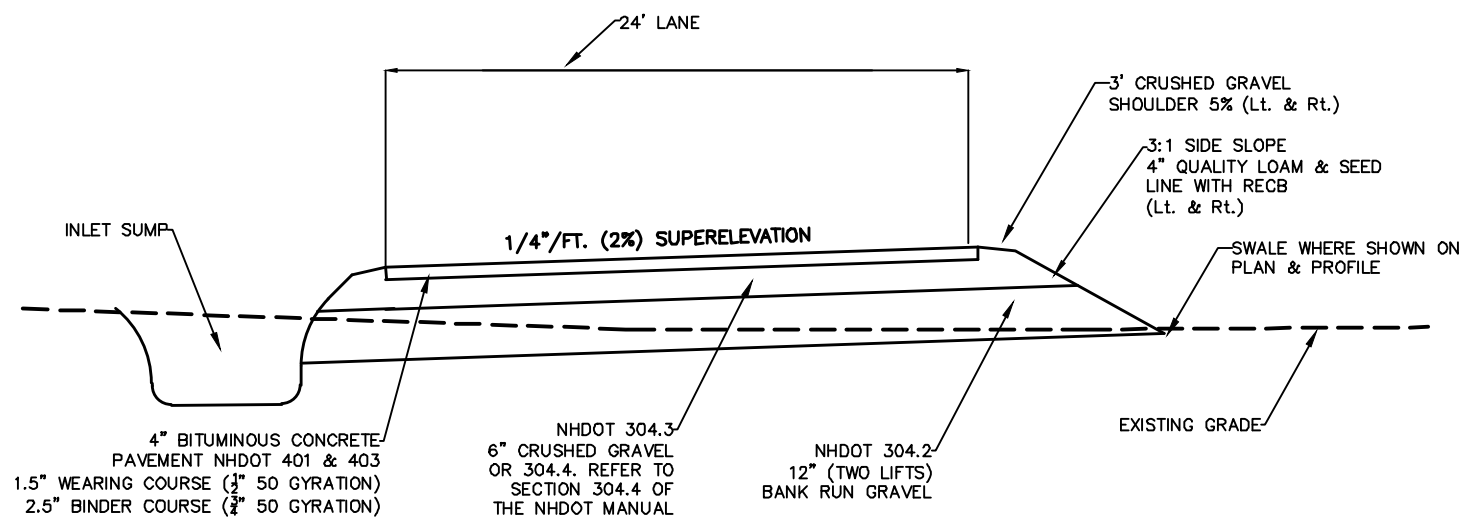
 DATE : JUNE 10, 2021

 FILE NO. : DB 2021-011

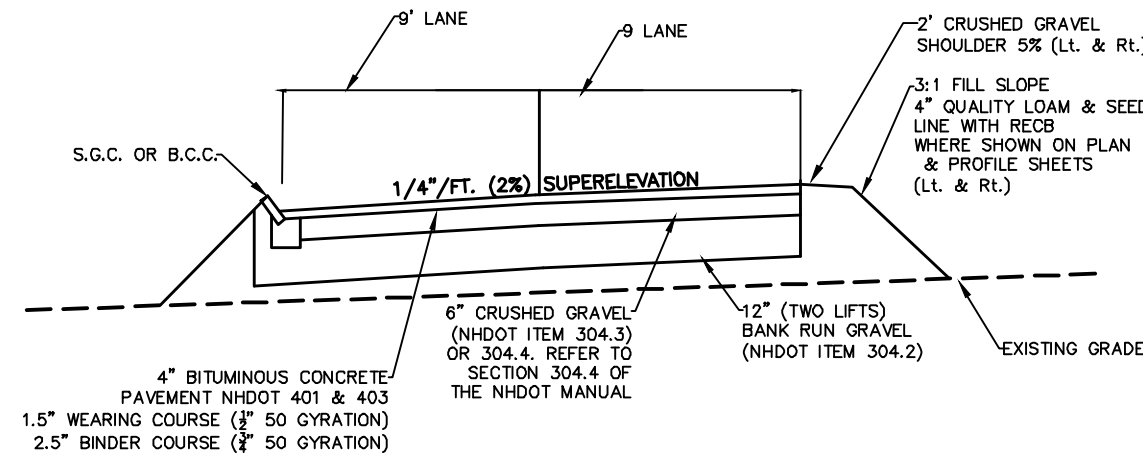




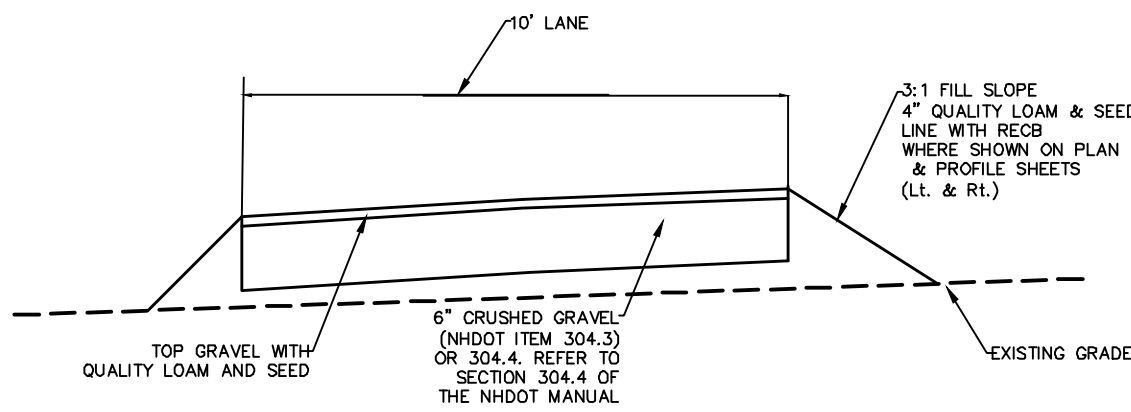
TYPICAL ROADWAY SECTION WILDCAT DRIVE
0+00-7+83
NOT TO SCALE



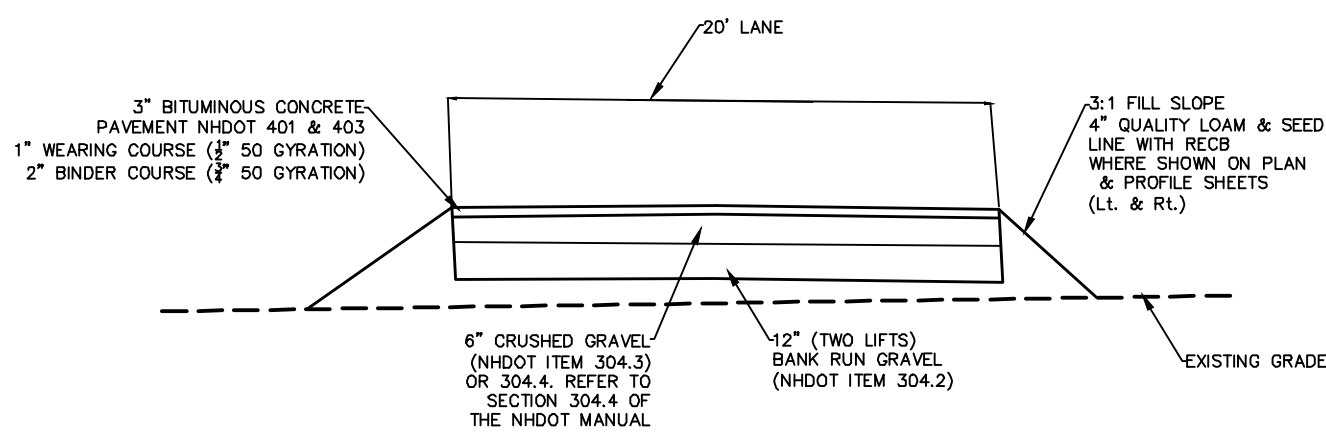
TYPICAL ROADWAY SECTION WILDCAT DRIVE
7+83-10+95
NOT TO SCALE



TYPICAL ROADWAY SECTION SHARED DRIVEWAY
0+00-3+25
NOT TO SCALE



TYPICAL ACCESS ROAD SECTION
NOT TO SCALE



LOT 1 DRIVEWAY SECTION
NOT TO SCALE

CROSS SECTION NOTES

1. ALL ROADWAY FILL TO BRING ROAD TO SUBGRADE SHALL BE INSTALLED IN LIFTS NO GREATER THAN 12".
2. ALL FILL SHALL BE COMPACTED UNTIL 95% MAXIMUM DRY DENSITY IS ACHIEVED IN ACCORDANCE WITH AASHTO 199. COMPACTION TESTS TO BE CONDUCTED AT THE START OF THE PROJECT AND NO FURTHER THAN 100 FEET APART.
3. TEST PITTING WAS DONE WITHIN THE ROADWAY ALIGNMENT BY JOHN P. HAYES III, CSS, CWS, AND NO UNSUITABLE MATERIALS WERE ENCOUNTERED IN THOSE TEST PITS. LEDGE REMOVAL (HAMMERING OR SHALLOW DEPTH BLASTING WILL BE REQUIRED) MATERIALS CAN BE CRUSHED AND USED ON SITE.
4. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE ROAD BED. THE ROAD BED IS DEFINED AS THE LIMITS OF THE ROADWAY INCLUDING THE ARE ONE (1) FOOT BEYOND THE SHOULDERS, DITCHES, OR TOE OF FILL SLOPE.

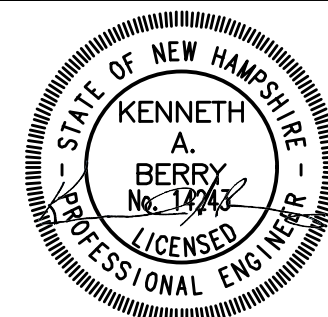
COMPACTED SUBGRADE - CONTRACTOR SHALL SCARIFY SUBGRADE TO A DEPTH OF 30 INCHES BELOW F-GRADE. ALL STONES GREATER THAN 6" IN DIAMETER SHALL BE REMOVED FROM THE SCARIFIED LAYER. ANY IMPORTED FILL SHALL BE FREE OF ORGANICS AND FROST AND SHALL HAVE NO ROCKS LARGER THAN 6" IN DIAMETER. FILL MATERIAL SHALL BE APPROVED BY THE CITIES AGENT AND/OR THE CITIES ENGINEER.

REVISION		DATE	DESCRIPTION
#1	9-23-21		REVISED PER AOT AND TRC COMMENTS

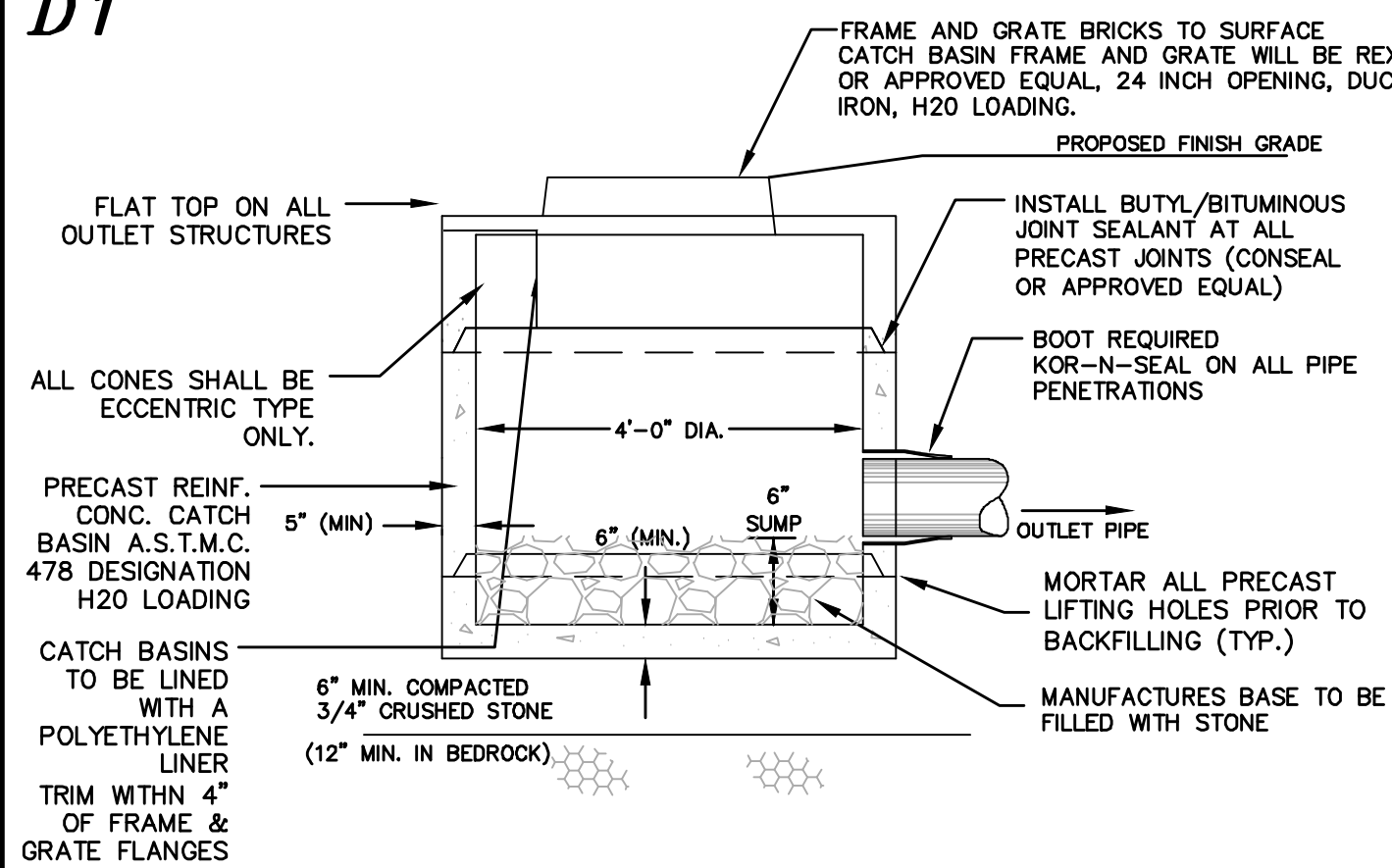
CONSTRUCTION DETAILS LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5
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BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : AS SHOWN
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

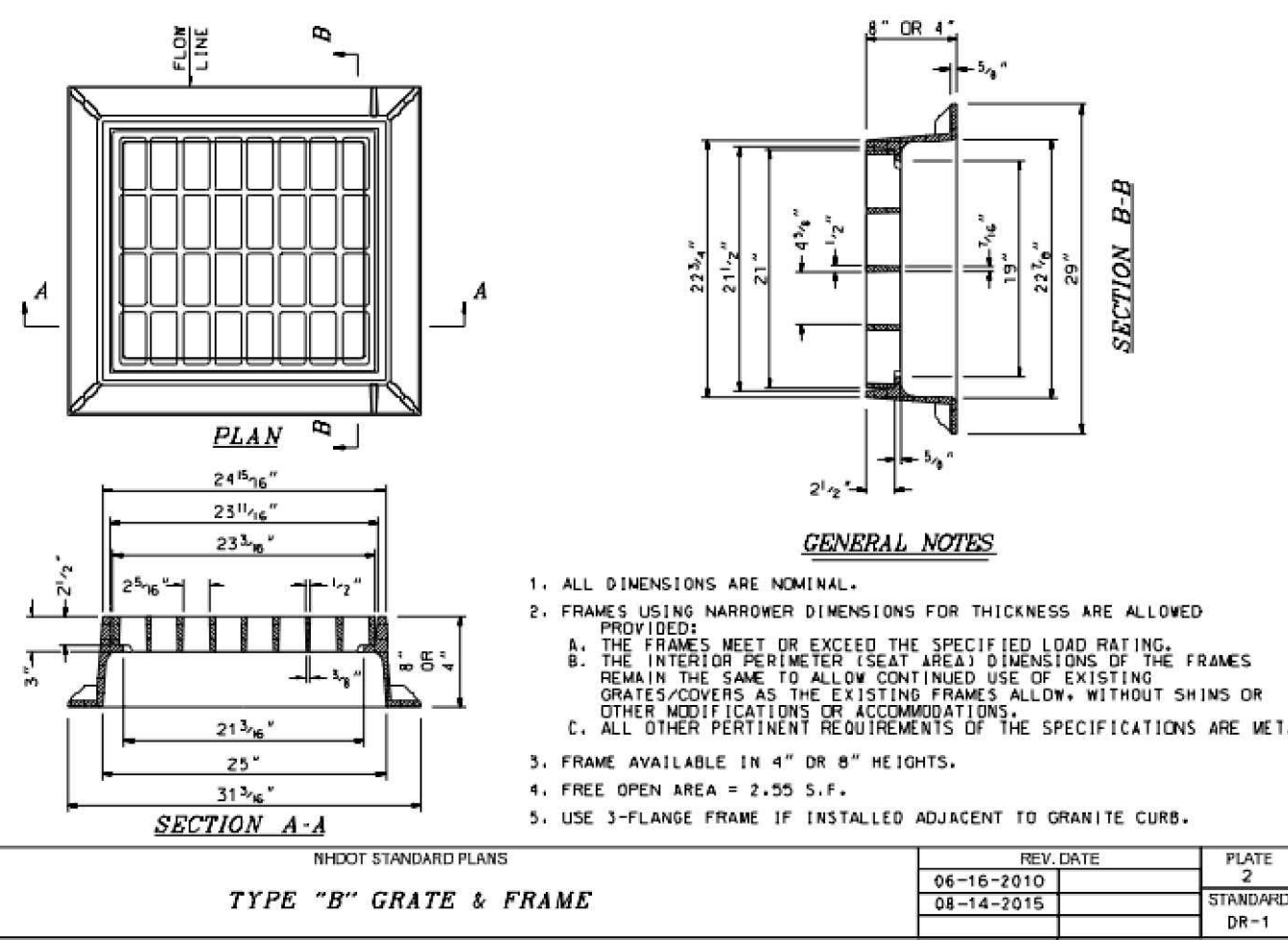


D1



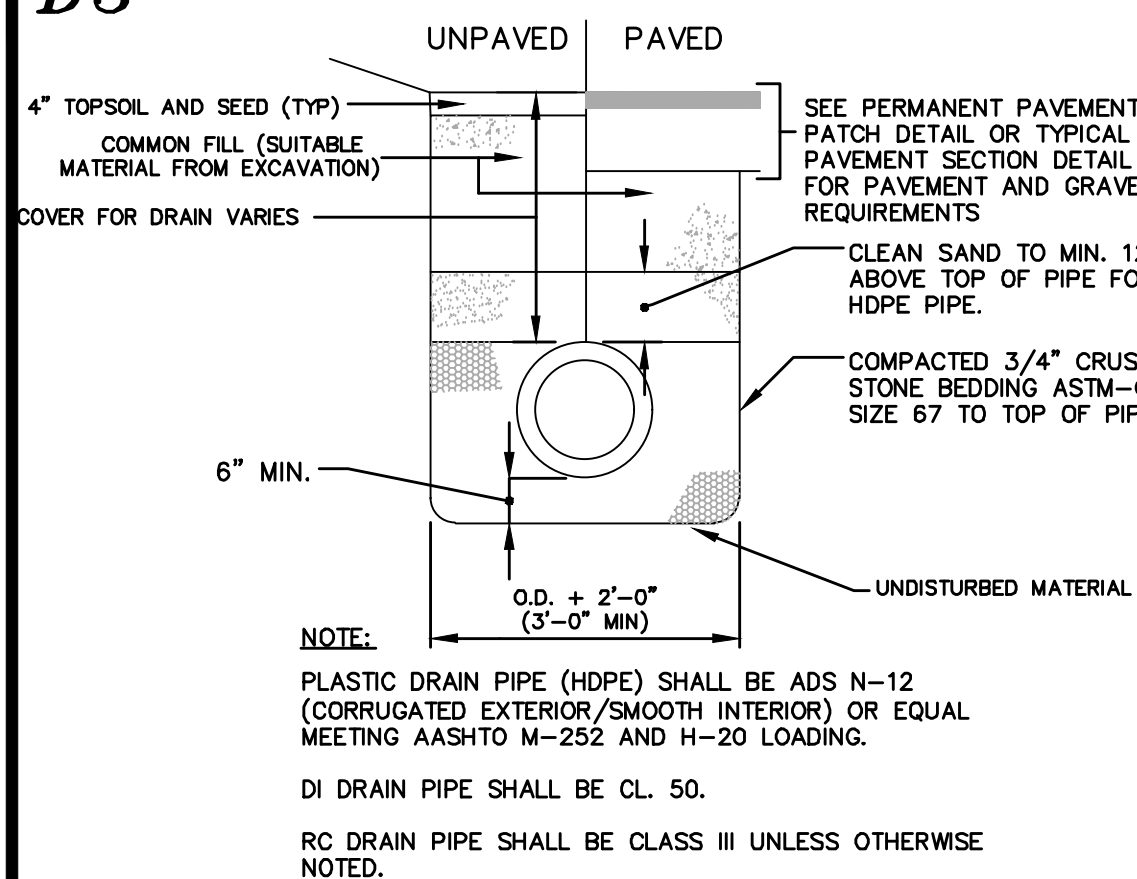
CATCH BASIN DETAIL
NOT TO SCALE

D2



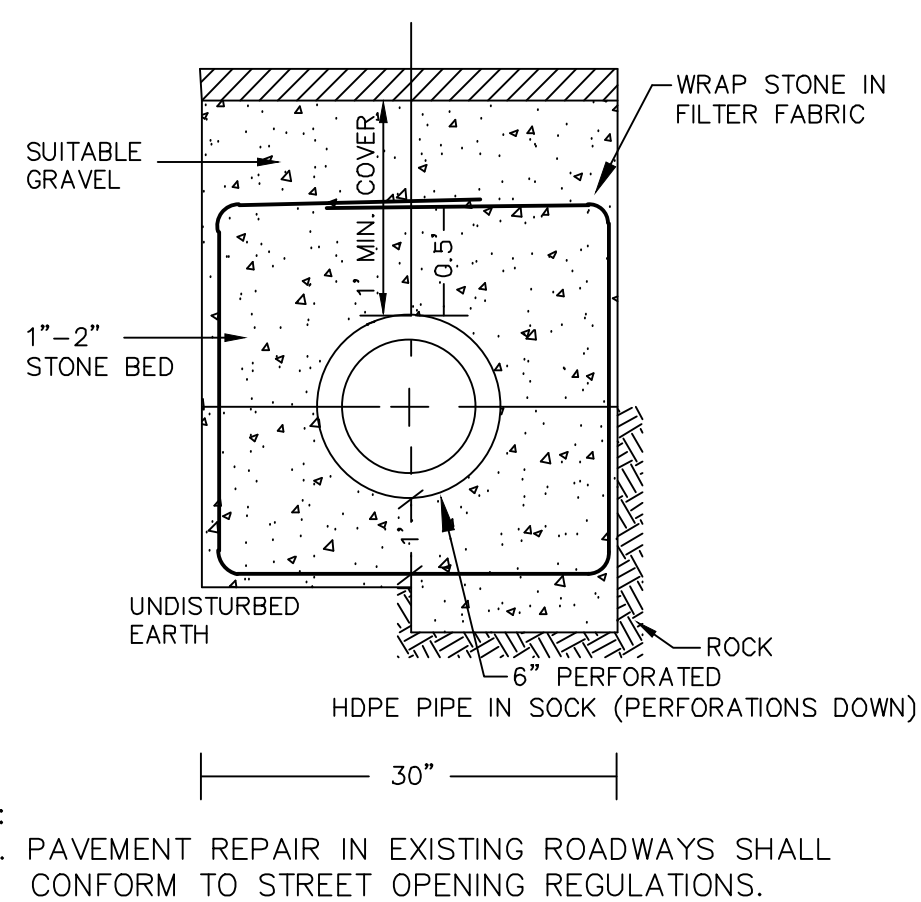
CATCH BASIN GRATE
NOT TO SCALE

D3



TYPICAL DRAIN PIPE TRENCH
NOT TO SCALE

D4



UNDERDRAIN TRENCH DETAIL
NOT TO SCALE

D5

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 recedes. 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.

D6

CONE GRATE
NOT TO SCALE

NOTE:
MUST BE HAALA INDUSTRIES INC. OR EQUAL.

Cone Grates Top Mount



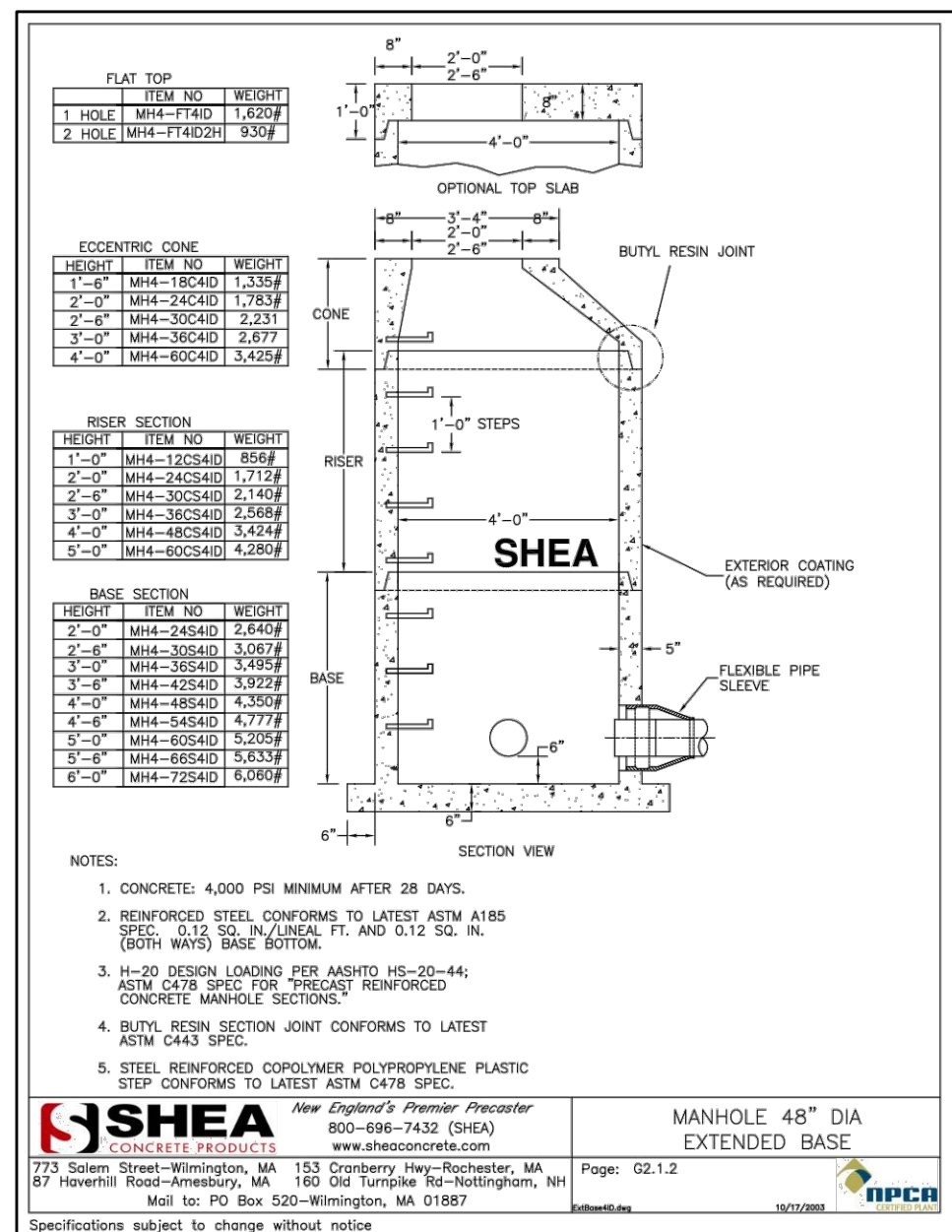
CG12TM
Part No. CG12TM
Save Trees

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.

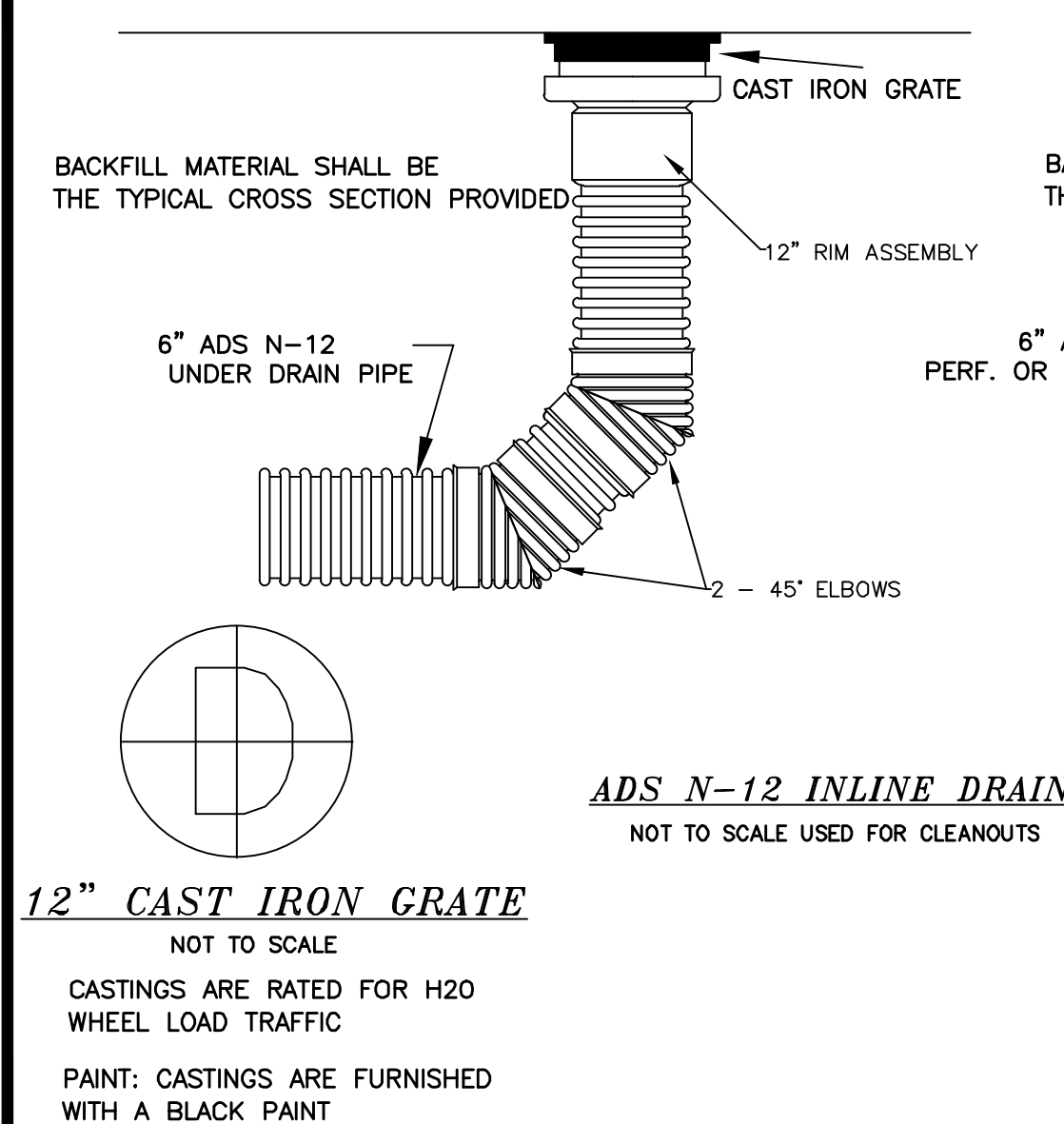
- Plate and bar hybrid design is both clean and cost effective
- Made from 1/2" plate with 3/4" or 1" round bars depending on grate size
- Anti vortex plate can be added upon request
- Hinged and lockable access doors can be added upon request
- Galvanized steel construction. Can be made from aluminum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

D7

48" MANHOLE ROUND EXTENDED BASE
NOT TO SCALE

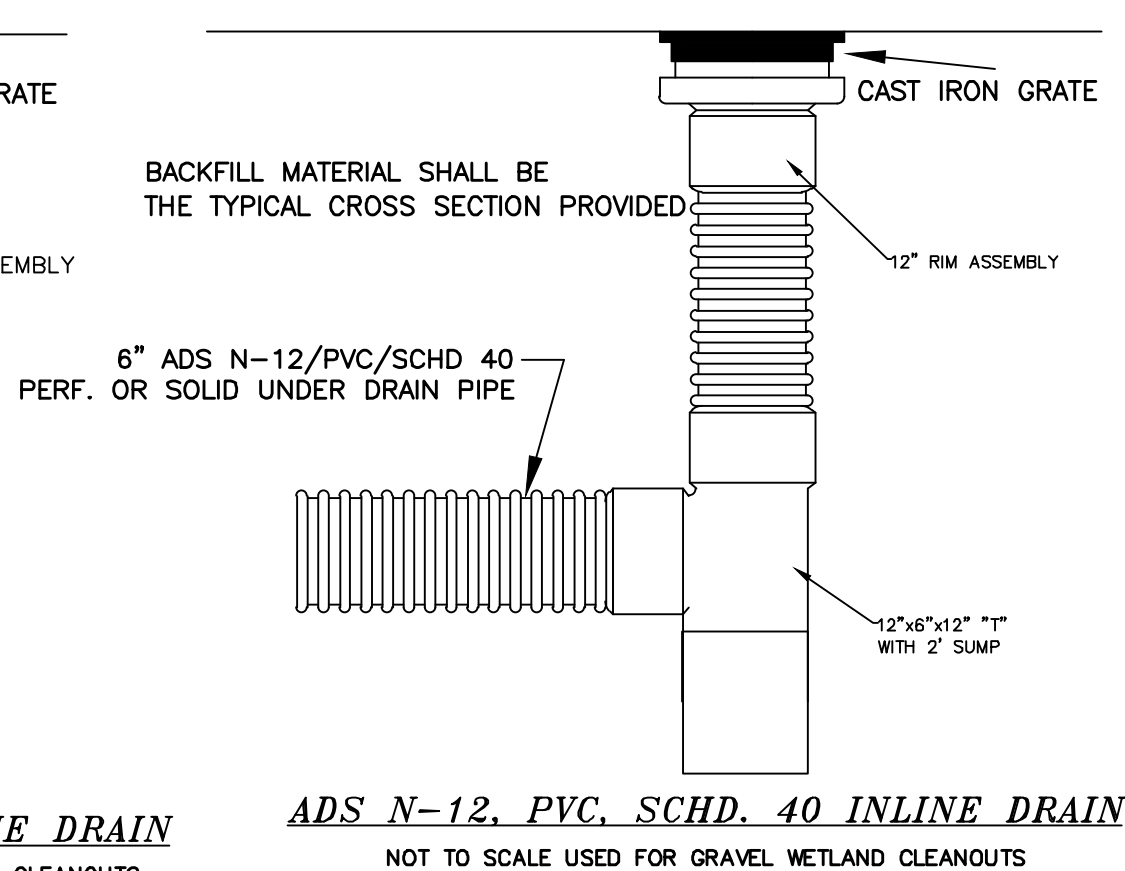


D8A



CASTINGS ARE RATED FOR H20 WHEEL LOAD TRAFFIC
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

D8B



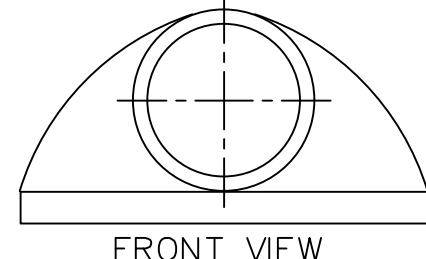
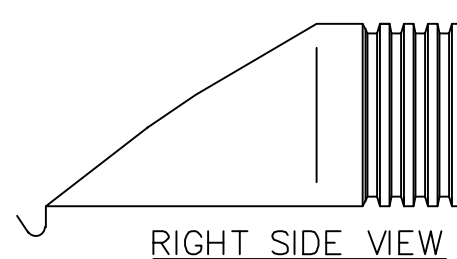
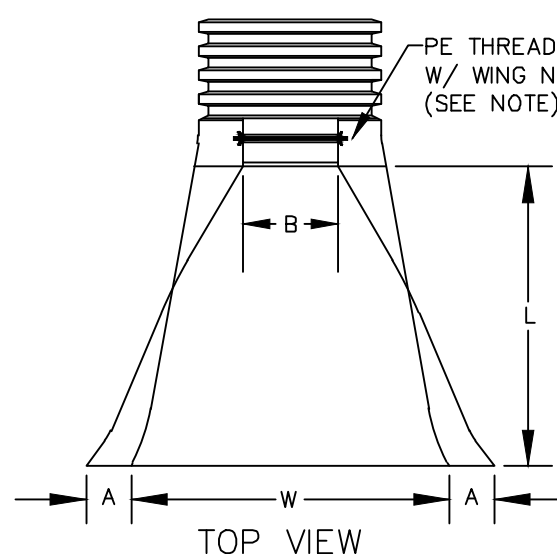
D9

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

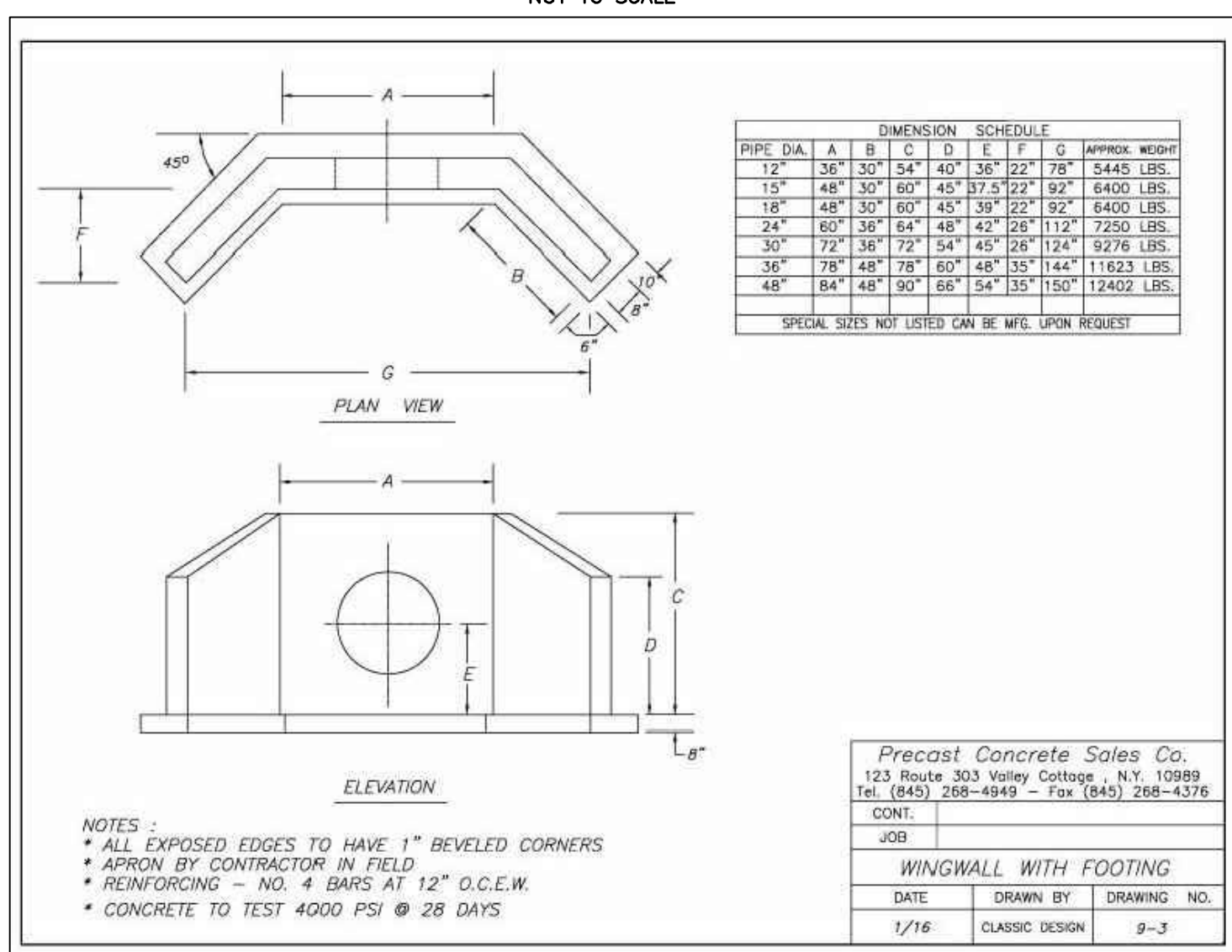
ADS N-12 FLARED END SECTIONS

NOT TO SCALE (ALL DIMENSIONS ARE NOMINAL)

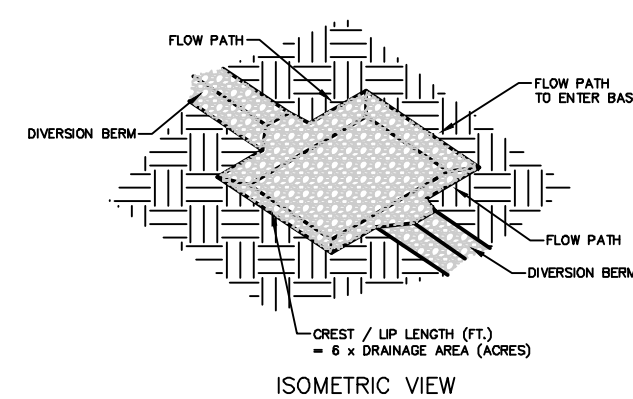


D10

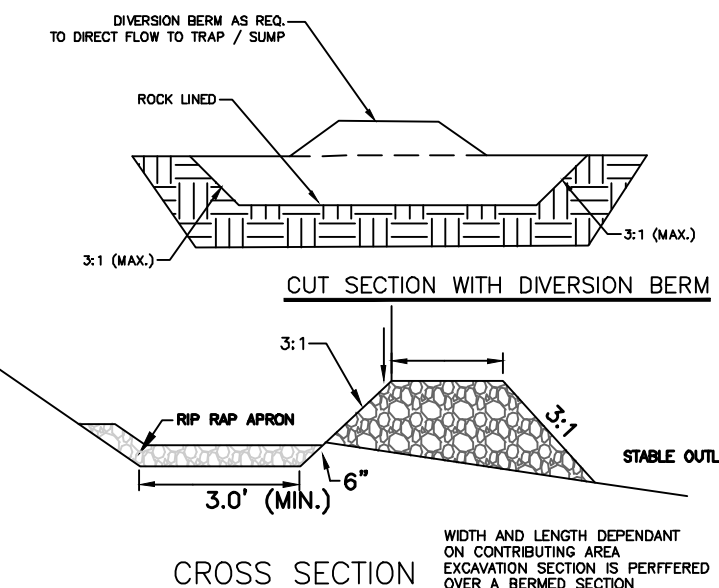
HEADWALL (CONCRETE)
NOT TO SCALE



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



STONE LINED SEDIMENT TRAP
NOT TO SCALE



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

REFERENCE IS MADE TO A LONG TERM MAINTENANCE MANUAL PREPARED BY BERRY SURVEYING & ENGINEERING, WHICH IS ON FILE AT THE CITY OF DOVER PLANNING DEPARTMENT, AND CAN BE FOUND AT THE OFFICE OF BERRY SURVEYING & ENGINEERING. (603) 332-2863

D-101

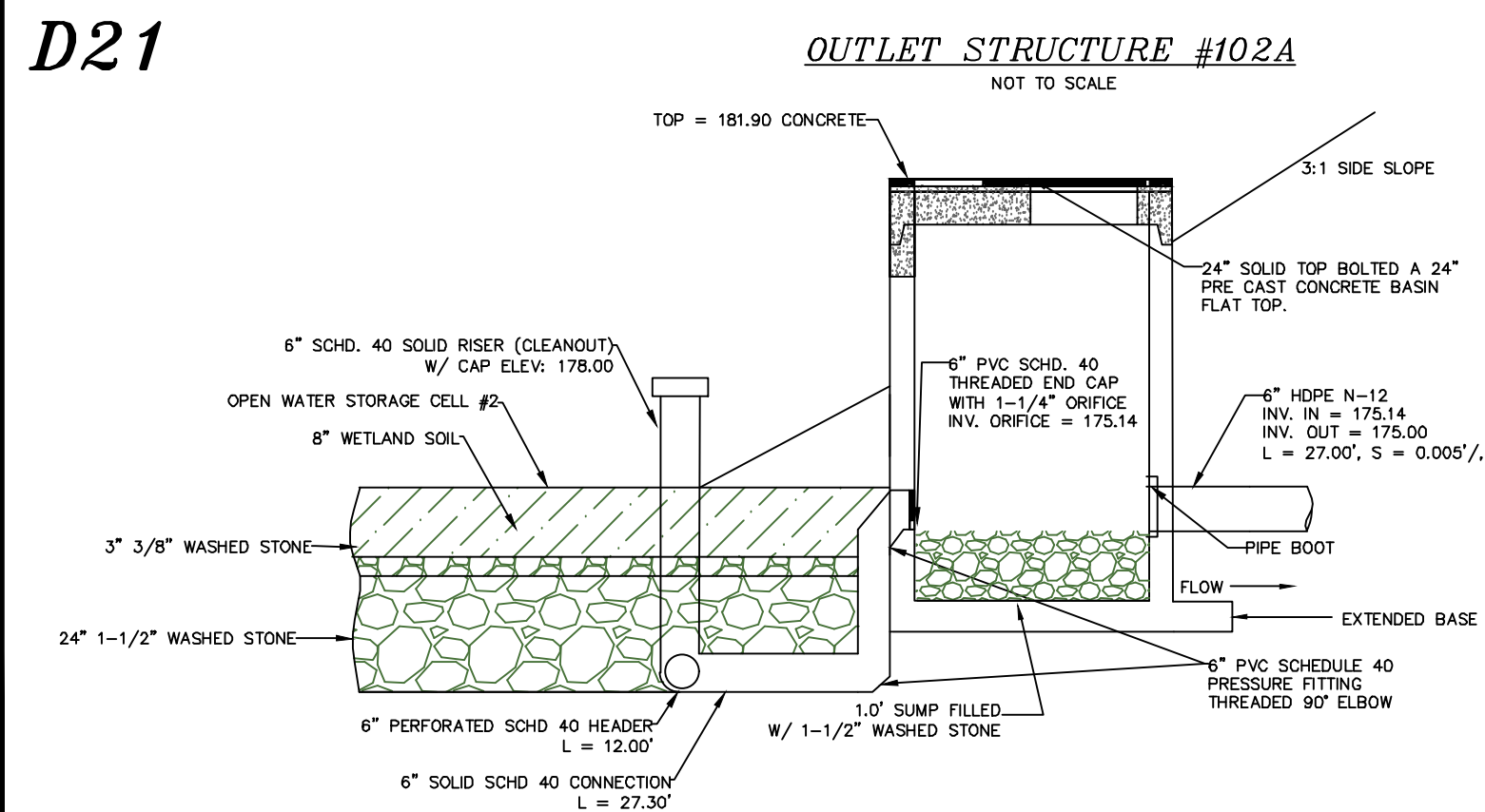
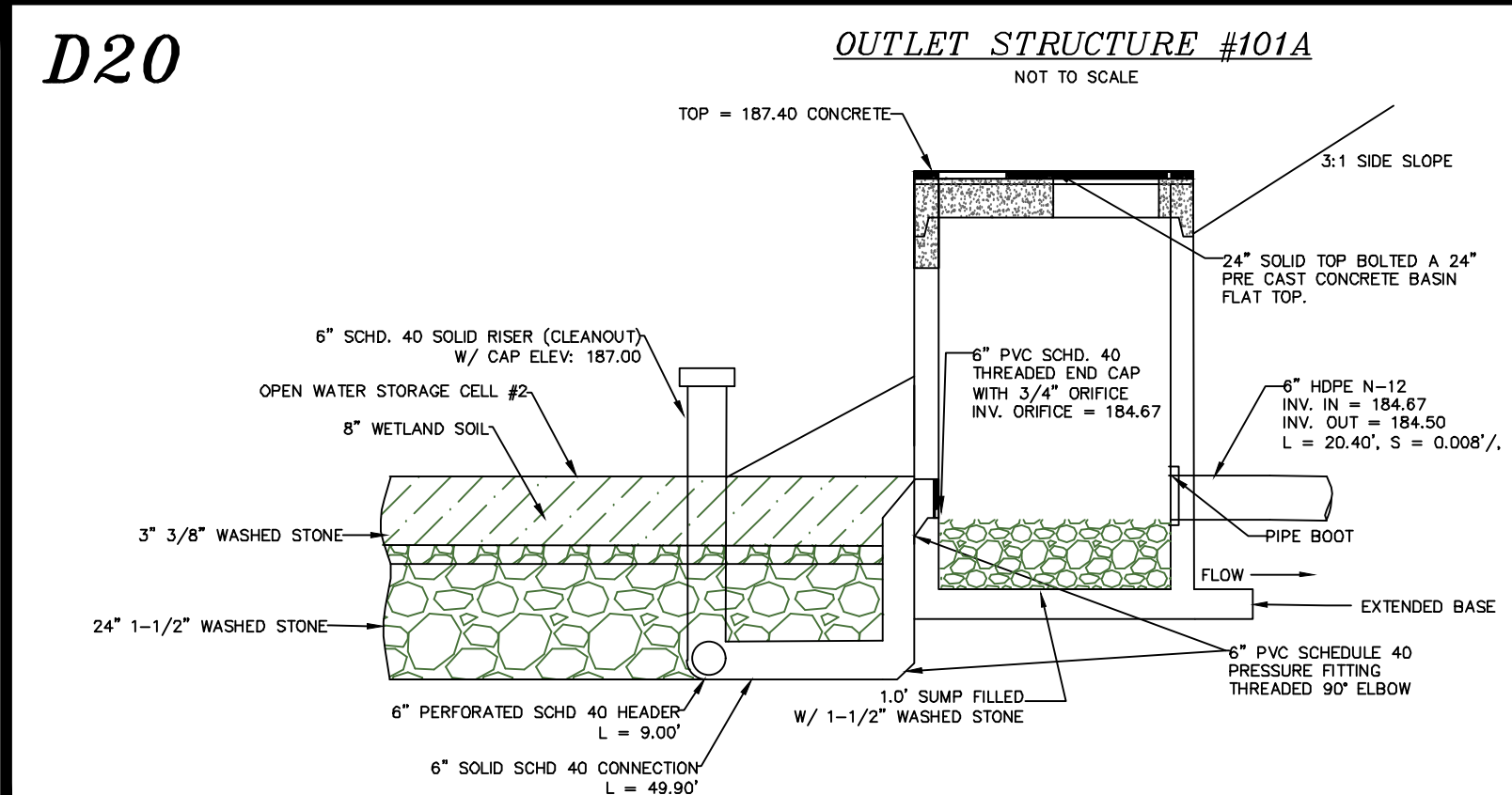
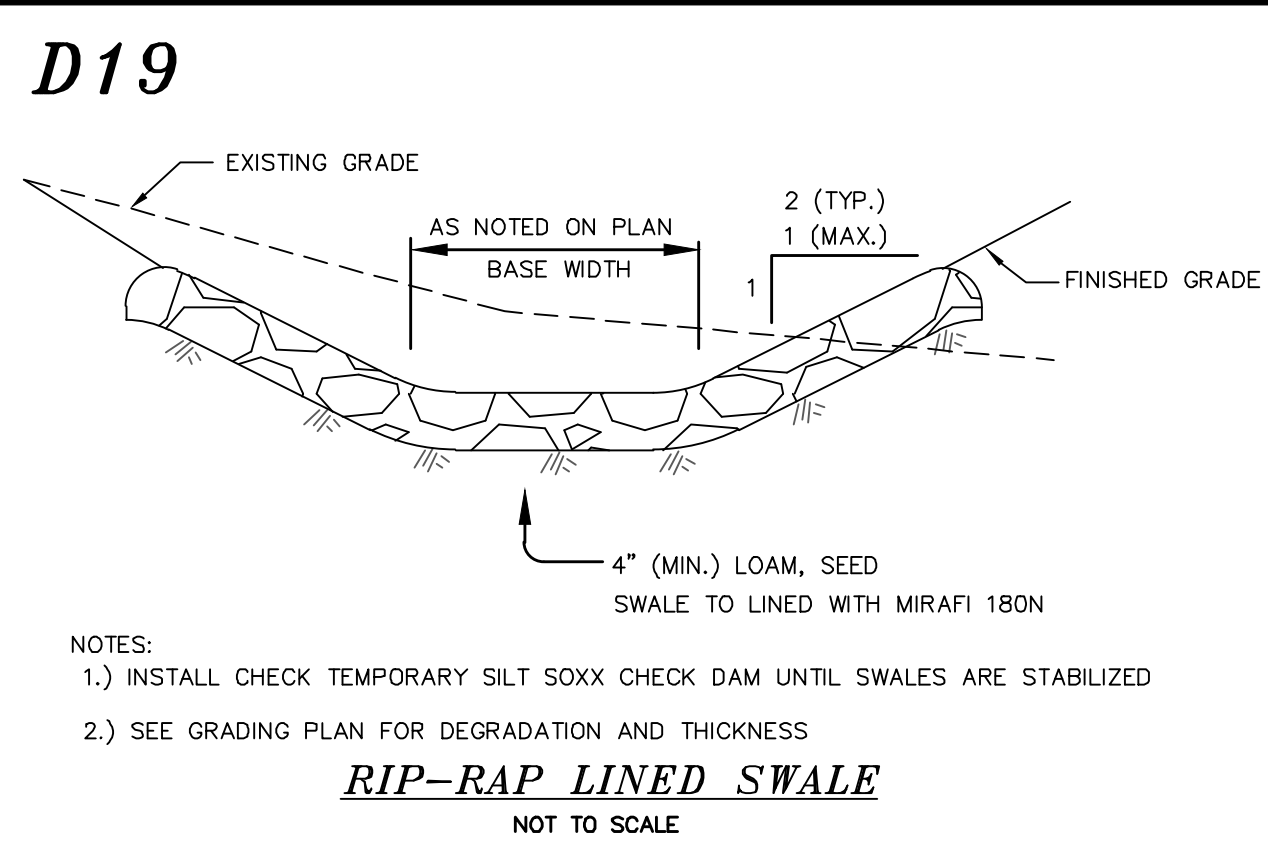
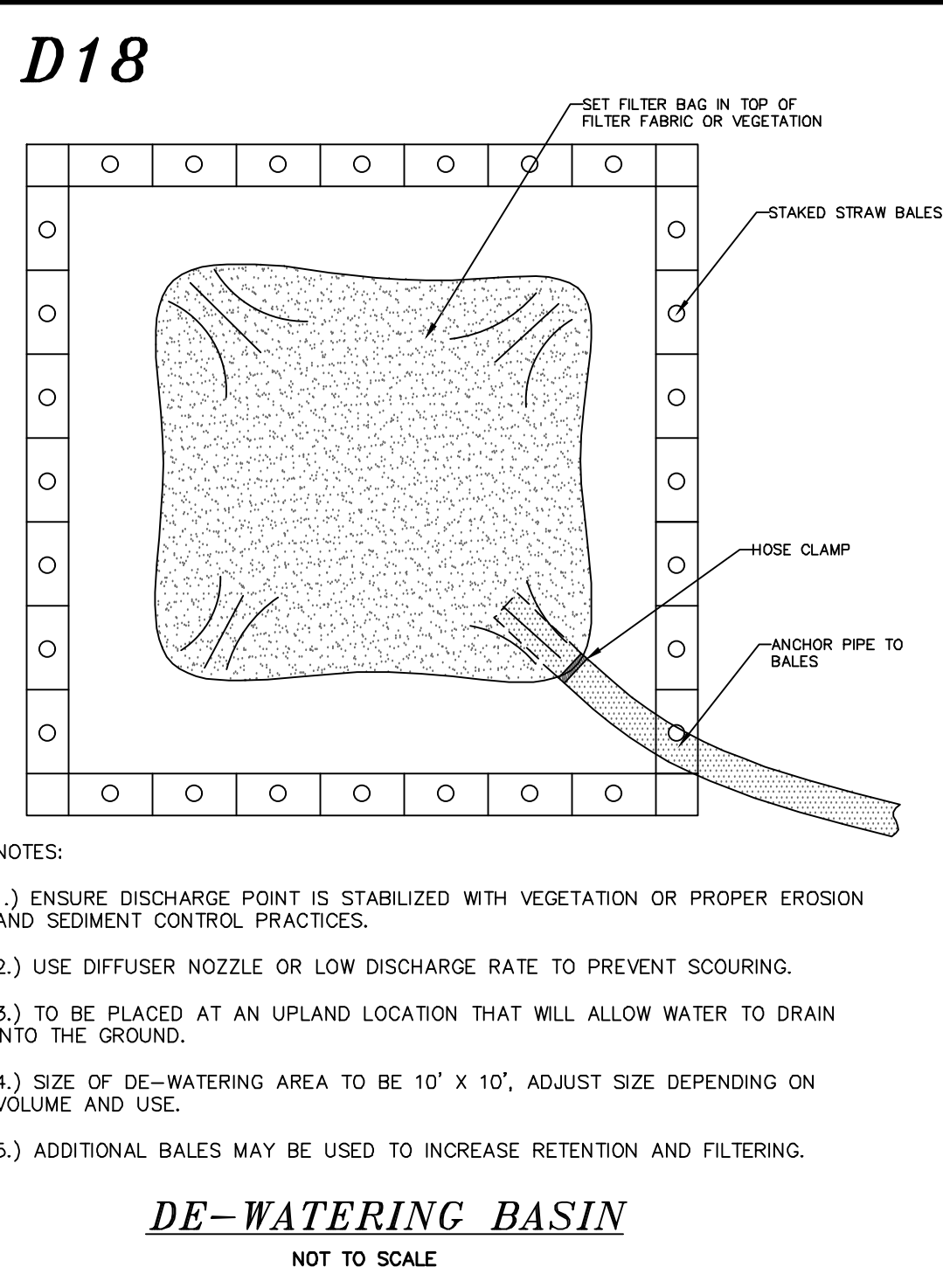
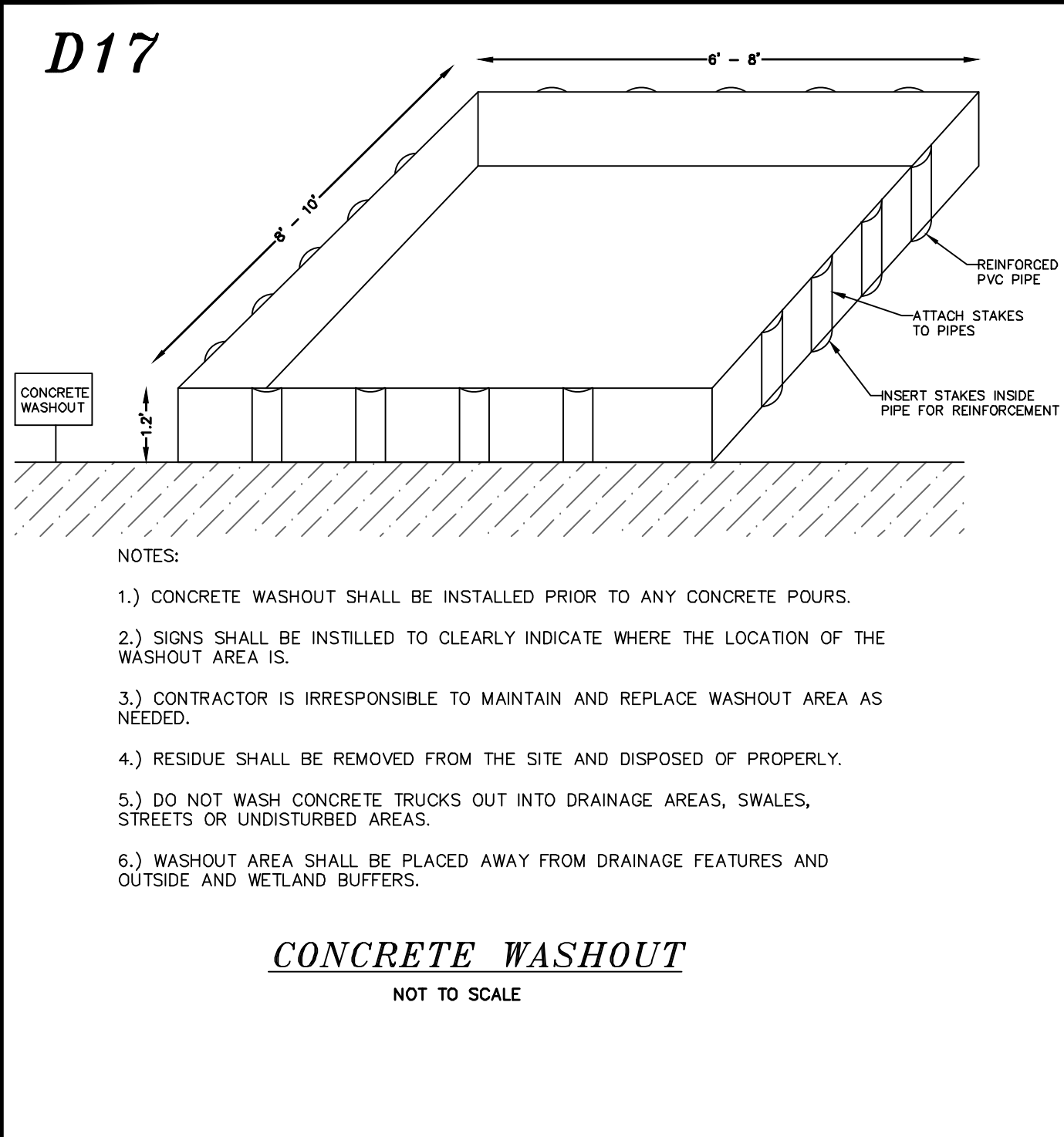
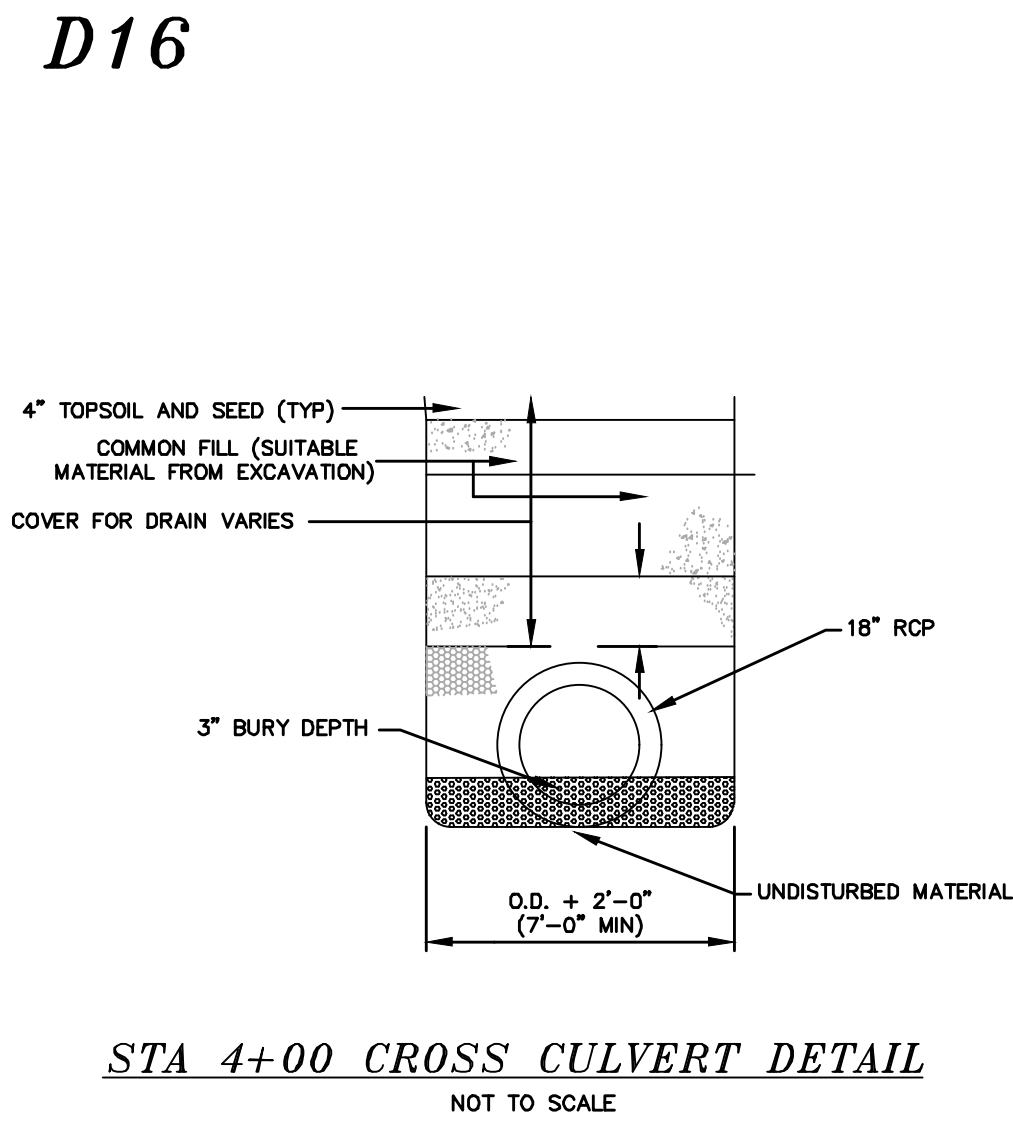
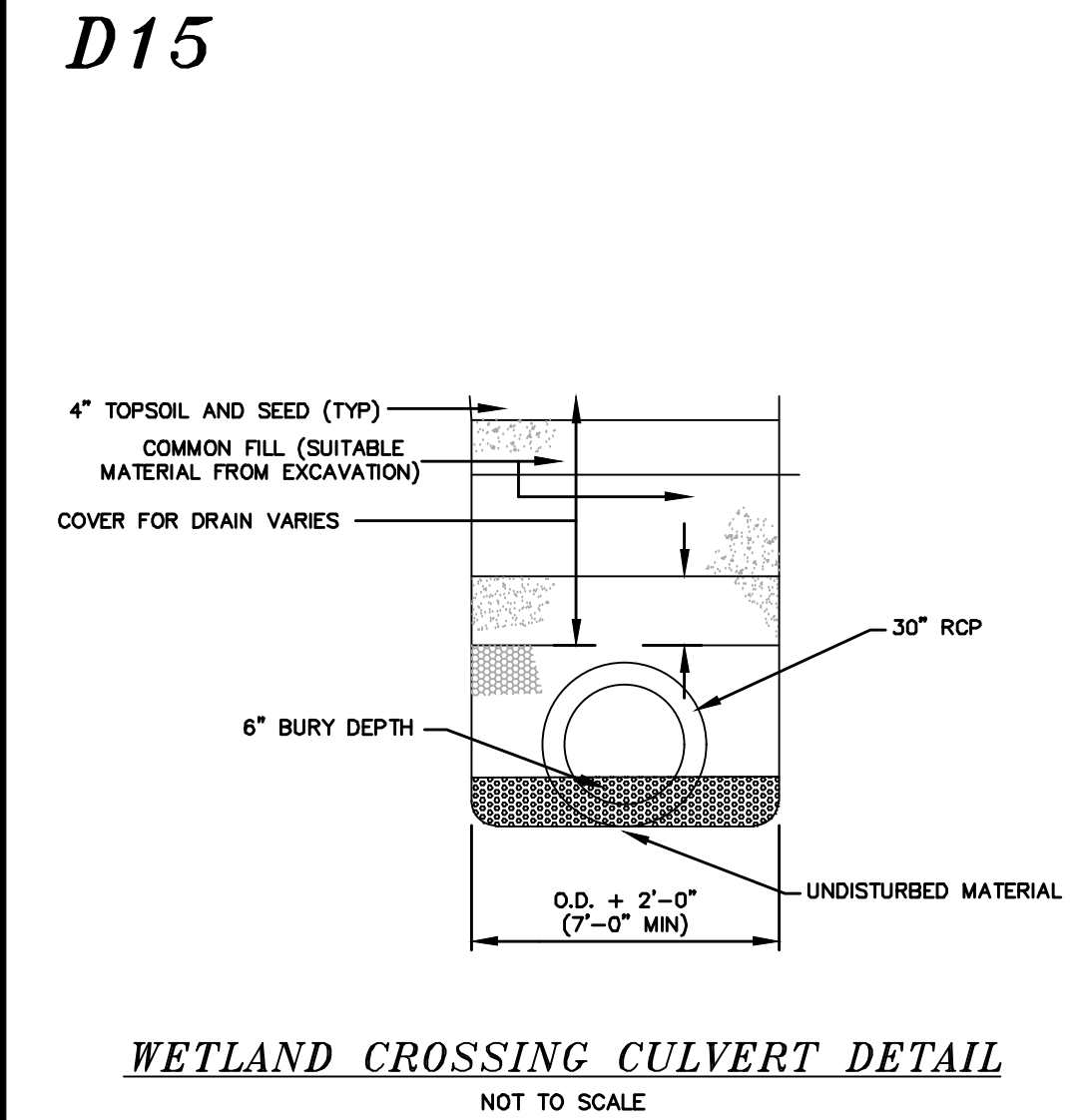
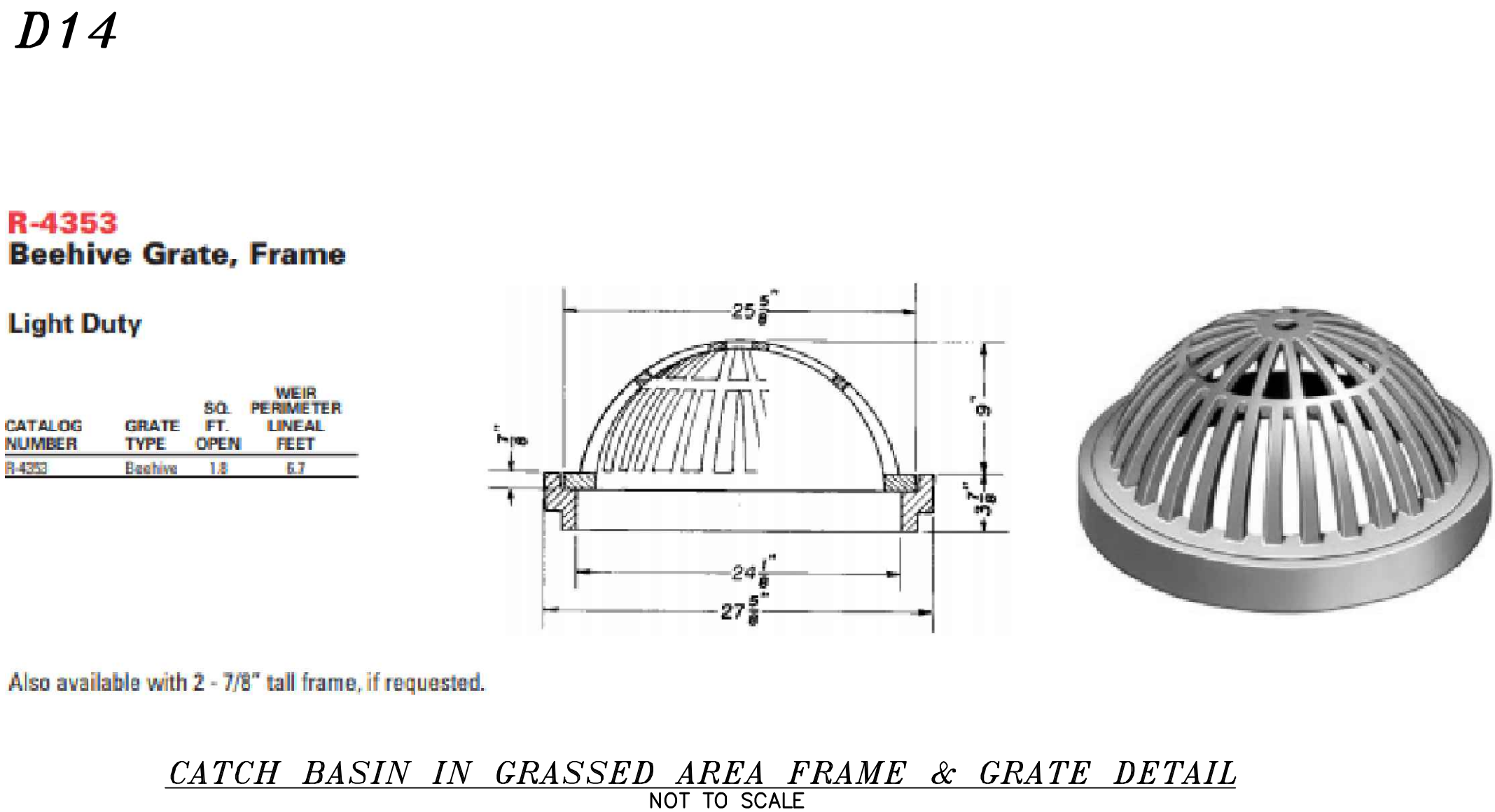
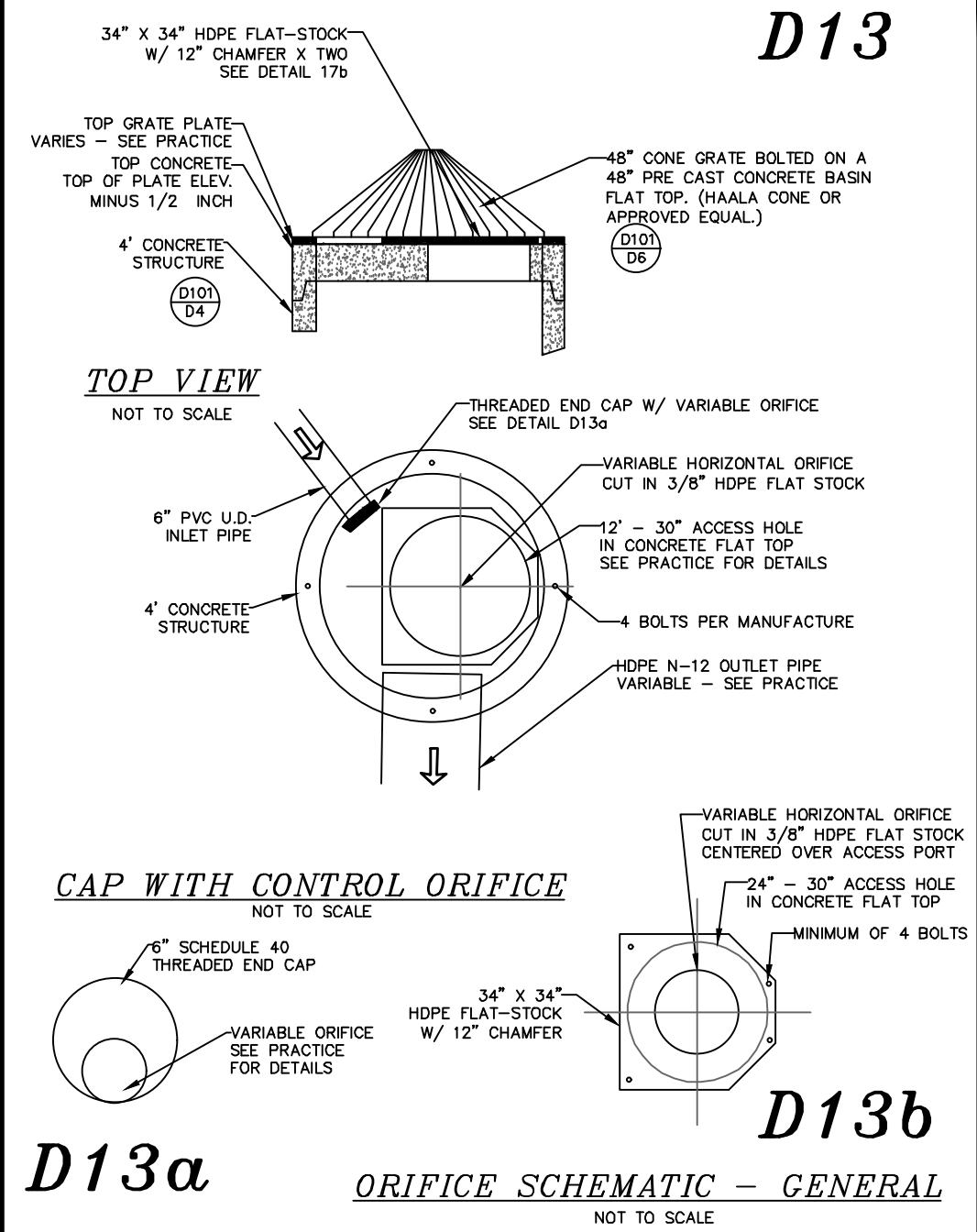
D11

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

AS NOTED
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
REGISTERED PROFESSIONAL ENGINEER
NO. 1944

SHEET 50 OF 56

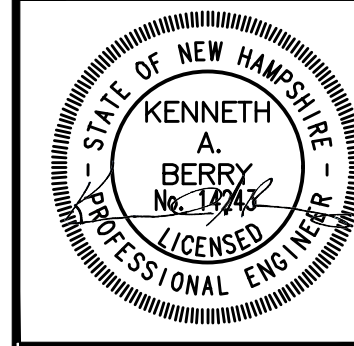


REVISION		DATE	DESCRIPTION
#1	9-23-21		REVISED PER AOT AND TRC COMMENTS

DRAINAGE CONSTRUCTION DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : AS NOTED
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011



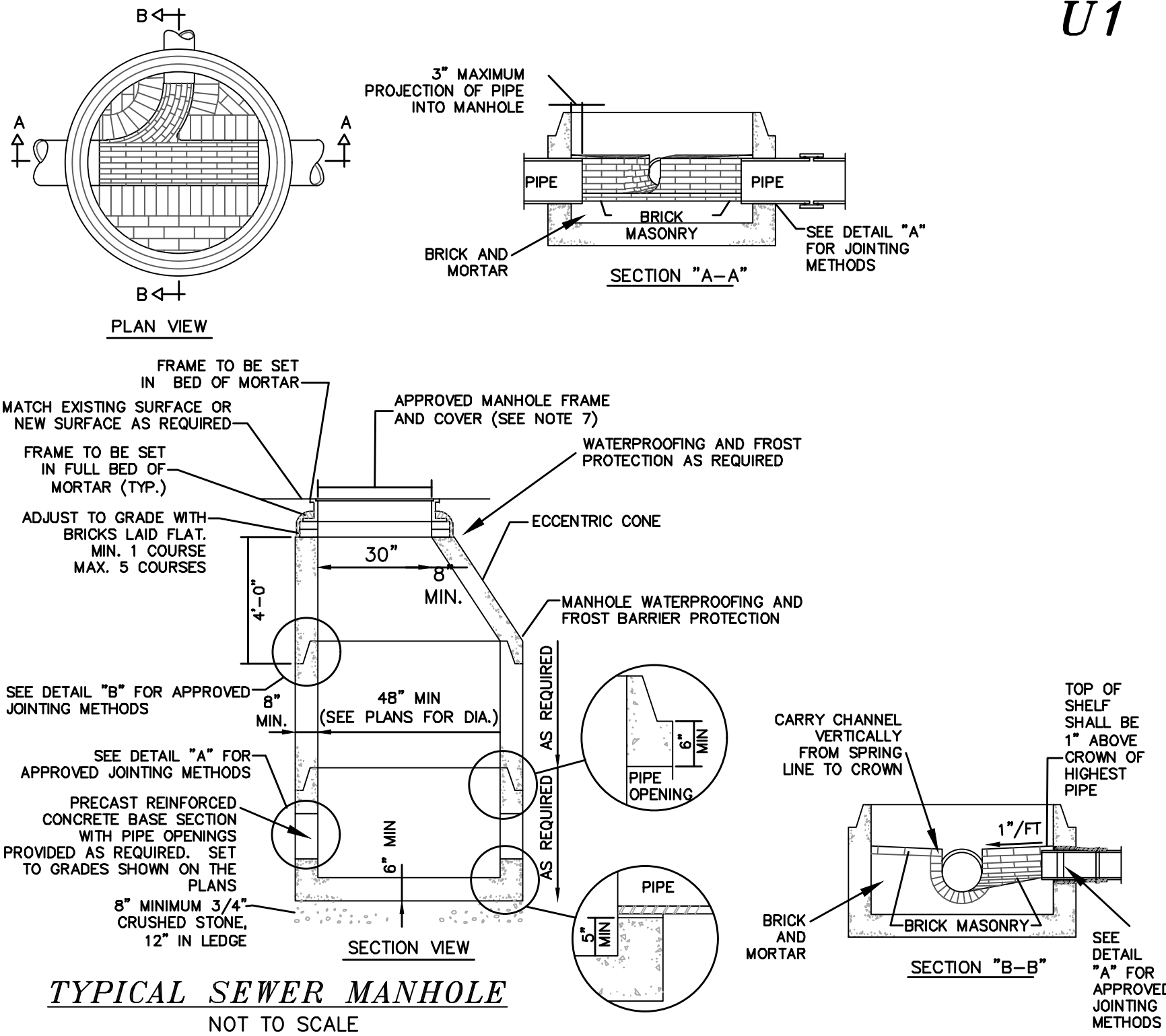
REFERENCE IS MADE TO A LONG TERM MAINTENANCE MANUAL PREPARED BY BERRY SURVEYING & ENGINEERING, WHICH IS ON FILE AT THE CITY OF DOVER PLANNING DEPARTMENT, AND CAN BE FOUND AT THE OFFICE OF BERRY SURVEYING & ENGINEERING. (603) 332-2863

D-102

SHEET 51 OF 56

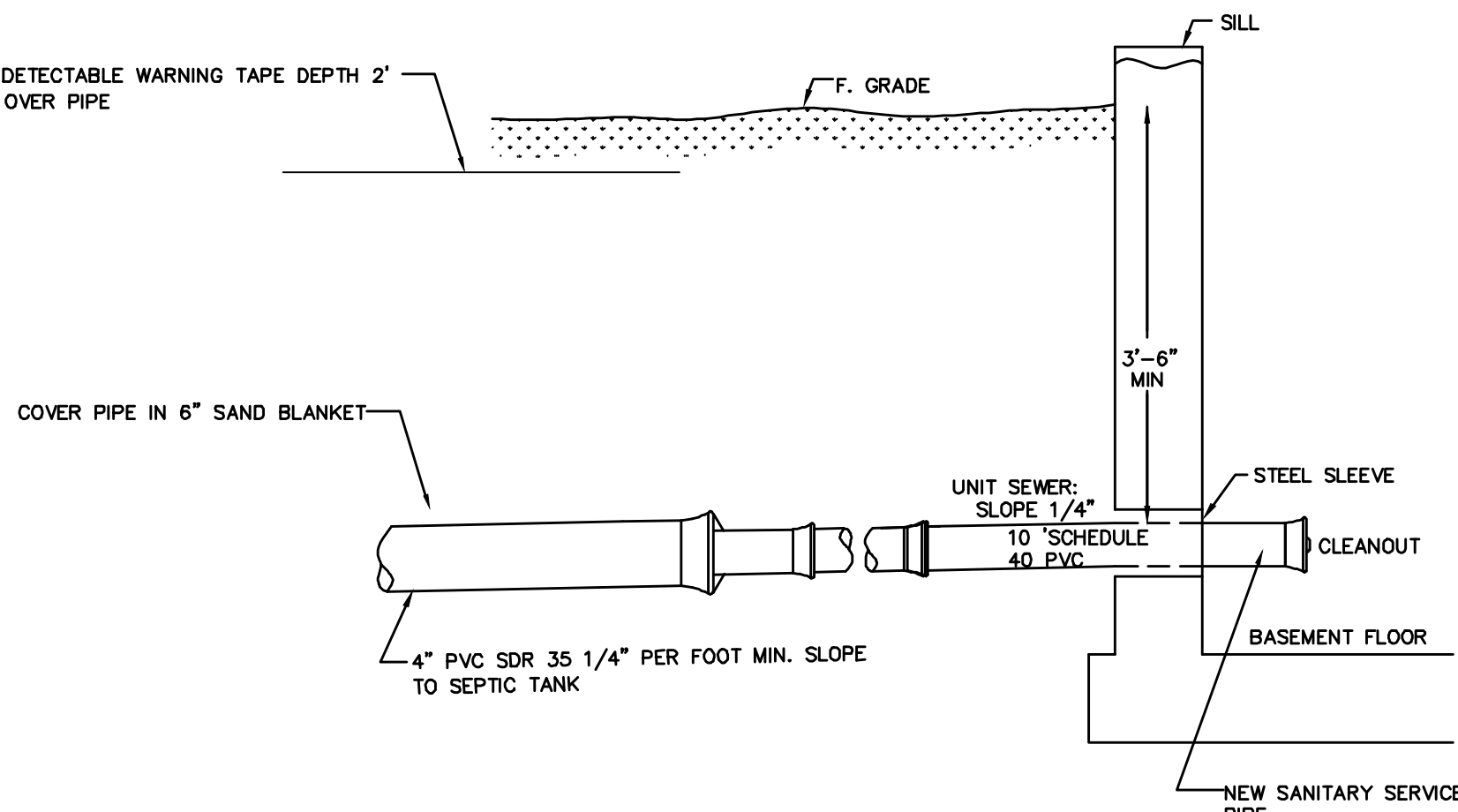
NOTES ON MANHOLE AND SEWER CONSTRUCTION:

- IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT AND ADEQUATE JOINTING. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND HS-20-44 LOADING, INCLUDING THE COVER. ALL SMH CONSTRUCTION AND MATERIALS WILL BE IAW ENV-WQ 704.13 (c)(3) ADOPTED OCTOBER 15, 2014.
- BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE. (IAW ENV-WQ 704.12 (d))
- SEWER MANHOLE DIAMETER SHALL BE AS INDICATED ON THE PLANS.
- PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
- GRAVITY SEWER PIPE TESTING WILL BE IN ACCORDANCE WITH ENV-WQ 704.06 AND MAN HOLE TESTING IAW ENV-WQ 704.17 DATED OCTOBER 15, 2014.
- INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELVE AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. INVERT BRICKS SHALL BE LAID ON EDGE AND THE BASE SECTION SHALL BE FULL. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. CARE SHALL BE TAKEN TO ENSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. BASE SECTION SHALL BE MONOLITHIC TO A POINT AT LEAST 6" ABOVE THE CROWN OF THE INCOMING PIPE PER ENV-WQ 704.12(c). CASTINGS SHALL CONFORM WITH ASTM A48/A48M PER ENV-WQ 704.13 (c)(8). UNDERLAYMENT OF INVERT AND SHELVE SHALL CONSIST OF BRICK MASONRY. (IAW ENV-WQ 704.13 (c) (9)). MORTAR SHALL CONFORM WITH REQUIREMENTS OF IAW ENV-WQ 704.13 (c).
- FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. 3-INCH (MINIMUM HEIGHT) LETTERS WITH THE WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH MANHOLE COVER. (IAW ENV-WQ 704.13 (c) (4-6)) SEWER MAN HOLE COVERS ARE TO PAMREX.
- 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.
- HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE DOVER DPW, WHICH TYPE SHALL IN GENERAL, DEPEND FOR WATER TIGHTNESS UPON A DOUBLE ROW OF AN OVERLAPPING TYPE ELASTOMERIC OR MASTIC-LIKE GASKET. APPROVED ELASTOMERIC SEALANTS ARE: RAM-NEK, KENT SEAL NO. 2, EZ, OR EQUAL.
- ALL FRAMES AND GRATES ARE TO BE U.S.A. MADE. MANHOLE STEPS ARE REQUIRED IN THIS MUNICIPALITY AND MUST CONFORM TO THE REQUIREMENTS OF ENV-A 1800.
- ANY WORK INVOLVING THE CUTTING INTO A.C. PIPE SHALL MEET THE REQUIREMENTS OF ENV-A 1800.
- THE CONTRACTOR IS TO REVIEW THE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN DATED JULY 2018 FOR FURTHER DEFINED. SEE CHAPTER II-7.

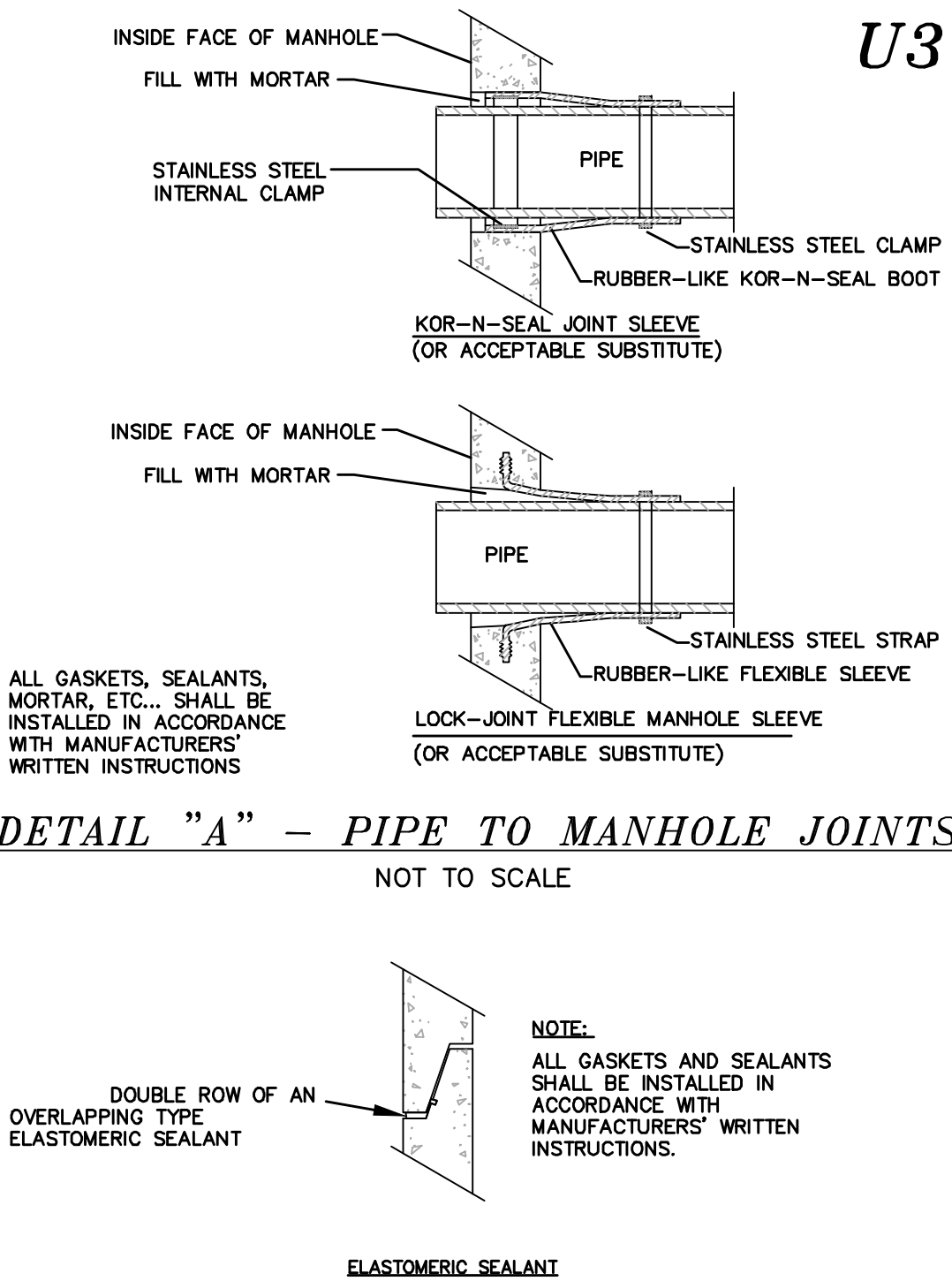


U1

- SEE DETAILS FOR SERVICE CONNECTION REQUIREMENTS
- SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
- CLEANOUTS SHALL BE INSTALLED INSIDE EACH BUILDING EXIT POINT



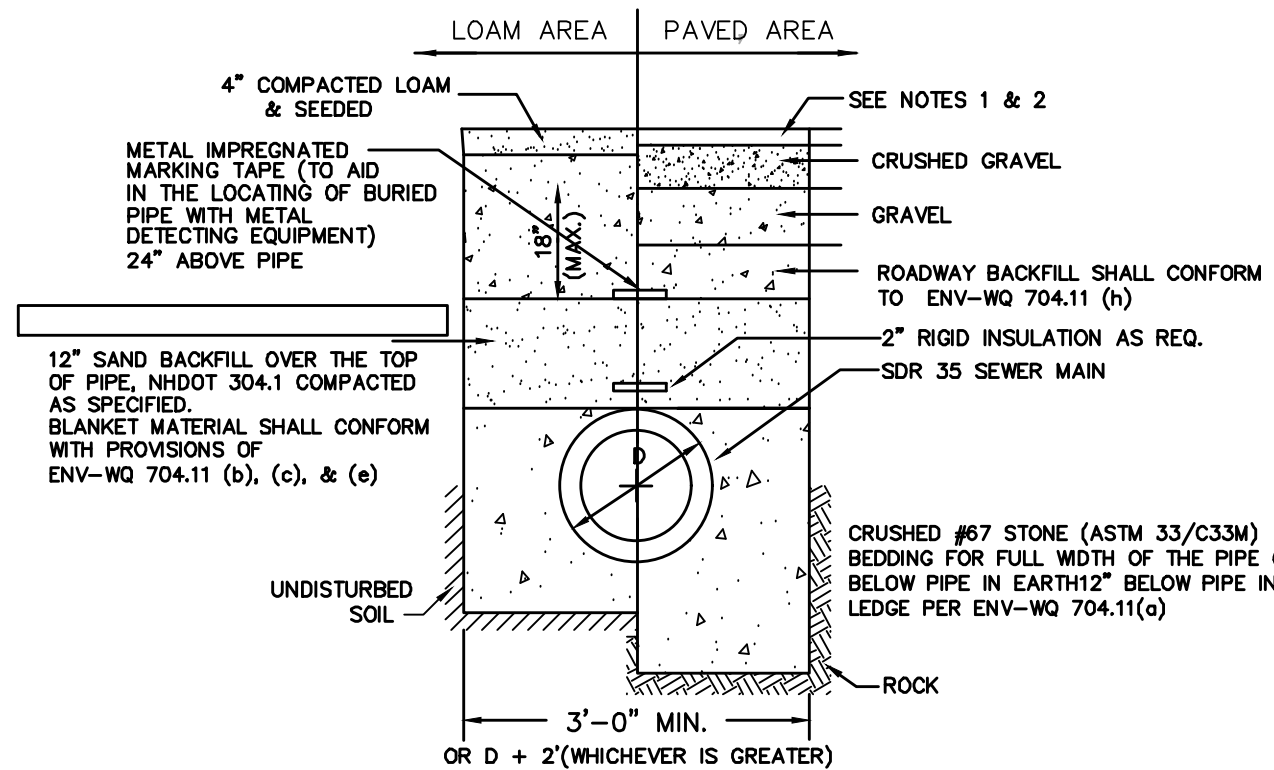
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U3

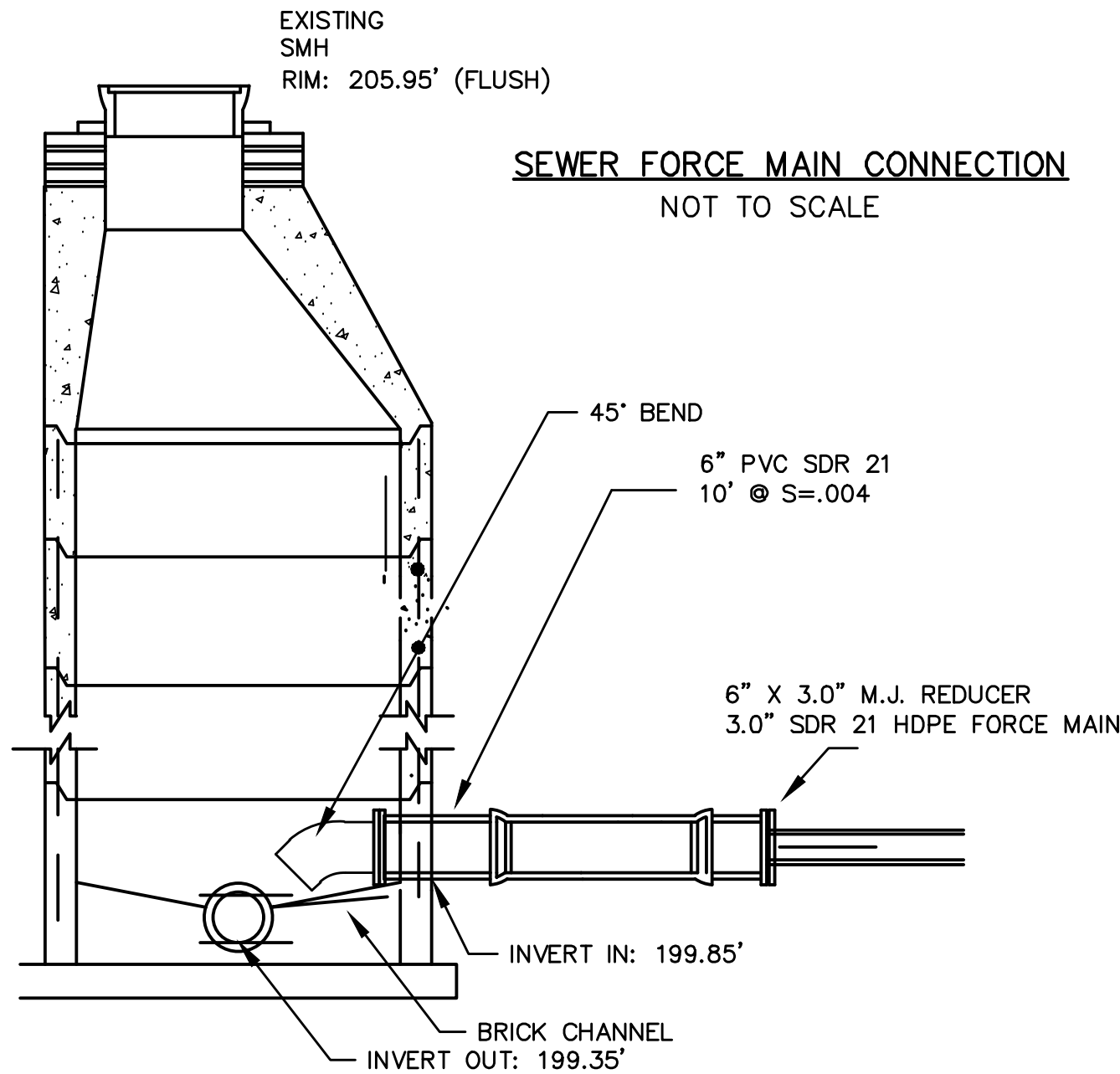


U4

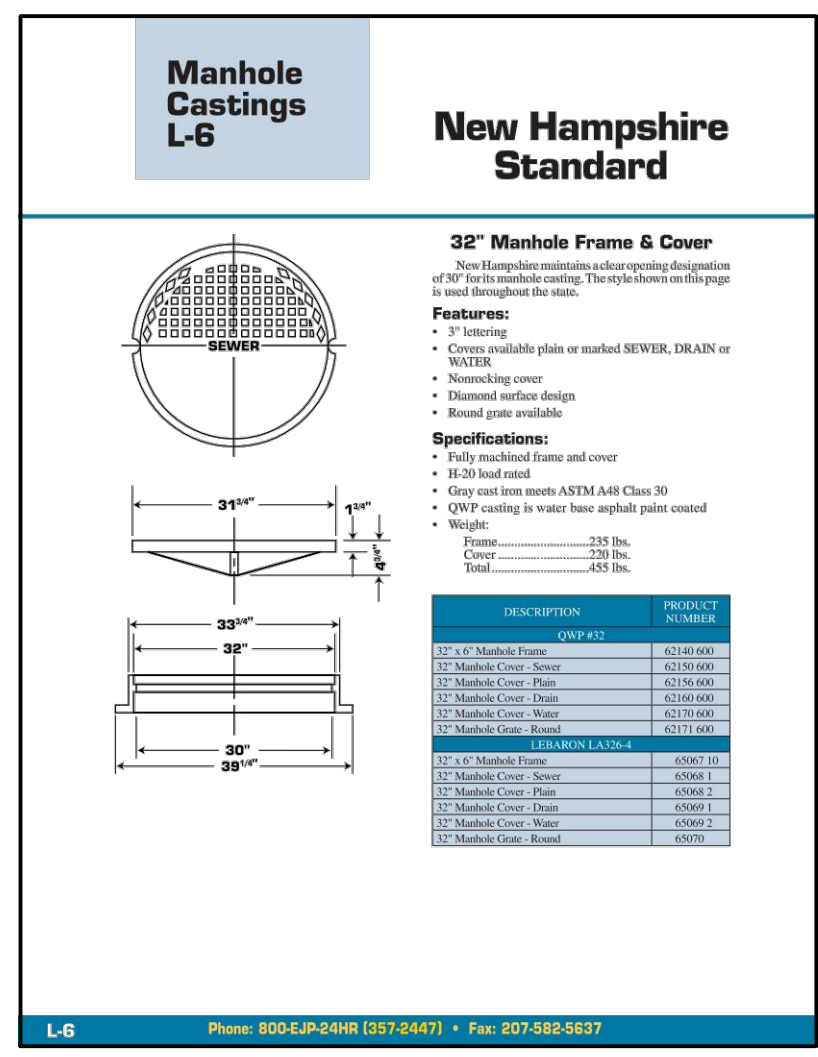


- NOTE:
- PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
 - NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPEC'S.
 - ANTI-SEEP COLLARS OR CLAY CHECK DAMS ON STEEP RUNS IN WET CONDITIONS.
 - ALL SEWER INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF NHDES & MUNICIPAL DPW SEWER DIVISION STANDARDS. ALL PVC SEWER PIPE IS TO CONFORM WITH ENV-WQ 704.05 (c)-(e) AND CONFORM WITH ASTM D3034. PVC JOINT SEALS SHALL CONFORM WITH ASTM D3121. SDR-21 PVC FORCE MAIN PIPE MATERIAL IS REQUIRED IN LOCATIONS AS SHOWN. SDR-21 PVC FORCEMAIN PIPE WILL CONFORM TO ENV-WQ 704.08.
 - SEE DETAIL U11 BELOW FOR INSULATION DETAILS.
 - SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN CHAPTER II-8

U5



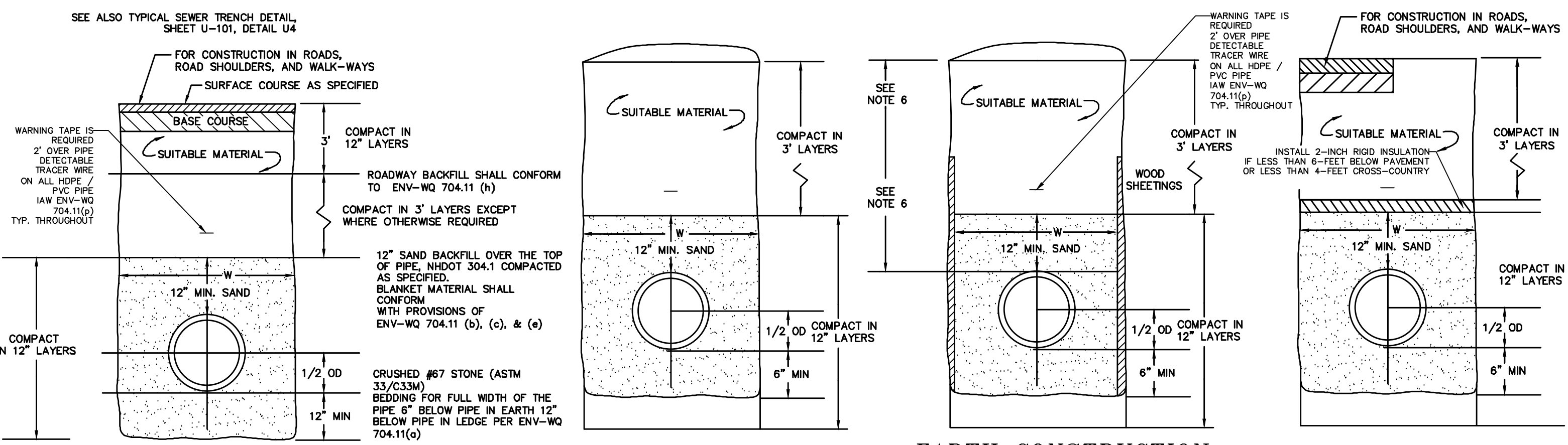
U6



SEWER MANHOLE FRAME AND GRATE WILL BE NEW HAMPSHIRE STANDARD, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H2O LOADING.

SEWER MANHOLE COVER DETAIL
NOT TO SCALE

U7

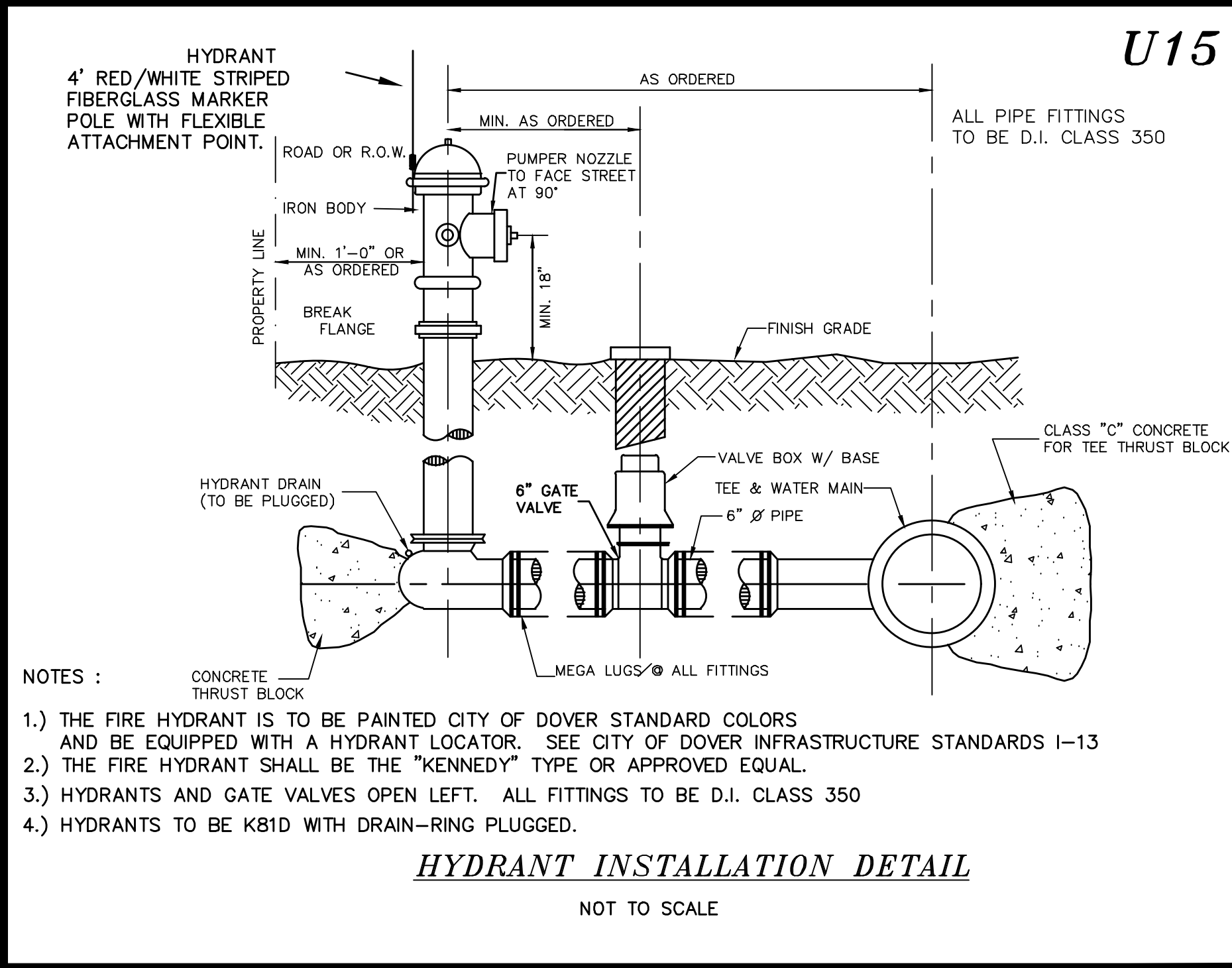
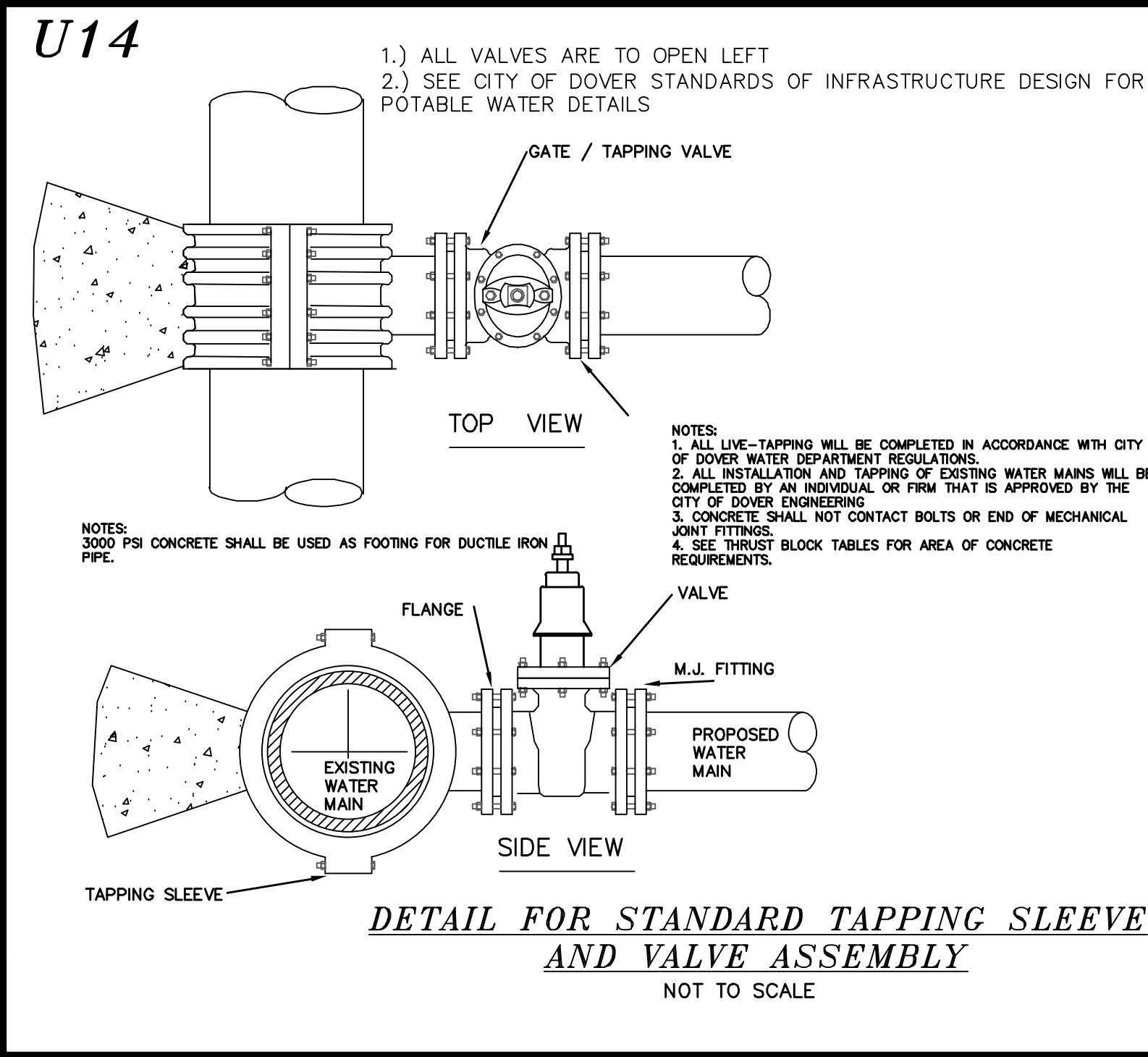
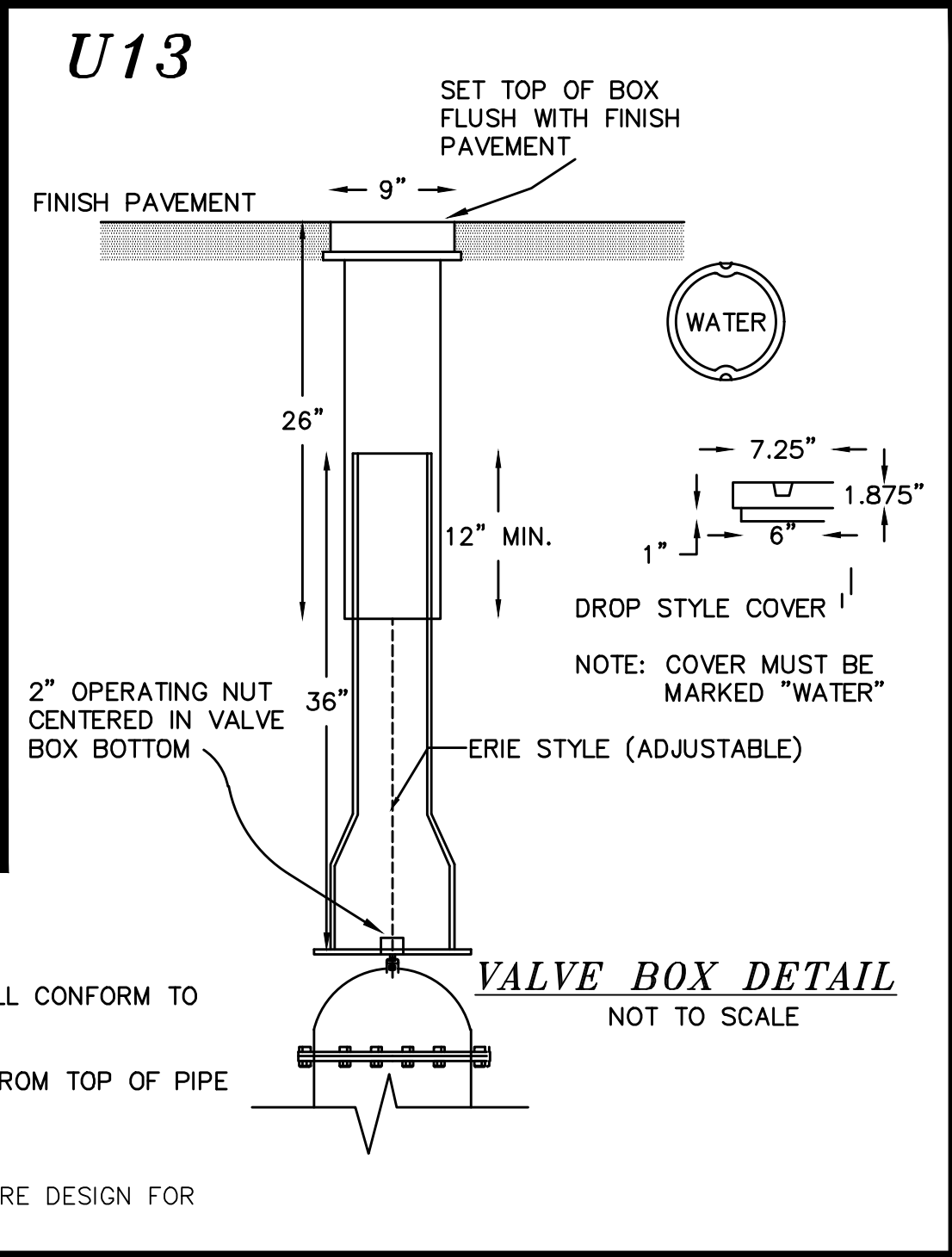
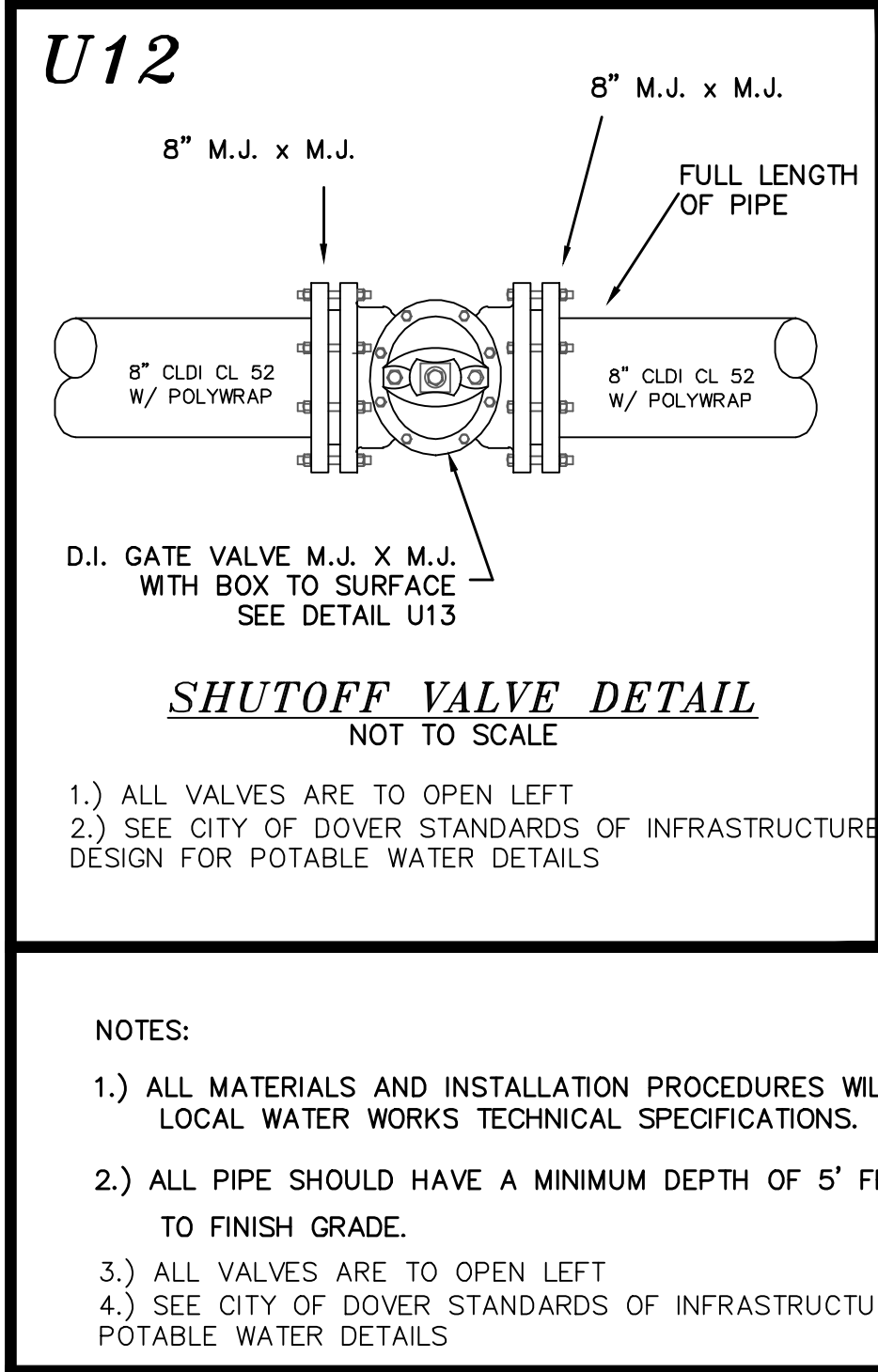
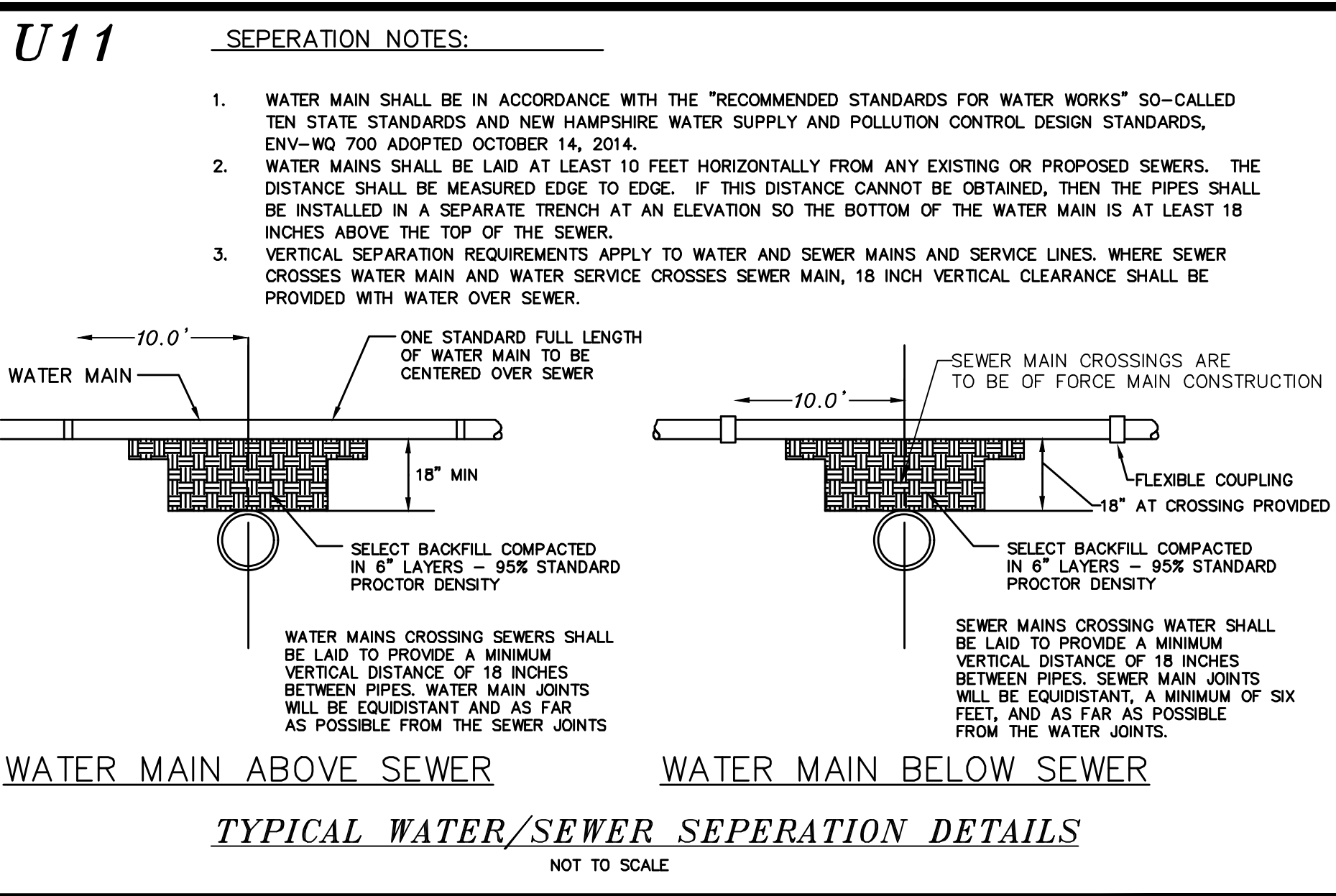
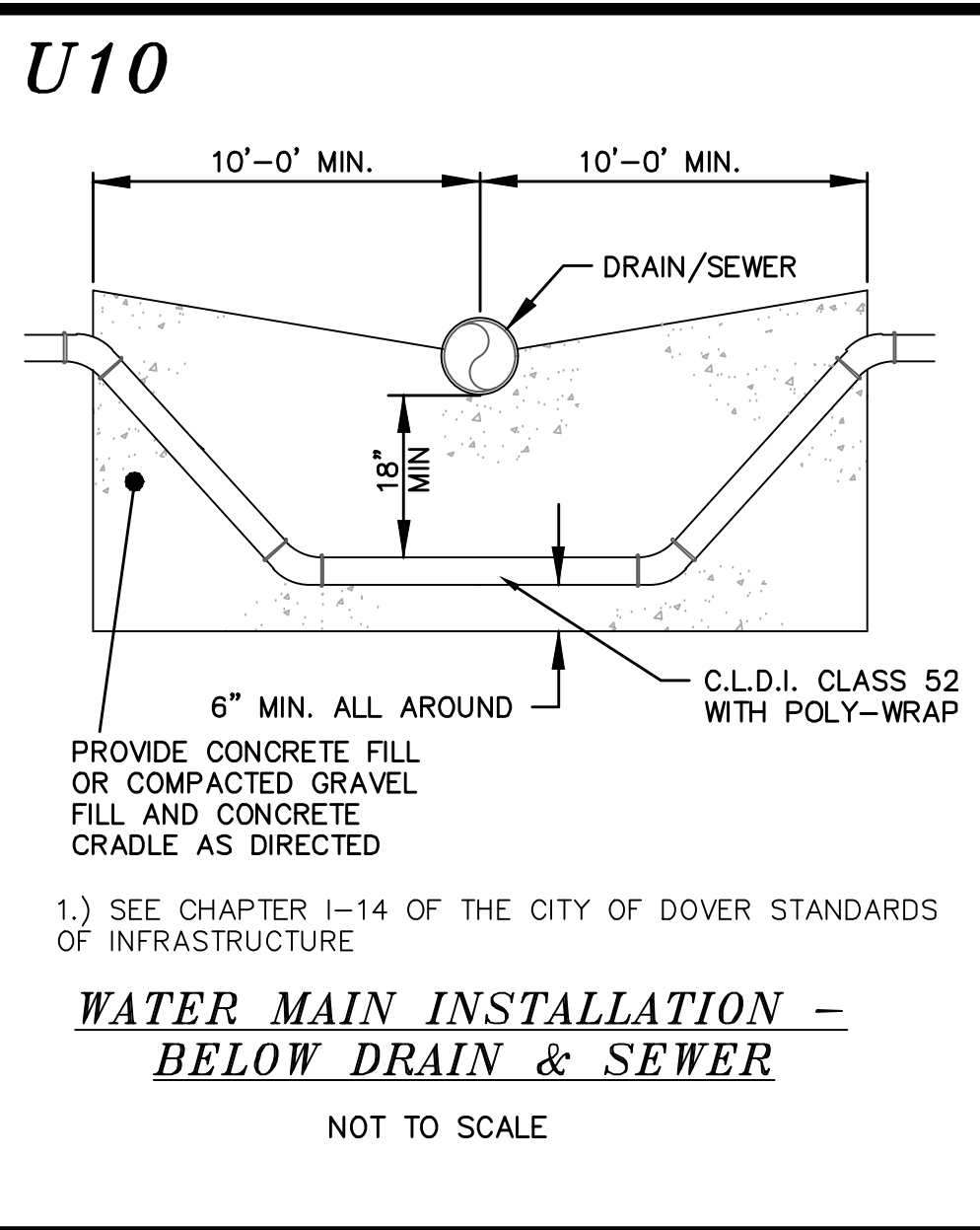
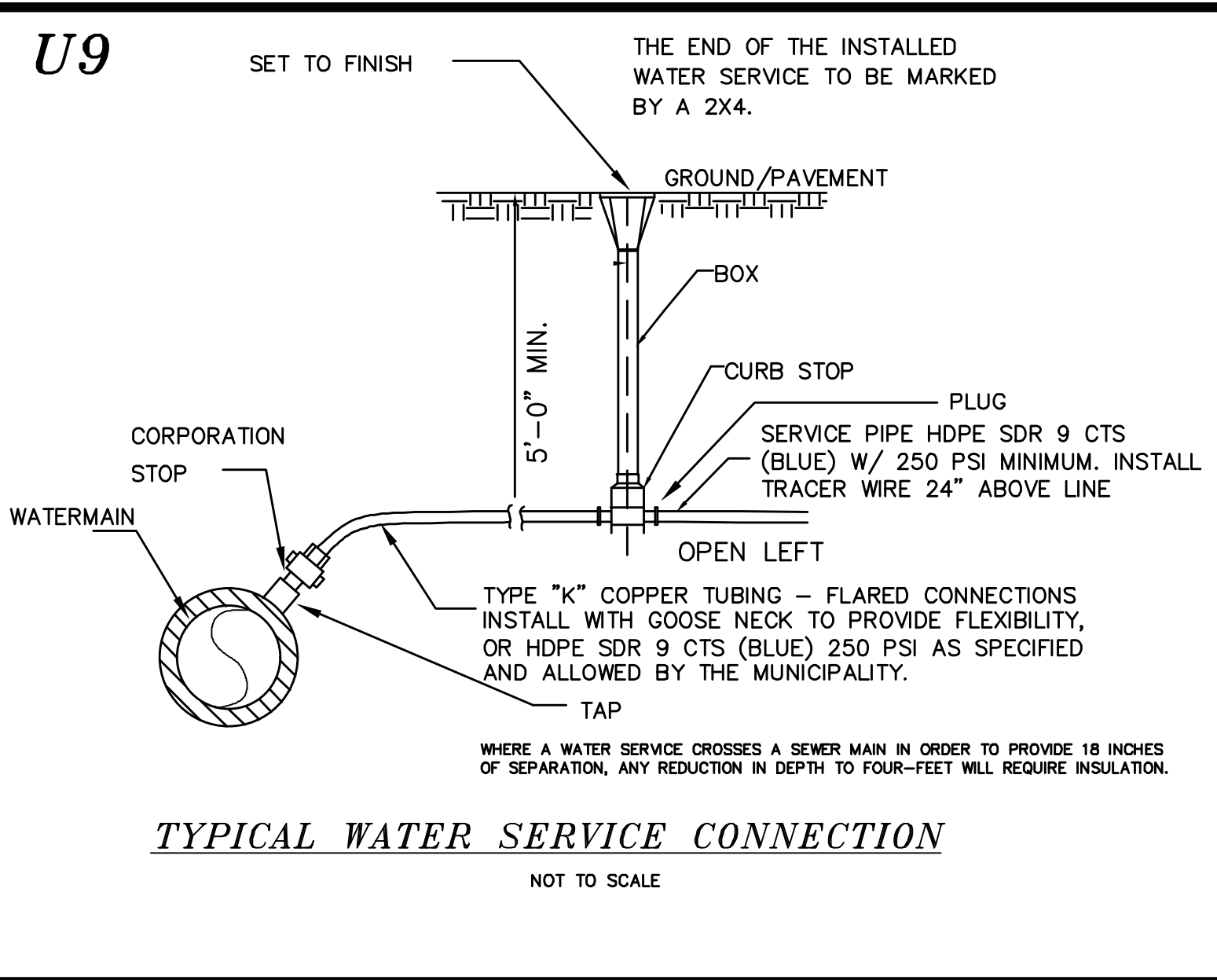
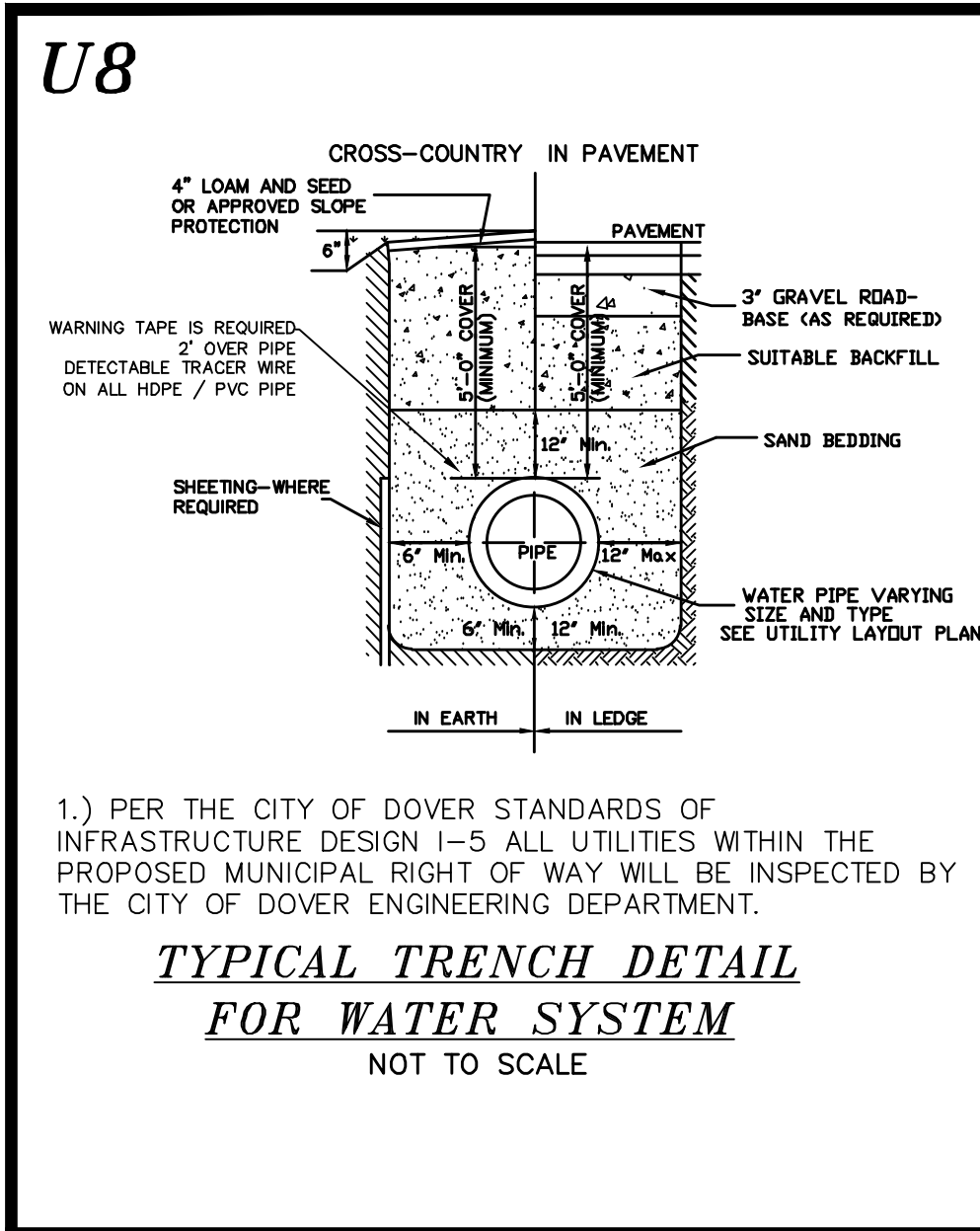


U-101

UTILITY CONSTRUCTION DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP "B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
AS NOTED
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
LICENSED PROFESSIONAL ENGINEER
No. 19442

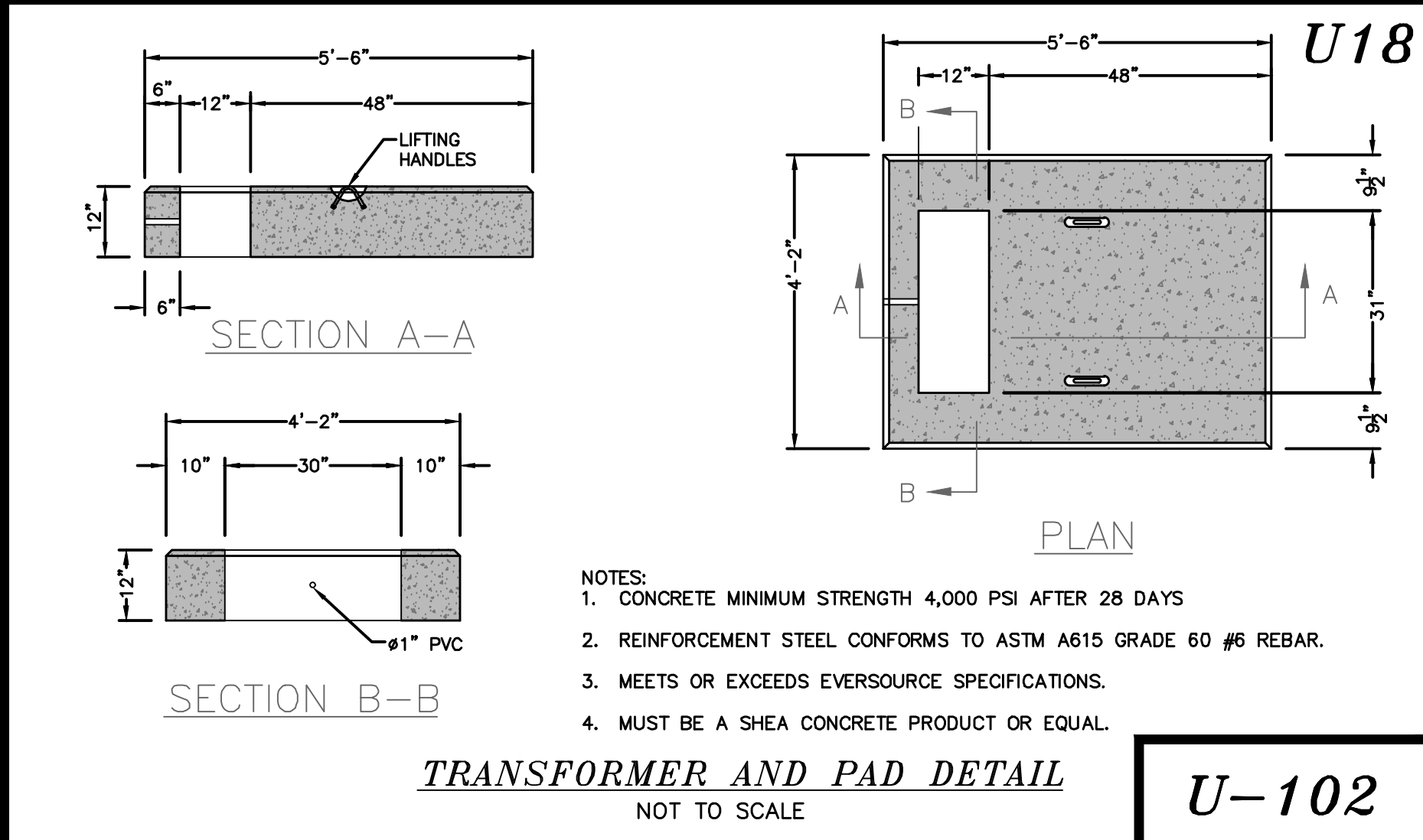
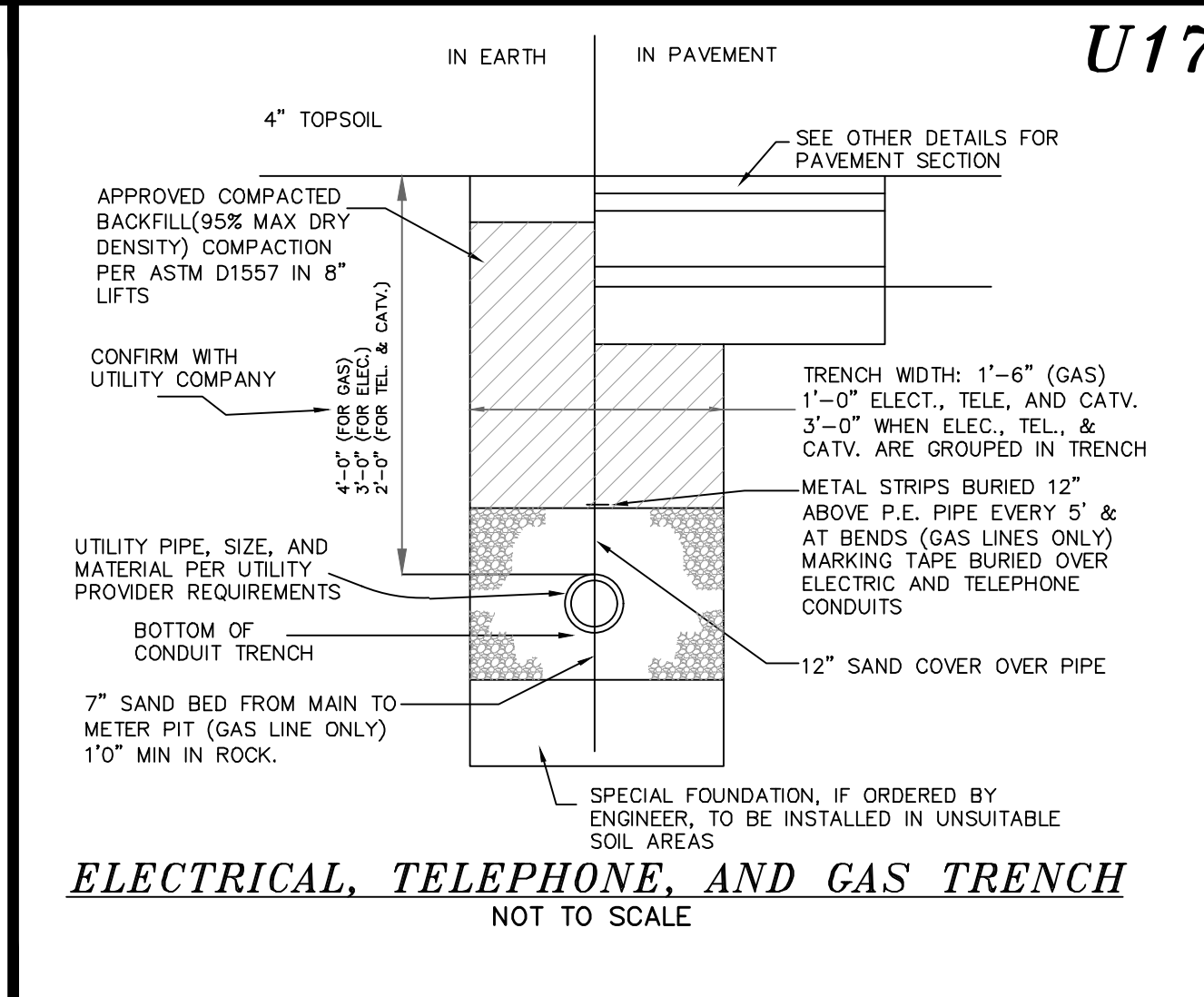
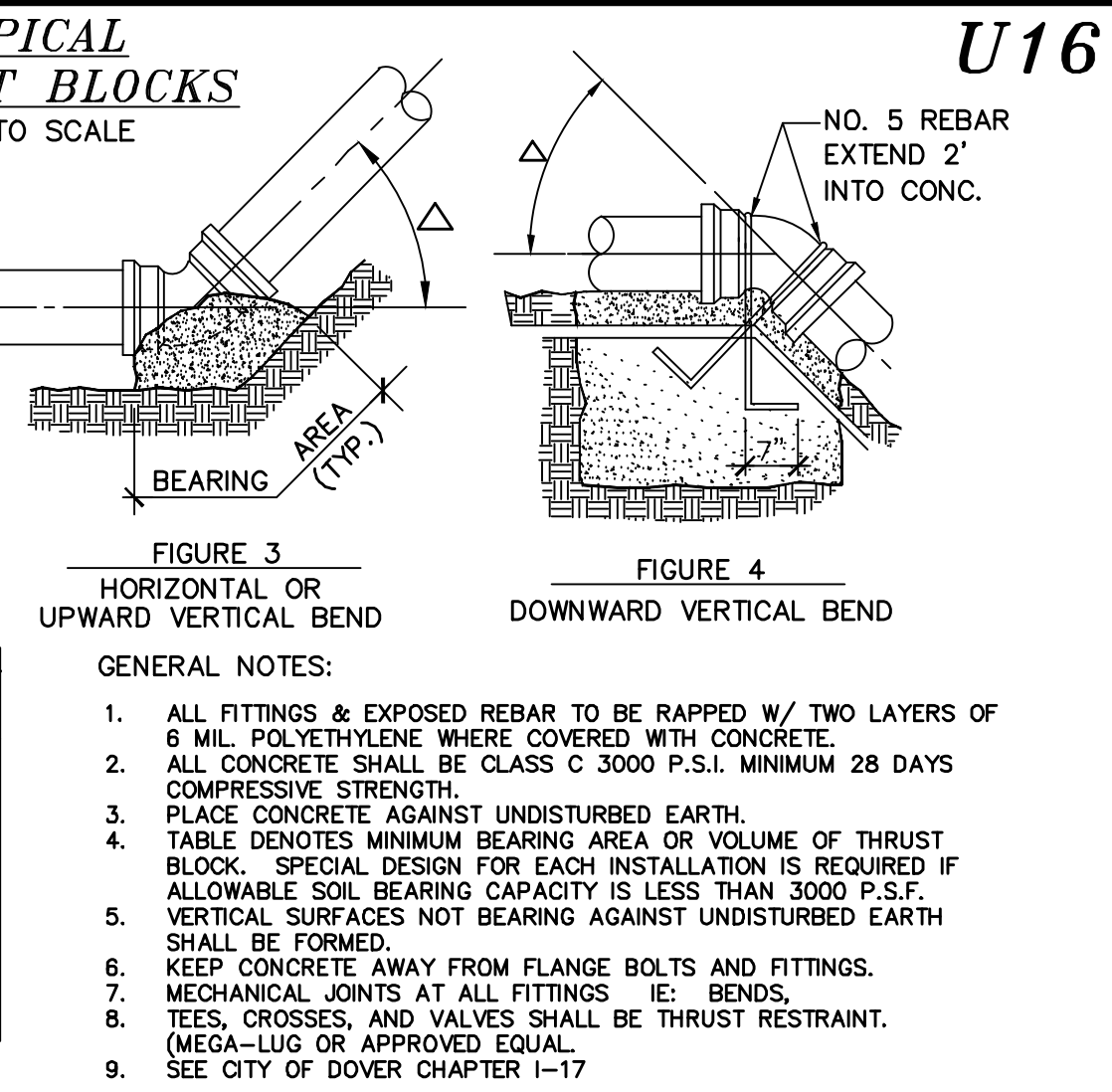


TYPICAL THRUST BLOCKS
NOT TO SCALE

FIGURE 1 CROSS
(ONLY REQ'D IF ANY LEG IS LESS THAN 60 FT. LONG)

FIGURE 2 TEE, PLUG OR CAP

PIPE I.D.	BEARING AREA, SQUARE FEET				VOLUME OF CONC. CU.YD			
	FIGURE 1	FIGURE 2	FIGURE 3, Δ	FIGURE 4, Δ	FIGURE 3, Δ	FIGURE 4, Δ	FIGURE 3, Δ	FIGURE 4, Δ
4"	2	2	90° 45' 22-1/2"	11-1/4"	45"	22-1/2"	11-1/4"	45"
6"	2	3	2	1	1	1.0	.5	.5
8"	2	3	3	2	1	1.5	1.0	.5
10"	2	3	5	3	2	2.0	1.0	.5
12"	3	7	10	5	3	4.0	2.0	1.0
14"	4	14	20	10	5			
16"	4	20	24	12	7			
18"	5	24	30	16	10			
20"	5	28	40	20	12			



REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

UTILITY CONSTRUCTION DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
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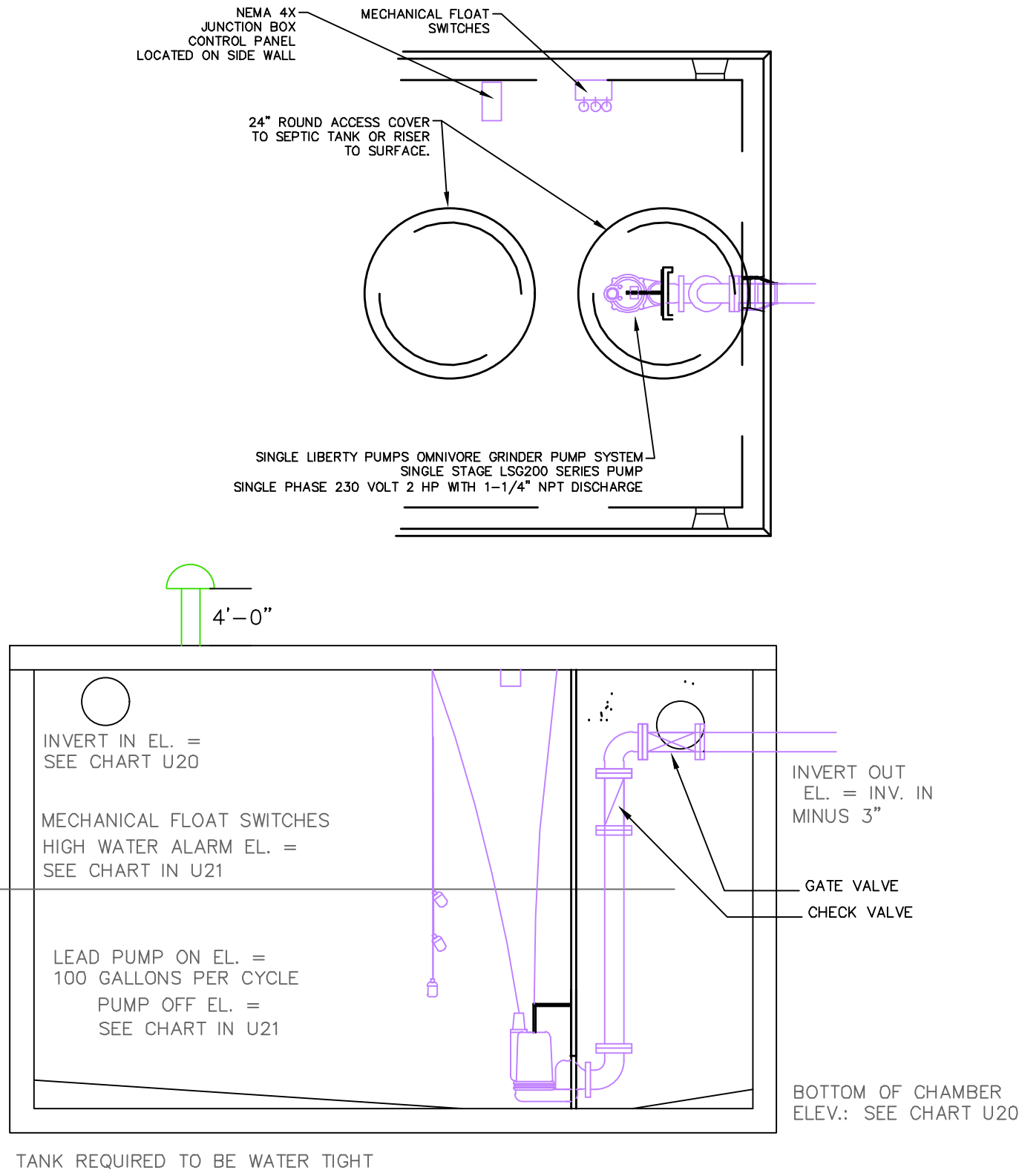
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

AS NOTED

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
LICENSED PROFESSIONAL ENGINEER

SHEET 53 OF 56

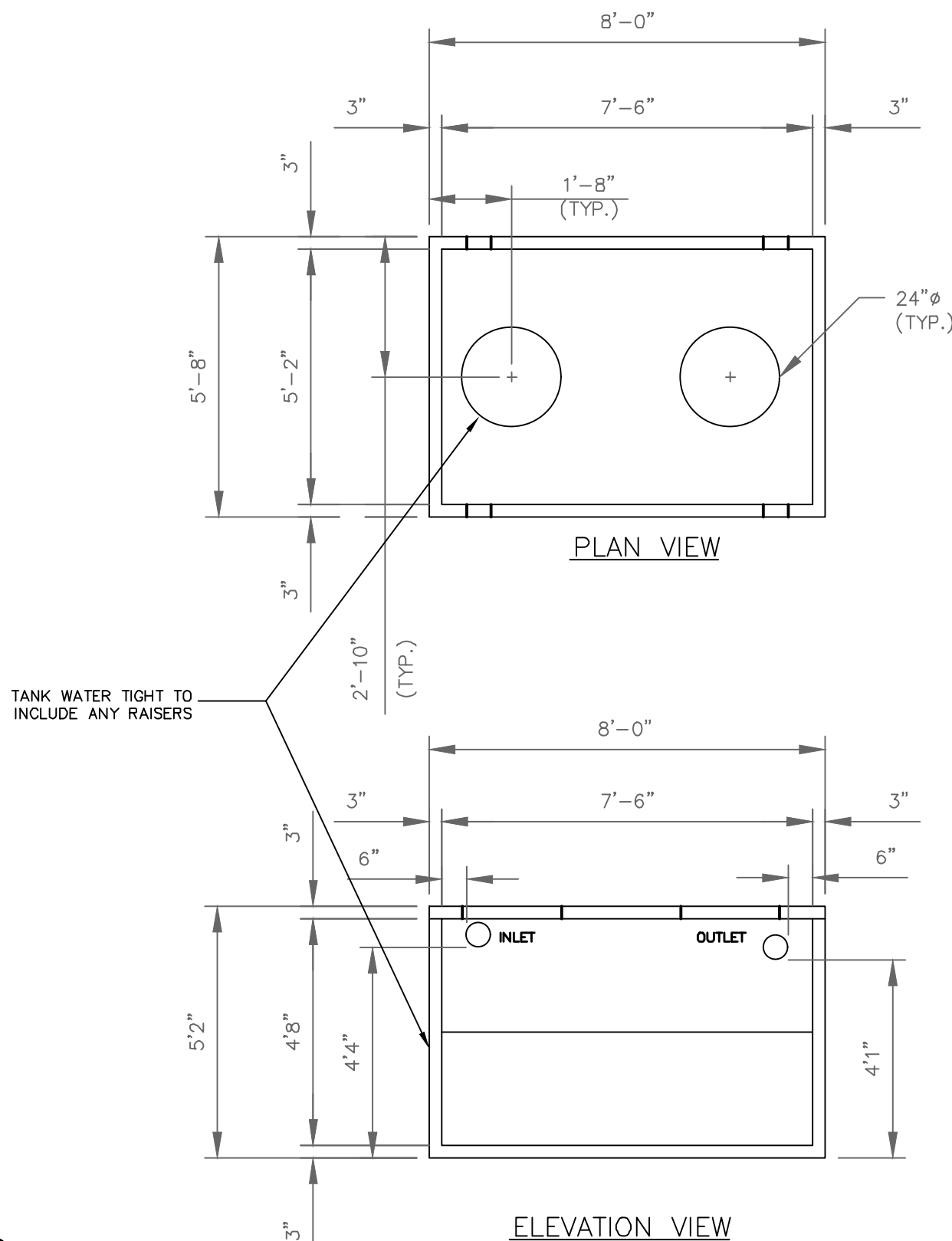
U19



- NOTES:
1. AT THE TIME OF CONSTRUCTION BASED ON THE PROPOSED HOUSE FINISH FLOOR ELEVATION AND PROPOSED SEWER EFFLUENT FOUNDATION INVERT, AN INDIVIDUAL DESIGN WILL BE COMPLETED BY A PROFESSIONAL ENGINEER AND SUBMITTED TO THE CITY ENGINEER, DPW, COMMUNITY SERVICES.
 2. EACH LOT WILL BE EQUIPPED WITH A 1000-GALLON HOLDING TANK AND A LIBERTY PUMP OMNIVOR GRINDER PUMP LSG200 SERIES OR APPROVED EQUAL.
 3. THE BOTTOM OF THE PUMP CHAMBER WILL BE SLOPED AT A 1% SLOPE IN ALL DIRECTIONS CREATING A SUMP AROUND THE BASE OF THE PUMP. THE LIFT STATION WILL BE EQUIPPED WITH A GR20 GUIDE RAIL BASE AND RAIL SYSTEM AND LIFT CHAIN. THE PUMP DISCHARGE WILL BE EQUIPPED WITH A CHECK VALVE AND A GATE VALVE BETWEEN THE PUMP AND THE TANK WALL, IN THAT ORDER. THE DISCHARGE WILL LEAVE THE TANK AT A POINT FOUR-FEET BELOW GRADE, INSULATED OR SIX-FEET IF UNDER PAVEMENT, AND THE FORCE MAIN WILL BE DESIGNED UP-HILL TO THE INTERSECTION OF THE COMMON FORCE MAIN.

PUMP & CONTROL CONFIGURATION
NOT TO SCALE

U20



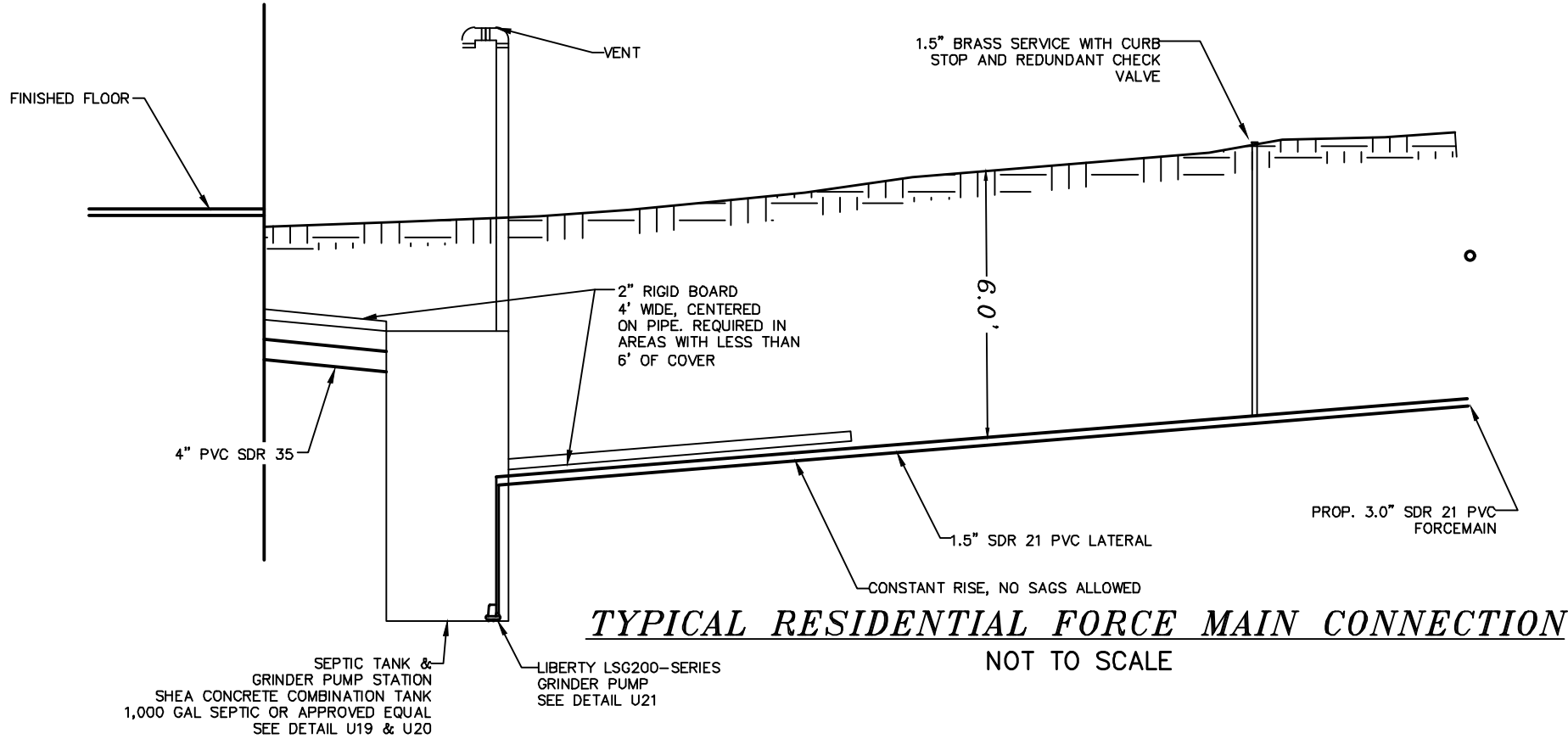
- NOTES:
1. THE BOTTOM OF THE PUMP CHAMBER WILL BE SLOPED AT A 1% SLOPE IN ALL DIRECTIONS CREATING A SUMP AROUND THE BASE OF THE PUMP. THE CONCRETE IS TO BE WATER TIGHT.
 2. THE CONCRETE WILL BE 4,000 PSI MINIMUM AFTER 28 DAYS, ALL REINFORCEMENT PER ASTM C1227, WITH SEALED JOINTS. IF LOCATED UNDER A PAVED AREA, THE PUMP TANK MUST BE MANUFACTURED TO H-20 LOADING. ANTI-FLOATATION CALCULATIONS MUST BE COMPLETED AND SUBMITTED TO THE CITY ENGINEER AT THE TIME OF DESIGN, ASSUMING AN EMPTY TANK.

1,000 GALLON PUMP TANK
NOT TO SCALE

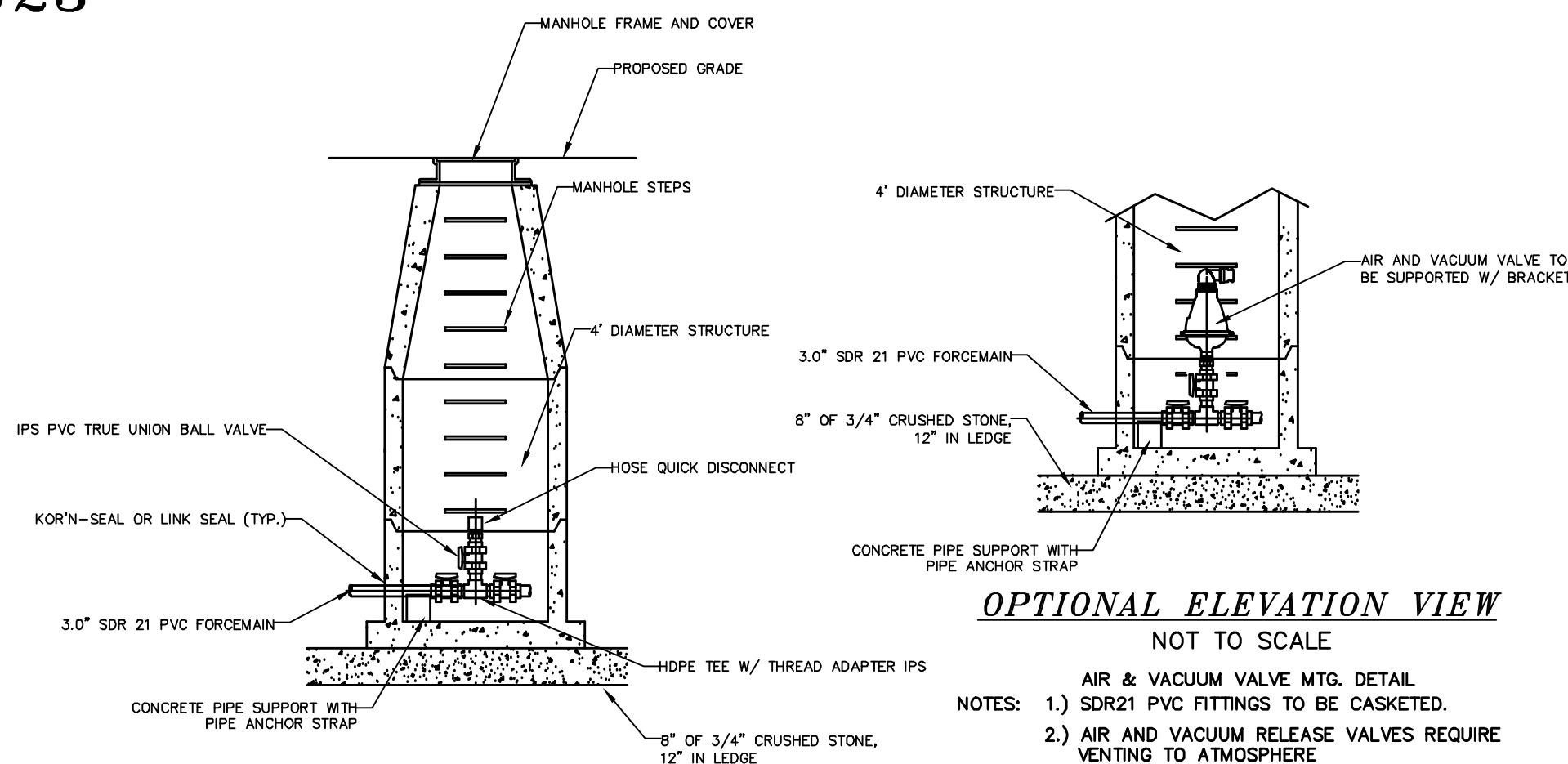
U21

LOT NUMBER	TOTAL DYNAMIC HEAD	PUMP RATE	1.5" SERVICE	2" F.M.	PUMP CHAMBER BOTTOM	PUMP CHAMBER INVERT IN	PUMP OFF ELEVATION	PUMP ON ELEVATION	ALARM ON ELEVATION
LOT 5-1									
LOT 5-2									
LOT 5-3									
LOT 5-4									
LOT 5-5									
LOT 5-6									
LOT 5-7									
LOT 5-8									
LOT 5-9									
LOT 5-10									
LOT 5-11									

DESIGNERS NOTE: THE PROVIDED TOTAL DYNAMIC HEAD AND PUMPING RATE ARE BASED ON ASSUMED FINISH FLOOR ELEVATIONS AND ASSUMED PUMP CHAMBER TANK ELEVATIONS. INDIVIDUAL LOT DESIGNS WILL BE COMPUTED BY A PROFESSIONAL ENGINEER AND PROVIDED TO THE CITY OF DOVER, COMMUNITY SERVICES, DPW, ENGINEERING DEPARTMENT AS A FUNCTION OF OBTAINING A BUILDING PERMIT. ALL FORCE MAIN SERVICES WILL RUN UP HILL FROM THE PUMP TANK TO THE COMMON FORCE MAIN. SEE THE FORCE MAIN PROFILE ON THE UTILITIES PLAN. ALL UNITS WILL UTILIZE A LIBERTY PUMPS LSG200 SERIES SINGLE STAGE OMNIVORE 2 HP SUBMERSIBLE GRINDER PUMP, OR APPROVED EQUAL. ALL DWELLING UNITS WILL HAVE A LIBERTY PUMPS SX-SERIES SIMPLEX CONTROL PANEL WITH ALARM BELL AND FLASHER. IT IS HIGHLY RECOMMENDED THAT A GENERATOR HOOKUP BE AVAILABLE FOR EMERGENCY POWER SUPPLY.

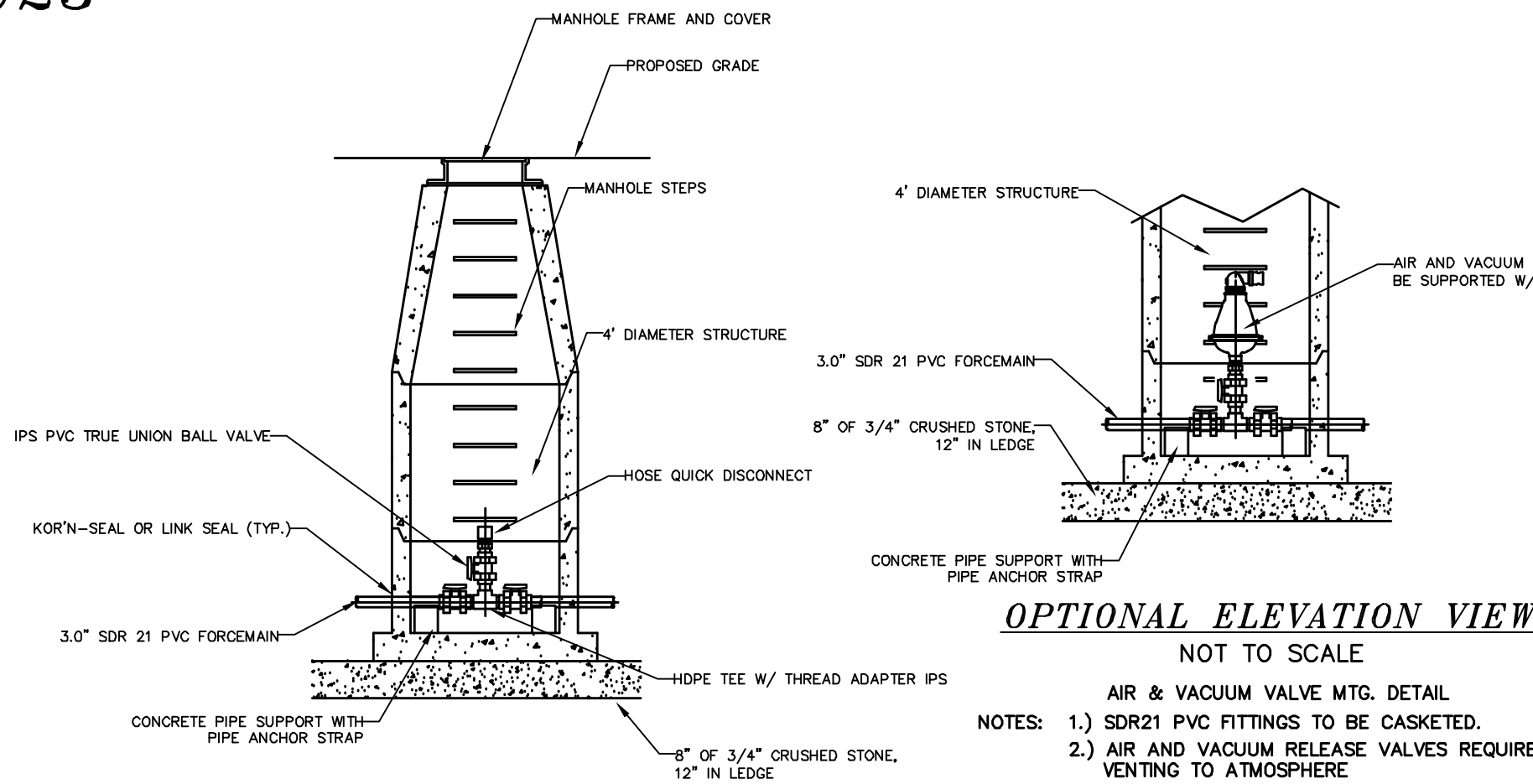


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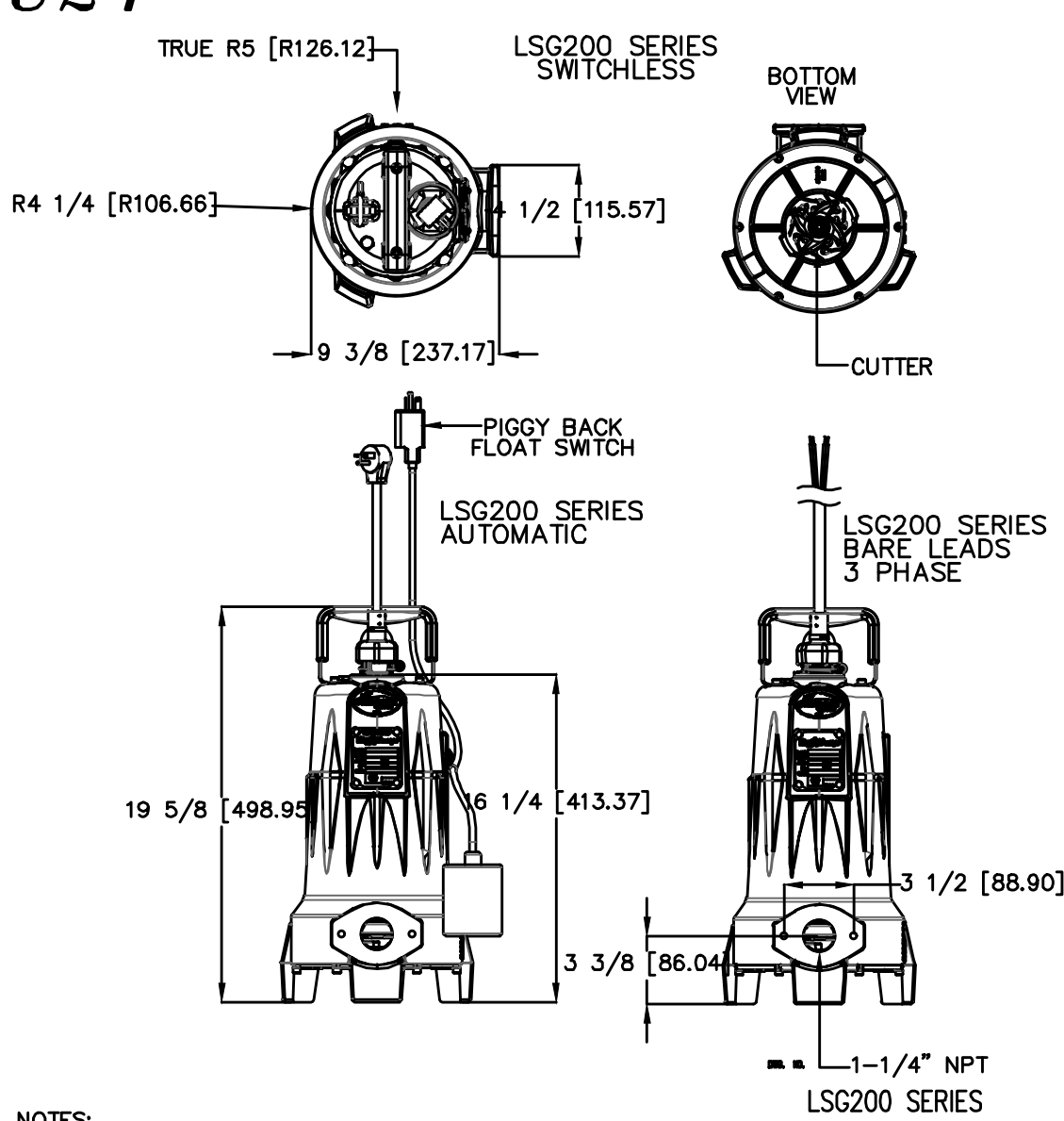
TERMINAL FLUSHING MANHOLE DETAIL
NOT TO SCALE

U23



INLINE FLUSHING MANHOLE DETAIL
NOT TO SCALE

U24



- NOTES:
1. SINGLE LIBERTY PUMPS OMNIVORE GRINDER PUMP SYSTEM, SINGLE STAGE LSG200 SERIES PUMP SINGLE PHASE 230 VOLT 2 HP WITH 1-1/4" NPT DISCHARGE

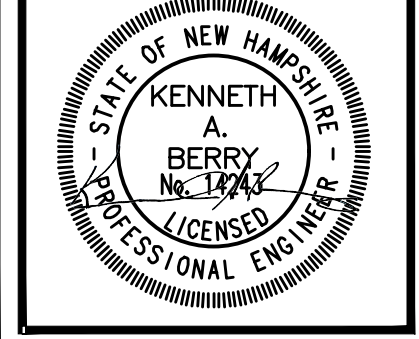
LIBERTY PUMPS LSG200 - SERIES
NOT TO SCALE

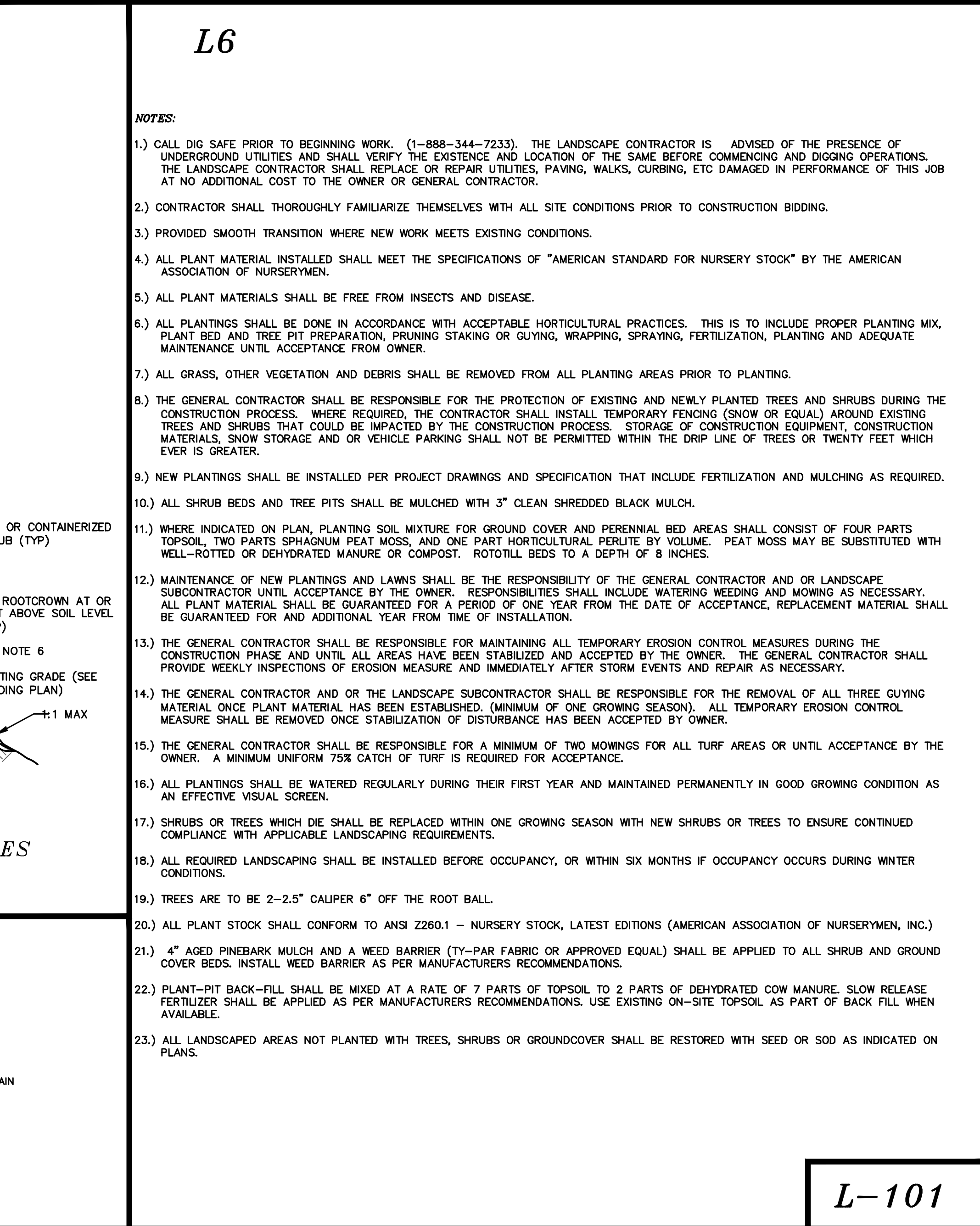
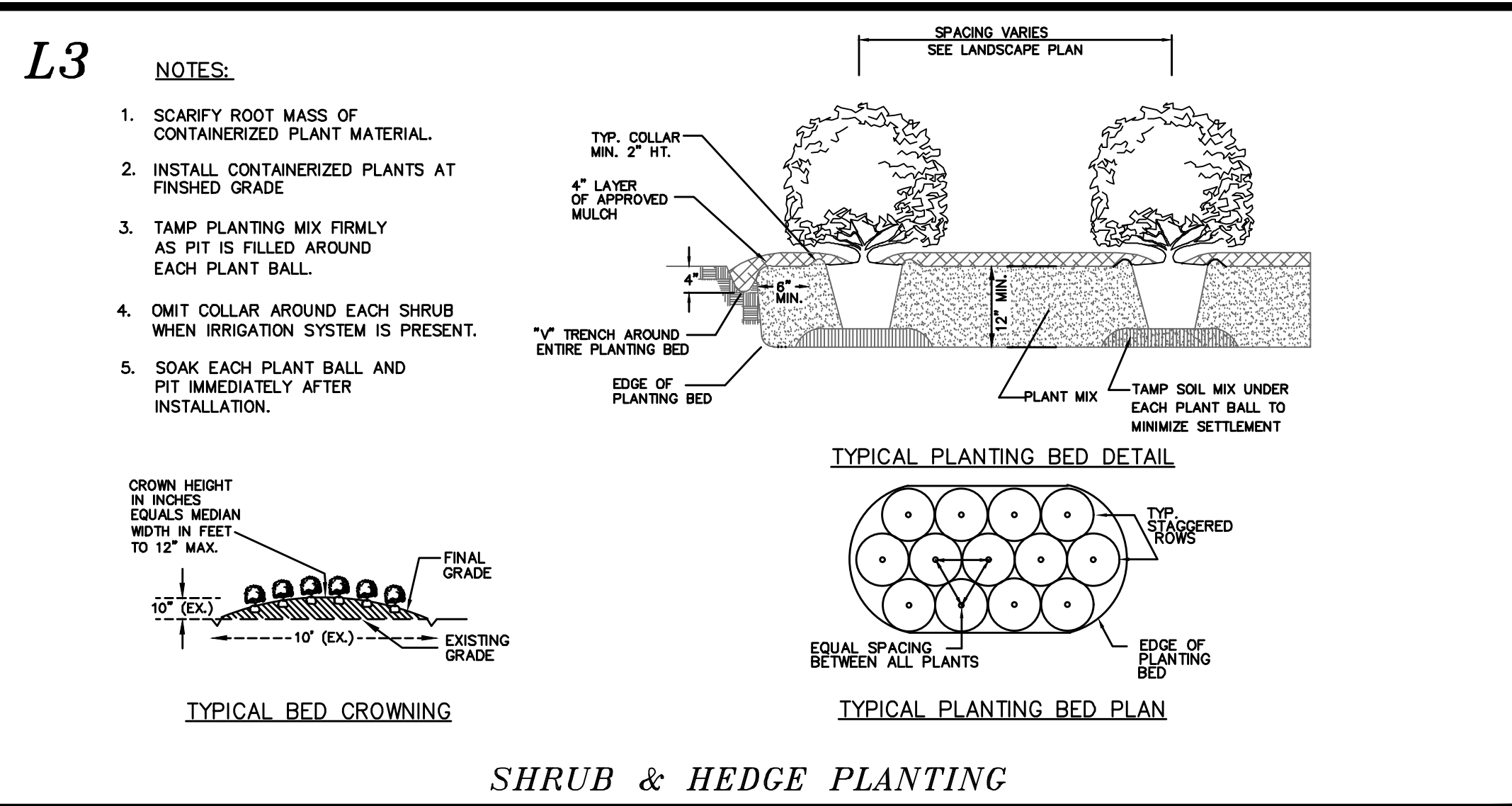
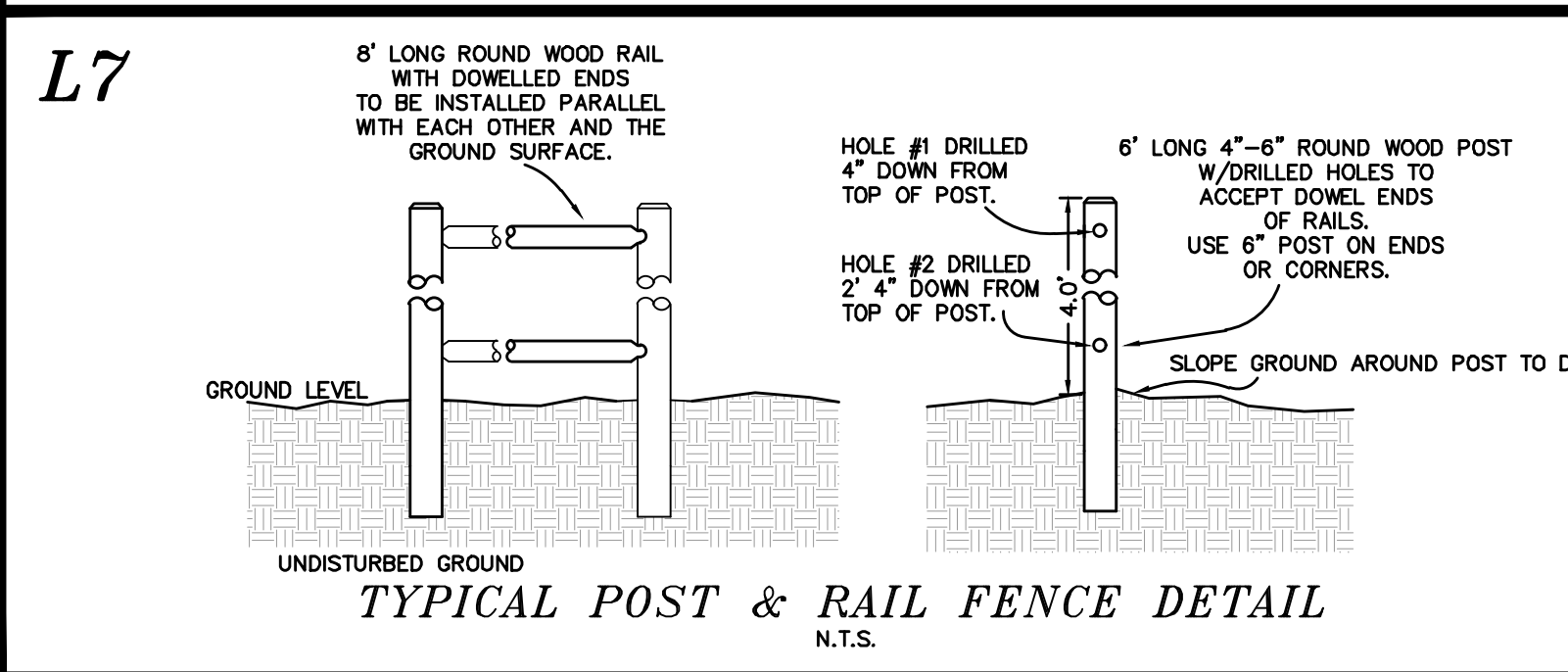
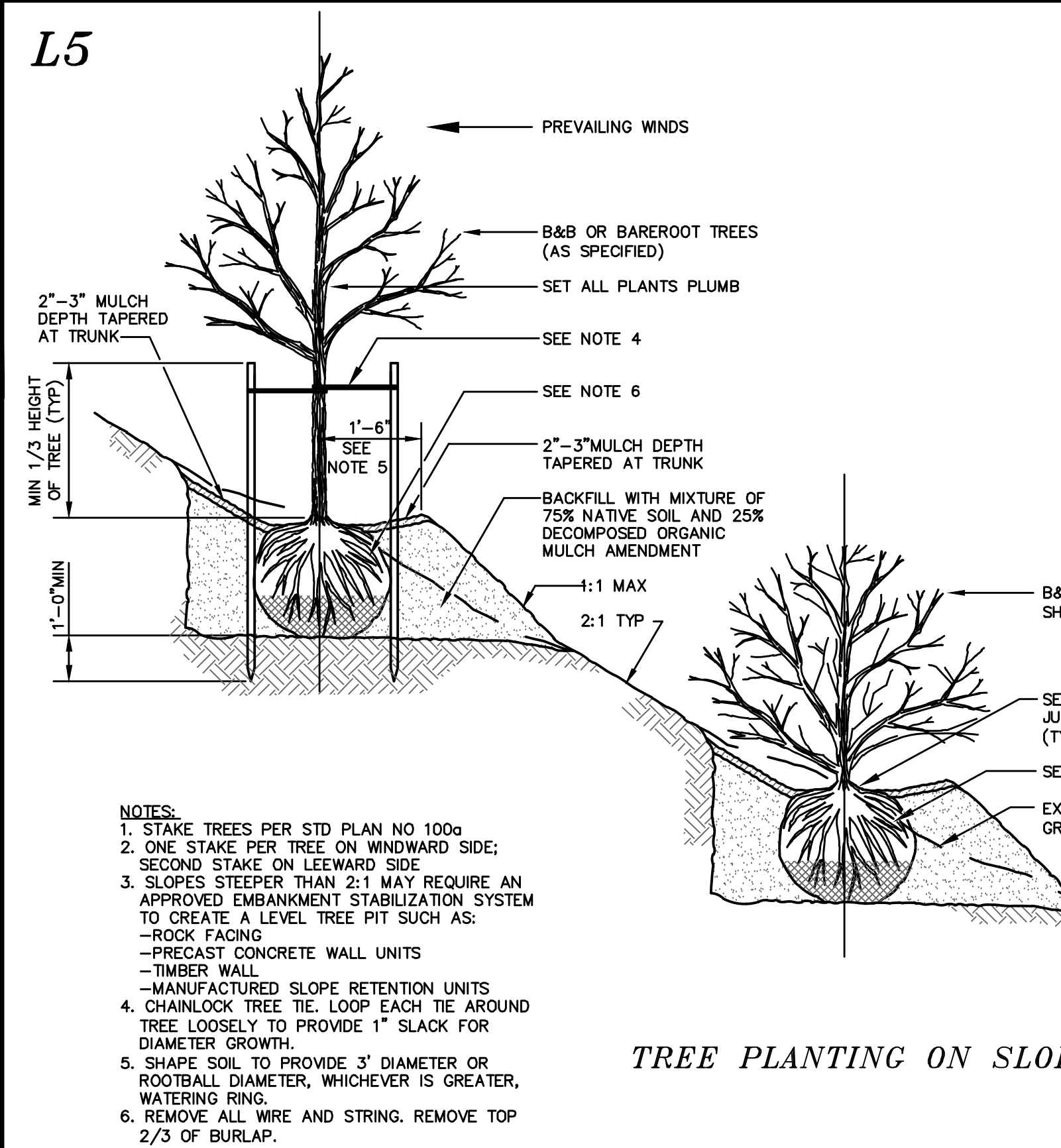
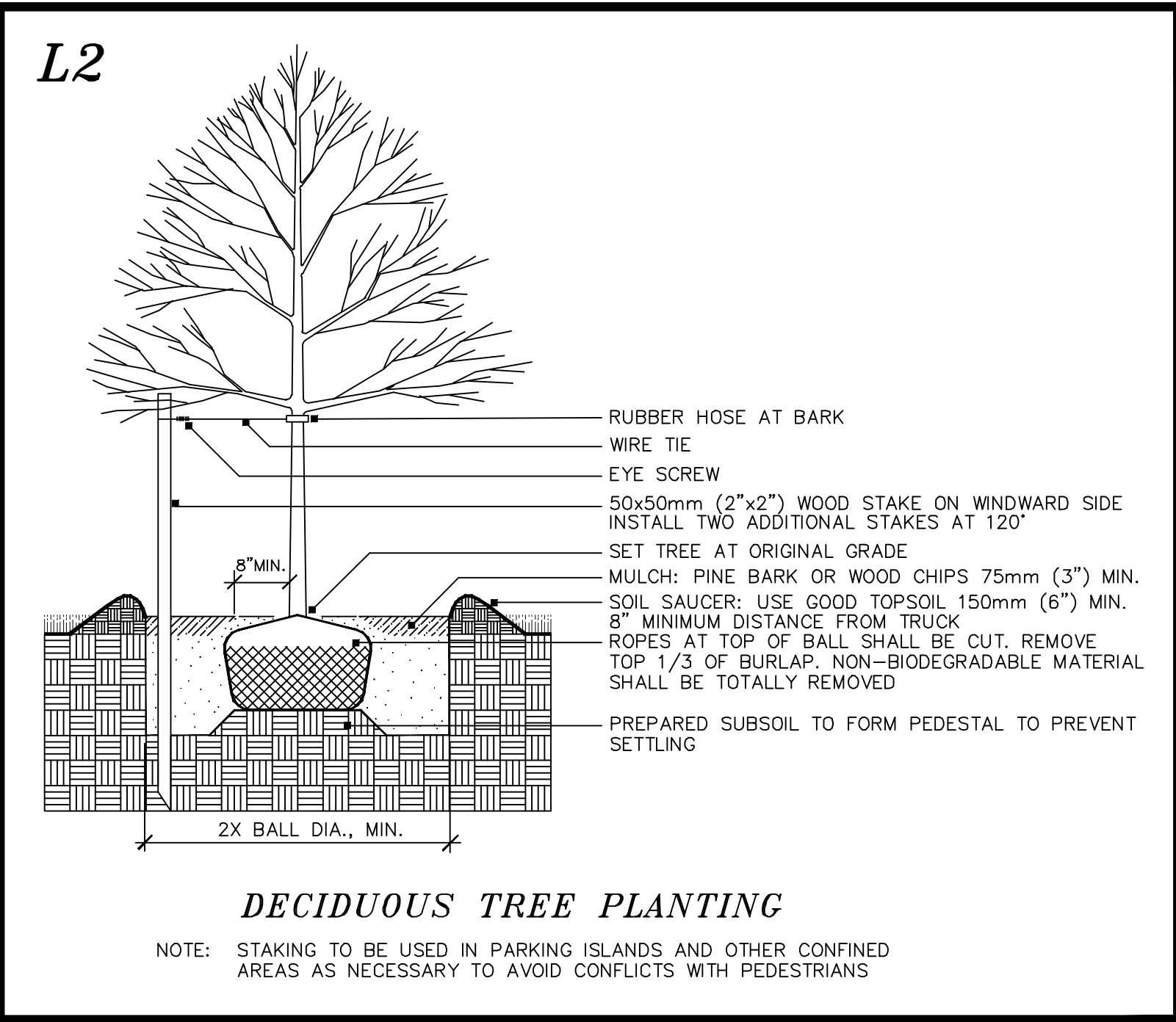
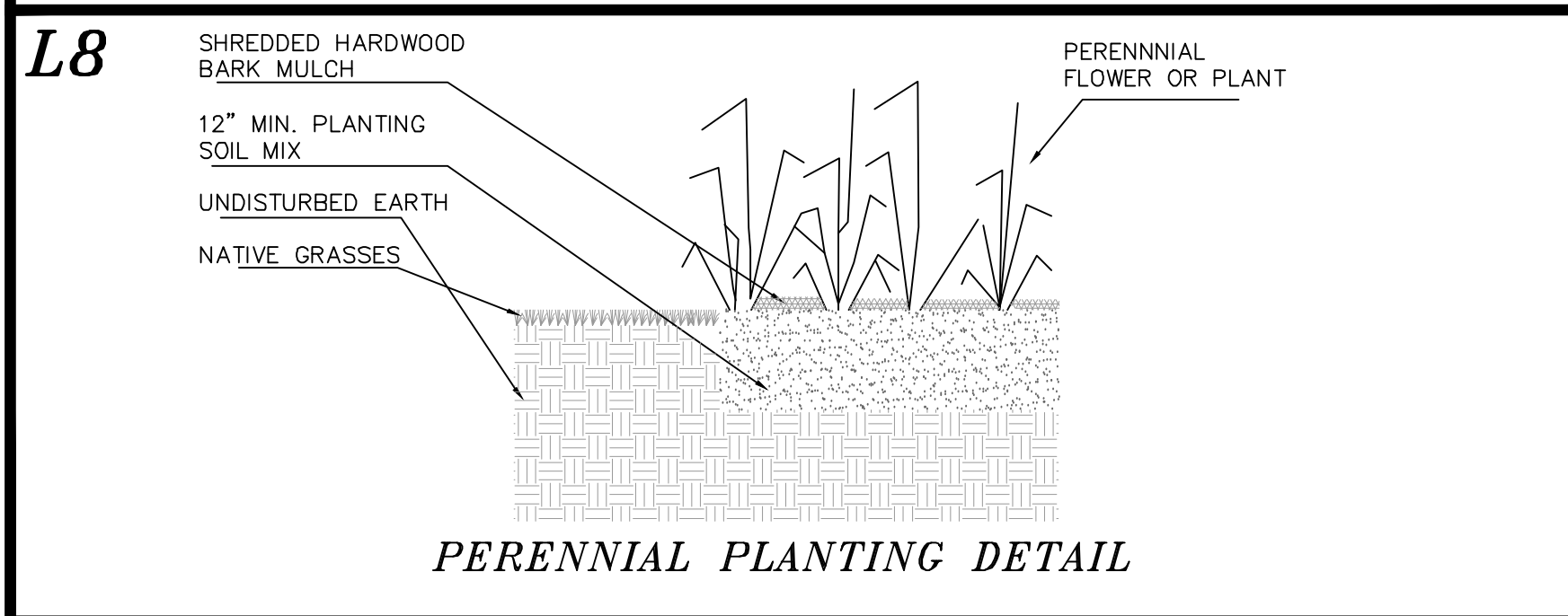
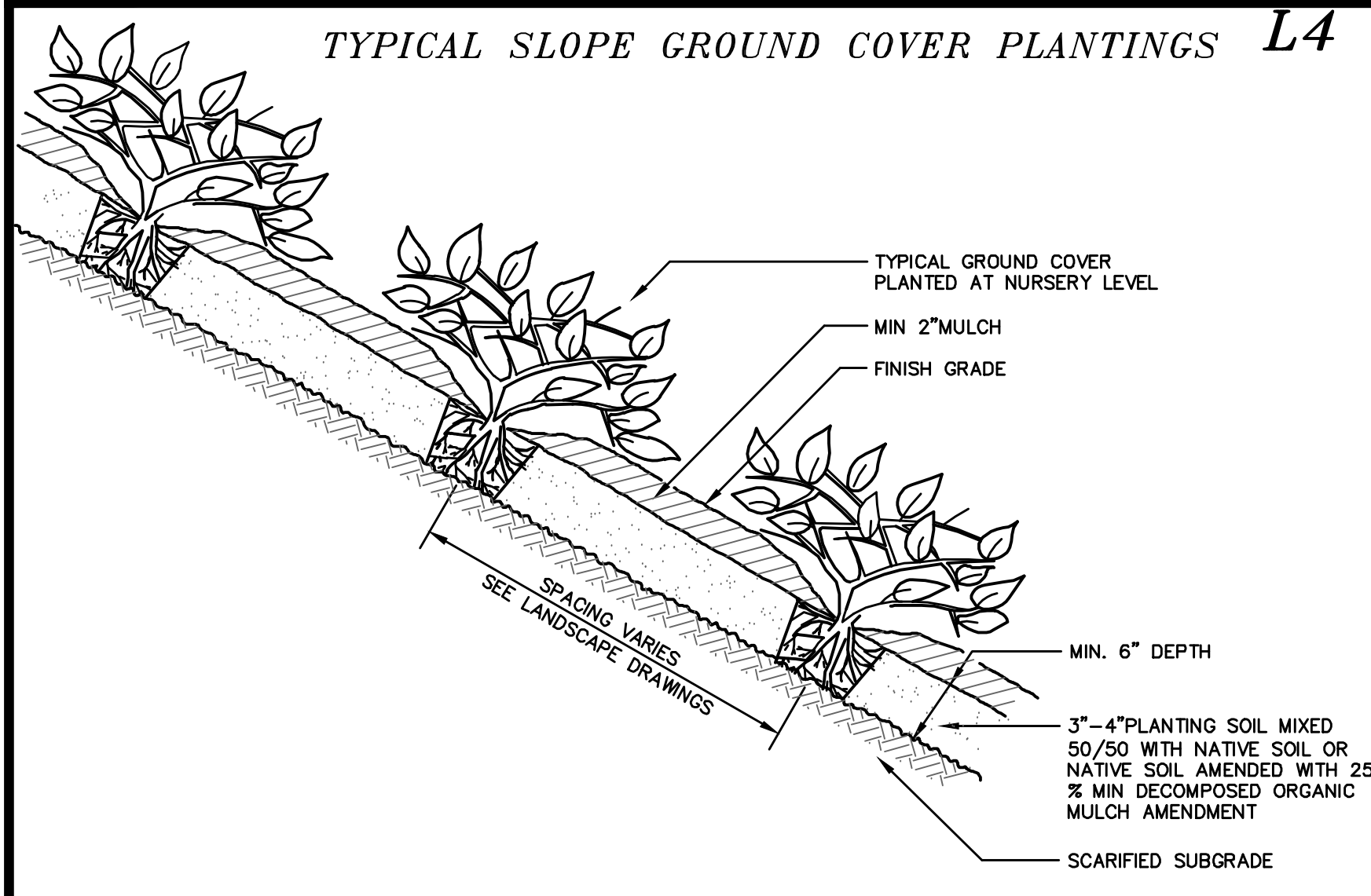
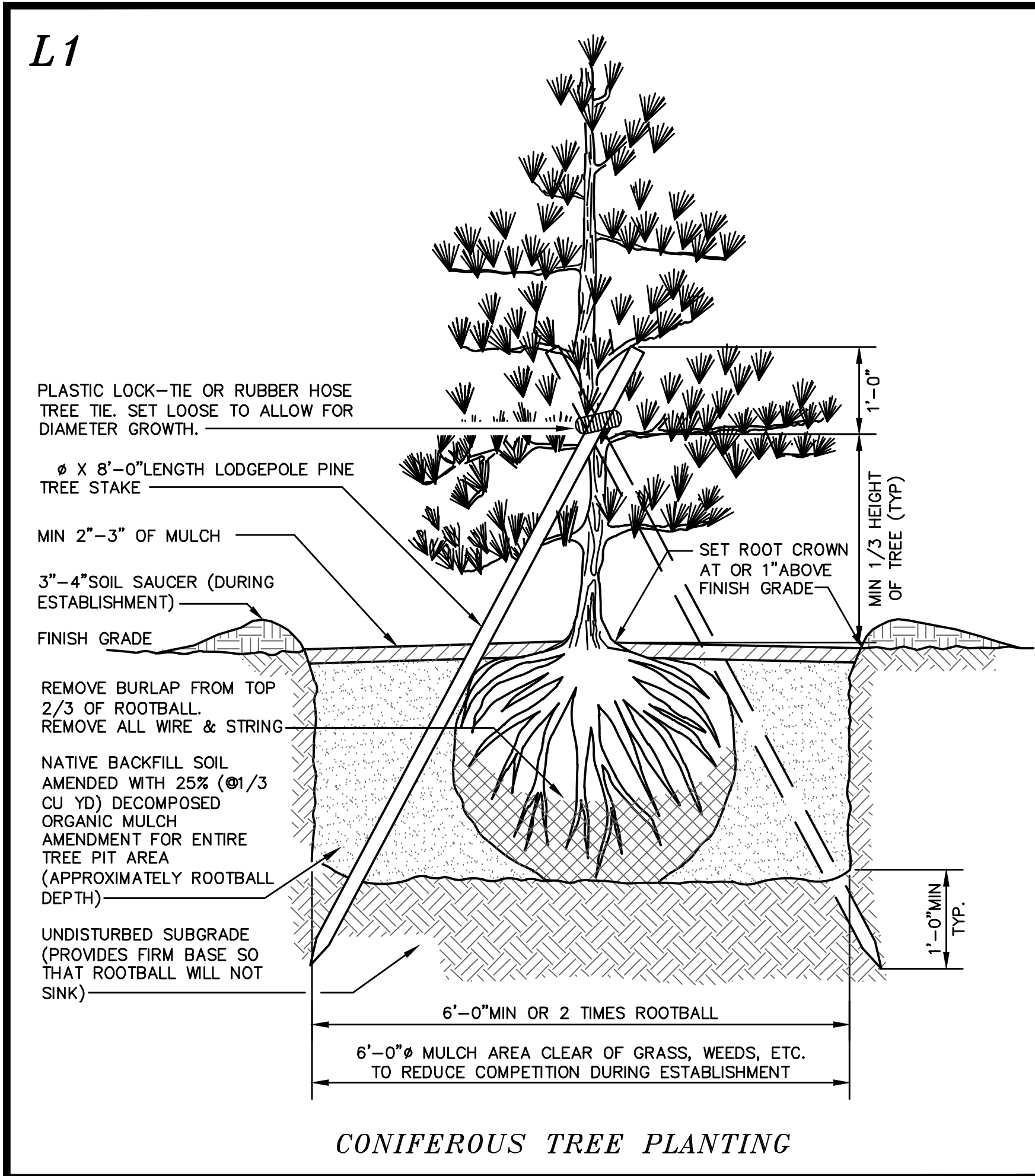
U-103

REVISION	DATE	DESCRIPTION
#1	9-23-21	REVISED PER AOT AND TRC COMMENTS

UTILITY CONSTRUCTION DETAILS
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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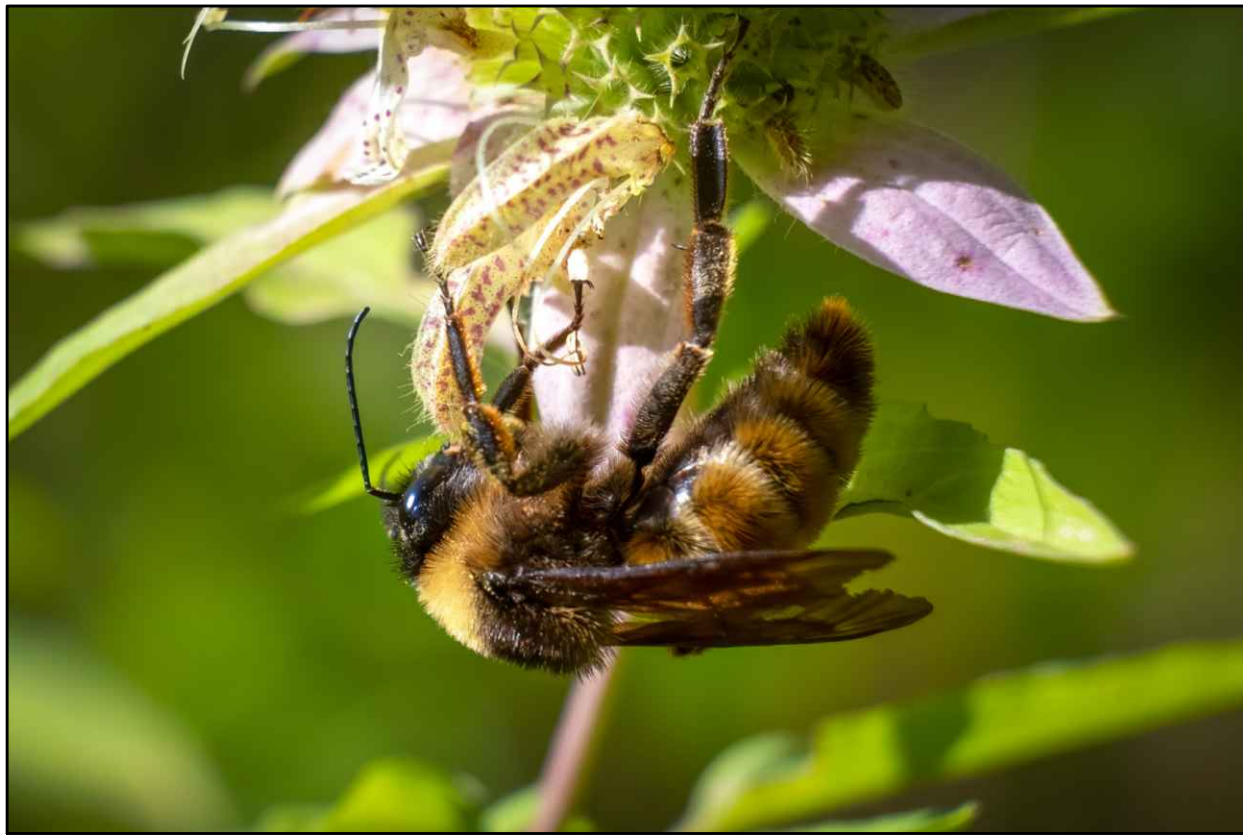


REVISION		DATE	DESCRIPTION
#1	9-23-21		

LANDSCAPING CONSTRUCTION DETAILS	
LAND OF SETTLEMENT ON 6TH, LLC	
SIXTH STREET DOVER, N.H.	
TAX MAP B, LOT 5	

BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603)332-2863	AS NOTED
	DATE : JUNE 10, 2021
FILE NO. : DB 2021-011	

STATE OF NEW HAMPSHIRE KENNETH A. BERRY No. 1942 LICENSED PROFESSIONAL ENGINEER
--



AMERICAN BUMBLE BEE

IDENTIFICATION/DESCRIPTION:

BOMBUS PENNSYLVANUS IS A LARGE BUMBLE BEE WITH THE QUEEN MEASURING 1 IN. IN THE WORKER FROM 0.5 IN. AND THE MALE FROM 0.75 IN IN LENGTH. THE QUEEN IS MOSTLY BLACK, INCLUDING THE LEGS, SPURS AND TEGULAE (BASE OF WING). TERGITE 1, OR THE MOST ANTERIOR BACK PORTION OF THE QUEEN IS OFTEN YELLOW ESPECIALLY IN THE MIDDLE. WORKER BEES' MIDDLE TERGITES ARE YELLOW, THE TAIL OR ABDOMEN OF THE QUEEN AND WORKER BEES IS BLACK. THE CLYPEUS (NOSE) HAS LARGE PUNCTURES EXCEPT ON THE MID LINE. THE HAIR ON THE TOP OF THE HEAD IS BLACK, SHORT AND EVEN. MALES HAVE A YELLOW ABDOMEN WITH A BLACK HEAD AND BLACK STRIPING IN THE LOWER THORAX.



TRI-COLORED BAT

IDENTIFICATION/DESCRIPTION:

THE TRICOLORLED BAT FORMERLY KNOWN AS THE EASTERN PIPISTRELLE (PIPISTRELLUS SUBFLAVUS), IS A SMALL BAT WEIGHING 0.2 TO 0.3 OUNCES (5 TO 8 GR) AND HAS A WINGSPAN OF 8 TO 10 INCHES. THE TERM "TRICOLORLED" REFERS TO THE BAT'S YELLOWISH-BROWN COAT THAT IS DARK AT THE BASE, YELLOWISH-BROWN IN THE MIDDLE, AND DARK AT THE TIPS. THE WING MEMBRANES ARE BLACKISH, BUT THE FACE AND EARS HAVE A PINKISH COLOR. AN OBVIOUS IDENTIFYING CHARACTERISTIC OF THIS SPECIES IS THE PINK COLOR OF THE SKIN ON THE RADIUS BONE. THE FEET ARE ALSO RELATIVELY LARGE COMPARED TO ITS BODY SIZE.



NORTHERN BLACK RACER

IDENTIFICATION/DESCRIPTION:

A SLENDER BLACK SNAKE MEASURING 36-60 INCHES. BLACK RACERS ARE GLOSSY BLACK ON THE TOP AND BOTTOM WITH A WHITE THROAT AND CHIN. YOUNG RACERS ARE PATTERNED WITH BROWN OR REDDISH PATCHES ON A LIGHTER BASE OF GRAY.



SMOOTH GREEN SNAKE

IDENTIFICATION/DESCRIPTION:

A THIN, SLENDER BRIGHT-GREEN SNAKE MEASURING 10-20 INCHES. THE UNDERSIDE IS WHITE OR A PALE YELLOW.



LITTLE BROWN BAT

IDENTIFICATION/DESCRIPTION:

THE LITTLE BROWN BAT IS A SMALL MAMMAL WITH A BODY LENGTH OF 2 1/2 - 4" AND WEIGHING APPROXIMATELY 1/8 TO 1/2 AN OUNCE. THE WINGSPAN OF LITTLE BROWN BATS RANGE FROM 9 - 11". BATS ARE THE ONLY MAMMALS THAT ENGAGE IN TRULY ACTIVE FLIGHT. AS THEIR NAME SUGGESTS THEY ARE GLOSSY BROWN ABOVE WITH A LIGHTER GRAY COLOR BELOW. THESE BATS CAN LIVE 20 TO 30 YEARS.



NORTHERN LONG-EARED BAT

IDENTIFICATION/DESCRIPTION:

THE NORTHERN LONG-EARED BAT IS A MEDIUM-SIZED BAT WITH A BODY LENGTH OF 3 TO 3.7 INCHES BUT A WINGSPAN OF 9 TO 10 INCHES. THEIR FUR COLOR CAN BE MEDIUM TO DARK BROWN ON THE BACK AND TAWNY TO PALE-BROWN ON THE UNDERSIDE. AS ITS NAME SUGGESTS, THIS BAT IS DISTINGUISHED BY ITS LONG EARS, PARTICULARLY AS COMPARED TO OTHER BATS IN ITS GENUS, MYOTIS



EASTERN SMALL-FOOTED BAT

IDENTIFICATION/DESCRIPTION:

THE EASTERN SMALL-FOOTED BAT HAS BROWNISH FUR, OVEN WITH A GOLDEN SHEEN. THAT CONTRASTS WITH ITS BLACKISH FACE AND EARS, AND BLACKISH—BROWN WINGS AND TAIL MEMBRANE. IT CAN BE DISTINGUISHED FROM OTHER MYOTIS SPECIES BY ITS BLACK MASK AND SMALL SIZE. THE BODY IS LITTLE MORE THAN 3½ INCHES LONG, INCLUDING A 1½-INCH TAIL. ITS SMALL FEET, WHICH PROVIDE THE COMMON NAME, ARE LESS THAN A HALF-INCH AND ITS WINGSPAN RANGES FROM 8¼ TO 9¾ INCHES. THIS SPECIES FLIES SLOWLY AND ERRATICALLY, USUALLY ABOUT ONE TO THREE YARDS ABOVE THE GROUND.



SILVER HAIRED BAT

IDENTIFICATION/DESCRIPTION:

THE SILVER-HAIRED BAT IS A MEDIUM-SIZED BAT WITH VERY DARK FUR TIPPED WITH SILVER OR WHITE. THE WINGS AND TAIL MEMBRANE ARE BLACK. EARS ARE SHORT AND ROUND WITH A SHORT, BLUNT-TIPPED TRAGUS. THE DORSAL SURFACE OF THE TAIL MEMBRANE IS PARTIALLY FURRED AND THE CALCAR LACKS A KEEL



BLANDINGS TURTLE

IDENTIFICATION/DESCRIPTION:

A 7- TO 9-INCH TURTLE WITH YELLOW SPECKLES THAT OFTEN RUN TOGETHER TO FORM STREAKS ON THE CARAPACE. EASILY IDENTIFIED WHEN BASKING FROM ITS CHARACTERISTIC YELLOW THROAT AND CHIN.



SPOTTED TURTLE

IDENTIFICATION/DESCRIPTION:

A SMALL 3-5 INCH TURTLE RECOGNIZED BY NUMEROUS YELLOW SPOTS COVERING A DARK CARAPACE. THE NUMBER OF SPOTS IS VARIABLE. SPOTS CAN ALSO BE FOUND ON THE HEAD AND LIMBS.



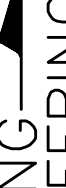
WOOD TURTLE

IDENTIFICATION/DESCRIPTION:

A 5-8 INCH TURTLE CHARACTERIZED BY ITS HIGHLY SCULPTED SHELL WHERE EACH LARGE SCUTE TAKES AN IRREGULAR PYRAMIDAL SHAPE. THE NECK AND FORELIMBS ARE ORANGE.

#1	9-23-21	REVISD PER AOT AND TRC COMMENTS
REVISION	DATE	DESCRIPTION

WILDLIFE IDENTIFICATION PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

	BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603) 332-2863	
	SCALE :	N/A
	DATE :	JUNE 10, 2021
	FILE NO. :	DB 2021-011



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335 Second Crown Point Road
Barrington, NH 03825
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City of Dover Planning Department
Attention: Assistant City Planner Donna Benton
288 Central Ave.
Dover, NH 03820

June 10, 2021

RE: Traffic Impact Analysis & Distribution
Settlement on 6th, LLC
Tax Map B, Lot 5
Sixth Street
Dover, NH 03820

Ms. Benton,

Pursuant to the City of Dover Site Review Regulations, Berry Surveying & Engineering (BS&E), on behalf of Settlement on 6th, LLC, has prepared a Standard Traffic Impact Analysis for the development of thirteen single family homes on Tax Map B, Lot 5. The point of analysis is the intersection of the proposed site entrance, Wildcat Drive, and Sixth Street.

The following conclusions were reached as a result Traffic Impact Analysis:

- A total of 10 vehicle trips (3 enter/7 exit) are predicted to occur at the weekday AM peak hour and 13 vehicle trips (8 enter/5 exit) at the PM peak hour.
- The 2021 and 2031 build traffic volumes DO NOT satisfy the NCHRP 457 guidelines for the implementation of a left-turn lane for all peak hours.
- The 2021 and 2031 build traffic volumes DO NOT satisfy the NCHRP 457 guidelines for the implementation of a right-turn lane for all peak hours with the exception of 2031 AM.
- It is recommended that the surrounding infrastructure will be sufficient to handle the projected increase in vehicle trips and peak hour and all other hours.

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Proposed Development & Introduction

The proposal is to develop Tax Map B, Lot 5 to contain thirteen single family homes. The proposed access to the site is a 24 foot wide roadway, known as Wildcat Drive, with 30 & 40 foot pavement entrance radii for vehicle turning. Wildcat Drive is 783LF to the neck of the cul-de-sac, and a total of 1,095 LF. The proposed entrance is located at the southern edge of the subject parcels frontage. The purpose of this analysis is to determine the maximum number of trips coming to and leaving the proposed project site during certain peak periods of the day. This information is then used in determining the impact on safety as it relates to the existing roadway infrastructure. The following components of the analysis are typical for a project of this size pursuant to the Institute of Traffic Engineers (ITE) manual.

Existing Conditions

Existing Site Description

The subject parcel is known as Tax Map B, Lot 5 containing 840,778 Sq. Ft. (19.30 Ac.) of land. Tax Map B, Lot 5 is a vacant lot located in the Rural Residential (R-40) District and contains lot frontage on Sixth Street. There are four single family homes and driveways adjacent to the subject parcel frontage and three single family driveways within 250' south of proposed Wildcat Drive. Nearby roadways include the intersection of Sixth Street and Long Hill Road 0.4 miles to the north and Sixth Street and Wildewood Lane 0.2 miles to the south of proposed Wildcat Drive.

Sixth Street Roadway Description

Sixth Street is a two lane major collector road, according to the NHDOT MS2 Transportation Management System (NHDOT). This portion of Sixth Street runs north to south parallel with N.H. Route 16 and provides access to N.H. Route 16 to the south (Dover) and N.H. Route 125 & N.H. Route 108 to the north (Rochester, Somersworth). It has an Average Daily Traffic (ADT) of approximately 3,027 (2017) divided between north and south in the data provided by the NHDOT.

Sixth Street in the area of the project is composed of a twenty-four foot wide paved surface with ten foot travel lanes, variable width gravel shoulders on the east and west sides of the road. There is centerline delineation and fog / edge lines provided. The posted speed limit of the roadway is 30 miles per hour (MPH). The geometry of Sixth Street is relatively flat and straight in the project location. There are no crosswalks or any form of pedestrian amenities in the area of the project. There are also no public transit opportunities within a ¼ mile of Wildcat Drive.



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The map displays the Strafford, New Hampshire area, highlighting the location of the Strafford County Courthouse (marked with an orange star) and various monitoring stations (blue squares) with their respective coordinates and elevations. The map includes the Spaulding Turnpike (Toll road), the Strafford River, and the Strafford River Bridge. The Courthouse is located at approximately 43.05°N, 70.85°W.

Station Name	Coordinates (N, W)	Elevation (ft)
939	43.05, 70.85	20
23,000	43.05, 70.85	00
2,674	43.05, 70.85	20
968	43.05, 70.85	20
2,945	43.05, 70.85	20
4,652	43.05, 70.85	20
70	43.05, 70.85	96
4,574	43.05, 70.85	20
12,483	43.05, 70.85	20
3,774	43.05, 70.85	20
26,749	43.05, 70.85	20
2,486	43.05, 70.85	20
9,428	43.05, 70.85	20
2,335	43.05, 70.85	20
11,537	43.05, 70.85	20
7,011	43.05, 70.85	20
2,597	43.05, 70.85	20
4,427	43.05, 70.85	20
4,928	43.05, 70.85	20
3,791	43.05, 70.85	20
23,420	43.05, 70.85	20
21,000	43.05, 70.85	96
90	43.05, 70.85	96
1,424	43.05, 70.85	20

Existing Traffic Volumes

Traffic counts performed in 2020 yield results lower than the historical ADT seen for Sixth Street due to an historical event, COVID19. To account for this, traffic counts recorded by the NHDOT for June 22nd & 23rd, 2017 and August 19th - 21st, 2014 were analyzed. It is shown by the NHDOT that this portion of Sixth Street has an ADT of 3,027 vehicles (2017). The highest weekday peak hour traffic volume on this section of Sixth Street northbound occurred from 8-9



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AM with 77 vehicles and from 4-5 PM with 256 vehicles. Southbound highest weekday peak hour traffic volume occurred from 7-8 AM with 293 vehicles and from 4-5 PM with 132 vehicles. To further analyze this drop in vehicle trips in 2020 with past years, Table #1 shows the average vehicle trips seen in 2014, 2017, & 2020.

2020 Daily Vehicle Average		2017 Daily Vehicle Average		2014 Daily Vehicle Average	
Two-Way	3156	Two-Way	3875	Two-Way	3745
Northbound	1622	Northbound	1933	Northbound	1922
Southbound	1534	Southbound	1942	Southbound	1823
Pre COVID (2014 & 2017 Average)		Difference in Pre COVID & 2020		% Difference in Pre COVID & 2020	
Two-Way	3810	Two-Way	653	Two-Way	18.8
Northbound	1927	Northbound	305	Northbound	17.2
Southbound	1882	Southbound	348	Southbound	20.4

Table 1: Sixth Street Traffic Volumes 2020 vs. Pre COVID

It can be seen from Table #1 that there is approximately a 17-20% reduction in trips from pre COVID conditions. To account for this reduction in vehicle trips during the most recent traffic count, NHDOT data from 2017 using an annual growth rate of 1%, compounded annually, is used in all calculations. Table #2 shows the traffic direction breakdown of Sixth Street 2017 traffic counts and Figures #2-7 are graphical representations of the traffic variations occurring throughout the day and from 2014/2017 to 2020. It can be seen from the directional percent distribution that the primary direction of travel during the Weekday AM peak hour is southbound towards Dover and NH Route 16. The primary direction of travel during the PM peak hour is northbound towards Rochester. Traffic counts of Sixth Street provided by the NHDOT are included in Appendix A as Figures 10-26.

Traffic Distribution Sixth Street						
Date	Northbound		Southbound		Two-Way	
Thursday 6/22/2017	AM Peak	77	AM Peak	293	AM Peak	370
	PM Peak	256	PM Peak	132	PM Peak	388
Friday 6/23/2017	AM Peak	77	AM Peak	212	AM Peak	288
	PM Peak	221	PM Peak	102	PM Peak	323
Average Peak Hour Traffic	AM Peak	77.0	AM Peak	252.5	AM Peak	329.0
	PM Peak	238.5	PM Peak	117.0	PM Peak	355.5
% Distribution	AM Peak	23.4	AM Peak	76.6		
	PM Peak	67.1	PM Peak	32.9		

Table 2: Directional breakdown of trips occurring on Sixth Street



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June 10, 2021

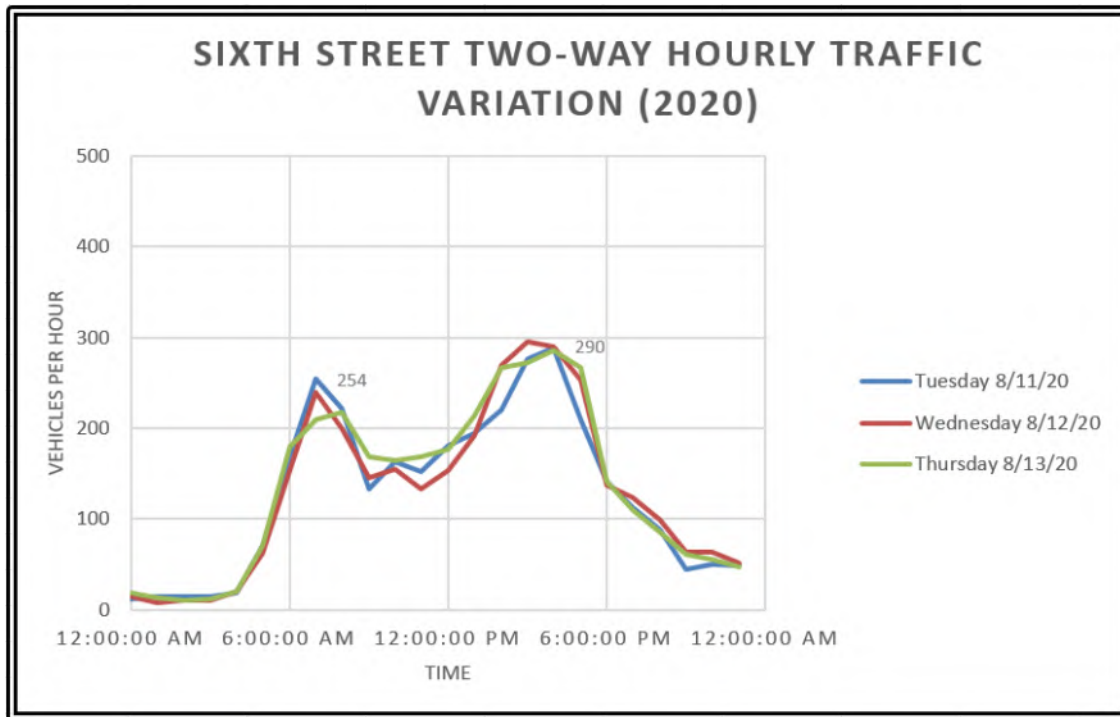


Figure 2: Graph of Sixth Street 2020 two-way hourly variation

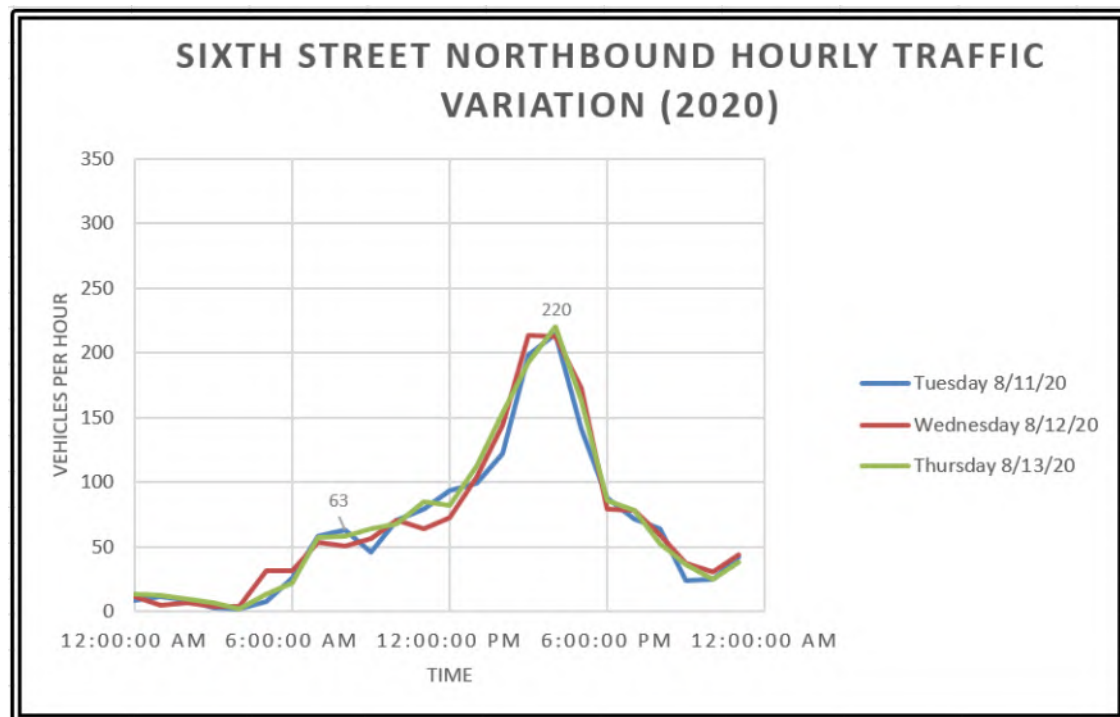


Figure 3: Graph of Sixth Street 2020 northbound hourly variation



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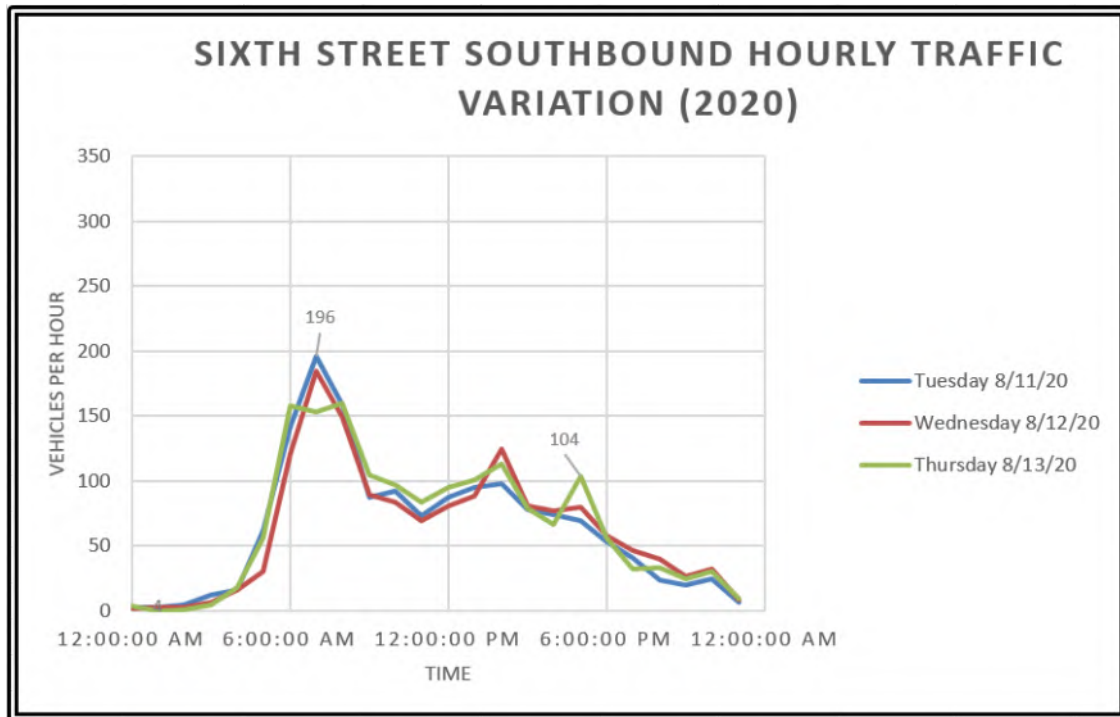


Figure 4: Graph of Sixth Street 2020 southbound hourly variation with peak values

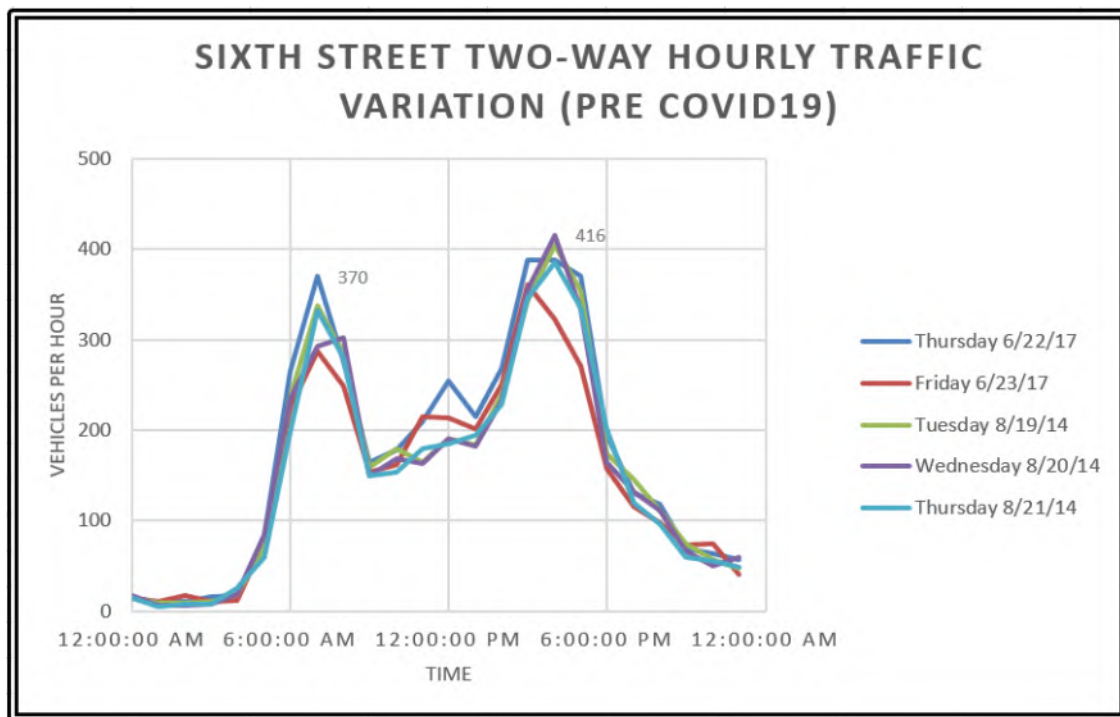


Figure 5: Graph of Sixth Street 2014 & 2017 two-way hourly variation



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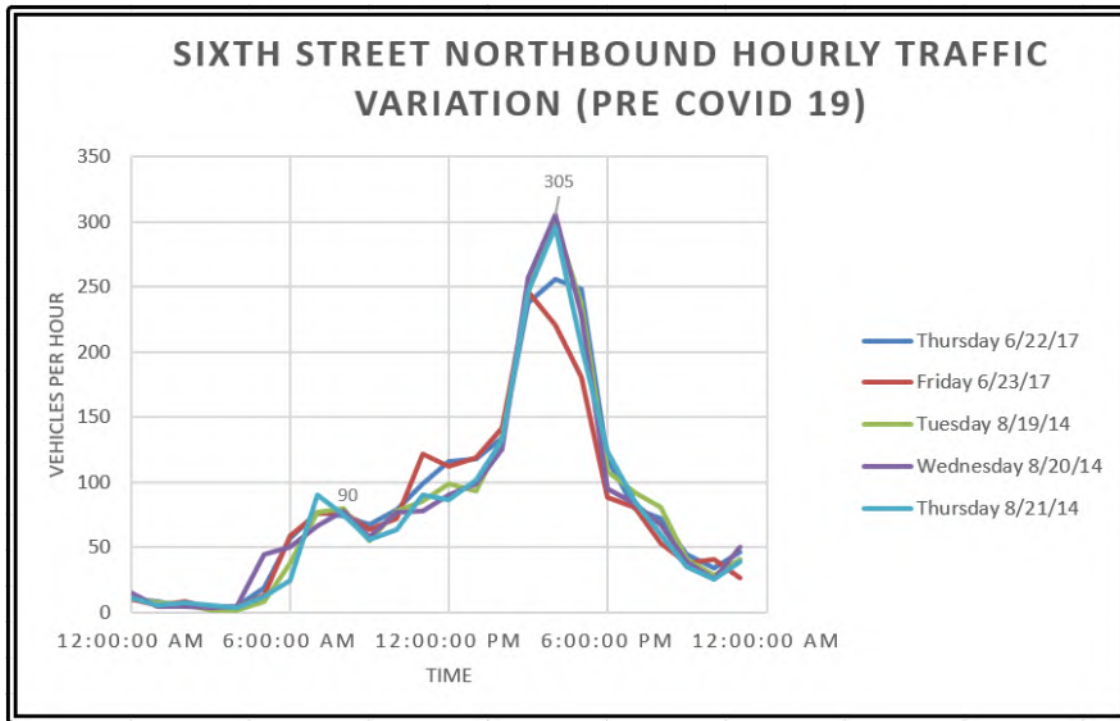


Figure 6: Graph of Sixth Street 2014 & 2017 northbound hourly variation

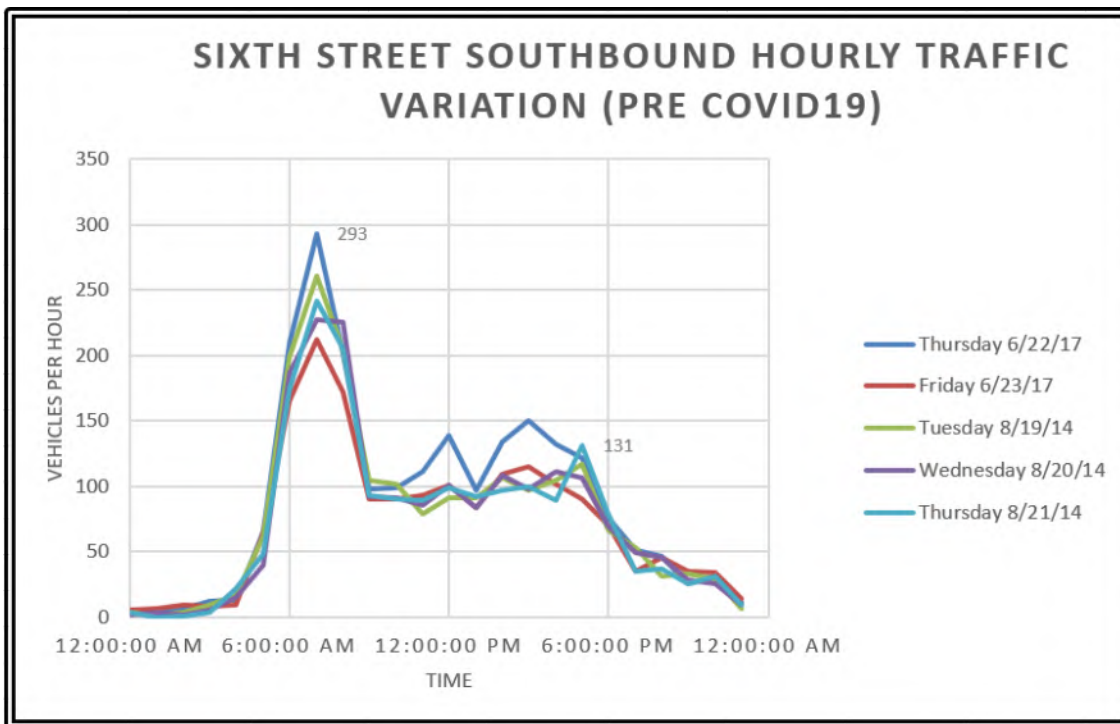


Figure 7: Graph of Sixth Street 2014 & 2017 southbound hourly variation with peak values



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Existing Vehicle Speeds

As previously mentioned, the posted speed limit of Sixth Street is 30 MPH. For the purposes of the safety analysis below, the 85th percentile of speed is required. This particular section of NH Sixth Street was observed by Berry Surveying & Engineering to analyze the pass by traffic, reviewing speed. Excessive speeds were rare, and most operators obeyed the posted speed limits within a deviation of 10 MPH. This is consistent with speeds found on urban roads. The 85th percentile derived by observation and consistency with general practice is 40 MPH.

Proposed Trip Generation

The 10th Edition ITE Trip Generation Manual was used to determine the proposed volume of trips. Included is the percentage of entrance-to-exit traffic experienced during the weekday AM & PM peak hours between 7 and 9 AM and 4 and 6 PM, Saturday peak hour between 11 AM and 1 PM, total weekday volume, and total Saturday volume. Land Use Code Single Family Detached Housing (210) was used in deriving the proposed trip generation from the project site. Tables 3 & 4 provides average trip rate, total trips generated, enter to exit ratio, and the enter to exit distribution.

Single Family Detached Housing:

Time Method	Weekday Total (Page 2)			Time Method	AM Peak Adj. Street (Page 3)			Time Method	PM Peak Adj. Street (Page 4)		
	Dwelling Units				Dwelling Units				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

Table 3: (Single Family Detached Housing) Peak hr of adjacent street traffic AM, PM, & weekday total

Total Proposed Trip Generation:

Time Method	Weekday Total (Page 2)			Time Method	AM Peak Adj. Street (Page 3)			Time Method	PM Peak Adj. Street (Page 4)		
	Dwelling Units				Dwelling Units				Dwelling Units		
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

Table 4: Proposed trip generation from the project site during AM, PM, & weekday total

Build Traffic Projections and Turning Analysis

Traffic data obtained from the NHDOT in 2017 has been projected to 2021 and ten years further to 2031. This has been done using a June peak seasonal adjustment factor of 1.08 (AM, PM & Saturday) and using an annual growth rate of 1%, compounded annually. The derivation of the peak seasonal adjustment factor comes from an average series of values from other urban highways from across New Hampshire, which can be found as Table 11 in Appendix C. Figures 8 and 9 show the build turning movements to and from the proposed site during weekday AM



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and PM peak hours. These figures also show the projected volume of traffic northbound and southbound on Sixth Street for 2021 and 2031. This data is then used to preform NCHRP 457 left-turn and right-turn bay warrant analyses. Appendix B contains the data that was used to conduct the analyses as Figures 27-29 and 33-34. A visual of these turning movements is shown in the following figures.

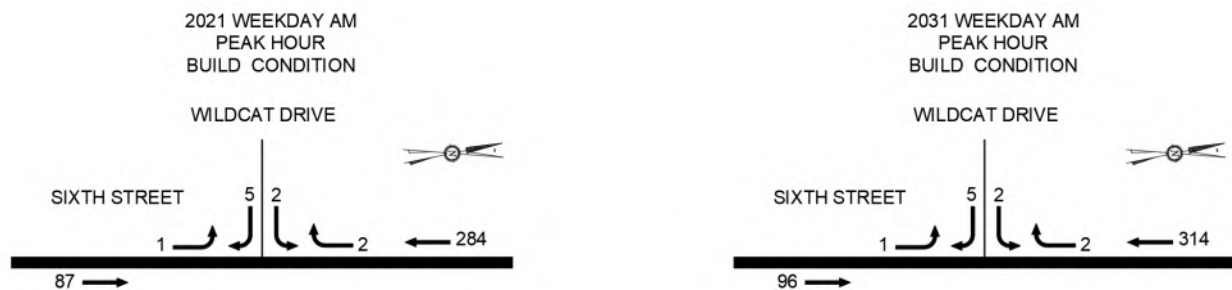


Figure 8: 2021 & 2031 build projected traffic volumes & turn movement weekday AM peak

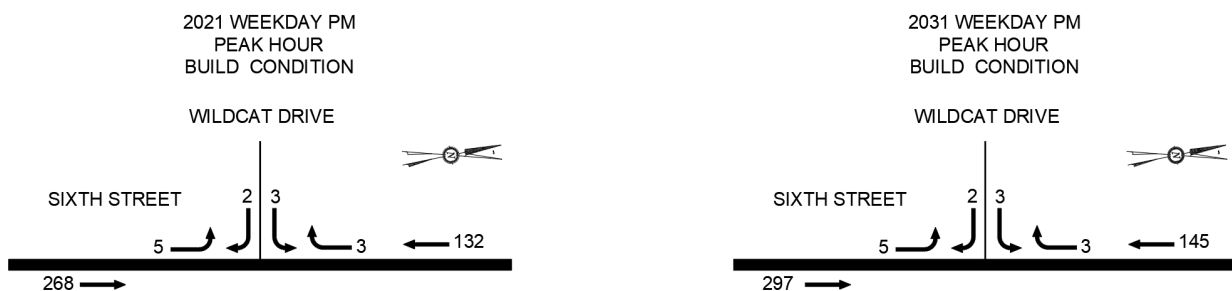


Figure 9: 2021 & 2031 build projected traffic volumes & turn movement weekday PM peak

Tables 5 & 6 show in a tabular format the total trips that are calculated to occur to and from the proposed site entrance are shown at the weekday peak hours analyzed 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 Hour	# Trips	Turn Type	% Distribution
Total Trips	9.6			
Trips Enter from Sixth Street Northbound		0.6	Left	5.8
Trips Enter from Sixth Street Southbound		1.8	Right	19.2
Trips Exit to Sixth Street Northbound		1.7	Left	17.5
Trips Exit to Sixth Street Southbound		5.5	Right	57.5

Table 5: Weekday AM peak hour build turning movements to and from Wildcat Drive



Left-Turn Warrants Analysis

The traffic volumes obtained from the NHDOT from 2017 projected to 2021 and 2031 were used to determine if a left-turn bay is warranted to safely enter the site. It has been calculated that approximately 1 trips are to occur turning left into the site during the weekday AM peak hour and 5 trips during the PM peak hour. The projection of the traffic volumes and data used to conduct the left-turn bay warrant analyses are included in Appendix B as Figures 27-28. The full warrant analyses can be found in Appendix B as Figures 29-32. Tables 7 & 8 are summaries of the left-turn bay warrant analyses for the proposed site entrance. Using the 85th percentile speed of 40 MPH, it was determined that a left-turn bay IS NOT warranted to safely enter the proposed site.

Left-Turn Lane Warrants Analysis Sixth Street		
Factors	2021 Weekday AM Build Volume	2031 Weekday AM Build Volume
Left-Turn Volume (NB)	1	1
Advancing Volume (NB) (L+TR+R)	89	98
Opposing Volume (SB) (TR+R)	286	316
Percent Lefts	1%	1%
85th Percentile Speed (MPH)	40	40
Limiting Adv. Volume (veh/hr)	1,568	1,601
Left-Turn Bay Warranted	NO	NO

Left-Turn Lane Warrants Analysis Sixth Street		
Factors	2021 Weekday PM Build Volume	2031 Weekday PM Build Volume
Left-Turn Volume (NB)	5	5
Advancing Volume (NB) (L+TR+R)	276	305
Opposing Volume (SB) (TR+R)	134	148
Percent Lefts	2%	2%
85th Percentile Speed (MPH)	40	40
Limiting Adv. Volume (veh/hr)	1,118	1,100
Left-Turn Bay Warranted	NO	NO

Table 8: Summary of Weekday PM peak hour NCHRP 457 left-turn bay analysis

Right-Turn Warrants Analysis

Depending on vehicle speed, advancing vehicular volumes, and the percent of right turns that vehicles are predicted to make, certain roadways may require special treatment for vehicles making right turning maneuvers. The determination of this special treatment is determined by the NCHRP 457 right turn bay guidelines. If warranted, the right-turn bay would allow for deceleration of vehicles and storage in the queue to wait safely for right turning traffic to clear.

The traffic volumes obtained from the NHDOT from 2017 projected to 2021 and 2031 were used to determine if a right-turn bay is warranted to safely enter the site. It has been calculated that approximately 2 trips are to occur turning left into the site during the weekday AM peak hour and 3 trips during the PM peak hour. The projection of the traffic volumes and data used to conduct the right-turn bay warrant analyses are included in Appendix B as Figures 33-34. The full warrant analyses can be found in Appendix B as Figures 35-38. Tables 9 & 10 are summaries of the right-turn bay warrant analyses for the proposed site entrance. Using the 85th percentile speed of 40 MPH, it was determined that a right-turn bay IS NOT warranted to safely enter the proposed site.

Right-Turn Lane Warrants Analysis Sixth Street		
Factors	2021 Weekday AM Build Volume	2031 Weekday AM Build Volume
Right-Turn Volume (SB)	2	2
Advancing Volume (SB) (L+TR+R)	287	316
85th Percentile Speed (MPH)	40	40
Limiting Right-Turn Volume (veh/hr)	382	295
Right-Turn Bay Warranted	NO	NO

Table 9: Summary of Weekday AM peak hour NCHRP 457 right-turn bay analysis



Right-Turn Lane Warrants Analysis Sixth Street		
Factors	2021 Weekday PM Build Volume	2031 Weekday PM Build Volume
Right-Turn Volume (SB)	3	3
Advancing Volume (SB) (L+TR+R)	140	154
85th Percentile Speed (MPH)	40	40
Limiting Right-Turn Volume (veh/hr)	2546	1986
Right-Turn Bay Warranted	NO	NO

Table 10: Summary of Weekday PM peak hour NCHRP 457 right-turn bay analysis

Sight Distance and Safety Analysis

Sight distance on Sixth Street to the north and south, as well as roadway alignment are the two determining factors of safety. For the proposed entrance, sight distance to the north un-obstructed for well over 400 feet (measured), while sight distance to the south is un-obstructed for well over 400 feet (measured). The standard sight distance required by NHDOT in this situation is 400 feet. In this instance both the northerly and southerly sight distances exceed the standard AASHTO 40MPH standard practice of 305 feet. There are no improvements required to obtain this sight distance.

With respect to general safety of Sixth Street 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 (2011)



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June 10, 2021

Conclusions and Recommendations

- 1.) A total of 10 vehicle trips (3 enter/7 exit) are predicted to occur at the weekday AM peak hour and 13 vehicle trips (8 enter/5 exit) at the PM peak hour.
- 1.) The 2021 and 2031 build traffic volumes DO NOT satisfy the NCHRP 457 guidelines for the implementation of a left-turn lane for all peak hours.
- 3.) The 2021 and 2031 build traffic volumes DO NOT satisfy the NCHRP 457 guidelines for the implementation of a right-turn lane for all peak hours with the exception of 2031 AM.
- 4.) It is recommended that the surrounding infrastructure will be sufficient to handle the projected increase in vehicle trips and peak hour and all other hours.

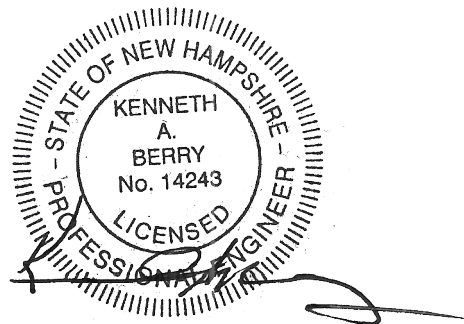
Respectfully Submitted,

BERRY SURVEYING & ENGINEERING



Christopher R. Berry, SIT
Principal, President

KRP/krp



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



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Appendix A

Traffic Counts

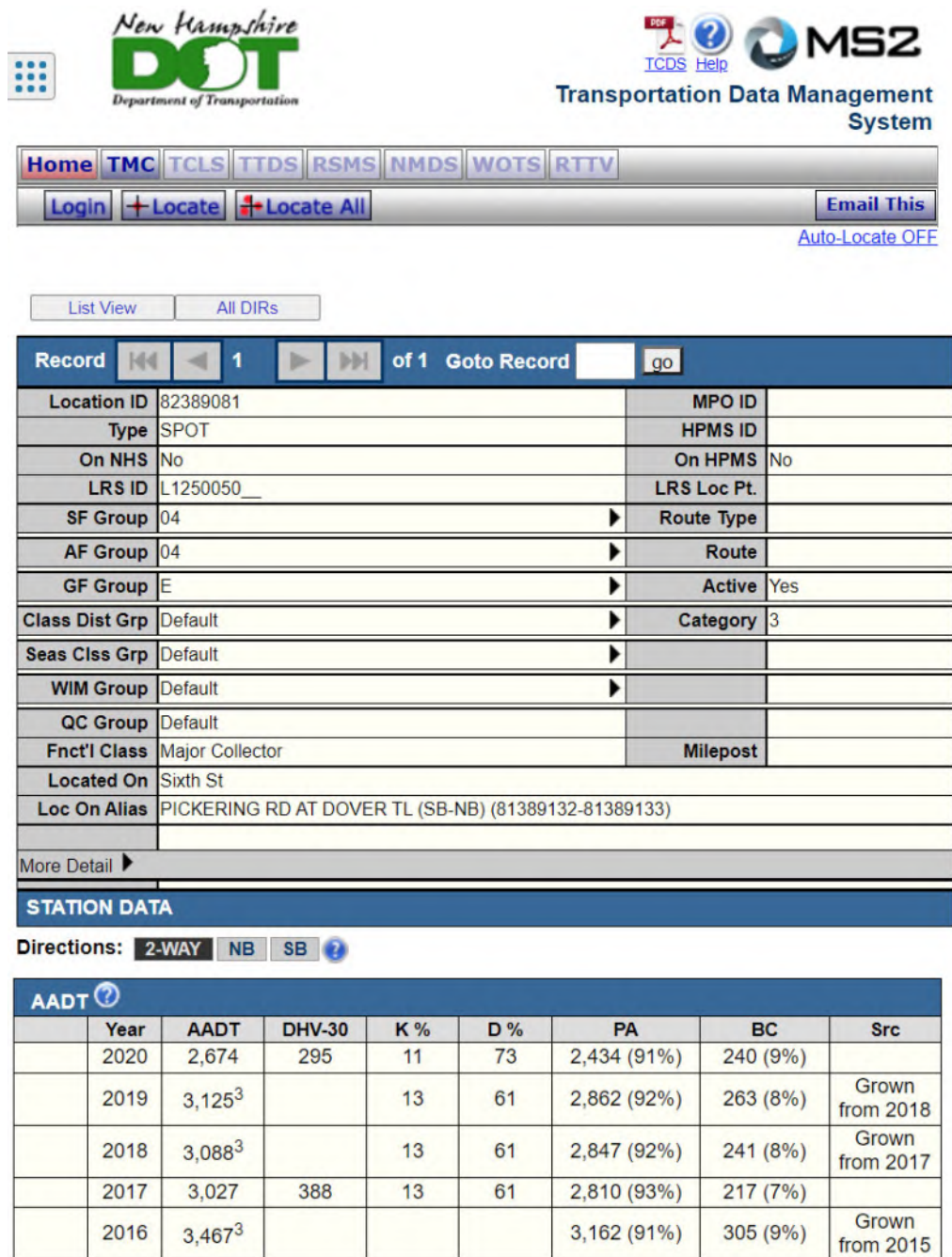


Figure 10: History of AADT values and classification for Sixth Street



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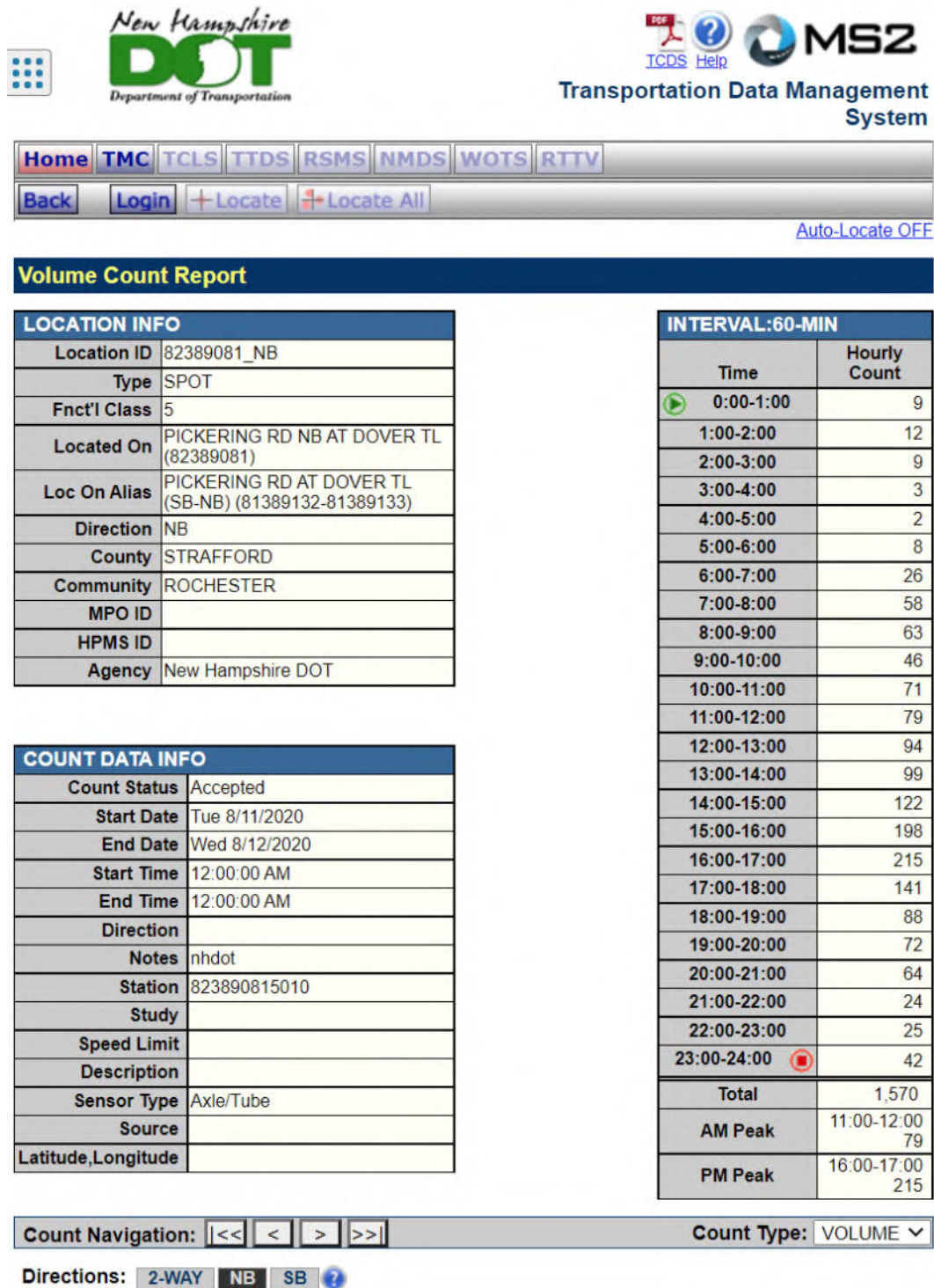


Figure 11: Tuesday August 11th, 2020 Sixth Street northbound traffic count



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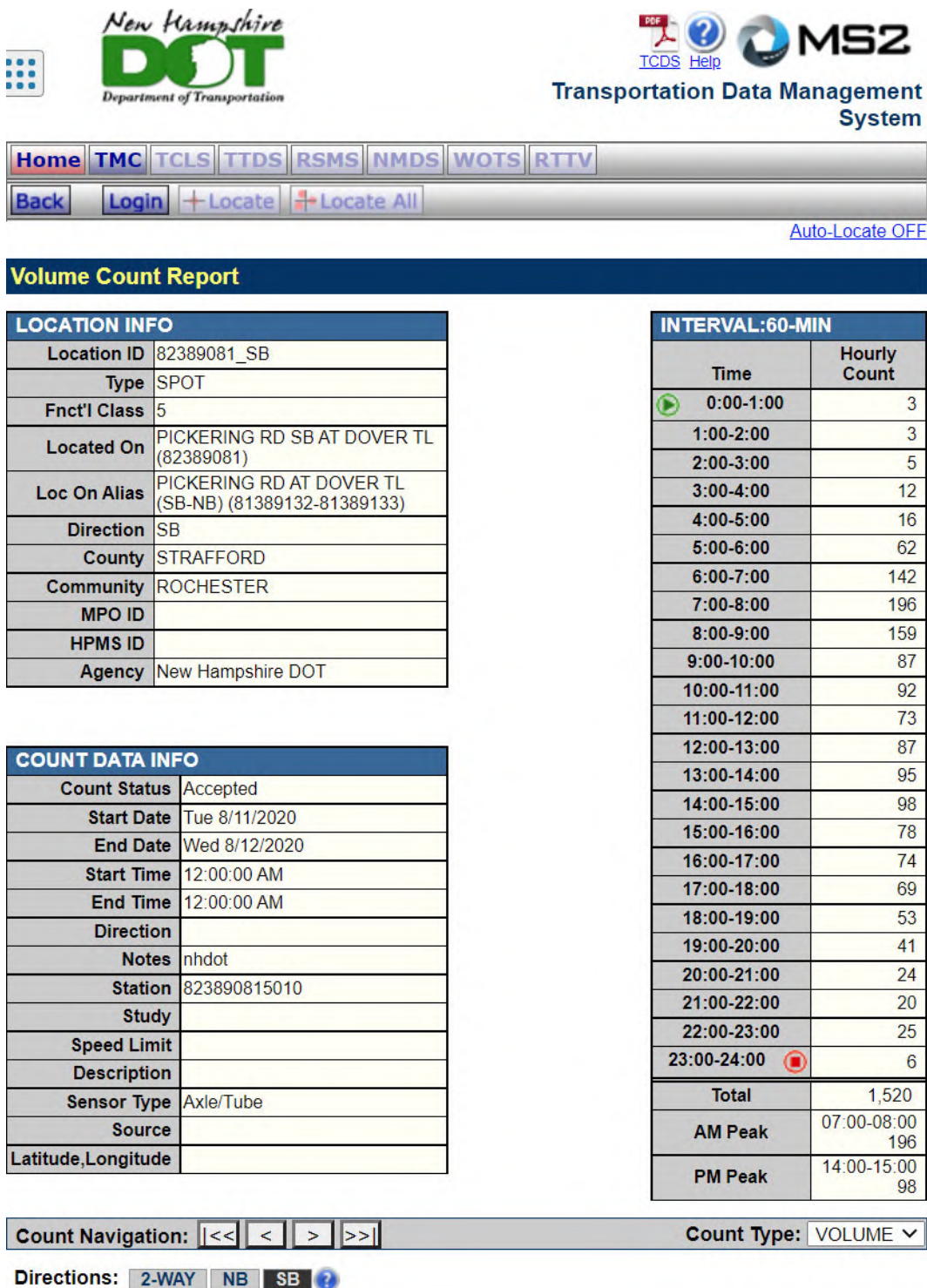


Figure 12: Tuesday August 11th, 2020 Sixth Street southbound traffic count



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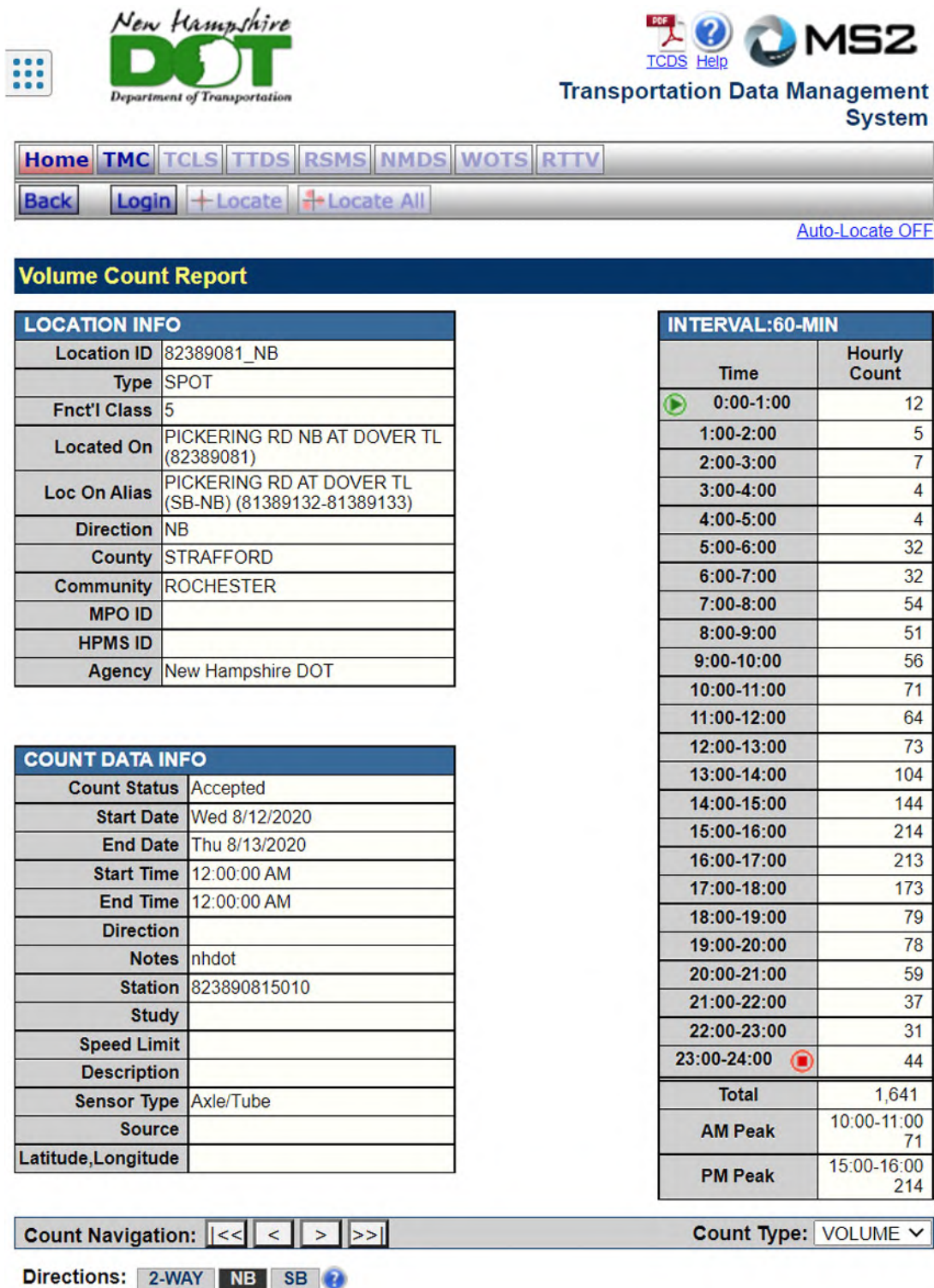


Figure 13: Wednesday August 12th, 2020 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO	
Location ID	82389081_SB
Type	SPOT
Funct'l Class	5
Located On	PICKERING RD SB AT DOVER TL (82389081)
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)
Direction	SB
County	STRAFFORD
Community	ROCHESTER
MPO ID	
HPMS ID	
Agency	New Hampshire DOT

COUNT DATA INFO	
Count Status	Accepted
Start Date	Wed 8/12/2020
End Date	Thu 8/13/2020
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	nhdot
Station	823890815010
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude,Longitude	

INTERVAL:60-MIN		
Time	Hourly Count	
0:00-1:00	2	
1:00-2:00	3	
2:00-3:00	3	
3:00-4:00	6	
4:00-5:00	16	
5:00-6:00	30	
6:00-7:00	121	
7:00-8:00	185	
8:00-9:00	149	
9:00-10:00	89	
10:00-11:00	84	
11:00-12:00	69	
12:00-13:00	81	
13:00-14:00	88	
14:00-15:00	125	
15:00-16:00	81	
16:00-17:00	77	
17:00-18:00	80	
18:00-19:00	58	
19:00-20:00	46	
20:00-21:00	40	
21:00-22:00	26	
22:00-23:00	32	
23:00-24:00	8	
Total	1,499	
AM Peak	07:00-08:00 185	
PM Peak	14:00-15:00 125	

Count Navigation: |<< < > >>| Count Type: VOLUME ▾

Directions: 2-WAY NB SB ?

Figure 14: Wednesday August 12th, 2020 Sixth Street southbound traffic count



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Volume Count Report

LOCATION INFO		INTERVAL:60-MIN	
Location ID	82389081_NB	Time	Hourly Count
Type	SPOT	0:00-1:00	14
Funct'l Class	5	1:00-2:00	13
Located On	PICKERING RD NB AT DOVER TL (82389081)	2:00-3:00	10
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)	3:00-4:00	7
Direction	NB	4:00-5:00	2
County	STRAFFORD	5:00-6:00	14
Community	ROCHESTER	6:00-7:00	22
MPO ID		7:00-8:00	57
HPMS ID		8:00-9:00	58
Agency	New Hampshire DOT	9:00-10:00	64
		10:00-11:00	68
		11:00-12:00	85
		12:00-13:00	82
		13:00-14:00	113
		14:00-15:00	154
		15:00-16:00	193
		16:00-17:00	220
		17:00-18:00	163
		18:00-19:00	86
		19:00-20:00	78
		20:00-21:00	53
		21:00-22:00	36
		22:00-23:00	25
		23:00-24:00	38
		Total	1,655
		AM Peak	11:00-12:00 85
		PM Peak	16:00-17:00 220

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 8/13/2020
End Date	Fri 8/14/2020
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	nhdot
Station	823890815010
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude,Longitude	

Count Navigation: |<<|<|>|>>| Count Type: VOLUME ▾

Directions: 2-WAY NB SB ?

Figure 15: Thursday August 13th, 2020 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO		INTERVAL:60-MIN	
Location ID	82389081_SB	Time	Hourly Count
Type	SPOT	0:00-1:00	4
Funct'l Class	5	1:00-2:00	0
Located On	PICKERING RD SB AT DOVER TL (82389081)	2:00-3:00	1
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)	3:00-4:00	5
Direction	SB	4:00-5:00	18
County	STRAFFORD	5:00-6:00	56
Community	ROCHESTER	6:00-7:00	158
MPO ID		7:00-8:00	153
HPMS ID		8:00-9:00	160
Agency	New Hampshire DOT	9:00-10:00	105
		10:00-11:00	97
		11:00-12:00	84
		12:00-13:00	95
		13:00-14:00	101
		14:00-15:00	113
		15:00-16:00	79
		16:00-17:00	66
		17:00-18:00	104
		18:00-19:00	56
		19:00-20:00	32
		20:00-21:00	33
		21:00-22:00	25
		22:00-23:00	30
		23:00-24:00	9
		Total	1,584
		AM Peak	08:00-09:00 160
		PM Peak	14:00-15:00 113

Count Navigation: << < > >> Count Type: VOLUME ▾

Directions: 2-WAY NB SB ?

Figure 16: Thursday August 13th, 2020 Sixth Street southbound traffic count



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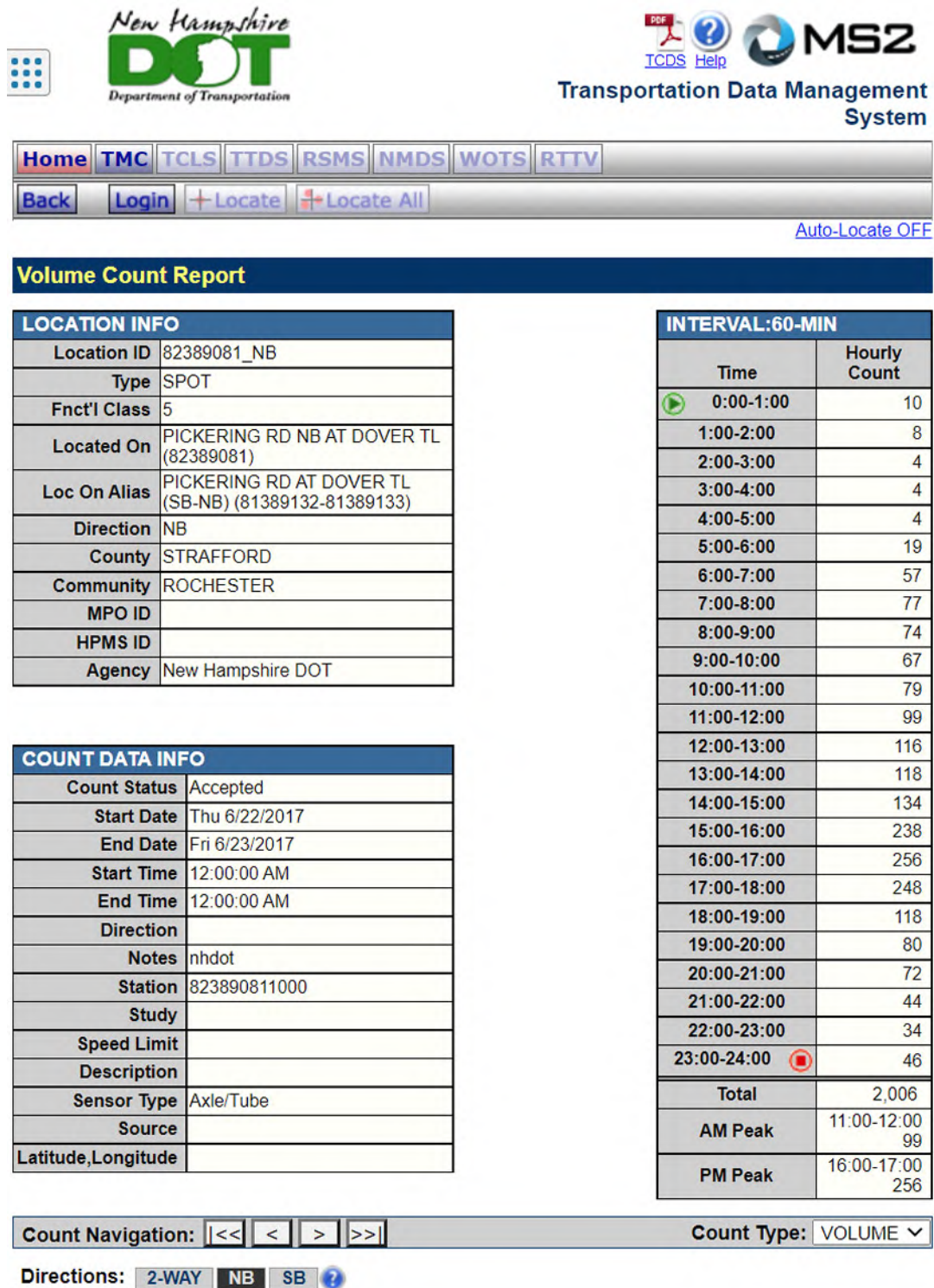


Figure 17: Thursday June 22nd, 2017 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO	
Location ID	82389081_SB
Type	SPOT
Funct'l Class	5
Located On	PICKERING RD SB AT DOVER TL (82389081)
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)
Direction	SB
County	STRAFFORD
Community	ROCHESTER
MPO ID	
HPMS ID	
Agency	New Hampshire DOT

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 6/22/2017
End Date	Fri 6/23/2017
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	nhdot
Station	823890815000
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude,Longitude	

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	4
1:00-2:00	3
2:00-3:00	6
3:00-4:00	12
4:00-5:00	13
5:00-6:00	65
6:00-7:00	209
7:00-8:00	293
8:00-9:00	202
9:00-10:00	98
10:00-11:00	99
11:00-12:00	111
12:00-13:00	139
13:00-14:00	97
14:00-15:00	134
15:00-16:00	150
16:00-17:00	132
17:00-18:00	122
18:00-19:00	76
19:00-20:00	51
20:00-21:00	46
21:00-22:00	25
22:00-23:00	30
23:00-24:00	11
Total	2,128
AM Peak	07:00-08:00 293
PM Peak	15:00-16:00 150

Count Navigation: |<<|<|>|>>| Count Type: VOLUME

Directions: 2-WAY NB SB ?

Figure 18: Thursday June 22nd, 2017 Sixth Street southbound traffic count



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Volume Count Report

LOCATION INFO	
Location ID	82389081_NB
Type	SPOT
Funct'l Class	5
Located On	PICKERING RD NB AT DOVER TL (82389081)
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)
Direction	NB
County	STRAFFORD
Community	ROCHESTER
MPO ID	
HPMS ID	
Agency	New Hampshire DOT

COUNT DATA INFO	
Count Status	Accepted
Start Date	Fri 6/23/2017
End Date	Sat 6/24/2017
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	nhdot
Station	823890811000
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude, Longitude	

INTERVAL:60-MIN		
Time	Hourly Count	
0:00-1:00	10	
1:00-2:00	5	
2:00-3:00	8	
3:00-4:00	3	
4:00-5:00	3	
5:00-6:00	13	
6:00-7:00	59	
7:00-8:00	76	
8:00-9:00	77	
9:00-10:00	63	
10:00-11:00	72	
11:00-12:00	122	
12:00-13:00	112	
13:00-14:00	119	
14:00-15:00	142	
15:00-16:00	246	
16:00-17:00	221	
17:00-18:00	181	
18:00-19:00	88	
19:00-20:00	81	
20:00-21:00	53	
21:00-22:00	38	
22:00-23:00	41	
23:00-24:00	26	
Total	1,859	
AM Peak	11:00-12:00	122
PM Peak	15:00-16:00	246

Count Navigation: << < > >> Count Type: VOLUME ▾

Directions: 2-WAY NB SB ?

Figure 19: Friday June 23rd, 2017 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO	
Location ID	82389081_SB
Type	SPOT
Funct'l Class	5
Located On	PICKERING RD SB AT DOVER TL (82389081)
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)
Direction	SB
County	STRAFFORD
Community	ROCHESTER
MPO ID	
HPMS ID	
Agency	New Hampshire DOT

COUNT DATA INFO	
Count Status	Accepted
Start Date	Fri 6/23/2017
End Date	Sat 6/24/2017
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	nhdot
Station	823890815000
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude, Longitude	

INTERVAL:60-MIN		
Time		Hourly Count
0:00-1:00		5
1:00-2:00		6
2:00-3:00		9
3:00-4:00		8
4:00-5:00		9
5:00-6:00		64
6:00-7:00		165
7:00-8:00		212
8:00-9:00		172
9:00-10:00		90
10:00-11:00		90
11:00-12:00		93
12:00-13:00		101
13:00-14:00		83
14:00-15:00		109
15:00-16:00		115
16:00-17:00		102
17:00-18:00		90
18:00-19:00		70
19:00-20:00		35
20:00-21:00		45
21:00-22:00		35
22:00-23:00		34
23:00-24:00		14
Total		1,756
AM Peak		07:00-08:00 212
PM Peak		15:00-16:00 115

Count Navigation: << < > >> Count Type: VOLUME ▼

Directions: 2-WAY NB SB ?

Figure 20: Friday June 23rd, 2017 Sixth Street southbound traffic count



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Volume Count Report

LOCATION INFO		INTERVAL:60-MIN	
Location ID	82389081_NB	Time	Hourly Count
Type	SPOT	0:00-1:00	11
Funct'l Class	5	1:00-2:00	7
Located On	PICKERING RD NB AT DOVER TL (82389081)	2:00-3:00	6
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)	3:00-4:00	2
Direction	NB	4:00-5:00	2
County	STRAFFORD	5:00-6:00	8
Community	ROCHESTER	6:00-7:00	37
MPO ID		7:00-8:00	77
HPMS ID		8:00-9:00	80
Agency	New Hampshire DOT	9:00-10:00	55
		10:00-11:00	78
		11:00-12:00	85
		12:00-13:00	99
		13:00-14:00	94
		14:00-15:00	133
		15:00-16:00	246
		16:00-17:00	300
		17:00-18:00	237
		18:00-19:00	108
		19:00-20:00	92
		20:00-21:00	81
		21:00-22:00	41
		22:00-23:00	28
		23:00-24:00	41
		Total	1,948
		AM Peak	11:00-12:00 85
		PM Peak	16:00-17:00 300

COUNT DATA INFO	
Count Status	Accepted
Start Date	Tue 8/19/2014
End Date	Wed 8/20/2014
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	NB
Notes	
Station	
Study	
Speed Limit	
Description	
Sensor Type	
Source	
Latitude, Longitude	

Count Navigation:
<< < > >>

Count Type: VOLUME

Directions:
2-WAY NB SB

Figure 21: Tuesday August 19th, 2014 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO		INTERVAL:60-MIN	
Location ID	82389081_SB	Time	Hourly Count
Type	SPOT	0:00-1:00	3
Funct'l Class	5	1:00-2:00	2
Located On	PICKERING RD SB AT DOVER TL (82389081)	2:00-3:00	3
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)	3:00-4:00	9
Direction	SB	4:00-5:00	17
County	STRAFFORD	5:00-6:00	62
Community	ROCHESTER	6:00-7:00	199
MPO ID		7:00-8:00	261
HPMS ID		8:00-9:00	204
Agency	New Hampshire DOT	9:00-10:00	104
		10:00-11:00	102
		11:00-12:00	79
		12:00-13:00	91
		13:00-14:00	91
		14:00-15:00	106
		15:00-16:00	97
		16:00-17:00	104
		17:00-18:00	117
		18:00-19:00	66
		19:00-20:00	53
		20:00-21:00	31
		21:00-22:00	33
		22:00-23:00	29
		23:00-24:00	6
		Total	1,869
		AM Peak	07:00-08:00 261
		PM Peak	17:00-18:00 117

Count Navigation:
|<<
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>>|

Count Type: VOLUME ▾

Directions:
2-WAY
NB
SB
?

Figure 22: Tuesday August 19th, 2014 Sixth Street southbound traffic count



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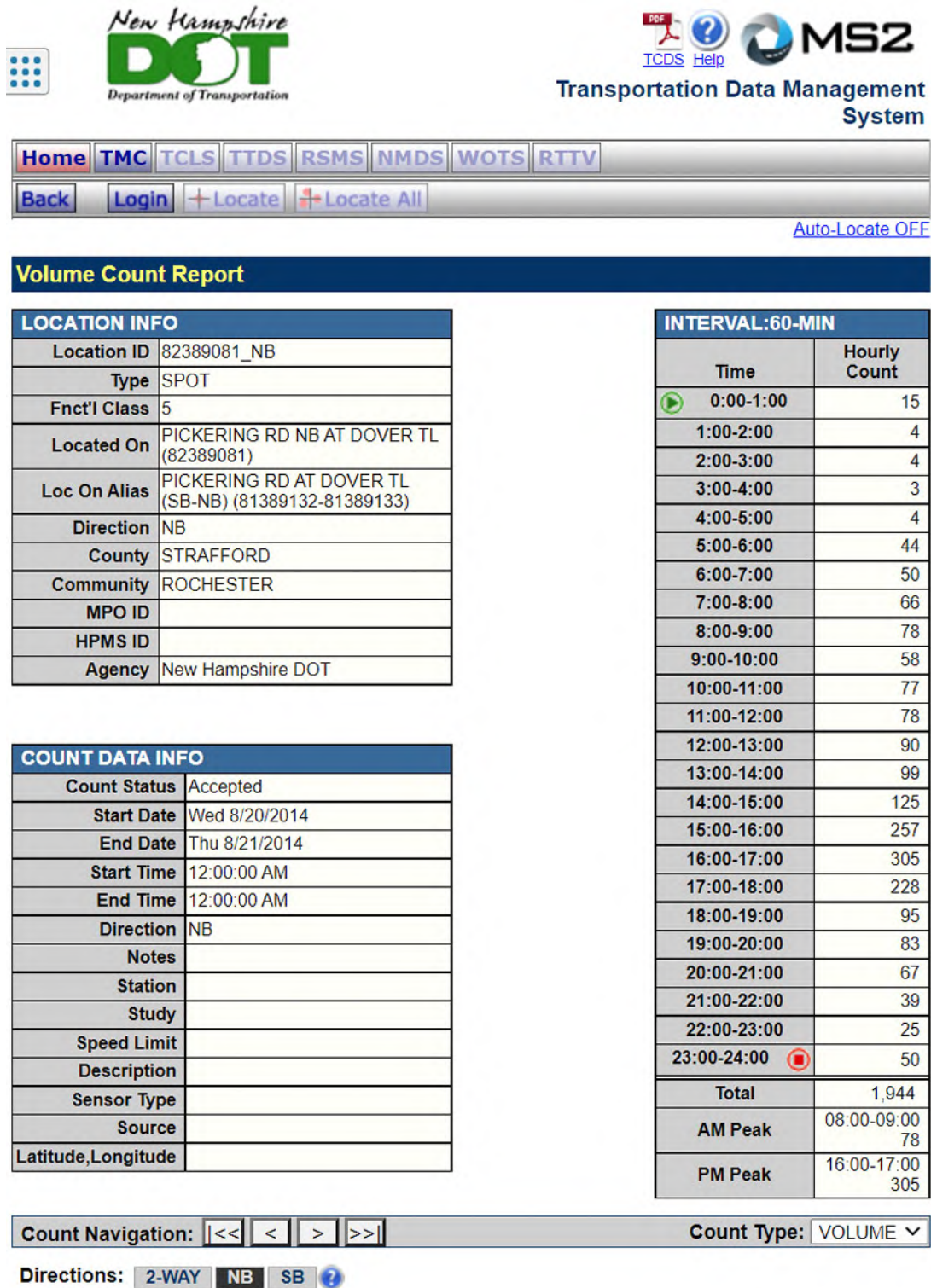


Figure 23: Wednesday August 20th, 2014 Sixth Street northbound traffic count



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Volume Count Report

LOCATION INFO		INTERVAL:60-MIN	
Location ID	82389081_SB	Time	Hourly Count
Type	SPOT	0:00-1:00	2
Funct'l Class	5	1:00-2:00	3
Located On	PICKERING RD SB AT DOVER TL (82389081)	2:00-3:00	2
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)	3:00-4:00	5
Direction	SB	4:00-5:00	15
County	STRAFFORD	5:00-6:00	40
Community	ROCHESTER	6:00-7:00	186
MPO ID		7:00-8:00	227
HPMS ID		8:00-9:00	225
Agency	New Hampshire DOT	9:00-10:00	92
		10:00-11:00	91
		11:00-12:00	85
		12:00-13:00	101
		13:00-14:00	83
		14:00-15:00	108
		15:00-16:00	98
		16:00-17:00	111
		17:00-18:00	106
		18:00-19:00	69
		19:00-20:00	49
		20:00-21:00	45
		21:00-22:00	28
		22:00-23:00	25
		23:00-24:00	9
		Total	1,805
		AM Peak	07:00-08:00 227
		PM Peak	16:00-17:00 111

COUNT DATA INFO	
Count Status	Accepted
Start Date	Wed 8/20/2014
End Date	Thu 8/21/2014
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	SB
Notes	
Station	
Study	
Speed Limit	
Description	
Sensor Type	
Source	
Latitude, Longitude	

Count Navigation:
|<<
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>
>>|

Count Type: VOLUME

Directions: 2-WAY NB SB ?

Figure 24: Wednesday August 20th, 2014 Sixth Street southbound traffic count



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Volume Count Report

LOCATION INFO	
Location ID	82389081_NB
Type	SPOT
Funct'l Class	5
Located On	PICKERING RD NB AT DOVER TL (82389081)
Loc On Alias	PICKERING RD AT DOVER TL (SB-NB) (81389132-81389133)
Direction	NB
County	STRAFFORD
Community	ROCHESTER
MPO ID	
HPMS ID	
Agency	New Hampshire DOT

COUNT DATA INFO	
Count Status	Accepted
Start Date	Tue 8/19/2014
End Date	Wed 8/20/2014
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	NB
Notes	
Station	
Study	
Speed Limit	
Description	
Sensor Type	
Source	
Latitude, Longitude	

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	11
1:00-2:00	7
2:00-3:00	6
3:00-4:00	2
4:00-5:00	2
5:00-6:00	8
6:00-7:00	37
7:00-8:00	77
8:00-9:00	80
9:00-10:00	55
10:00-11:00	78
11:00-12:00	85
12:00-13:00	99
13:00-14:00	94
14:00-15:00	133
15:00-16:00	246
16:00-17:00	300
17:00-18:00	237
18:00-19:00	108
19:00-20:00	92
20:00-21:00	81
21:00-22:00	41
22:00-23:00	28
23:00-24:00	41
Total	1,948
AM Peak	11:00-12:00 85
PM Peak	16:00-17:00 300

Count Navigation: |<<|<|>|>>| Count Type: VOLUME ▾

Directions: 2-WAY NB SB ?

Figure 25: Thursday August 21st, 2014 Sixth Street northbound traffic count



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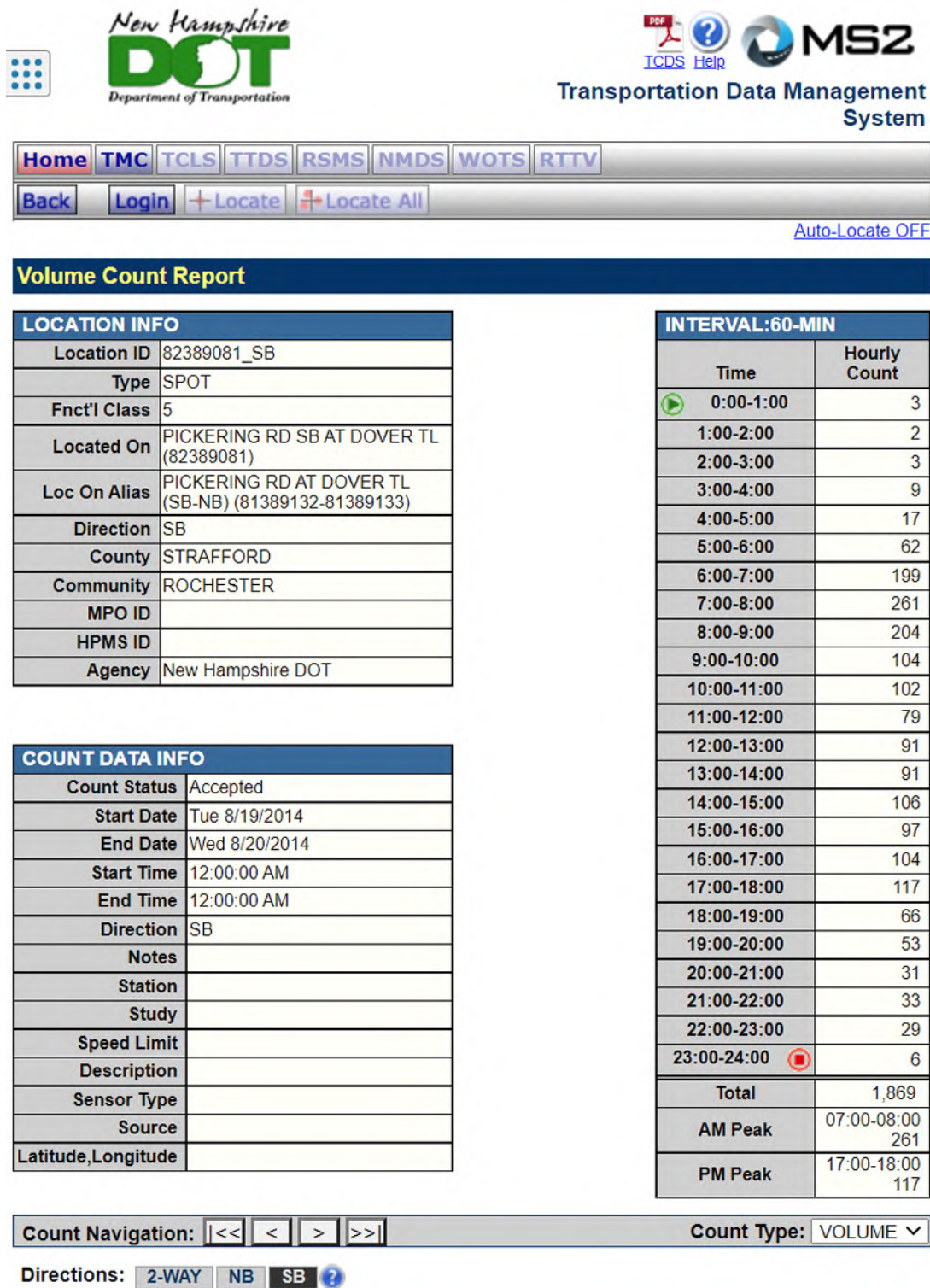


Figure 26: Thursday August 21st, 2014 Sixth Street southbound traffic count



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Appendix B**Data Used in Left-Turn Bay Warrants Analysis**

Year	Advancing Volume	Advancing Volume Peaked (TR)	Left Turns (L)	Right Turns (R)	Total Advancing Volume (L+TR+R)
2017	77	83.3	0.6	1.8	85.7
2018	78	84.1	0.6	1.8	86.5
2019	79	84.9	0.6	1.8	87.3
2020	79	85.8	0.6	1.8	88.2
2021	80	86.6	0.6	1.8	89.1
2022	81	87.5	0.6	1.8	89.9
2023	82	88.4	0.6	1.8	90.8
2024	83	89.3	0.6	1.8	91.7
2025	83	90.2	0.6	1.8	92.6
2026	84	91.1	0.6	1.8	93.5
2027	85	92.0	0.6	1.8	94.4
2028	86	92.9	0.6	1.8	95.3
2029	87	93.8	0.6	1.8	96.2
2030	88	94.8	0.6	1.8	97.2
2031	89	95.7	0.6	1.8	98.1
Year	Opposing Volume	Opposing Volume Peaked (TR)	Right Turns (R)		Total Opposing Volume (TR+R)
2017	253	273.1	1.8		274.9
2018	255	275.8	1.8		277.6
2019	258	278.5	1.8		280.4
2020	260	281.3	1.8		283.2
2021	263	284.1	1.8		286.0
2022	265	287.0	1.8		288.8
2023	268	289.9	1.8		291.7
2024	271	292.8	1.8		294.6
2025	273	295.7	1.8		297.5
2026	276	298.6	1.8		300.5
2027	279	301.6	1.8		303.5
2028	282	304.6	1.8		306.5
2029	285	307.7	1.8		309.5
2030	287	310.8	1.8		312.6
2031	290	313.9	1.8		315.7
Seasonal Peaking Factor (June)		1.08			

Figure 27: Data used for Weekday AM peak hour left-turn warrant analyses

Year	Advancing Volume	Advancing Volume Peaked (TR)	Left Turns (L)	Right Turns (R)	Total Advancing Volume (L+TR+R)
2017	239	257.9	5.4	2.7	266.0
2018	241	260.5	5.4	2.7	268.6
2019	243	263.1	5.4	2.7	271.2
2020	246	265.7	5.4	2.7	273.8
2021	248	268.4	5.4	2.7	276.5
2022	251	271.1	5.4	2.7	279.2
2023	253	273.8	5.4	2.7	281.9
2024	256	276.5	5.4	2.7	284.6
2025	258	279.3	5.4	2.7	287.4
2026	261	282.1	5.4	2.7	290.2
2027	263	284.9	5.4	2.7	293.0
2028	266	287.7	5.4	2.7	295.9
2029	269	290.6	5.4	2.7	298.7
2030	271	293.5	5.4	2.7	301.6
2031	274	296.5	5.4	2.7	304.6
Year	Opposing Volume	Opposing Volume Peaked (TR)	Right Turns (R)		Total Opposing Volume (TR+R)
2017	117	126.5	2.7		129.2
2018	118	127.8	2.7		130.5
2019	119	129.1	2.7		131.7
2020	121	130.4	2.7		133.0
2021	122	131.7	2.7		134.3
2022	123	133.0	2.7		135.6
2023	124	134.3	2.7		137.0
2024	125	135.7	2.7		138.3
2025	127	137.0	2.7		139.7
2026	128	138.4	2.7		141.0
2027	129	139.8	2.7		142.4
2028	131	141.2	2.7		143.8
2029	132	142.6	2.7		145.2
2030	133	144.0	2.7		146.7
2031	134	145.4	2.7		148.1
Seasonal Peaking Factor (June)		1.08			

Figure 28: Data used for Weekday PM peak hour left-turn warrant analyses

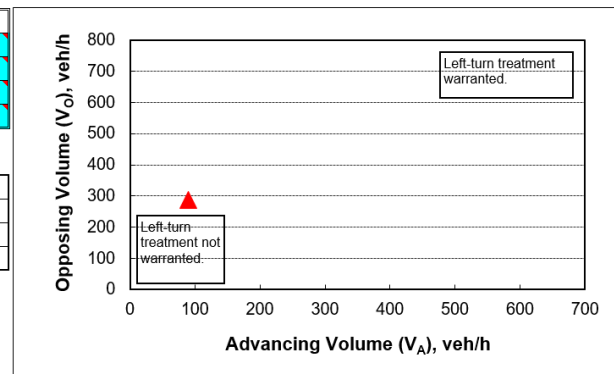
Left-Turn Bay Warrants Analysis

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.**2-lane roadway (English)****INPUT**

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	89
Opposing volume (V_O), veh/h:	286

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1568
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

**CALIBRATION CONSTANTS**

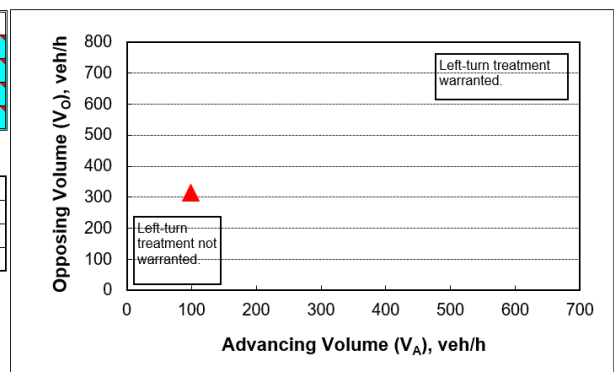
Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 29: 2021 Weekday AM peak hour NCHRP 457 left-turn bay warrant analysis**Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.****2-lane roadway (English)****INPUT**

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	98
Opposing volume (V_O), veh/h:	316

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1601
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

**CALIBRATION CONSTANTS**

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 30: 2031 Weekday AM peak hour NCHRP 457 left-turn bay warrant analysis**BERRY SURVEYING & ENGINEERING**

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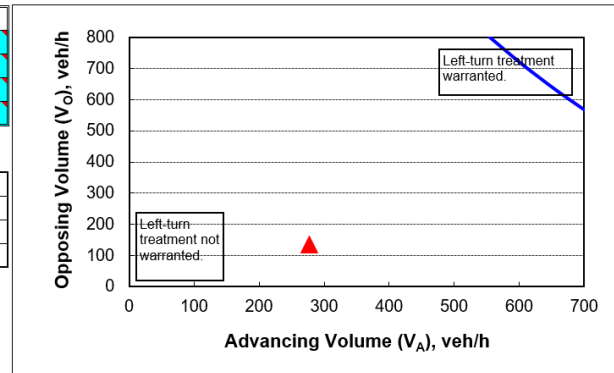
June 10, 2021

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.**2-lane roadway (English)****INPUT**

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	276
Opposing volume (V_O), veh/h:	134

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1118
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

**CALIBRATION CONSTANTS**

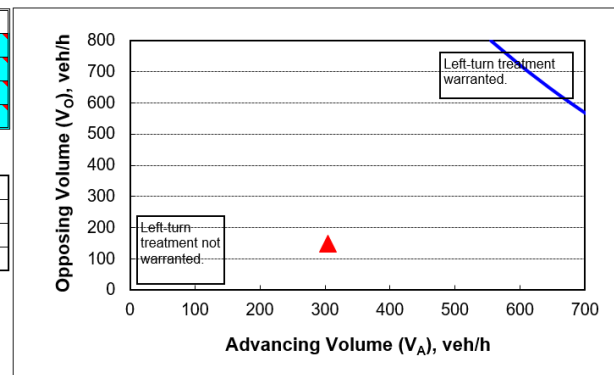
Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 31: 2021 Weekday PM peak hour NCHRP 457 left-turn bay warrant analysis**Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.****2-lane roadway (English)****INPUT**

Variable	Value
85 th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	305
Opposing volume (V_O), veh/h:	148

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1100
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	

**CALIBRATION CONSTANTS**

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 32: 2031 Weekday PM peak hour NCHRP 457 left-turn bay warrant analysis**BERRY SURVEYING & ENGINEERING**

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Data Used in Right-Turn Bay Warrants Analysis

Year	Advancing Volume	Advancing Volume Peaked (TR)	Left Turns (L)	Right Turns (R)	Total Advancing Volume (L+TR+R)
2017	253	273.1	0.6	1.8	275.5
2018	255	275.8	0.6	1.8	278.2
2019	258	278.5	0.6	1.8	280.9
2020	260	281.3	0.6	1.8	283.7
2021	263	284.1	0.6	1.8	286.5
2022	265	287.0	0.6	1.8	289.4
2023	268	289.9	0.6	1.8	292.3
2024	271	292.8	0.6	1.8	295.2
2025	273	295.7	0.6	1.8	298.1
2026	276	298.6	0.6	1.8	301.0
2027	279	301.6	0.6	1.8	304.0
2028	282	304.6	0.6	1.8	307.0
2029	285	307.7	0.6	1.8	310.1
2030	287	310.8	0.6	1.8	313.2
2031	290	313.9	0.6	1.8	316.3
Seasonal Peaking Factor (June)		1.08			

Figure 33: Data used for Weekday AM peak hour right-turn warrant analyses

Year	Advancing Volume	Advancing Volume Peaked (TR)	Left Turns (L)	Right Turns (R)	Total Advancing Volume (L+TR+R)
2017	117	126.5	5.4	2.7	134.6
2018	118	127.8	5.4	2.7	135.9
2019	119	129.1	5.4	2.7	137.2
2020	121	130.4	5.4	2.7	138.5
2021	122	131.7	5.4	2.7	139.8
2022	123	133.0	5.4	2.7	141.1
2023	124	134.3	5.4	2.7	142.4
2024	125	135.7	5.4	2.7	143.8
2025	127	137.0	5.4	2.7	145.1
2026	128	138.4	5.4	2.7	146.5
2027	129	139.8	5.4	2.7	147.9
2028	131	141.2	5.4	2.7	149.3
2029	132	142.6	5.4	2.7	150.7
2030	133	144.0	5.4	2.7	152.1
2031	134	145.4	5.4	2.7	153.5
Seasonal Peaking Factor (June)		1.08			

Figure 34: Data used for Weekday PM peak hour right-turn warrant analyses**BERRY SURVEYING & ENGINEERING**

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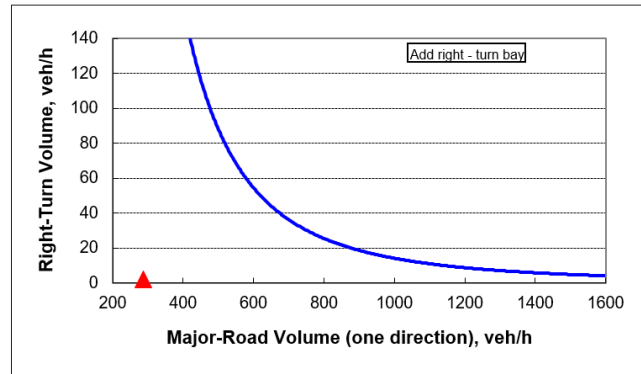
*Right-Turn Bay Warrants Analysis***Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	287
Right-turn volume, veh/h:	2

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	382
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

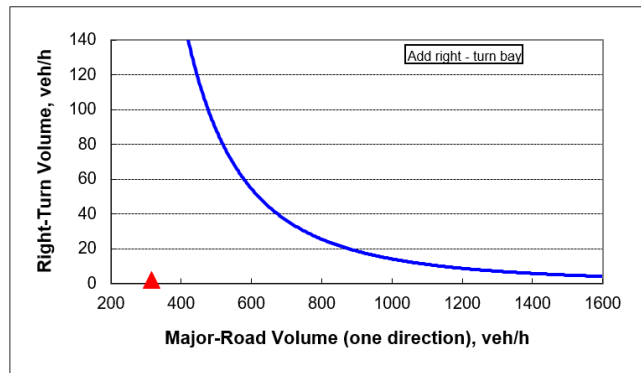
**Figure 35: 2021 Weekday AM peak hour NCHRP 457 right-turn bay warrant analysis****Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.**

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	316
Right-turn volume, veh/h:	2

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	295
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

**Figure 36: 2021 Weekday AM peak hour NCHRP 457 right-turn bay warrant analysis****BERRY SURVEYING & ENGINEERING**

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Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

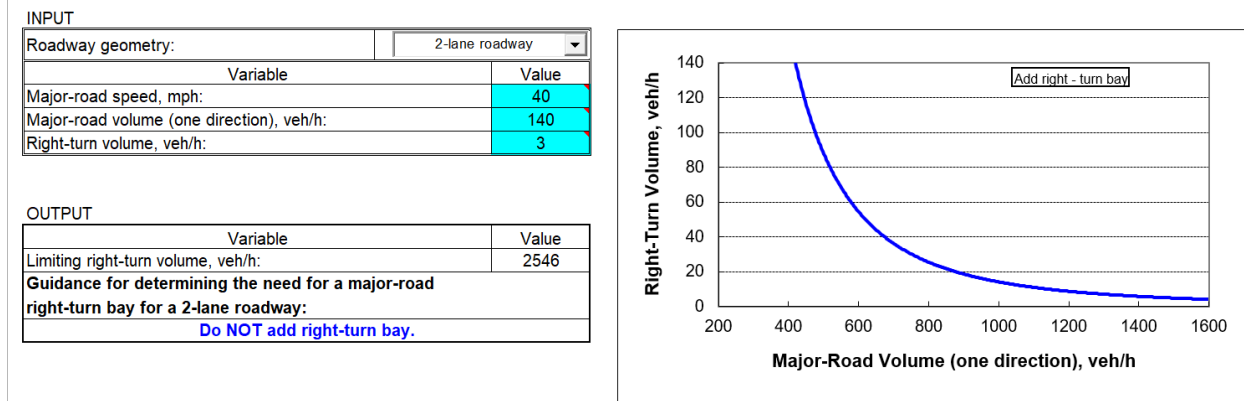


Figure 37: 2021 Weekday PM peak hour NCHRP 457 right-turn bay warrant analysis

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

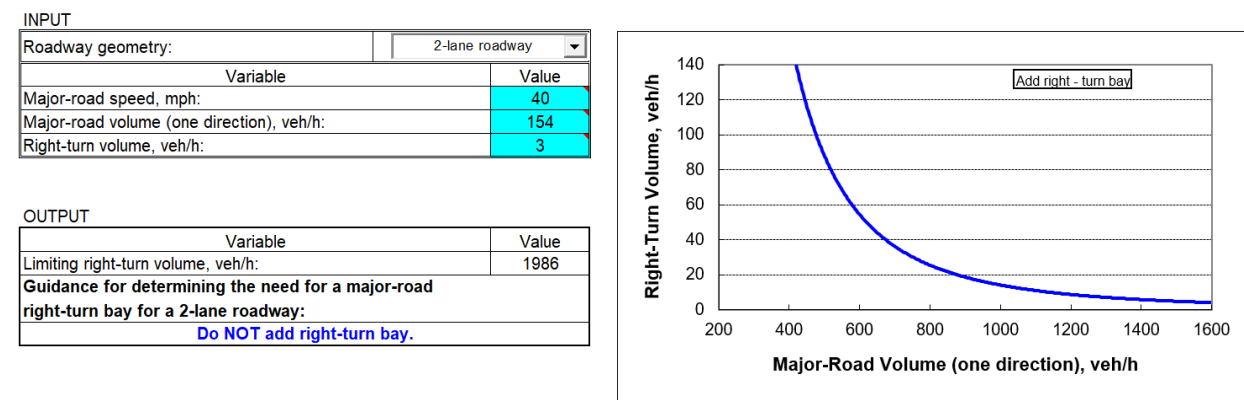


Figure 38: 2031 Weekday PM peak hour NCHRP 457 right-turn bay warrant analysis

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Appendix C

Miscellaneous

Year 2019 Monthly Data			
Group 2 Averages:		Rural Highways	
		Adjustment to	
Month	ADT	Average	Peak
January	5,992	1.19	1.40
February	6,342	1.12	1.33
March	6,493	1.10	1.30
April	6,819	1.05	1.23
May	7,434	0.96	1.13
June	7,776	0.92	1.08
July	8,207	0.87	1.02
August	8,409	0.85	1.00
September	7,770	0.92	1.08
October	7,477	0.95	1.12
November	6,712	1.06	1.25
December	6,173	1.16	1.36
Average ADT:	7,134		
Peak ADT:	8,409		

Table 11: Derivation of the seasonal peaking factor



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Table 3-1. Stopping Sight Distance on Level Roadways

U.S. Customary					Metric				
Design Speed (mph)	Brake Reaction Distance (ft)	Braking Distance on Level (ft)	Stopping Sight Distance		Design Speed (km/h)	Brake Reaction Distance (m)	Braking Distance on Level (m)	Stopping Sight Distance	
			Calculated (ft)	Design (ft)				Calculated (m)	Design (m)
15	55.1	21.6	76.7	80	20	13.9	4.6	18.5	20
20	73.5	38.4	111.9	115	30	20.9	10.3	31.2	35
25	91.9	60.0	151.9	155	40	27.8	18.4	46.2	50
30	110.3	86.4	196.7	200	50	34.8	28.7	63.5	65
35	128.6	117.6	246.2	250	60	41.7	41.3	83.0	85
40	147.0	153.6	300.6	305	70	48.7	56.2	104.9	105
45	165.4	194.4	359.8	360	80	55.6	73.4	129.0	130
50	183.8	240.0	423.8	425	90	62.6	92.9	155.5	160
55	202.1	290.3	492.4	495	100	69.5	114.7	184.2	185
60	220.5	345.5	566.0	570	110	76.5	138.8	215.3	220
65	238.9	405.5	644.4	645	120	83.4	165.2	248.6	250
70	257.3	470.3	727.6	730	130	90.4	193.8	284.2	285
75	275.6	539.9	815.5	820	140	97.3	224.8	322.1	325
80	294.0	614.3	908.3	910					
85	313.5	693.5	1007.0	1010					

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 11.2 ft/s² [3.4 m/s²] used to determine calculated sight distance.

Figure 39: Derivation of stopping sight distance requirements



Appendix D

Trip Generation Derivation

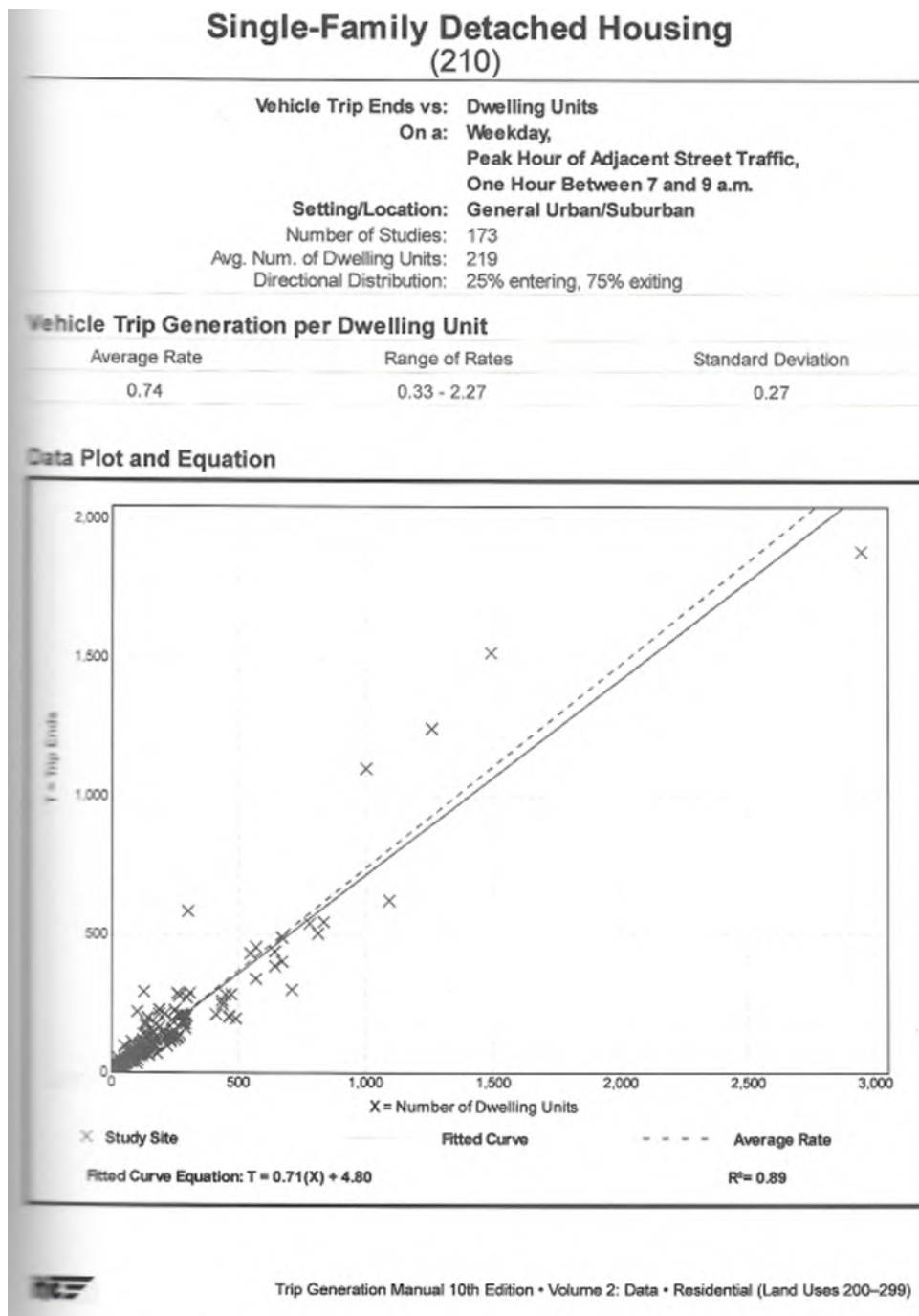


Figure 40: ITE Trip Generation, 10th Edition



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Single-Family Detached Housing (210)

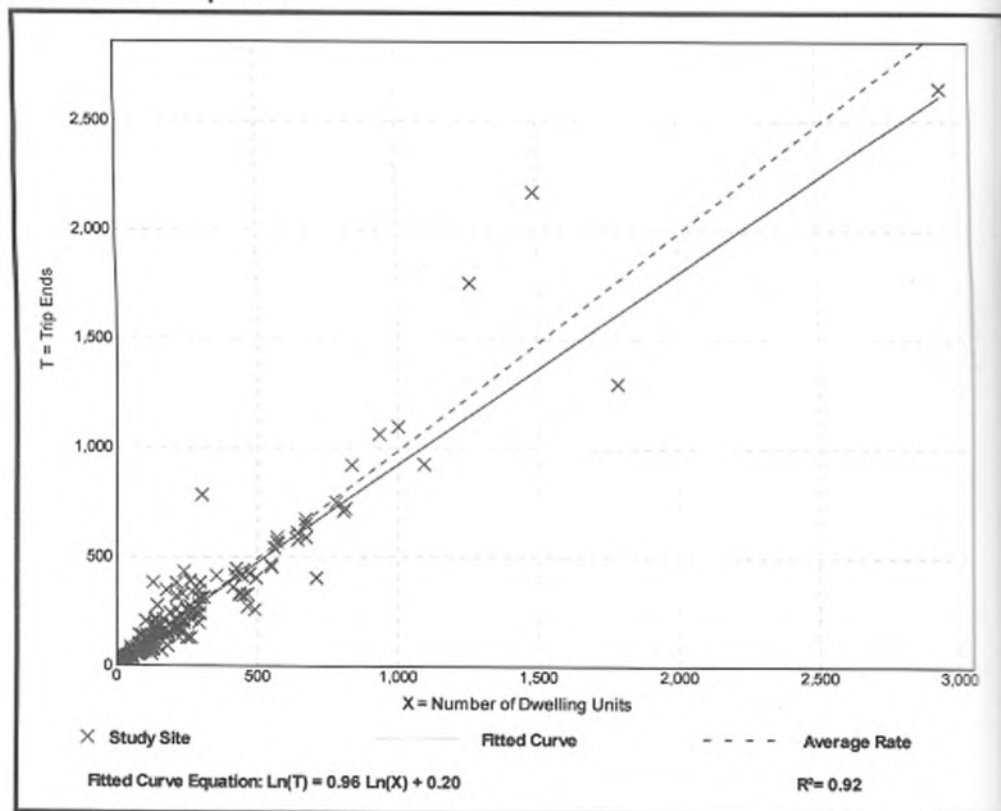
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



**DRAINAGE ANALYSIS
&
EROSION AND SEDIMENT
CONTROL PLAN**

**Settlement on 6th
Sixth Street
Dover, NH 03820**

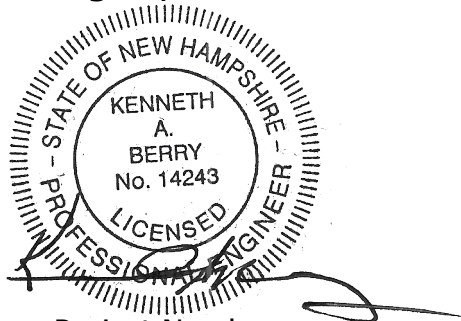
Tax Map B, Lot 5

Prepared for:

**Settlement on 6th, LLC
4 Hall Street
Dover, NH 03820**

Prepared by:

**Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825**



Project Number:
DB 2021-011

June 10, 2021

Table of Contents

USGS Quadrangle Location Maps

Design Method Objectives	Page 2
1.0 Existing Conditions Analysis	Page 3
2.0 Proposed Subdivision Analysis	Page 4
3.0 Stormwater Treatment & Infiltration Practices	Page 6
3.1 Full Comparative Analysis	Page 8
4.0 Erosion & Sediment Control, BMP's	Page 9
5.0 Conclusion	Page 16

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

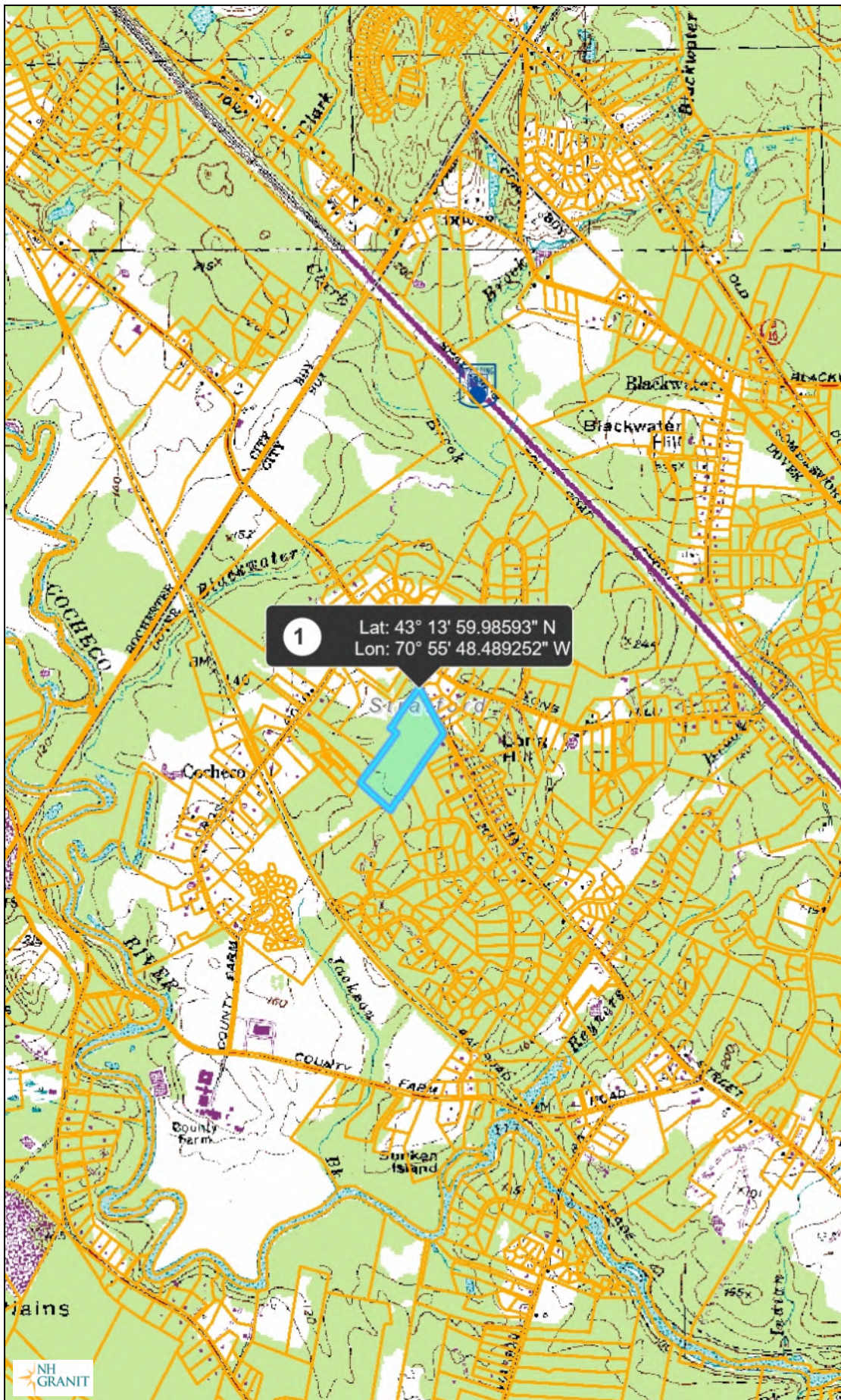
25 Yr.-24 Hr. Full Summary
2 Yr.-24 Hr. Node Listing
10 Yr.-24 Hr. Node Listing
25 Yr.-24 Hr. Node Listing
50 Yr.-24 Hr. Node Listing
100 Yr.-24 Hr. Node Listing

Appendix III - Calculations, Charts, & Graphs

Extreme Precipitation Table
Rip Rap Calculations
NHDES AoT Spreadsheets
USDA / NRCS Websoil
Site Specific Soil Survey Report
Stormwater System Operation and Maintenance Plan &
Inspection and Maintenance Manual
Infiltration Feasibility Study
Watershed Report Card, 303(d) List, & ORW List
Ksat Values for New Hampshire Soils, SSSNNE Special Publication #5, 2009

Enclosed:	W-1 Sheets	Existing Conditions Watershed Plans Sheets 1 - 4
	W-2 Sheets	Post Construction Watershed Plans Sheets 5 - 8
		Erosion & Sediment Control Plans

Map by NH GRANIT



Legend

- Polygons
- State
- County
- City/Town

Map Scale

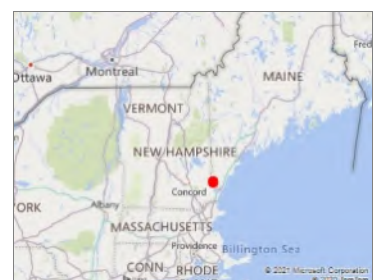
1: 24,000

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Map Generated: 2/1/2021



Notes



Map by NH GRANIT



Legend

- Polygons
- State
- County
- City/Town

Map Scale

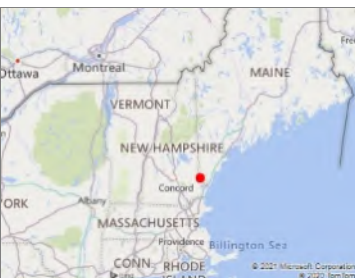
1: 10,000

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Map Generated: 2/1/2021



Notes



DESIGN METHOD OBJECTIVES

The owner of Tax Map B, Lot 5, Settlement on 6th, LLC, are proposing a Transfer of Development Rights subdivision consisting of 13 residential lots and 1,095 linear feet of roadway.

A topographic survey has been conducted on the property. A Site Specific Soil Survey was conducted by John P. Hayes III, CSS #87, and has been included (Appendix III). Off-site soils are being evaluated utilizing the USDA / NRCS Soil Survey (Websoil) which was downloaded after October 1, 2020. Off-site topography was based on the Google TIN system data. Off-site wetlands were identified by observation and approximated by aerial photography.

Both Existing and Proposed Conditions analyses were conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate mitigation of drainage. There are four existing drainage discharge points which were identified in the existing analysis and duplicated in the proposed conditions analysis. Designing two watershed models we have compared the differences in these rates of peak run-off and surface water volume. Sheet W-1 outlines the characteristics of the site in its existing or pre-construction conditions. The second analysis displays the proposed (post-construction) conditions (See Sheet W-2). The analysis was conducted using data for; 2 Yr - 24 Hr (3.59"), 10 Yr - 24 Hr (5.41"), 25 Yr - 24 Hr (6.82"), 50 Yr - 24 Hr (8.14"), and 100 Yr - 24 Hr (9.73") storm events. Storm event analysis was accomplished using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment and 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>), in accordance with Alteration of Terrain Administrative Code, ENV-Wq (Attached in Appendix 3). With Dover being a coastal community, rainfall estimates have been increased by a factor of 15%, this is reflected in the totals listed above.

1.0 Existing Analysis:

Reference: W-1 Sheets - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plans
Site Specific Soil Survey Plans

The existing property is 19.30 acres. In addition to the subject parcel, off-site properties were evaluated in the analysis with the total existing conditions analysis consisting of 14.01 acres. USDA NRCS soils data was obtained from WebSoil (Attached in Appendix III). The area evaluated consists of multiple different soil classifications rated HSG A through HSG D and consisted of woodlands, field areas, houses, and roadway pavement. Off-site topography was obtained from the Google TIN system. Runoff flows to four final analysis points.

Final Reach #200:

Subcatchment #2 consists of both onsite and offsite land along Sixth Street to the northeast of the subject parcel. Runoff flows northwest through a large onsite wetland. (**Final Reach #200**).

Final Reach #300:

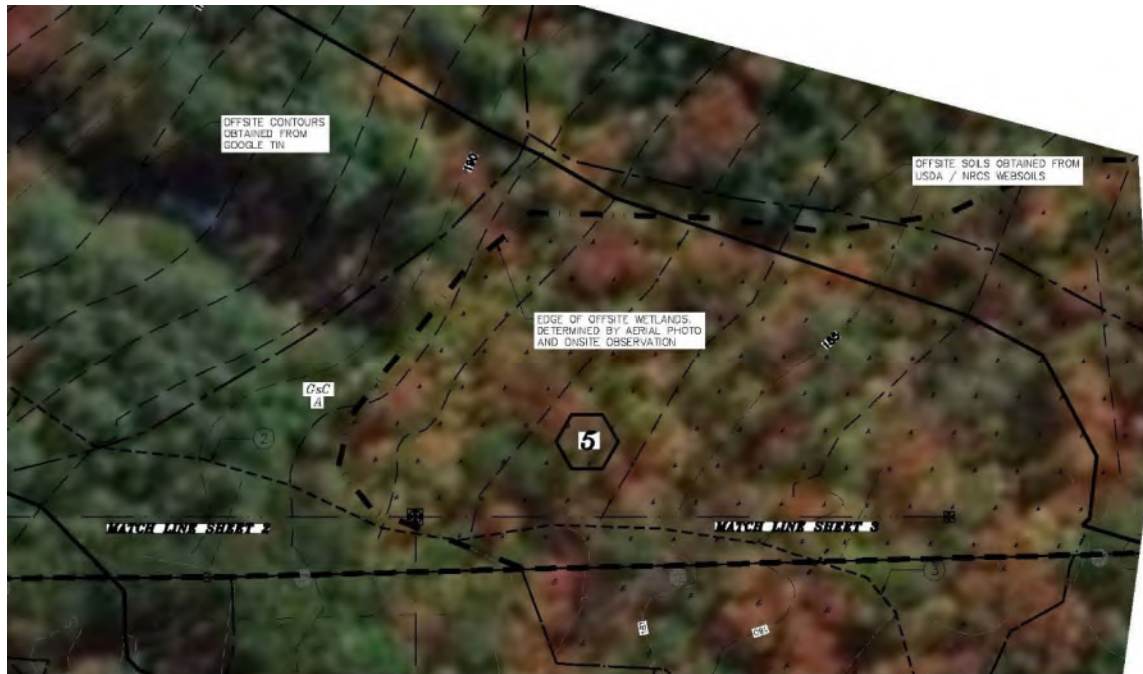
Subcatchment #3 consists of a small area of land near the western corner of the property along the northwestern property line. Runoff flows over land to an offsite **Final Reach #300**.

Final Reach #500:

Subcatchment #5 consists of a large area of land extending all the way to Sixth Street. Runoff flows west to a small onsite wetland on the northwest side of the property in the western corner to **Final Reach #500**.

Final Reach #600:

Subcatchment #6 consists of a small area of land in the southern corner of the property which flows over the southwest property line to **Final Reach #600**.



Aerial Photo demonstrating off-site wetland area.

2.0 Proposed Analysis:

Reference: W-2 Sheets - Proposed Conditions Watershed Plan (Enclosed)
Proposed Site Plans
Proposed Grading & Drainage Overview Plan
Plan and Profile Sheets

The proposal consists of 13 residential units with 1,095 linear feet of roadway. Surface water is collected by sheet flow into inlet sumps and catch basins, conveyed to subsurface gravel wetlands, a rain garden and a rain garden with infiltration, which ultimately discharge runoff to multiple final reaches or infiltrate runoff into the ground. All practices are numbered to correspond with the detail sheet associated with the design.

Subcatchments #2, #3, #5, & #6 are the remaining area of the original subcatchments due to the development.

Subcatchments #11-19, #21-23, and #25-28 are new subcatchments showing the redirection of runoff to improve the overall drainage conditions of the subject parcel.

Final Reach #200:

Subcatchment #2 is decreased in size considerably due to the proposed limits of the development. A portion of **Subcatchment #2** is offsite and therefore left unchanged while the inside limit of the subcatchment is defined by the construction of the proposed roadway and the proposed development. Runoff still flows directly to **Final Reach #200**.

Subcatchments #11 & #12 make up the front portion of the proposed roadway. **Subcatchment #11** consists of the upper side of the proposed roadway while **Subcatchment #12** consists of the lower side, both subcatchments are completely made up of impervious surfaces. Runoff from both subcatchments is captured by a pair of catch basins on opposite sides of the road (**Ponds #C01 & #C02** respectively). Runoff is directed to Gravel Wetland #101 (**Pond #101**).

Subcatchment #18 is made up of a portion of land surrounding a small wetland on the side of the proposed roadway, terminating at the end of the first house on the southeast side of the roadway. Runoff is collected in a roadway culvert (**Pond #18**) and eventually to **Final Reach #200** through an overland reach (**Reach #18**).

Subcatchment #21 consists of the area directly surrounding and including Gravel Wetland #101 (**Pond #101**) including a small portion of Sixth Street. Runoff is collected in the wetland and directed to Level Spreader #101 (**Pond and Subcatchment #25**) and eventually to **Final Reach #200** through an overland reach (**Reach #25**).

Subcatchment #28 is made up of a portion of land along Sixth Street extending up the proposed roadway, terminating in line with the far end of Gravel Wetland #101 (**Pond #101**). Runoff is collected in an inlet sump and into the enclosed drainage system flowing to Gravel Wetland #101 (**Pond #101**) and eventually to **Final Reach #200** through an overland reach (**Reach #25**).

Final Reach #300:

Subcatchment #3 is significantly decreased in size due to the proposed construction of a cul-de-sac and multiple houses in the proposed development. Runoff still flows northwest directly to **Final Reach #300**.

Final Reach #500:

Subcatchment #5 decreased in size greatly due to the proposed construction of driveways and Rain Garden #102 (**Pond #102**). Runoff still flows to the existing wetland (**Final Reach #500**).

Subcatchments #13 & #14 make up the middle portion of the length of the proposed roadway. **Subcatchment #13** consists of the lower side of the proposed roadway while **Subcatchment #14** consists of the upper side and a portion of the surrounding land area extending to the roof lines of two of the proposed houses. Runoff from both subcatchments is directed to a pair of catch basins on opposite sides of the road (**Ponds #C03 & #C04** respectively). Runoff flows through the enclosed drainage system and eventually to Rain Garden #102 (**Pond #102**).

Subcatchments #15 & #16 make up the curved portion of the proposed roadway terminating at the mouth of the cul-de-sac. **Subcatchment #15** consists of the lower

side of the proposed roadway extending to the roof line of the proposed houses while **Subcatchment #16** consists of the upper side and a portion of the surrounding land area extending to the roof lines of the proposed houses. Runoff from both subcatchments is directed to a pair of catch basins on opposite sides of the road (**Ponds #C05 & #C06** respectively). Runoff flows through the enclosed drainage system and eventually to Rain Garden #102 (**Pond #102**).

Subcatchment #17 consists of the proposed roadway cul-de-sac and a portion of land to the north extending to the roof line of the proposed houses. Runoff is directed to a catch basin within the cul-de-sac (**Pond #C07**). Runoff flows to Rain Garden #102 (**Pond #102**) which outlets to **Final Reach #500**.

Subcatchment #19 is made up of a majority of the remainder of existing Subcatchment #5 uphill from the proposed roadway. Runoff is contained and routed through a 36" roadway culvert crossing the wetland (**Pond #19**) which outlets to **Final Reach #500**.

Subcatchment #22 is made up of the area surrounding and including Rain Garden #102 (**Pond #102**) including one house and the related driveway as well as a portion of a second roof. Runoff flows southwest to Rain Garden #102 away from the proposed units. Runoff is collected in the rain garden and directed to Level Spreader #102 (**Pond and Subcatchment #26**) and eventually to **Final Reach #500**.

Final Reach #600:

Subcatchment #6 decreased in size greatly due to the proposed construction of Infiltration Rain Garden #103 (**Pond #103**). Runoff still flows offsite to **Final Reach #600**.

Subcatchment #23 is made up of the extent of a shared driveway and a majority of the associated roofs as well as Infiltration Rain Garden #103 (**Pond #103**) and the associated grassed area between the rain garden and the houses. Runoff flows south to Rain Garden #103 behind the proposed units. Runoff is collected in the rain garden and infiltrated while excess runoff is directed to Level Spreader #103 (**Pond and Subcatchment #27**) and eventually to **Final Reach #600**.

Summary:

Modeled Peak rates of runoff are reduced at all reaches for each modeled event. The Volume is within the conformance of the channel volume protection requirements. (Env-Wq 1507.05 Channel Protection Requirements.)

3.0a Stormwater Treatment:

Surface water runoff from the development area is being treated by two subsurface gravel wetlands as well as a rain gardens and a rain garden with infiltration. Water Quality

Volume calculations based on the Alteration of Terrain model are included along with Pond Storage Tables in Appendix 3 for the modeled practices.

3.0b Stormwater Infiltration:

Groundwater recharge volume requirements are satisfied by a single Rain Garden with infiltration (Pond #103) (Sheet P-103). See Infiltration Feasibility Study also prepared by Berry Surveying & Engineering and published on the same day.

3.1 FULL COMPARATIVE ANALYSIS

<u>ANALYSIS</u>	<u>COMPONENT</u>	<u>PEAK RATE DISCHARGE (Cubic Feet / Second)</u>				
		2 Yr.	10 Yr.	25 Yr.	50 Yr.	100 Yr.

Final Reach #200	Existing	5.28	13.46	20.72	27.94	36.98
	Proposed	5.25	12.57	19.69	26.53	35.29
Final Reach #300	Existing	0.81	2.29	3.65	5.02	6.75
	Proposed	0.64	1.59	2.43	3.25	4.28
Final Reach #500	Existing	1.50	6.49	11.69	17.16	24.30
	Proposed	1.38	6.24	11.36	16.65	24.20
Final Reach #600	Existing	0.51	1.65	2.74	3.86	5.28
	Proposed	0.37	0.94	1.45	1.95	3.19

<u>ANALYSIS</u>	<u>COMPONENT</u>	<u>VOLUME (ACRE FEET)</u>				
		2 Yr.	10 Yr.	25 Yr.	50 Yr.	100 Yr.

Final Reach #200	Existing	0.854	1.989	3.008	4.031	5.323
	Proposed	0.829	1.908	2.888	3.865	5.093
Final Reach #300	Existing	0.110	0.271	0.420	0.571	0.763
	Proposed	0.068	0.158	0.238	0.319	0.421
Final Reach #500	Existing	0.351	1.078	1.801	2.564	3.566
	Proposed	0.394	1.302	2.184	3.099	4.284
Final Reach #600	Existing	0.075	0.198	0.314	0.433	0.587
	Proposed	0.043	0.101	0.193	0.344	0.536

4.0 EROSION & SEDIMENT CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plans
Erosion & Sediment Control Details, E-101 & E-102

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 14 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 Management: Inspection & Maintenance Manual which has been written specifically for this project and available to the owner.

Sediment Perimeter Control

The plan set demonstrates the location of perimeter protection for sediment control, consisting of silt fence, erosion control mix berm, or Filtrexx brand Silt Soxx, (or approved equal). The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation and maintenance of the silt fence. Silt fence is rated to be effective for 100 linear feet of fence to capture runoff from one-quarter acre or basically 100 feet of land area sloping toward the fence. Filtrexx silt soxx have a variable area and depth, see Filtrexx supporting documents. The NHDES Stormwater Manual requires that the maximum spacing for support stakes is six-feet.

Filtrexx Silt Soxx, or approved equal, has been specified in numerous locations within the plan set and silt fence is not a substitution for silt soxx. Multiple sizes of this product have been specified for use.

EPA CGP 2012: "You must install sediment control along those perimeter areas of your site that will receive stormwater from earth disturbing activity."

In accordance with EPA CGP 2.1.2.1, Provide Natural Buffers or Equivalent Sediment Controls, and CGP Appendix G, Table G-3, and Table G-7, slopes between 3% and 6% with soils that are Fine Sandy Loams, there is a High Risk Factor and it is required to Double Perimeter Control and 7-Day Site Stabilization.

Erosion Control Mix Berm

As an alternative to the Silt Fence, an Erosion Control Mix Berm can be utilized as a perimeter control. The specifications can be found on Sheet E-101, Detail E6.

Bioretention System (Rain Garden)

Description: Rain Gardens, or bioretention areas are located close to the source of runoff. They are intended to integrate with the site landscaping and become an aesthetically attractive opportunity to provide highly effective stormwater treatment. The rain gardens associated with this proposed development contribute toward recharge of surface water run-off into the ground. It is important that sediment be removed from run-off prior to discharge into the bioretention area to preserve the mulch and soil mix ratio. 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, 4c Bioretention System.

Construction Considerations:

After the stone and bio-media has been installed, Filtrexx Silt Soxx or approved equal, will be installed at the toe of slope intersection between the berm and bio-media and will remain until the slopes of the berm are stable.

Maintenance Considerations:

Rain Gardens 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 of the drawdown time. If the bioretention system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the rain garden 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 cells 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.

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.

Rolled Erosion Control Blanket

Description: Rolled Erosion Control Blankets, such as American Excelsior Company Curlex III, (or equal), North American Green BioNet series, consist of interlocking fiber mesh which is bio-degradable, used to stabilize sloping earth while vegetation is being established. The product comes in rolls that are laid out over the earth, normally overlapped, and secured to the soil by the use of anchors or staples. The RECB may be anchored in the earth at the top of the slope to prevent wash-out. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 3, 4-1 Erosion Control Practices, Temporary Erosion Control Blanket. See the chart on E-102 for compatible products with given slopes.

Construction Considerations: It is recommended that the blanket be installed in the same direction as the water flow or perpendicular to the slope. The manufacturer will recommend the amount of over-lap from one row to the next and on longer slopes between sections. Care must be taken that the RECB is laid directly on the earth / topsoil and that any existing vegetation not cause tenting as this will cause an issue with the blanket not staying in place. The staples or stakes are to be placed according to the manufacturer based on the slope of the receiving soil and forces that may be encountered. Care must be taken to utilize the correct product as specified. The choice of product are all different and in most cases are not interchangeable. NHDES or NH F&G may specify that some RECBs not be used in some applications.

Maintenance Considerations: RECBs will be inspected during the regular inspection schedule and any construction corrections made if the blanket is compromised.

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 be used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer.

Rain Garden / Infiltration Pond / Detention Pond Mix

The grass that is planted within a rain garden bio-filtration system within the bio-media must consist of a combination of warm season grass seed and cold season grass seed in order for the grass to start growing for stabilization and continue growing in the sandy well-drained environment. Planting specification will meet the requirements as outlined in 'Vegetation New Hampshire Sand and Gravel Pits' mix 1 (warm season grasses) (15 lbs/ac) and include annual and perennial rye grass seed (15 lbs/ac); the New England native warm season grass mix (23 lbs/ac) by New England Wetland Plants, inc.; Rain Garden Mix 180 (15 lbs/ac & 15 lbs/ac of rye) or Rain Garden Grass Mix 180-1 (20 lbs/ac & 10 lbs/ac of rye) by Ernst Conservation Seeds, ERNMX-126-Retention Basin Floor Mix; or approved equal.

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-inch 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-102- Erosion and Sediment Control Detail Plan. Alternatives to the length and berm are demonstrated on the detail.

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.

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.

Outlet Protection

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. See sheet E-102 for details.

Rip Rap Level Spreader / Stone Berm Level Spreader

The purpose of the level spreader is to convert concentrated flow into sheet flow, for example from a rip rap outlet protection at the end of a culvert discharge pipe prior to discharge overland through a filter strip or buffer. Each level spreader is specifically designed based on the amount of flow and specified on the grading plan. Details for the level spreader can be found on Sheet E-102, detail E12 and page 162 in the referenced NH Stormwater Manual, Volume 2. The level spreader should be inspected after it is installed and stabilized for the deposit of sediment. Any sediment build-up will be removed and transported to a suitable location.

Stockpiled Sediment or Soil

Stockpiled materials including topsoil, excavated materials, borrow materials imported onto the site, construction aggregates, and sediment removed from temporary sediment traps will be located in designated areas at least 50 feet away from concentrated flows.

All stockpiles will have erosion protection in the form of silt fence and diversion swales will be applied to protect the material and surrounding areas. Inactive stockpiles will be seeded for temporary stabilization. Erosion control measures will be inspected in accordance with the schedule for all other activities on site.

At a minimum, you must comply with following (EPA 2012 CGP Part 2.1.2.4d) "Do no hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similar effective control,) storm drain inlet, or surface water."

Dewatering Practices

Dewatering practices are not known to be required on this site. If during construction this becomes required, an addendum will be published specific for the requirements. As a general rule, ground water that needs to be removed from an excavation will be pumped to a sediment basin or a storm drain inlet prior to discharge from the site.

At a minimum, you must comply with following (EPA 2012 CGP Part 2.1.3.4) "With backwash water, either haul it away for disposal or return it to the beginning of the treatment process; and replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications."

Regarding dewatering practices in the State of New Hampshire, specifically see Construction General Permit Section 9.1.1 NHR12000 State of New Hampshire and "Clarification of Section 9.1.1 ... and other New Hampshire specific information for the U.S. EPA 2012 NPDES Construction General Permit (CGP), January 20, 2017"

Construction Sequence

1. Cut and remove trees in construction areas as directed or required.
2. Install Silt Fence and construct and/or install temporary and permanent sediment erosion and detention control facilities (Vegetated swales, level spreaders, and constructed filter strips), as required. Erosion, sediment and facilities shall be installed and stabilized prior to any earth moving operation, and prior to directing run-off to them.
3. Clear, grub, and dispose of debris in approved facilities.
4. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading.
5. Construct the roadway and its associated drainage structures.

6. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required, or directed.
7. Daily, or as required, construct temporary berms, drainage ditches, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.
8. Inspect and maintain all erosion and sediment control measures during construction.
9. Complete permanent seeding and landscaping.
10. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.
11. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.
12. Finish paving all roadways/parking.

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

Perimeter control will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. NHDES Alteration of Terrain requirements and EPA SWPPP criteria will require all controls will be inspected once every 7 days and after storm event greater than 0.25 inches. Inspection reports must be submitted to City of Dover Engineering Department. If more than 5 acres of impact is allowed, an Environmental Monitor will be required who is a Professional Engineer or Certified Professional in Erosion and Sediment Control.

Sediment build-up in swales and level spreaders will be removed if it is deeper than six inches. See also Stormwater System Management: Inspection and Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) developed in accordance with EPA NPDES requirements.

Corrective Action measures will be made in accordance with SWPPP requirements and records maintained on site by the Contractor.

5.0 CONCLUSION

Modeled Peak Rates of runoff are reduced in the post construction condition as compared to the preconstruction condition at the four analyzed points for all modeled storm events. The Volume of runoff in the same comparison is within conformance of the channel volume protection requirements.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is required for this development and site plan due to the area of disturbance being greater than 100,000 SF.

An EPA, Notice of Intent will need to be filed and Construction General Permit conformed to as the impact is greater than one acre.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING



Christopher R. Berry, SIT 567
Principal, President

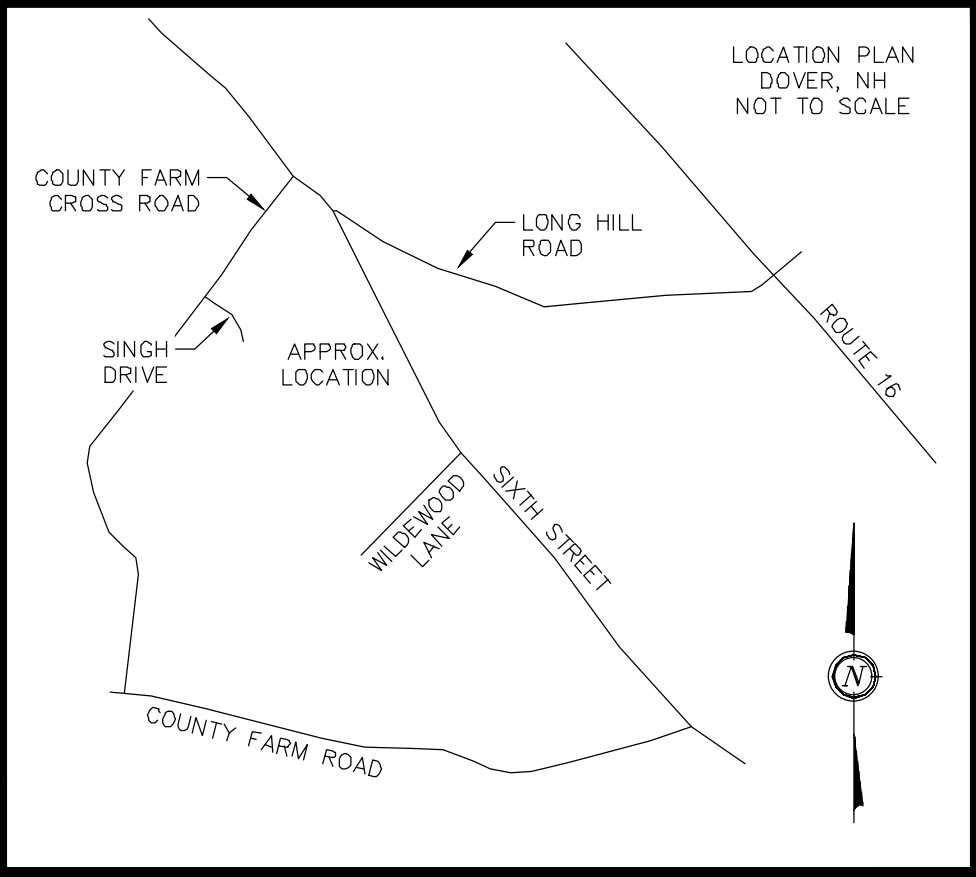


Kenneth A. Berry PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP - Technical Operations

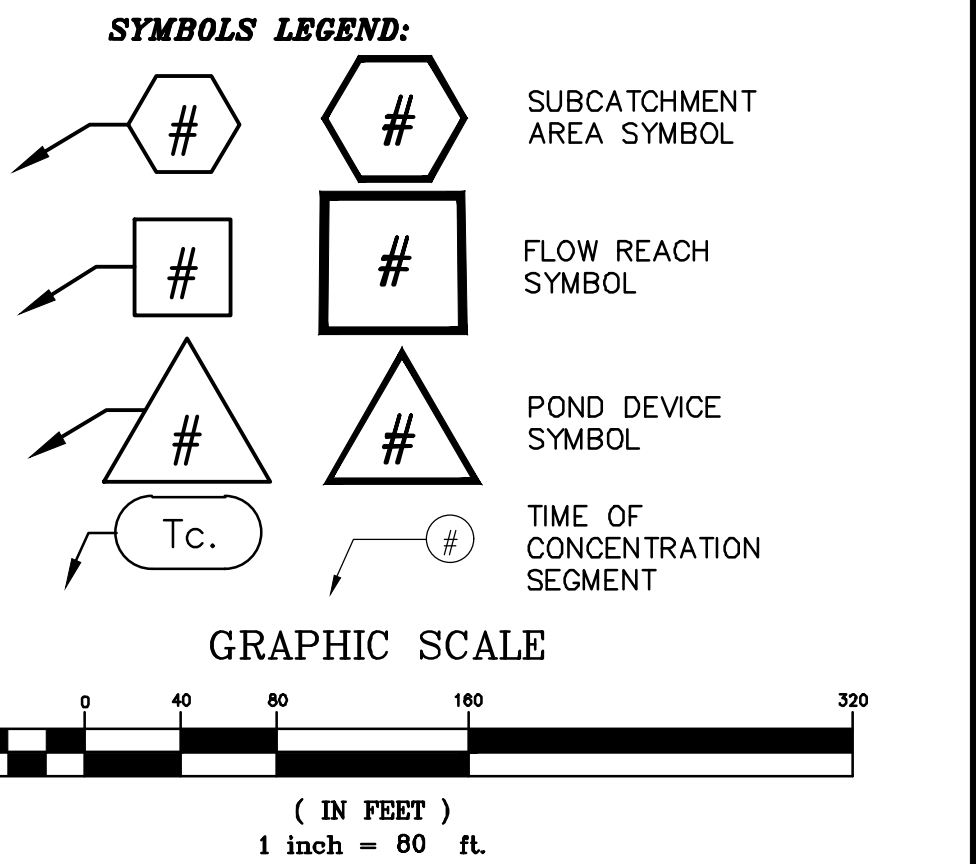
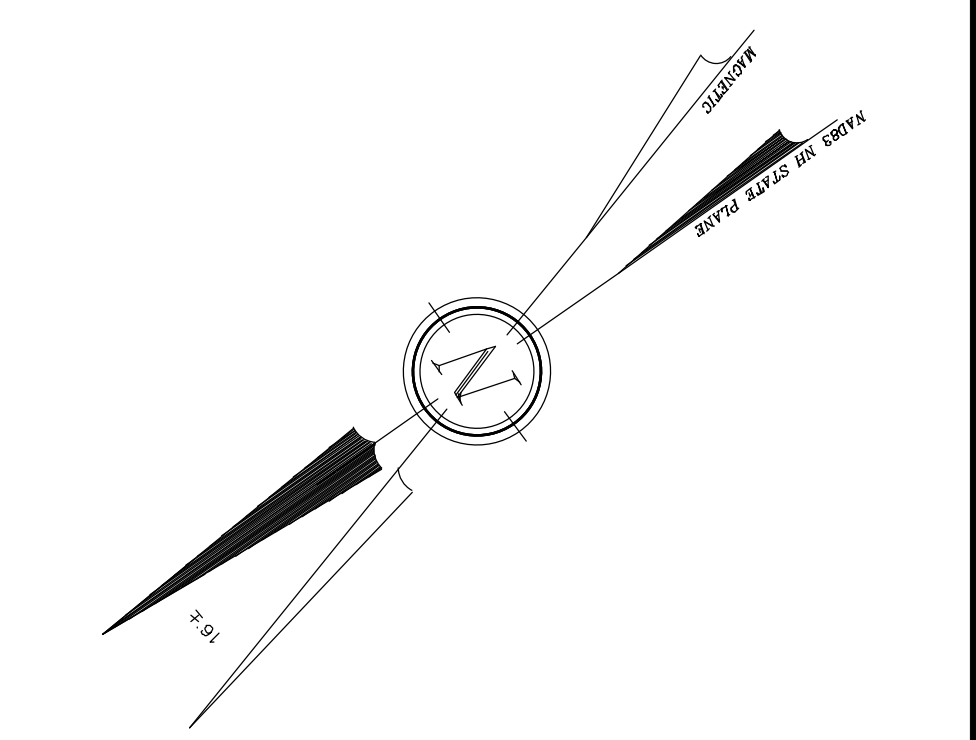
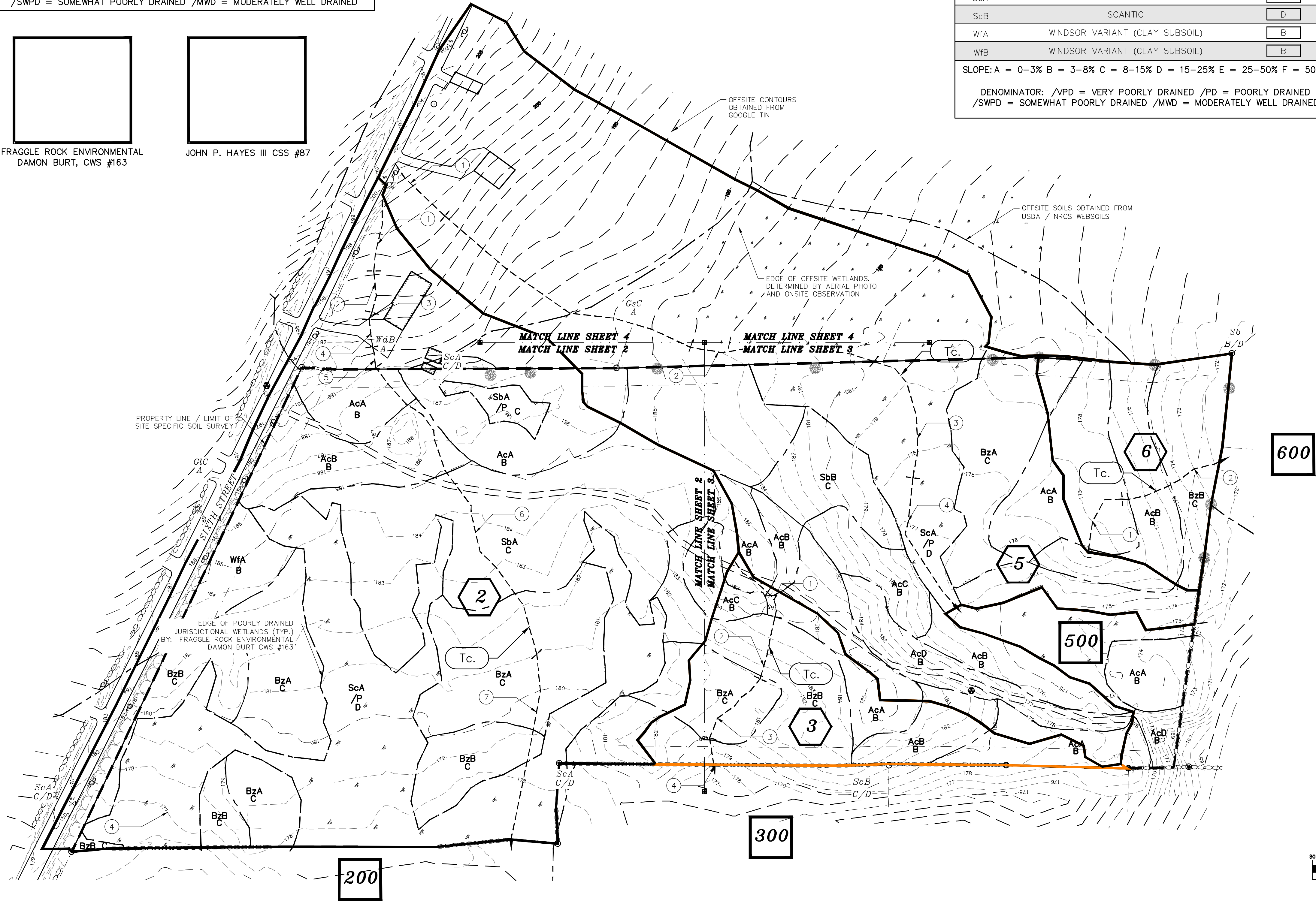
Kevin R. Poulin, EIT
Project Engineer / Manager

NRCS SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
GIC	GLOUCESTER FINE SANDY LOAM	A
GsC	GLOUCESTER VERY STONY FINE SANDY LOAM	A
Sb	SAUGATUCK LOAMY SAND	B/D
ScA	SCANTIC SILT LOAM	C/D
ScB	SCANTIC SILT LOAM	C/D
WdB	WINDSOR LOAMY SAND	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		

SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



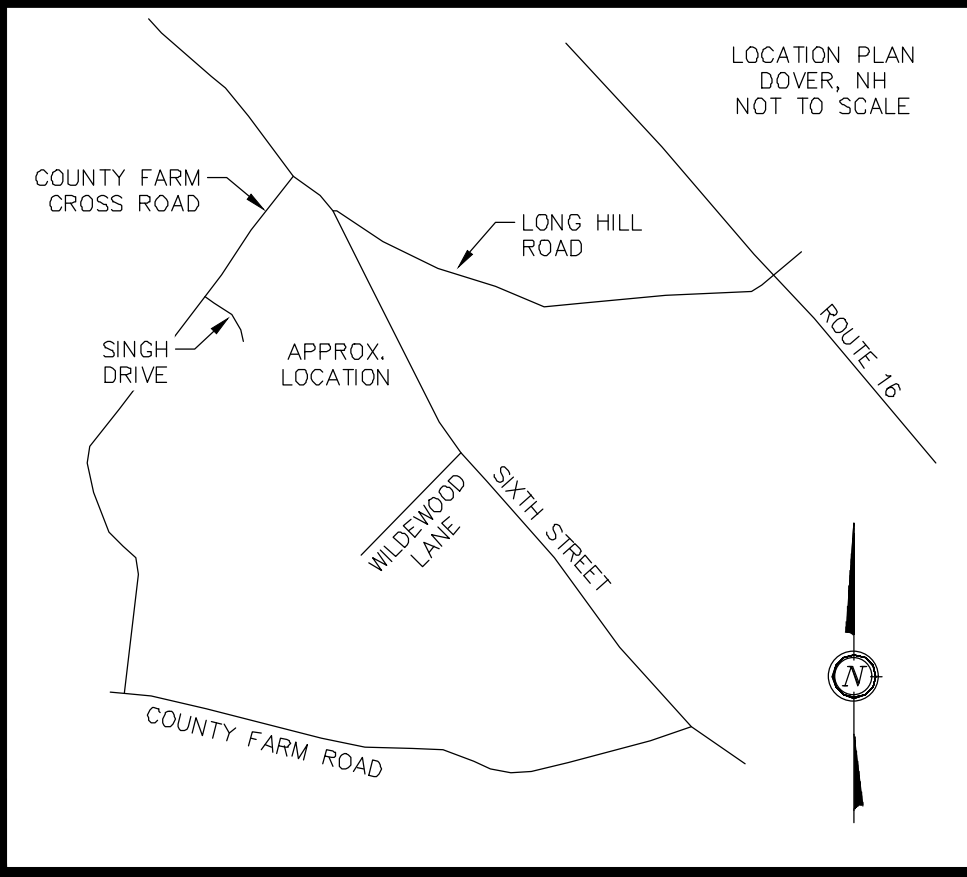
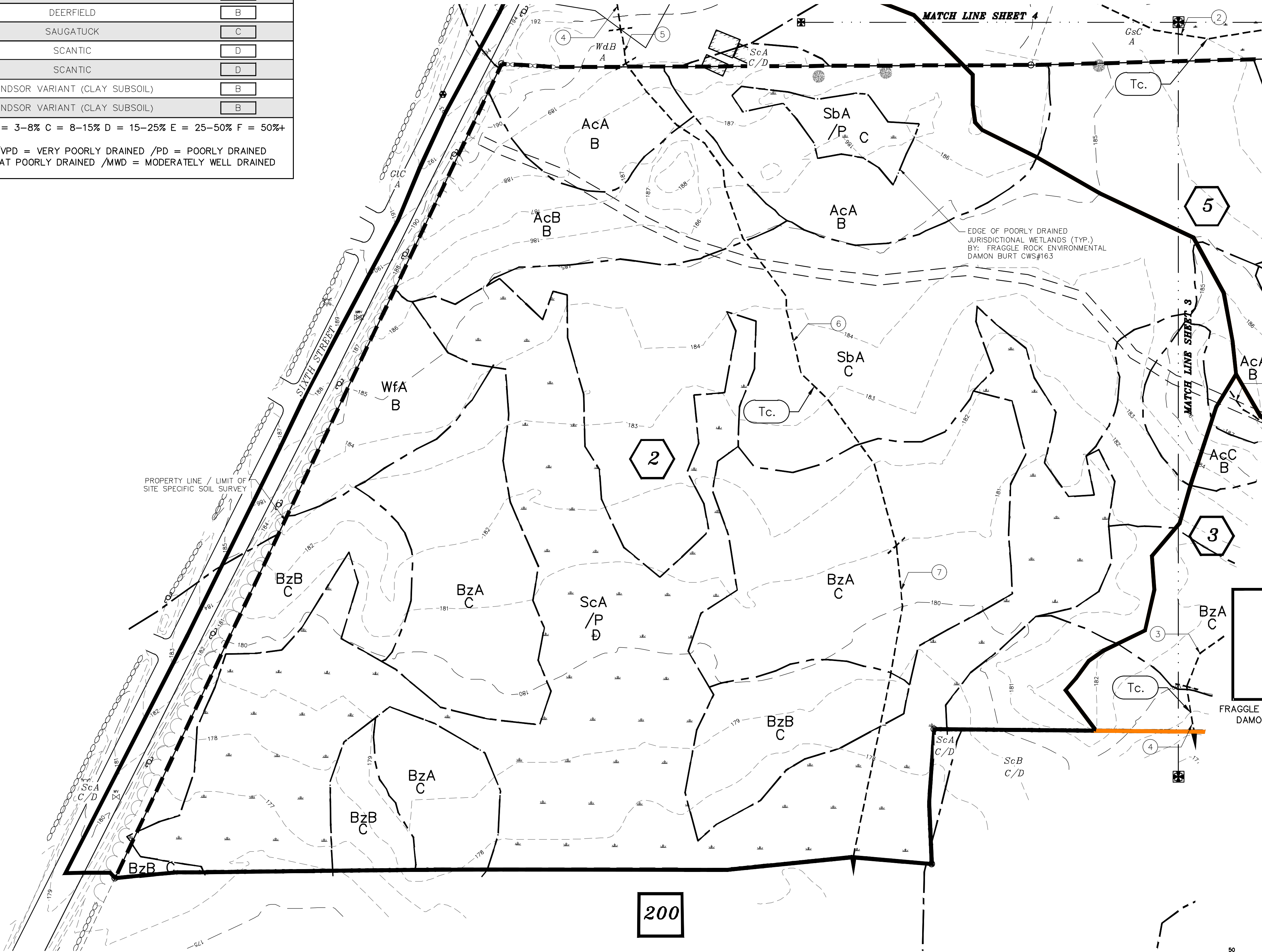
DESCRIPTION	

W-1 EXISTING WATERSHED OVERVIEW PLAN LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5
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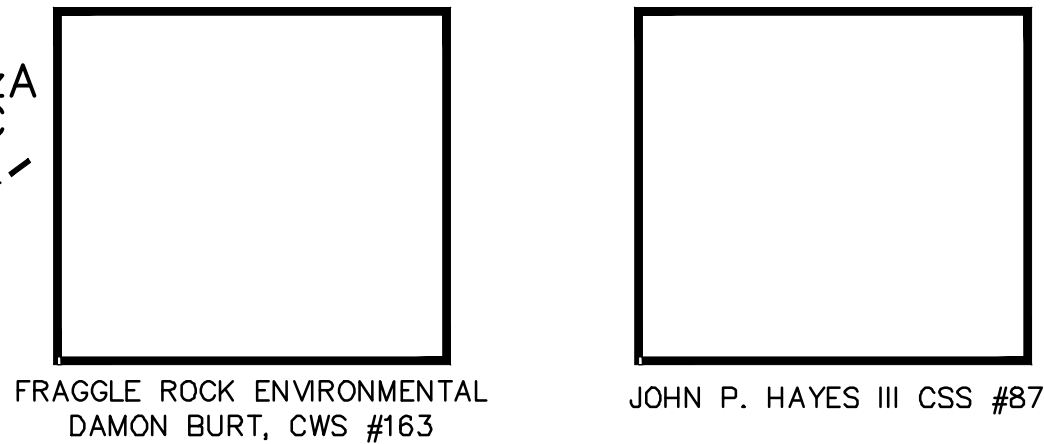
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14246
PROFESSIONAL ENGINEER - NH

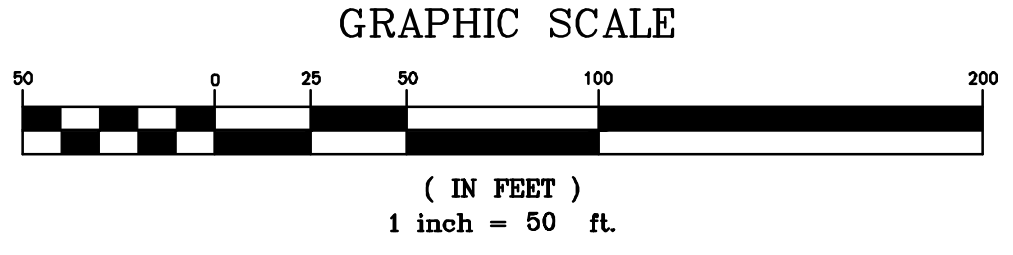
SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



- SYMBOLS LEGEND:**
- Subcatchment Area Symbol (Hexagon with #)
 - Flow Reach Symbol (Square with #)
 - Pond Device Symbol (Triangle with #)
 - Time of Concentration Segment (Circle with Tc.)



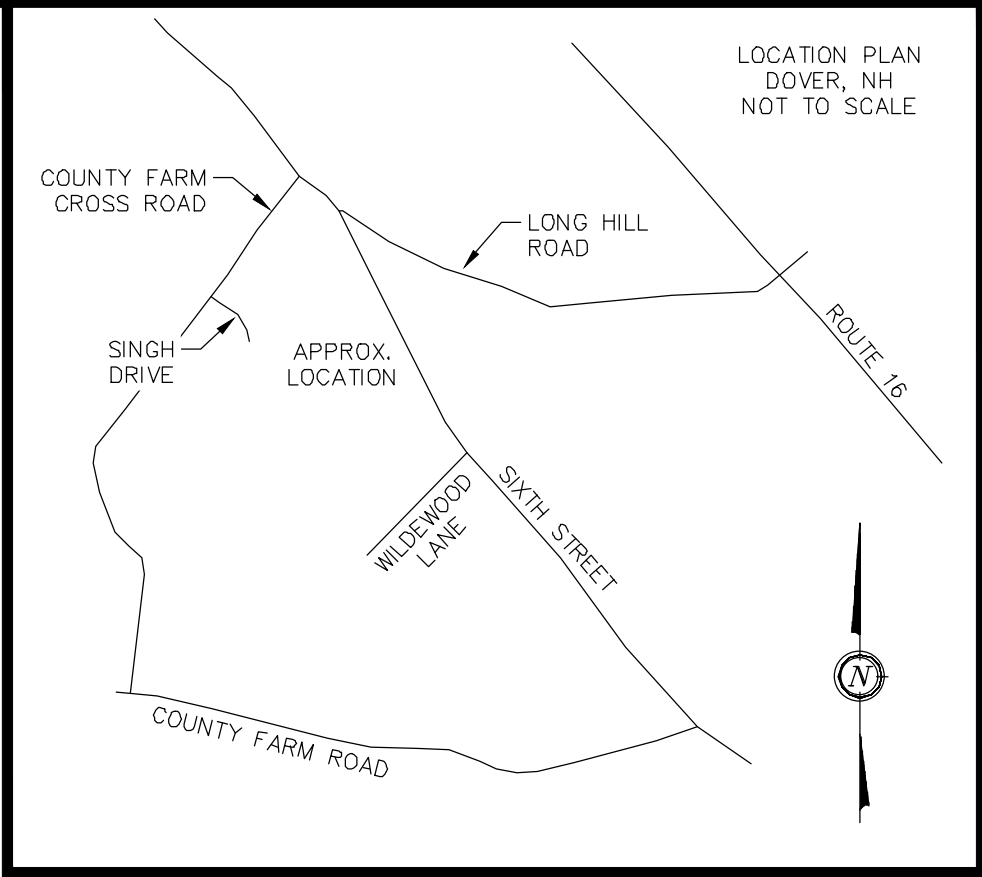
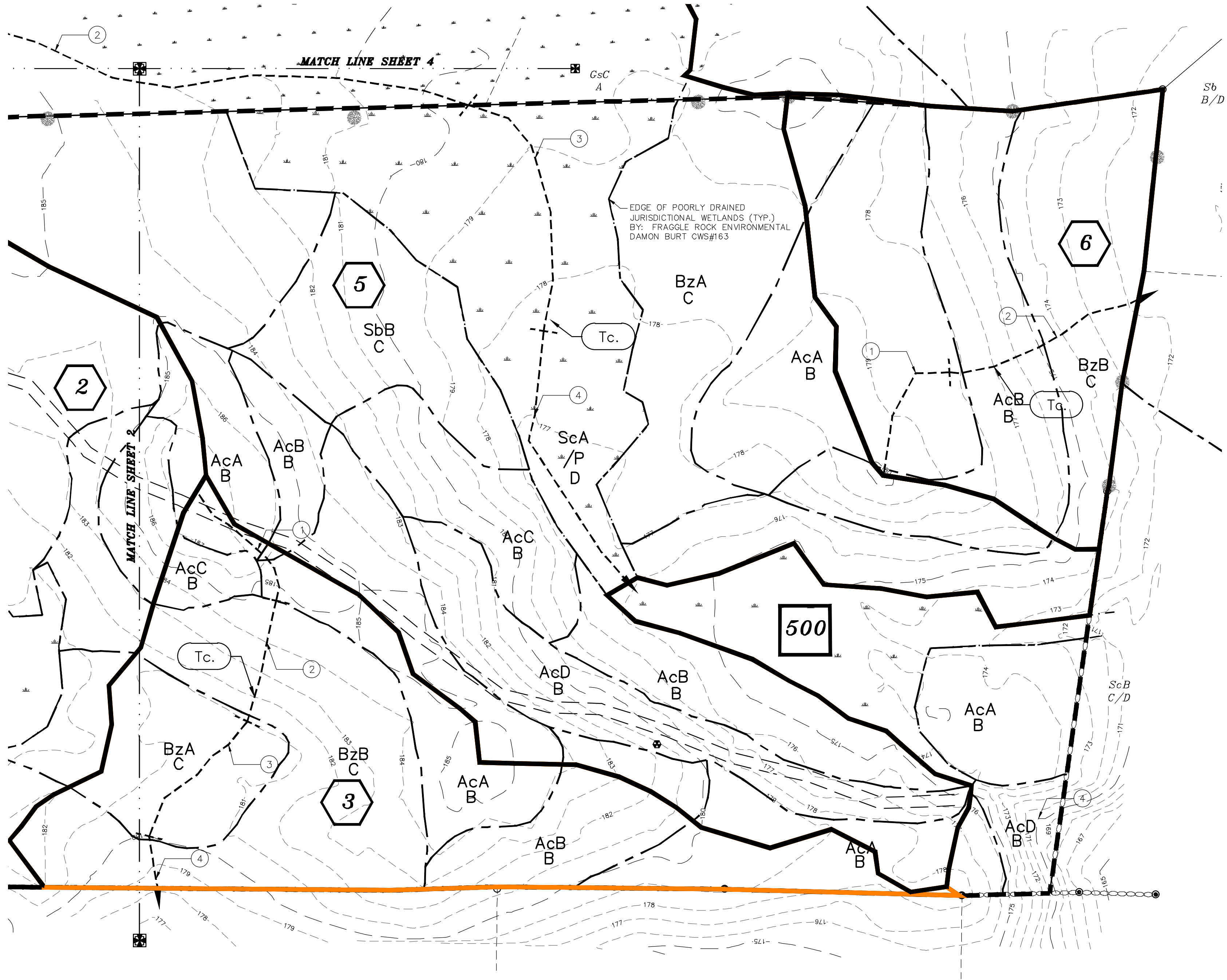
REVISION		DATE	DESCRIPTION

W-1 EXISTING WATERSHED PLAN - NORTHEAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

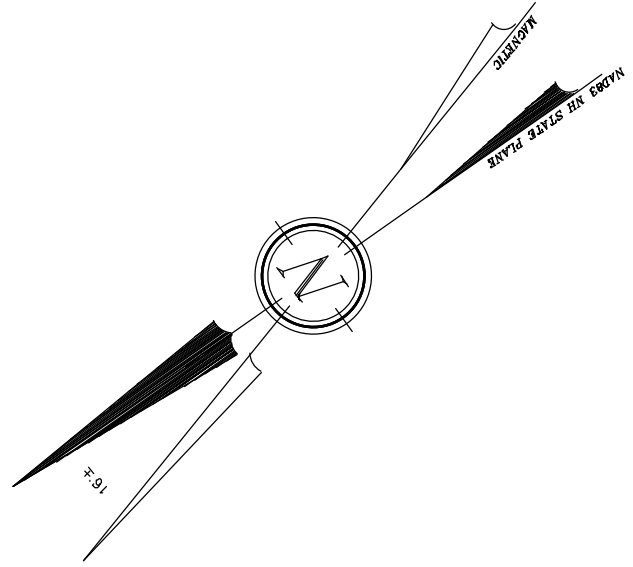
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
PROFESSIONAL ENGINEER

SHEET 2 OF 8



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
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600

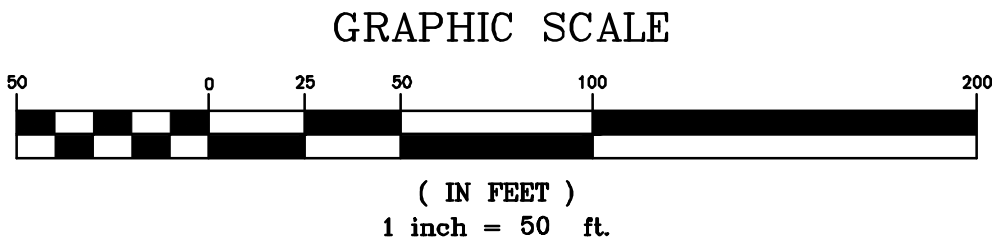
500

300

FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163

JOHN P. HAYES III CSS #87

- SYMBOLS LEGEND:**
- | | | |
|--|--|-------------------------------|
| | | SUBCATCHMENT AREA SYMBOL |
| | | FLOW REACH SYMBOL |
| | | POND DEVICE SYMBOL |
| | | TIME OF CONCENTRATION SEGMENT |

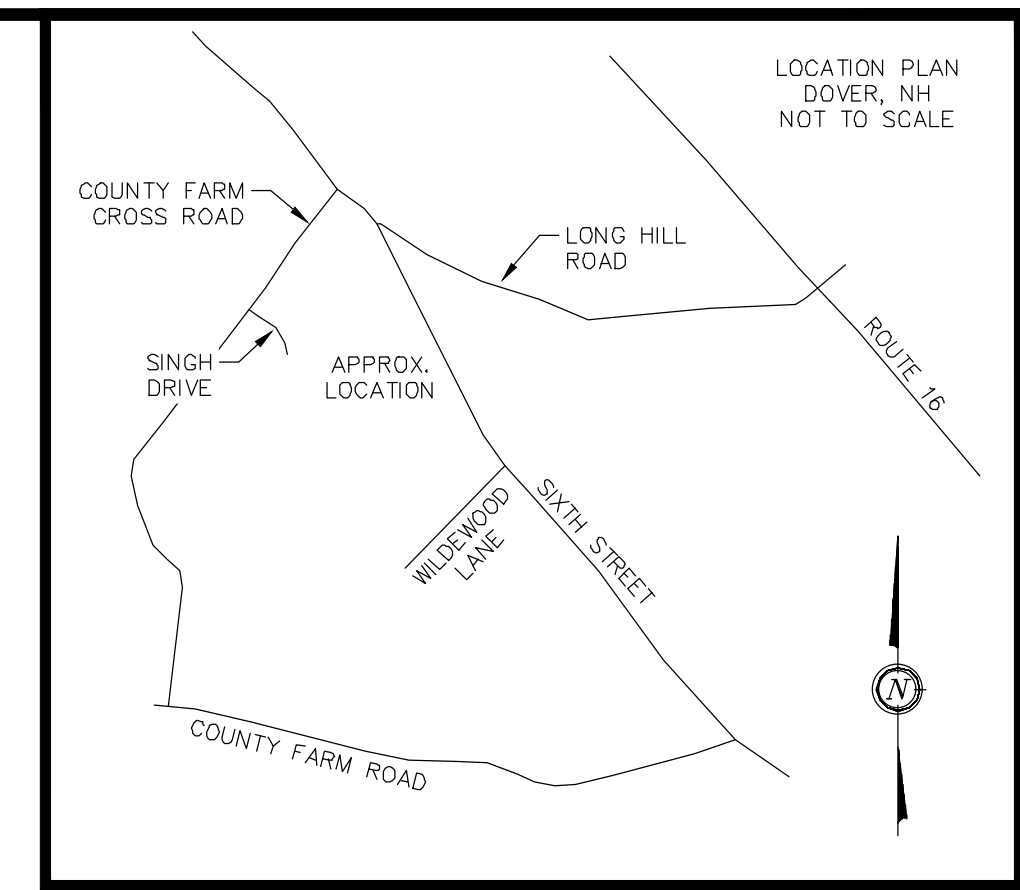


REVISION	DATE	DESCRIPTION

W-1 EXISTING WATERSHED PLAN - SOUTHWEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING, INC.
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

SHEET 3 OF 8



JOHN P. HAYES III CSS #87

GRAPHIC SCALE

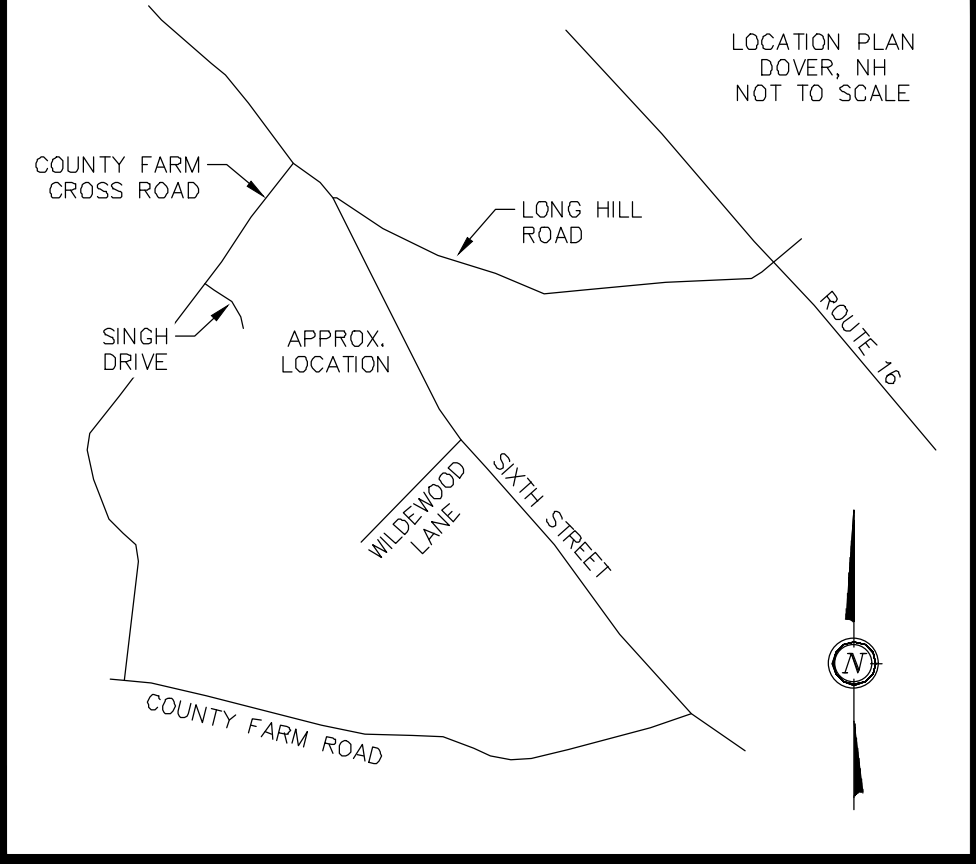
(IN FEET)
1 inch = 50 ft.

LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

	BERRY SURVEYING & ENGINEERING 	
	335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603) 332-2863	
	SCALE : 1 IN. EQUALS 50 FT.	
	DATE : JUNE 10, 2021	
	FILE NO. : DB 2021-011	

NRCS SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
GIC	GLOUCESTER FINE SANDY LOAM	A
GsC	GLOUCESTER VERY STONY FINE SANDY LOAM	A
Sb	SAUGATUCK LOAMY SAND	B/D
ScA	SCANTIC SILT LOAM	C/D
ScB	SCANTIC SILT LOAM	C/D
WdB	WINDSOR LOAMY SAND	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		

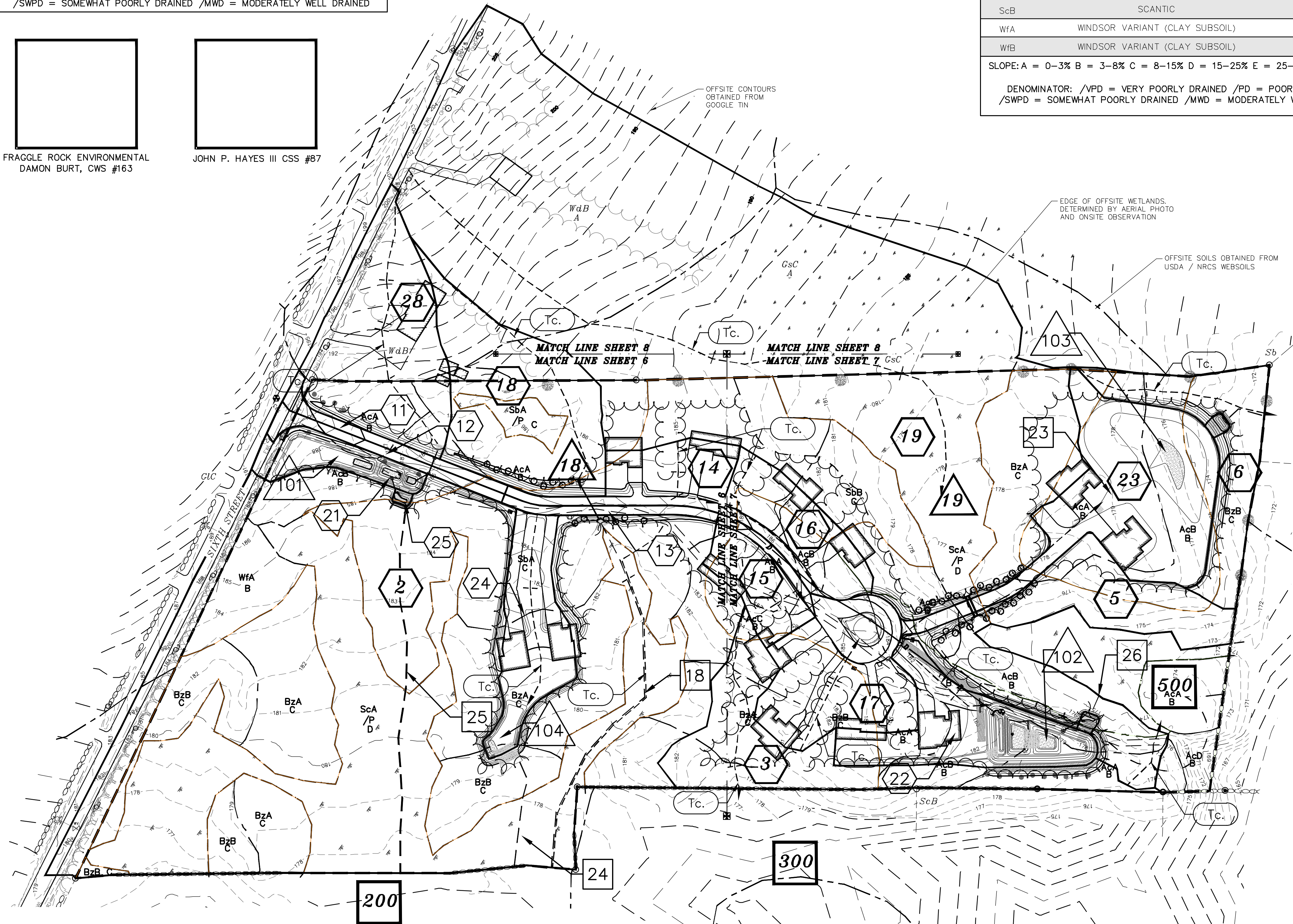
SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
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AcB	ACTON (VERY STONY)	B
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BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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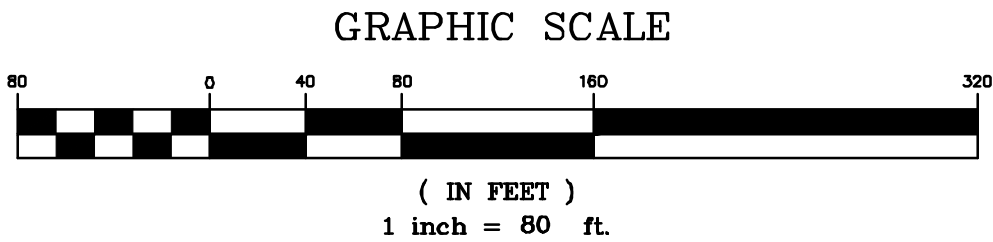
- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: XXX Sq. Ft., XXXX Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
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FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163

JOHN P. HAYES III CSS #87



- SYMBOLS LEGEND:**
- Subcatchment Area Symbol
 - Flow Reach Symbol
 - Pond Device Symbol
 - Time of Concentration Segment



REVISION		DATE

W-2 PROPOSED WATERSHED OVERVIEW PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

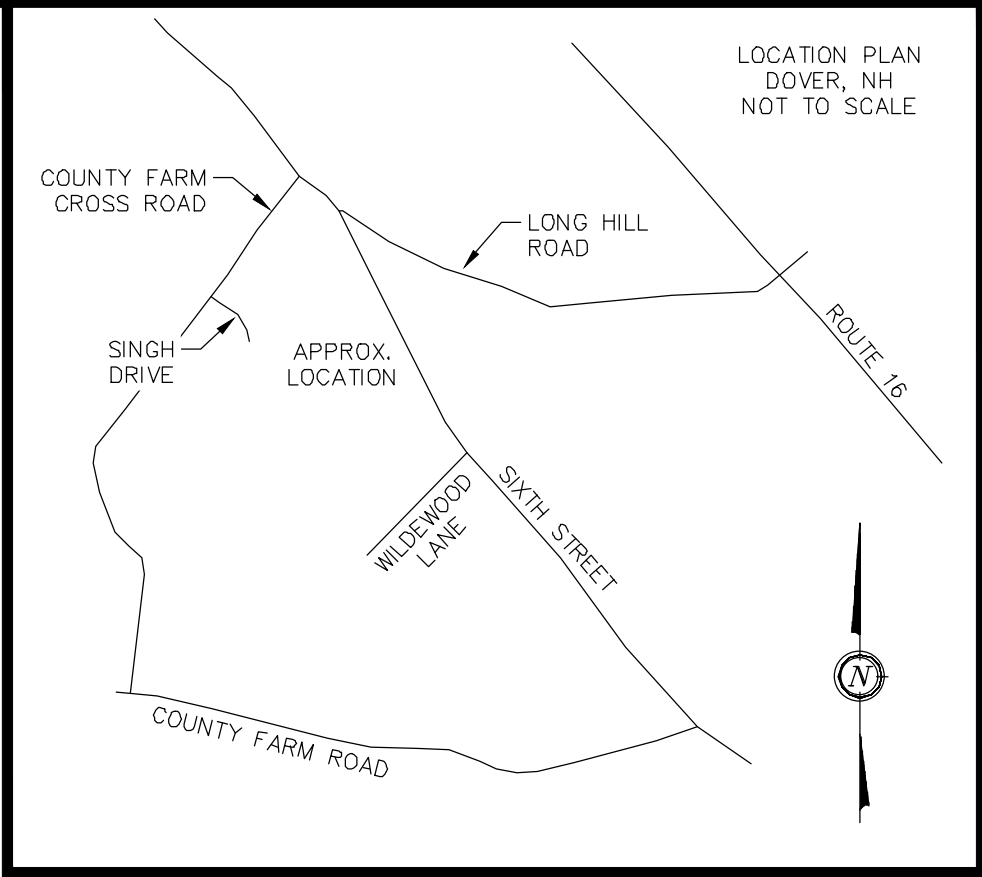
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 1425
PROFESSIONAL ENGINEER

SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B

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

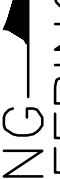
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
 /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

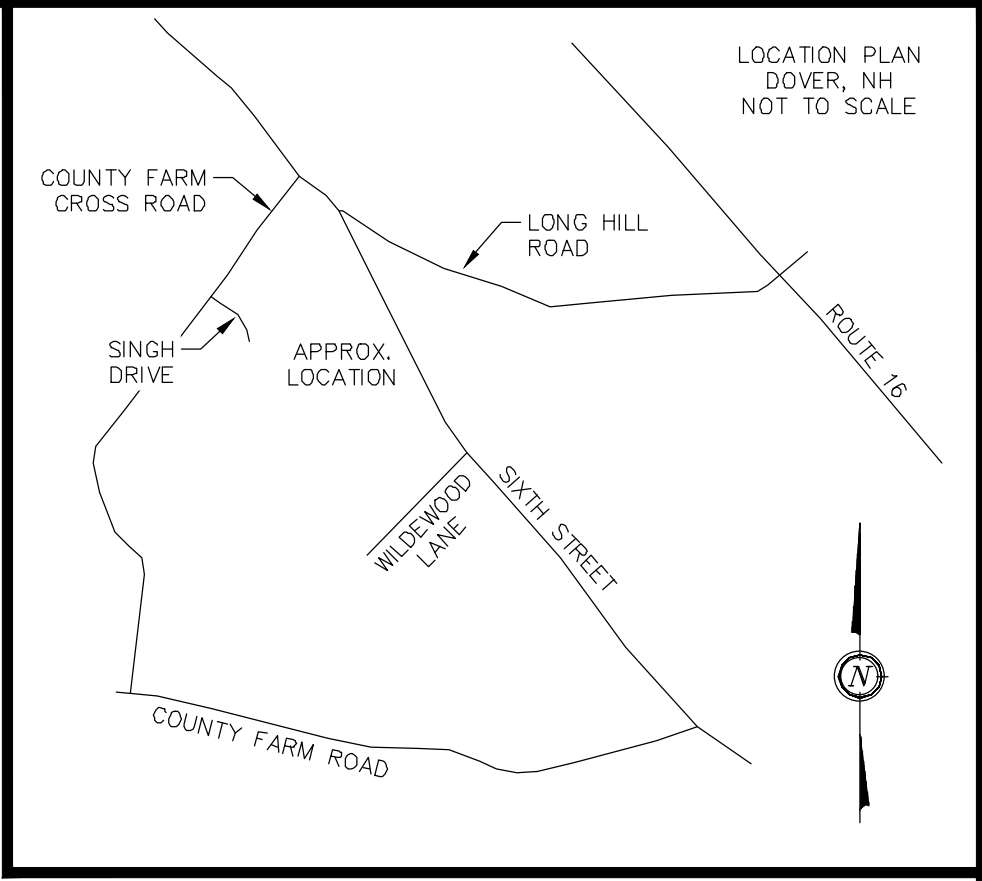
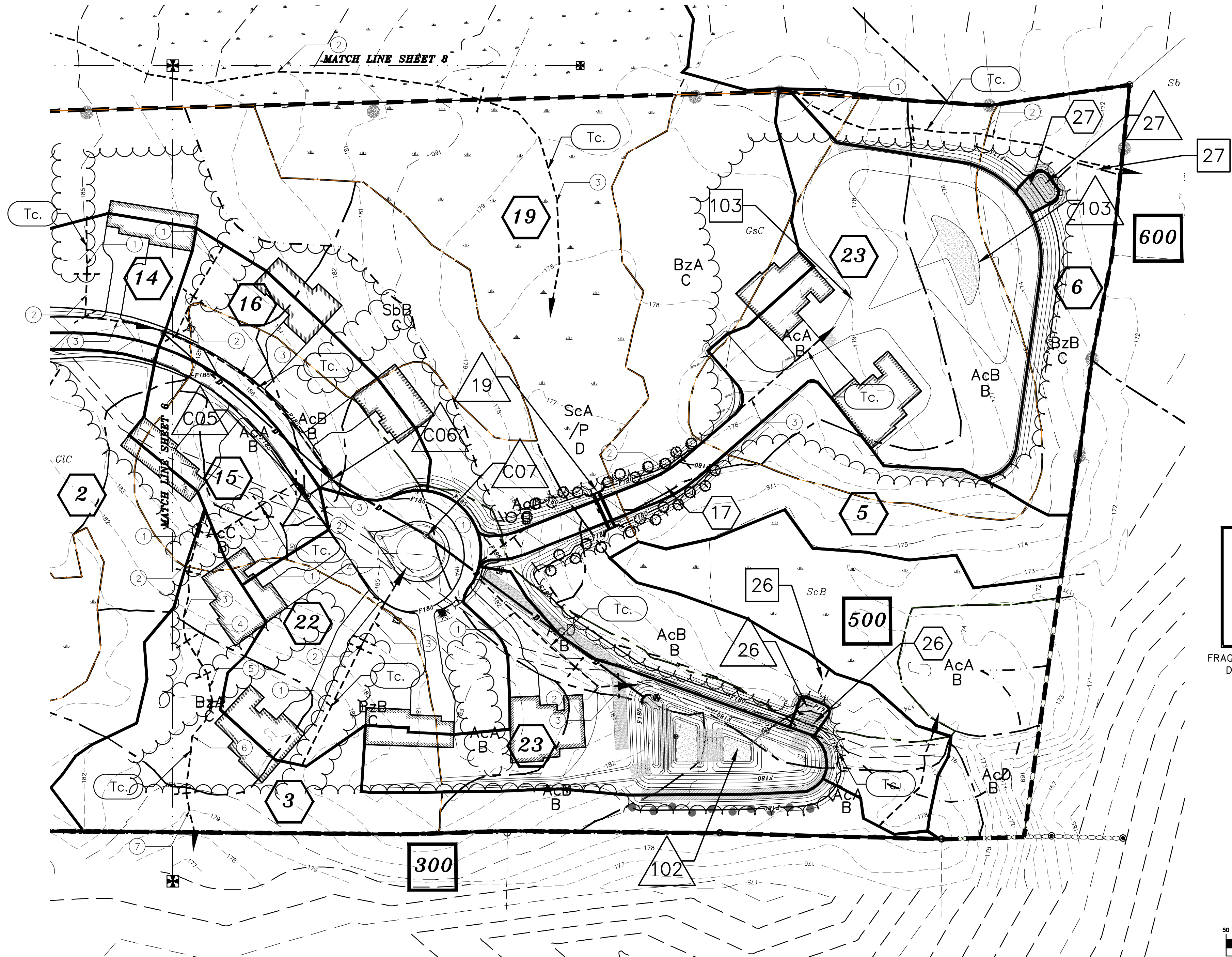


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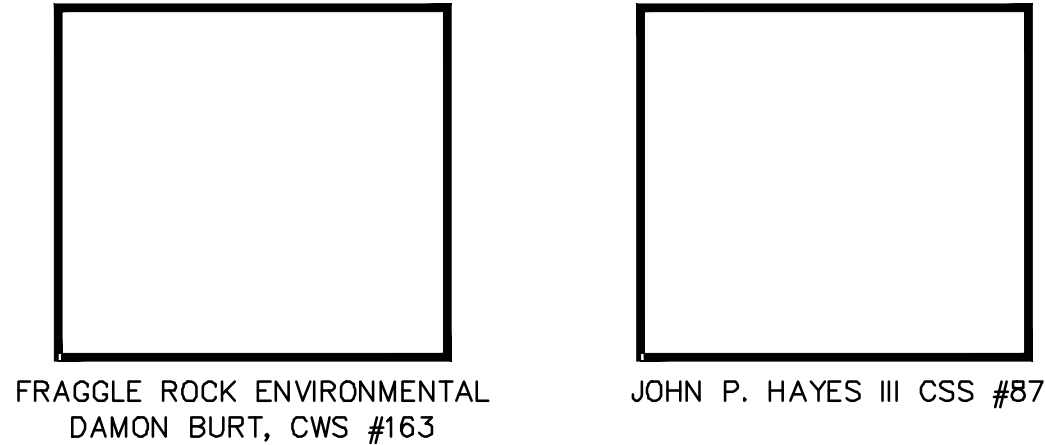
JOHN P. HAYES III CSS #87

- GRAPHIC SCALE
-
- (IN FEET)
1 inch = 50 ft.

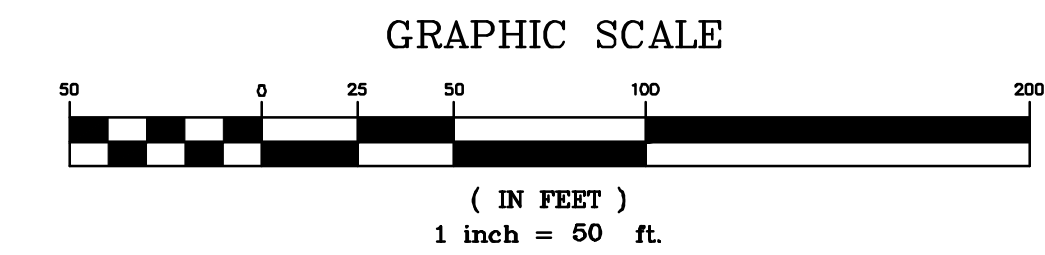

BERRY SURVEYING & ENGINEERING
 335 SECOND CROWN POINT ROAD
 BARRINGTON, NH 03825 (603) 332-2863
 SCALE : 1 IN. EQUALS 50 FT.
 DATE : JUNE 10, 2021
 FILE NO. : DB 2021-011



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: XXX Sq. Ft., XXXX Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
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- SYMBOLS LEGEND:**
- Subcatchment Area Symbol
 - Flow Reach Symbol
 - Pond Device Symbol
 - Time of Concentration Segment

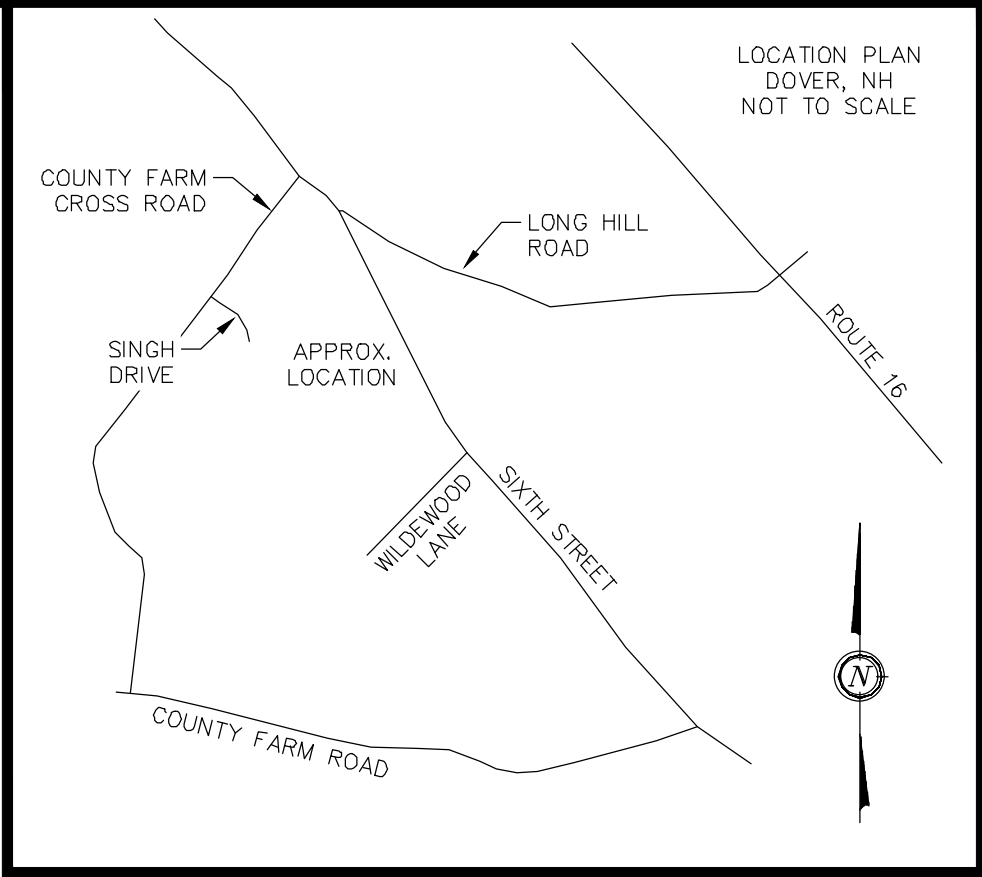
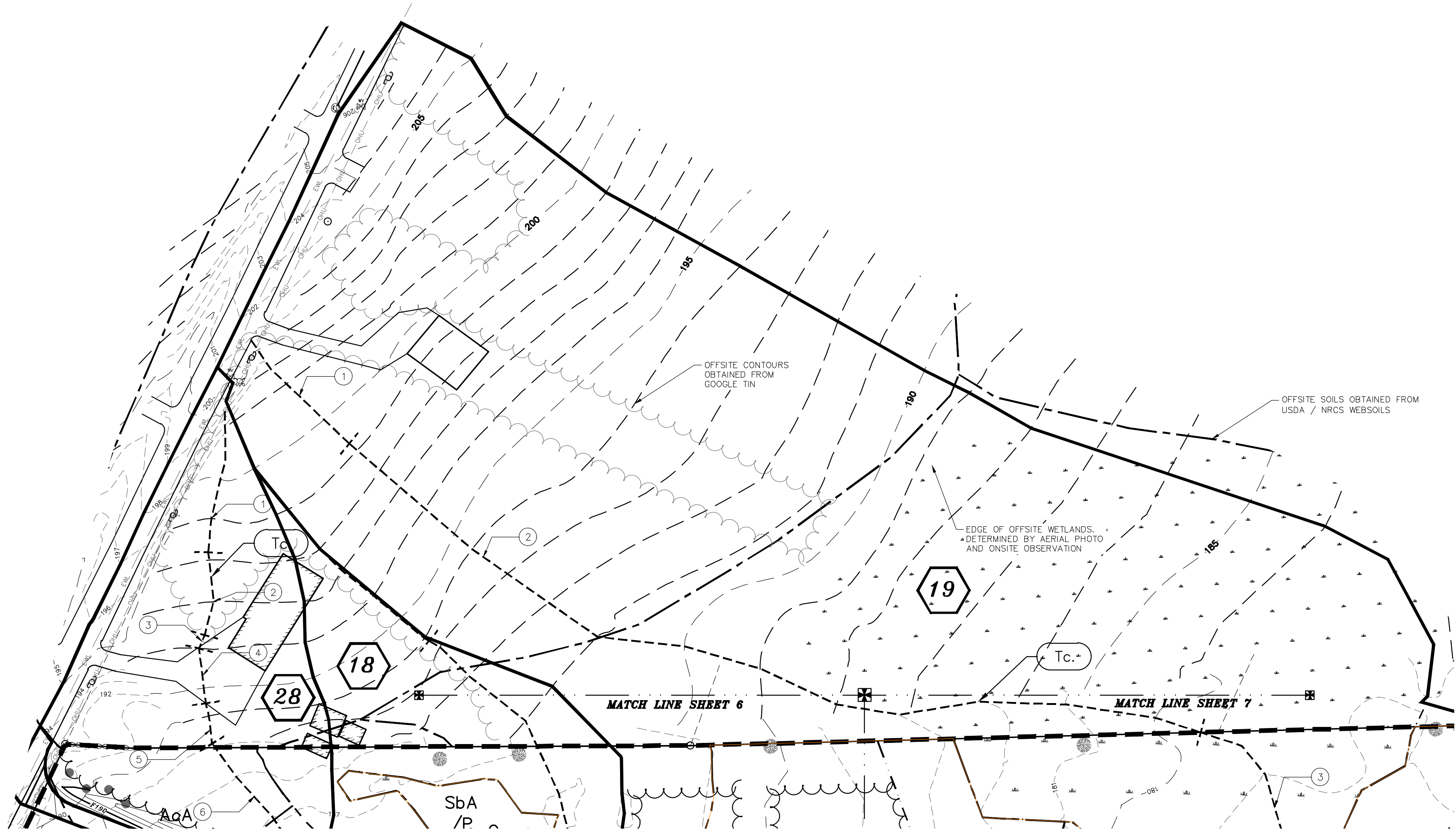


REVISION	DATE	DESCRIPTION

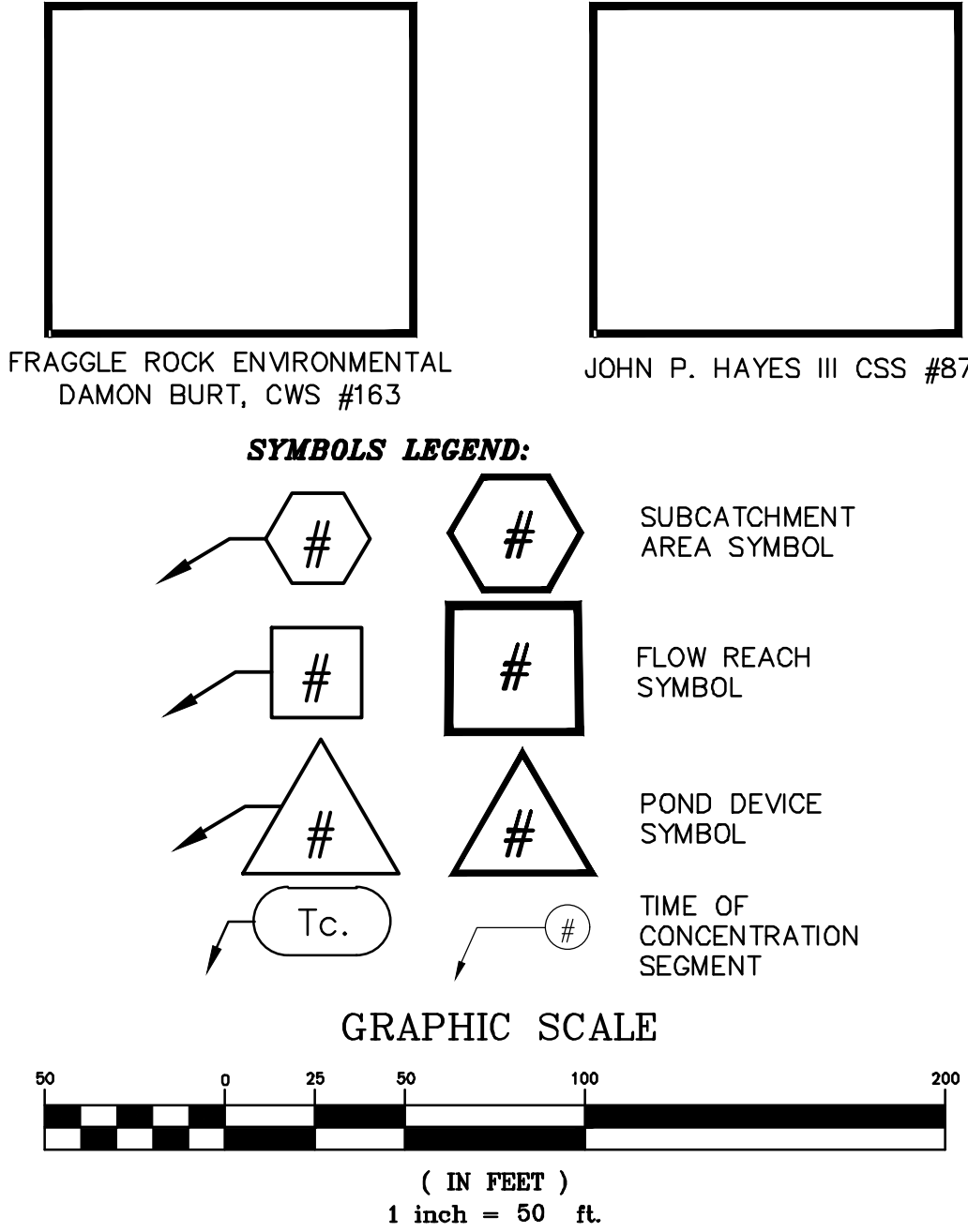
W-2 PROPOSED WATERSHED PLAN - SOUTHWEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14232
PROFESSIONAL ENGINEER



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
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REVISION	DATE	DESCRIPTION

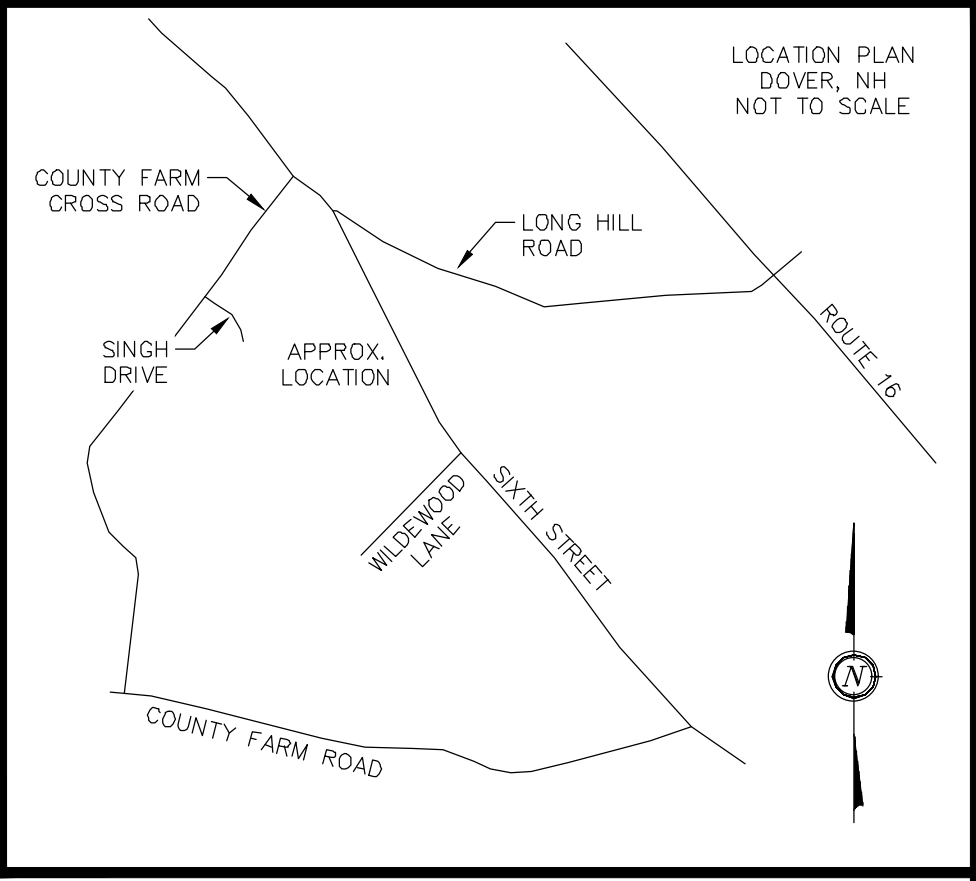
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, NH
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER - NH

NRCS SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
GIC	GLOUCESTER FINE SANDY LOAM	A
GsC	GLOUCESTER VERY STONY FINE SANDY LOAM	A
Sb	SAUGATUCK LOAMY SAND	B/D
ScA	SCANTIC SILT LOAM	C/D
ScB	SCANTIC SILT LOAM	C/D
WdB	WINDSOR LOAMY SAND	A
SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+		
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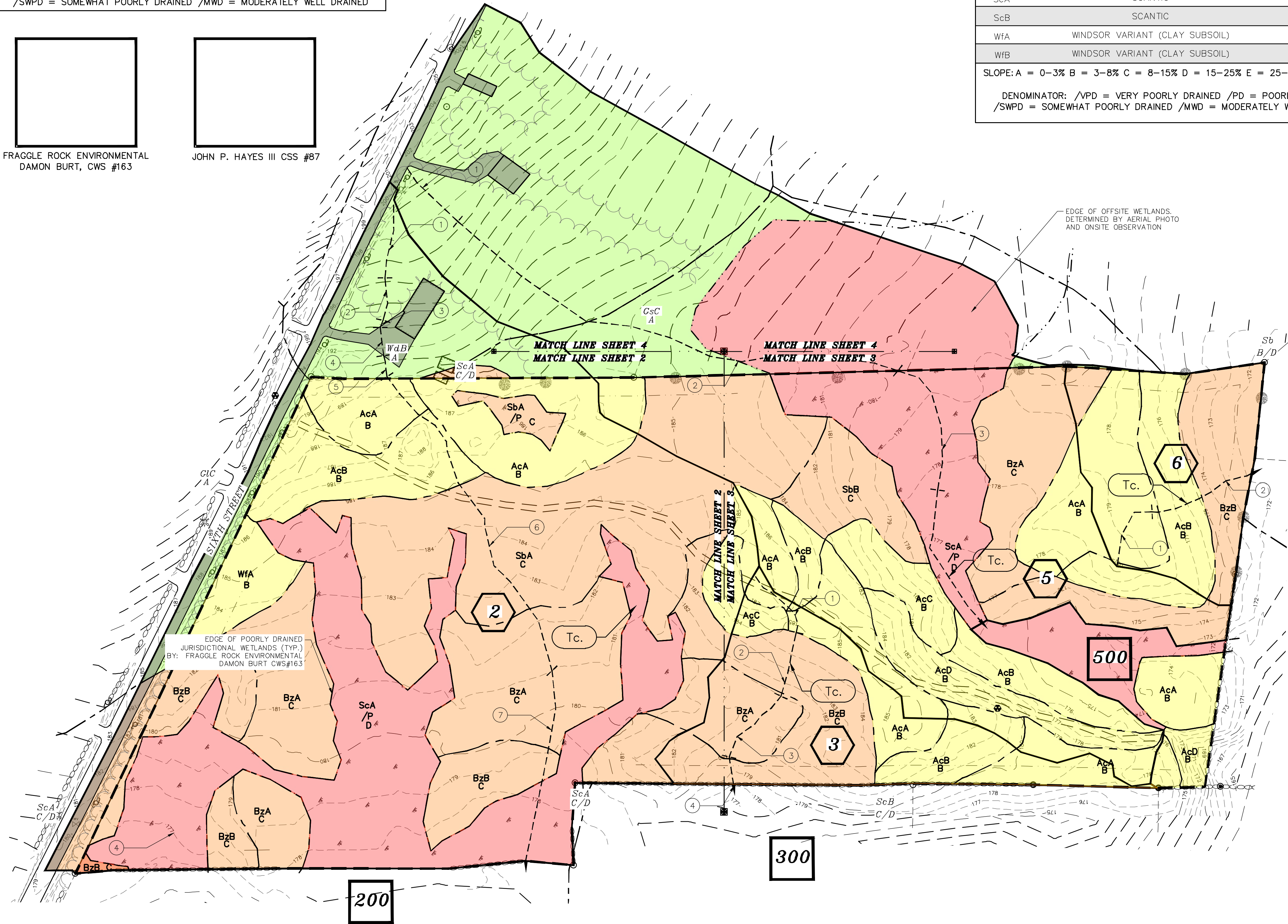
SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
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AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
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SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+		
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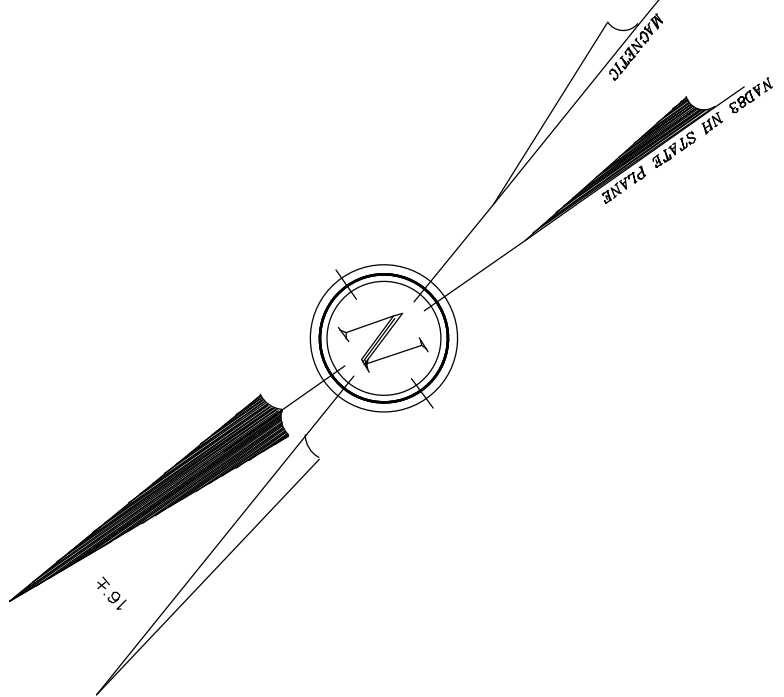
- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
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FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163

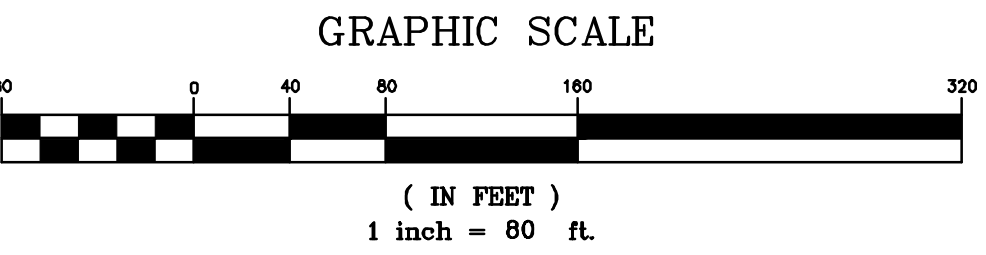
JOHN P. HAYES III CSS #87



600



- SYMBOLS LEGEND:**
- Subcatchment Area Symbol (Hexagon with #)
 - Flow Reach Symbol (Square with #)
 - Pond Device Symbol (Triangle with #)
 - Time of Concentration Segment (Circle with Tc.)



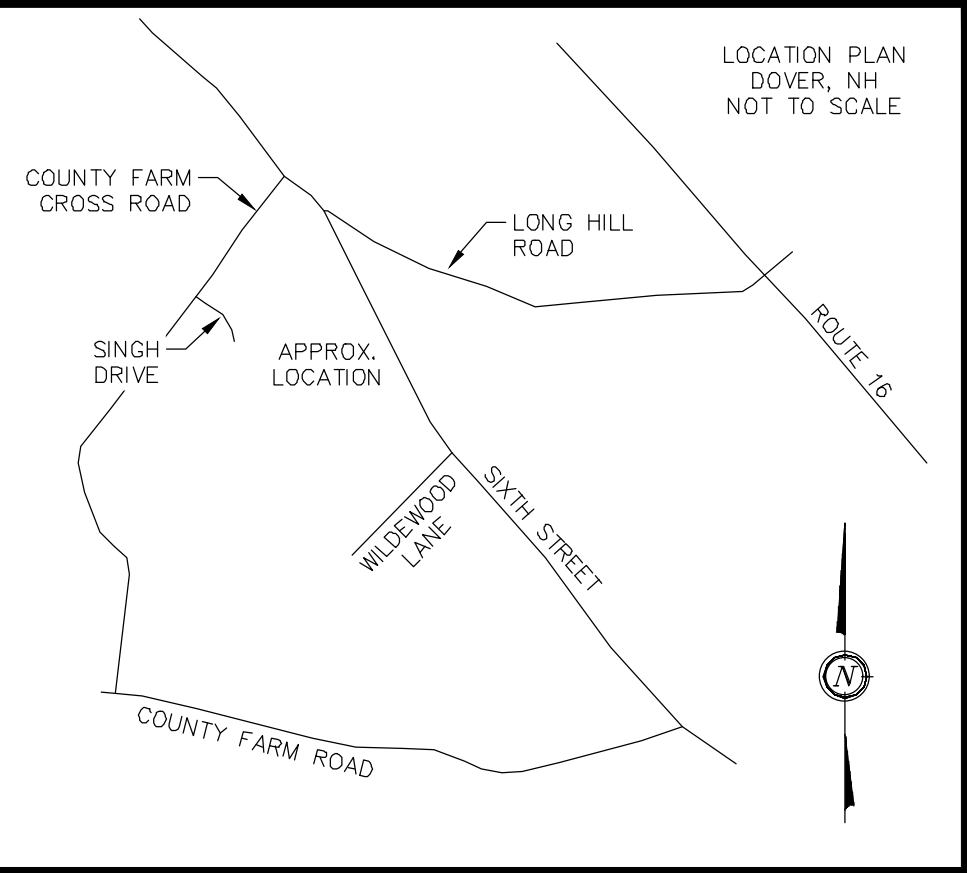
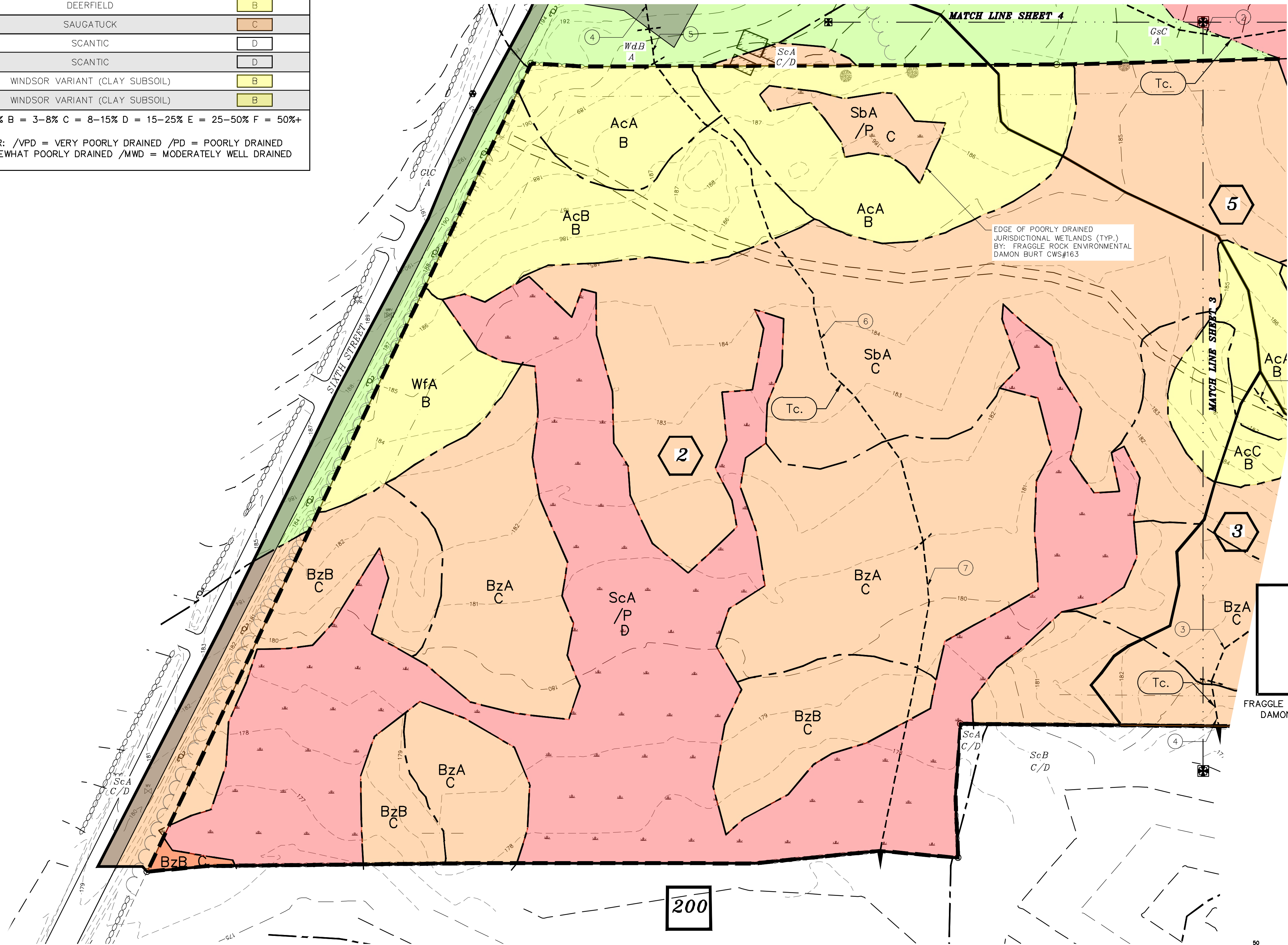
REVISION		DATE	DESCRIPTION

W-1 EXISTING WATERSHED OVERVIEW PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

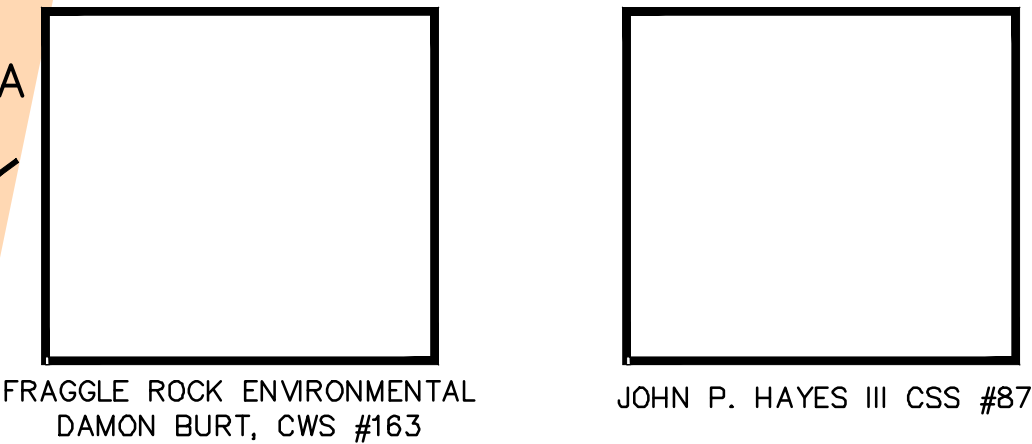
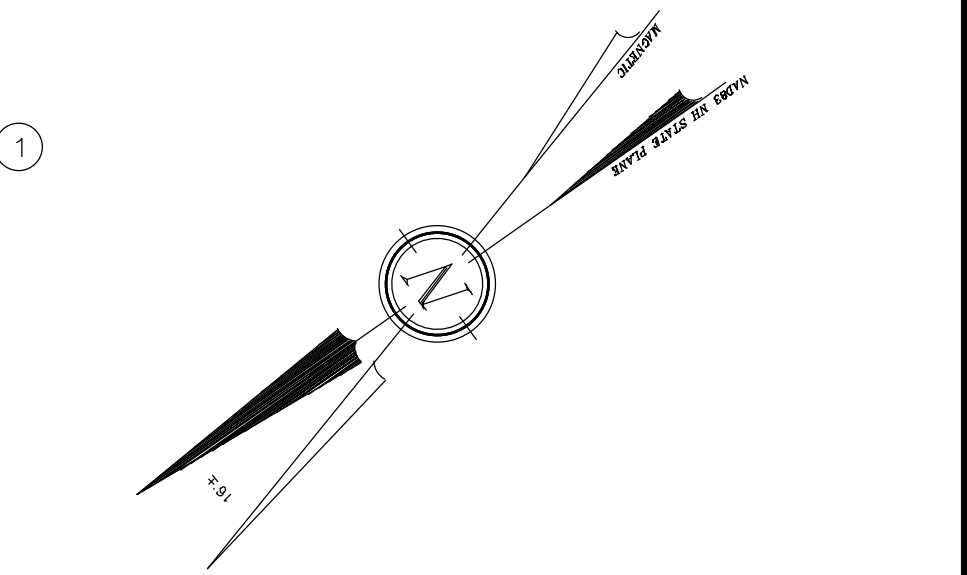
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14246
PROFESSIONAL ENGINEER

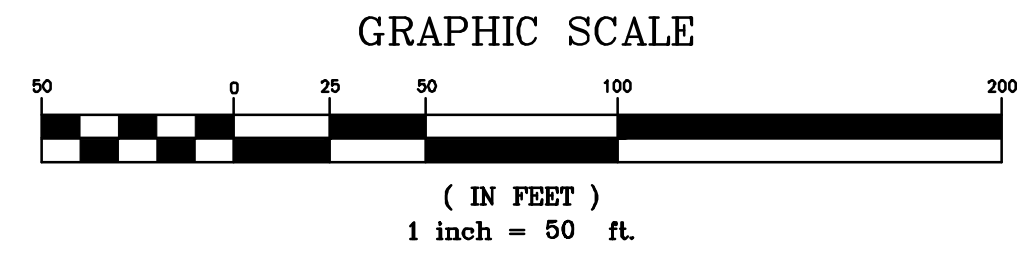
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AcB	ACTON (VERY STONY)	B
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SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+		
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED		



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPUCANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
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- SYMBOLS LEGEND:**
- Subcatchment Area Symbol (Hexagon with #)
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 - Pond Device Symbol (Triangle with #)
 - Time of Concentration Segment (Circle with Tc.)

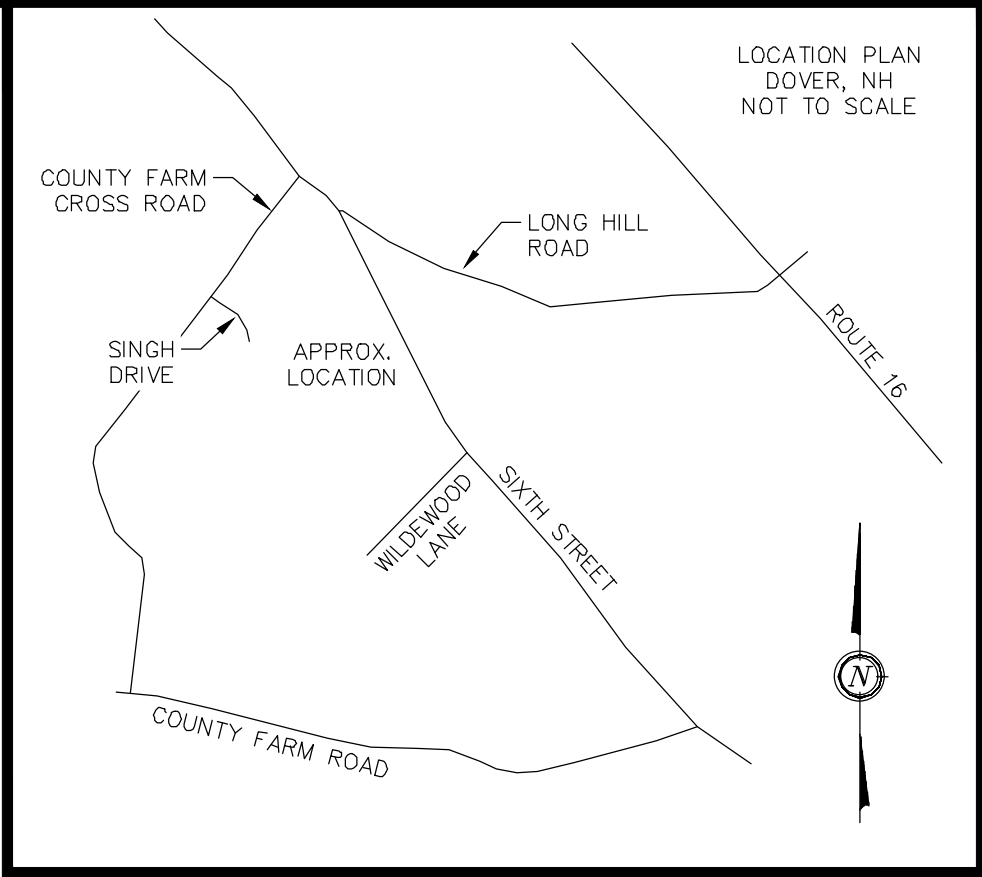
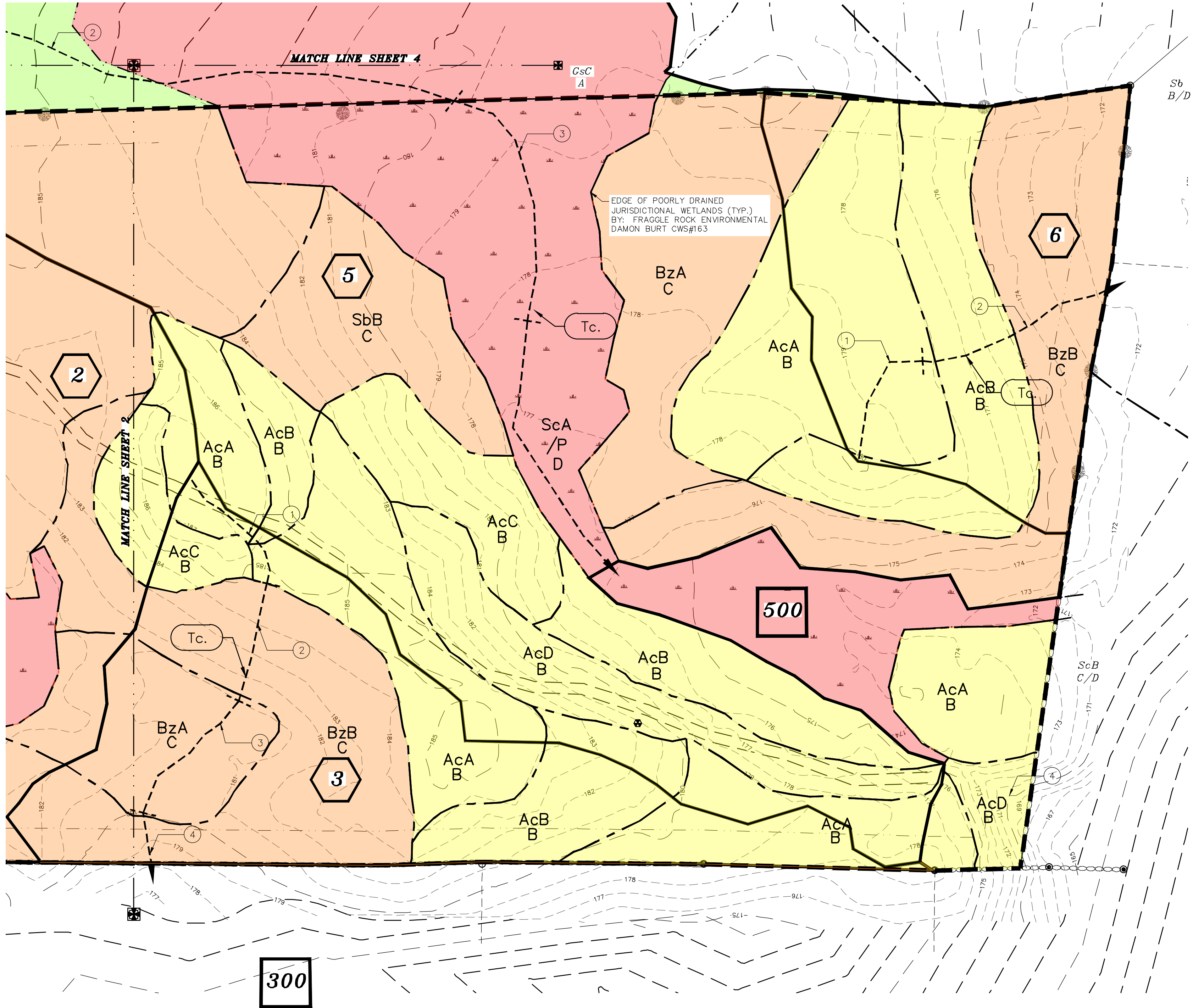


REVISION		DATE	DESCRIPTION

W-1 EXISTING WATERSHED PLAN - NORTHEAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

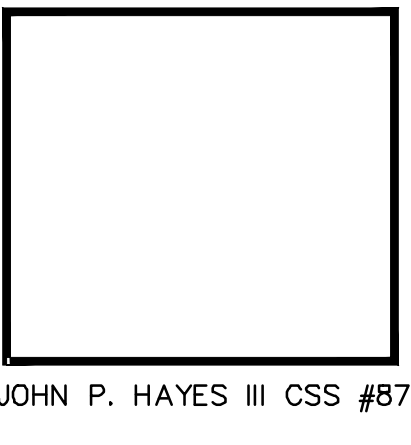
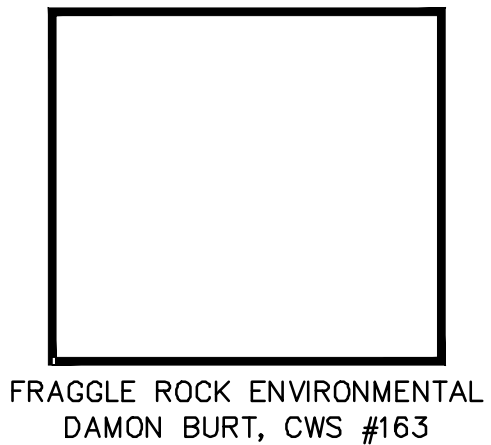
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER



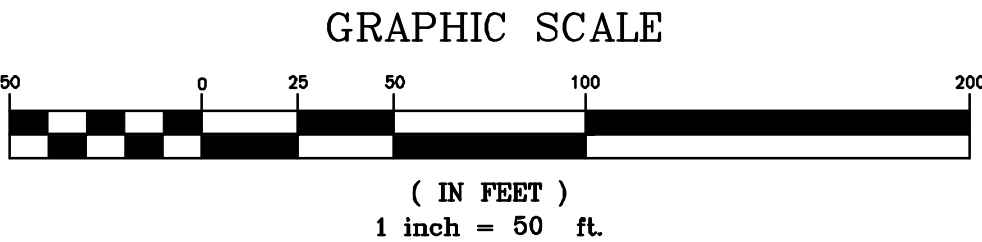
NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



SYMBOLS LEGEND:

- # SUBCATCHMENT AREA SYMBOL
- # FLOW REACH SYMBOL
- # POND DEVICE SYMBOL
- Tc. TIME OF CONCENTRATION SEGMENT



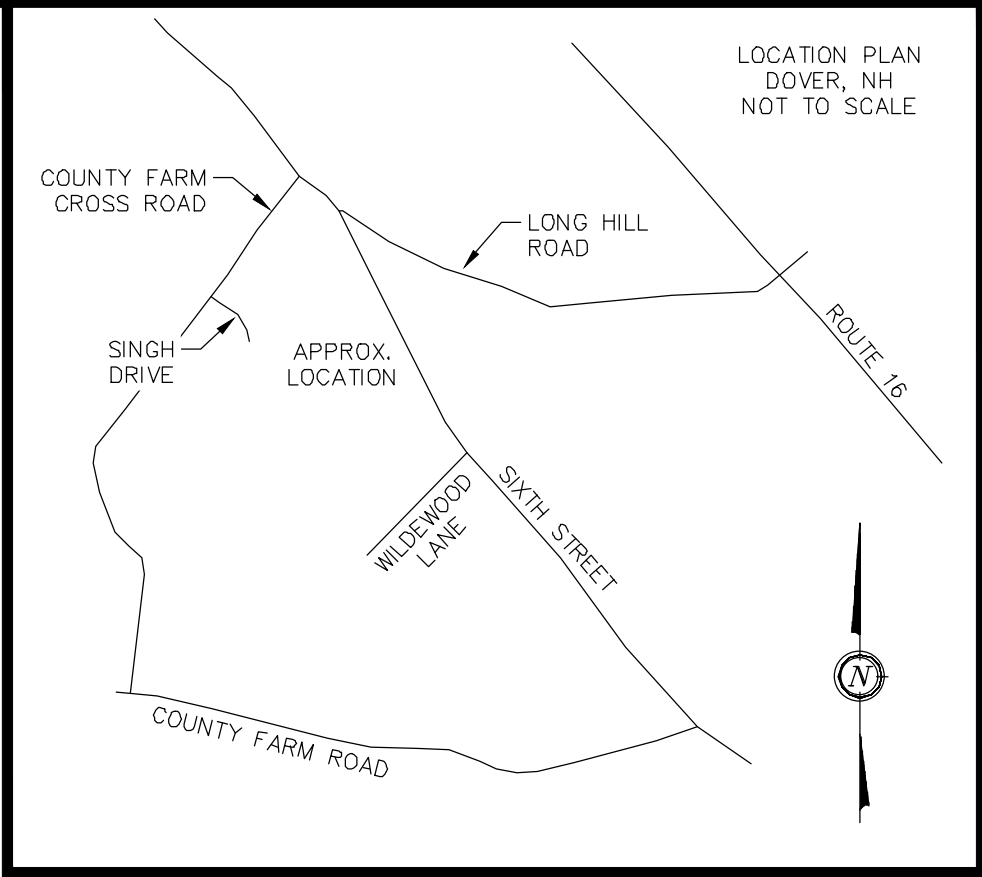
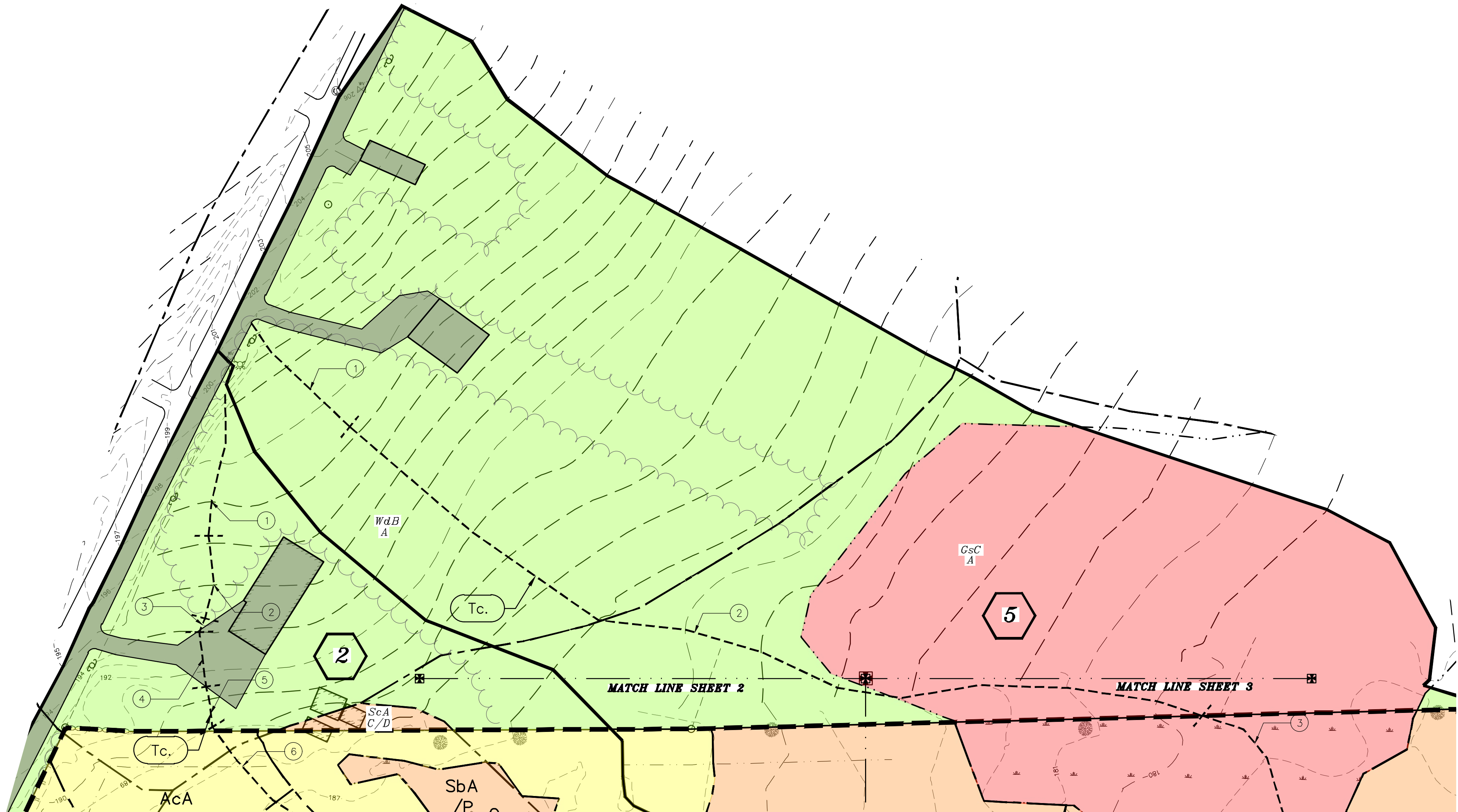
REVISION	DATE	DESCRIPTION

W-1 EXISTING WATERSHED PLAN - SOUTHWEST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER

SHEET 3 OF 8

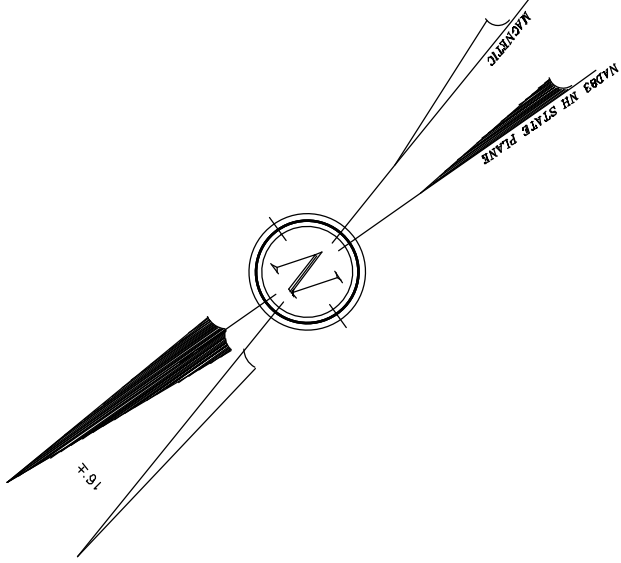


NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

1. TAX MAP B, LOT 5
2. LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
3. S.C.R.D. BOOK 4861, PAGE 409
4. I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
5. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
6. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163



JOHN P. HAYES III CSS #87

SYMBOLS LEGEND:

- | | | |
|--|--|-------------------------------|
| | | SUBCATCHMENT AREA SYMBOL |
| | | FLOW REACH SYMBOL |
| | | POND DEVICE SYMBOL |
| | | TIME OF CONCENTRATION SEGMENT |

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.

REVISION	DATE	DESCRIPTION

W-1 EXISTING WATERSHED PLAN - OFFSITE
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, NH.
TAX MAP B, LOT 5

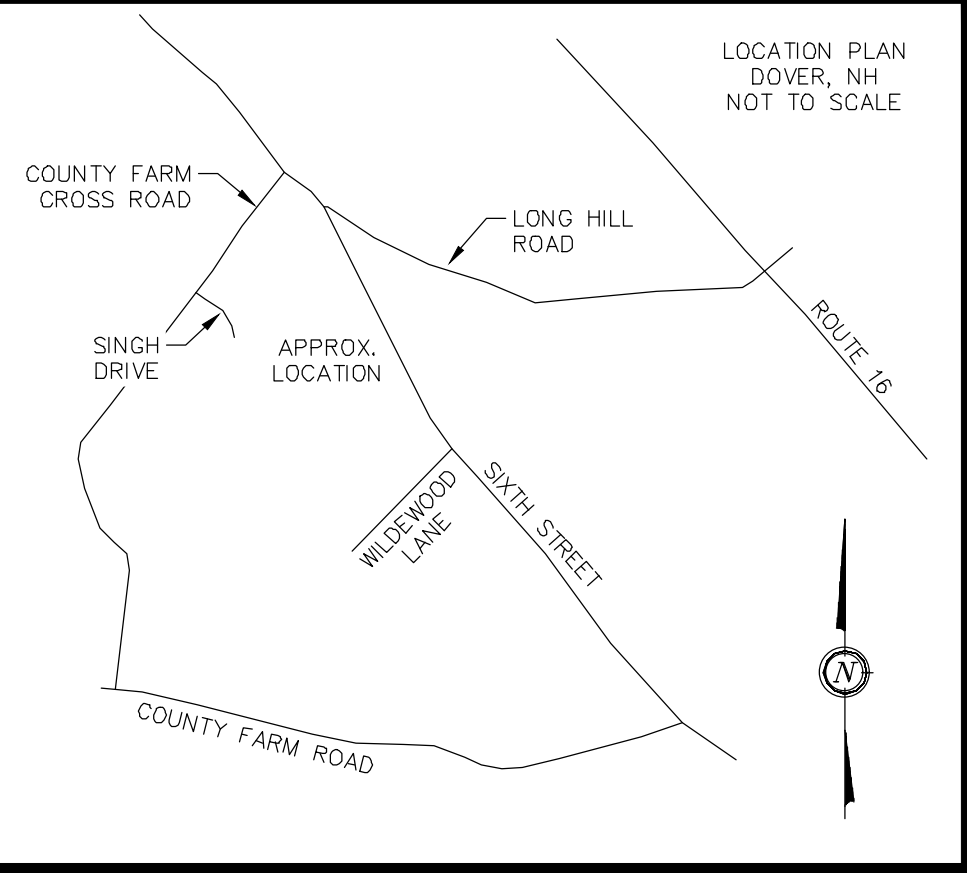
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 14246
PROFESSIONAL ENGINEER - NH

SHEET 4 OF 8

NRCS SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
GIC	GLOUCESTER FINE SANDY LOAM	A
GsC	GLOUCESTER VERY STONY FINE SANDY LOAM	A
Sb	SAUGATUCK LOAMY SAND	B/D
ScA	SCANTIC SILT LOAM	C/D
ScB	SCANTIC SILT LOAM	C/D
WdB	WINDSOR LOAMY SAND	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		

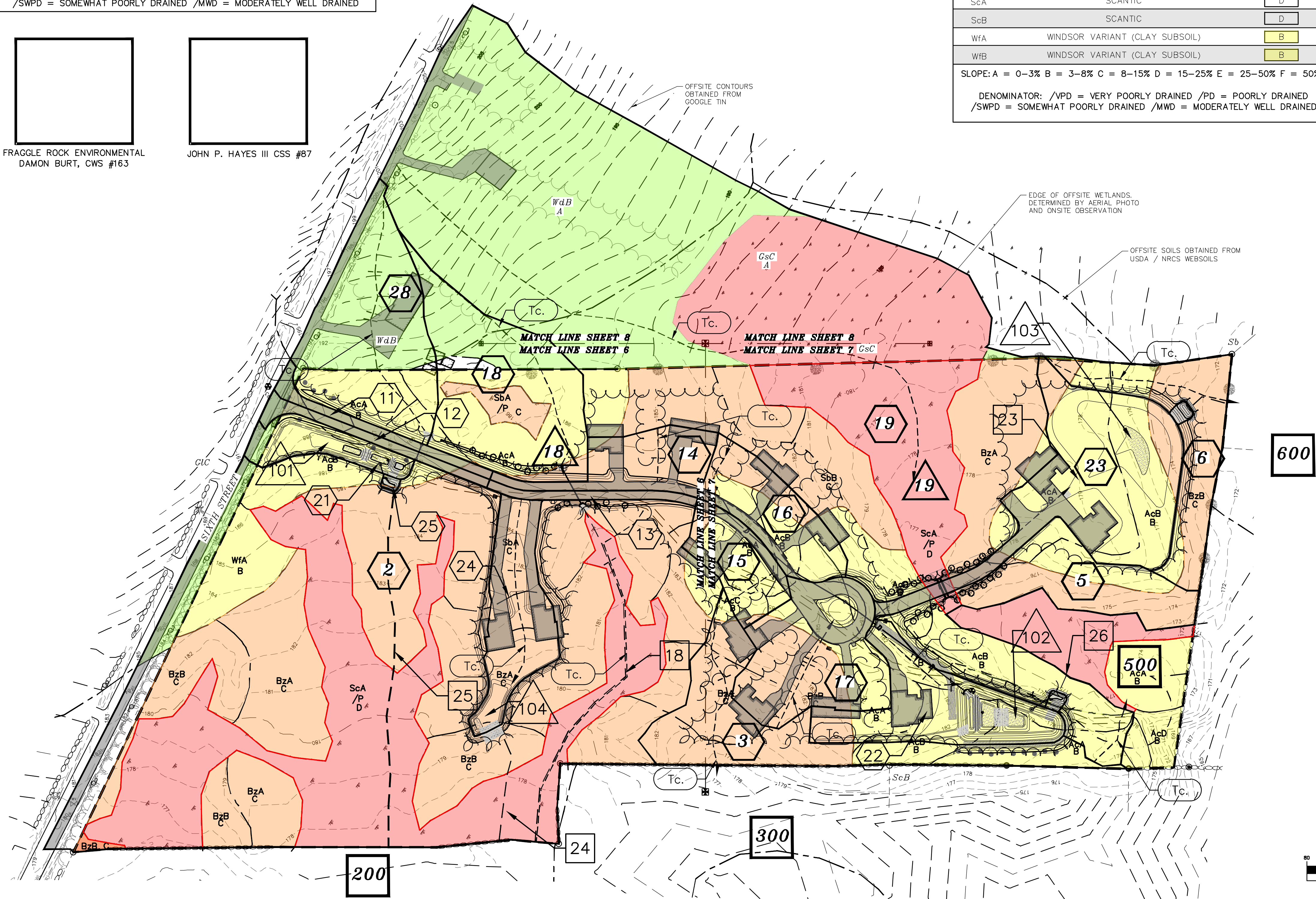
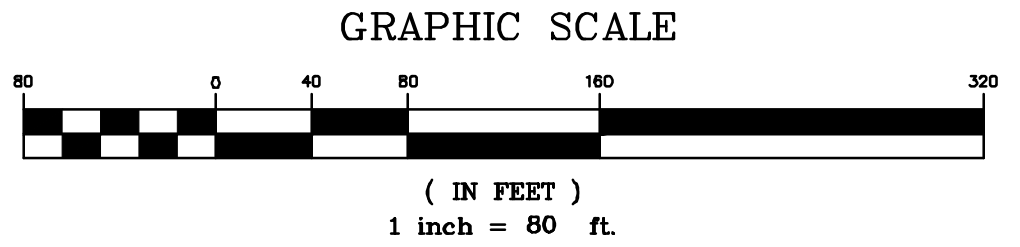
SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



- NOTES:
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: XXX Sq. Ft., XXXX Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



- SYMBOLS LEGEND:
- Subcatchment Area Symbol (Hexagon with #)
 - Flow Reach Symbol (Square with #)
 - Pond Device Symbol (Triangle with #)
 - Time of Concentration Segment (Circle with Tc.)



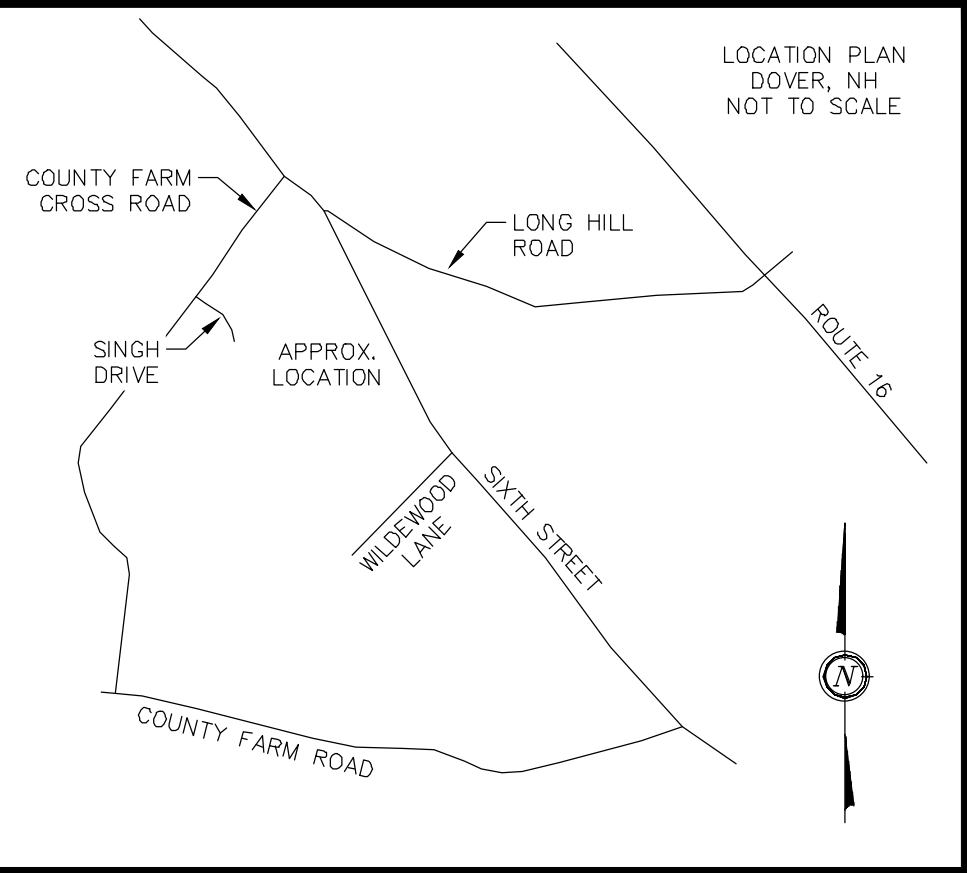
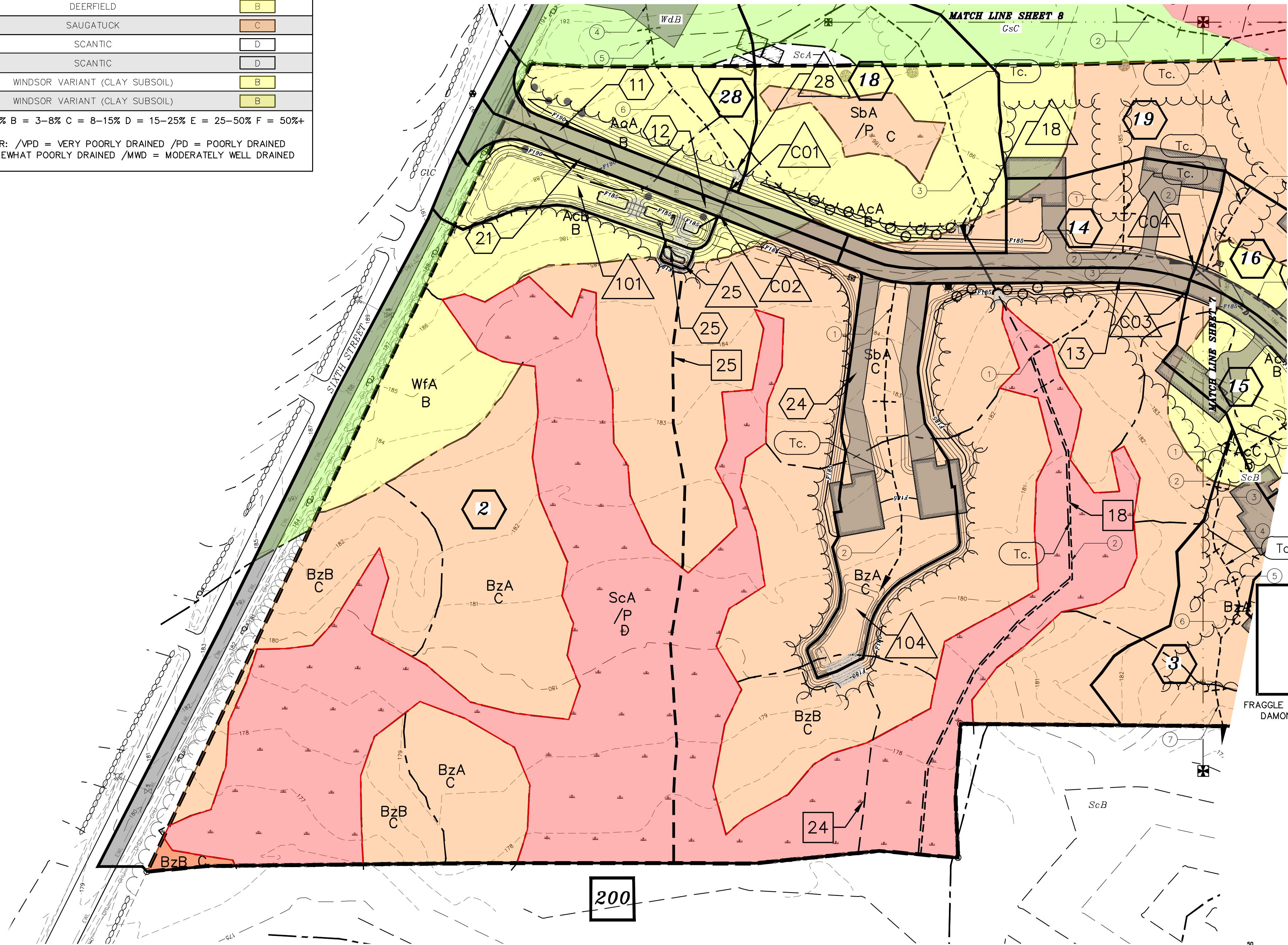
REVISION		DATE

W-2 PROPOSED WATERSHED OVERVIEW PLAN
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

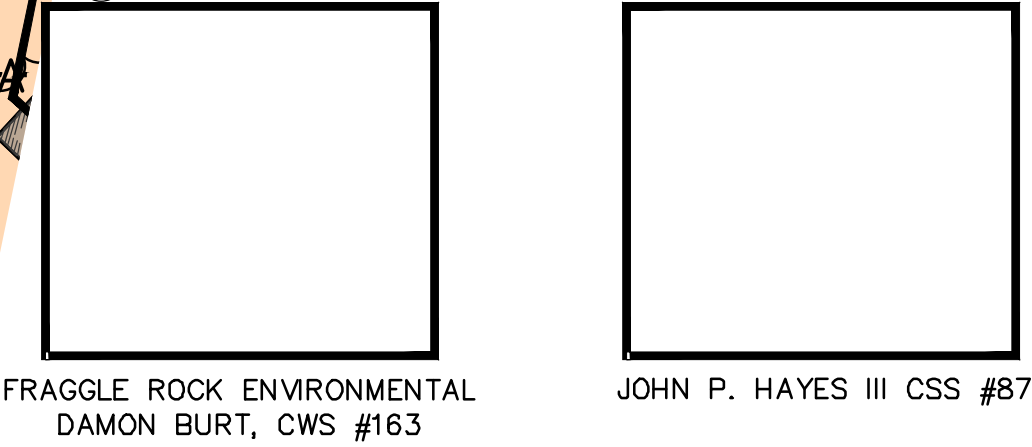
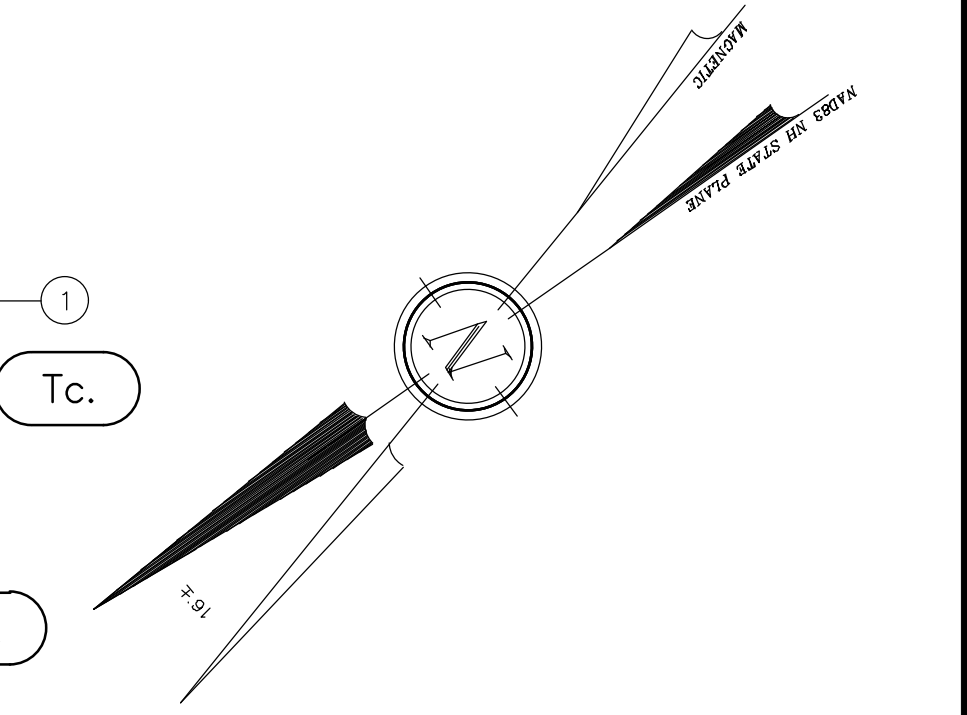
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 80 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 1425
PROFESSIONAL ENGINEER

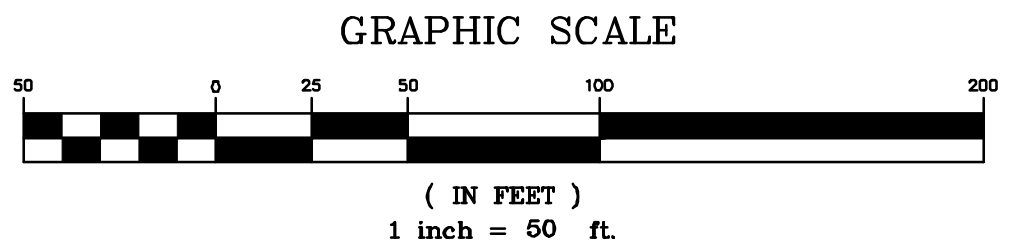
SITE SPECIFIC SOILS LEGEND		
SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
1. TAX MAP B, LOT 5
 2. LOT AREA: XXX Sq. Ft., XXXX Ac.
 3. S.C.R.D. BOOK 4861, PAGE 409
 4. I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 5. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 6. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



- SYMBOLS LEGEND:**
- # SUBCATCHMENT AREA SYMBOL
 - # FLOW REACH SYMBOL
 - # POND DEVICE SYMBOL
 - Tc. TIME OF CONCENTRATION SEGMENT

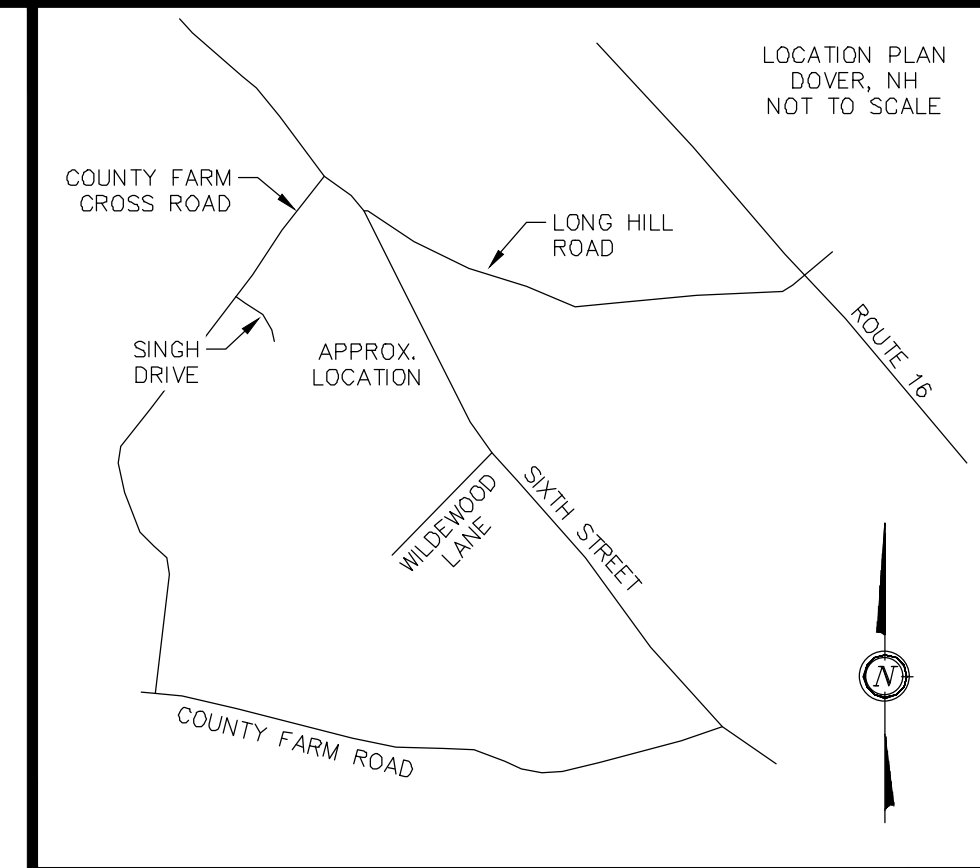
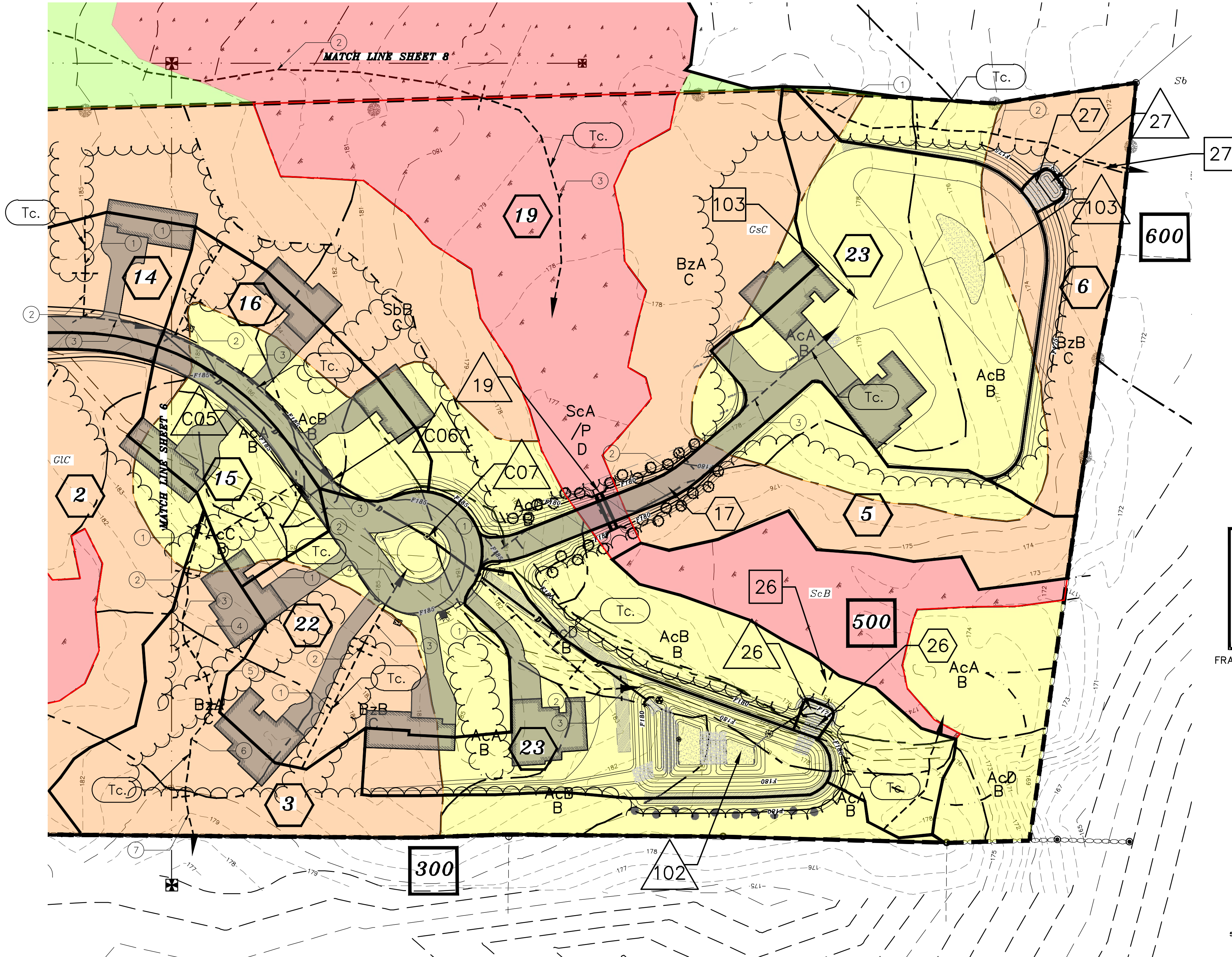


DESCRIPTION	

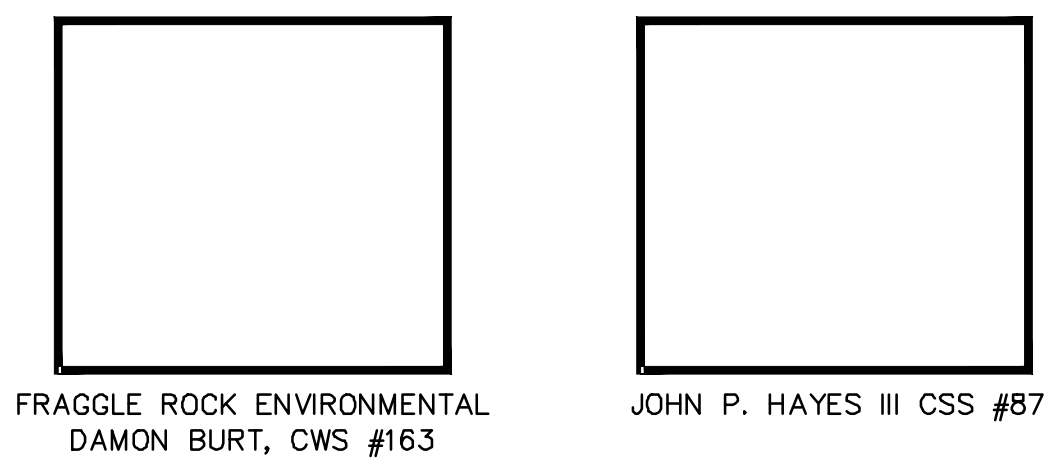
W-2 PROPOSED WATERSHED PLAN - NORTHEAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

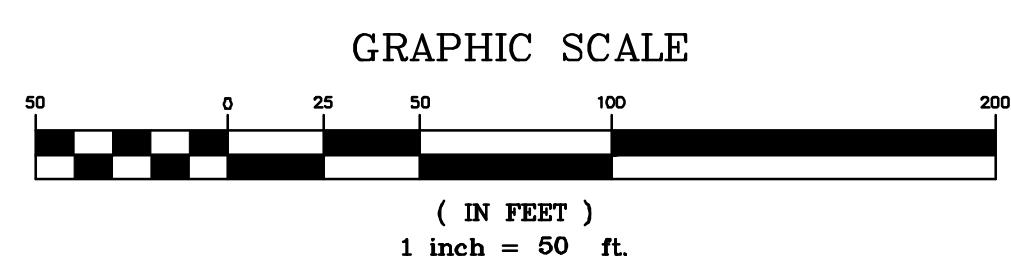
KENNETH A. BERRY
No. 14232
PROFESSIONAL ENGINEER



- NOTES:**
- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: XXX Sq. Ft., XXXX Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



- SYMBOLS LEGEND:**
- Subcatchment Area Symbol (Hexagon with #)
 - Flow Reach Symbol (Square with #)
 - Pond Device Symbol (Triangle with #)
 - Time of Concentration Segment (Circle with Tc.)

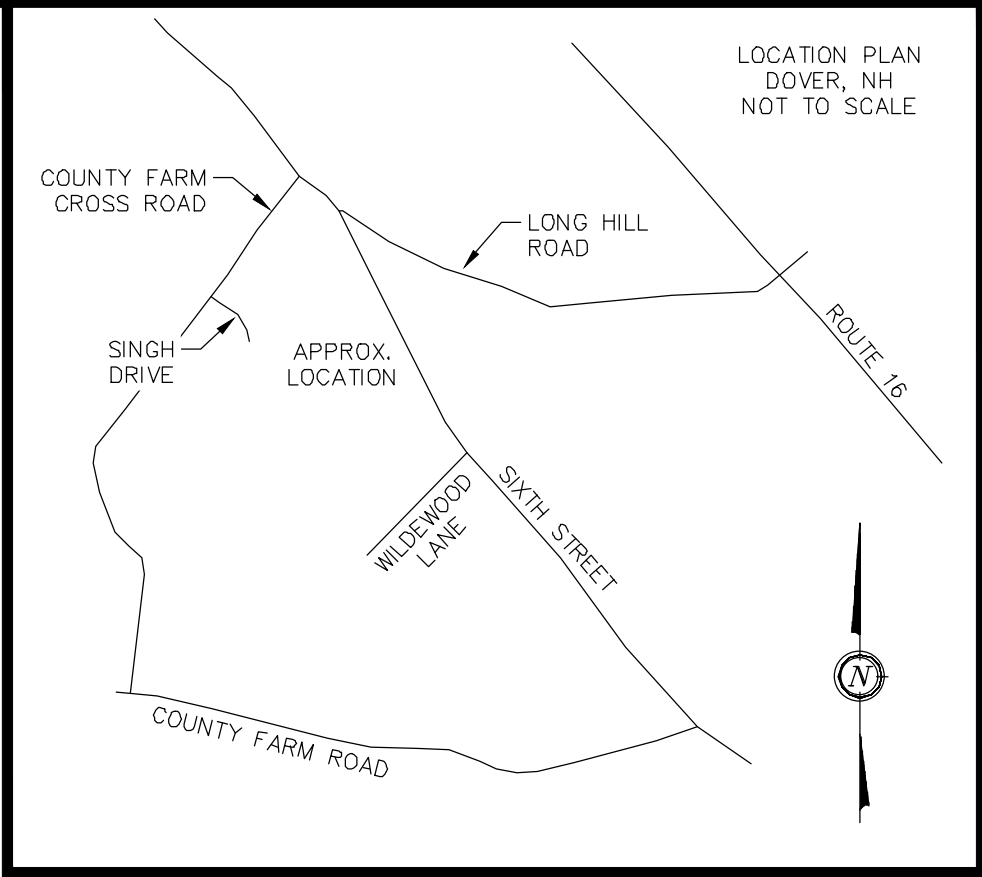
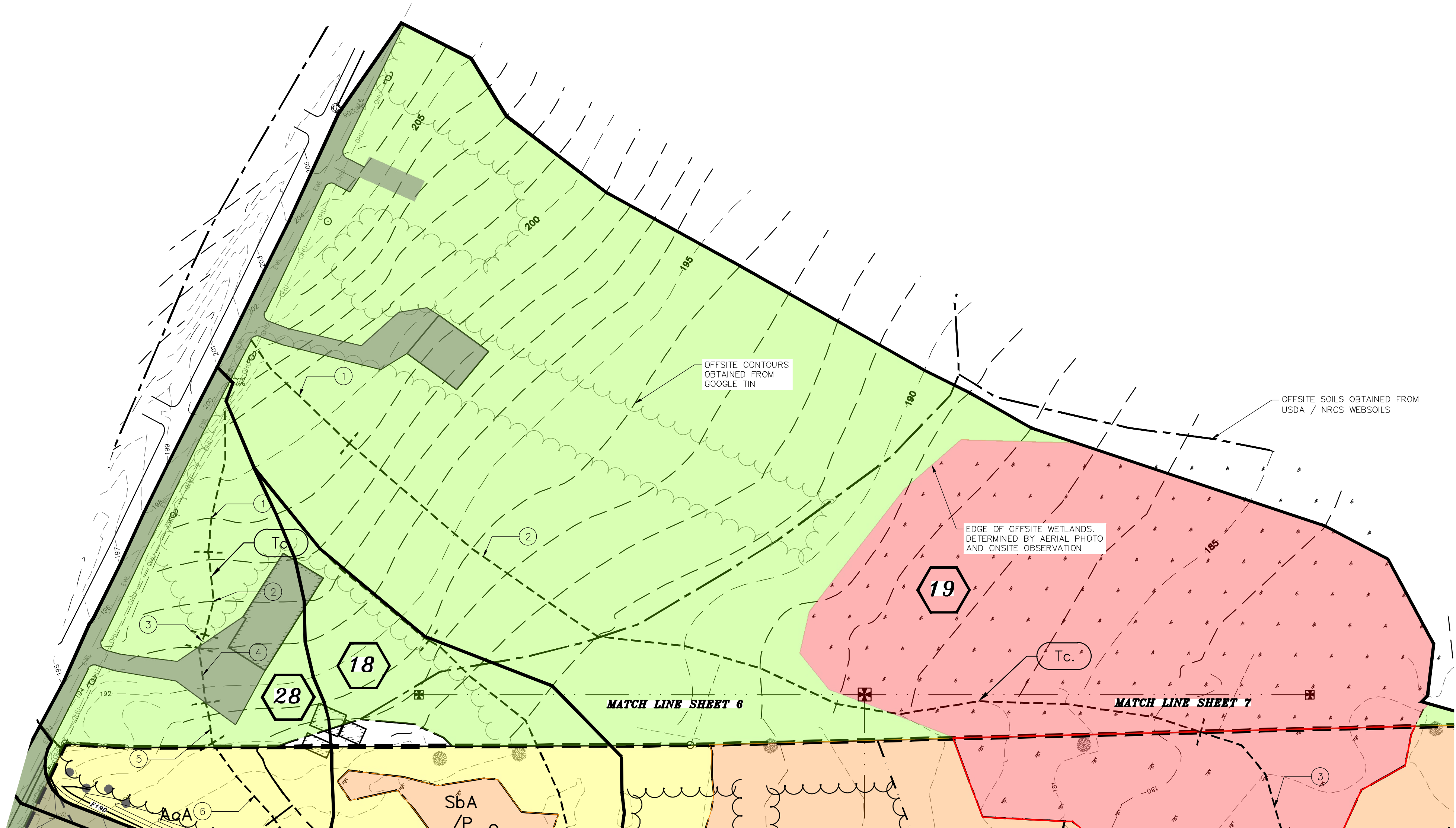


W-2 PROPOSED WATERSHED PLAN - SOUTHWEST LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, NH. TAX MAP B, LOT 5	
REVISION	DATE

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

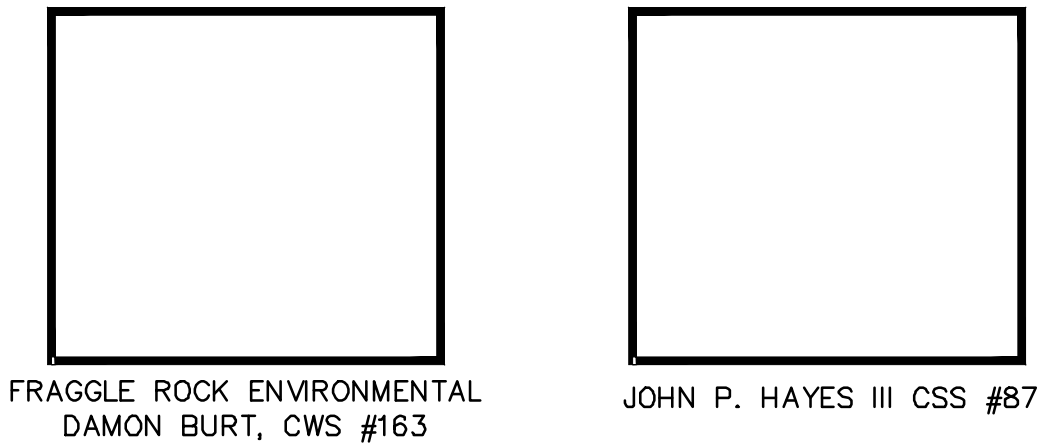
KENNETH A. BERRY
No. 14232
Professional Engineer -
State of New Hampshire

SHEET 7 OF 8



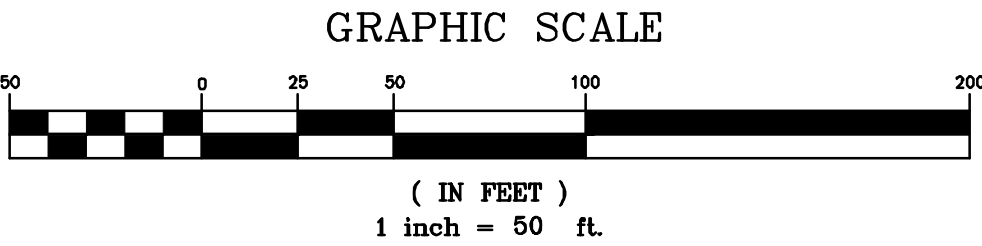
NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP B LOT 5 AND THE ABUTTING RELEVANT WATERSHED AREA.



SYMBOLS LEGEND:

- | | |
|--|-------------------------------|
| | SUBCATCHMENT AREA SYMBOL |
| | FLOW REACH SYMBOL |
| | POND DEVICE SYMBOL |
| | TIME OF CONCENTRATION SEGMENT |

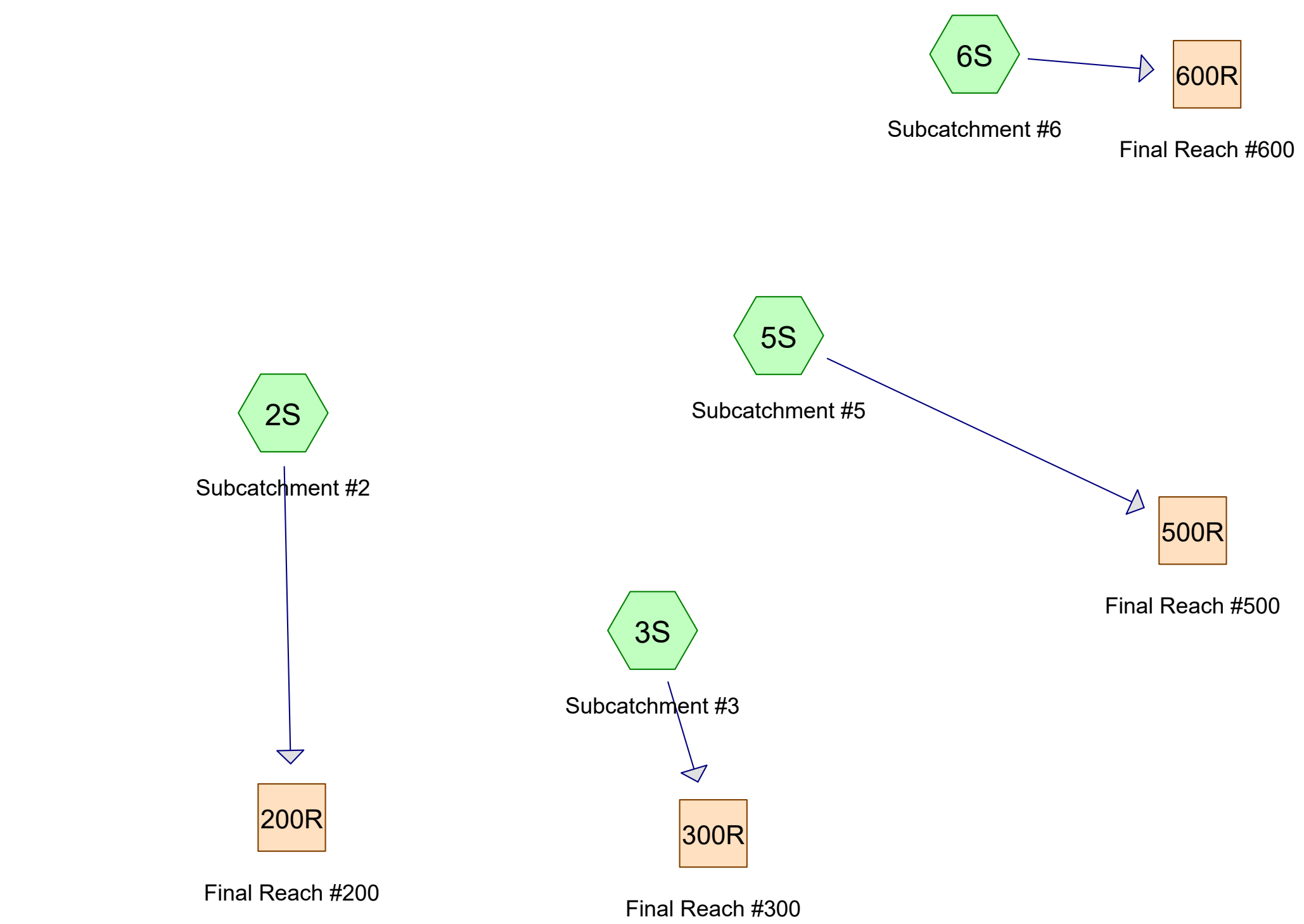


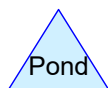
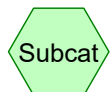
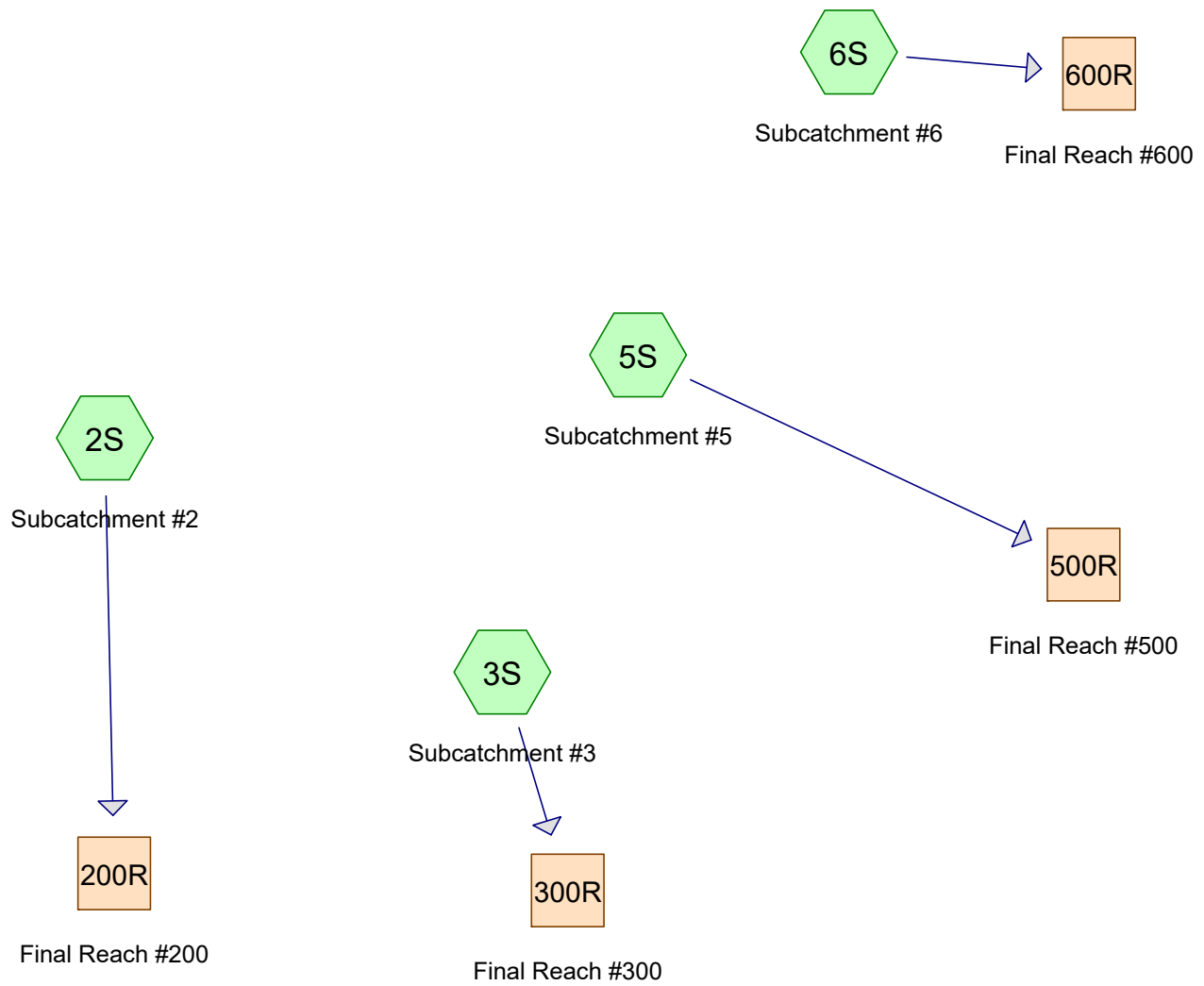
REVISION	DATE	DESCRIPTION

W-2 PROPOSED WATERSHED PLAN - OFFSITE
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, NH
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER





21-011 Existing Analysis

Type III 24-hr 2 Yr.-24 Hr. Rainfall=3.59"

Prepared by Berry Surveying & Engineering

Printed 7/12/2021

HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC

Page 2

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>0.89"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=5.28 cfs 0.854 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>0.75"
Flow Length=338' Tc=23.7 min CN=64 Runoff=0.81 cfs 0.110 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>0.41"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=1.50 cfs 0.351 af

Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=247' Tc=22.7 min CN=61 Runoff=0.51 cfs 0.075 af

Reach 200R: Final Reach #200 Inflow=5.28 cfs 0.854 af
Outflow=5.28 cfs 0.854 af

Reach 300R: Final Reach #300 Inflow=0.81 cfs 0.110 af
Outflow=0.81 cfs 0.110 af

Reach 500R: Final Reach #500 Inflow=1.50 cfs 0.351 af
Outflow=1.50 cfs 0.351 af

Reach 600R: Final Reach #600 Inflow=0.51 cfs 0.075 af
Outflow=0.51 cfs 0.075 af

21-011 Existing Analysis

Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"

Prepared by Berry Surveying & Engineering

Printed 7/12/2021

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Page 3

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>2.07"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=13.46 cfs 1.989 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>1.84"
Flow Length=338' Tc=23.7 min CN=64 Runoff=2.29 cfs 0.271 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>1.24"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=6.49 cfs 1.078 af

Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>1.61"
Flow Length=247' Tc=22.7 min CN=61 Runoff=1.65 cfs 0.198 af

Reach 200R: Final Reach #200 Inflow=13.46 cfs 1.989 af
Outflow=13.46 cfs 1.989 af

Reach 300R: Final Reach #300 Inflow=2.29 cfs 0.271 af
Outflow=2.29 cfs 0.271 af

Reach 500R: Final Reach #500 Inflow=6.49 cfs 1.078 af
Outflow=6.49 cfs 1.078 af

Reach 600R: Final Reach #600 Inflow=1.65 cfs 0.198 af
Outflow=1.65 cfs 0.198 af

21-011 Existing Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Prepared by Berry Surveying & Engineering

Printed 7/12/2021

HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC

Page 4

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>3.13"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=20.72 cfs 3.008 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>2.85"
Flow Length=338' Tc=23.7 min CN=64 Runoff=3.65 cfs 0.420 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>2.08"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=11.69 cfs 1.801 af

Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>2.56"
Flow Length=247' Tc=22.7 min CN=61 Runoff=2.74 cfs 0.314 af

Reach 200R: Final Reach #200 Inflow=20.72 cfs 3.008 af
Outflow=20.72 cfs 3.008 af

Reach 300R: Final Reach #300 Inflow=3.65 cfs 0.420 af
Outflow=3.65 cfs 0.420 af

Reach 500R: Final Reach #500 Inflow=11.69 cfs 1.801 af
Outflow=11.69 cfs 1.801 af

Reach 600R: Final Reach #600 Inflow=2.74 cfs 0.314 af
Outflow=2.74 cfs 0.314 af

21-011 Existing Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>4.20"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=27.94 cfs 4.031 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>3.87"
Flow Length=338' Tc=23.7 min CN=64 Runoff=5.02 cfs 0.571 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>2.96"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=17.16 cfs 2.564 af

Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>3.53"
Flow Length=247' Tc=22.7 min CN=61 Runoff=3.86 cfs 0.433 af

Reach 200R: Final Reach #200 Inflow=27.94 cfs 4.031 af
Outflow=27.94 cfs 4.031 af

Reach 300R: Final Reach #300 Inflow=5.02 cfs 0.571 af
Outflow=5.02 cfs 0.571 af

Reach 500R: Final Reach #500 Inflow=17.16 cfs 2.564 af
Outflow=17.16 cfs 2.564 af

Reach 600R: Final Reach #600 Inflow=3.86 cfs 0.433 af
Outflow=3.86 cfs 0.433 af

21-011 Existing Analysis

Type III 24-hr 100 Yr.-24 Hr. Rainfall=9.73"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>5.55"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=36.98 cfs 5.323 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>5.18"
Flow Length=338' Tc=23.7 min CN=64 Runoff=6.75 cfs 0.763 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>4.12"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=24.30 cfs 3.566 af

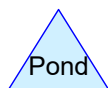
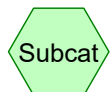
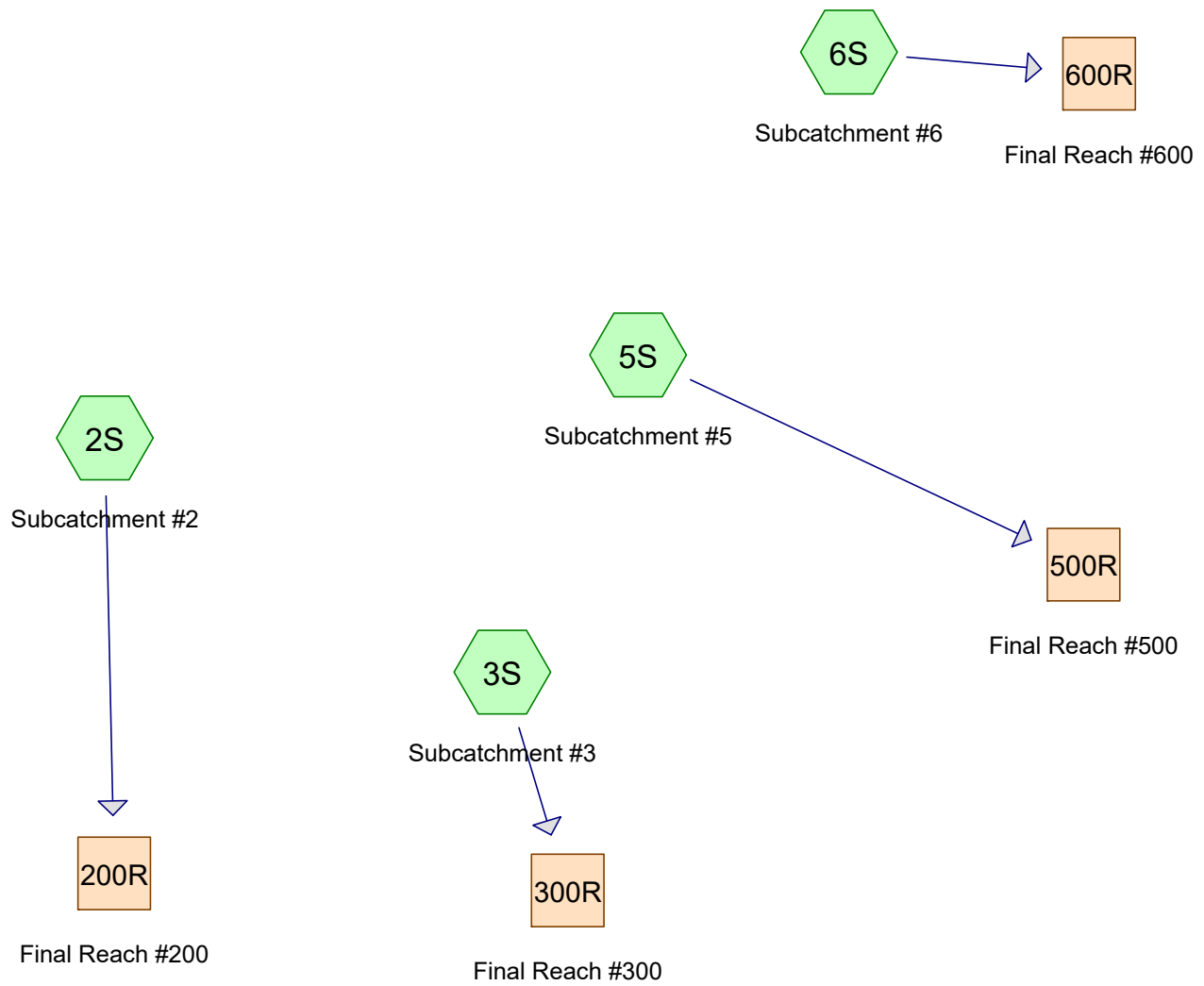
Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>4.79"
Flow Length=247' Tc=22.7 min CN=61 Runoff=5.28 cfs 0.587 af

Reach 200R: Final Reach #200 Inflow=36.98 cfs 5.323 af
Outflow=36.98 cfs 5.323 af

Reach 300R: Final Reach #300 Inflow=6.75 cfs 0.763 af
Outflow=6.75 cfs 0.763 af

Reach 500R: Final Reach #500 Inflow=24.30 cfs 3.566 af
Outflow=24.30 cfs 3.566 af

Reach 600R: Final Reach #600 Inflow=5.28 cfs 0.587 af
Outflow=5.28 cfs 0.587 af



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.329	39	>75% Grass cover, Good, HSG A (2S, 5S)
0.134	74	>75% Grass cover, Good, HSG C (2S)
0.417	98	Unconnected pavement, HSG A (2S, 5S)
0.075	98	Unconnected pavement, HSG C (2S)
0.106	98	Unconnected roofs, HSG A (2S, 5S)
2.963	30	Woods, Good, HSG A (2S, 5S, 6S)
5.744	55	Woods, Good, HSG B (2S, 3S, 5S, 6S)
8.947	70	Woods, Good, HSG C (2S, 3S, 5S, 6S)
5.435	77	Woods, Good, HSG D (2S, 5S)
25.150	62	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.814	HSG A	2S, 5S, 6S
5.744	HSG B	2S, 3S, 5S, 6S
9.157	HSG C	2S, 3S, 5S, 6S
5.435	HSG D	2S, 5S
0.000	Other	
25.150		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.329	0.000	0.134	0.000	0.000	1.463	>75% Grass cover, Good	2S, 5S
0.417	0.000	0.075	0.000	0.000	0.492	Unconnected pavement	2S, 5S
0.106	0.000	0.000	0.000	0.000	0.106	Unconnected roofs	2S, 5S
2.963	5.744	8.947	5.435	0.000	23.089	Woods, Good	2S, 3S, 5S, 6S
4.814	5.744	9.157	5.435	0.000	25.150	TOTAL AREA	

21-011 Existing Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2 Runoff Area=501,543 sf 3.62% Impervious Runoff Depth>3.13"
Flow Length=1,060' Tc=40.4 min CN=67 Runoff=20.72 cfs 3.008 af

Subcatchment3S: Subcatchment#3 Runoff Area=76,997 sf 0.00% Impervious Runoff Depth>2.85"
Flow Length=338' Tc=23.7 min CN=64 Runoff=3.65 cfs 0.420 af

Subcatchment5S: Subcatchment#5 Runoff Area=452,919 sf 1.75% Impervious Runoff Depth>2.08"
Flow Length=1,149' Tc=40.7 min UI Adjusted CN=56 Runoff=11.69 cfs 1.801 af

Subcatchment6S: Subcatchment#6 Runoff Area=64,076 sf 0.00% Impervious Runoff Depth>2.56"
Flow Length=247' Tc=22.7 min CN=61 Runoff=2.74 cfs 0.314 af

Reach 200R: Final Reach #200 Inflow=20.72 cfs 3.008 af
Outflow=20.72 cfs 3.008 af

Reach 300R: Final Reach #300 Inflow=3.65 cfs 0.420 af
Outflow=3.65 cfs 0.420 af

Reach 500R: Final Reach #500 Inflow=11.69 cfs 1.801 af
Outflow=11.69 cfs 1.801 af

Reach 600R: Final Reach #600 Inflow=2.74 cfs 0.314 af
Outflow=2.74 cfs 0.314 af

Total Runoff Area = 25.150 ac Runoff Volume = 5.542 af Average Runoff Depth = 2.64"
97.62% Pervious = 24.552 ac 2.38% Impervious = 0.598 ac

21-011 Existing Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 2S: Subcatchment #2

Runoff = 20.72 cfs @ 12.58 hrs, Volume= 3.008 af, Depth> 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
2,454	98	Unconnected roofs, HSG A
28,403	39	>75% Grass cover, Good, HSG A
12,392	98	Unconnected pavement, HSG A
12,792	30	Woods, Good, HSG A
83,360	55	Woods, Good, HSG B
5,846	74	>75% Grass cover, Good, HSG C
3,288	98	Unconnected pavement, HSG C
230,608	70	Woods, Good, HSG C
* 122,400	77	Woods, Good, HSG D
501,543	67	Weighted Average
483,409		96.38% Pervious Area
18,134		3.62% Impervious Area
18,134		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0375	0.11		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
4.3	149	0.0134	0.58		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
0.2	10	0.0243	1.09		Shallow Concentrated Flow, Segment #3 Short Grass Pasture Kv= 7.0 fps
0.2	39	0.0195	2.83		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.4	29	0.0350	1.31		Shallow Concentrated Flow, Segment #5 Short Grass Pasture Kv= 7.0 fps
12.0	471	0.0170	0.65		Shallow Concentrated Flow, Segment #6 Woodland Kv= 5.0 fps
7.5	262	0.0134	0.58		Shallow Concentrated Flow, Segment #7 Woodland Kv= 5.0 fps
40.4	1,060	Total			

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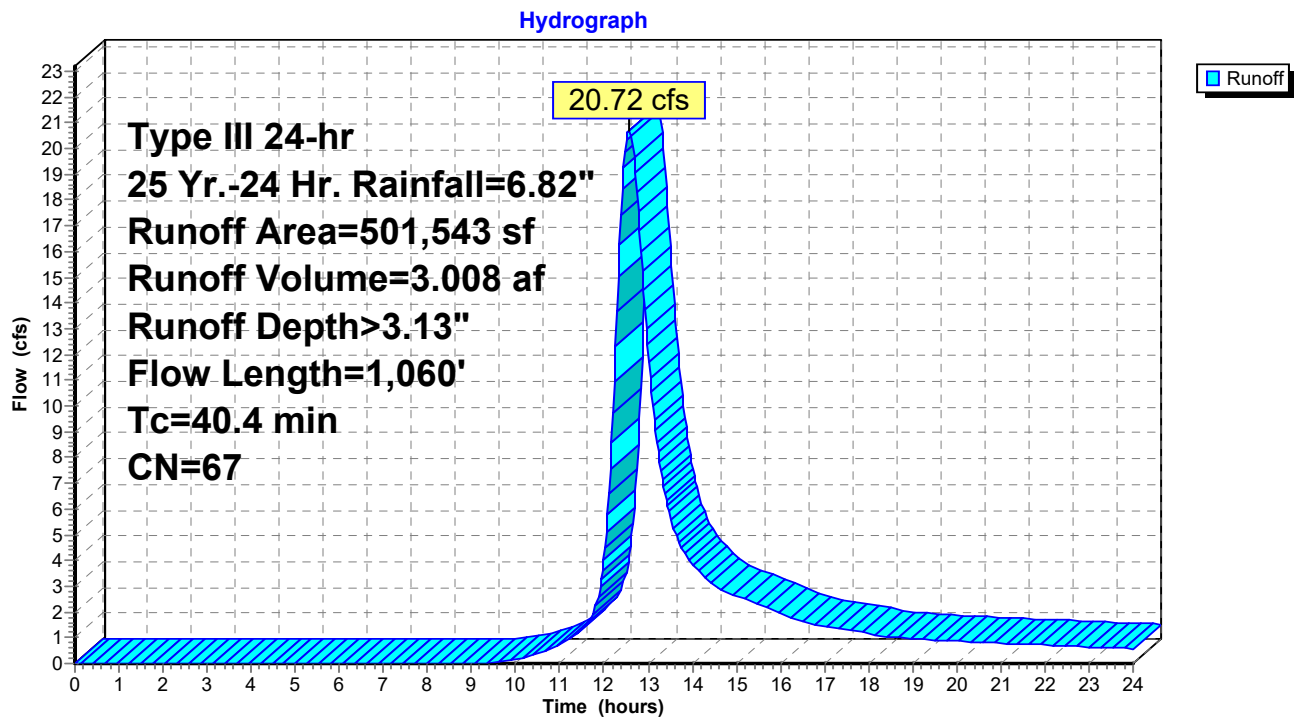
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 2S: Subcatchment #2



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 3S: Subcatchment #3

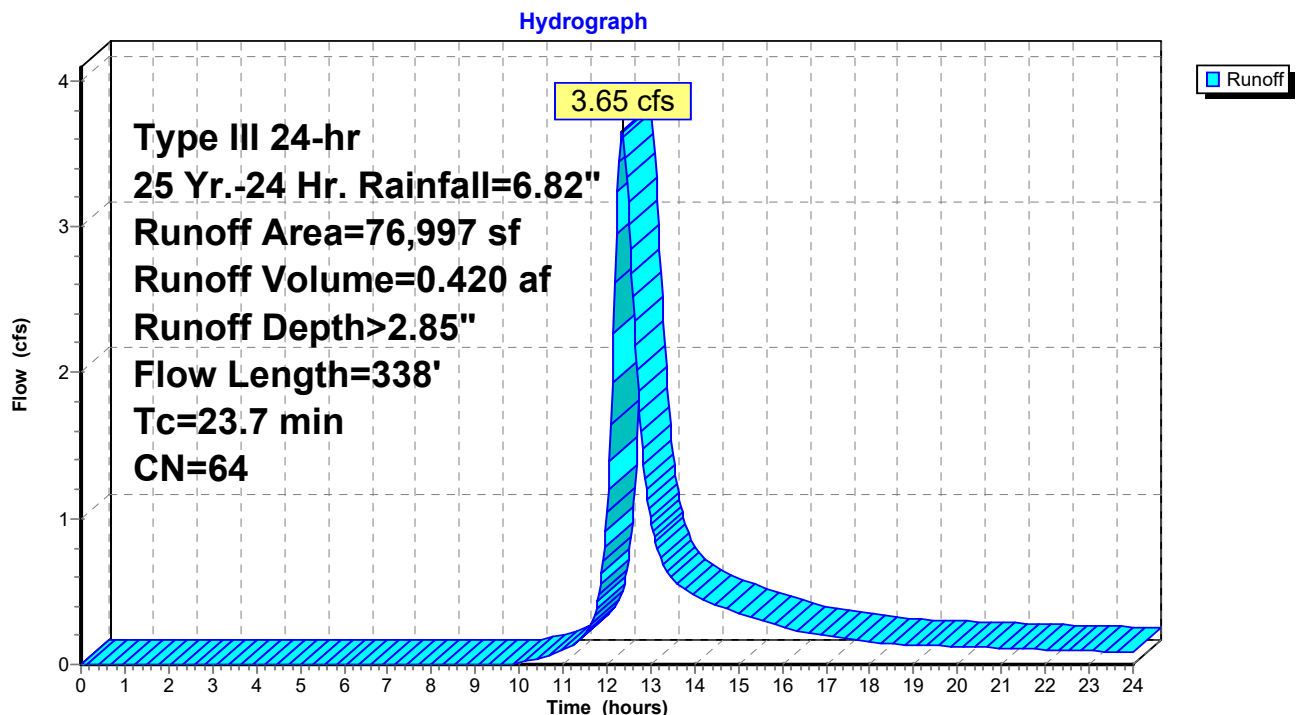
Runoff = 3.65 cfs @ 12.34 hrs, Volume= 0.420 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
31,282	55	Woods, Good, HSG B
45,715	70	Woods, Good, HSG C
76,997	64	Weighted Average
76,997		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	100	0.0275	0.09		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
1.4	89	0.0422	1.03		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
3.9	111	0.0090	0.47		Shallow Concentrated Flow, Segment #3 Woodland Kv= 5.0 fps
0.6	38	0.0526	1.15		Shallow Concentrated Flow, Segment #4 Woodland Kv= 5.0 fps
23.7	338	Total			

Subcatchment 3S: Subcatchment #3



21-011 Existing Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 5S: Subcatchment #5

Runoff = 11.69 cfs @ 12.62 hrs, Volume= 1.801 af, Depth> 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
2,147	98		Unconnected roofs, HSG A
29,498	39		>75% Grass cover, Good, HSG A
5,763	98		Unconnected pavement, HSG A
116,015	30		Woods, Good, HSG A
96,875	55		Woods, Good, HSG B
88,257	70		Woods, Good, HSG C
114,364	77		Woods, Good, HSG D
452,919	57	56	Weighted Average, UI Adjusted
445,009			98.25% Pervious Area
7,910			1.75% Impervious Area
7,910			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0575	0.13		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
13.9	654	0.0245	0.78		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
6.2	191	0.0104	0.51		Shallow Concentrated Flow, Segment #3 Woodland Kv= 5.0 fps
7.3	204	0.0086	0.46		Shallow Concentrated Flow, Segment #4 Woodland Kv= 5.0 fps
40.7	1,149	Total			

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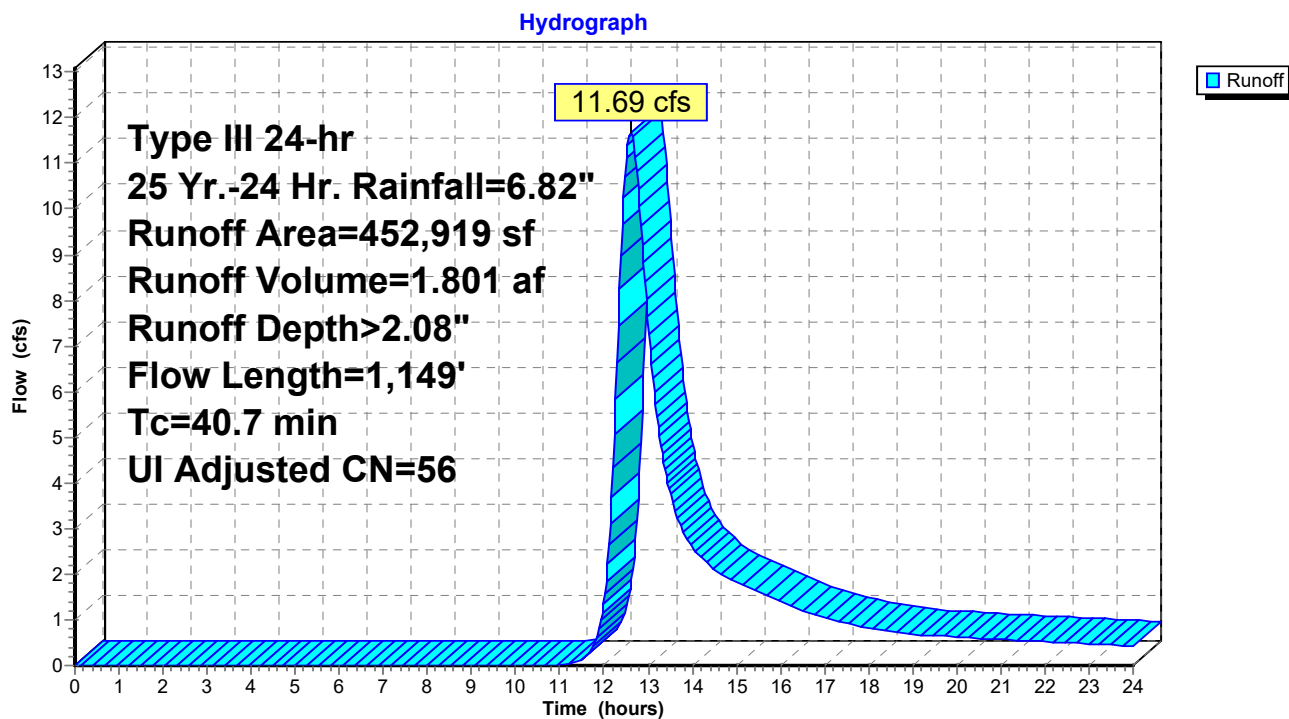
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 5S: Subcatchment #5



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 6S: Subcatchment #6

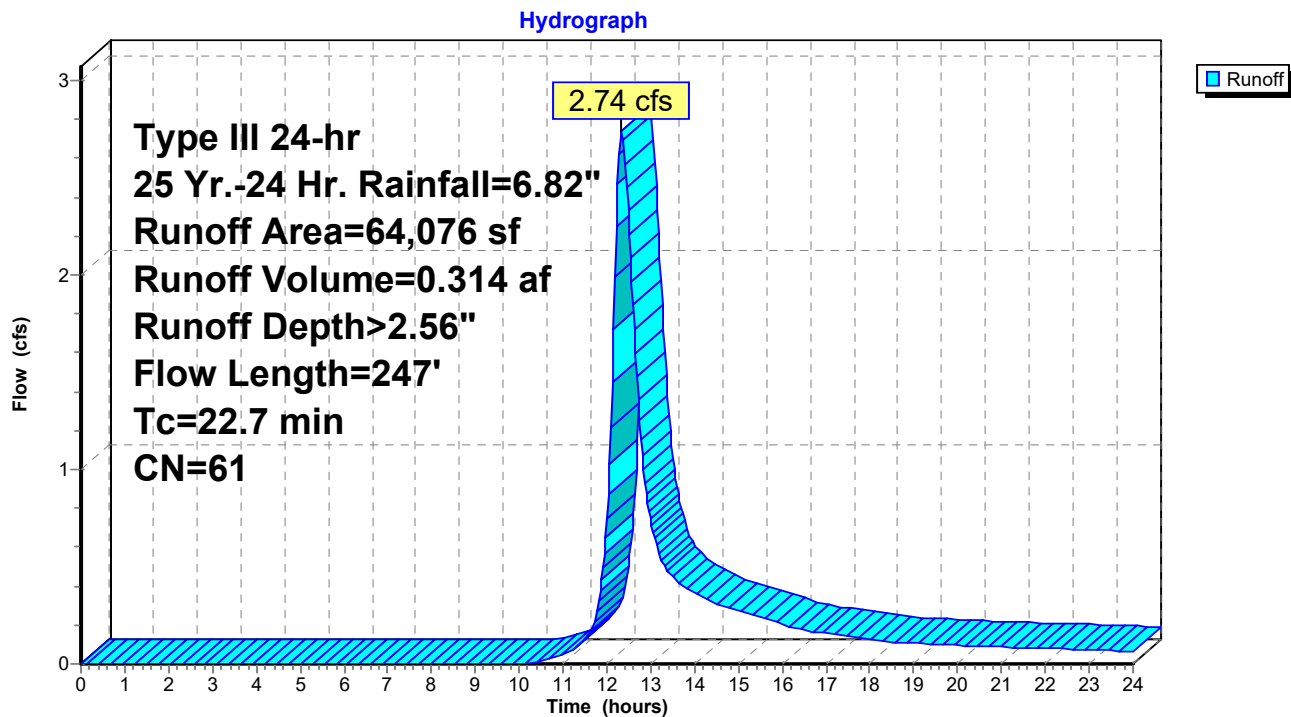
Runoff = 2.74 cfs @ 12.33 hrs, Volume= 0.314 af, Depth> 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
244	30	Woods, Good, HSG A
38,677	55	Woods, Good, HSG B
25,155	70	Woods, Good, HSG C
64,076	61	Weighted Average
64,076		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	100	0.0200	0.08		Sheet Flow, Segment #1
					Woods: Light underbrush n= 0.400 P2= 3.59"
2.4	147	0.0408	1.01		Shallow Concentrated Flow, Segment #2
					Woodland Kv= 5.0 fps
22.7	247	Total			

Subcatchment 6S: Subcatchment #6



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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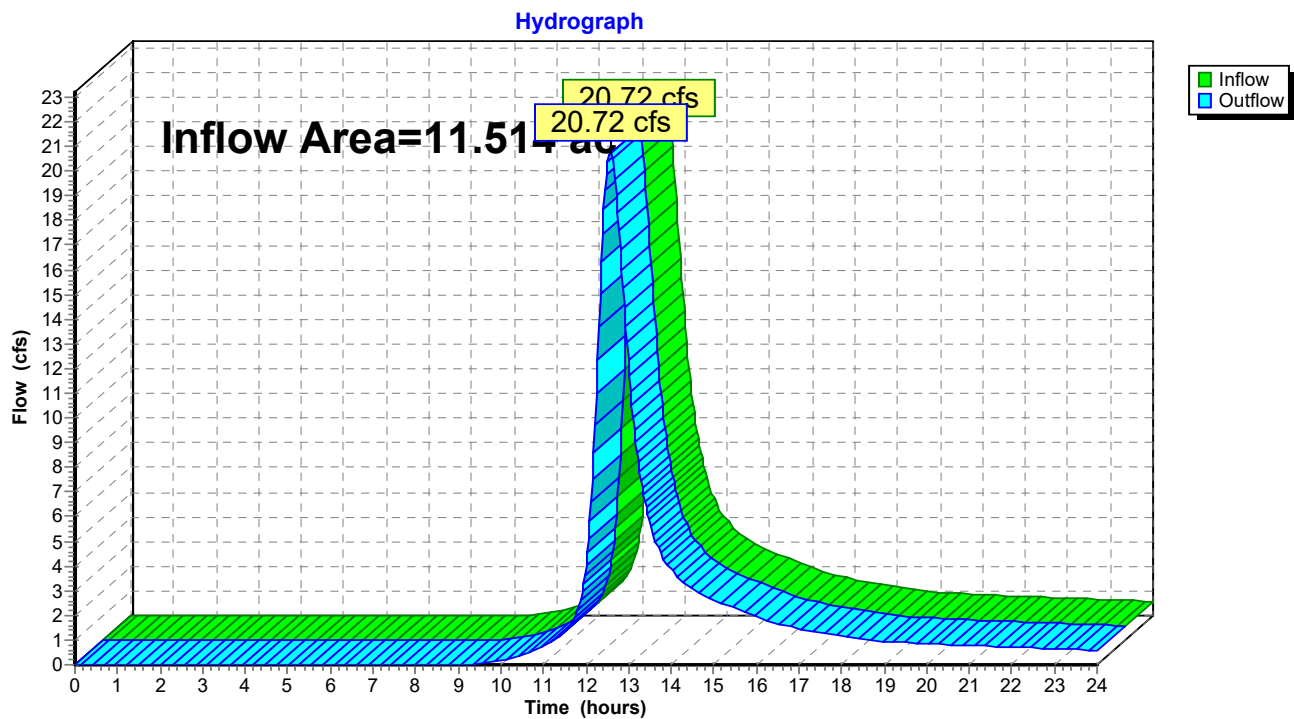
Summary for Reach 200R: Final Reach #200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.514 ac, 3.62% Impervious, Inflow Depth > 3.13" for 25 Yr.-24 Hr. event
Inflow = 20.72 cfs @ 12.58 hrs, Volume= 3.008 af
Outflow = 20.72 cfs @ 12.58 hrs, Volume= 3.008 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 200R: Final Reach #200



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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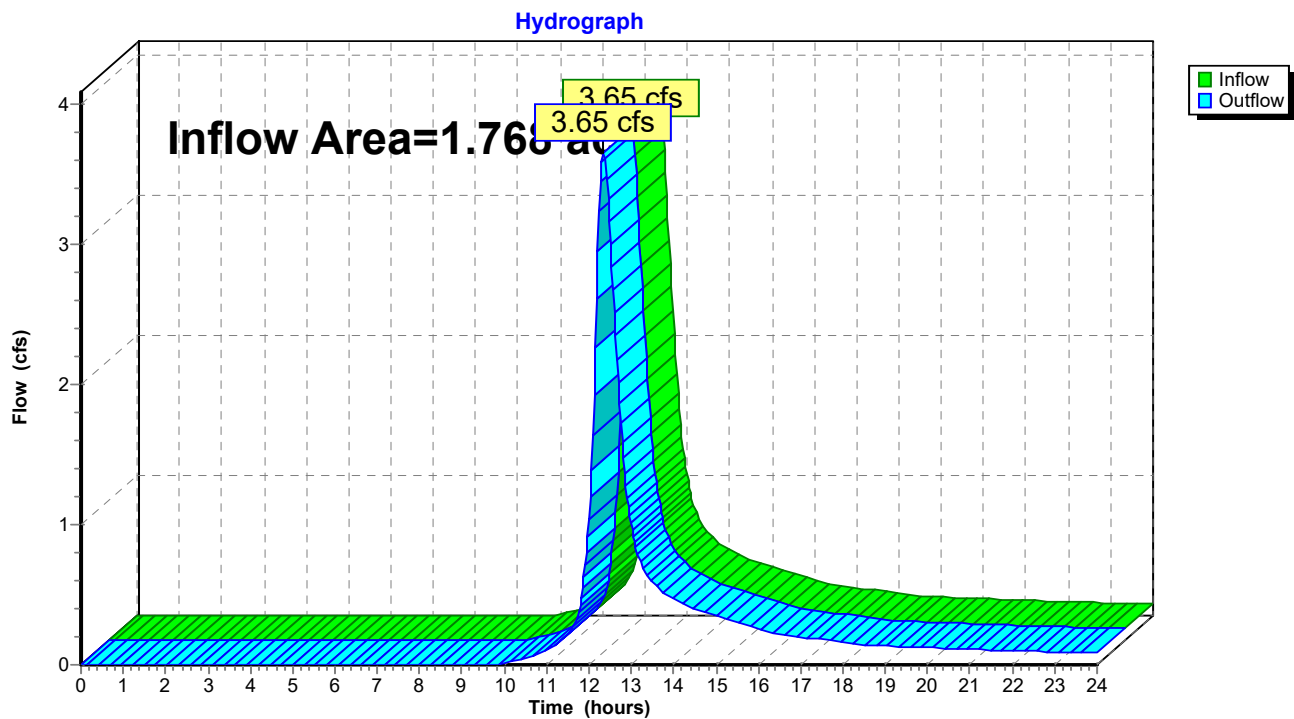
Summary for Reach 300R: Final Reach #300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.768 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25 Yr.-24 Hr. event
Inflow = 3.65 cfs @ 12.34 hrs, Volume= 0.420 af
Outflow = 3.65 cfs @ 12.34 hrs, Volume= 0.420 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 300R: Final Reach #300



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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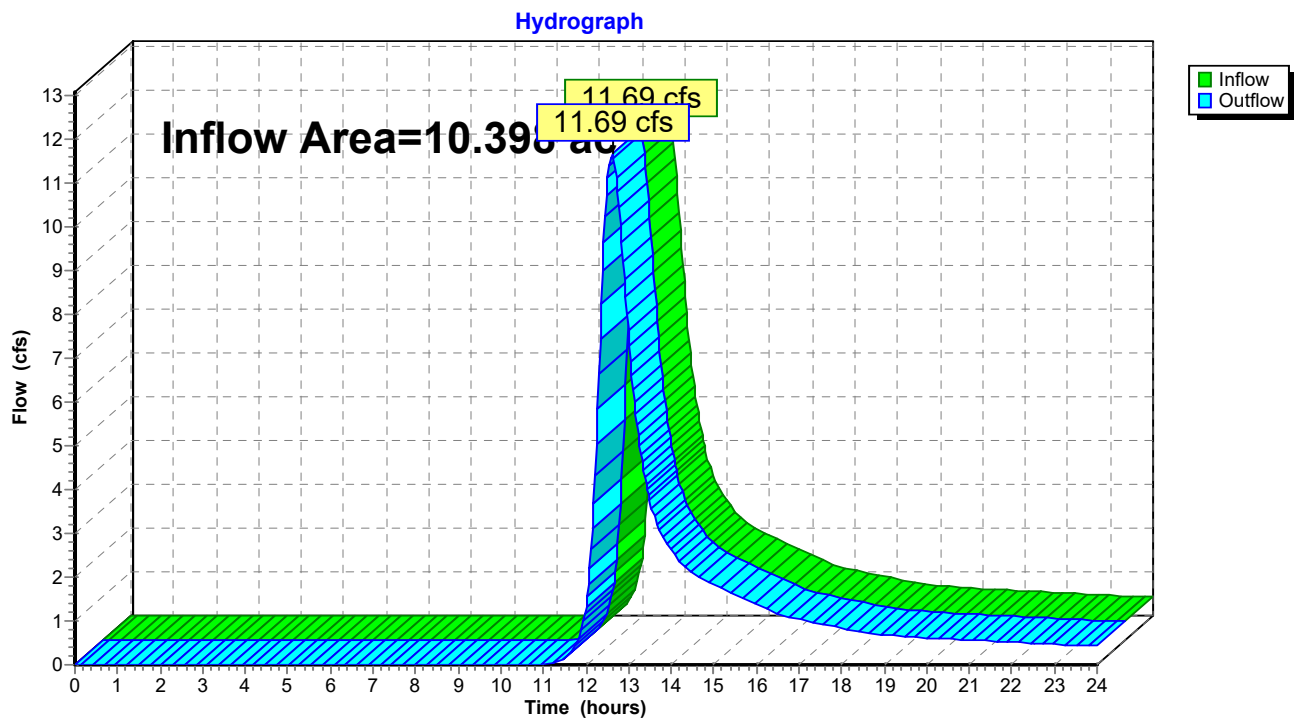
Summary for Reach 500R: Final Reach #500

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.398 ac, 1.75% Impervious, Inflow Depth > 2.08" for 25 Yr.-24 Hr. event
Inflow = 11.69 cfs @ 12.62 hrs, Volume= 1.801 af
Outflow = 11.69 cfs @ 12.62 hrs, Volume= 1.801 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 500R: Final Reach #500



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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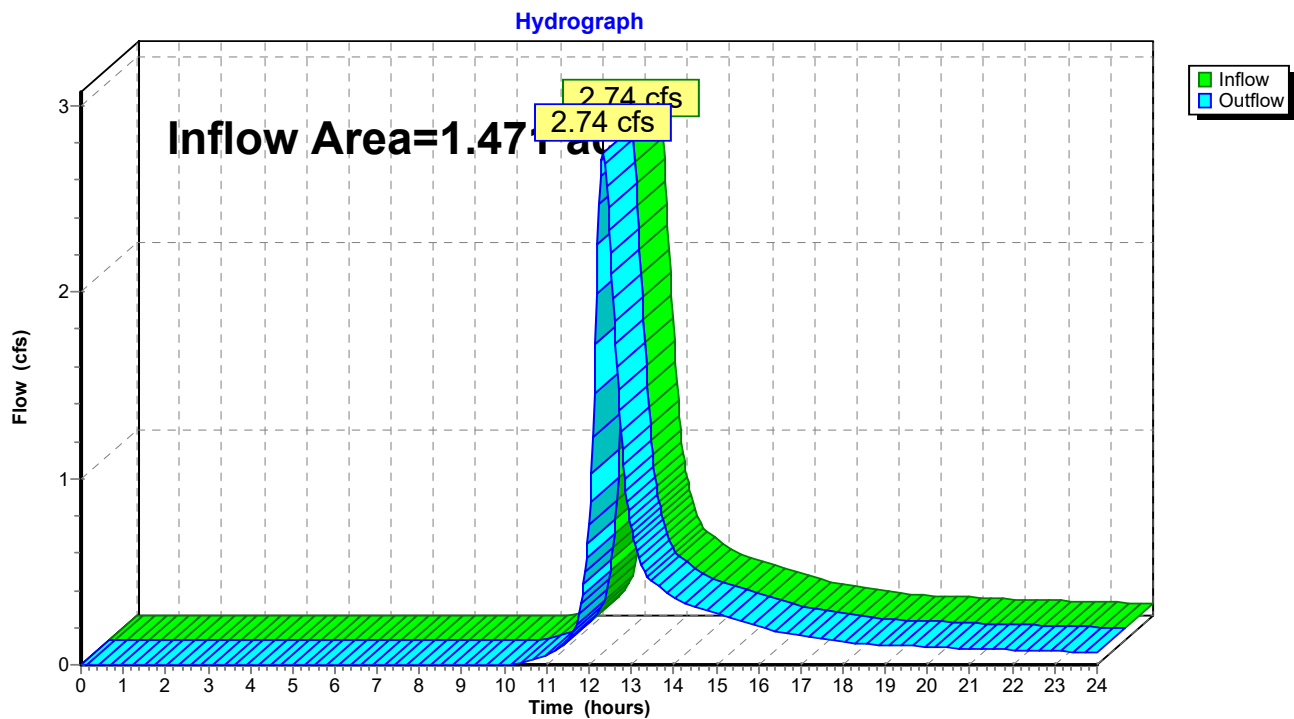
Summary for Reach 600R: Final Reach #600

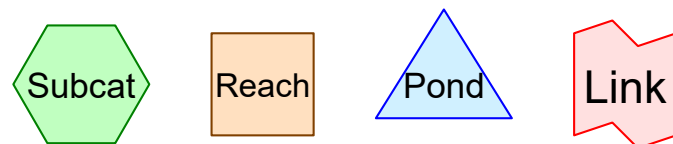
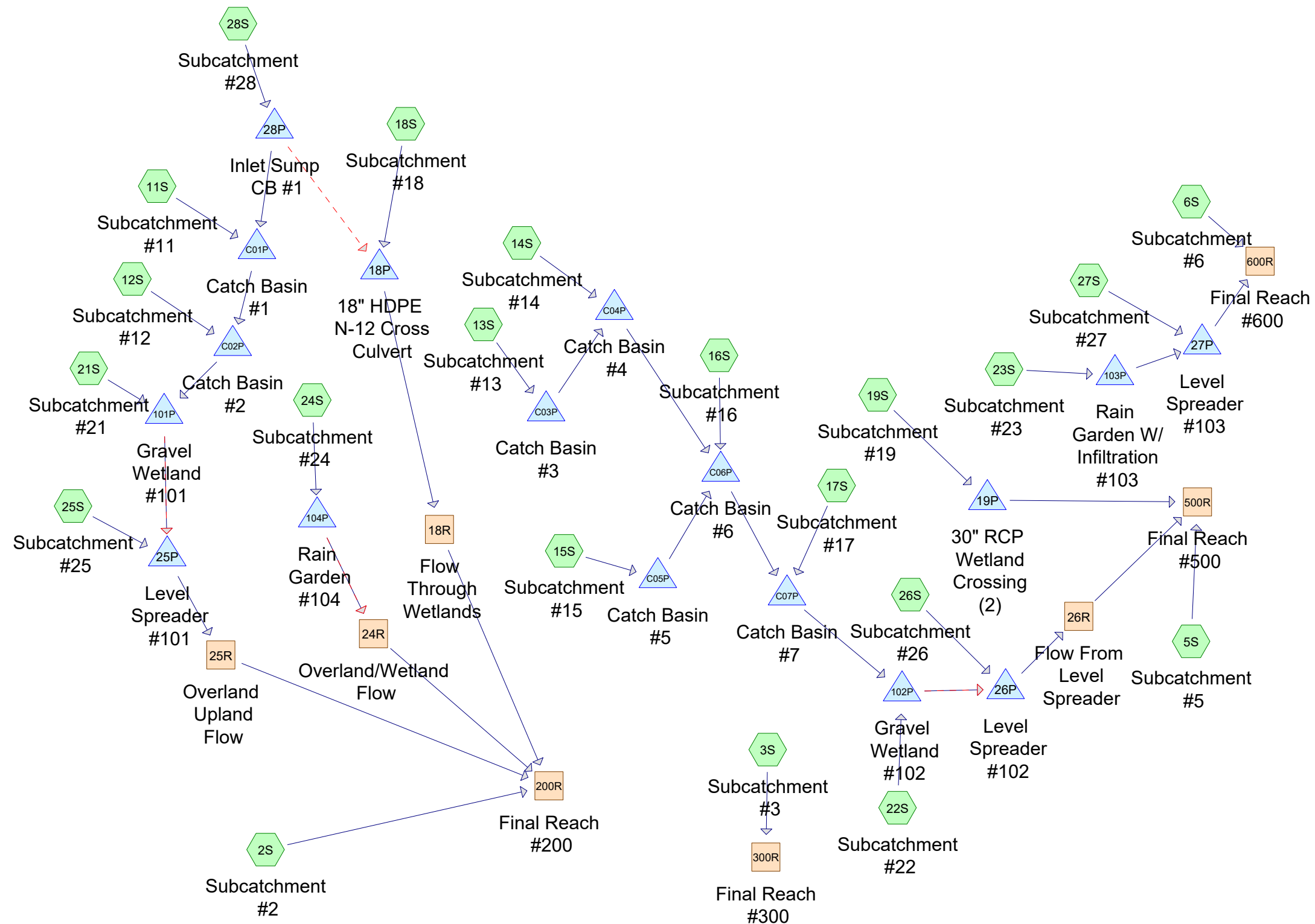
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth > 2.56" for 25 Yr.-24 Hr. event
Inflow = 2.74 cfs @ 12.33 hrs, Volume= 0.314 af
Outflow = 2.74 cfs @ 12.33 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 600R: Final Reach #600





Routing Diagram for 21-011 Proposed Analysis
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Type III 24-hr 2 Yr.-24 Hr. Rainfall=3.59"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>1.17" Flow Length=550' Tc=38.4 min CN=72 Runoff=5.20 cfs 0.769 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>0.95" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=0.64 cfs 0.068 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>0.65" Flow Length=88' Tc=18.1 min CN=62 Runoff=0.45 cfs 0.059 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>0.90" Flow Length=265' Tc=19.7 min CN=67 Runoff=0.37 cfs 0.043 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>3.35" Tc=6.0 min CN=98 Runoff=0.37 cfs 0.030 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>3.35" Tc=6.0 min CN=98 Runoff=0.38 cfs 0.030 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>3.35" Tc=6.0 min CN=98 Runoff=0.30 cfs 0.024 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>2.09" Flow Length=130' Tc=15.4 min CN=85 Runoff=0.67 cfs 0.064 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>1.36" Flow Length=86' Tc=15.1 min CN=75 Runoff=0.36 cfs 0.035 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>1.42" Flow Length=244' Tc=18.4 min CN=76 Runoff=0.49 cfs 0.051 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>1.77" Flow Length=167' Tc=39.5 min CN=81 Runoff=0.76 cfs 0.109 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>0.31" Flow Length=350' Tc=21.3 min CN=53 Runoff=0.12 cfs 0.027 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>0.41" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=1.26 cfs 0.270 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>0.66" Tc=6.0 min CN=62 Runoff=0.14 cfs 0.013 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>0.80" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=0.39 cfs 0.042 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>0.90" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=1.05 cfs 0.084 af

21-011 Proposed Analysis

Type III 24-hr 2 Yr.-24 Hr. Rainfall=3.59"

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>1.85" Flow Length=259' Tc=11.1 min CN=82 Runoff=0.99 cfs 0.083 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>0.75" Tc=6.0 min CN=64 Runoff=0.01 cfs 0.001 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>0.61" Tc=6.0 min CN=61 Runoff=0.01 cfs 0.001 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>1.30" Tc=6.0 min CN=74 Runoff=0.02 cfs 0.002 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>0.19" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=0.04 cfs 0.016 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.05' Max Vel=0.23 fps Inflow=0.12 cfs 0.032 af n=0.065 L=519.0' S=0.0096 '/ Capacity=8.98 cfs Outflow=0.06 cfs 0.031 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.03' Max Vel=0.18 fps Inflow=0.03 cfs 0.029 af n=0.065 L=145.0' S=0.0103 '/ Capacity=9.31 cfs Outflow=0.03 cfs 0.029 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.065 L=186.7' S=0.0402 '/ Capacity=18.34 cfs Outflow=0.00 cfs 0.000 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.05' Max Vel=0.92 fps Inflow=0.09 cfs 0.068 af n=0.030 L=15.0' S=0.0333 '/ Capacity=14.43 cfs Outflow=0.09 cfs 0.068 af
Reach 200R: Final Reach #200	Inflow=5.25 cfs 0.829 af Outflow=5.25 cfs 0.829 af
Reach 300R: Final Reach #300	Inflow=0.64 cfs 0.068 af Outflow=0.64 cfs 0.068 af
Reach 500R: Final Reach #500	Inflow=1.38 cfs 0.394 af Outflow=1.38 cfs 0.394 af
Reach 600R: Final Reach #600	Inflow=0.37 cfs 0.043 af Outflow=0.37 cfs 0.043 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=183.87' Storage=52 cf Inflow=0.12 cfs 0.033 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/ Outflow=0.12 cfs 0.032 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=176.70' Storage=642 cf Inflow=1.26 cfs 0.270 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/ Outflow=1.18 cfs 0.266 af
Pond 25P: Level Spreader #101	Peak Elev=186.48' Storage=589 cf Inflow=0.02 cfs 0.014 af Outflow=0.00 cfs 0.000 af
Pond 26P: Level Spreader #102	Peak Elev=177.01' Storage=347 cf Inflow=0.09 cfs 0.076 af Outflow=0.09 cfs 0.068 af
Pond 27P: Level Spreader #103	Peak Elev=174.85' Storage=71 cf Inflow=0.02 cfs 0.002 af Outflow=0.00 cfs 0.000 af

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Type III 24-hr 2 Yr.-24 Hr. Rainfall=3.59"

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.51' Storage=416 cf Inflow=0.04 cfs 0.016 af
Primary=0.00 cfs 0.000 af Secondary=0.02 cfs 0.006 af Outflow=0.02 cfs 0.006 af

Pond 101P: Gravel Wetland #101 Peak Elev=186.62' Storage=2,587 cf Inflow=0.87 cfs 0.072 af
Primary=0.01 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.013 af

Pond 102P: Gravel Wetland #102 Peak Elev=179.43' Storage=10,991 cf Inflow=2.45 cfs 0.324 af
Primary=0.09 cfs 0.075 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.075 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=177.50' Storage=2,434 cf Inflow=1.05 cfs 0.084 af
Discarded=0.03 cfs 0.030 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.030 af

Pond 104P: Rain Garden #104 Peak Elev=183.23' Storage=2,482 cf Inflow=0.99 cfs 0.083 af
Primary=0.03 cfs 0.029 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.029 af

Pond C01P: Catch Basin #1 Peak Elev=186.61' Storage=0.000 af Inflow=0.37 cfs 0.030 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.37 cfs 0.030 af

Pond C02P: Catch Basin #2 Peak Elev=186.61' Storage=0.000 af Inflow=0.75 cfs 0.060 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=0.74 cfs 0.060 af

Pond C03P: Catch Basin #3 Peak Elev=182.65' Storage=0.000 af Inflow=0.30 cfs 0.024 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.30 cfs 0.024 af

Pond C04P: Catch Basin #4 Peak Elev=182.44' Storage=0.000 af Inflow=0.84 cfs 0.087 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=0.84 cfs 0.087 af

Pond C05P: Catch Basin #5 Peak Elev=181.00' Storage=5 cf Inflow=0.36 cfs 0.035 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.36 cfs 0.035 af

Pond C06P: Catch Basin #6 Peak Elev=180.89' Storage=17 cf Inflow=1.66 cfs 0.173 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=1.66 cfs 0.173 af

Pond C07P: Catch Basin #7 Peak Elev=180.35' Storage=16 cf Inflow=2.07 cfs 0.282 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=2.07 cfs 0.282 af

21-011 Proposed Analysis

Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>2.50" Flow Length=550' Tc=38.4 min CN=72 Runoff=11.61 cfs 1.644 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>2.17" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=1.59 cfs 0.154 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>1.69" Flow Length=88' Tc=18.1 min CN=62 Runoff=1.42 cfs 0.154 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>2.08" Flow Length=265' Tc=19.7 min CN=67 Runoff=0.94 cfs 0.101 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>5.17" Tc=6.0 min CN=98 Runoff=0.56 cfs 0.046 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>5.17" Tc=6.0 min CN=98 Runoff=0.57 cfs 0.047 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>5.17" Tc=6.0 min CN=98 Runoff=0.45 cfs 0.037 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>3.74" Flow Length=130' Tc=15.4 min CN=85 Runoff=1.19 cfs 0.114 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>2.78" Flow Length=86' Tc=15.1 min CN=75 Runoff=0.77 cfs 0.072 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>2.87" Flow Length=244' Tc=18.4 min CN=76 Runoff=1.00 cfs 0.102 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>3.32" Flow Length=167' Tc=39.5 min CN=81 Runoff=1.44 cfs 0.205 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>1.05" Flow Length=350' Tc=21.3 min CN=53 Runoff=0.68 cfs 0.091 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>1.25" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=5.47 cfs 0.826 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>1.70" Tc=6.0 min CN=62 Runoff=0.43 cfs 0.033 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>1.93" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=1.07 cfs 0.102 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>2.09" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=2.69 cfs 0.196 af

21-011 Proposed Analysis

Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>3.44" Flow Length=259' Tc=11.1 min CN=82 Runoff=1.83 cfs 0.155 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>1.85" Tc=6.0 min CN=64 Runoff=0.02 cfs 0.002 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>1.62" Tc=6.0 min CN=61 Runoff=0.03 cfs 0.002 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>2.69" Tc=6.0 min CN=74 Runoff=0.05 cfs 0.003 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>0.80" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=0.42 cfs 0.067 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.15' Max Vel=0.48 fps Inflow=0.83 cfs 0.148 af n=0.065 L=519.0' S=0.0096 '/' Capacity=8.98 cfs Outflow=0.66 cfs 0.145 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.13' Max Vel=0.46 fps Inflow=0.64 cfs 0.085 af n=0.065 L=145.0' S=0.0103 '/' Capacity=9.31 cfs Outflow=0.52 cfs 0.084 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.04' Max Vel=0.39 fps Inflow=0.07 cfs 0.035 af n=0.065 L=186.7' S=0.0402 '/' Capacity=18.34 cfs Outflow=0.07 cfs 0.035 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.12' Max Vel=1.63 fps Inflow=0.60 cfs 0.328 af n=0.030 L=15.0' S=0.0333 '/' Capacity=14.43 cfs Outflow=0.60 cfs 0.328 af
Reach 200R: Final Reach #200	Inflow=12.57 cfs 1.908 af Outflow=12.57 cfs 1.908 af
Reach 300R: Final Reach #300	Inflow=1.59 cfs 0.154 af Outflow=1.59 cfs 0.154 af
Reach 500R: Final Reach #500	Inflow=6.24 cfs 1.302 af Outflow=6.24 cfs 1.302 af
Reach 600R: Final Reach #600	Inflow=0.94 cfs 0.101 af Outflow=0.94 cfs 0.101 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=184.14' Storage=143 cf Inflow=0.85 cfs 0.149 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/' Outflow=0.83 cfs 0.148 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=177.04' Storage=1,858 cf Inflow=5.47 cfs 0.826 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/' Outflow=5.29 cfs 0.821 af
Pond 25P: Level Spreader #101	Peak Elev=186.51' Storage=603 cf Inflow=0.07 cfs 0.049 af Outflow=0.07 cfs 0.035 af
Pond 26P: Level Spreader #102	Peak Elev=177.05' Storage=358 cf Inflow=0.60 cfs 0.336 af Outflow=0.60 cfs 0.328 af
Pond 27P: Level Spreader #103	Peak Elev=175.33' Storage=147 cf Inflow=0.05 cfs 0.003 af Outflow=0.00 cfs 0.000 af

21-011 Proposed Analysis*Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"*

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.56' Storage=495 cf Inflow=0.42 cfs 0.067 af
Primary=0.00 cfs 0.000 af Secondary=0.35 cfs 0.058 af Outflow=0.35 cfs 0.058 af

Pond 101P: Gravel Wetland #101 Peak Elev=186.93' Storage=3,730 cf Inflow=1.55 cfs 0.125 af
Primary=0.06 cfs 0.048 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.048 af

Pond 102P: Gravel Wetland #102 Peak Elev=180.36' Storage=16,496 cf Inflow=5.02 cfs 0.631 af
Primary=0.60 cfs 0.334 af Secondary=0.00 cfs 0.000 af Outflow=0.60 cfs 0.334 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=178.07' Storage=7,120 cf Inflow=2.69 cfs 0.196 af
Discarded=0.03 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.033 af

Pond 104P: Rain Garden #104 Peak Elev=183.55' Storage=3,182 cf Inflow=1.83 cfs 0.155 af
Primary=0.03 cfs 0.033 af Secondary=0.62 cfs 0.052 af Outflow=0.64 cfs 0.085 af

Pond C01P: Catch Basin #1 Peak Elev=186.93' Storage=0.000 af Inflow=0.56 cfs 0.046 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.56 cfs 0.046 af

Pond C02P: Catch Basin #2 Peak Elev=186.93' Storage=0.001 af Inflow=1.13 cfs 0.093 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=1.12 cfs 0.092 af

Pond C03P: Catch Basin #3 Peak Elev=182.77' Storage=0.000 af Inflow=0.45 cfs 0.037 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.45 cfs 0.037 af

Pond C04P: Catch Basin #4 Peak Elev=182.61' Storage=0.000 af Inflow=1.45 cfs 0.151 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=1.45 cfs 0.151 af

Pond C05P: Catch Basin #5 Peak Elev=181.33' Storage=9 cf Inflow=0.77 cfs 0.072 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.77 cfs 0.072 af

Pond C06P: Catch Basin #6 Peak Elev=181.25' Storage=22 cf Inflow=3.16 cfs 0.325 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=3.16 cfs 0.324 af

Pond C07P: Catch Basin #7 Peak Elev=180.71' Storage=20 cf Inflow=3.99 cfs 0.529 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=3.99 cfs 0.529 af

21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>3.65" Flow Length=550' Tc=38.4 min CN=72 Runoff=17.09 cfs 2.401 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>3.25" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=2.43 cfs 0.231 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>2.66" Flow Length=88' Tc=18.1 min CN=62 Runoff=2.33 cfs 0.242 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>3.15" Flow Length=265' Tc=19.7 min CN=67 Runoff=1.45 cfs 0.153 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.71 cfs 0.059 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.57 cfs 0.047 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>5.07" Flow Length=130' Tc=15.4 min CN=85 Runoff=1.59 cfs 0.154 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>3.98" Flow Length=86' Tc=15.1 min CN=75 Runoff=1.10 cfs 0.103 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>4.08" Flow Length=244' Tc=18.4 min CN=76 Runoff=1.43 cfs 0.145 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>4.60" Flow Length=167' Tc=39.5 min CN=81 Runoff=1.98 cfs 0.284 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>1.82" Flow Length=350' Tc=21.3 min CN=53 Runoff=1.32 cfs 0.158 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>2.08" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=9.86 cfs 1.380 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>2.67" Tc=6.0 min CN=62 Runoff=0.71 cfs 0.052 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>2.95" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=1.68 cfs 0.156 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>3.16" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=4.14 cfs 0.297 af

21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>4.74" Flow Length=259' Tc=11.1 min CN=82 Runoff=2.50 cfs 0.213 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>2.86" Tc=6.0 min CN=64 Runoff=0.03 cfs 0.002 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>2.57" Tc=6.0 min CN=61 Runoff=0.05 cfs 0.004 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>3.88" Tc=6.0 min CN=74 Runoff=0.07 cfs 0.005 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>1.47" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=0.93 cfs 0.124 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.23' Max Vel=0.65 fps Inflow=2.07 cfs 0.271 af n=0.065 L=519.0' S=0.0096 '/' Capacity=8.98 cfs Outflow=1.70 cfs 0.267 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.22' Max Vel=0.65 fps Inflow=1.87 cfs 0.143 af n=0.065 L=145.0' S=0.0103 '/' Capacity=9.31 cfs Outflow=1.60 cfs 0.142 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.05' Max Vel=0.48 fps Inflow=0.15 cfs 0.078 af n=0.065 L=186.7' S=0.0402 '/' Capacity=18.34 cfs Outflow=0.13 cfs 0.078 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.16' Max Vel=2.06 fps Inflow=1.28 cfs 0.569 af n=0.030 L=15.0' S=0.0333 '/' Capacity=14.43 cfs Outflow=1.28 cfs 0.569 af
Reach 200R: Final Reach #200	Inflow=19.69 cfs 2.888 af Outflow=19.69 cfs 2.888 af
Reach 300R: Final Reach #300	Inflow=2.43 cfs 0.231 af Outflow=2.43 cfs 0.231 af
Reach 500R: Final Reach #500	Inflow=11.36 cfs 2.184 af Outflow=11.36 cfs 2.184 af
Reach 600R: Final Reach #600	Inflow=1.45 cfs 0.193 af Outflow=1.45 cfs 0.193 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=184.46' Storage=345 cf Inflow=2.15 cfs 0.272 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/' Outflow=2.07 cfs 0.271 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=177.28' Storage=3,290 cf Inflow=9.86 cfs 1.380 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/' Outflow=9.31 cfs 1.374 af
Pond 25P: Level Spreader #101	Peak Elev=186.51' Storage=606 cf Inflow=0.13 cfs 0.092 af Outflow=0.15 cfs 0.078 af
Pond 26P: Level Spreader #102	Peak Elev=177.09' Storage=367 cf Inflow=1.28 cfs 0.577 af Outflow=1.28 cfs 0.569 af
Pond 27P: Level Spreader #103	Peak Elev=176.03' Storage=311 cf Inflow=0.10 cfs 0.048 af Outflow=0.10 cfs 0.041 af

21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.61' Storage=575 cf Inflow=0.93 cfs 0.124 af
Primary=0.00 cfs 0.000 af Secondary=0.91 cfs 0.114 af Outflow=0.91 cfs 0.114 af

Pond 101P: Gravel Wetland #101 Peak Elev=187.12' Storage=4,557 cf Inflow=2.13 cfs 0.169 af
Primary=0.13 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.090 af

Pond 102P: Gravel Wetland #102 Peak Elev=181.02' Storage=21,016 cf Inflow=7.17 cfs 0.889 af
Primary=1.27 cfs 0.573 af Secondary=0.00 cfs 0.000 af Outflow=1.27 cfs 0.573 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=178.28' Storage=9,733 cf Inflow=4.14 cfs 0.297 af
Discarded=0.03 cfs 0.035 af Primary=0.10 cfs 0.043 af Outflow=0.13 cfs 0.078 af

Pond 104P: Rain Garden #104 Peak Elev=183.60' Storage=3,322 cf Inflow=2.50 cfs 0.213 af
Primary=0.03 cfs 0.035 af Secondary=1.84 cfs 0.108 af Outflow=1.87 cfs 0.143 af

Pond C01P: Catch Basin #1 Peak Elev=187.12' Storage=0.001 af Inflow=0.71 cfs 0.059 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.70 cfs 0.058 af

Pond C02P: Catch Basin #2 Peak Elev=187.12' Storage=0.001 af Inflow=1.43 cfs 0.118 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=1.42 cfs 0.117 af

Pond C03P: Catch Basin #3 Peak Elev=182.86' Storage=0.000 af Inflow=0.57 cfs 0.047 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.57 cfs 0.047 af

Pond C04P: Catch Basin #4 Peak Elev=182.73' Storage=0.000 af Inflow=1.93 cfs 0.201 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=1.93 cfs 0.201 af

Pond C05P: Catch Basin #5 Peak Elev=181.62' Storage=13 cf Inflow=1.10 cfs 0.103 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=1.10 cfs 0.103 af

Pond C06P: Catch Basin #6 Peak Elev=181.55' Storage=26 cf Inflow=4.38 cfs 0.450 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=4.38 cfs 0.449 af

Pond C07P: Catch Basin #7 Peak Elev=181.07' Storage=25 cf Inflow=5.54 cfs 0.733 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=5.54 cfs 0.733 af

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>4.78" Flow Length=550' Tc=38.4 min CN=72 Runoff=22.43 cfs 3.148 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>4.34" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=3.25 cfs 0.309 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>3.65" Flow Length=88' Tc=18.1 min CN=62 Runoff=3.25 cfs 0.332 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>4.22" Flow Length=265' Tc=19.7 min CN=67 Runoff=1.95 cfs 0.204 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>7.89" Tc=6.0 min CN=98 Runoff=0.85 cfs 0.071 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>7.89" Tc=6.0 min CN=98 Runoff=0.87 cfs 0.072 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>7.89" Tc=6.0 min CN=98 Runoff=0.68 cfs 0.056 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>6.33" Flow Length=130' Tc=15.4 min CN=85 Runoff=1.97 cfs 0.193 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>5.15" Flow Length=86' Tc=15.1 min CN=75 Runoff=1.42 cfs 0.134 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>5.27" Flow Length=244' Tc=18.4 min CN=76 Runoff=1.83 cfs 0.187 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>5.83" Flow Length=167' Tc=39.5 min CN=81 Runoff=2.49 cfs 0.360 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>2.65" Flow Length=350' Tc=21.3 min CN=53 Runoff=2.01 cfs 0.230 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>2.97" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=14.48 cfs 1.965 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>3.66" Tc=6.0 min CN=62 Runoff=0.99 cfs 0.071 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>4.00" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=2.29 cfs 0.211 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>4.23" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=5.57 cfs 0.397 af

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>5.98" Flow Length=259' Tc=11.1 min CN=82 Runoff=3.13 cfs 0.269 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>3.89" Tc=6.0 min CN=64 Runoff=0.05 cfs 0.003 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>3.55" Tc=6.0 min CN=61 Runoff=0.07 cfs 0.005 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>5.05" Tc=6.0 min CN=74 Runoff=0.09 cfs 0.006 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>2.21" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=1.51 cfs 0.186 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.30' Max Vel=0.76 fps Inflow=3.28 cfs 0.405 af n=0.065 L=519.0' S=0.0096 '/' Capacity=8.98 cfs Outflow=2.87 cfs 0.401 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.28' Max Vel=0.76 fps Inflow=2.99 cfs 0.199 af n=0.065 L=145.0' S=0.0103 '/' Capacity=9.31 cfs Outflow=2.71 cfs 0.198 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.06' Max Vel=0.53 fps Inflow=0.21 cfs 0.119 af n=0.065 L=186.7' S=0.0402 '/' Capacity=18.34 cfs Outflow=0.18 cfs 0.118 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.22' Max Vel=2.50 fps Inflow=2.40 cfs 0.810 af n=0.030 L=15.0' S=0.0333 '/' Capacity=14.43 cfs Outflow=2.40 cfs 0.810 af
Reach 200R: Final Reach #200	Inflow=26.53 cfs 3.865 af Outflow=26.53 cfs 3.865 af
Reach 300R: Final Reach #300	Inflow=3.25 cfs 0.309 af Outflow=3.25 cfs 0.309 af
Reach 500R: Final Reach #500	Inflow=16.65 cfs 3.099 af Outflow=16.65 cfs 3.099 af
Reach 600R: Final Reach #600	Inflow=1.95 cfs 0.344 af Outflow=1.95 cfs 0.344 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=184.72' Storage=631 cf Inflow=3.45 cfs 0.406 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/' Outflow=3.28 cfs 0.405 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=177.50' Storage=5,284 cf Inflow=14.48 cfs 1.965 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/' Outflow=13.30 cfs 1.957 af
Pond 25P: Level Spreader #101	Peak Elev=186.52' Storage=607 cf Inflow=0.18 cfs 0.133 af Outflow=0.21 cfs 0.119 af
Pond 26P: Level Spreader #102	Peak Elev=177.13' Storage=380 cf Inflow=2.40 cfs 0.818 af Outflow=2.40 cfs 0.810 af
Pond 27P: Level Spreader #103	Peak Elev=176.06' Storage=321 cf Inflow=0.38 cfs 0.147 af Outflow=0.38 cfs 0.140 af

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.66' Storage=643 cf Inflow=1.51 cfs 0.186 af
Primary=0.00 cfs 0.000 af Secondary=1.49 cfs 0.177 af Outflow=1.49 cfs 0.177 af

Pond 101P: Gravel Wetland #101 Peak Elev=187.34' Storage=5,625 cf Inflow=2.69 cfs 0.212 af
Primary=0.17 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.129 af

Pond 102P: Gravel Wetland #102 Peak Elev=181.57' Storage=25,154 cf Inflow=9.23 cfs 1.140 af
Primary=2.39 cfs 0.813 af Secondary=0.00 cfs 0.000 af Outflow=2.39 cfs 0.813 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=178.31' Storage=10,273 cf Inflow=5.57 cfs 0.397 af
Discarded=0.03 cfs 0.037 af Primary=0.38 cfs 0.141 af Outflow=0.41 cfs 0.178 af

Pond 104P: Rain Garden #104 Peak Elev=183.64' Storage=3,435 cf Inflow=3.13 cfs 0.269 af
Primary=0.03 cfs 0.036 af Secondary=2.96 cfs 0.162 af Outflow=2.99 cfs 0.199 af

Pond C01P: Catch Basin #1 Peak Elev=187.34' Storage=0.001 af Inflow=0.85 cfs 0.071 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.84 cfs 0.070 af

Pond C02P: Catch Basin #2 Peak Elev=187.34' Storage=0.001 af Inflow=1.71 cfs 0.142 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=1.70 cfs 0.141 af

Pond C03P: Catch Basin #3 Peak Elev=182.94' Storage=0.000 af Inflow=0.68 cfs 0.056 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.68 cfs 0.056 af

Pond C04P: Catch Basin #4 Peak Elev=182.90' Storage=0.000 af Inflow=2.37 cfs 0.249 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=2.36 cfs 0.249 af

Pond C05P: Catch Basin #5 Peak Elev=182.21' Storage=20 cf Inflow=1.42 cfs 0.134 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=1.41 cfs 0.134 af

Pond C06P: Catch Basin #6 Peak Elev=182.11' Storage=33 cf Inflow=5.53 cfs 0.570 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=5.52 cfs 0.570 af

Pond C07P: Catch Basin #7 Peak Elev=181.83' Storage=34 cf Inflow=7.01 cfs 0.929 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=7.01 cfs 0.929 af

21-011 Proposed Analysis

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Type III 24-hr 100 Yr.-24 Hr. Rainfall=9.73"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>6.20" Flow Length=550' Tc=38.4 min CN=72 Runoff=28.99 cfs 4.080 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>5.71" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=4.28 cfs 0.406 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>4.92" Flow Length=88' Tc=18.1 min CN=62 Runoff=4.42 cfs 0.447 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>5.57" Flow Length=265' Tc=19.7 min CN=67 Runoff=2.58 cfs 0.270 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>9.48" Tc=6.0 min CN=98 Runoff=1.02 cfs 0.085 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>9.48" Tc=6.0 min CN=98 Runoff=1.04 cfs 0.086 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>9.48" Tc=6.0 min CN=98 Runoff=0.81 cfs 0.068 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>7.87" Flow Length=130' Tc=15.4 min CN=85 Runoff=2.42 cfs 0.240 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>6.61" Flow Length=86' Tc=15.1 min CN=75 Runoff=1.81 cfs 0.172 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>6.73" Flow Length=244' Tc=18.4 min CN=76 Runoff=2.33 cfs 0.239 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>7.34" Flow Length=167' Tc=39.5 min CN=81 Runoff=3.10 cfs 0.452 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>3.74" Flow Length=350' Tc=21.3 min CN=53 Runoff=2.93 cfs 0.325 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>4.12" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=20.49 cfs 2.732 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>4.94" Tc=6.0 min CN=62 Runoff=1.34 cfs 0.096 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>5.32" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=3.07 cfs 0.281 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>5.59" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=7.35 cfs 0.525 af

21-011 Proposed Analysis*Type III 24-hr 100 Yr.-24 Hr. Rainfall=9.73"*

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>7.50" Flow Length=259' Tc=11.1 min CN=82 Runoff=3.88 cfs 0.338 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>5.20" Tc=6.0 min CN=64 Runoff=0.06 cfs 0.004 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>4.81" Tc=6.0 min CN=61 Runoff=0.10 cfs 0.007 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>6.49" Tc=6.0 min CN=74 Runoff=0.11 cfs 0.008 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>3.22" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=2.29 cfs 0.271 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.36' Max Vel=0.86 fps Inflow=4.71 cfs 0.585 af n=0.065 L=519.0' S=0.0096 '/' Capacity=8.98 cfs Outflow=4.35 cfs 0.579 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.32' Max Vel=0.84 fps Inflow=3.78 cfs 0.267 af n=0.065 L=145.0' S=0.0103 '/' Capacity=9.31 cfs Outflow=3.64 cfs 0.266 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.10' Max Vel=0.74 fps Inflow=0.55 cfs 0.169 af n=0.065 L=186.7' S=0.0402 '/' Capacity=18.34 cfs Outflow=0.53 cfs 0.168 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.30' Max Vel=3.09 fps Inflow=4.80 cfs 1.113 af n=0.030 L=15.0' S=0.0333 '/' Capacity=14.43 cfs Outflow=4.80 cfs 1.113 af
Reach 200R: Final Reach #200	Inflow=35.29 cfs 5.094 af Outflow=35.29 cfs 5.094 af
Reach 300R: Final Reach #300	Inflow=4.28 cfs 0.406 af Outflow=4.28 cfs 0.406 af
Reach 500R: Final Reach #500	Inflow=24.20 cfs 4.284 af Outflow=24.20 cfs 4.284 af
Reach 600R: Final Reach #600	Inflow=3.19 cfs 0.536 af Outflow=3.19 cfs 0.536 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=185.05' Storage=1,166 cf Inflow=5.15 cfs 0.586 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/' Outflow=4.71 cfs 0.585 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=177.74' Storage=8,534 cf Inflow=20.49 cfs 2.732 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/' Outflow=18.18 cfs 2.723 af
Pond 25P: Level Spreader #101	Peak Elev=186.53' Storage=615 cf Inflow=0.55 cfs 0.183 af Outflow=0.55 cfs 0.169 af
Pond 26P: Level Spreader #102	Peak Elev=177.21' Storage=401 cf Inflow=4.79 cfs 1.121 af Outflow=4.80 cfs 1.113 af
Pond 27P: Level Spreader #103	Peak Elev=176.13' Storage=342 cf Inflow=1.25 cfs 0.273 af Outflow=1.25 cfs 0.266 af

21-011 Proposed Analysis*Type III 24-hr 100 Yr.-24 Hr. Rainfall=9.73"*

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.71' Storage=720 cf Inflow=2.29 cfs 0.271 af
Primary=0.00 cfs 0.000 af Secondary=2.28 cfs 0.261 af Outflow=2.28 cfs 0.261 af

Pond 101P: Gravel Wetland #101 Peak Elev=187.50' Storage=6,479 cf Inflow=3.38 cfs 0.265 af
Primary=0.54 cfs 0.179 af Secondary=0.00 cfs 0.000 af Outflow=0.54 cfs 0.179 af

Pond 102P: Gravel Wetland #102 Peak Elev=182.07' Storage=29,359 cf Inflow=11.66 cfs 1.451 af
Primary=4.36 cfs 1.106 af Secondary=0.42 cfs 0.008 af Outflow=4.78 cfs 1.114 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=178.39' Storage=11,432 cf Inflow=7.35 cfs 0.525 af
Discarded=0.03 cfs 0.038 af Primary=1.23 cfs 0.265 af Outflow=1.26 cfs 0.304 af

Pond 104P: Rain Garden #104 Peak Elev=183.66' Storage=3,511 cf Inflow=3.88 cfs 0.338 af
Primary=0.03 cfs 0.038 af Secondary=3.76 cfs 0.229 af Outflow=3.78 cfs 0.267 af

Pond C01P: Catch Basin #1 Peak Elev=187.51' Storage=0.001 af Inflow=1.02 cfs 0.085 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=1.01 cfs 0.084 af

Pond C02P: Catch Basin #2 Peak Elev=187.51' Storage=0.001 af Inflow=2.05 cfs 0.170 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=2.04 cfs 0.170 af

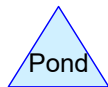
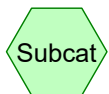
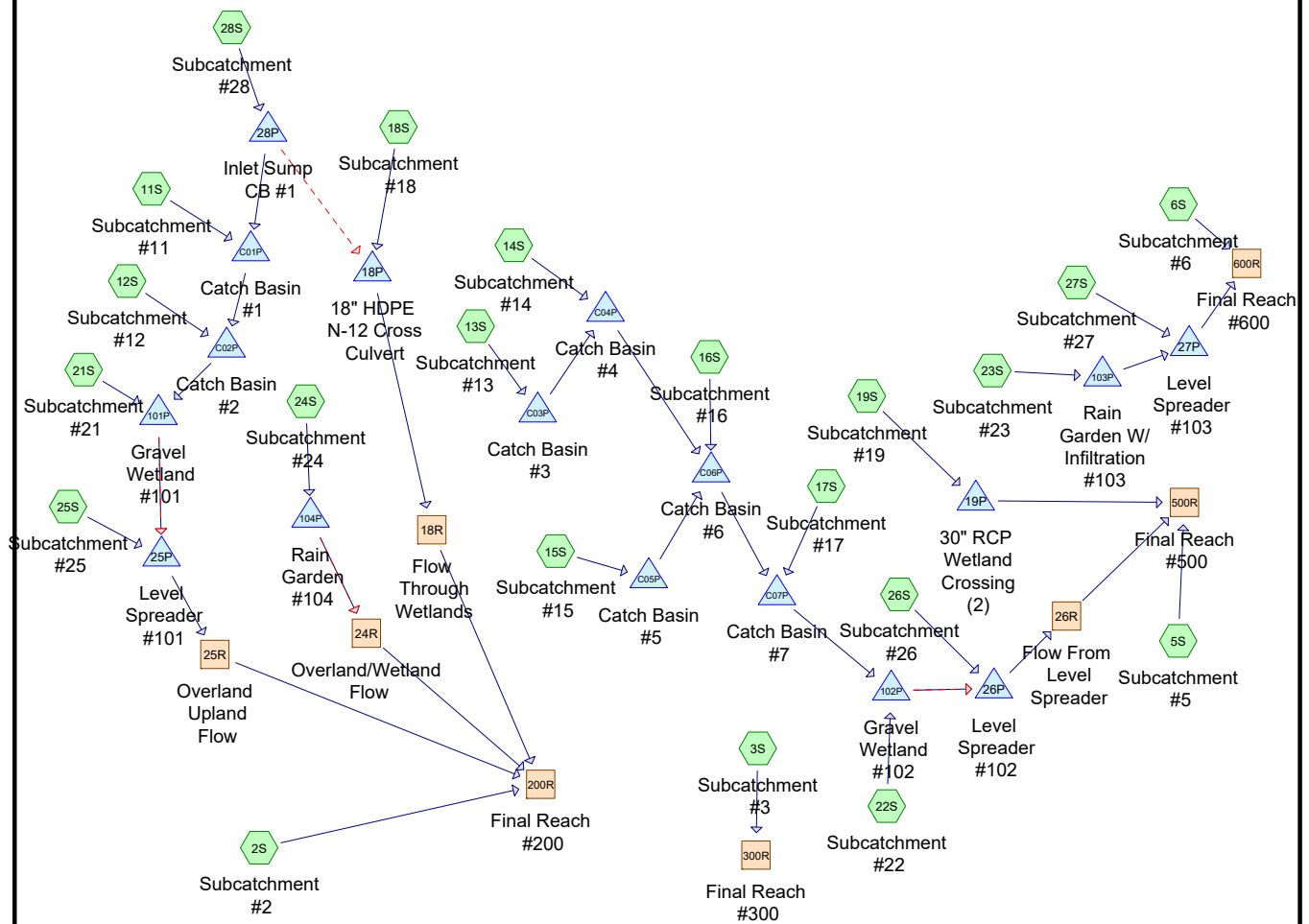
Pond C03P: Catch Basin #3 Peak Elev=184.05' Storage=0.000 af Inflow=0.81 cfs 0.068 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.81 cfs 0.068 af

Pond C04P: Catch Basin #4 Peak Elev=184.09' Storage=0.001 af Inflow=2.87 cfs 0.307 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=2.84 cfs 0.307 af

Pond C05P: Catch Basin #5 Peak Elev=183.84' Storage=41 cf Inflow=1.81 cfs 0.172 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=1.80 cfs 0.172 af

Pond C06P: Catch Basin #6 Peak Elev=183.84' Storage=53 cf Inflow=6.85 cfs 0.718 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=6.81 cfs 0.718 af

Pond C07P: Catch Basin #7 Peak Elev=183.01' Storage=49 cf Inflow=8.75 cfs 1.170 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=8.74 cfs 1.170 af



Routing Diagram for 21-011 Proposed Analysis
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.323	39	>75% Grass cover, Good, HSG A (2S, 18S, 19S, 21S, 28S)
2.809	61	>75% Grass cover, Good, HSG B (2S, 3S, 5S, 6S, 14S, 15S, 16S, 17S, 18S, 19S, 21S, 22S, 23S, 25S, 26S, 28S)
2.272	74	>75% Grass cover, Good, HSG C (2S, 3S, 5S, 6S, 14S, 15S, 16S, 17S, 18S, 19S, 22S, 23S, 24S, 25S, 27S, 28S)
0.017	80	>75% Grass cover, Good, HSG D (5S, 19S)
0.011	96	Gravel surface, HSG B (17S)
0.058	98	Paved parking, HSG A (11S, 12S, 21S)
0.477	98	Paved parking, HSG B (11S, 12S, 15S, 16S, 17S)
0.314	98	Paved parking, HSG C (11S, 12S, 13S, 14S, 16S, 17S)
0.373	98	Unconnected pavement, HSG A (2S, 19S, 28S)
0.133	98	Unconnected pavement, HSG B (22S, 23S)
0.267	98	Unconnected pavement, HSG C (2S, 15S, 23S, 24S)
0.014	98	Unconnected pavement, HSG D (23S)
0.106	98	Unconnected roofs, HSG A (18S, 19S, 28S)
0.273	98	Unconnected roofs, HSG B (2S, 3S, 14S, 15S, 16S, 17S, 19S, 22S, 23S)
0.393	98	Unconnected roofs, HSG C (2S, 3S, 14S, 15S, 16S, 17S, 19S, 22S, 24S)
2.955	30	Woods, Good, HSG A (6S, 18S, 19S, 28S)
2.041	55	Woods, Good, HSG B (2S, 3S, 5S, 6S, 15S, 16S, 17S, 18S, 19S, 22S, 28S)
5.912	70	Woods, Good, HSG C (2S, 3S, 5S, 6S, 14S, 16S, 17S, 18S, 19S)
5.405	77	Woods, Good, HSG D (2S, 5S, 19S)
25.150	66	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.814	HSG A	2S, 6S, 11S, 12S, 18S, 19S, 21S, 28S
5.744	HSG B	2S, 3S, 5S, 6S, 11S, 12S, 14S, 15S, 16S, 17S, 18S, 19S, 21S, 22S, 23S, 25S, 26S, 28S
9.157	HSG C	2S, 3S, 5S, 6S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 22S, 23S, 24S, 25S, 27S, 28S
5.435	HSG D	2S, 5S, 19S, 23S
0.000	Other	
25.150		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.323	2.809	2.272	0.017	0.000	6.420	>75% Grass cover, Good	2S, 3S, 5S, 6S, 14S, 15S, 16S, 17S, 18S, 19S, 21S, 22S, 23S, 24S, 25S, 26S, 27S, 28S
0.000	0.011	0.000	0.000	0.000	0.011	Gravel surface	17S
0.058	0.477	0.314	0.000	0.000	0.849	Paved parking	11S, 12S, 13S, 14S, 15S, 16S, 17S, 21S
0.373	0.133	0.267	0.014	0.000	0.787	Unconnected pavement	2S, 15S, 19S, 22S, 23S, 24S, 28S
0.106	0.273	0.393	0.000	0.000	0.771	Unconnected roofs	2S, 3S, 14S, 15S, 16S, 17S, 18S, 19S, 22S, 23S, 24S, 28S
2.955	2.041	5.912	5.405	0.000	16.313	Woods, Good	2S, 3S, 5S, 6S, 14S, 15S, 16S, 17S, 18S, 19S,

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
4.814	5.744	9.157	5.435	0.000	25.150	TOTAL AREA	

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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	18P	183.50	183.00	50.0	0.0100	0.024	18.0	0.0	3.0
2	19P	176.00	175.75	30.0	0.0083	0.018	30.0	0.0	6.0
3	28P	185.75	185.45	8.5	0.0353	0.012	15.0	0.0	0.0
4	101P	184.67	184.50	18.5	0.0092	0.012	12.0	0.0	0.0
5	102P	175.17	175.00	32.5	0.0052	0.012	12.0	0.0	0.0
6	104P	179.00	179.00	10.0	0.0000	0.012	6.0	0.0	0.0
7	C01P	185.35	185.20	18.0	0.0083	0.012	15.0	0.0	0.0
8	C02P	185.10	185.00	15.0	0.0067	0.012	15.0	0.0	0.0
9	C03P	182.35	182.20	18.0	0.0083	0.012	12.0	0.0	0.0
10	C04P	181.95	180.70	166.7	0.0075	0.012	15.0	0.0	0.0
11	C05P	180.60	180.45	18.0	0.0083	0.012	15.0	0.0	0.0
12	C06P	180.20	179.70	80.0	0.0063	0.012	18.0	0.0	0.0
13	C07P	179.60	177.00	206.0	0.0126	0.012	18.0	0.0	0.0

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Subcatchment#2	Runoff Area=344,210 sf 3.28% Impervious Runoff Depth>3.65" Flow Length=550' Tc=38.4 min CN=72 Runoff=17.09 cfs 2.401 af
Subcatchment3S: Subcatchment#3	Runoff Area=37,162 sf 6.61% Impervious Runoff Depth>3.25" Flow Length=317' Tc=15.4 min UI Adjusted CN=68 Runoff=2.43 cfs 0.231 af
Subcatchment5S: Subcatchment#5	Runoff Area=47,506 sf 0.00% Impervious Runoff Depth>2.66" Flow Length=88' Tc=18.1 min CN=62 Runoff=2.33 cfs 0.242 af
Subcatchment6S: Subcatchment#6	Runoff Area=25,304 sf 0.00% Impervious Runoff Depth>3.15" Flow Length=265' Tc=19.7 min CN=67 Runoff=1.45 cfs 0.153 af
Subcatchment11S: Subcatchment#11	Runoff Area=4,668 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.71 cfs 0.059 af
Subcatchment12S: Subcatchment#12	Runoff Area=4,751 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af
Subcatchment13S: Subcatchment#13	Runoff Area=3,732 sf 100.00% Impervious Runoff Depth>6.58" Tc=6.0 min CN=98 Runoff=0.57 cfs 0.047 af
Subcatchment14S: Subcatchment#14	Runoff Area=15,903 sf 47.85% Impervious Runoff Depth>5.07" Flow Length=130' Tc=15.4 min CN=85 Runoff=1.59 cfs 0.154 af
Subcatchment15S: Subcatchment#15	Runoff Area=13,589 sf 35.43% Impervious Runoff Depth>3.98" Flow Length=86' Tc=15.1 min CN=75 Runoff=1.10 cfs 0.103 af
Subcatchment16S: Subcatchment#16	Runoff Area=18,563 sf 31.32% Impervious Runoff Depth>4.08" Flow Length=244' Tc=18.4 min CN=76 Runoff=1.43 cfs 0.145 af
Subcatchment17S: Subcatchment#17	Runoff Area=32,213 sf 42.32% Impervious Runoff Depth>4.60" Flow Length=167' Tc=39.5 min CN=81 Runoff=1.98 cfs 0.284 af
Subcatchment18S: Subcatchment#18	Runoff Area=45,361 sf 0.58% Impervious Runoff Depth>1.82" Flow Length=350' Tc=21.3 min CN=53 Runoff=1.32 cfs 0.158 af
Subcatchment19S: Subcatchment#19	Runoff Area=346,363 sf 3.60% Impervious Runoff Depth>2.08" Flow Length=945' Tc=33.4 min UI Adjusted CN=56 Runoff=9.86 cfs 1.380 af
Subcatchment21S: Subcatchment#21	Runoff Area=10,127 sf 6.00% Impervious Runoff Depth>2.67" Tc=6.0 min CN=62 Runoff=0.71 cfs 0.052 af
Subcatchment22S: Subcatchment#22	Runoff Area=27,655 sf 16.50% Impervious Runoff Depth>2.95" Flow Length=133' Tc=14.1 min UI Adjusted CN=65 Runoff=1.68 cfs 0.156 af
Subcatchment23S: Subcatchment#23	Runoff Area=49,080 sf 23.32% Impervious Runoff Depth>3.16" Flow Length=314' Tc=6.0 min UI Adjusted CN=67 Runoff=4.14 cfs 0.297 af

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment24S: Subcatchment#24	Runoff Area=23,529 sf 34.13% Impervious Runoff Depth>4.74" Flow Length=259' Tc=11.1 min CN=82 Runoff=2.50 cfs 0.213 af
Subcatchment25S: Subcatchment#25	Runoff Area=434 sf 0.00% Impervious Runoff Depth>2.86" Tc=6.0 min CN=64 Runoff=0.03 cfs 0.002 af
Subcatchment26S: Subcatchment#26	Runoff Area=750 sf 0.00% Impervious Runoff Depth>2.57" Tc=6.0 min CN=61 Runoff=0.05 cfs 0.004 af
Subcatchment27S: Subcatchment#27	Runoff Area=655 sf 0.00% Impervious Runoff Depth>3.88" Tc=6.0 min CN=74 Runoff=0.07 cfs 0.005 af
Subcatchment28S: Subcatchment#28	Runoff Area=43,989 sf 19.71% Impervious Runoff Depth>1.47" Flow Length=437' Tc=23.3 min UI Adjusted CN=49 Runoff=0.93 cfs 0.124 af
Reach 18R: Flow Through Wetlands	Avg. Flow Depth=0.23' Max Vel=0.65 fps Inflow=2.07 cfs 0.271 af n=0.065 L=519.0' S=0.0096 '/' Capacity=8.98 cfs Outflow=1.70 cfs 0.267 af
Reach 24R: Overland/Wetland Flow	Avg. Flow Depth=0.22' Max Vel=0.65 fps Inflow=1.87 cfs 0.143 af n=0.065 L=145.0' S=0.0103 '/' Capacity=9.31 cfs Outflow=1.60 cfs 0.142 af
Reach 25R: Overland Upland Flow	Avg. Flow Depth=0.05' Max Vel=0.48 fps Inflow=0.15 cfs 0.078 af n=0.065 L=186.7' S=0.0402 '/' Capacity=18.34 cfs Outflow=0.13 cfs 0.078 af
Reach 26R: Flow From Level Spreader	Avg. Flow Depth=0.16' Max Vel=2.06 fps Inflow=1.28 cfs 0.569 af n=0.030 L=15.0' S=0.0333 '/' Capacity=14.43 cfs Outflow=1.28 cfs 0.569 af
Reach 200R: Final Reach #200	Inflow=19.69 cfs 2.888 af Outflow=19.69 cfs 2.888 af
Reach 300R: Final Reach #300	Inflow=2.43 cfs 0.231 af Outflow=2.43 cfs 0.231 af
Reach 500R: Final Reach #500	Inflow=11.36 cfs 2.184 af Outflow=11.36 cfs 2.184 af
Reach 600R: Final Reach #600	Inflow=1.45 cfs 0.193 af Outflow=1.45 cfs 0.193 af
Pond 18P: 18" HDPE N-12 Cross Culvert	Peak Elev=184.46' Storage=345 cf Inflow=2.15 cfs 0.272 af 18.0" Round Culvert w/ 3.0" inside fill n=0.024 L=50.0' S=0.0100 '/' Outflow=2.07 cfs 0.271 af
Pond 19P: 30" RCP Wetland Crossing (2)	Peak Elev=177.28' Storage=3,290 cf Inflow=9.86 cfs 1.380 af 30.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.018 L=30.0' S=0.0083 '/' Outflow=9.31 cfs 1.374 af
Pond 25P: Level Spreader #101	Peak Elev=186.51' Storage=606 cf Inflow=0.13 cfs 0.092 af Outflow=0.15 cfs 0.078 af
Pond 26P: Level Spreader #102	Peak Elev=177.09' Storage=367 cf Inflow=1.28 cfs 0.577 af Outflow=1.28 cfs 0.569 af
Pond 27P: Level Spreader #103	Peak Elev=176.03' Storage=311 cf Inflow=0.10 cfs 0.048 af Outflow=0.10 cfs 0.041 af

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Pond 28P: Inlet Sump CB #1 Peak Elev=186.61' Storage=575 cf Inflow=0.93 cfs 0.124 af
Primary=0.00 cfs 0.000 af Secondary=0.91 cfs 0.114 af Outflow=0.91 cfs 0.114 af

Pond 101P: Gravel Wetland #101 Peak Elev=187.12' Storage=4,557 cf Inflow=2.13 cfs 0.169 af
Primary=0.13 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.090 af

Pond 102P: Gravel Wetland #102 Peak Elev=181.02' Storage=21,016 cf Inflow=7.17 cfs 0.889 af
Primary=1.27 cfs 0.573 af Secondary=0.00 cfs 0.000 af Outflow=1.27 cfs 0.573 af

Pond 103P: Rain Garden W/ Infiltration #103 Peak Elev=178.28' Storage=9,733 cf Inflow=4.14 cfs 0.297 af
Discarded=0.03 cfs 0.035 af Primary=0.10 cfs 0.043 af Outflow=0.13 cfs 0.078 af

Pond 104P: Rain Garden #104 Peak Elev=183.60' Storage=3,322 cf Inflow=2.50 cfs 0.213 af
Primary=0.03 cfs 0.035 af Secondary=1.84 cfs 0.108 af Outflow=1.87 cfs 0.143 af

Pond C01P: Catch Basin #1 Peak Elev=187.12' Storage=0.001 af Inflow=0.71 cfs 0.059 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.70 cfs 0.058 af

Pond C02P: Catch Basin #2 Peak Elev=187.12' Storage=0.001 af Inflow=1.43 cfs 0.118 af
15.0" Round Culvert n=0.012 L=15.0' S=0.0067 '/' Outflow=1.42 cfs 0.117 af

Pond C03P: Catch Basin #3 Peak Elev=182.86' Storage=0.000 af Inflow=0.57 cfs 0.047 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.57 cfs 0.047 af

Pond C04P: Catch Basin #4 Peak Elev=182.73' Storage=0.000 af Inflow=1.93 cfs 0.201 af
15.0" Round Culvert n=0.012 L=166.7' S=0.0075 '/' Outflow=1.93 cfs 0.201 af

Pond C05P: Catch Basin #5 Peak Elev=181.62' Storage=13 cf Inflow=1.10 cfs 0.103 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=1.10 cfs 0.103 af

Pond C06P: Catch Basin #6 Peak Elev=181.55' Storage=26 cf Inflow=4.38 cfs 0.450 af
18.0" Round Culvert n=0.012 L=80.0' S=0.0063 '/' Outflow=4.38 cfs 0.449 af

Pond C07P: Catch Basin #7 Peak Elev=181.07' Storage=25 cf Inflow=5.54 cfs 0.733 af
18.0" Round Culvert n=0.012 L=206.0' S=0.0126 '/' Outflow=5.54 cfs 0.733 af

Total Runoff Area = 25.150 ac Runoff Volume = 6.269 af Average Runoff Depth = 2.99"
90.43% Pervious = 22.744 ac 9.57% Impervious = 2.406 ac

21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 2S: Subcatchment #2

Runoff = 17.09 cfs @ 12.53 hrs, Volume= 2.401 af, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
4,315	39	>75% Grass cover, Good, HSG A
4,005	98	Unconnected pavement, HSG A
4,844	61	>75% Grass cover, Good, HSG B
20,273	55	Woods, Good, HSG B
542	98	Unconnected roofs, HSG B
3,079	98	Unconnected roofs, HSG C
18,427	74	>75% Grass cover, Good, HSG C
3,649	98	Unconnected pavement, HSG C
162,676	70	Woods, Good, HSG C
122,400	77	Woods, Good, HSG D
344,210	72	Weighted Average
332,935		96.72% Pervious Area
11,275		3.28% Impervious Area
11,275		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	100	0.0150	0.07		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
15.7	450	0.0091	0.48		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
38.4	550	Total			

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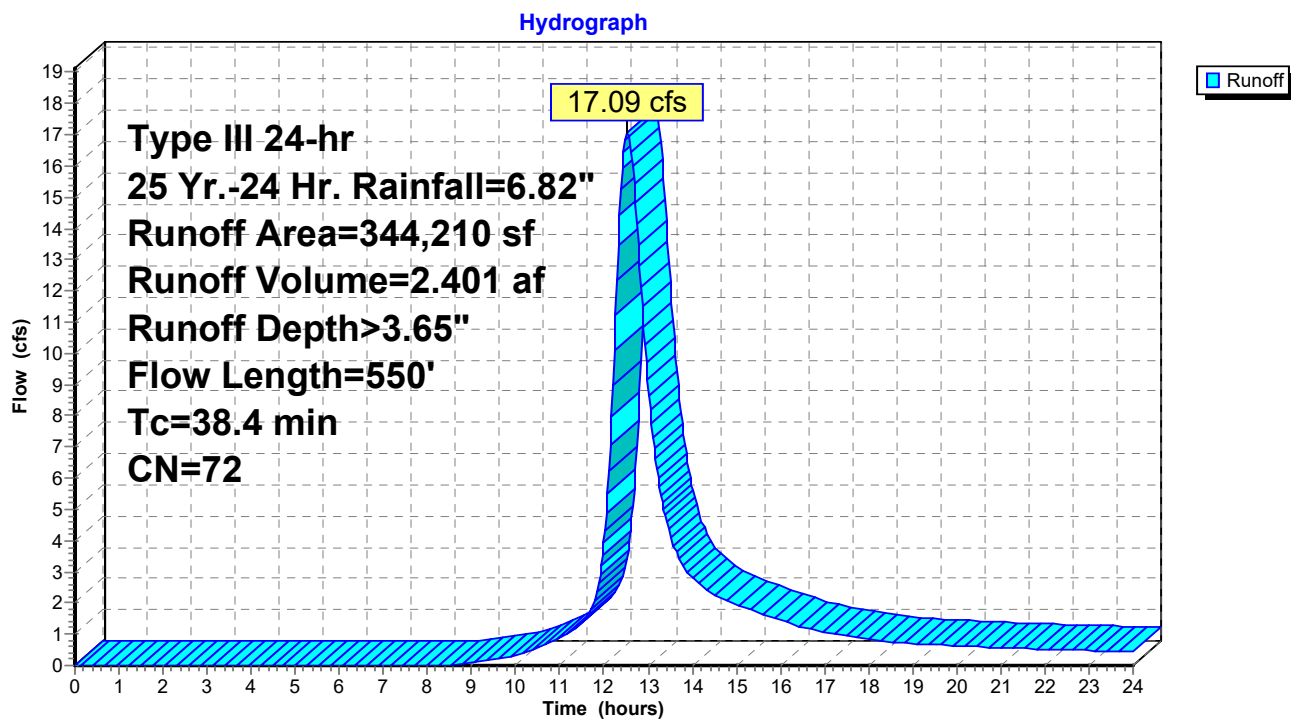
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 2S: Subcatchment #2



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Summary for Subcatchment 3S: Subcatchment #3

Runoff = 2.43 cfs @ 12.22 hrs, Volume= 0.231 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
57	98		Unconnected roofs, HSG B
3,095	61		>75% Grass cover, Good, HSG B
8,113	55		Woods, Good, HSG B
2,399	98		Unconnected roofs, HSG C
9,231	74		>75% Grass cover, Good, HSG C
14,267	70		Woods, Good, HSG C
37,162	69	68	Weighted Average, UI Adjusted
34,706			93.39% Pervious Area
2,456			6.61% Impervious Area
2,456			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	14	0.0729	0.20		Sheet Flow, Segment #1 Grass: Short n= 0.150 P2= 3.59"
5.2	32	0.0618	0.10		Sheet Flow, Segment #2 Woods: Light underbrush n= 0.400 P2= 3.59"
4.4	54	0.0371	0.20		Sheet Flow, Segment #3 Grass: Short n= 0.150 P2= 3.59"
1.4	89	0.0422	1.03		Shallow Concentrated Flow, Segment #4 Woodland Kv= 5.0 fps
0.7	22	0.0114	0.53		Shallow Concentrated Flow, Segment #5 Woodland Kv= 5.0 fps
2.2	75	0.0067	0.57		Shallow Concentrated Flow, Segment #6 Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0645	1.27		Shallow Concentrated Flow, Segment #7 Woodland Kv= 5.0 fps
15.4	317	Total			

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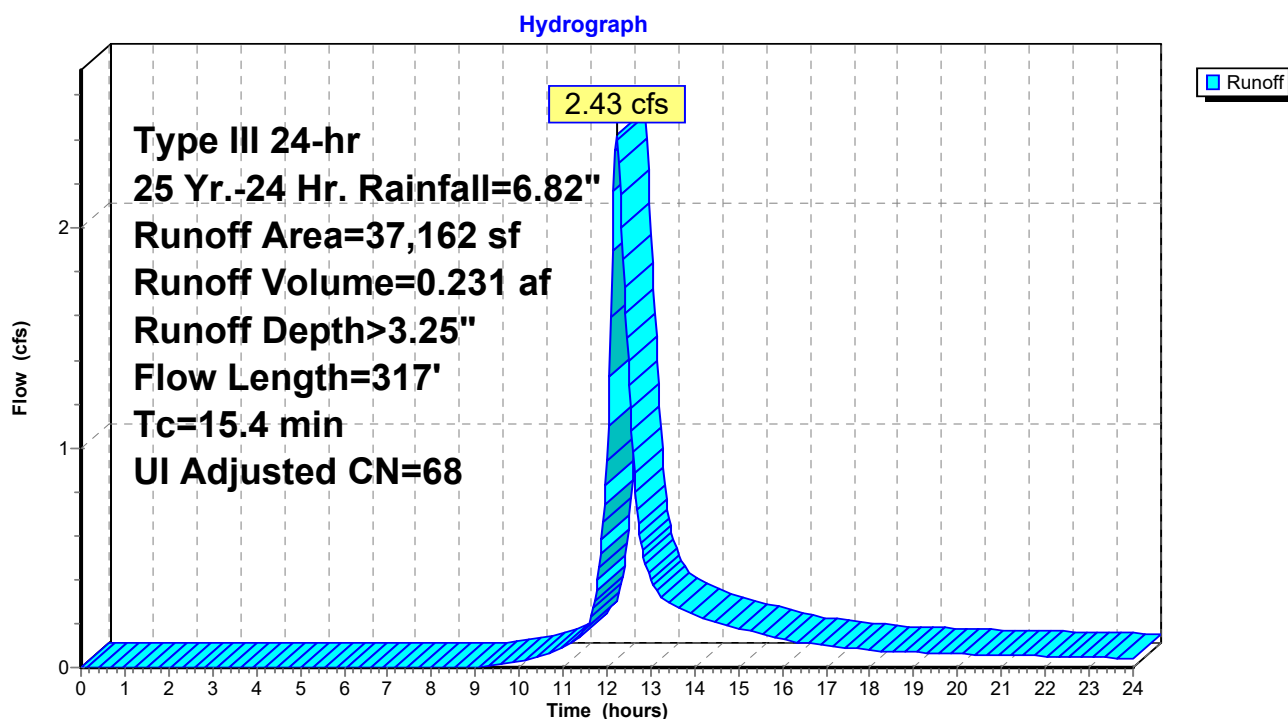
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 3S: Subcatchment #3



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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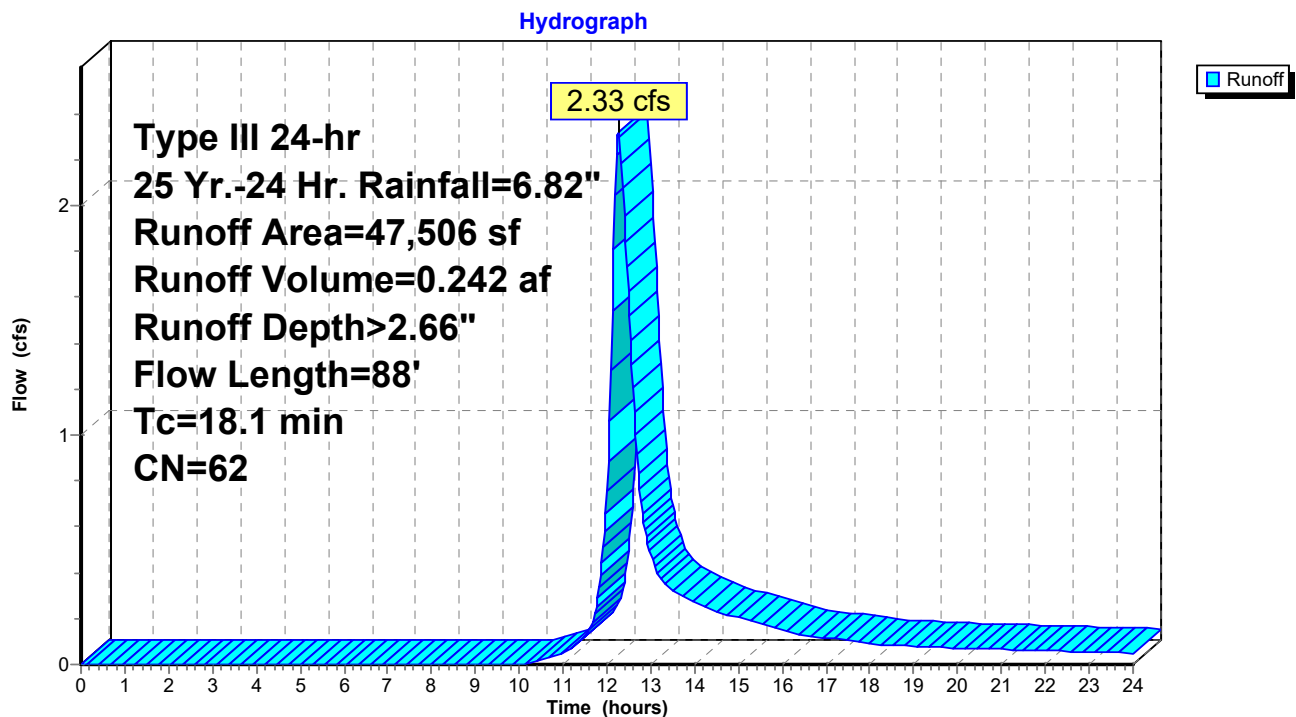
Summary for Subcatchment 5S: Subcatchment #5

Runoff = 2.33 cfs @ 12.26 hrs, Volume= 0.242 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
12,559	61	>75% Grass cover, Good, HSG B
19,689	55	Woods, Good, HSG B
1,289	74	>75% Grass cover, Good, HSG C
13,281	70	Woods, Good, HSG C
138	80	>75% Grass cover, Good, HSG D
550	77	Woods, Good, HSG D
47,506	62	Weighted Average
47,506		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	61	0.0160	0.07		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
3.2	27	0.1481	0.14		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
18.1	88	Total			

Subcatchment 5S: Subcatchment #5

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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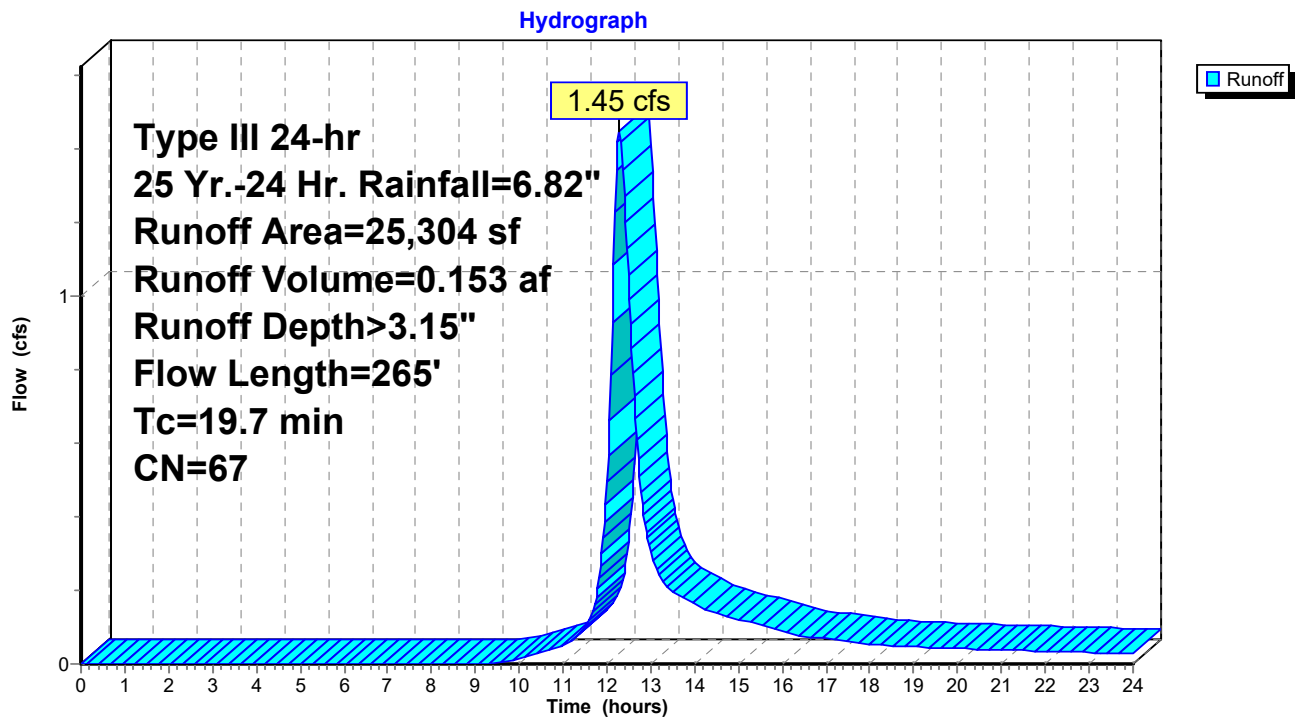
Summary for Subcatchment 6S: Subcatchment #6

Runoff = 1.45 cfs @ 12.28 hrs, Volume= 0.153 af, Depth> 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
244	30	Woods, Good, HSG A
2,316	61	>75% Grass cover, Good, HSG B
3,938	55	Woods, Good, HSG B
4,660	74	>75% Grass cover, Good, HSG C
14,146	70	Woods, Good, HSG C
25,304	67	Weighted Average
25,304		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.7	100	0.0325	0.10		Sheet Flow, Segment #1
					Woods: Light underbrush n= 0.400 P2= 3.59"
3.0	165	0.0333	0.91		Shallow Concentrated Flow, Segment #2
					Woodland Kv= 5.0 fps
19.7	265	Total			

Subcatchment 6S: Subcatchment #6

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 11S: Subcatchment #11

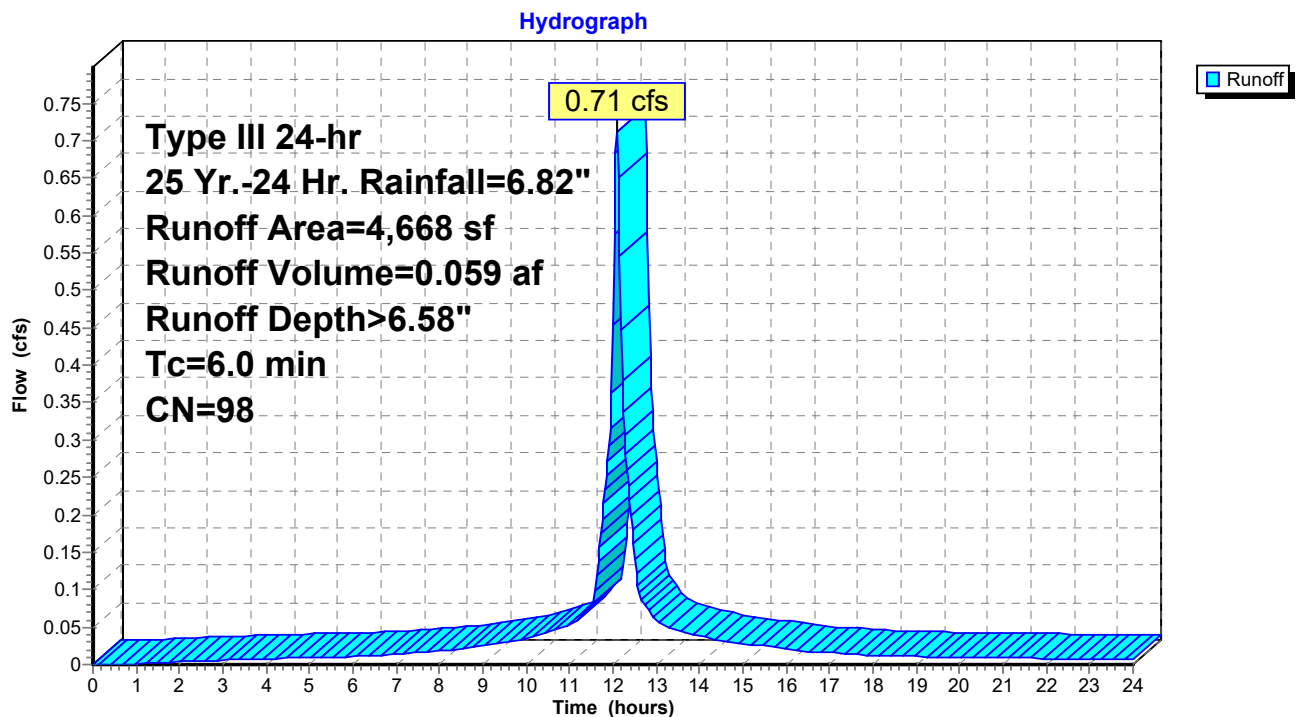
Runoff = 0.71 cfs @ 12.08 hrs, Volume= 0.059 af, Depth> 6.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
925	98	Paved parking, HSG A
3,273	98	Paved parking, HSG B
470	98	Paved parking, HSG C
4,668	98	Weighted Average
4,668		100.00% Impervious Area

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

Subcatchment 11S: Subcatchment #11



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 12S: Subcatchment #12

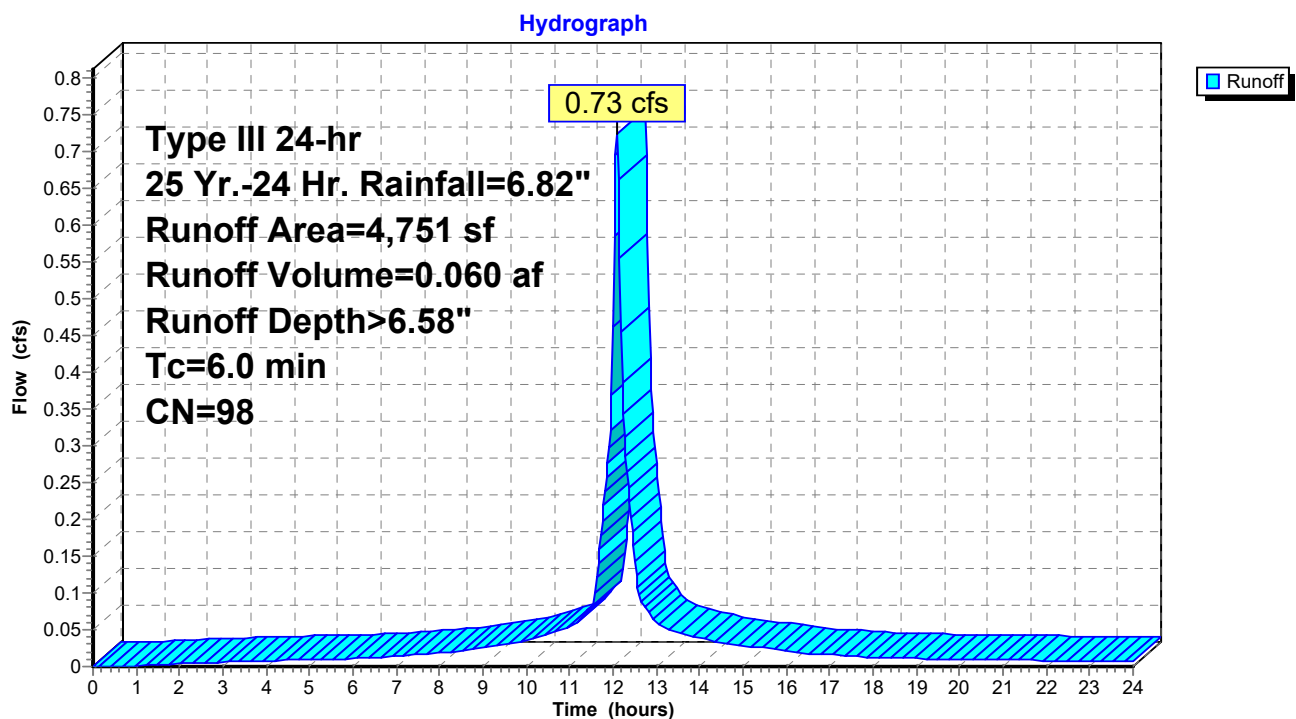
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.060 af, Depth> 6.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
986	98	Paved parking, HSG A
3,148	98	Paved parking, HSG B
617	98	Paved parking, HSG C
4,751	98	Weighted Average
4,751		100.00% Impervious Area

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

Subcatchment 12S: Subcatchment #12



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 13S: Subcatchment #13

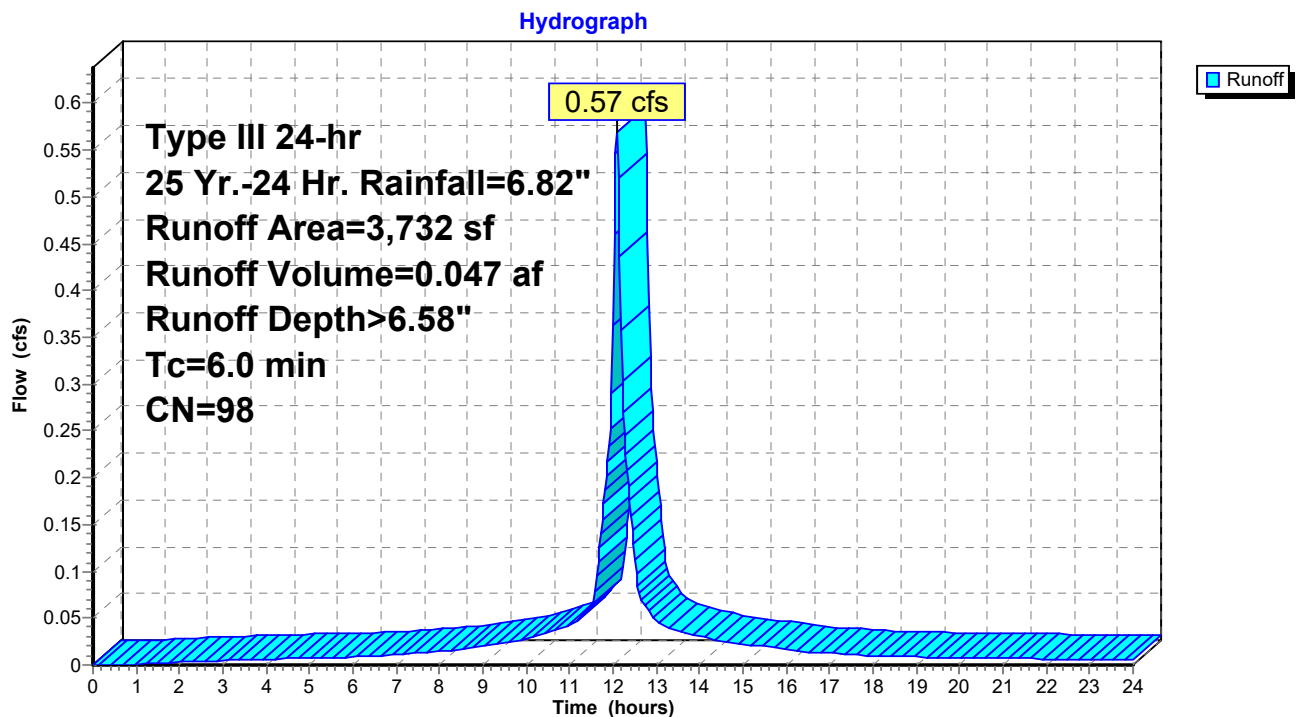
Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.047 af, Depth> 6.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
3,732	98	Paved parking, HSG C
3,732		100.00% Impervious Area

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

Subcatchment 13S: Subcatchment #13



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 14S: Subcatchment #14

Runoff = 1.59 cfs @ 12.21 hrs, Volume= 0.154 af, Depth> 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
384	98	Unconnected roofs, HSG B
1,649	98	Unconnected roofs, HSG C
7,467	74	>75% Grass cover, Good, HSG C
5,577	98	Paved parking, HSG C
804	70	Woods, Good, HSG C
22	61	>75% Grass cover, Good, HSG B
15,903	85	Weighted Average
8,293		52.15% Pervious Area
7,610		47.85% Impervious Area
2,033		26.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	42	0.0120	0.06		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
2.7	33	0.0459	0.20		Sheet Flow, Segment #2 Grass: Short n= 0.150 P2= 3.59"
0.3	55	0.0226	3.05		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
15.4	130	Total			

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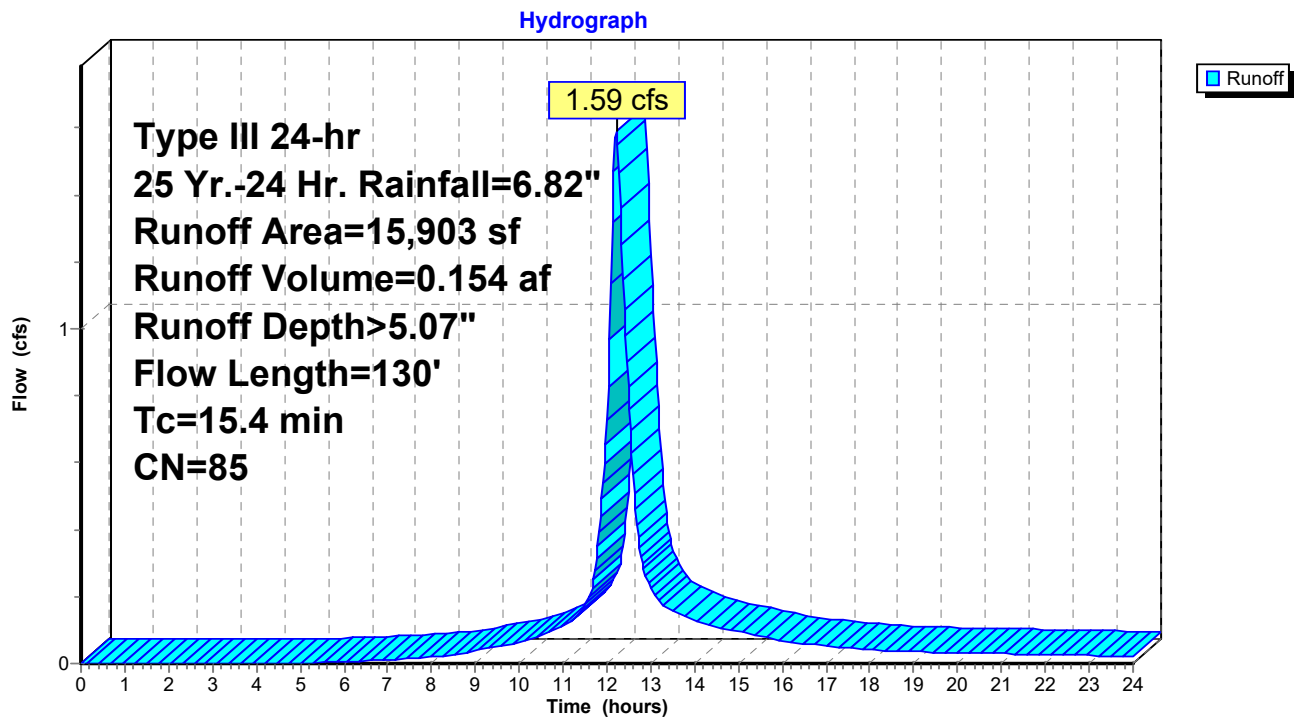
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 14S: Subcatchment #14



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 15S: Subcatchment #15

Runoff = 1.10 cfs @ 12.21 hrs, Volume= 0.103 af, Depth> 3.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
1,040	98	Unconnected roofs, HSG B
6,924	61	>75% Grass cover, Good, HSG B
3,085	98	Paved parking, HSG B
823	55	Woods, Good, HSG B
* 325	98	Unconnected roofs, HSG C
1,027	74	>75% Grass cover, Good, HSG C
365	98	Unconnected pavement, HSG C
13,589	75	Weighted Average
8,774		64.57% Pervious Area
4,815		35.43% Impervious Area
1,730		35.93% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	40	0.0124	0.06		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
3.2	33	0.0308	0.17		Sheet Flow, Segment #2 Grass: Short n= 0.150 P2= 3.59"
0.1	13	0.0371	3.91		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
15.1	86	Total			

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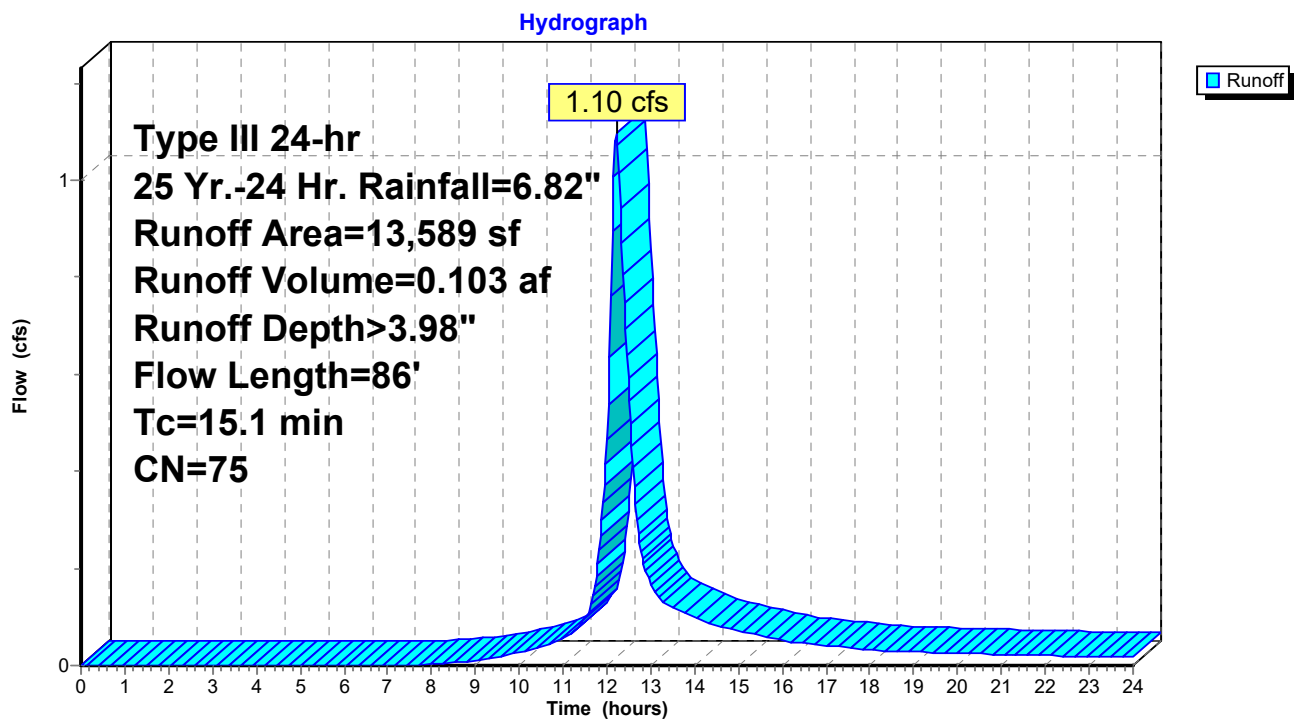
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 15S: Subcatchment #15



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 16S: Subcatchment #16

Runoff = 1.43 cfs @ 12.25 hrs, Volume= 0.145 af, Depth> 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
976	98	Unconnected roofs, HSG B
7,795	61	>75% Grass cover, Good, HSG B
3,325	98	Paved parking, HSG B
166	55	Woods, Good, HSG B
927	98	Unconnected roofs, HSG C
3,338	74	>75% Grass cover, Good, HSG C
586	98	Paved parking, HSG C
1,450	70	Woods, Good, HSG C
18,563	76	Weighted Average
12,749		68.68% Pervious Area
5,814		31.32% Impervious Area
1,903		32.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	46	0.0110	0.06		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
3.2	33	0.0307	0.17		Sheet Flow, Segment #2 Grass: Short n= 0.150 P2= 3.59"
1.4	165	0.0091	1.94		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
18.4	244	Total			

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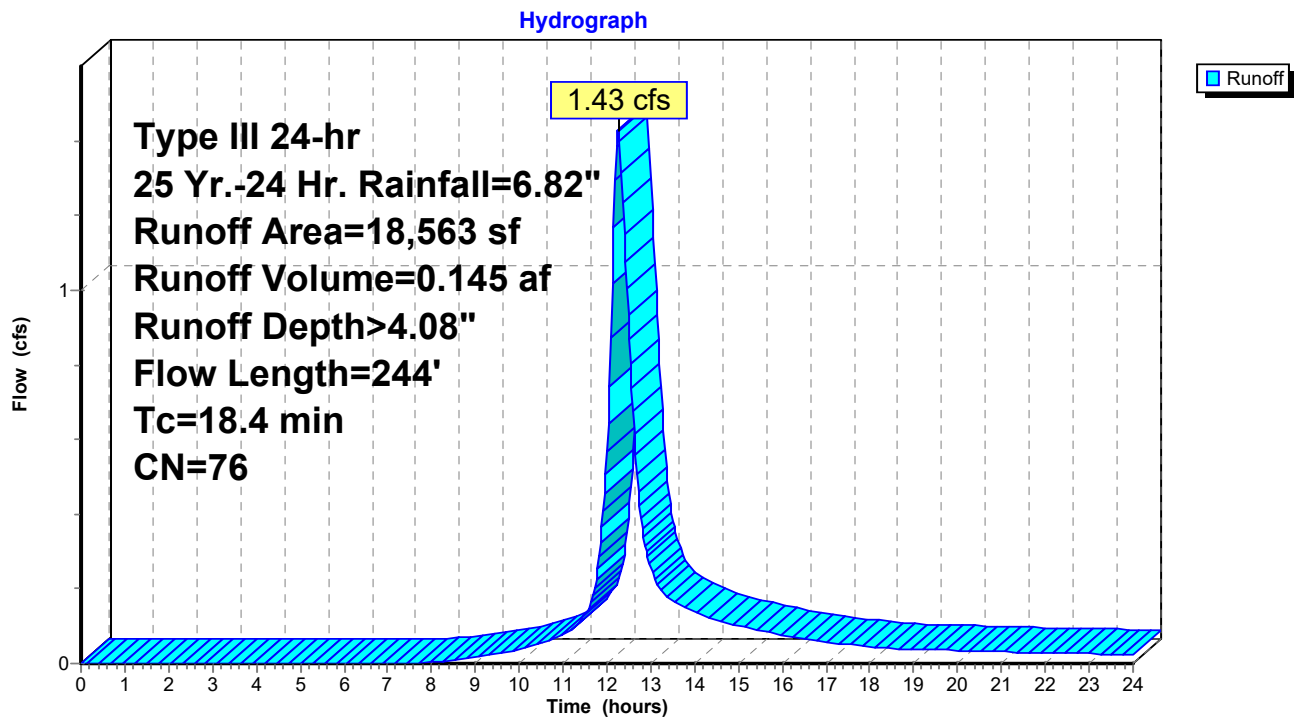
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 16S: Subcatchment #16



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 17S: Subcatchment #17

Runoff = 1.98 cfs @ 12.53 hrs, Volume= 0.284 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
145	98	Unconnected roofs, HSG B
5,605	61	>75% Grass cover, Good, HSG B
7,957	98	Paved parking, HSG B
1,348	55	Woods, Good, HSG B
470	96	Gravel surface, HSG B
2,857	98	Unconnected roofs, HSG C
7,429	74	>75% Grass cover, Good, HSG C
2,675	98	Paved parking, HSG C
3,727	70	Woods, Good, HSG C
32,213	81	Weighted Average
18,579		57.68% Pervious Area
13,634		42.32% Impervious Area
3,002		22.02% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	100	0.0040	0.04		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
0.2	7	0.0152	0.62		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
0.6	33	0.0152	0.86		Shallow Concentrated Flow, Segment #3 Short Grass Pasture Kv= 7.0 fps
0.1	27	0.0457	4.34		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
39.5	167	Total			

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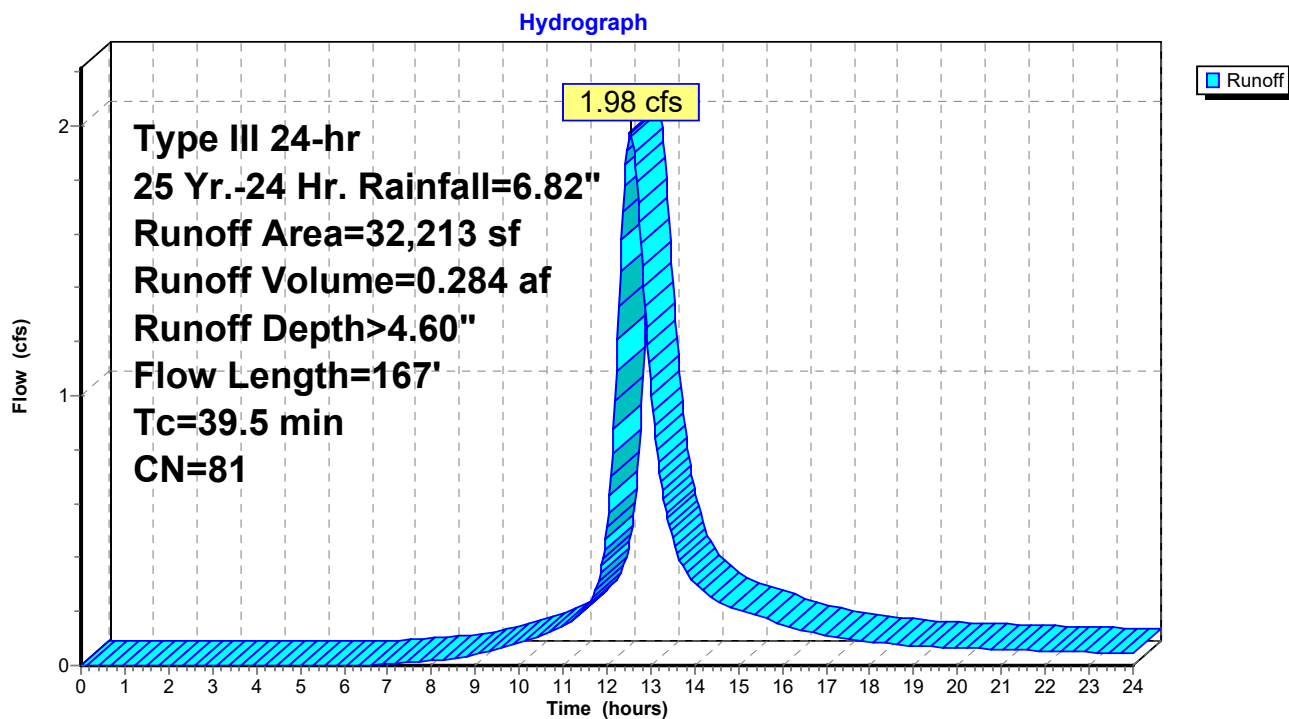
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 17S: Subcatchment #17



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 18S: Subcatchment #18

Runoff = 1.32 cfs @ 12.33 hrs, Volume= 0.158 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
264	98	Unconnected roofs, HSG A
8,949	39	>75% Grass cover, Good, HSG A
5,028	30	Woods, Good, HSG A
4,432	61	>75% Grass cover, Good, HSG B
18,361	55	Woods, Good, HSG B
3,324	74	>75% Grass cover, Good, HSG C
5,003	70	Woods, Good, HSG C
45,361	53	Weighted Average
45,097		99.42% Pervious Area
264		0.58% Impervious Area
264		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	100	0.0400	0.11		Sheet Flow, Segment #1
					Woods: Light underbrush n= 0.400 P2= 3.59"
5.9	250	0.0200	0.71		Shallow Concentrated Flow, Segment #2
					Woodland Kv= 5.0 fps
21.3	350	Total			

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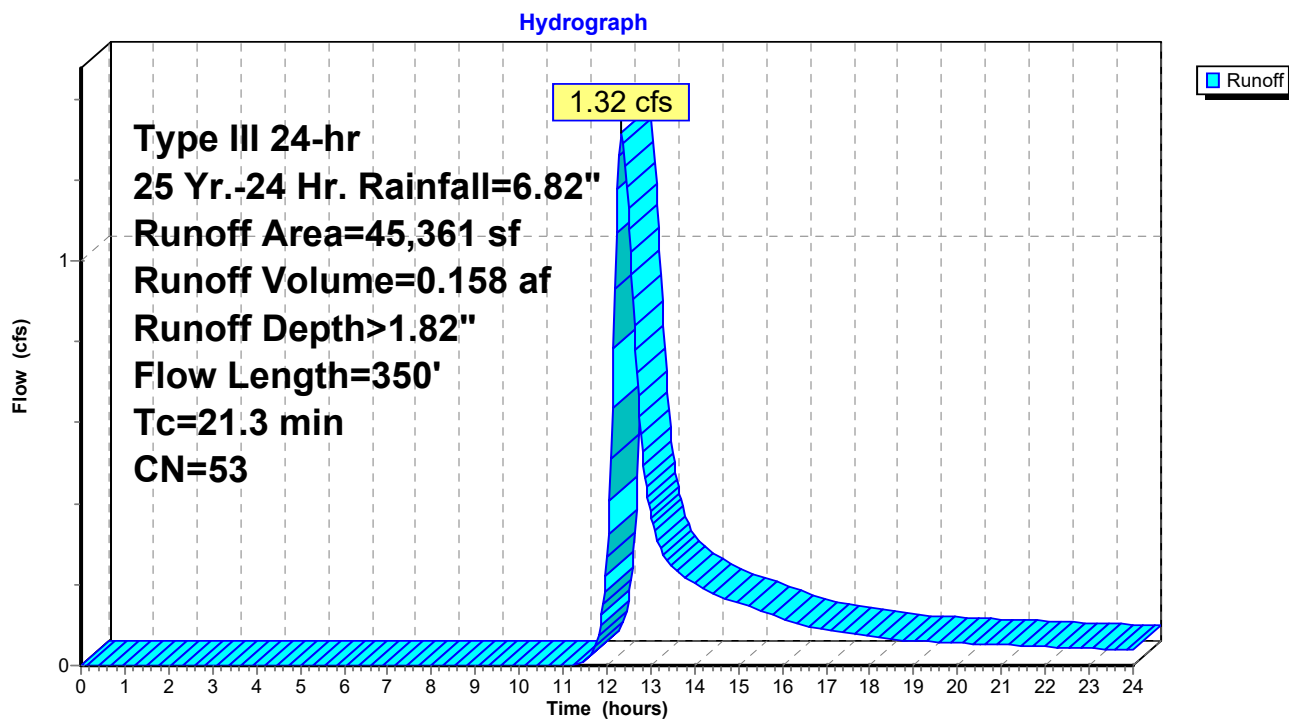
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 18S: Subcatchment #18



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 19S: Subcatchment #19

Runoff = 9.86 cfs @ 12.51 hrs, Volume= 1.380 af, Depth> 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
2,147	98		Unconnected roofs, HSG A
29,498	39		>75% Grass cover, Good, HSG A
5,763	98		Unconnected pavement, HSG A
116,015	30		Woods, Good, HSG A
2,485	98		Unconnected roofs, HSG B
8,990	61		>75% Grass cover, Good, HSG B
5,735	55		Woods, Good, HSG B
2,086	98		Unconnected roofs, HSG C
18,405	74		>75% Grass cover, Good, HSG C
42,165	70		Woods, Good, HSG C
591	80		>75% Grass cover, Good, HSG D
112,483	77		Woods, Good, HSG D
346,363	57	56	Weighted Average, UI Adjusted
333,882			96.40% Pervious Area
12,481			3.60% Impervious Area
12,481			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0575	0.13		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
13.9	654	0.0245	0.78		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
6.2	191	0.0104	0.51		Shallow Concentrated Flow, Segment #3 Woodland Kv= 5.0 fps
33.4	945	Total			

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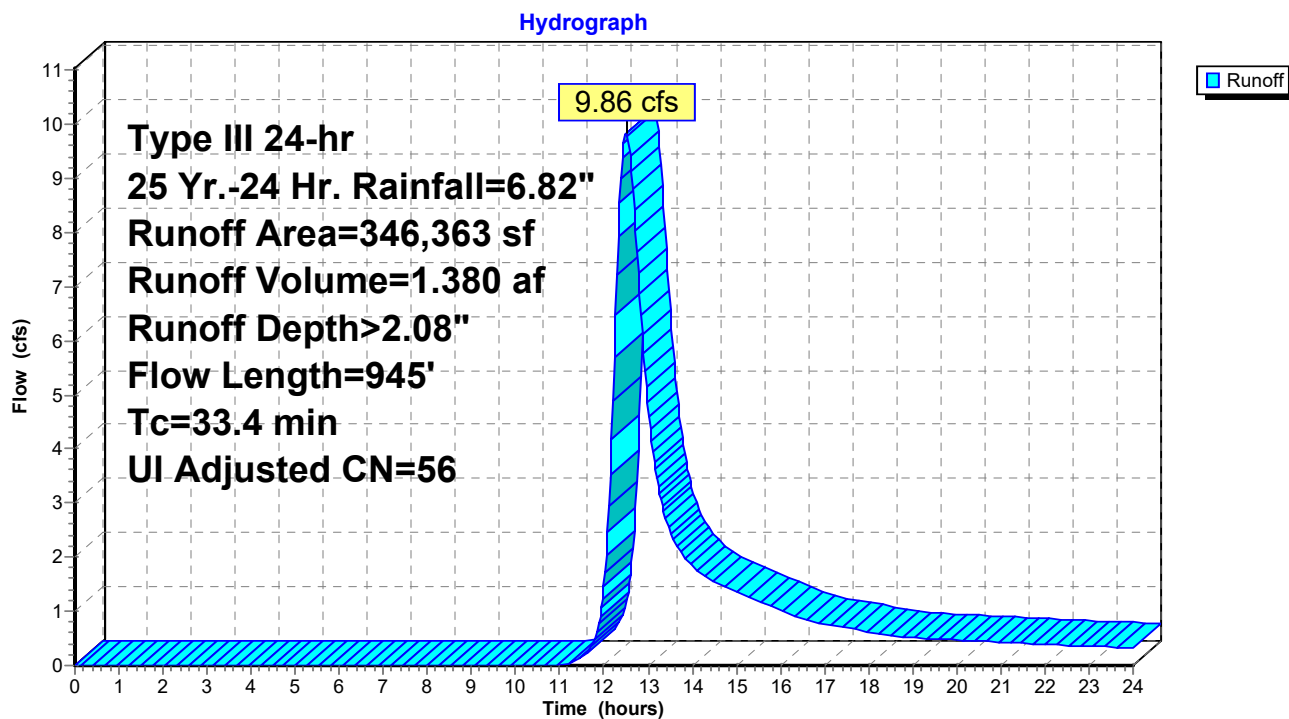
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 19S: Subcatchment #19



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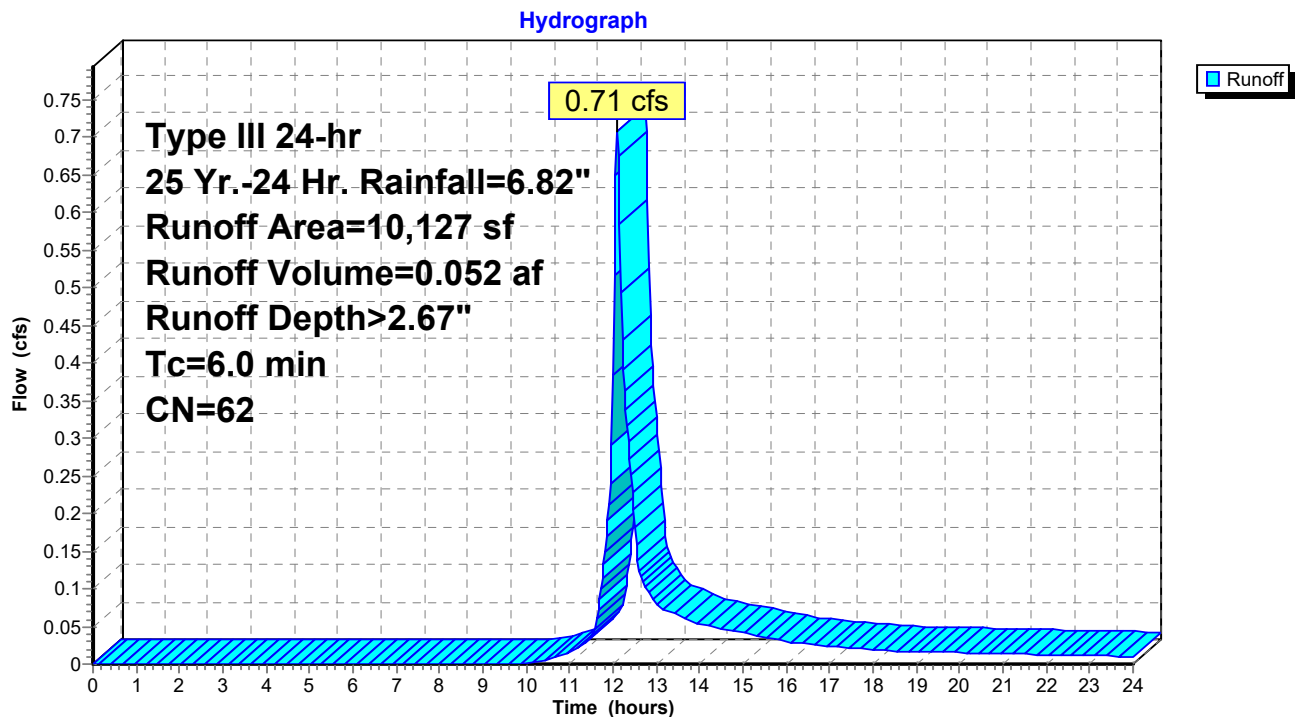
Summary for Subcatchment 21S: Subcatchment #21

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
608	98	Paved parking, HSG A
779	39	>75% Grass cover, Good, HSG A
8,740	61	>75% Grass cover, Good, HSG B
10,127	62	Weighted Average
9,519		94.00% Pervious Area
608		6.00% Impervious Area

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

Subcatchment 21S: Subcatchment #21

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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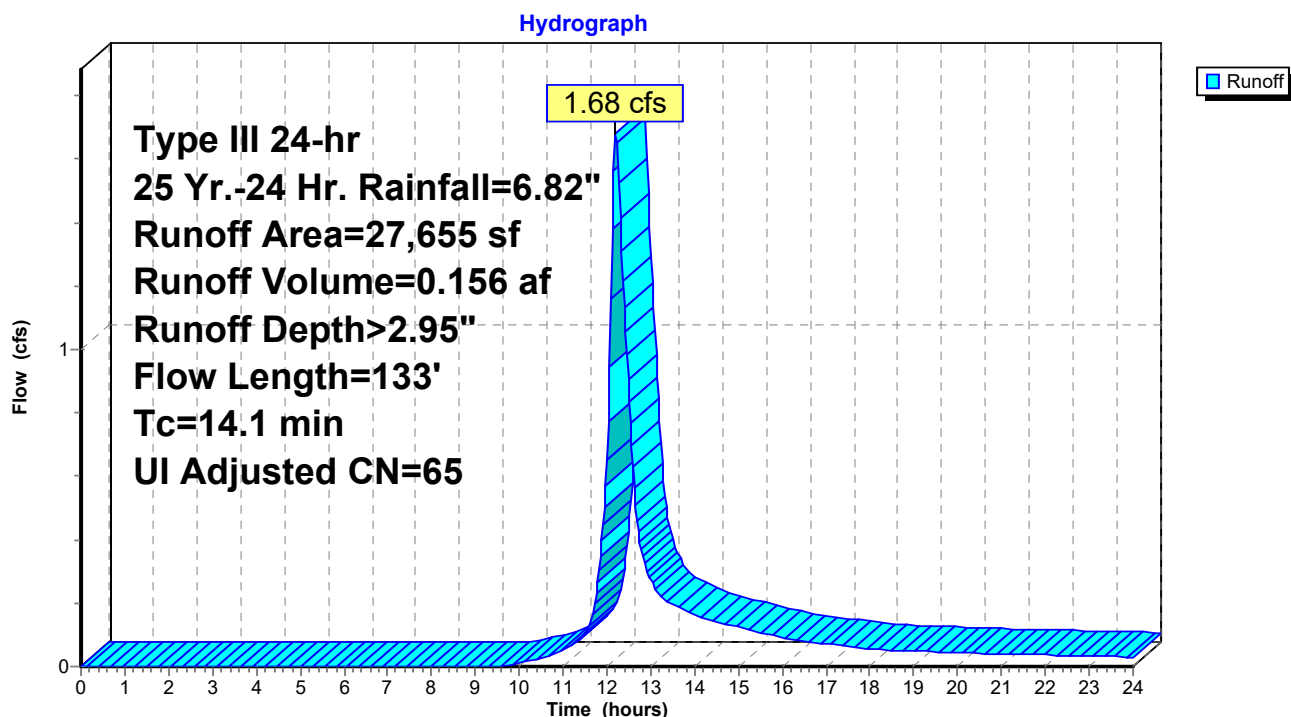
Summary for Subcatchment 22S: Subcatchment #22

Runoff = 1.68 cfs @ 12.20 hrs, Volume= 0.156 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
* 2,450	98		Unconnected roofs, HSG B
20,061	61		>75% Grass cover, Good, HSG B
1,402	98		Unconnected pavement, HSG B
939	55		Woods, Good, HSG B
711	98		Unconnected roofs, HSG C
2,092	74		>75% Grass cover, Good, HSG C
27,655	68	65	Weighted Average, UI Adjusted
23,092			83.50% Pervious Area
4,563			16.50% Impervious Area
4,563			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	100	0.0075	0.12		Sheet Flow, Segment #1 Grass: Short n= 0.150 P2= 3.59"
0.4	33	0.0308	1.23		Shallow Concentrated Flow, Segment #2 Short Grass Pasture Kv= 7.0 fps
14.1	133	Total			

Subcatchment 22S: Subcatchment #22

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 23S: Subcatchment #23

Runoff = 4.14 cfs @ 12.09 hrs, Volume= 0.297 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
3,795	98		Unconnected roofs, HSG B
31,838	61		>75% Grass cover, Good, HSG B
5,796	74		>75% Grass cover, Good, HSG C
2,660	98		Unconnected pavement, HSG C
4,393	98		Unconnected pavement, HSG B
598	98		Unconnected pavement, HSG D
49,080	71	67	Weighted Average, UI Adjusted
37,634			76.68% Pervious Area
11,446			23.32% Impervious Area
11,446			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.71		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 3.59"
0.4	75	0.0267	3.32		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
1.4	139	0.0070	1.70		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
2.8	314	Total, Increased to minimum Tc = 6.0 min			

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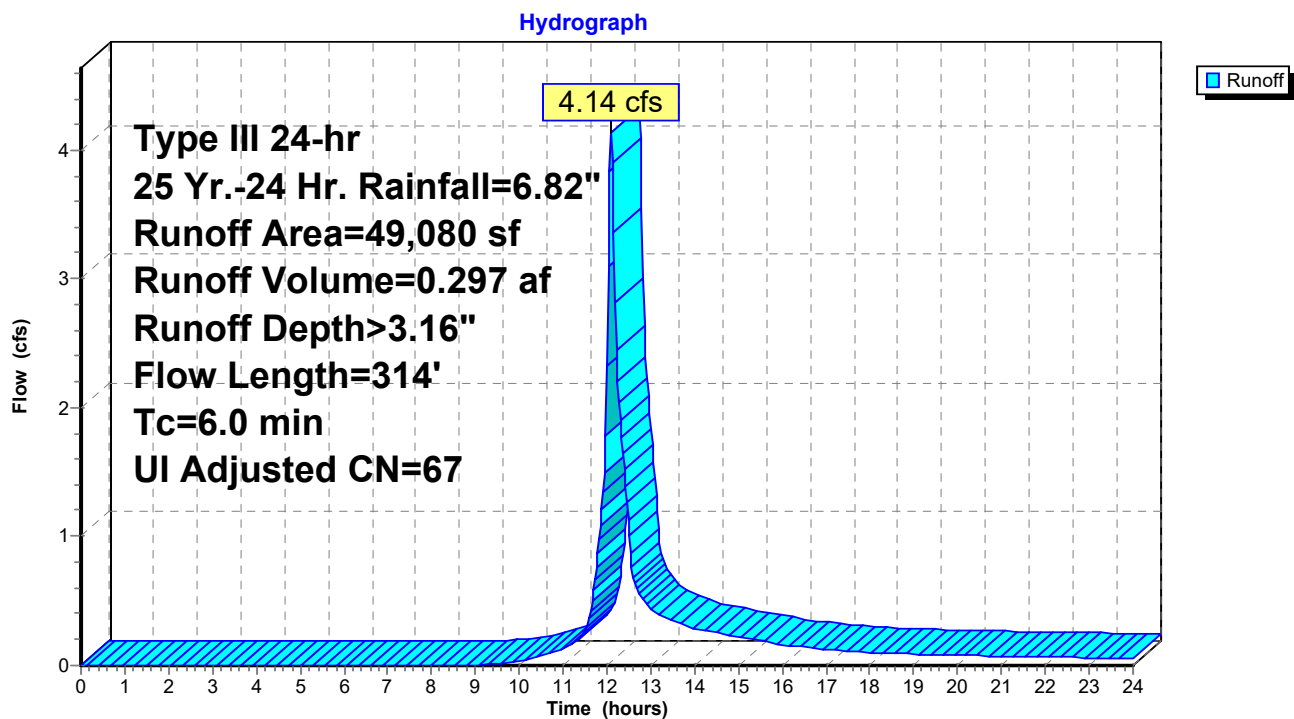
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Subcatchment 23S: Subcatchment #23



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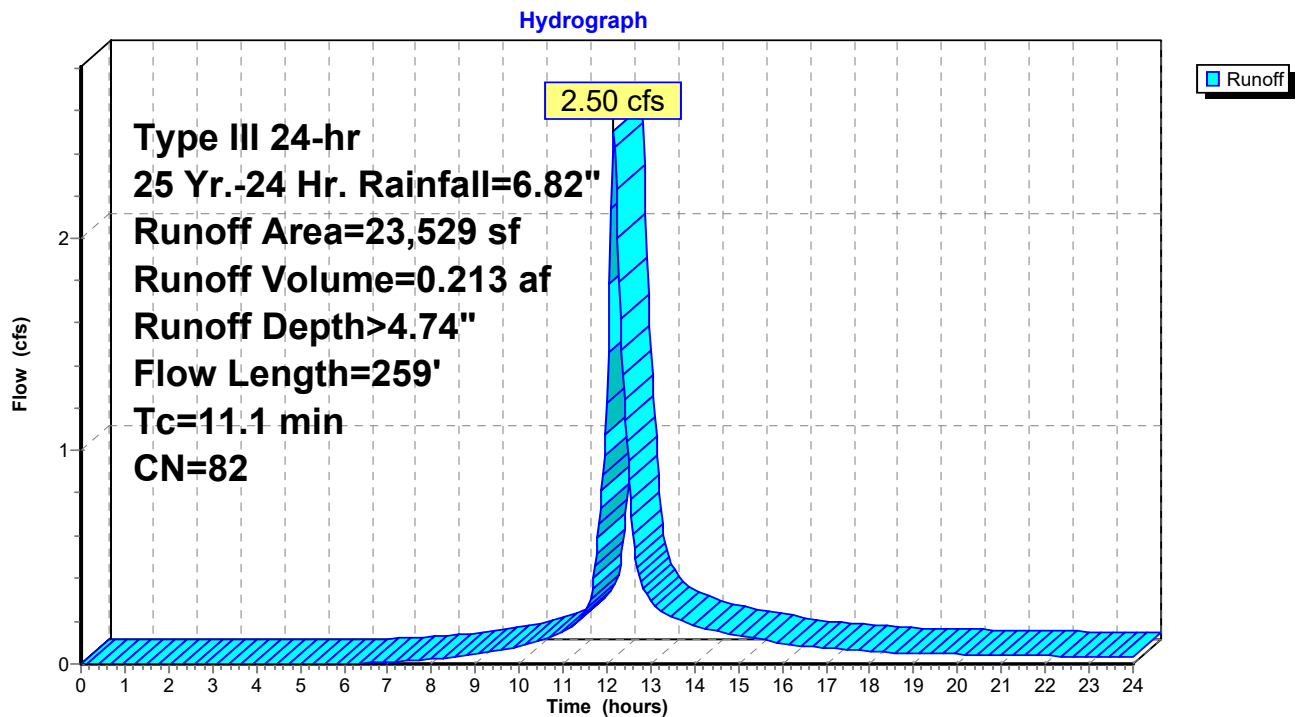
Summary for Subcatchment 24S: Subcatchment #24

Runoff = 2.50 cfs @ 12.15 hrs, Volume= 0.213 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
15,499	74	>75% Grass cover, Good, HSG C
3,065	98	Unconnected roofs, HSG C
4,965	98	Unconnected pavement, HSG C
23,529	82	Weighted Average
15,499		65.87% Pervious Area
8,030		34.13% Impervious Area
8,030		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		Sheet Flow, Segment #1
					Grass: Short n= 0.150 P2= 3.59"
2.6	159	0.0220	1.04		Shallow Concentrated Flow, Segment #2
					Short Grass Pasture Kv= 7.0 fps
11.1	259	Total			

Subcatchment 24S: Subcatchment #24

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 25S: Subcatchment #25

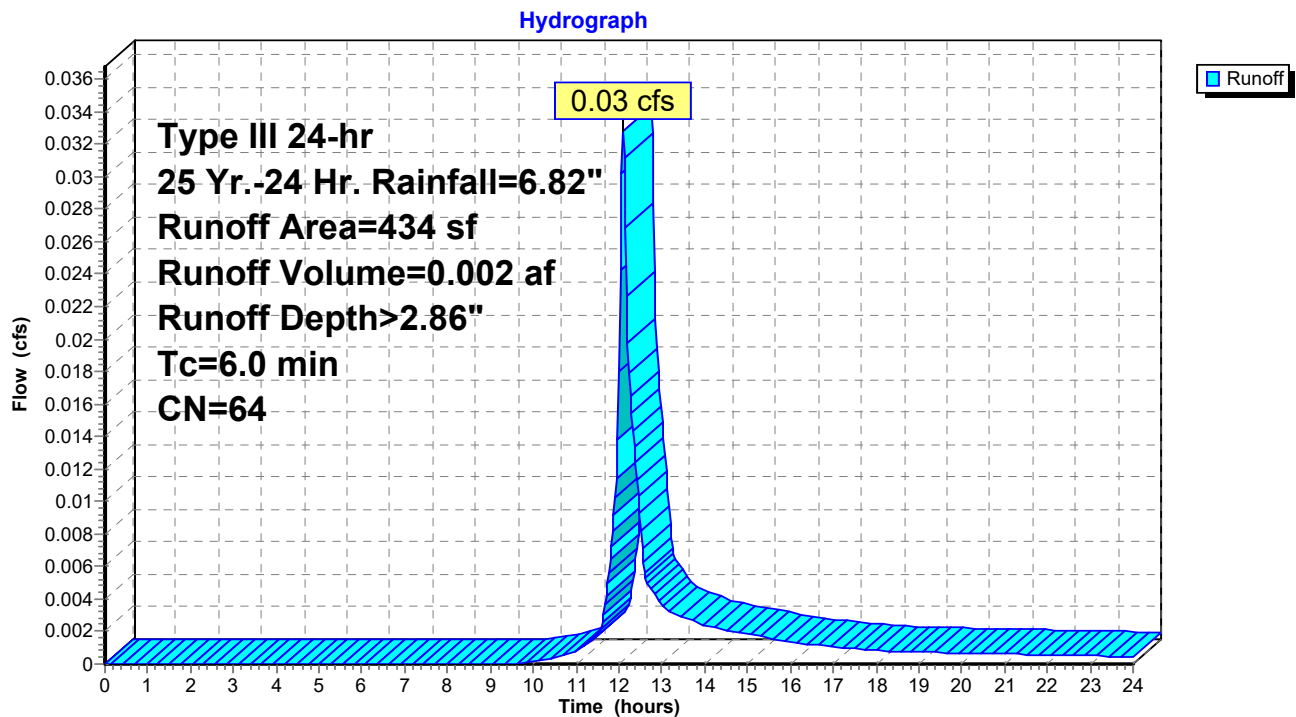
Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
341	61	>75% Grass cover, Good, HSG B
93	74	>75% Grass cover, Good, HSG C
434	64	Weighted Average
434		100.00% Pervious Area

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

Subcatchment 25S: Subcatchment #25



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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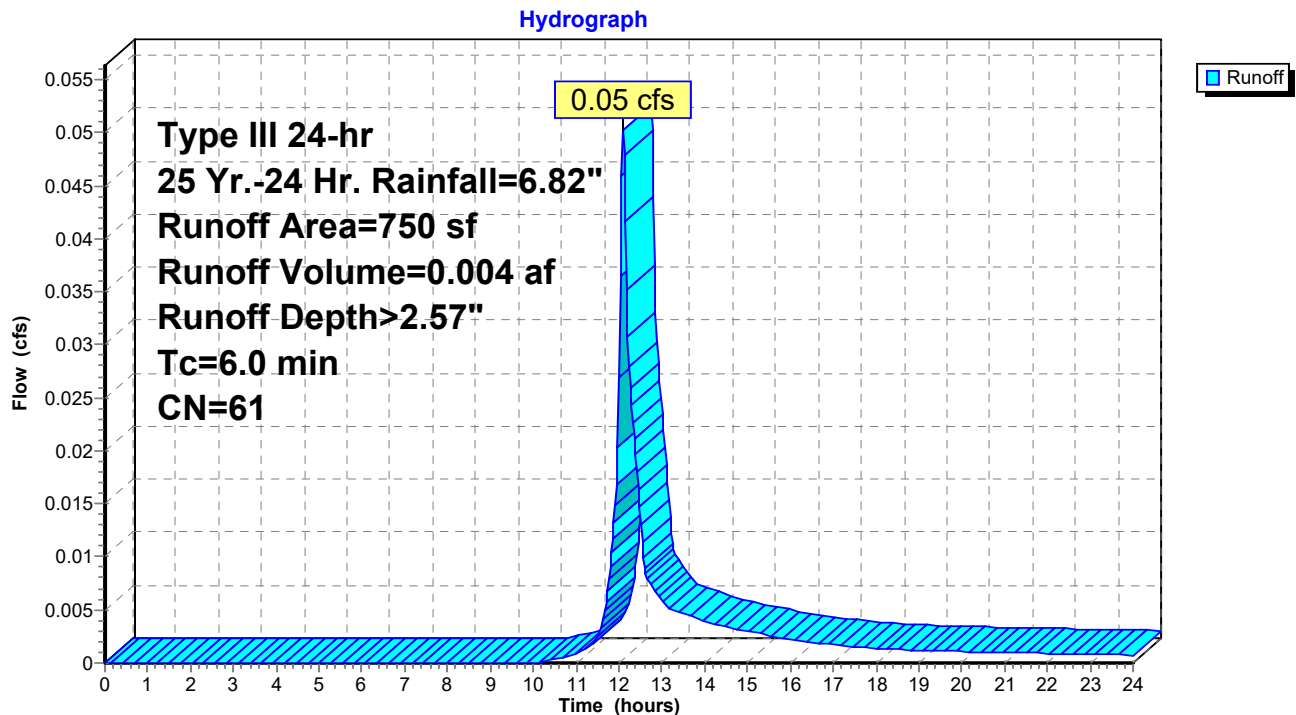
Summary for Subcatchment 26S: Subcatchment #26

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
750	61	>75% Grass cover, Good, HSG B
750		100.00% Pervious Area

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

Subcatchment 26S: Subcatchment #26

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 27S: Subcatchment #27

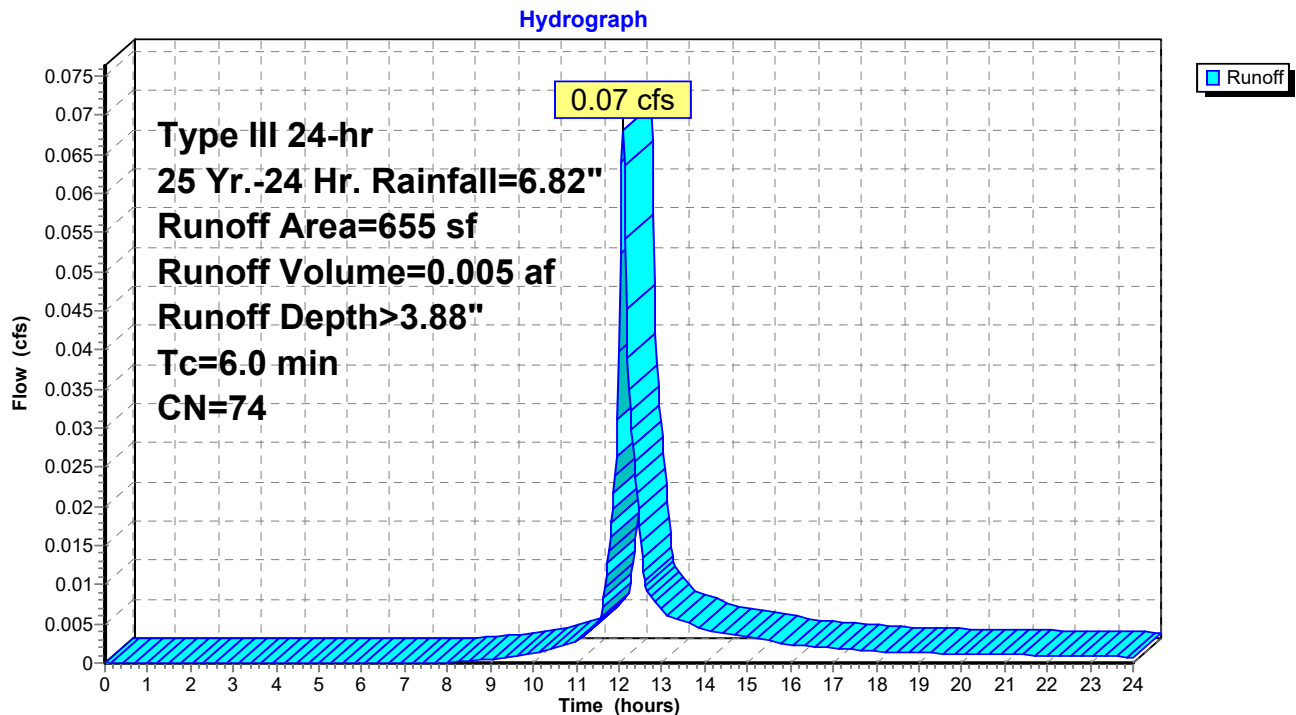
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Description
655	74	>75% Grass cover, Good, HSG C
655		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment #1

Subcatchment 27S: Subcatchment #27



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Subcatchment 28S: Subcatchment #28

Runoff = 0.93 cfs @ 12.38 hrs, Volume= 0.124 af, Depth> 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

Area (sf)	CN	Adj	Description
6,482	98		Unconnected pavement, HSG A
2,190	98		Unconnected roofs, HSG A
14,068	39		>75% Grass cover, Good, HSG A
7,453	30		Woods, Good, HSG A
4,029	61		>75% Grass cover, Good, HSG B
9,535	55		Woods, Good, HSG B
232	74		>75% Grass cover, Good, HSG C
43,989	55	49	Weighted Average, UI Adjusted
35,317			80.29% Pervious Area
8,672			19.71% Impervious Area
8,672			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0375	0.11		Sheet Flow, Segment #1 Woods: Light underbrush n= 0.400 P2= 3.59"
4.3	149	0.0134	0.58		Shallow Concentrated Flow, Segment #2 Woodland Kv= 5.0 fps
0.2	10	0.0243	1.09		Shallow Concentrated Flow, Segment #3 Short Grass Pasture Kv= 7.0 fps
0.2	39	0.0195	2.83		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.4	29	0.0350	1.31		Shallow Concentrated Flow, Segment #5 Short Grass Pasture Kv= 7.0 fps
2.4	110	0.0227	0.75		Shallow Concentrated Flow, Segment #6 Woodland Kv= 5.0 fps
23.3	437	Total			

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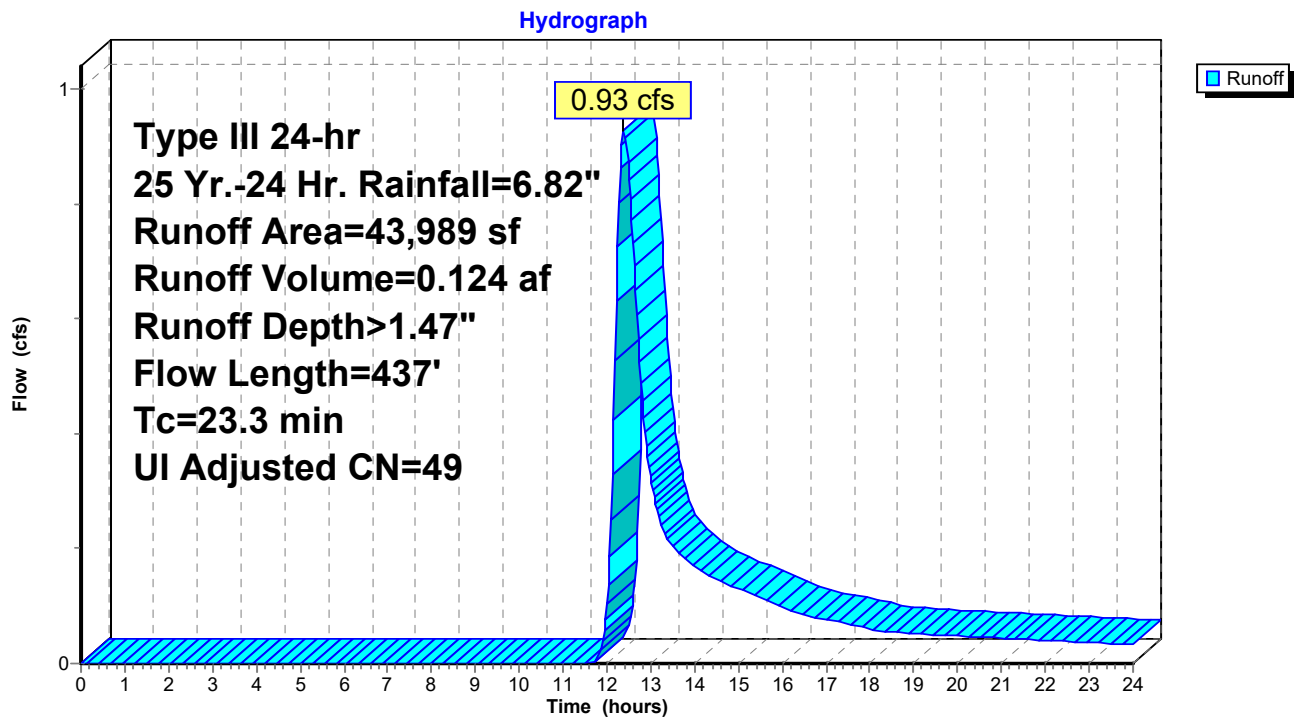
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Subcatchment 28S: Subcatchment #28



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Reach 18R: Flow Through Wetlands

Inflow Area = 1.041 ac, 0.58% Impervious, Inflow Depth > 3.12" for 25 Yr.-24 Hr. event
Inflow = 2.07 cfs @ 12.46 hrs, Volume= 0.271 af
Outflow = 1.70 cfs @ 12.64 hrs, Volume= 0.267 af, Atten= 18%, Lag= 10.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Max. Velocity= 0.65 fps, Min. Travel Time= 13.4 min

Avg. Velocity = 0.33 fps, Avg. Travel Time= 26.2 min

Peak Storage= 1,366 cf @ 12.64 hrs

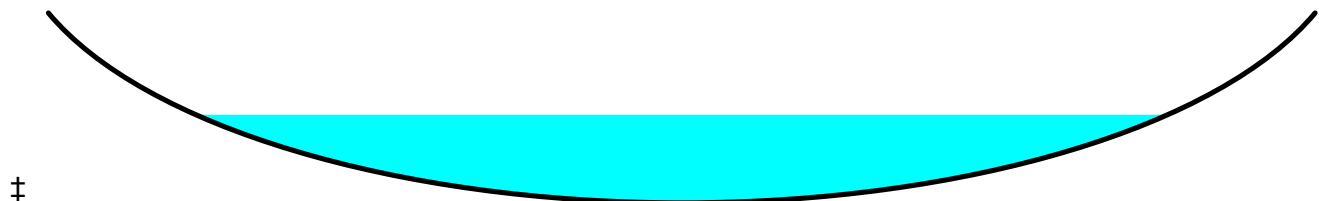
Average Depth at Peak Storage= 0.23'

Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 8.98 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.065

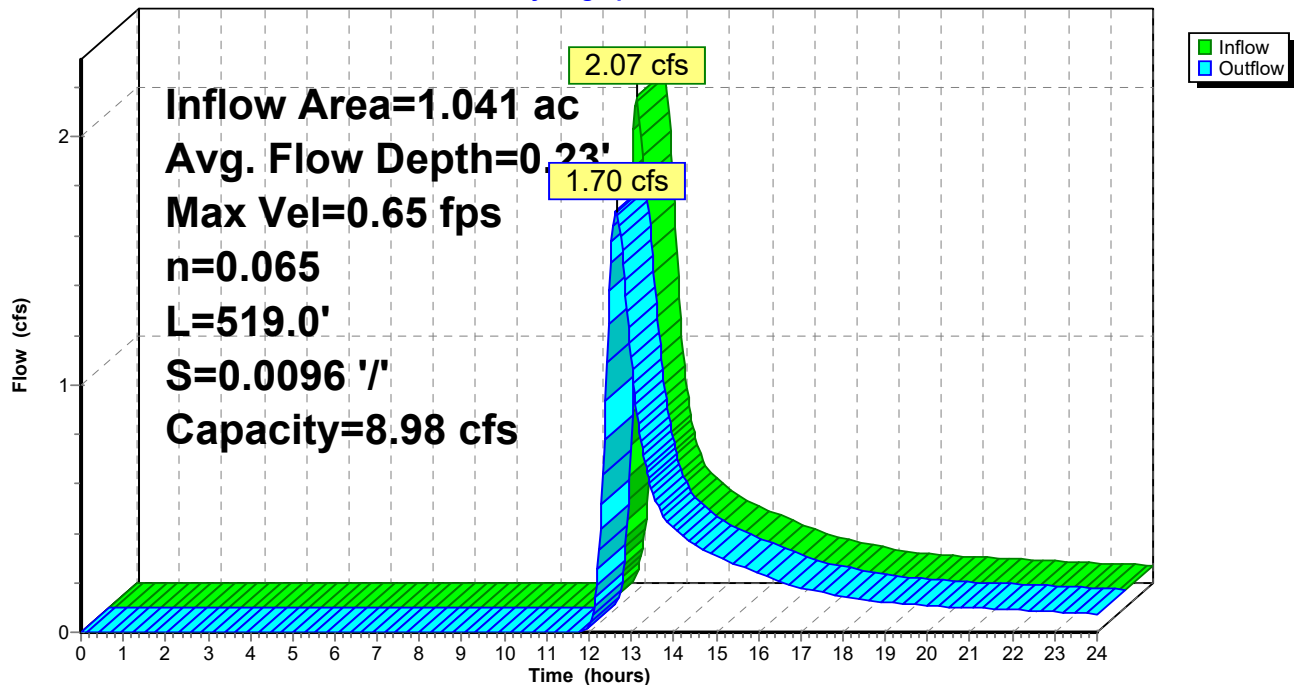
Length= 519.0' Slope= 0.0096 '/

Inlet Invert= 182.50', Outlet Invert= 177.50'



Reach 18R: Flow Through Wetlands

Hydrograph



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Reach 24R: Overland/Wetland Flow

Inflow Area = 0.540 ac, 34.13% Impervious, Inflow Depth > 3.17" for 25 Yr.-24 Hr. event
Inflow = 1.87 cfs @ 12.27 hrs, Volume= 0.143 af
Outflow = 1.60 cfs @ 12.34 hrs, Volume= 0.142 af, Atten= 14%, Lag= 4.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Max. Velocity= 0.65 fps, Min. Travel Time= 3.7 min

Avg. Velocity = 0.24 fps, Avg. Travel Time= 10.0 min

Peak Storage= 357 cf @ 12.34 hrs

Average Depth at Peak Storage= 0.22'

Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 9.31 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.065

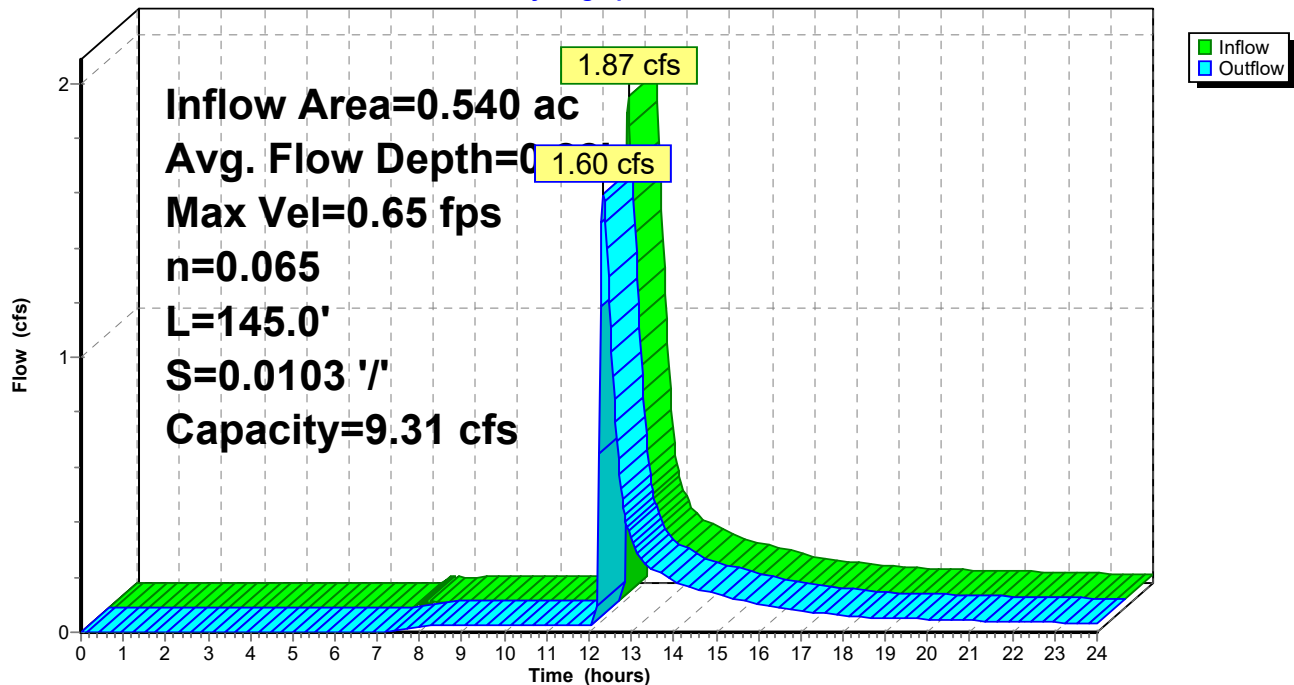
Length= 145.0' Slope= 0.0103 '/

Inlet Invert= 179.00', Outlet Invert= 177.50'



Reach 24R: Overland/Wetland Flow

Hydrograph



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Reach 25R: Overland Upland Flow

Inflow Area = 1.469 ac, 29.23% Impervious, Inflow Depth > 0.64" for 25 Yr.-24 Hr. event
Inflow = 0.15 cfs @ 13.00 hrs, Volume= 0.078 af
Outflow = 0.13 cfs @ 14.04 hrs, Volume= 0.078 af, Atten= 14%, Lag= 62.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Max. Velocity= 0.48 fps, Min. Travel Time= 6.5 min

Avg. Velocity = 0.41 fps, Avg. Travel Time= 7.5 min

Peak Storage= 50 cf @ 14.04 hrs

Average Depth at Peak Storage= 0.05'

Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 18.34 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.065

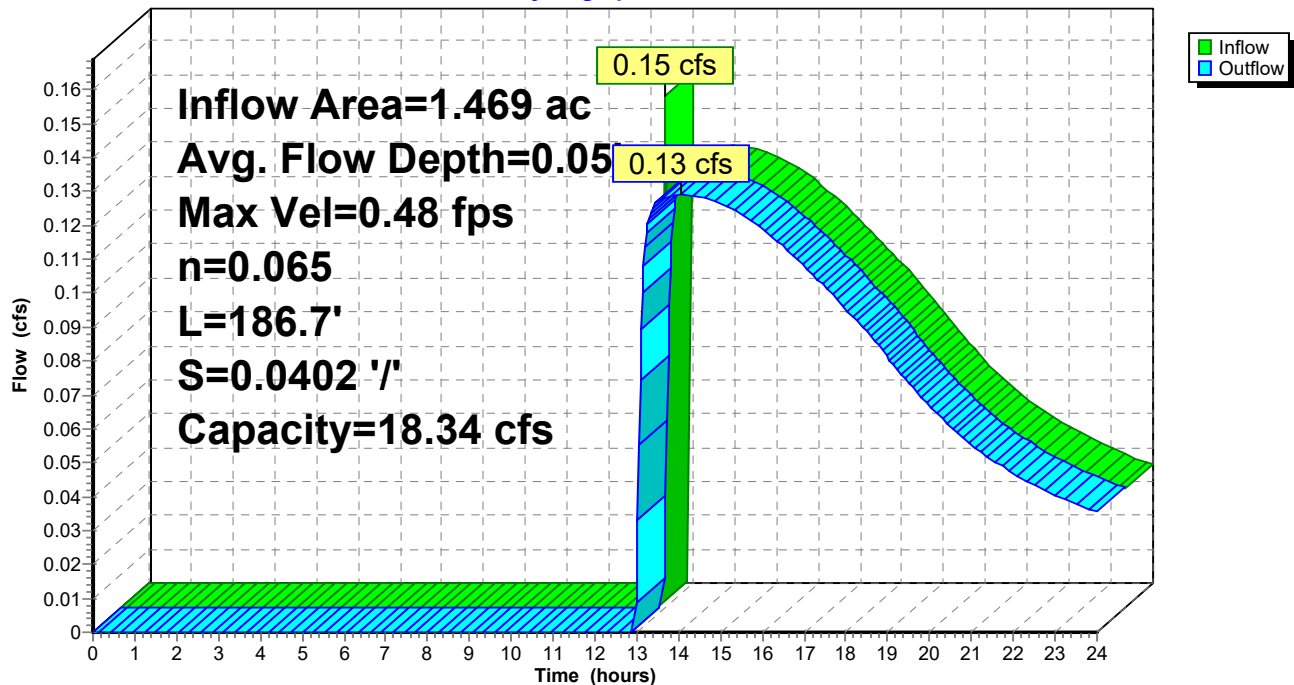
Length= 186.7' Slope= 0.0402 '/'

Inlet Invert= 185.00', Outlet Invert= 177.50'



Reach 25R: Overland Upland Flow

Hydrograph



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Reach 26R: Flow From Level Spreader

Inflow Area = 2.580 ac, 35.74% Impervious, Inflow Depth > 2.65" for 25 Yr.-24 Hr. event
Inflow = 1.28 cfs @ 13.36 hrs, Volume= 0.569 af
Outflow = 1.28 cfs @ 13.36 hrs, Volume= 0.569 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Max. Velocity= 2.06 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.53 fps, Avg. Travel Time= 0.2 min

Peak Storage= 9 cf @ 13.36 hrs

Average Depth at Peak Storage= 0.16'

Bank-Full Depth= 0.50' Flow Area= 3.3 sf, Capacity= 14.43 cfs

10.00' x 0.50' deep Parabolic Channel, n= 0.030 Earth, grassed & winding

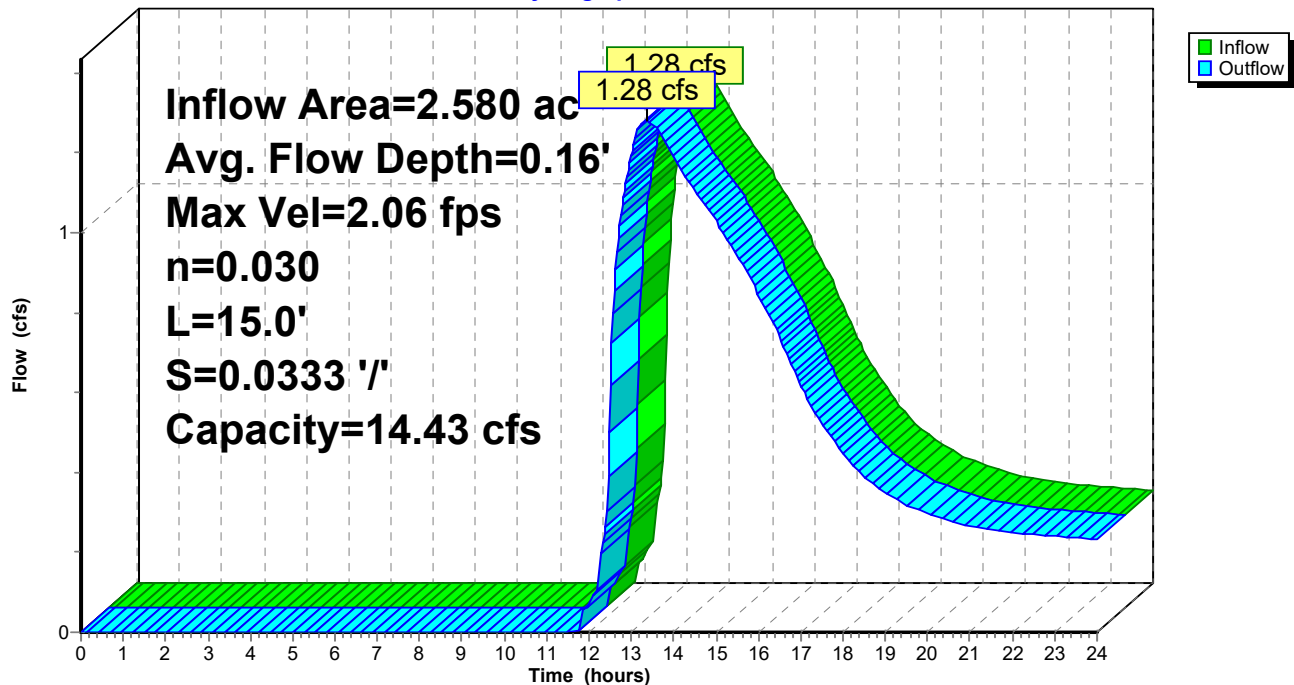
Length= 15.0' Slope= 0.0333 '/'

Inlet Invert= 175.00', Outlet Invert= 174.50'



Reach 26R: Flow From Level Spreader

Hydrograph



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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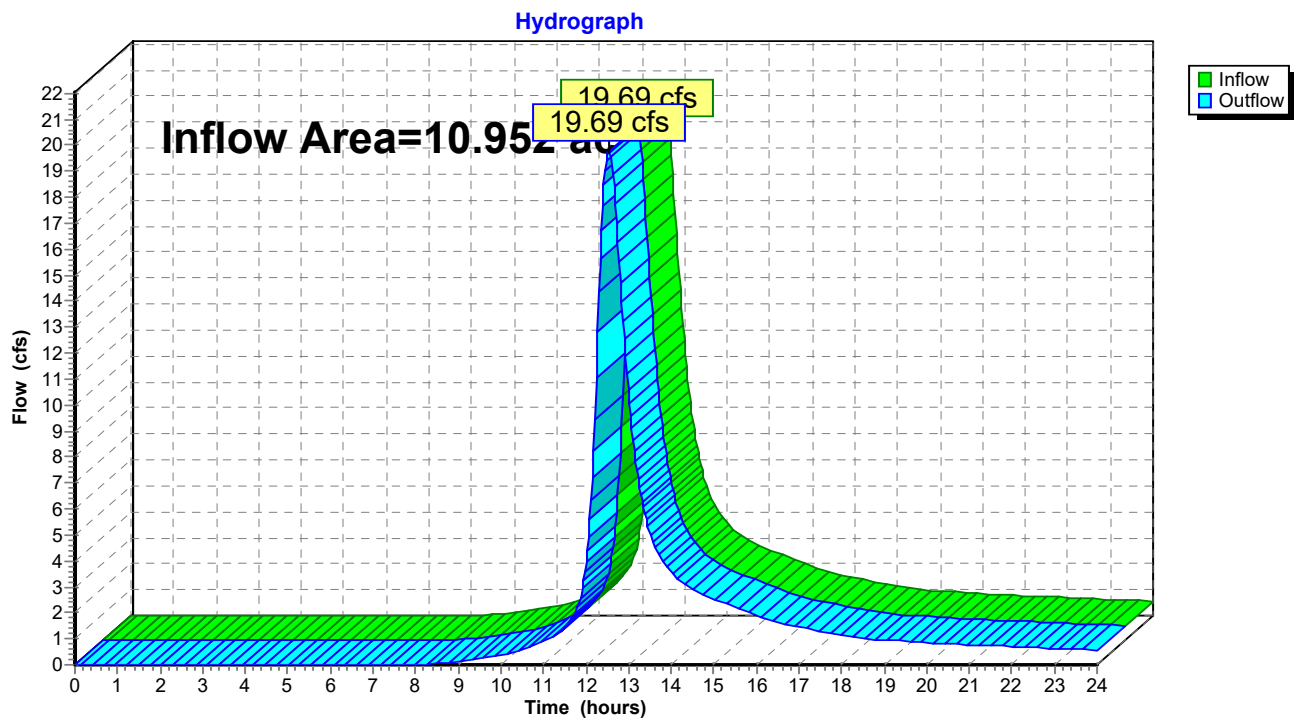
Summary for Reach 200R: Final Reach #200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.952 ac, 8.02% Impervious, Inflow Depth > 3.16" for 25 Yr.-24 Hr. event
Inflow = 19.69 cfs @ 12.53 hrs, Volume= 2.888 af
Outflow = 19.69 cfs @ 12.53 hrs, Volume= 2.888 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 200R: Final Reach #200



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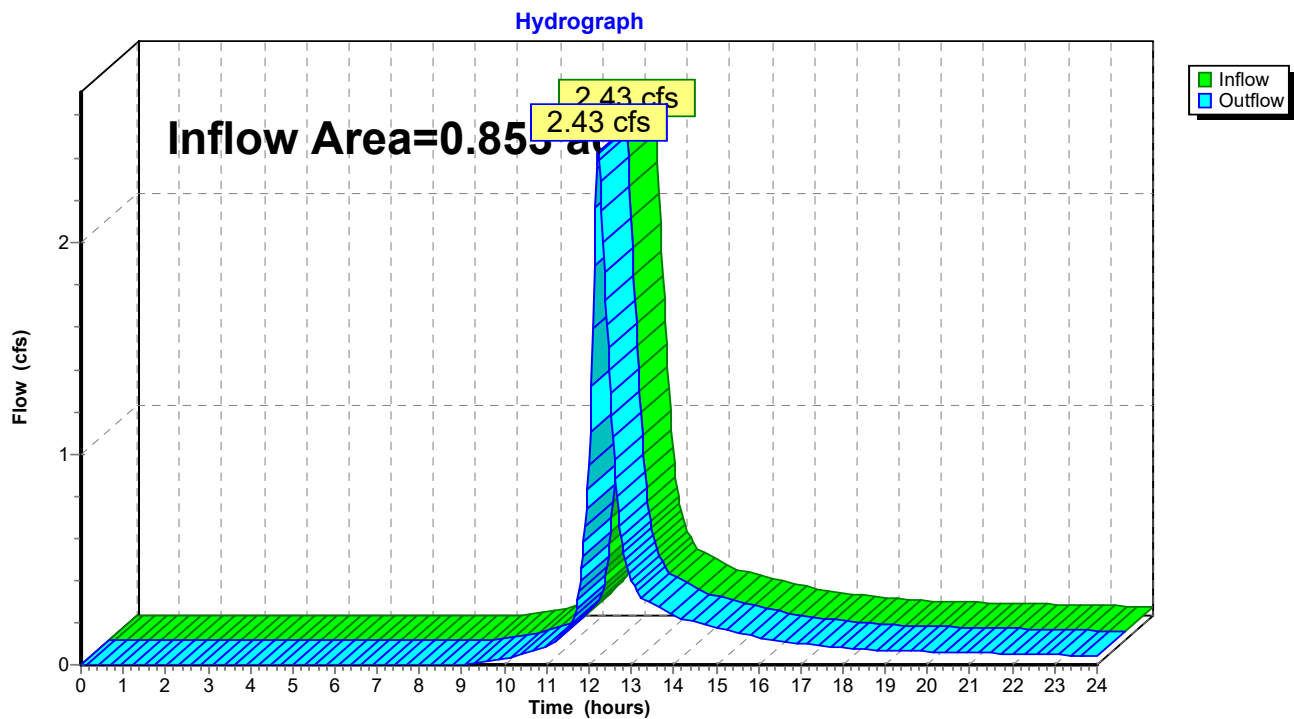
Summary for Reach 300R: Final Reach #300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.853 ac, 6.61% Impervious, Inflow Depth > 3.25" for 25 Yr.-24 Hr. event
Inflow = 2.43 cfs @ 12.22 hrs, Volume= 0.231 af
Outflow = 2.43 cfs @ 12.22 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 300R: Final Reach #300



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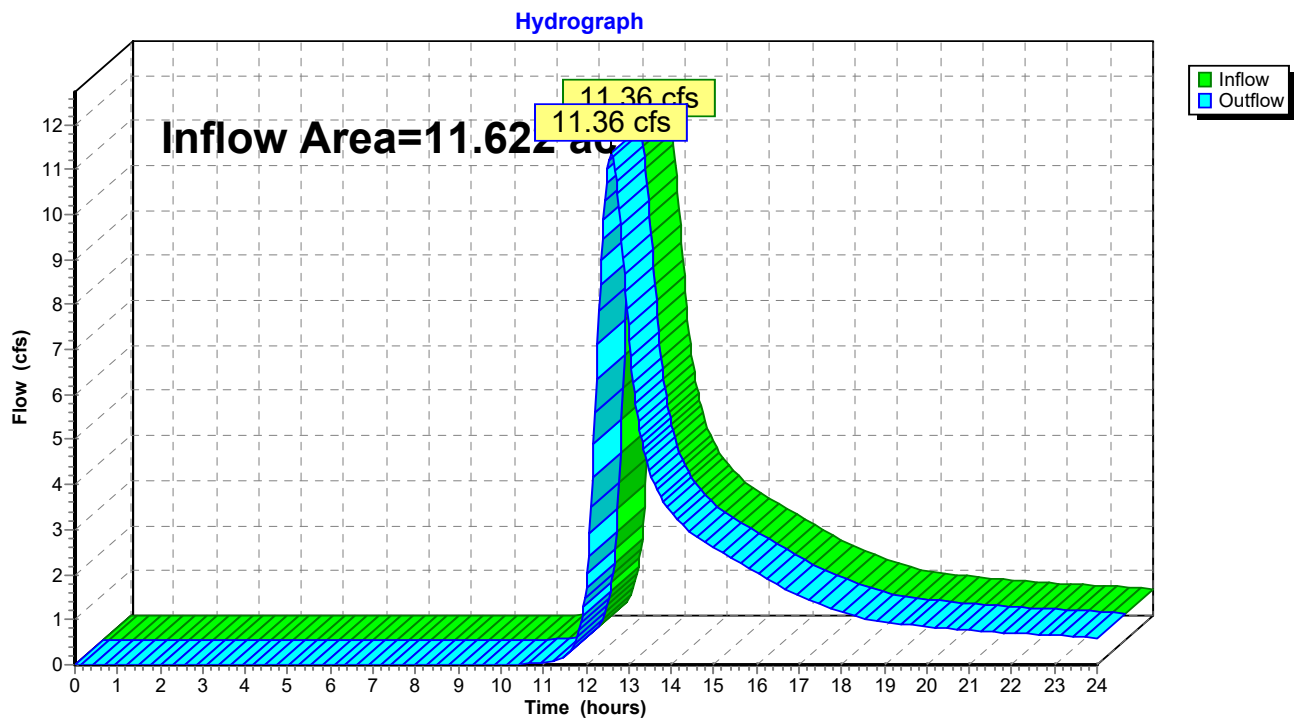
Summary for Reach 500R: Final Reach #500

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.622 ac, 10.40% Impervious, Inflow Depth > 2.26" for 25 Yr.-24 Hr. event
Inflow = 11.36 cfs @ 12.59 hrs, Volume= 2.184 af
Outflow = 11.36 cfs @ 12.59 hrs, Volume= 2.184 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 500R: Final Reach #500



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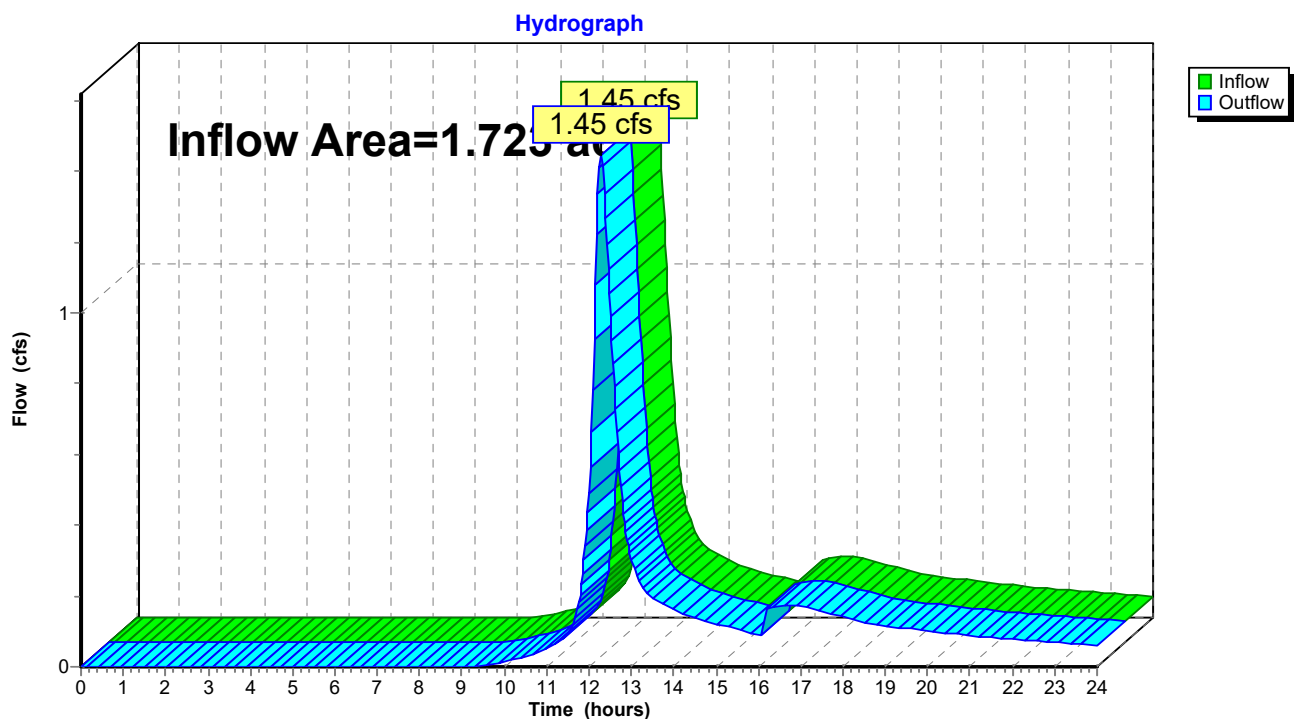
Summary for Reach 600R: Final Reach #600

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.723 ac, 15.25% Impervious, Inflow Depth > 1.35" for 25 Yr.-24 Hr. event
Inflow = 1.45 cfs @ 12.28 hrs, Volume= 0.193 af
Outflow = 1.45 cfs @ 12.28 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Reach 600R: Final Reach #600



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Summary for Pond 18P: 18" HDPE N-12 Cross Culvert

Inflow Area = 1.041 ac, 0.58% Impervious, Inflow Depth > 3.13" for 25 Yr.-24 Hr. event
 Inflow = 2.15 cfs @ 12.40 hrs, Volume= 0.272 af
 Outflow = 2.07 cfs @ 12.46 hrs, Volume= 0.271 af, Atten= 4%, Lag= 3.8 min
 Primary = 2.07 cfs @ 12.46 hrs, Volume= 0.271 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 184.46' @ 12.46 hrs Surf.Area= 853 sf Storage= 345 cf

Flood Elev= 186.00' Surf.Area= 10,094 sf Storage= 6,475 cf

Plug-Flow detention time= 4.5 min calculated for 0.271 af (99% of inflow)

Center-of-Mass det. time= 2.4 min (899.9 - 897.4)

Volume	Invert	Avail.Storage	Storage Description
#1	183.50'	6,475 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)
183.50	69	31.0	0	0	69
184.00	315	135.0	89	89	1,443
185.00	1,840	451.0	972	1,061	16,182
186.00	10,094	515.0	5,415	6,475	21,126

Device	Routing	Invert	Outlet Devices
#1	Primary	183.75'	18.0" Round 18" HDPE N-12 w/ 3.0" inside fill L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 183.50' / 183.00' S= 0.0100 ' /' Cc= 0.900 n= 0.024, Flow Area= 1.57 sf

Primary OutFlow Max=2.06 cfs @ 12.46 hrs HW=184.45' TW=182.71' (Dynamic Tailwater)↑ **1=18" HDPE N-12** (Barrel Controls 2.06 cfs @ 2.81 fps)

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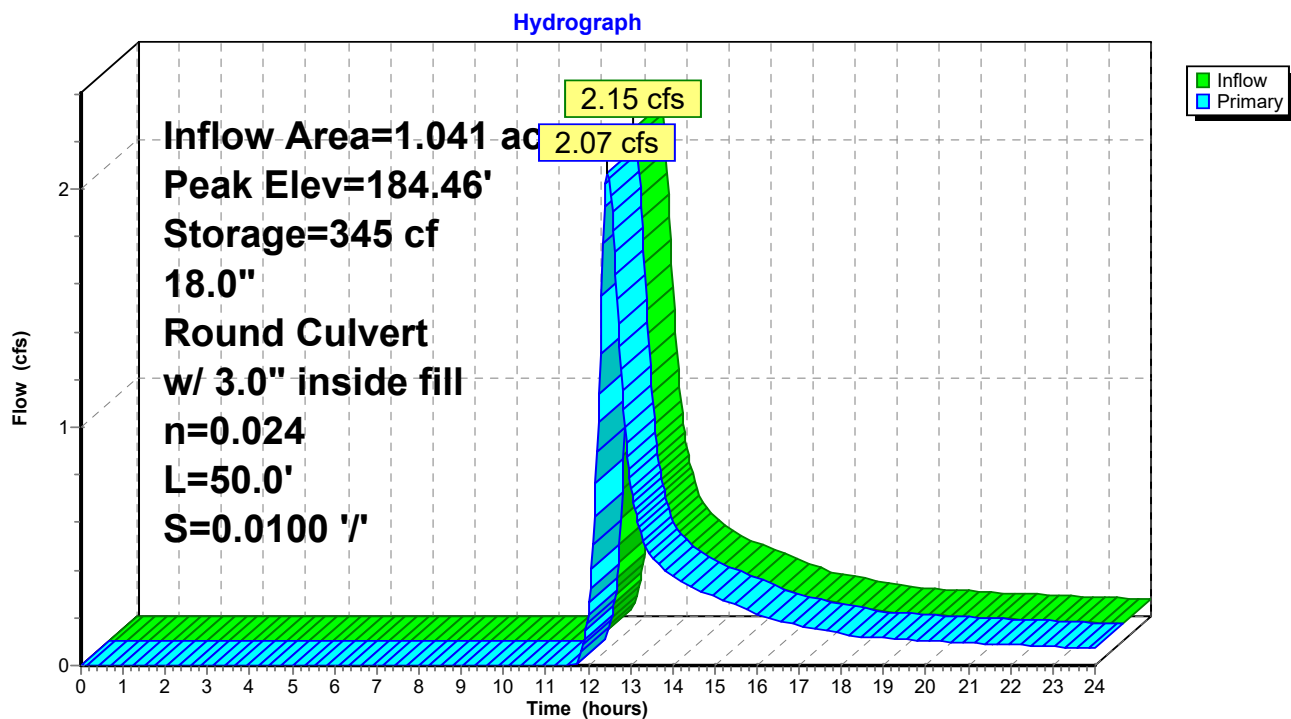
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Pond 18P: 18" HDPE N-12 Cross Culvert



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond 19P: 30" RCP Wetland Crossing (2)

Inflow Area = 7.951 ac, 3.60% Impervious, Inflow Depth > 2.08" for 25 Yr.-24 Hr. event
 Inflow = 9.86 cfs @ 12.51 hrs, Volume= 1.380 af
 Outflow = 9.31 cfs @ 12.61 hrs, Volume= 1.374 af, Atten= 6%, Lag= 6.2 min
 Primary = 9.31 cfs @ 12.61 hrs, Volume= 1.374 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 177.28' @ 12.61 hrs Surf.Area= 7,504 sf Storage= 3,290 cf

Flood Elev= 179.00' Surf.Area= 54,141 sf Storage= 50,514 cf

Plug-Flow detention time= 8.1 min calculated for 1.372 af (99% of inflow)

Center-of-Mass det. time= 5.5 min (890.8 - 885.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	176.50'	104,655 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)
176.50	3,042	228.5	0	0	3,042
177.00	3,811	258.0	1,710	1,710	4,191
178.00	22,265	622.2	11,763	13,472	29,704
179.00	54,141	1,039.0	37,042	50,514	84,809
180.00	54,141	1,039.0	54,141	104,655	85,848

Device	Routing	Invert	Outlet Devices
#1	Primary	176.50'	30.0" Round 30" RCP W/ 6" BURY (2) X 2.00 w/ 6.0" inside fill L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 176.00' / 175.75' S= 0.0083 ' / ' Cc= 0.900 n= 0.018, Flow Area= 4.21 sf

Primary OutFlow Max=9.30 cfs @ 12.61 hrs HW=177.28' TW=0.00' (Dynamic Tailwater)↑ **1=30" RCP W/ 6" BURY (2)** (Barrel Controls 9.30 cfs @ 3.44 fps)

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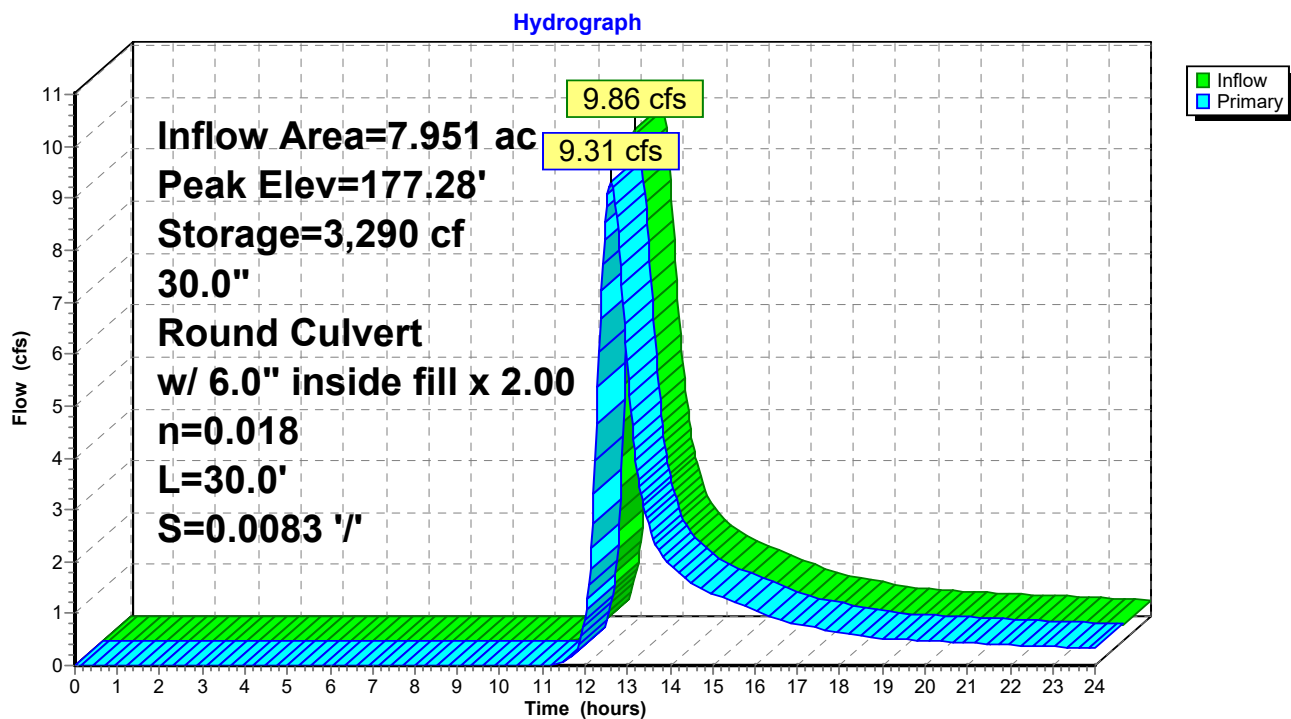
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Pond 19P: 30" RCP Wetland Crossing (2)



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond 25P: Level Spreader #101

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.469 ac, 29.23% Impervious, Inflow Depth > 0.75" for 25 Yr.-24 Hr. event
 Inflow = 0.13 cfs @ 13.96 hrs, Volume= 0.092 af
 Outflow = 0.15 cfs @ 13.00 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.15 cfs @ 13.00 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 186.51' @ 12.99 hrs Surf.Area= 450 sf Storage= 606 cf

Plug-Flow detention time= 126.1 min calculated for 0.078 af (85% of inflow)
 Center-of-Mass det. time= 64.8 min (1,035.9 - 971.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	184.50'	825 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)	
184.50	179	53.2	0	0	179	
185.00	231	59.5	102	102	242	
186.00	363	72.1	295	397	390	
186.50	450	79.3	203	600	484	
187.00	450	79.3	225	825	524	

Device	Routing	Invert	Outlet Devices										
#1	Primary	186.50'	35.0' long x 2.0' breadth 20' Level Spreader										
			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=0.13 cfs @ 13.00 hrs HW=186.51' TW=185.02' (Dynamic Tailwater)

↑ **1=20' Level Spreader** (Weir Controls 0.13 cfs @ 0.29 fps)

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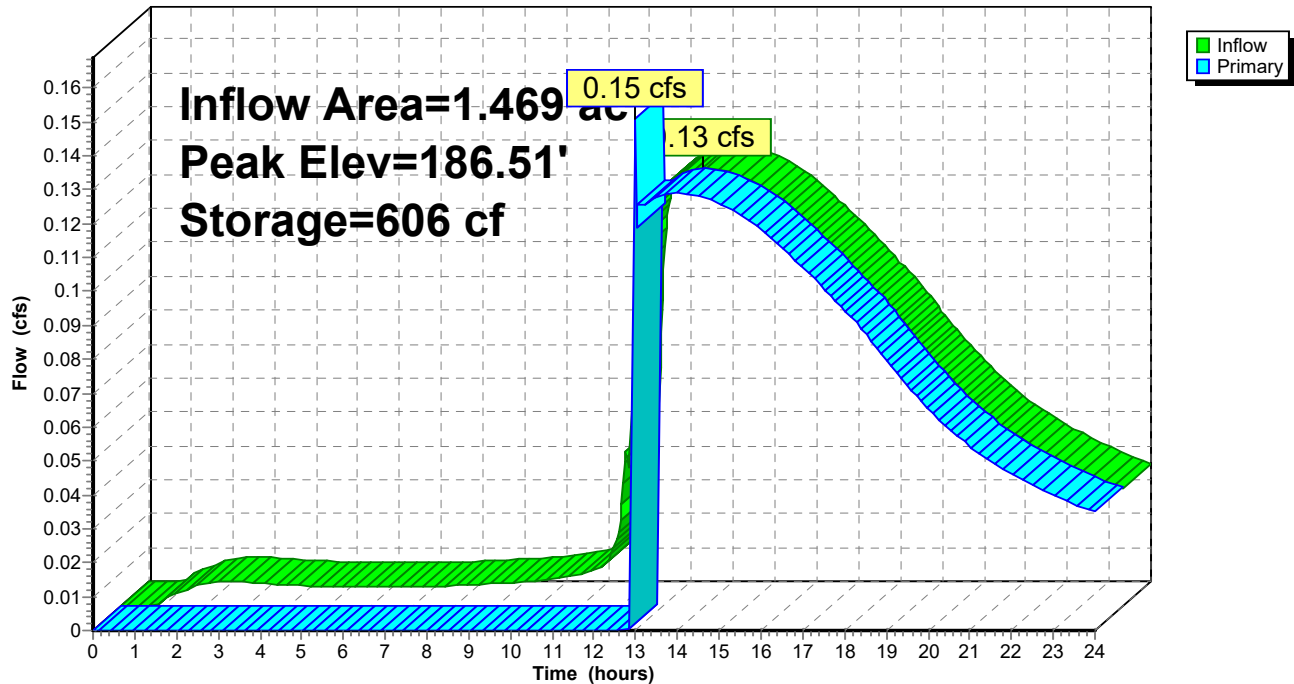
Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Pond 25P: Level Spreader #101

Hydrograph



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Summary for Pond 26P: Level Spreader #102

Inflow Area = 2.580 ac, 35.74% Impervious, Inflow Depth > 2.68" for 25 Yr.-24 Hr. event
 Inflow = 1.28 cfs @ 13.36 hrs, Volume= 0.577 af
 Outflow = 1.28 cfs @ 13.36 hrs, Volume= 0.569 af, Atten= 0%, Lag= 0.2 min
 Primary = 1.28 cfs @ 13.36 hrs, Volume= 0.569 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 177.09' @ 13.36 hrs Surf.Area= 280 sf Storage= 367 cf

Plug-Flow detention time= 12.1 min calculated for 0.569 af (99% of inflow)
 Center-of-Mass det. time= 6.0 min (977.2 - 971.3)

Volume	Invert	Avail.Storage	Storage Description											
#1	175.00'	623 cf	Level Spreader (Irregular) Listed below (Recalc)											
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)				Cum.Store (cubic-feet)				Wet.Area (sq-ft)			
175.00	72	44.4	0				0				72			
176.00	173	54.6	119				119				166			
177.00	280	65.1	224				343				283			
178.00	280	65.1	280				623				348			
Device	Routing	Invert	Outlet Devices											
#1	Primary	177.00'	20.0' long x 2.0' breadth 20' Level Lip											
			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=1.28 cfs @ 13.36 hrs HW=177.09' TW=175.16' (Dynamic Tailwater)
 ↑1=20' Level Lip (Weir Controls 1.28 cfs @ 0.74 fps)

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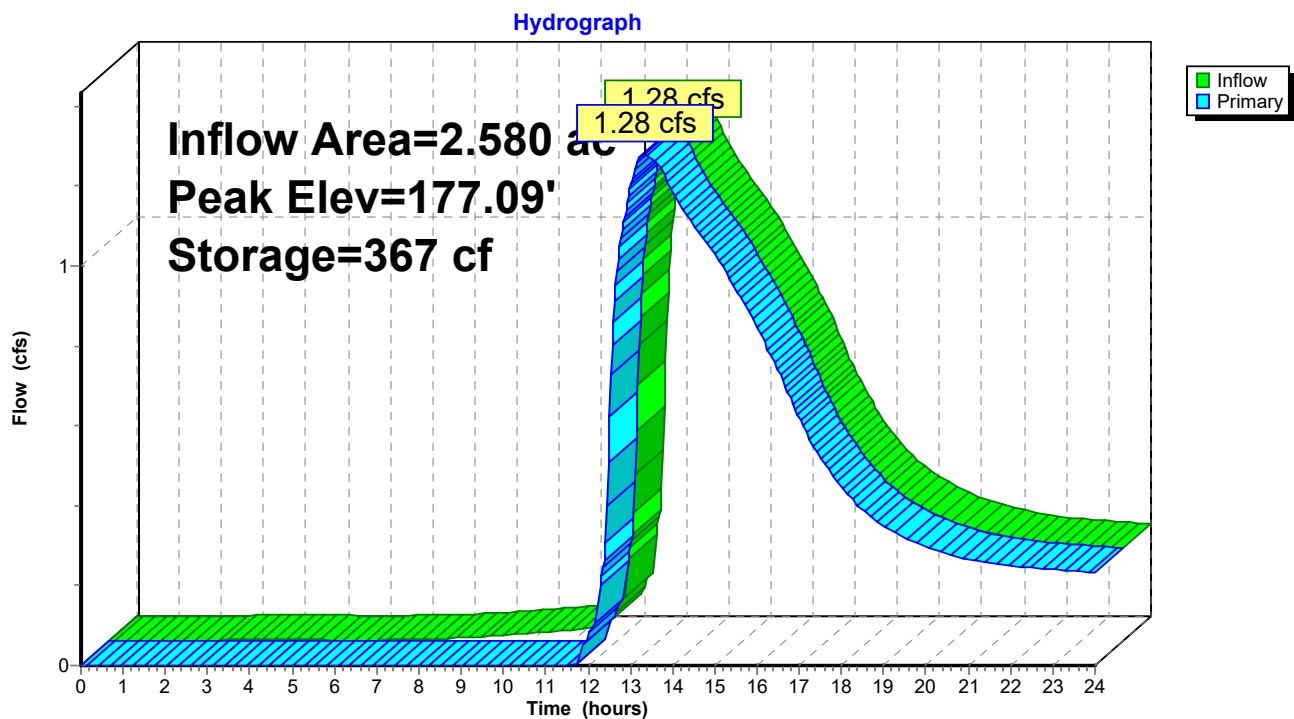
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Pond 26P: Level Spreader #102



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Summary for Pond 27P: Level Spreader #103

Inflow Area = 1.142 ac, 23.01% Impervious, Inflow Depth > 0.50" for 25 Yr.-24 Hr. event
 Inflow = 0.10 cfs @ 16.94 hrs, Volume= 0.048 af
 Outflow = 0.10 cfs @ 16.95 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.8 min
 Primary = 0.10 cfs @ 16.95 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 176.03' @ 16.95 hrs Surf.Area= 283 sf Storage= 311 cf

Flood Elev= 177.00' Surf.Area= 283 sf Storage= 586 cf

Plug-Flow detention time= 91.8 min calculated for 0.041 af (85% of inflow)

Center-of-Mass det. time= 47.6 min (1,158.5 - 1,110.9)

Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	586 cf	Level Spreader (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.00	45	35.2	0	0	45
175.00	148	50.1	92	92	155
176.00	283	65.5	212	303	308
177.00	283	65.5	283	586	373

Device	Routing	Invert	Outlet Devices
#1	Primary	176.00'	10.0' long x 2.0' breadth 20' Level Lip 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=0.10 cfs @ 16.95 hrs HW=176.03' TW=0.00' (Dynamic Tailwater)↑**1=20' Level Lip** (Weir Controls 0.10 cfs @ 0.40 fps)

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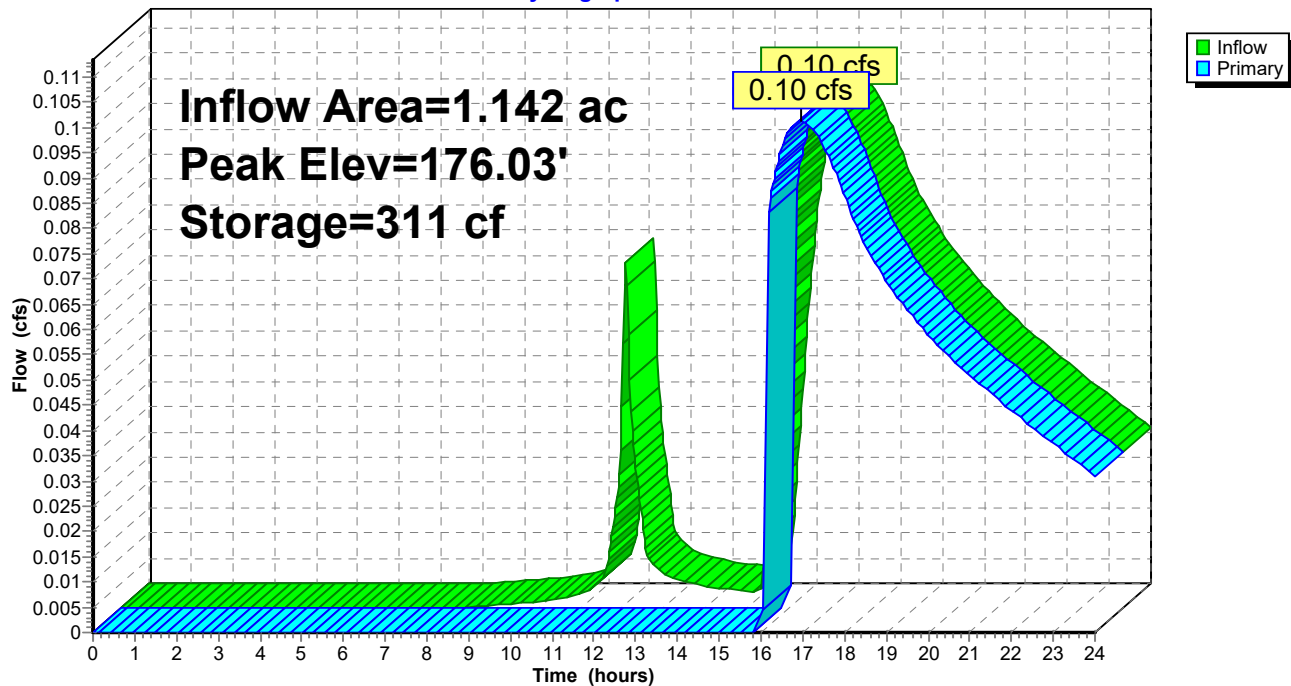
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Pond 27P: Level Spreader #103

Hydrograph



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Summary for Pond 28P: Inlet Sump CB #1

Inflow Area = 1.010 ac, 19.71% Impervious, Inflow Depth > 1.47" for 25 Yr.-24 Hr. event
 Inflow = 0.93 cfs @ 12.38 hrs, Volume= 0.124 af
 Outflow = 0.91 cfs @ 12.44 hrs, Volume= 0.114 af, Atten= 2%, Lag= 3.5 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0.91 cfs @ 12.44 hrs, Volume= 0.114 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 186.61' @ 12.44 hrs Surf.Area= 1,506 sf Storage= 575 cf

Flood Elev= 187.00' Surf.Area= 1,506 sf Storage= 1,158 cf

Plug-Flow detention time= 55.3 min calculated for 0.114 af (92% of inflow)

Center-of-Mass det. time= 17.3 min (915.6 - 898.3)

Volume	Invert	Avail.Storage	Storage Description
#1	185.75'	1,158 cf	Inlet Sump (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.75	25	20.0	0	0	25
186.00	209	105.6	26	26	881
186.50	1,506	213.3	379	405	3,615
187.00	1,506	213.5	753	1,158	3,722

Device	Routing	Invert	Outlet Devices
#1	Primary	185.75'	15.0" Round 15" HDPE N-12 L= 8.5' Ke= 0.500 Inlet / Outlet Invert= 185.75' / 185.45' S= 0.0353 ' / Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	186.50'	10.0' long x 4.0' breadth Spillway Outlet 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=0.00 cfs @ 0.00 hrs HW=185.75' TW=185.35' (Dynamic Tailwater)↑**1=15" HDPE N-12** (Controls 0.00 cfs)**Secondary OutFlow** Max=0.91 cfs @ 12.44 hrs HW=186.61' TW=184.45' (Dynamic Tailwater)↑**2=Spillway Outlet** (Weir Controls 0.91 cfs @ 0.80 fps)

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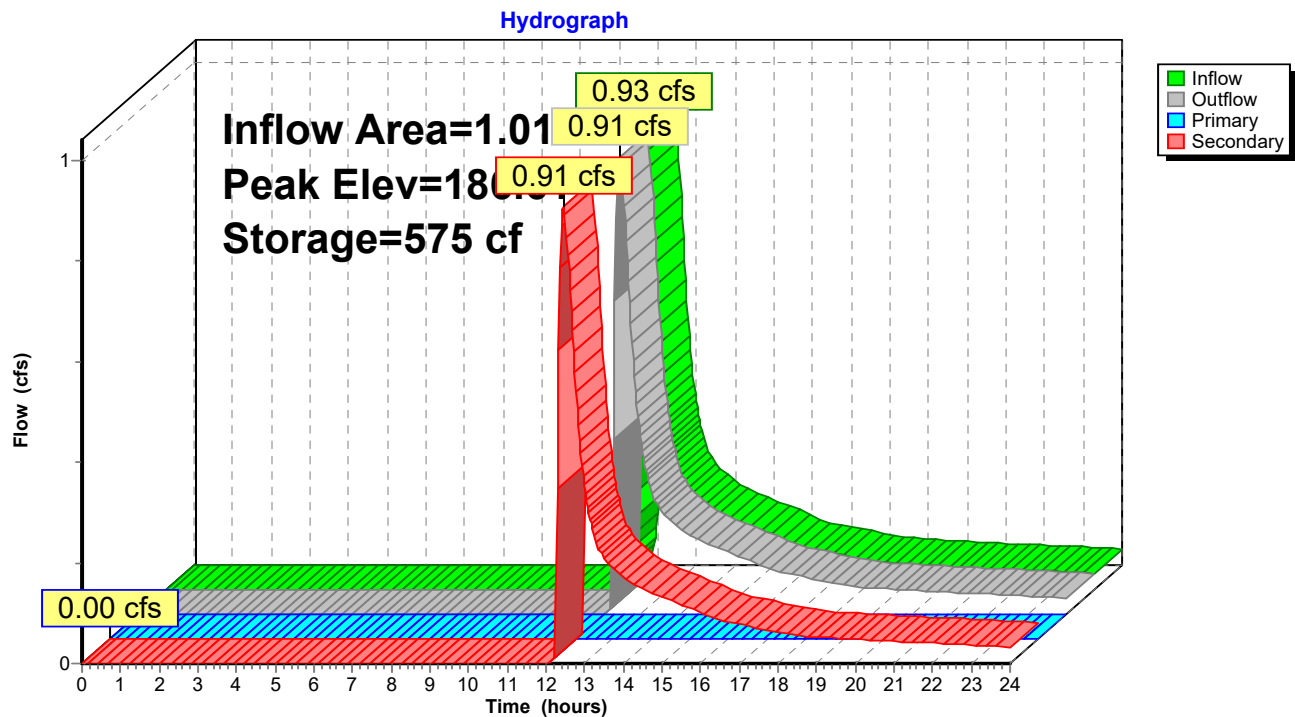
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Pond 28P: Inlet Sump CB #1



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Summary for Pond 101P: Gravel Wetland #101

[80] Warning: Exceeded Pond C02P by 0.01' @ 20.22 hrs (0.49 cfs 0.026 af)

Inflow Area = 1.459 ac, 29.43% Impervious, Inflow Depth > 1.39" for 25 Yr.-24 Hr. event
 Inflow = 2.13 cfs @ 12.09 hrs, Volume= 0.169 af
 Outflow = 0.13 cfs @ 14.05 hrs, Volume= 0.090 af, Atten= 94%, Lag= 117.7 min
 Primary = 0.13 cfs @ 14.05 hrs, Volume= 0.090 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= 0.03 hrs / 3
 Peak Elev= 187.12' @ 14.05 hrs Surf.Area= 9,033 sf Storage= 4,557 cf
 Flood Elev= 188.00' Surf.Area= 10,382 sf Storage= 9,309 cf

Plug-Flow detention time= 324.3 min calculated for 0.089 af (53% of inflow)
 Center-of-Mass det. time= 198.4 min (974.5 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	184.67'	32 cf	4.00'D x 2.58'H 4' Structure
#2	185.00'	462 cf	Sediment Forebay (Irregular) Listed below (Recalc)
#3	185.00'	835 cf	Cell #1 (Irregular) Listed below (Recalc)
#4	185.00'	2,684 cf	Cell #2 (Irregular) Listed below (Recalc)
#5	187.00'	5,295 cf	Open Water Storage (Irregular) Listed below (Recalc)
		9,309 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	94	37.4	0	0	94
186.00	223	55.1	154	154	232
187.00	402	72.8	308	462	423

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	197	63.3	0	0	197
186.00	411	82.9	298	298	436
187.00	675	101.1	538	835	718

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	198	634.4	0	0	198
186.00	1,111	177.6	593	593	29,718
187.00	3,261	300.8	2,092	2,684	34,414

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
187.00	4,486	423.0	0	0	4,486
187.50	5,341	455.4	2,454	2,454	6,761
188.00	6,031	464.9	2,841	5,295	7,494

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Device	Routing	Invert	Outlet Devices
#1	Primary	184.67'	12.0" Round 12" HDPE N-12 L= 18.5' Ke= 0.900 Inlet / Outlet Invert= 184.67' / 184.50' S= 0.0092 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	184.67'	0.7" Vert. 3/4" Orifice C= 0.600
#3	Device 1	186.75'	3.0" Vert. 3" Orifice C= 0.600
#4	Device 1	187.40'	12.0" Horiz. 12" Horizontal Orifice C= 0.600 Limited to weir flow at low heads
#5	Secondary	187.50'	10.0' long x 7.0' breadth 10' Emergency 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=0.13 cfs @ 14.05 hrs HW=187.12' TW=186.51' (Dynamic Tailwater)

1=12" HDPE N-12 (Passes 0.13 cfs of 2.32 cfs potential flow)

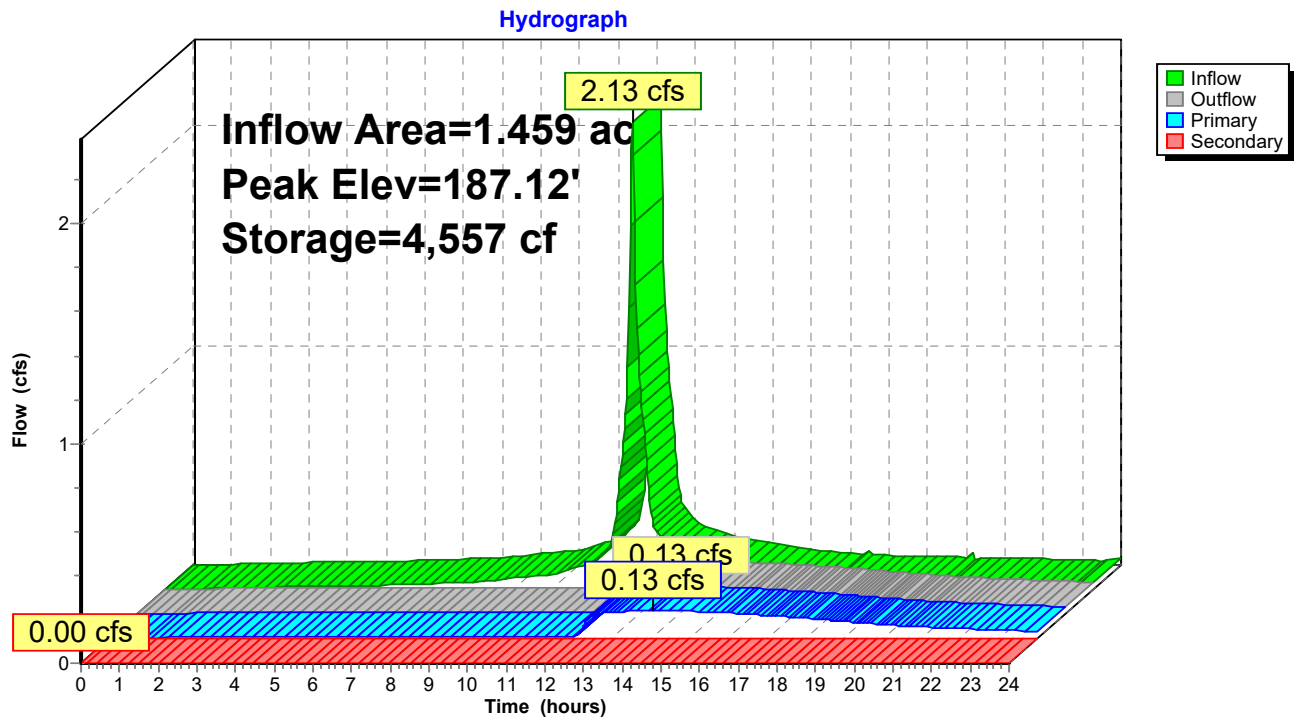
2=3/4" Orifice (Orifice Controls 0.01 cfs @ 3.75 fps)

3=3" Orifice (Orifice Controls 0.12 cfs @ 2.38 fps)

4=12" Horizontal Orifice (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=184.67' TW=184.50' (Dynamic Tailwater)

5=10' Emergency Spillway (Controls 0.00 cfs)

Pond 101P: Gravel Wetland #101

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Summary for Pond 102P: Gravel Wetland #102

Inflow Area = 2.563 ac, 35.98% Impervious, Inflow Depth > 4.16" for 25 Yr.-24 Hr. event
 Inflow = 7.17 cfs @ 12.23 hrs, Volume= 0.889 af
 Outflow = 1.27 cfs @ 13.36 hrs, Volume= 0.573 af, Atten= 82%, Lag= 67.9 min
 Primary = 1.27 cfs @ 13.36 hrs, Volume= 0.573 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= 0.03 hrs / 3

Peak Elev= 181.02' @ 13.36 hrs Surf.Area= 10,494 sf Storage= 21,016 cf

Flood Elev= 182.50' Surf.Area= 13,037 sf Storage= 33,366 cf

Plug-Flow detention time= 247.8 min calculated for 0.573 af (64% of inflow)

Center-of-Mass det. time= 147.0 min (972.0 - 825.0)

Volume	Invert	Avail.Storage	Storage Description
#1	175.17'	85 cf	4.00'D x 6.75'H 4' Structure
#2	176.50'	947 cf	Sediment Forebay (Irregular) Listed below (Recalc)
#3	175.50'	2,277 cf	Cell #1 (Irregular) Listed below (Recalc)
#4	175.50'	1,793 cf	Cell #2 (Irregular) Listed below (Recalc)
#5	178.00'	28,265 cf	Open Water Storage (Irregular) Listed below (Recalc)
		33,366 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
176.50	138	91.8	0	0	138
177.00	327	123.1	113	113	676
178.00	638	137.1	474	587	994
178.50	806	142.8	360	947	1,139

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.50	515	92.7	0	0	515
176.00	663	102.6	294	294	676
177.00	982	125.0	817	1,111	1,098
178.00	1,360	147.4	1,166	2,277	1,602

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.50	350	73.2	0	0	350
176.00	473	84.4	205	205	496
177.00	782	109.2	621	826	890
178.00	1,165	134.0	967	1,793	1,385

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
178.00	2,689	219.9	0	0	2,689
178.50	3,492	273.5	1,541	1,541	4,797
179.00	5,031	329.0	2,119	3,660	7,462
180.00	6,045	347.5	5,530	9,190	8,514
181.00	7,116	366.4	6,573	15,763	9,646
182.00	8,714	550.0	7,902	23,665	23,042
182.50	9,693	636.4	4,600	28,265	31,205

Device	Routing	Invert	Outlet Devices
#1	Primary	175.17'	12.0" Round 12" HDPE N-12 L= 32.5' Ke= 0.900 Inlet / Outlet Invert= 175.17' / 175.00' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	175.17'	1.2" Vert. 1.25" Orifice C= 0.600
#3	Device 1	179.30'	3.0" Vert. 3" Orifice C= 0.600
#4	Device 1	180.00'	6.0" Vert. 6" Orifice C= 0.600
#5	Device 1	180.90'	6.0" W x 12.0" H Vert. 6" X 12" Box Orifice C= 0.600
#6	Device 1	181.90'	12.0" Horiz. 12" Horizontal Orifice C= 0.600 Limited to weir flow at low heads
#7	Secondary	182.00'	10.0' long x 7.0' breadth 10' Emergency 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.27 cfs @ 13.36 hrs HW=181.02' TW=177.09' (Dynamic Tailwater)

- ↑ **1=12" HDPE N-12** (Passes 1.27 cfs of 5.92 cfs potential flow)
- ↑ **2=1.25" Orifice** (Orifice Controls 0.08 cfs @ 9.55 fps)
- ↑ **3=3" Orifice** (Orifice Controls 0.30 cfs @ 6.09 fps)
- ↑ **4=6" Orifice** (Orifice Controls 0.83 cfs @ 4.23 fps)
- ↑ **5=6" X 12" Box Orifice** (Orifice Controls 0.07 cfs @ 1.12 fps)
- ↑ **6=12" Horizontal Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=175.17' TW=175.00' (Dynamic Tailwater)

- ↑ **7=10' Emergency Spillway** (Controls 0.00 cfs)

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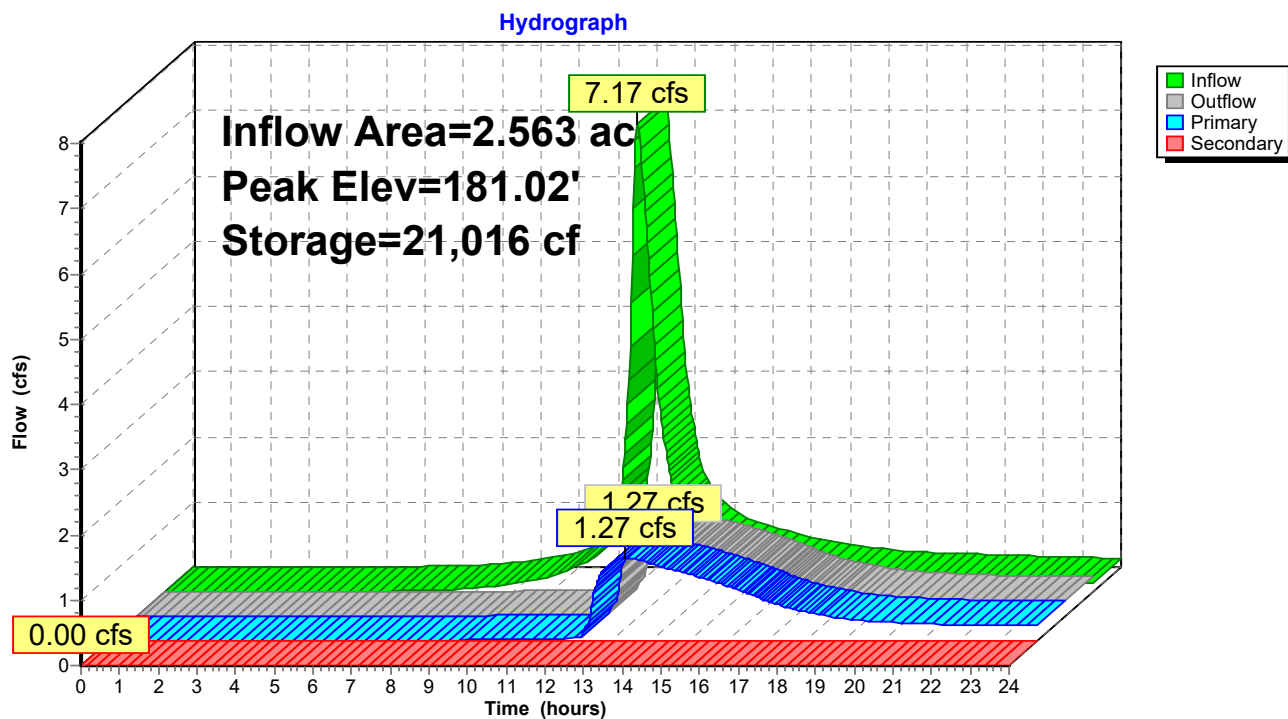
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Pond 102P: Gravel Wetland #102



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Summary for Pond 103P: Rain Garden W/ Infiltration #103

Inflow Area = 1.127 ac, 23.32% Impervious, Inflow Depth > 3.16" for 25 Yr.-24 Hr. event
 Inflow = 4.14 cfs @ 12.09 hrs, Volume= 0.297 af
 Outflow = 0.13 cfs @ 16.95 hrs, Volume= 0.078 af, Atten= 97%, Lag= 291.4 min
 Discarded = 0.03 cfs @ 10.32 hrs, Volume= 0.035 af
 Primary = 0.10 cfs @ 16.95 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 178.28' @ 16.95 hrs Surf.Area= 1,257 sf Storage= 9,733 cf

Flood Elev= 179.00' Surf.Area= 1,257 sf Storage= 24,052 cf

Plug-Flow detention time= 377.7 min calculated for 0.078 af (26% of inflow)

Center-of-Mass det. time= 243.0 min (1,081.1 - 838.1)

Volume	Invert	Avail.Storage	Storage Description
#1	174.25'	503 cf	Stone (Irregular) Listed below (Recalc) 1,257 cf Overall x 40.0% Voids
#2	175.25'	377 cf	Bio-Media (Irregular) Listed below (Recalc) -Impervious 1,886 cf Overall x 20.0% Voids
#3	176.75'	63 cf	Loam (Irregular) Listed below (Recalc) -Impervious 314 cf Overall x 20.0% Voids
#4	177.00'	23,109 cf	Open Water Storage (Irregular) Listed below (Recalc) -Impervious
		24,052 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.25	1,257	171.5	0	0	1,257
175.25	1,257	171.5	1,257	1,257	1,429

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.25	1,257	171.5	0	0	1,257
176.75	1,257	171.5	1,886	1,886	1,514

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
176.75	1,257	171.5	0	0	1,257
177.00	1,257	171.5	314	314	1,300

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
177.00	1,338	175.0	0	0	1,338
178.00	10,844	495.5	5,330	5,330	18,442
179.00	25,775	829.0	17,779	23,109	53,599

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.25'	1.000 in/hr Exfiltration through media over Surface area
#2	Primary	178.25'	10.0' long x 7.0' breadth 10' Emergency 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

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Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65
2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

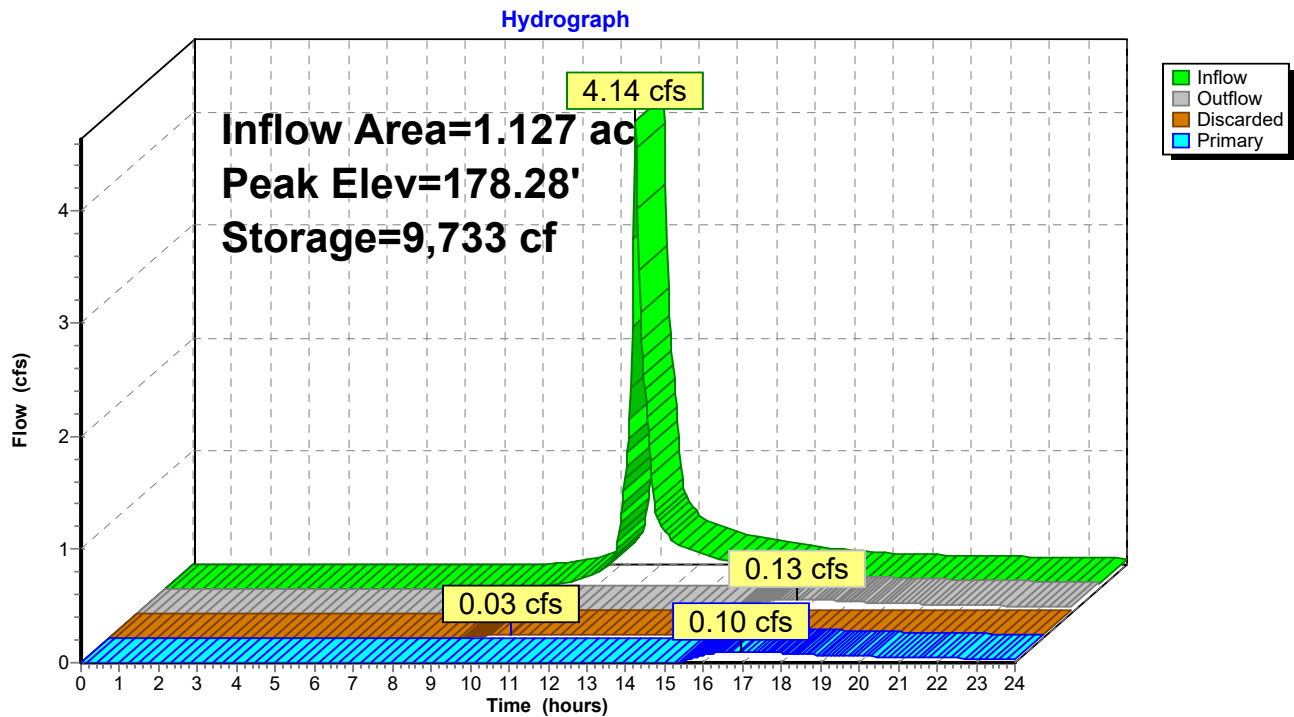
Discarded OutFlow Max=0.03 cfs @ 10.32 hrs HW=174.30' (Free Discharge)

↑1=Exfiltration through media (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.10 cfs @ 16.95 hrs HW=178.28' TW=176.03' (Dynamic Tailwater)

↑2=10' Emergency Spillway (Weir Controls 0.10 cfs @ 0.39 fps)

Pond 103P: Rain Garden W/ Infiltration #103



21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond 104P: Rain Garden #104

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=8)

Inflow Area = 0.540 ac, 34.13% Impervious, Inflow Depth > 4.74" for 25 Yr.-24 Hr. event
 Inflow = 2.50 cfs @ 12.15 hrs, Volume= 0.213 af
 Outflow = 1.87 cfs @ 12.27 hrs, Volume= 0.143 af, Atten= 25%, Lag= 6.9 min
 Primary = 0.03 cfs @ 9.09 hrs, Volume= 0.035 af
 Secondary = 1.84 cfs @ 12.27 hrs, Volume= 0.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 183.60' @ 12.27 hrs Surf.Area= 110 sf Storage= 3,322 cf

Flood Elev= 184.00' Surf.Area= 110 sf Storage= 5,165 cf

Plug-Flow detention time= 153.5 min calculated for 0.143 af (67% of inflow)

Center-of-Mass det. time= 58.2 min (865.8 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	33 cf	Stone (Irregular) Listed below (Recalc) -Impervious 83 cf Overall x 40.0% Voids
#2	179.75'	33 cf	Bio-Media (Irregular) Listed below (Recalc) 165 cf Overall x 20.0% Voids
#3	181.25'	6 cf	Loam (Irregular) Listed below (Recalc) -Impervious 28 cf Overall x 20.0% Voids
#4	181.50'	5,093 cf	Open Water Storage (Irregular) Listed below (Recalc) -Impervious
		5,165 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.00	110	41.4	0	0	110
179.75	110	41.4	83	83	141

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.75	110	41.4	0	0	110
181.25	110	41.4	165	165	172

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
181.25	110	41.4	0	0	110
181.50	110	41.4	28	28	120

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
181.50	110	41.4	0	0	110
182.00	1,412	176.2	319	319	2,445
183.00	1,880	199.3	1,640	1,960	3,160
183.50	2,268	223.9	1,035	2,995	3,995
184.00	6,486	425.9	2,098	5,093	14,442

21-011 Proposed Analysis

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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Device	Routing	Invert	Outlet Devices
#1	Primary	179.00'	6.0" Round 6" HDPE N-12 L= 10.0' Ke= 0.900 Inlet / Outlet Invert= 179.00' / 179.00' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	179.75'	10.000 in/hr 10 In/Hr Bio-Media over Surface area
#3	Secondary	183.50'	25.0' long x 4.0' breadth 25' Emergency 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=0.03 cfs @ 9.09 hrs HW=181.23' TW=179.03' (Dynamic Tailwater)

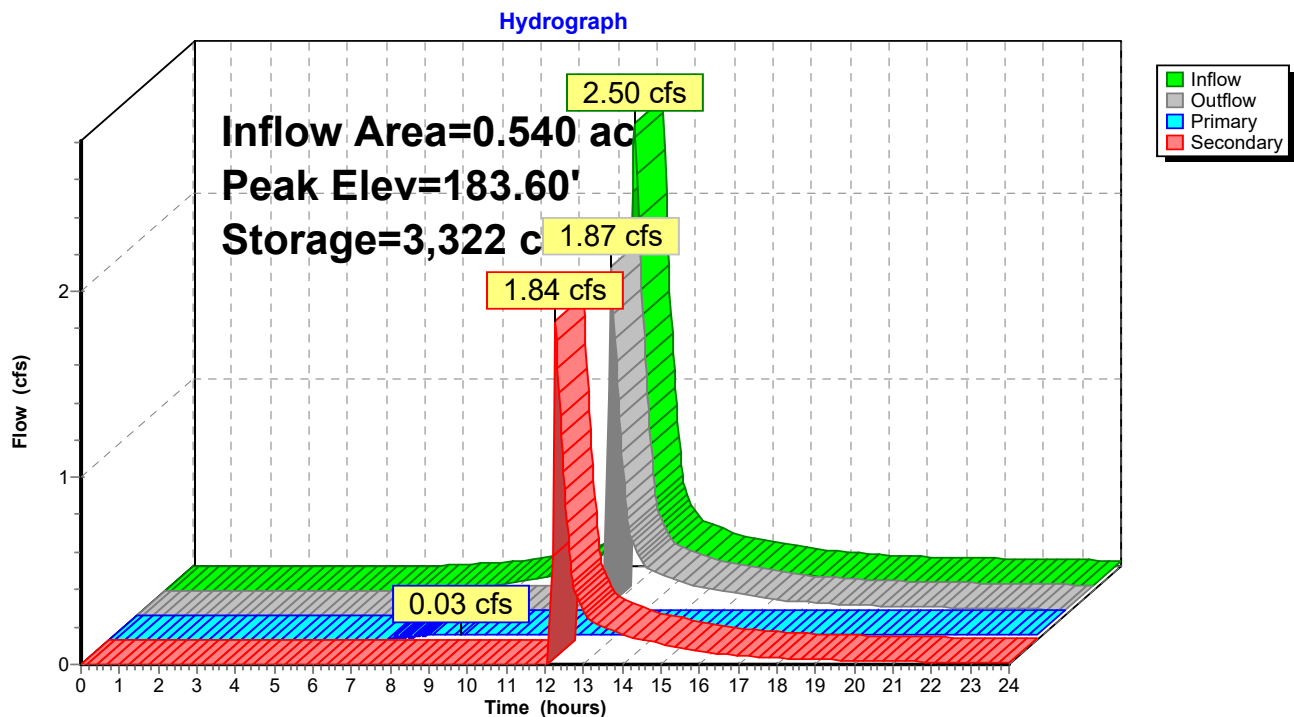
↑ **1=6" HDPE N-12** (Passes 0.03 cfs of 1.05 cfs potential flow)

↑ **2=10 In/Hr Bio-Media** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=1.83 cfs @ 12.27 hrs HW=183.60' TW=179.19' (Dynamic Tailwater)

↑ **3=25' Emergency Spillway** (Weir Controls 1.83 cfs @ 0.75 fps)

Pond 104P: Rain Garden #104



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond C01P: Catch Basin #1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=57)

[80] Warning: Exceeded Pond 28P by 0.60' @ 12.09 hrs (3.66 cfs 3.966 af)

Inflow Area = 1.117 ac, 27.42% Impervious, Inflow Depth > 0.63" for 25 Yr.-24 Hr. event
Inflow = 0.71 cfs @ 12.08 hrs, Volume= 0.059 af
Outflow = 0.70 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 1%, Lag= 0.1 min
Primary = 0.70 cfs @ 12.09 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 187.12' @ 14.04 hrs Surf.Area= 0.000 ac Storage= 0.001 af

Flood Elev= 188.85' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 6.6 min calculated for 0.058 af (99% of inflow)

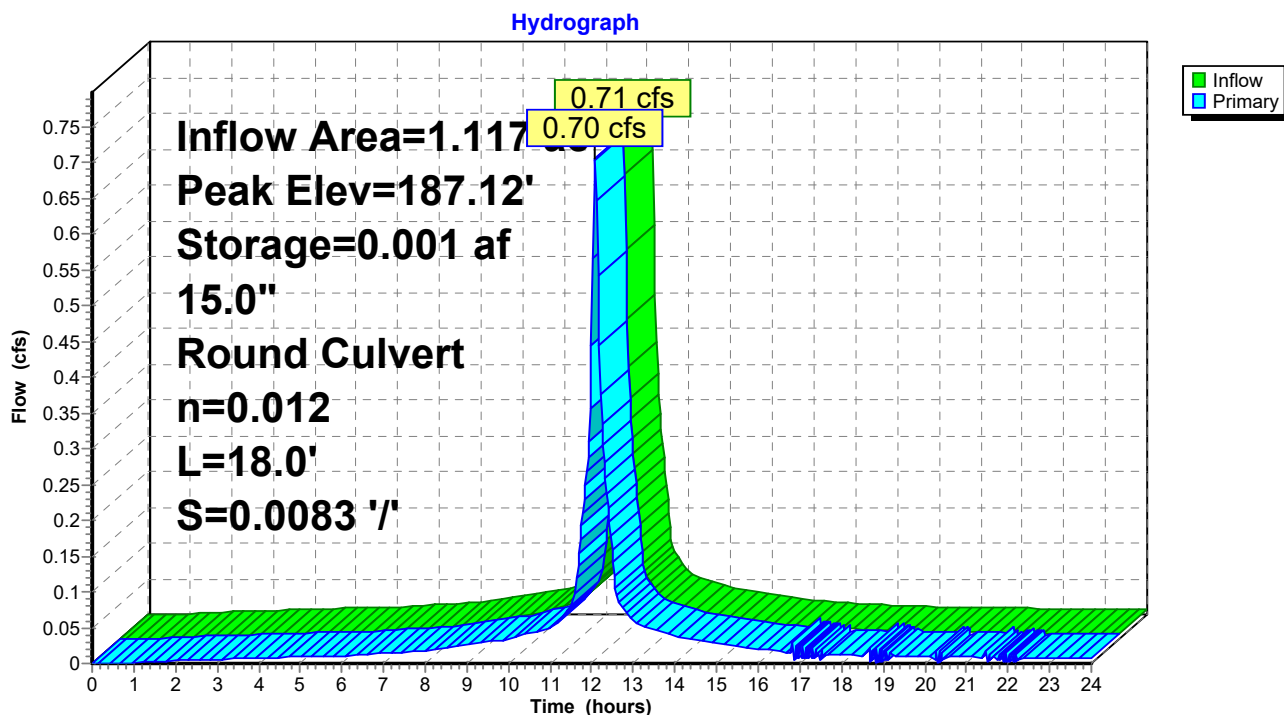
Center-of-Mass det. time= 0.9 min (743.7 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	185.35'	0.001 af	4.00'D x 3.50'H 4' Structure

Device	Routing	Invert	Outlet Devices
#1	Primary	185.35'	15.0" Round 15" HDPE N-12 L= 18.0' Ke= 0.900 Inlet / Outlet Invert= 185.35' / 185.20' S= 0.0083 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.73 cfs @ 12.09 hrs HW=186.76' TW=186.73' (Dynamic Tailwater)
↑ **1=15" HDPE N-12** (Inlet Controls 0.73 cfs @ 0.60 fps)

Pond C01P: Catch Basin #1



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond C02P: Catch Basin #2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=39)

[80] Warning: Exceeded Pond C01P by 0.01' @ 22.62 hrs (0.52 cfs 0.124 af)

Inflow Area = 1.226 ac, 33.87% Impervious, Inflow Depth > 1.15" for 25 Yr.-24 Hr. event
Inflow = 1.43 cfs @ 12.08 hrs, Volume= 0.118 af
Outflow = 1.42 cfs @ 12.09 hrs, Volume= 0.117 af, Atten= 1%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.09 hrs, Volume= 0.117 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 187.12' @ 14.04 hrs Surf.Area= 0.000 ac Storage= 0.001 af

Flood Elev= 188.85' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 3.8 min calculated for 0.117 af (100% of inflow)

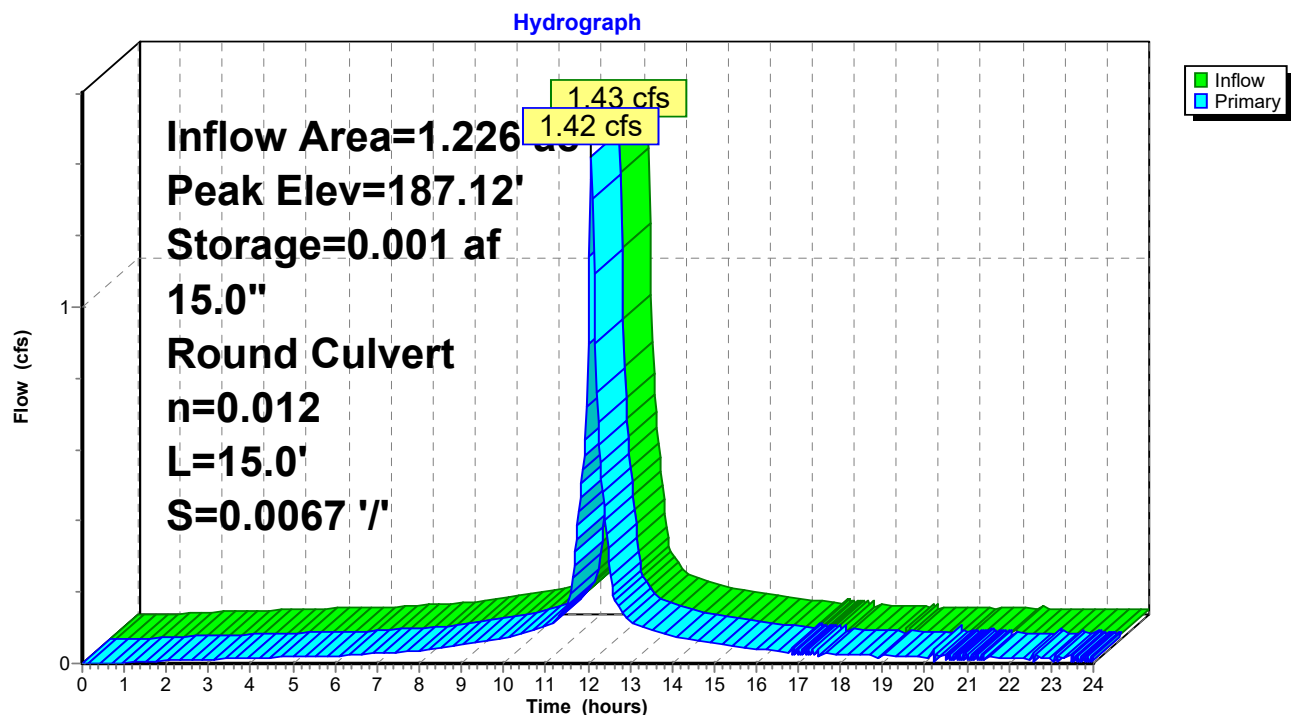
Center-of-Mass det. time= 0.5 min (743.7 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	185.10'	0.001 af	4.00'D x 3.75'H 4' Structure

Device	Routing	Invert	Outlet Devices
#1	Primary	185.10'	15.0" Round 15" HDPE N-12 L= 15.0' Ke= 0.900 Inlet / Outlet Invert= 185.10' / 185.00' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=186.73' TW=186.64' (Dynamic Tailwater)
↑ **1=15" HDPE N-12** (Inlet Controls 1.41 cfs @ 1.15 fps)

Pond C02P: Catch Basin #2



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond C03P: Catch Basin #3

Inflow Area = 0.086 ac, 100.00% Impervious, Inflow Depth > 6.58" for 25 Yr.-24 Hr. event
Inflow = 0.57 cfs @ 12.08 hrs, Volume= 0.047 af
Outflow = 0.57 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.1 min
Primary = 0.57 cfs @ 12.09 hrs, Volume= 0.047 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 182.86' @ 12.11 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Flood Elev= 185.45' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 0.6 min calculated for 0.047 af (100% of inflow)

Center-of-Mass det. time= 0.4 min (743.3 - 742.8)

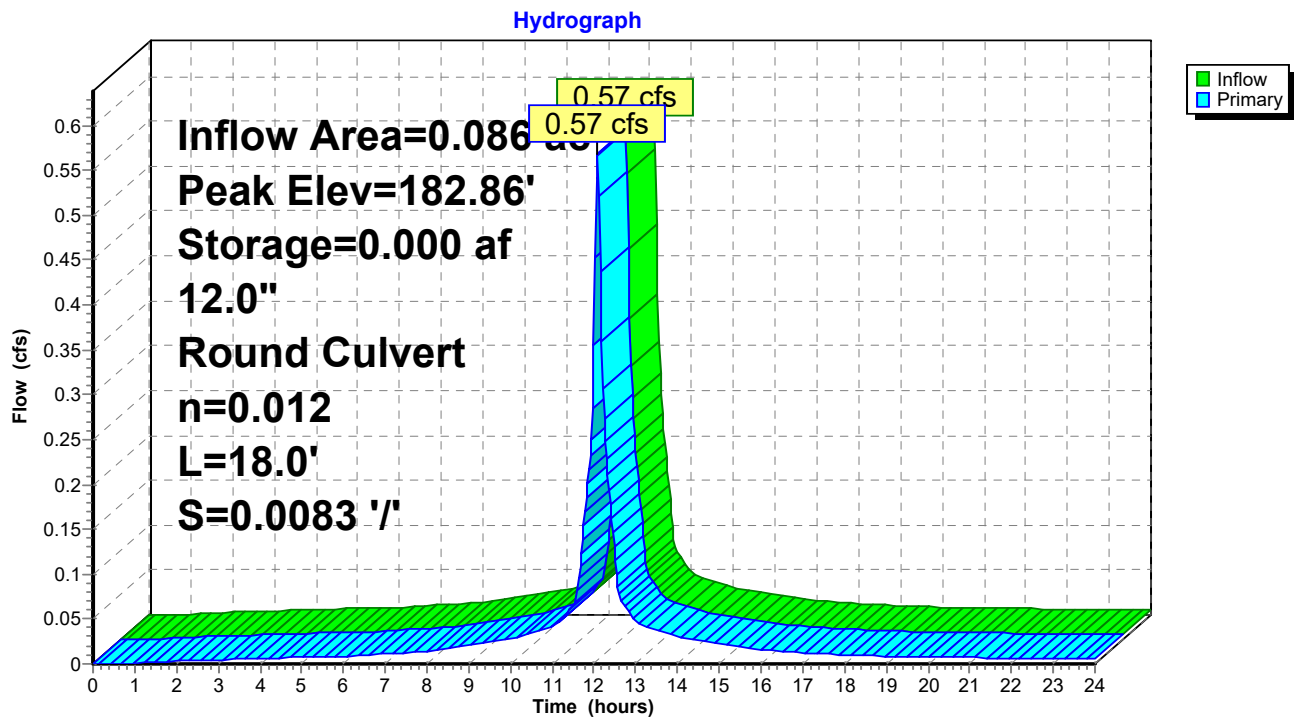
Volume	Invert	Avail.Storage	Storage Description
#1	182.35'	0.001 af	4.00'D x 3.10'H 4' Structure

Device	Routing	Invert	Outlet Devices
#1	Primary	182.35'	12.0" Round 12" HDPE N-12 L= 18.0' Ke= 0.900 Inlet / Outlet Invert= 182.35' / 182.20' S= 0.0083 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.09 hrs HW=182.85' TW=182.67' (Dynamic Tailwater)

← **12" HDPE N-12** (Outlet Controls 0.56 cfs @ 2.12 fps)

Pond C03P: Catch Basin #3



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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond C04P: Catch Basin #4

Inflow Area = 0.451 ac, 57.76% Impervious, Inflow Depth > 5.35" for 25 Yr.-24 Hr. event
Inflow = 1.93 cfs @ 12.18 hrs, Volume= 0.201 af
Outflow = 1.93 cfs @ 12.18 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min
Primary = 1.93 cfs @ 12.18 hrs, Volume= 0.201 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 182.73' @ 12.18 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Flood Elev= 185.45' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 0.3 min calculated for 0.201 af (100% of inflow)

Center-of-Mass det. time= 0.2 min (789.3 - 789.2)

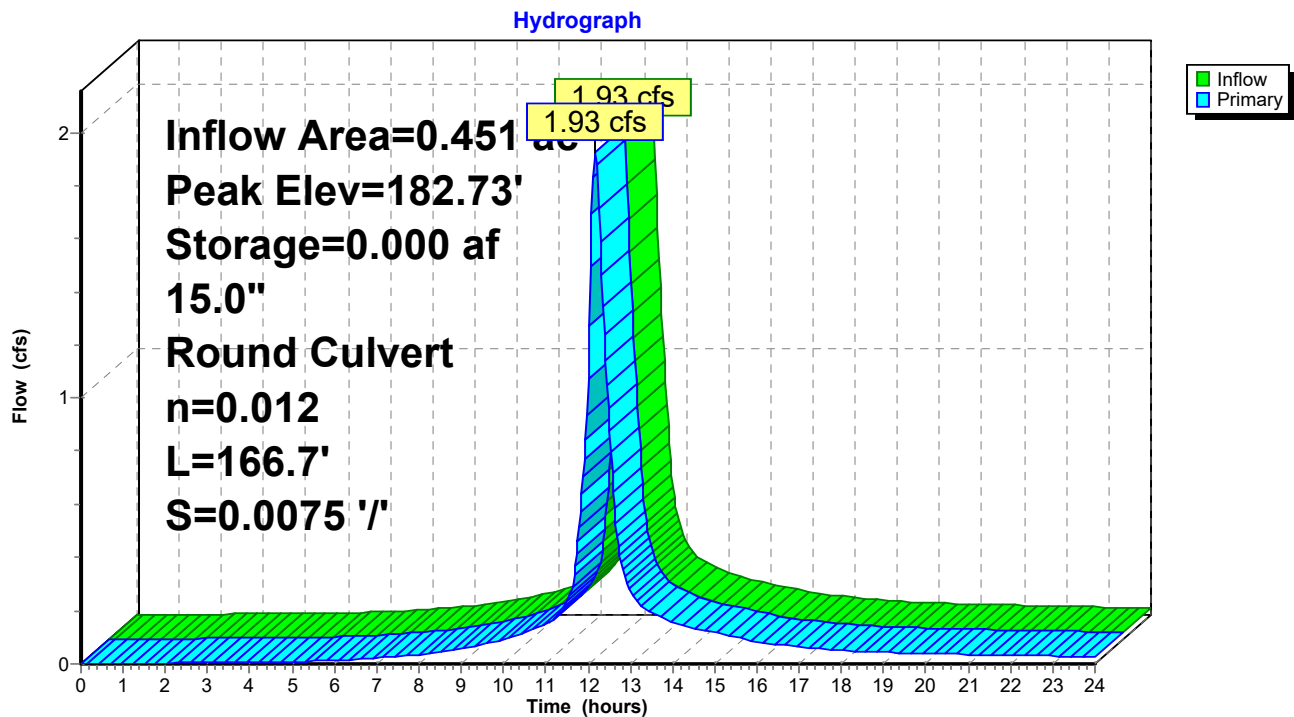
Volume	Invert	Avail.Storage	Storage Description
#1	181.95'	0.001 af	4.00'D x 3.50'H 4' Diameter Structure

Device	Routing	Invert	Outlet Devices
#1	Primary	181.95'	15.0" Round 15" HDPE N-12 L= 166.7' Ke= 0.900 Inlet / Outlet Invert= 181.95' / 180.70' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.92 cfs @ 12.18 hrs HW=182.73' TW=181.51' (Dynamic Tailwater)

←**1=15" HDPE N-12** (Inlet Controls 1.92 cfs @ 2.38 fps)

Pond C04P: Catch Basin #4



21-011 Proposed Analysis

Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Summary for Pond C05P: Catch Basin #5

Inflow Area = 0.312 ac, 35.43% Impervious, Inflow Depth > 3.98" for 25 Yr.-24 Hr. event
 Inflow = 1.10 cfs @ 12.21 hrs, Volume= 0.103 af
 Outflow = 1.10 cfs @ 12.21 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.2 min
 Primary = 1.10 cfs @ 12.21 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 181.62' @ 12.22 hrs Surf.Area= 13 sf Storage= 13 cf

Flood Elev= 184.50' Surf.Area= 333 sf Storage= 122 cf

Plug-Flow detention time= 0.5 min calculated for 0.103 af (100% of inflow)

Center-of-Mass det. time= 0.3 min (827.8 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	180.60'	44 cf	4.00'D x 3.50'H 4' Structure
#2	184.10'	78 cf	Ponding Area (Irregular) Listed below (Recalc)
		122 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
184.10	4	8.0	0	0	4
184.35	320	96.4	30	30	739
184.50	320	96.4	48	78	753

Device	Routing	Invert	Outlet Devices
#1	Primary	180.60'	15.0" Round 15" HDPE N-12 L= 18.0' Ke= 0.900 Inlet / Outlet Invert= 180.60' / 180.45' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.11 cfs @ 12.21 hrs HW=181.62' TW=181.54' (Dynamic Tailwater)↑**1=15" HDPE N-12** (Inlet Controls 1.11 cfs @ 1.03 fps)

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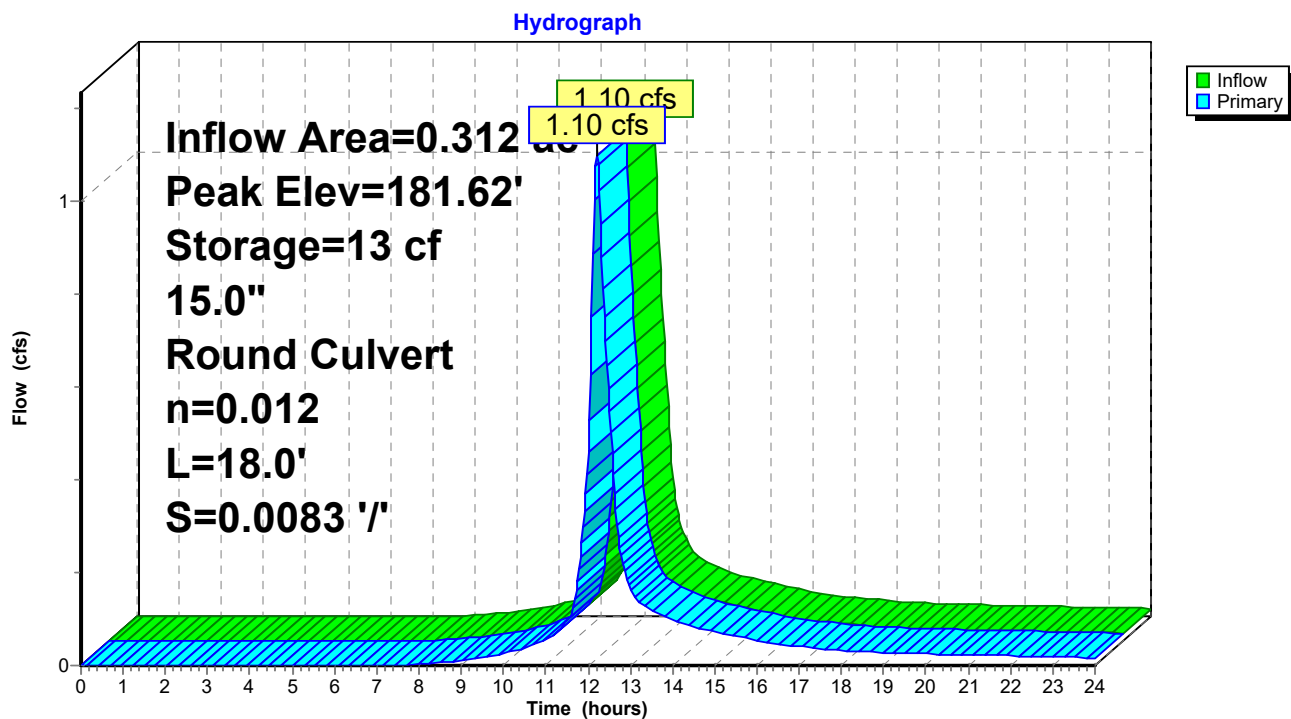
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Pond C05P: Catch Basin #5



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Summary for Pond C06P: Catch Basin #6

[42] Hint: Gap in defined storage above volume #1 at 183.70'

Inflow Area = 1.189 ac, 42.43% Impervious, Inflow Depth > 4.54" for 25 Yr.-24 Hr. event
 Inflow = 4.38 cfs @ 12.21 hrs, Volume= 0.450 af
 Outflow = 4.38 cfs @ 12.21 hrs, Volume= 0.449 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.38 cfs @ 12.21 hrs, Volume= 0.449 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 181.55' @ 12.23 hrs Surf.Area= 13 sf Storage= 26 cf

Flood Elev= 184.50' Surf.Area= 333 sf Storage= 131 cf

Plug-Flow detention time= 0.8 min calculated for 0.449 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (811.1 - 810.6)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	53 cf	4.00'D x 4.20'H 4' Structure
#2	184.10'	78 cf	Ponding Area (Irregular) Listed below (Recalc)
		131 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
184.10	4	8.0	0	0	4
184.35	320	96.4	30	30	739
184.50	320	96.4	48	78	753

Device	Routing	Invert	Outlet Devices
#1	Primary	180.20'	18.0" Round 18" HDPE N-12 L= 80.0' Ke= 0.900 Inlet / Outlet Invert= 180.20' / 179.70' S= 0.0063 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.38 cfs @ 12.21 hrs HW=181.55' TW=181.00' (Dynamic Tailwater)↑**1=18" HDPE N-12** (Outlet Controls 4.38 cfs @ 3.46 fps)

21-011 Proposed Analysis

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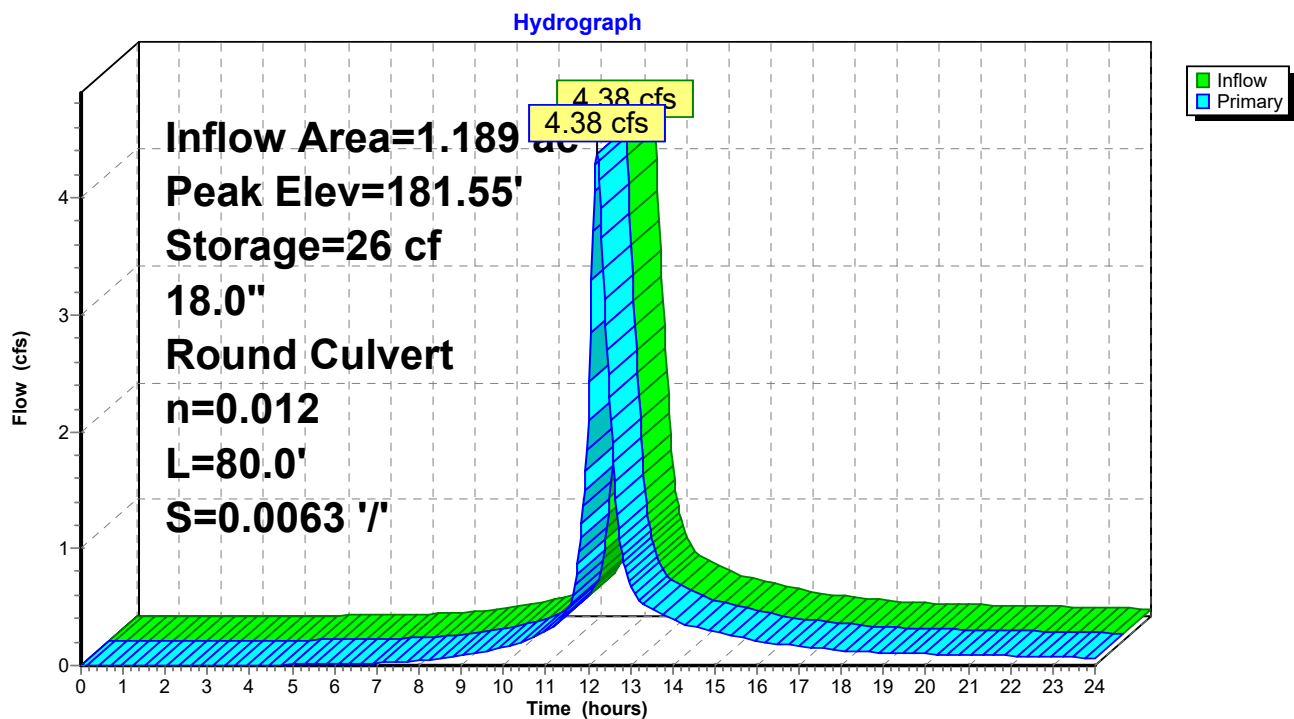
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Type III 24-hr 25 Yr.-24 Hr. Rainfall=6.82"

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Pond C06P: Catch Basin #6



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Summary for Pond C07P: Catch Basin #7

Inflow Area = 1.928 ac, 42.39% Impervious, Inflow Depth > 4.56" for 25 Yr.-24 Hr. event
Inflow = 5.54 cfs @ 12.24 hrs, Volume= 0.733 af
Outflow = 5.54 cfs @ 12.24 hrs, Volume= 0.733 af, Atten= 0%, Lag= 0.0 min
Primary = 5.54 cfs @ 12.24 hrs, Volume= 0.733 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 181.07' @ 13.12 hrs Surf.Area= 13 sf Storage= 25 cf

Flood Elev= 184.00' Surf.Area= 13 sf Storage= 57 cf

Plug-Flow detention time= 0.5 min calculated for 0.733 af (100% of inflow)

Center-of-Mass det. time= 0.3 min (819.9 - 819.6)

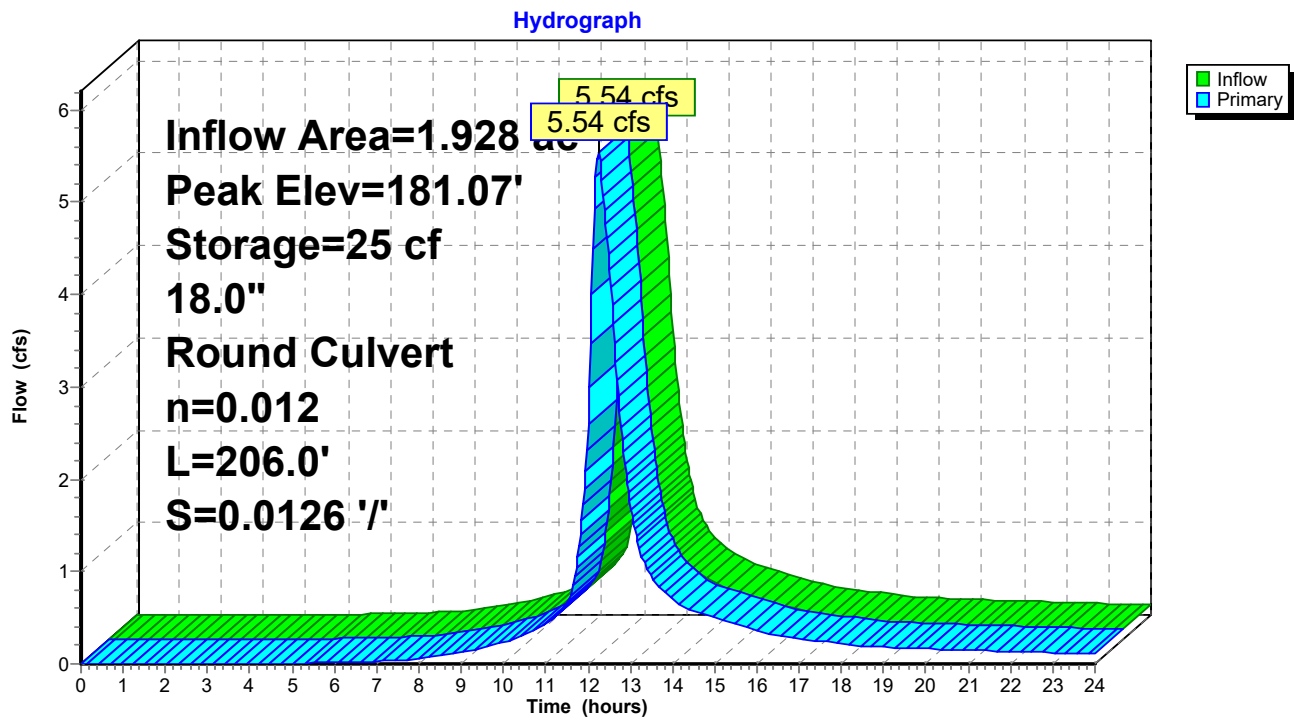
Volume	Invert	Avail.Storage	Storage Description
#1	179.10'	57 cf	4.00'D x 4.50'H 4' Structure

Device	Routing	Invert	Outlet Devices
#1	Primary	179.60'	18.0" Round 18" HDPE N-12 L= 206.0' Ke= 0.900 Inlet / Outlet Invert= 179.60' / 177.00' S= 0.0126 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.53 cfs @ 12.24 hrs HW=181.02' TW=179.43' (Dynamic Tailwater)

1=18" HDPE N-12 (Inlet Controls 5.53 cfs @ 3.20 fps)

Pond C07P: Catch Basin #7



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	70.931 degrees West
Latitude	43.232 degrees North
Elevation	0 feet
Date/Time	Tue, 23 Feb 2021 11:44:51 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	1yr	0.70	0.98	1.20	1.54	1.98	2.58	2.85	1yr	2.28	2.74	3.15	3.87	4.44	1yr
2yr	0.32	0.49	0.61	0.80	1.01	1.28	2yr	0.87	1.16	1.49	1.90	2.43	3.12	3.48	2yr	2.76	3.35	3.84	4.57	5.21	2yr
5yr	0.37	0.57	0.72	0.96	1.23	1.58	5yr	1.06	1.44	1.85	2.37	3.05	3.94	4.45	5yr	3.49	4.28	4.91	5.77	6.52	5yr
10yr	0.40	0.63	0.80	1.09	1.42	1.84	10yr	1.22	1.69	2.17	2.81	3.63	4.70	5.37	10yr	4.16	5.16	5.91	6.87	7.73	10yr
25yr	0.46	0.74	0.94	1.30	1.72	2.27	25yr	1.49	2.09	2.69	3.51	4.57	5.93	6.88	25yr	5.25	6.62	7.55	8.68	9.69	25yr
50yr	0.52	0.83	1.06	1.49	2.00	2.66	50yr	1.73	2.45	3.18	4.17	5.44	7.08	8.30	50yr	6.27	7.98	9.10	10.35	11.49	50yr
100yr	0.58	0.94	1.21	1.71	2.33	3.12	100yr	2.01	2.88	3.74	4.93	6.47	8.46	10.02	100yr	7.48	9.64	10.97	12.36	13.65	100yr
200yr	0.64	1.05	1.36	1.96	2.71	3.68	200yr	2.34	3.39	4.42	5.86	7.71	10.10	12.10	200yr	8.94	11.64	13.22	14.76	16.21	200yr
500yr	0.76	1.25	1.63	2.36	3.31	4.54	500yr	2.86	4.21	5.50	7.34	9.71	12.79	15.54	500yr	11.32	14.94	16.94	18.68	20.36	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	1yr	0.64	0.88	0.92	1.25	1.52	2.04	2.46	1yr	1.80	2.37	2.94	3.39	4.07	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.18	2yr	0.86	1.15	1.36	1.82	2.34	3.04	3.38	2yr	2.69	3.25	3.73	4.45	5.07	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	3.67	4.10	5yr	3.25	3.94	4.57	5.38	6.08	5yr
10yr	0.38	0.59	0.73	1.02	1.31	1.60	10yr	1.13	1.56	1.81	2.43	3.12	4.21	4.75	10yr	3.73	4.57	5.29	6.20	6.95	10yr
25yr	0.44	0.66	0.83	1.18	1.55	1.91	25yr	1.34	1.87	2.11	2.84	3.63	5.04	5.74	25yr	4.46	5.52	6.45	7.47	8.30	25yr
50yr	0.48	0.73	0.91	1.31	1.77	2.19	50yr	1.53	2.14	2.36	3.19	4.06	5.78	6.62	50yr	5.12	6.36	7.49	8.61	9.52	50yr
100yr	0.54	0.81	1.02	1.47	2.02	2.51	100yr	1.74	2.45	2.65	3.59	4.53	6.62	7.62	100yr	5.86	7.33	8.70	9.91	10.86	100yr
200yr	0.60	0.90	1.14	1.65	2.30	2.87	200yr	1.99	2.81	2.97	4.02	5.05	7.57	8.78	200yr	6.70	8.44	10.10	11.41	12.41	200yr
500yr	0.70	1.04	1.34	1.94	2.76	3.47	500yr	2.38	3.39	3.46	4.68	5.84	9.00	10.56	500yr	7.97	10.16	12.31	13.76	14.74	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	1yr	0.75	1.05	1.23	1.73	2.19	2.81	3.06	1yr	2.48	2.94	3.37	4.17	4.74	1yr
2yr	0.33	0.51	0.62	0.84	1.04	1.24	2yr	0.90	1.21	1.47	1.95	2.51	3.23	3.60	2yr	2.86	3.46	3.97	4.72	5.38	2yr
5yr	0.39	0.60	0.75	1.03	1.31	1.58	5yr	1.13	1.54	1.84	2.49	3.18	4.21	4.80	5yr	3.72	4.62	5.25	6.17	6.94	5yr
10yr	0.46	0.70	0.87	1.21	1.57	1.91	10yr	1.35	1.86	2.22	3.03	3.83	5.17	5.99	10yr	4.58	5.76	6.59	7.57	8.44	10yr
25yr	0.55	0.84	1.05	1.50	1.97	2.45	25yr	1.70	2.40	2.86	3.94	4.93	6.81	8.03	25yr	6.03	7.72	8.80	9.97	10.97	25yr
50yr	0.64	0.97	1.21	1.75	2.35	2.96	50yr	2.03	2.89	3.47	4.79	5.98	8.38	10.05	50yr	7.42	9.66	10.98	12.24	13.42	50yr
100yr	0.75	1.13	1.41	2.04	2.80	3.57	100yr	2.42	3.49	4.21	5.86	7.27	10.32	12.57	100yr	9.13	12.09	13.68	15.07	16.40	100yr
200yr	0.87	1.30	1.65	2.39	3.34	4.32	200yr	2.88	4.22	5.11	7.16	8.82	12.75	15.75	200yr	11.28	15.15	17.06	18.54	20.07	200yr
500yr	1.06	1.58	2.03	2.95	4.19	5.53	500yr	3.62	5.41	6.60	9.36	11.42	16.88	21.22	500yr	14.94	20.41	22.87	24.42	26.24	500yr

RIP RAP CALCULATIONS

21-011 Settlement on 6th, LLC

Barrington, NH

Berry Surveying & Engineering

335 Second Crown Point Road

Barrington, NH

10-Jun-21

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

$La = (1.8 \times Q) / Do^{3/2} + (7 \times Do)$ Q = Peak Flow & Do is Pipe Diameter

$W = La + 3 \times Do$ or defined channel width

$d50 = (0.02 \times Q^{4/3}) / (Tw \times Do)$

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 #C02P)	0.25	1.42	1.25	10.6	14.3	0.10	0.50	1.20
18" HDPE (Pond #C07P)	0.30	5.50	1.50	15.9	20.4	0.43	0.50	1.20
18" HDPE (Pond #18P)	0.30	2.07	1.50	12.5	17.0	0.12	0.50	1.20
15" HDPE (Pond #28P)	0.25	0.91	1.25	9.9	13.7	0.06	0.50	1.20
12" HDPE (Pond #101P)	0.20	0.13	1.00	7.2	10.2	0.01	0.50	1.20
15" HDPE (Pond #102P)	0.25	1.27	1.25	10.4	14.1	0.09	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 Than the Given d50 Size	Size of Stone (Inches)			
	From		To	
100%	9		12	
85%	8		11	
50%	6		9	
50%	6		9	
15%	2		3	

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

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.89	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
0.90	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
0.14	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.16 inches		Rd = Weighted groundwater recharge depth	
0.3134	ac-in	GRV = AI * Rd	
1,138	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

8,865 cf Infiltrated by RG W/ Infiltration #103 (103P)



GRAVEL WETLAND DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: Gravel Wetland #101 (Pond 101P)

Enter the node name in the drainage analysis if applicable.

1.46	ac	A = Area draining to the practice	
0.43	ac	A _I = Impervious area draining to the practice	
0.29	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.31	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.46	ac-in	WQV = 1" x R _v x A	
1,668	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
167	cf	10% x WQV (check calc for sediment forebay)	
750	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
462	cf	V _{SED} = Sediment forebay volume	≥ 10%WQV
835	cf	V _{TB1} = Volume of treatment bay 1 ¹	≥ 45%WQV
2,684	cf	V _{TB2} = Volume of treatment bay 2 ¹	≥ 45%WQV
0.04	cfs	2Q _{avg} = 2* WQV / 24 hrs * (1hr / 3600 sec) ⁴	
186.28	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
0.02	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	< 2Q _{avg}
46.32	hours	T _{ED} = Drawdown time of extended detention = 2WQV/Q _{WQV}	≥ 24-hrs
3.00	:1	Pond side slopes	≥ 3:1
185.83	ft	Elevation of SHWT	
183.83	ft	SHWT - 2 feet	
184.67	ft	E _{pp} = Elevation of the permanent pool (elevation of lowest orifice) ³	≤ E _{SHWT} - 2 ft
22,24	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")?	
187.34	ft	Peak elevation of the 50-year storm event (E ₅₀)	
188.00	ft	Berm elevation of the pond	
YES		E ₅₀ ≤ the berm elevation?	← yes
Qualified professional that developed the planting plan			
Name, Profession: KAB/KRP			

1. Volume stored above the wetland soil and below the high flow by-pass.

2. To ensure orifice is sized so that WQV is released at a relatively stable rate.

3. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (K_{sat}) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes: K_{sat} Saugatuck > than 0.015 in/hr. System to be lined w/ low perm material

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

Printed 7/10/2021

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Summary for Pond 101P: Gravel Wetland #101

[80] Warning: Exceeded Pond C02P by 0.02' @ 22.95 hrs (0.58 cfs 0.029 af)

Inflow Area = 1.459 ac, 29.43% Impervious, Inflow Depth > 1.74" for 50 Yr.-24 Hr. event
 Inflow = 2.69 cfs @ 12.09 hrs, Volume= 0.212 af
 Outflow = 0.17 cfs @ 13.84 hrs, Volume= 0.129 af, Atten= 94%, Lag= 105.0 min
 Primary = 0.17 cfs @ 13.84 hrs, Volume= 0.129 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 187.34' @ 13.84 hrs Surf.Area= 9,406 sf Storage= 5,625 cf
 Flood Elev= 188.00' Surf.Area= 10,382 sf Storage= 9,309 cf

Plug-Flow detention time= 329.7 min calculated for 0.129 af (61% of inflow)
 Center-of-Mass det. time= 216.8 min (991.4 - 774.6)

Volume	Invert	Avail.Storage	Storage Description
#1	184.67'	32 cf	4.00'D x 2.58'H 4' Structure
#2	185.00'	462 cf	Sediment Forebay (Irregular) Listed below (Recalc)
#3	185.00'	835 cf	Cell #1 (Irregular) Listed below (Recalc)
#4	185.00'	2,684 cf	Cell #2 (Irregular) Listed below (Recalc)
#5	187.00'	5,295 cf	Open Water Storage (Irregular) Listed below (Recalc)
		9,309 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	94	37.4	0	0	94
186.00	223	55.1	154	154	232
187.00	402	72.8	308	462	423

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	197	63.3	0	0	197
186.00	411	82.9	298	298	436
187.00	675	101.1	538	835	718

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
185.00	198	634.4	0	0	198
186.00	1,111	177.6	593	593	29,718
187.00	3,261	300.8	2,092	2,684	34,414

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
187.00	4,486	423.0	0	0	4,486
187.50	5,341	455.4	2,454	2,454	6,761
188.00	6,031	464.9	2,841	5,295	7,494

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Device	Routing	Invert	Outlet Devices
#1	Primary	184.67'	12.0" Round 12" HDPE N-12 L= 18.5' Ke= 0.900 Inlet / Outlet Invert= 184.67' / 184.50' S= 0.0092 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	184.67'	0.7" Vert. 3/4" Orifice C= 0.600
#3	Device 1	186.75'	3.0" Vert. 3" Orifice C= 0.600
#4	Device 1	187.40'	12.0" Horiz. 12" Horizontal Orifice C= 0.600 Limited to weir flow at low heads
#5	Secondary	187.50'	10.0' long x 7.0' breadth 10' Emergency 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=0.17 cfs @ 13.84 hrs HW=187.34' TW=186.52' (Dynamic Tailwater)

└─**1=12" HDPE N-12** (Passes 0.17 cfs of 2.71 cfs potential flow)
└─**2=3/4" Orifice** (Orifice Controls 0.01 cfs @ 4.37 fps)
└─**3=3" Orifice** (Orifice Controls 0.16 cfs @ 3.28 fps)
└─**4=12" Horizontal Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=184.67' TW=184.50' (Dynamic Tailwater)

└─**5=10' Emergency Spillway** (Controls 0.00 cfs)

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Stage-Area-Storage for Pond 101P: Gravel Wetland #101

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
184.67	0	187.27	5,286
184.72	1	187.32	5,535
184.77	1	187.37	5,788
184.82	2	187.42	6,046
184.87	3	187.47	6,308
184.92	3	187.52	6,575
184.97	4	187.57	6,845
185.02	14	187.62	7,118
185.07	41	187.67	7,395
185.12	70	187.72	7,675
185.17	102	187.77	7,959
185.22	136	187.82	8,246
185.27	172	187.87	8,537
185.32	211	187.92	8,831
185.37	253	187.97	9,129
185.42	298		
185.47	345		
185.52	396		
185.57	450		
185.62	507		
185.67	568		
185.72	632		
185.77	700		
185.82	771		
185.87	846		
185.92	926		
185.97	1,009		
186.02	1,096		
186.07	1,189		
186.12	1,286		
186.17	1,389		
186.22	1,497		
186.27	1,611		
186.32	1,731		
186.37	1,856		
186.42	1,988		
186.47	2,126		
186.52	2,270		
186.57	2,421		
186.62	2,579		
186.67	2,743		
186.72	2,914		
186.77	3,093		
186.82	3,279		
186.87	3,472		
186.92	3,673		
186.97	3,882		
187.02	4,101		
187.07	4,330		
187.12	4,563		
187.17	4,800		
187.22	5,041		

Linear Interpolation

1,668 CF Storage = 186.29'

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Stage-Discharge for Pond 101P: Gravel Wetland #101

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
184.67	0.00	0.00	0.00	187.27	0.17	0.17	0.00
184.72	0.00	0.00	0.00	187.32	0.18	0.18	0.00
184.77	0.00	0.00	0.00	187.37	0.19	0.19	0.00
184.82	0.00	0.00	0.00	187.42	0.22	0.22	0.00
184.87	0.01	0.01	0.00	187.47	0.39	0.39	0.00
184.92	0.01	0.01	0.00	187.52	0.71	0.64	0.07
184.97	0.01	0.01	0.00	187.57	1.38	0.94	0.44
185.02	0.01	0.01	0.00	187.62	2.28	1.29	1.00
185.07	0.01	0.01	0.00	187.67	3.36	1.67	1.68
185.12	0.01	0.01	0.00	187.72	4.59	2.10	2.49
185.17	0.01	0.01	0.00	187.77	5.97	2.55	3.43
185.22	0.01	0.01	0.00	187.82	7.18	2.70	4.47
185.27	0.01	0.01	0.00	187.87	8.48	2.85	5.63
185.32	0.01	0.01	0.00	187.92	9.90	2.99	6.91
185.37	0.01	0.01	0.00	187.97	11.45	3.13	8.32
185.42	0.01	0.01	0.00				
185.47	0.01	0.01	0.00				
185.52	0.01	0.01	0.00				
185.57	0.01	0.01	0.00				
185.62	0.01	0.01	0.00				
185.67	0.01	0.01	0.00				
185.72	0.01	0.01	0.00				
185.77	0.01	0.01	0.00				
185.82	0.01	0.01	0.00				
185.87	0.01	0.01	0.00				
185.92	0.01	0.01	0.00				
185.97	0.01	0.01	0.00				
186.02	0.01	0.01	0.00				
186.07	0.02	0.02	0.00				
186.12	0.02	0.02	0.00				
186.17	0.02	0.02	0.00				
186.22	0.02	0.02	0.00				
186.27	0.02	0.02	0.00				
186.32	0.02	0.02	0.00				
186.37	0.02	0.02	0.00				
186.42	0.02	0.02	0.00				
186.47	0.02	0.02	0.00				
186.52	0.02	0.02	0.00				
186.57	0.02	0.02	0.00				
186.62	0.02	0.02	0.00				
186.67	0.02	0.02	0.00				
186.72	0.02	0.02	0.00				
186.77	0.02	0.02	0.00				
186.82	0.03	0.03	0.00				
186.87	0.05	0.05	0.00				
186.92	0.07	0.07	0.00				
186.97	0.09	0.09	0.00				
187.02	0.11	0.11	0.00				
187.07	0.12	0.12	0.00				
187.12	0.14	0.14	0.00				
187.17	0.15	0.15	0.00				
187.22	0.16	0.16	0.00				

Elevation 186.29' =
0.02 CFS discharge



GRAVEL WETLAND DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: Gravel Wetland #102 (Pond 102P)

Enter the node name in the drainage analysis if applicable.

2.56	ac	A = Area draining to the practice	
0.92	ac	A _I = Impervious area draining to the practice	
0.36	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.37	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.96	ac-in	WQV = 1" x R _v x A	
3,478	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
348	cf	10% x WQV (check calc for sediment forebay)	
1,565	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
947	cf	V _{SED} = Sediment forebay volume	≥ 10%WQV
2,277	cf	V _{TB1} = Volume of treatment bay 1 ¹	≥ 45%WQV
1,793	cf	V _{TB2} = Volume of treatment bay 2 ¹	≥ 45%WQV
0.08	cfs	2Q _{avg} = 2* WQV / 24 hrs * (1hr / 3600 sec) ⁴	
177.58	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
0.06	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	< 2Q _{avg}
32.20	hours	T _{ED} = Drawdown time of extended detention = 2WQV/Q _{WQV}	≥ 24-hrs
3.00	:1	Pond side slopes	≥ 3:1
175.65	ft	Elevation of SHWT	
173.65	ft	SHWT - 2 feet	
175.17	ft	E _{pp} = Elevation of the permanent pool (elevation of lowest orifice) ³	≤ E _{SHWT} - 2 ft
16,20	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")?	
181.57	ft	Peak elevation of the 50-year storm event (E ₅₀)	
182.50	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. To ensure orifice is sized so that WQV is released at a relatively stable rate.

3. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (K_{sat}) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes: K_{sat} Acton > than 0.015 in/hr. System to be lined w/ low perm material

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

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Summary for Pond 102P: Gravel Wetland #102

Inflow Area = 2.563 ac, 35.98% Impervious, Inflow Depth > 5.34" for 50 Yr.-24 Hr. event
 Inflow = 9.23 cfs @ 12.23 hrs, Volume= 1.140 af
 Outflow = 2.39 cfs @ 13.03 hrs, Volume= 0.813 af, Atten= 74%, Lag= 48.3 min
 Primary = 2.39 cfs @ 13.03 hrs, Volume= 0.813 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= 0.03 hrs / 3

Peak Elev= 181.57' @ 13.03 hrs Surf.Area= 11,348 sf Storage= 25,154 cf

Flood Elev= 182.50' Surf.Area= 13,037 sf Storage= 33,366 cf

Plug-Flow detention time= 216.4 min calculated for 0.812 af (71% of inflow)

Center-of-Mass det. time= 126.0 min (944.7 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	175.17'	85 cf	4.00'D x 6.75'H 4' Structure
#2	176.50'	947 cf	Sediment Forebay (Irregular) Listed below (Recalc)
#3	175.50'	2,277 cf	Cell #1 (Irregular) Listed below (Recalc)
#4	175.50'	1,793 cf	Cell #2 (Irregular) Listed below (Recalc)
#5	178.00'	28,265 cf	Open Water Storage (Irregular) Listed below (Recalc)
		33,366 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
176.50	138	91.8	0	0	138
177.00	327	123.1	113	113	676
178.00	638	137.1	474	587	994
178.50	806	142.8	360	947	1,139

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.50	515	92.7	0	0	515
176.00	663	102.6	294	294	676
177.00	982	125.0	817	1,111	1,098
178.00	1,360	147.4	1,166	2,277	1,602

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.50	350	73.2	0	0	350
176.00	473	84.4	205	205	496
177.00	782	109.2	621	826	890
178.00	1,165	134.0	967	1,793	1,385

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
178.00	2,689	219.9	0	0	2,689
178.50	3,492	273.5	1,541	1,541	4,797
179.00	5,031	329.0	2,119	3,660	7,462
180.00	6,045	347.5	5,530	9,190	8,514
181.00	7,116	366.4	6,573	15,763	9,646
182.00	8,714	550.0	7,902	23,665	23,042
182.50	9,693	636.4	4,600	28,265	31,205

Device	Routing	Invert	Outlet Devices
#1	Primary	175.17'	12.0" Round 12" HDPE N-12 L= 32.5' Ke= 0.900 Inlet / Outlet Invert= 175.17' / 175.00' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	175.17'	1.2" Vert. 1.25" Orifice C= 0.600
#3	Device 1	179.30'	3.0" Vert. 3" Orifice C= 0.600
#4	Device 1	180.00'	6.0" Vert. 6" Orifice C= 0.600
#5	Device 1	180.90'	6.0" W x 12.0" H Vert. 6" X 12" Box Orifice C= 0.600
#6	Device 1	181.90'	12.0" Horiz. 12" Horizontal Orifice C= 0.600 Limited to weir flow at low heads
#7	Secondary	182.00'	10.0' long x 7.0' breadth 10' Emergency 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=2.39 cfs @ 13.03 hrs HW=181.57' TW=177.13' (Dynamic Tailwater)

- ↑ **1=12" HDPE N-12** (Passes 2.39 cfs of 6.29 cfs potential flow)
- ↑ **2=1.25" Orifice** (Orifice Controls 0.08 cfs @ 10.14 fps)
- ↑ **3=3" Orifice** (Orifice Controls 0.35 cfs @ 7.05 fps)
- ↑ **4=6" Orifice** (Orifice Controls 1.09 cfs @ 5.53 fps)
- ↑ **5=6" X 12" Box Orifice** (Orifice Controls 0.88 cfs @ 2.62 fps)
- ↑ **6=12" Horizontal Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=175.17' TW=175.00' (Dynamic Tailwater)

- ↑ **7=10' Emergency Spillway** (Controls 0.00 cfs)

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

Printed 7/10/2021

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Stage-Area-Storage for Pond 102P: Gravel Wetland #102

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
175.17	0	180.37	16,580
175.27	1	180.47	17,230
175.37	3	180.57	17,890
175.47	4	180.67	18,562
175.57	67	180.77	19,244
175.67	161	180.87	19,936
175.77	260	180.97	20,640
175.87	365	181.07	21,357
175.97	475	181.17	22,088
176.07	591	181.27	22,834
176.17	713	181.37	23,597
176.27	840	181.47	24,375
176.37	973	181.57	25,169
176.47	1,113	181.67	25,979
176.57	1,269	181.77	26,805
176.67	1,439	181.87	27,648
176.77	1,619	181.97	28,506
176.87	1,809	182.07	29,382
176.97	2,010	182.17	30,276
177.07	2,223	182.27	31,190
177.17	2,445	182.37	32,123
177.27	2,676	182.47	33,077
177.37	2,918		
177.47	3,171		
177.57	3,434		
177.67	3,708		
177.77	3,993		
177.87	4,290		
177.97	4,598		
178.07	4,931		
178.17	5,287		
178.27	5,662		
178.37	6,057		
178.47	6,471		
178.57	6,852		
178.67	7,237		
178.77	7,652		
178.87	8,097		
178.97	8,575		
179.07	9,081		
179.17	9,597		
179.27	10,123		
179.37	10,658		
179.47	11,204		
179.57	11,760		
179.67	12,326		
179.77	12,903		
179.87	13,489		
179.97	14,087		
180.07	14,695		
180.17	15,313		
180.27	15,941		

Linear Interpolation

3,478 CF Storage = 177.58'

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

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Stage-Discharge for Pond 102P: Gravel Wetland #102

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
175.17	0.00	0.00	0.00	180.37	0.64	0.64	0.00
175.27	0.01	0.01	0.00	180.47	0.78	0.78	0.00
175.37	0.01	0.01	0.00	180.57	0.88	0.88	0.00
175.47	0.02	0.02	0.00	180.67	0.96	0.96	0.00
175.57	0.02	0.02	0.00	180.77	1.04	1.04	0.00
175.67	0.03	0.03	0.00	180.87	1.12	1.12	0.00
175.77	0.03	0.03	0.00	180.97	1.22	1.22	0.00
175.87	0.03	0.03	0.00	181.07	1.36	1.36	0.00
175.97	0.03	0.03	0.00	181.17	1.54	1.54	0.00
176.07	0.03	0.03	0.00	181.27	1.73	1.73	0.00
176.17	0.04	0.04	0.00	181.37	1.94	1.94	0.00
176.27	0.04	0.04	0.00	181.47	2.17	2.17	0.00
176.37	0.04	0.04	0.00	181.57	2.41	2.41	0.00
176.47	0.04	0.04	0.00	181.67	2.66	2.66	0.00
176.57	0.04	0.04	0.00	181.77	2.93	2.93	0.00
176.67	0.05	0.05	0.00	181.87	3.20	3.20	0.00
176.77	0.05	0.05	0.00	181.97	3.65	3.65	0.00
176.87	0.05	0.05	0.00	182.07	4.84	4.40	0.44
176.97	0.05	0.05	0.00	182.17	7.00	5.31	1.68
177.07	0.05	0.05	0.00	182.27	9.78	6.36	3.43
177.17	0.05	0.05	0.00	182.37	12.45	6.82	5.63
177.27	0.05	0.05	0.00	182.47	15.57	7.24	8.32
177.37	0.06	0.06	0.00	Elevation 177.58' = 0.06 CFS discharge			
177.47	0.06	0.06	0.00				
177.57	0.06	0.06	0.00				
177.67	0.06	0.06	0.00				
177.77	0.06	0.06	0.00				
177.87	0.06	0.06	0.00				
177.97	0.06	0.06	0.00				
178.07	0.06	0.06	0.00				
178.17	0.06	0.06	0.00				
178.27	0.07	0.07	0.00				
178.37	0.07	0.07	0.00				
178.47	0.07	0.07	0.00				
178.57	0.07	0.07	0.00				
178.67	0.07	0.07	0.00				
178.77	0.07	0.07	0.00				
178.87	0.07	0.07	0.00				
178.97	0.07	0.07	0.00				
179.07	0.07	0.07	0.00				
179.17	0.08	0.08	0.00				
179.27	0.08	0.08	0.00				
179.37	0.09	0.09	0.00				
179.47	0.13	0.13	0.00				
179.57	0.17	0.17	0.00				
179.67	0.20	0.20	0.00				
179.77	0.22	0.22	0.00				
179.87	0.24	0.24	0.00				
179.97	0.26	0.26	0.00				
180.07	0.29	0.29	0.00				
180.17	0.37	0.37	0.00				
180.27	0.49	0.49	0.00				

21-011 Proposed Analysis

Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"

Prepared by {enter your company name here}

Printed 7/12/2021

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Summary for Reach 2R: Pretreatment Swale #103

Inflow Area = 1.127 ac, 23.32% Impervious, Inflow Depth > 2.09" for 10 Yr.-24 Hr. event
Inflow = 2.69 cfs @ 12.09 hrs, Volume= 0.196 af
Outflow = 2.69 cfs @ 12.10 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Max. Velocity= 2.30 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 0.93 fps, Avg. Travel Time= 0.9 min

Peak Storage= 58 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.20'

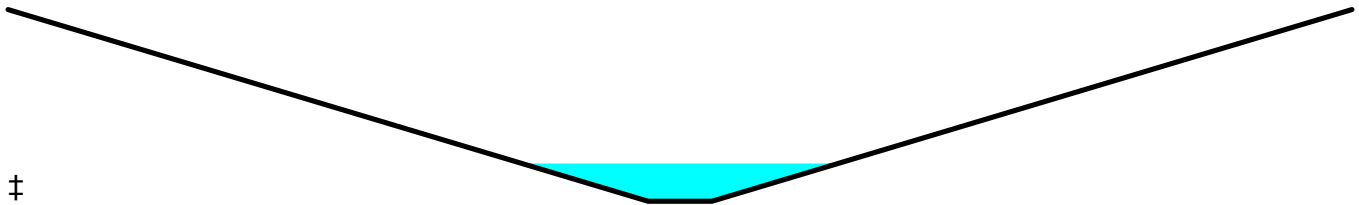
Bank-Full Depth= 1.00' Flow Area= 22.0 sf, Capacity= 136.45 cfs

2.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 20.0 ' ' Top Width= 42.00'

Length= 50.0' Slope= 0.0200 ' '

Inlet Invert= 178.00', Outlet Invert= 177.00'



21-011 Proposed Analysis

Type III 24-hr 10 Yr.-24 Hr. Rainfall=5.41"

Prepared by {enter your company name here}

Printed 7/12/2021

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Stage-Discharge for Reach 2R: Pretreatment Swale #103

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)	Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
178.00	0.00	0.00	178.52	4.11	26.52
178.01	0.42	0.01	178.53	4.16	27.79
178.02	0.63	0.03	178.54	4.21	29.10
178.03	0.80	0.06	178.55	4.26	30.44
178.04	0.94	0.11	178.56	4.31	31.83
178.05	1.07	0.16	178.57	4.35	33.25
178.06	1.18	0.23	178.58	4.40	34.71
178.07	1.29	0.31	178.59	4.45	36.21
178.08	1.39	0.40	178.60	4.49	37.75
178.09	1.48	0.51	178.61	4.54	39.33
178.10	1.57	0.63	178.62	4.59	40.95
178.11	1.66	0.76	178.63	4.63	42.61
178.12	1.74	0.92	178.64	4.68	44.32
178.13	1.82	1.09	178.65	4.72	46.06
178.14	1.89	1.27	178.66	4.77	47.85
178.15	1.97	1.48	178.67	4.81	49.68
178.16	2.04	1.70	178.68	4.86	51.55
178.17	2.12	1.94	178.69	4.90	53.47
178.18	2.19	2.20	178.70	4.95	55.43
178.19	2.25	2.48	178.71	4.99	57.43
178.20	2.32	2.79	178.72	5.04	59.48
178.21	2.39	3.11	178.73	5.08	61.57
178.22	2.45	3.46	178.74	5.12	63.71
178.23	2.52	3.82	178.75	5.17	65.90
178.24	2.58	4.21	178.76	5.21	68.13
178.25	2.64	4.63	178.77	5.25	70.40
178.26	2.71	5.07	178.78	5.30	72.73
178.27	2.77	5.53	178.79	5.34	75.10
178.28	2.83	6.02	178.80	5.38	77.52
178.29	2.89	6.53	178.81	5.43	79.98
178.30	2.95	7.07	178.82	5.47	82.50
178.31	3.00	7.64	178.83	5.51	85.06
178.32	3.06	8.23	178.84	5.55	87.67
178.33	3.12	8.85	178.85	5.59	90.33
178.34	3.17	9.50	178.86	5.64	93.05
178.35	3.23	10.18	178.87	5.68	95.81
178.36	3.29	10.88	178.88	5.72	98.62
178.37	3.34	11.62	178.89	5.76	101.49
178.38	3.39	12.38	178.90	5.80	104.40
178.39	3.45	13.18	178.91	5.84	107.37
178.40	3.50	14.01	178.92	5.88	110.39
178.41	3.55	14.87	178.93	5.92	113.46
178.42	3.61	15.76	178.94	5.96	116.58
178.43	3.66	16.68	178.95	6.00	119.76
178.44	3.71	17.64	178.96	6.04	122.99
178.45	3.76	18.63	178.97	6.08	126.27
178.46	3.81	19.65	178.98	6.12	129.61
178.47	3.86	20.71	178.99	6.16	133.00
178.48	3.91	21.80	179.00	6.20	136.45
178.49	3.96	22.92			
178.50	4.01	24.09			
178.51	4.06	25.28			



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name:

Rain Garden W/ Infiltration #103 (Pond 103P)

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.13	ac	A = Area draining to the practice	
0.26	ac	A _I = Impervious area draining to the practice	
0.23	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.26	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.29	ac-in	WQV = 1" x R _v x A	
1,063	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
266	cf	25% x WQV (check calc for sediment forebay volume)	
797	cf	75% x WQV (check calc for surface sand filter volume)	
Pretreatment Swale		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
1,257	sf	A _{SA} = Surface area of the practice	
1.00	iph	K _{sat} _{DESIGN} = Design infiltration rate ¹	
		If K _{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
YES	Yes/No	(Use the calculations below)	
10.1	hours	T _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	
-	hours	T _{DRAIN} = Drain time = 2WQV/Q _{WQV}	≤ 72-hrs
175.25	feet	E _{FC} = Elevation of the bottom of the filter course material ²	
	feet	E _{UD} = Invert elevation of the underdrain (UD), if applicable	
174.25	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
171.63	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
175.25	feet	D _{FC to UD} = Depth to UD from the bottom of the filter course	≥ 1'
3.62	feet	D _{FC to ROCK} = Depth to bedrock from the bottom of the filter course	≥ 1'
1.00	feet	D _{FC to SHWT} = Depth to SHWT from the bottom of the filter course	≥ 1'
178.31	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
179.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes

If a bioretention area is proposed:

YES	ac	Drainage Area no larger than 5 ac?	← yes
8,865	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	

If porous pavement is proposed:

	acres	Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
		A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA
Sheet		Note what sheet in the plan set contains the filter course spec.	mod. 304.1 (see spec)

1. Rate of the limiting layer (either the filter course or the underlying soil). $K_{sat_{design}}$ includes factor of safety. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet structure, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes: 30" ESHWT elevation given for high point of system (176.75 E Grade)

21-011 Pretreatment Swale #103

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

Printed 7/12/2021

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Summary for Pond 103P: Rain Garden W/ Infiltration #103

Inflow Area = 1.127 ac, 23.32% Impervious, Inflow Depth > 4.23" for 50 Yr.-24 Hr. event
 Inflow = 5.57 cfs @ 12.09 hrs, Volume= 0.397 af
 Outflow = 0.41 cfs @ 13.77 hrs, Volume= 0.178 af, Atten= 93%, Lag= 100.8 min
 Discarded = 0.03 cfs @ 9.66 hrs, Volume= 0.037 af
 Primary = 0.38 cfs @ 13.77 hrs, Volume= 0.141 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 178.31' @ 13.77 hrs Surf.Area= 1,257 sf Storage= 10,273 cf

Flood Elev= 179.00' Surf.Area= 1,257 sf Storage= 24,052 cf

Plug-Flow detention time= 275.1 min calculated for 0.177 af (45% of inflow)

Center-of-Mass det. time= 155.6 min (985.2 - 829.7)

Volume	Invert	Avail.Storage	Storage Description
#1	174.25'	503 cf	Stone (Irregular) Listed below (Recalc) 1,257 cf Overall x 40.0% Voids
#2	175.25'	377 cf	Bio-Media (Irregular) Listed below (Recalc) -Impervious 1,886 cf Overall x 20.0% Voids
#3	176.75'	63 cf	Loam (Irregular) Listed below (Recalc) -Impervious 314 cf Overall x 20.0% Voids
#4	177.00'	23,109 cf	Open Water Storage (Irregular) Listed below (Recalc) -Impervious
		24,052 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.25	1,257	171.5	0	0	1,257
175.25	1,257	171.5	1,257	1,257	1,429

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.25	1,257	171.5	0	0	1,257
176.75	1,257	171.5	1,886	1,886	1,514

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
176.75	1,257	171.5	0	0	1,257
177.00	1,257	171.5	314	314	1,300

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
177.00	1,338	175.0	0	0	1,338
178.00	10,844	495.5	5,330	5,330	18,442
179.00	25,775	829.0	17,779	23,109	53,599

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.25'	1.000 in/hr Exfiltration through media over Surface area
#2	Primary	178.25'	10.0' long x 7.0' breadth 10' Emergency 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

21-011 Pretreatment Swale #103

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

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Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65
2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.03 cfs @ 9.66 hrs HW=174.30' (Free Discharge)

↑1=Exfiltration through media (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.38 cfs @ 13.77 hrs HW=178.31' TW=176.06' (Dynamic Tailwater)

↑2=10' Emergency Spillway (Weir Controls 0.38 cfs @ 0.60 fps)

21-011 Pretreatment Swale #103

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Stage-Area-Storage for Pond 103P: Rain Garden W/ Infiltration #103

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
174.25	1,257	0	176.85	1,257	905
174.30	1,257	25	176.90	1,257	918
174.35	1,257	50	176.95	1,257	930
174.40	1,257	75	177.00	1,257	943
174.45	1,257	101	177.05	1,257	1,016
174.50	1,257	126	177.10	1,257	1,103
174.55	1,257	151	177.15	1,257	1,204
174.60	1,257	176	177.20	1,257	1,321
174.65	1,257	201	177.25	1,257	1,455
174.70	1,257	226	177.30	1,257	1,608
174.75	1,257	251	177.35	1,257	1,779
174.80	1,257	277	177.40	1,257	1,971
174.85	1,257	302	177.45	1,257	2,184
174.90	1,257	327	177.50	1,257	2,420
174.95	1,257	352	177.55	1,257	2,679
175.00	1,257	377	177.60	1,257	2,964
175.05	1,257	402	177.65	1,257	3,274
175.10	1,257	427	177.70	1,257	3,612
175.15	1,257	453	177.75	1,257	3,978
175.20	1,257	478	177.80	1,257	4,374
175.25	1,257	503	177.85	1,257	4,800
175.30	1,257	515	177.90	1,257	5,258
175.35	1,257	528	177.95	1,257	5,748
175.40	1,257	541	178.00	1,257	6,273
175.45	1,257	553	178.05	1,257	6,830
175.50	1,257	566	178.10	1,257	7,417
175.55	1,257	578	178.15	1,257	8,035
175.60	1,257	591	178.20	1,257	8,685
175.65	1,257	603	178.25	1,257	9,368
175.70	1,257	616	178.30	1,257	10,084
175.75	1,257	629	178.35	1,257	10,834
175.80	1,257	641	178.40	1,257	11,619
175.85	1,257	654	178.45	1,257	12,439
175.90	1,257	666	178.50	1,257	13,296
175.95	1,257	679	178.55	1,257	14,191
176.00	1,257	691	178.60	1,257	15,123
176.05	1,257	704	178.65	1,257	16,095
176.10	1,257	716	178.70	1,257	17,106
176.15	1,257	729	178.75	1,257	18,158
176.20	1,257	742	178.80	1,257	19,251
176.25	1,257	754	178.85	1,257	20,386
176.30	1,257	767	178.90	1,257	21,564
176.35	1,257	779	178.95	1,257	22,786
176.40	1,257	792	179.00	1,257	24,052
176.45	1,257	804	Linear Interpolation		
176.50	1,257	817	Lowest Outlet = 178.25'		
176.55	1,257	830	Storage Volume = 8,865 CF		
176.60	1,257	842			
176.65	1,257	855			
176.70	1,257	867			
176.75	1,257	880			
176.80	1,257	892			



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name:

Rain Garden #104 (Pond 104P)

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.54	ac	A = Area draining to the practice	
0.18	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	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.19	ac-in	WQV = 1" x R _v x A	
700	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
175	cf	25% x WQV (check calc for sediment forebay volume)	
525	cf	75% x WQV (check calc for surface sand filter volume)	
N/A		Method of Pretreatment? (not required for clean or roof runoff)	
N/A	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A _{SA} = Surface area of the practice	
	iph	K _{sat} _{DESIGN} = Design infiltration rate ¹	
		If K _{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
182.21	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
0.03	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	
12.97	hours	T _{DRAIN} = Drain time = 2WQV/Q _{WQV}	≤ 72-hrs
179.75	feet	E _{FC} = Elevation of the bottom of the filter course material ²	
179.00	feet	E _{UD} = Invert elevation of the underdrain (UD), if applicable	
179.35	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
175.02	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
0.75	feet	D _{FC to UD} = Depth to UD from the bottom of the filter course	≥ 1'
4.73	feet	D _{FC to ROCK} = Depth to bedrock from the bottom of the filter course	≥ 1'
0.40	feet	D _{FC to SHWT} = Depth to SHWT from the bottom of the filter course	≥ 1'
183.64	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
184.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes

If a bioretention area is proposed:

YES	ac	Drainage Area no larger than 5 ac?	← yes
3,034	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ WQV
18.0	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	P-104	Note what sheet in the plan set contains the filter course specification	
2.0	:1	Pond side slopes	≥ 3:1
Sheet	P-104	Note what sheet in the plan set contains the planting plans and surface cover	

If porous pavement is proposed:

		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A _{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D _{FC} = Filter course thickness	12", or 18" if within GPA
Sheet		Note what sheet in the plan set contains the filter course spec.	mod. 304.1 (see spec)

1. Rate of the limiting layer (either the filter course or the underlying soil). Ksat_{design} includes factor of safety. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet structure, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes: Residential construction, 2:1 side slopes are compliant with City of Dover Regulations

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Summary for Pond 104P: Rain Garden #104

Inflow Area = 0.540 ac, 34.13% Impervious, Inflow Depth > 5.98" for 50 Yr.-24 Hr. event
 Inflow = 3.13 cfs @ 12.15 hrs, Volume= 0.269 af
 Outflow = 2.99 cfs @ 12.19 hrs, Volume= 0.199 af, Atten= 4%, Lag= 2.4 min
 Primary = 0.03 cfs @ 8.46 hrs, Volume= 0.036 af
 Secondary = 2.96 cfs @ 12.19 hrs, Volume= 0.162 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3

Peak Elev= 183.64' @ 12.19 hrs Surf.Area= 110 sf Storage= 3,435 cf

Flood Elev= 184.00' Surf.Area= 110 sf Storage= 5,165 cf

Plug-Flow detention time= 132.7 min calculated for 0.199 af (74% of inflow)

Center-of-Mass det. time= 46.6 min (847.7 - 801.1)

Volume	Invert	Avail.Storage	Storage Description
#1	179.00'	33 cf	Stone (Irregular) Listed below (Recalc) -Impervious 83 cf Overall x 40.0% Voids
#2	179.75'	33 cf	Bio-Media (Irregular) Listed below (Recalc) 165 cf Overall x 20.0% Voids
#3	181.25'	6 cf	Loam (Irregular) Listed below (Recalc) -Impervious 28 cf Overall x 20.0% Voids
#4	181.50'	5,093 cf	Open Water Storage (Irregular) Listed below (Recalc) -Impervious
		5,165 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.00	110	41.4	0	0	110
179.75	110	41.4	83	83	141

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.75	110	41.4	0	0	110
181.25	110	41.4	165	165	172

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
181.25	110	41.4	0	0	110
181.50	110	41.4	28	28	120

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
181.50	110	41.4	0	0	110
182.00	1,412	176.2	319	319	2,445
183.00	1,880	199.3	1,640	1,960	3,160
183.50	2,268	223.9	1,035	2,995	3,995
184.00	6,486	425.9	2,098	5,093	14,442

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Device	Routing	Invert	Outlet Devices
#1	Primary	179.00'	6.0" Round 6" HDPE N-12 L= 10.0' Ke= 0.900 Inlet / Outlet Invert= 179.00' / 179.00' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	179.75'	10.000 in/hr 10 In/Hr Bio-Media over Surface area
#3	Secondary	183.50'	25.0' long x 4.0' breadth 25' Emergency 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=0.03 cfs @ 8.46 hrs HW=181.28' TW=179.03' (Dynamic Tailwater)

↑ **1=6" HDPE N-12** (Passes 0.03 cfs of 1.06 cfs potential flow)

↑ **2=10 In/Hr Bio-Media** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=2.93 cfs @ 12.19 hrs HW=183.63' TW=179.26' (Dynamic Tailwater)

↑ **3=25' Emergency Spillway** (Weir Controls 2.93 cfs @ 0.87 fps)

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Stage-Area-Storage for Pond 104P: Rain Garden #104

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
179.00	0	0	181.60	110	89
179.05	0	2	181.65	110	104
179.10	0	4	181.70	110	124
179.15	0	7	181.75	110	150
179.20	0	9	181.80	110	182
179.25	0	11	181.85	110	222
179.30	0	13	181.90	110	269
179.35	0	15	181.95	110	325
179.40	0	18	182.00	110	391
179.45	0	20	182.05	110	462
179.50	0	22	182.10	110	534
179.55	0	24	182.15	110	608
179.60	0	26	182.20	110	682
179.65	0	29	182.25	110	758
179.70	0	31	182.30	110	834
179.75	110	33	182.35	110	912
179.80	110	34	182.40	110	991
179.85	110	35	182.45	110	1,071
179.90	110	36	182.50	110	1,153
179.95	110	37	182.55	110	1,235
180.00	110	39	182.60	110	1,319
180.05	110	40	182.65	110	1,404
180.10	110	41	182.70	110	1,490
180.15	110	42	182.75	110	1,577
180.20	110	43	182.80	110	1,665
180.25	110	44	182.85	110	1,755
180.30	110	45	182.90	110	1,846
180.35	110	46	182.95	110	1,938
180.40	110	47	183.00	110	2,031
180.45	110	48	183.05	110	2,126
180.50	110	50	183.10	110	2,223
180.55	110	51	183.15	110	2,322
180.60	110	52	183.20	110	2,422
180.65	110	53	183.25	110	2,525
180.70	110	54	183.30	110	2,629
180.75	110	55	183.35	110	2,736
180.80	110	56	183.40	110	2,844
180.85	110	57	183.45	110	2,954
180.90	110	58	183.50	110	3,067
180.95	110	59	183.55	110	3,188
181.00	110	61	183.60	110	3,326
181.05	110	62	183.65	110	3,482
181.10	110	63	183.70	110	3,657
181.15	110	64	183.75	110	3,852
181.20	110	65	183.80	110	4,068
181.25	110	66	183.85	110	4,306
181.30	110	67	183.90	110	4,568
181.35	110	68	183.95	110	4,854
181.40	110	69	184.00	110	5,165
181.45	110	70	Linear Interpolation		
181.50	110	72	Lowest Outlet = 183.50'		
181.55	110	79	Storage Volume = 3,034 CF		

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

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Stage-Discharge for Pond 104P: Rain Garden #104

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
179.00	0.00	0.00	0.00	181.60	0.03	0.03	0.00
179.05	0.00	0.00	0.00	181.65	0.03	0.03	0.00
179.10	0.00	0.00	0.00	181.70	0.03	0.03	0.00
179.15	0.00	0.00	0.00	181.75	0.03	0.03	0.00
179.20	0.00	0.00	0.00	181.80	0.03	0.03	0.00
179.25	0.00	0.00	0.00	181.85	0.03	0.03	0.00
179.30	0.00	0.00	0.00	181.90	0.03	0.03	0.00
179.35	0.00	0.00	0.00	181.95	0.03	0.03	0.00
179.40	0.00	0.00	0.00	182.00	0.03	0.03	0.00
179.45	0.00	0.00	0.00	182.05	0.03	0.03	0.00
179.50	0.00	0.00	0.00	182.10	0.03	0.03	0.00
179.55	0.00	0.00	0.00	182.15	0.03	0.03	0.00
179.60	0.00	0.00	0.00	182.20	0.03	0.03	0.00
179.65	0.00	0.00	0.00	182.25	0.03	0.03	0.00
179.70	0.00	0.00	0.00	182.30	0.03	0.03	0.00
179.75	0.03	0.03	0.00	182.35	0.03	0.03	0.00
179.80	0.03	0.03	0.00	182.40	0.03	0.03	0.00
179.85	0.03	0.03	0.00	182.45	0.03	0.03	0.00
179.90	0.03	0.03	0.00	182.50	0.03	0.03	0.00
179.95	0.03	0.03	0.00	182.55	0.03	0.03	0.00
180.00	0.03	0.03	0.00	182.60	0.03	0.03	0.00
180.05	0.03	0.03	0.00	182.65	0.03	0.03	0.00
180.10	0.03	0.03	0.00	182.70	0.03	0.03	0.00
180.15	0.03	0.03	0.00	182.75	0.03	0.03	0.00
180.20	0.03	0.03	0.00	182.80	0.03	0.03	0.00
180.25	0.03	0.03	0.00	182.85	0.03	0.03	0.00
180.30	0.03	0.03	0.00	182.90	0.03	0.03	0.00
180.35	0.03	0.03	0.00	182.95	0.03	0.03	0.00
180.40	0.03	0.03	0.00	183.00	0.03	0.03	0.00
180.45	0.03	0.03	0.00	183.05	0.03	0.03	0.00
180.50	0.03	0.03	0.00	183.10	0.03	0.03	0.00
180.55	0.03	0.03	0.00	183.15	0.03	0.03	0.00
180.60	0.03	0.03	0.00	183.20	0.03	0.03	0.00
180.65	0.03	0.03	0.00	183.25	0.03	0.03	0.00
180.70	0.03	0.03	0.00	183.30	0.03	0.03	0.00
180.75	0.03	0.03	0.00	183.35	0.03	0.03	0.00
180.80	0.03	0.03	0.00	183.40	0.03	0.03	0.00
180.85	0.03	0.03	0.00	183.45	0.03	0.03	0.00
180.90	0.03	0.03	0.00	183.50	0.03	0.03	0.00
180.95	0.03	0.03	0.00	183.55	0.69	0.03	0.67
181.00	0.03	0.03	0.00	183.60	1.91	0.03	1.88
181.05	0.03	0.03	0.00	183.65	3.48	0.03	3.46
181.10	0.03	0.03	0.00	183.70	5.35	0.03	5.32
181.15	0.03	0.03	0.00	183.75	7.59	0.03	7.56
181.20	0.03	0.03	0.00	183.80	10.13	0.03	10.11
181.25	0.03	0.03	0.00	183.85	12.97	0.03	12.94
181.30	0.03	0.03	0.00	183.90	16.09	0.03	16.06
181.35	0.03	0.03	0.00	183.95	19.48	0.03	19.45
181.40	0.03	0.03	0.00	184.00	23.14	0.03	23.11
181.45	0.03	0.03	0.00	Elevation 182.21' =			
181.50	0.03	0.03	0.00	0.03 CFS discharge			
181.55	0.03	0.03	0.00				

21-011 Proposed Analysis

Type III 24-hr 50 Yr.-24 Hr. Rainfall=8.14"

Prepared by {enter your company name here}

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Stage-Area-Storage for Pond 104P: Rain Garden #104

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
179.00	0	0	181.60	110	89
179.05	0	2	181.65	110	104
179.10	0	4	181.70	110	124
179.15	0	7	181.75	110	150
179.20	0	9	181.80	110	182
179.25	0	11	181.85	110	222
179.30	0	13	181.90	110	269
179.35	0	15	181.95	110	325
179.40	0	18	182.00	110	391
179.45	0	20	182.05	110	462
179.50	0	22	182.10	110	534
179.55	0	24	182.15	110	608
179.60	0	26	182.20	110	682
179.65	0	29	182.25	110	758
179.70	0	31	182.30	110	834
179.75	110	33	182.35	110	912
179.80	110	34	182.40	110	991
179.85	110	35	182.45	110	1,071
179.90	110	36	182.50	110	1,153
179.95	110	37	182.55	110	1,235
180.00	110	39	182.60	110	1,319
180.05	110	40	182.65	110	1,404
180.10	110	41	182.70	110	1,490
180.15	110	42	182.75	110	1,577
180.20	110	43	182.80	110	1,665
180.25	110	44	182.85	110	1,755
180.30	110	45	182.90	110	1,846
180.35	110	46	182.95	110	1,938
180.40	110	47	183.00	110	2,031
180.45	110	48	183.05	110	2,126
180.50	110	50	183.10	110	2,223
180.55	110	51	183.15	110	2,322
180.60	110	52	183.20	110	2,422
180.65	110	53	183.25	110	2,525
180.70	110	54	183.30	110	2,629
180.75	110	55	183.35	110	2,736
180.80	110	56	183.40	110	2,844
180.85	110	57	183.45	110	2,954
180.90	110	58	183.50	110	3,067
180.95	110	59	183.55	110	3,188
181.00	110	61	183.60	110	3,326
181.05	110	62	183.65	110	3,482
181.10	110	63	183.70	110	3,657
181.15	110	64	183.75	110	3,852
181.20	110	65	183.80	110	4,068
181.25	110	66	183.85	110	4,306
181.30	110	67	183.90	110	4,568
181.35	110	68	183.95	110	4,854
181.40	110	69	184.00	110	5,165
181.45	110	70			
181.50	110	72			
181.55	110	79			

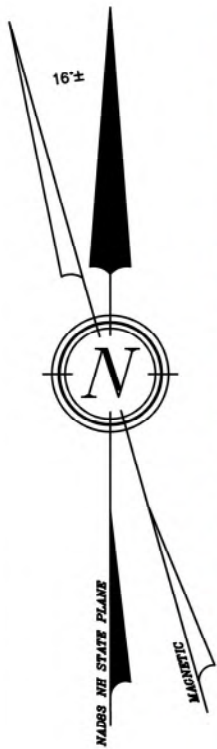
WQV Draw-down

Linear Interpolation

700 CF Storage above

stone = 182.21'

See next Stage-Area-Storage Table
for storage volume



USDA / NRCS WEBSOIL
SETTLEMENT ON 6TH, LLC.
WILDCAT DRIVE
DOVER, NH
TAX MAP B, LOT 5

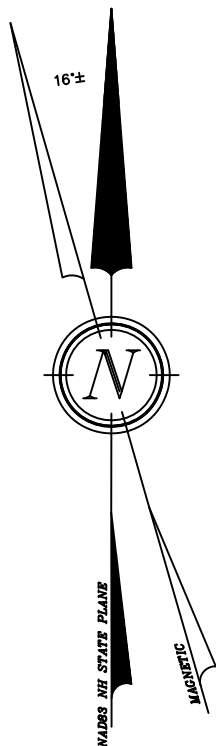
BERRY SURVEYING & ENGINEERING

335 SECOND CROWN POINT RD.
BARRINGTON, N.H. 332-2863

SCALE : 1" = 2000'

DATE : JUNE 10, 2021

FILE NO. : DB 2021 - 011



AERIAL PHOTO / WEBSOIL
SETTLEMENT ON 6TH, LLC.
WILDCAT DRIVE
DOVER, NH
TAX MAP B, LOT 5

BERRY SURVEYING & ENGINEERING

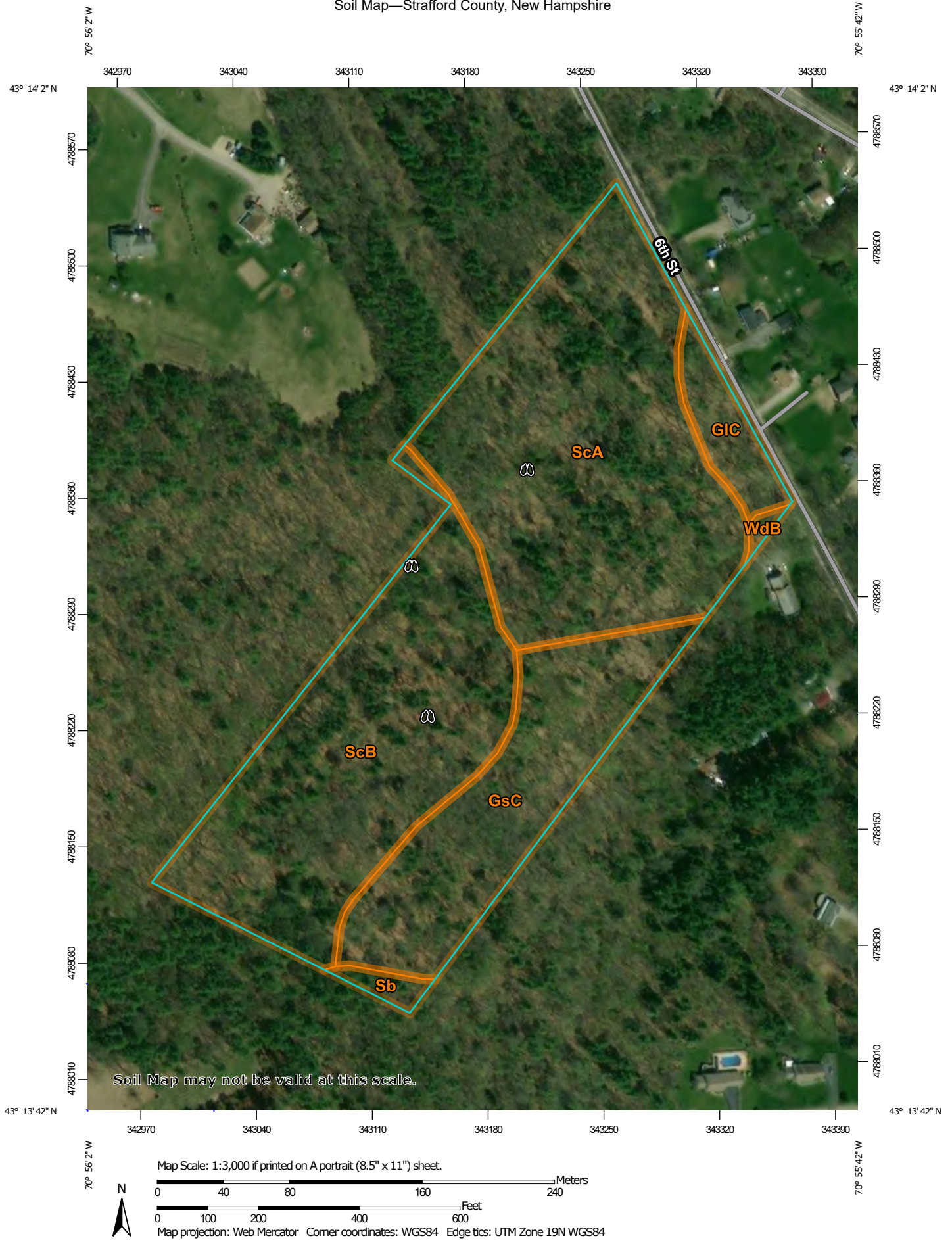
335 SECOND CROWN POINT RD.
BARRINGTON , N.H. 332-2863

SCALE : 1" = 500'

DATE : JUNE 10, 2021

FILE NO. : DB 2021 - 011

Soil Map—Strafford County, New Hampshire



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 20, May 29, 2020

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
GIC	Gloucester fine sandy loam, 8 to 15 percent slopes	0.8	4.1%
GsC	Gloucester very stony fine sandy loam, 8 to 15 percent slopes	4.0	19.7%
Sb	Saugatuck loamy sand	0.2	1.0%
ScA	Scantic silt loam, 0 to 3 percent slopes	8.2	40.8%
ScB	Scantic silt loam, 3 to 8 percent slopes	6.8	34.0%
WdB	Windsor loamy sand, 3 to 8 percent slopes	0.1	0.4%
Totals for Area of Interest		20.1	100.0%

**John P. Hayes III CSS, CWS,
7 Limestone Way
North Hampton, NH 03862
603-205-4396
johnphayes@comcast.net**

3/25/21

**Christopher Berry
Berry Surveying and Engineering
335 Second Crown Point Road
Barrington NH 03825**

Job # 21-008

**3/22/21
Site Specific Soil Survey
Map B Lot 6
Sixth Street 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 March 22, 2021. 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 property that is subject of the soil survey is located southwest of Sixth Street, and southeast of County Farm Road, in Dover NH. The mapped area of the parcel is 19.3 acres in size. The plans used for these soil maps are a 40 scale plan, where 1 inch equals 40 feet, with one 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 contain poorly drained soils. In accordance with the Strafford County Soil Survey, portions of the soil map with the map unit identifier Wf, represent a Windsor soil variant that has an underlying clay or silt loam substratum .

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
AcB (State No. 147)	Acton (very stony)	The Acton series consists of very deep, moderately well drained soils that formed in sandy glacial till on uplands. Permeability is moderately rapid in the surface layer and moderately rapid to rapid in the subsoil and substratum. The hydrologic soil group is B. Slope ranges from 3% to 8%.
AcC (State No. 147)	Acton (very stony)	The Acton series consists of very deep, moderately well drained soils that formed in sandy glacial till on uplands. Permeability is moderately rapid in the surface layer and moderately rapid to rapid in the subsoil and substratum. The hydrologic soil group is B. Slope ranges from 8% to 15%.
BzA (State No. 32)	Buxton	The Buxton series consists of very deep, moderately well drained soils that formed in glaciolacustrine or glaciomarine deposits on coastal lowlands and river valleys. Slope ranges from 3 to 50 percent. Permeability is moderate or moderately slow in the surface horizon, moderately slow or slow in the upper part of the subsoil, and slow or very slow in the lower part of the subsoil and in the substratum. The hydrologic soil group is C. Slope ranges from 0% to 3%.
BzB (State No. 32)	Buxton	The Buxton series consists of very deep, moderately well drained soils that formed in glaciolacustrine or glaciomarine deposits on coastal lowlands and river valleys. Slope ranges from 3 to 50 percent. Permeability is moderate or moderately slow in the surface horizon, moderately slow or slow in the upper part of the subsoil, and slow or very slow in the lower part of the subsoil and in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
DeA (State No. 313)	Deerfield	The Deerfield series consists of very deep, moderately well drained soils formed in glaciofluvial deposits. They are nearly level to strongly sloping soils on terraces, deltas, and outwash plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is high or very high. The hydrologic soil group is B. Slope ranges from 0% to 3%.
SbA P (State No. 16)	Saugatuck	The Saugatuck series consists of very deep poorly, and somewhat poorly drained soils with cemented subsoil. These soils formed in sandy glaciofluvial deposits on lake plains, till plains, and outwash plains. The hydrologic soil group is C. Slope ranges from 0% to 3%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
ScA P (State No. 233)	Scantic	The Scantic series consists of very deep, poorly drained soils formed in glaciomarine or glaciolacustrine deposits on coastal lowlands and river valleys. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity of the surface and subsurface horizons is moderately high or high and low or moderately slow in the subsoil and substratum. The hydrologic soil group is D. Slope ranges from 0% to 3%.
ScB P (State No. 233)	Scantic	The Scantic series consists of very deep, poorly drained soils formed in glaciomarine or glaciolacustrine deposits on coastal lowlands and river valleys. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity of the surface and subsurface horizons is moderately high or high and low or moderately slow in the subsoil and substratum. The hydrologic soil group is D. Slope ranges from 0% to 3%.
WfA (State No. 327)	Windsor Variant (clay Subsoil)	The Windsor series consists of very deep, moderately well drained soils formed in sandy outwash or eolian deposits, that have a clay subsoil. They are nearly level through very steep soils on glaciofluvial landforms. Saturated hydraulic conductivity is high or very high. The hydrologic soil group for this vaiiant is B, due to the restrictive layer in the subsoil. Slope ranges from 0% to 3%.
WfB (State No. 327)	Windsor Variant (clay Subsoil)	The Windsor series consists of very deep, moderately well drained soils formed in sandy outwash or eolian deposits, that have a clay subsoil. They are nearly level through very steep soils on glaciofluvial landforms. Saturated hydraulic conductivity is high or very high. The hydrologic soil group is for this vaiiant is B, due to the restrictive layer in the subsoil. Slope ranges from 3% to 8%.

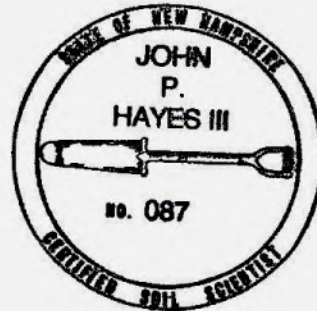
Slope Phases

<u>Alpha Slope Symbol</u>	<u>Range</u>
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



John P. Hayes III CSS, CWS

SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B

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

TEST PIT #1
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
6-14 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
14-24 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
24-62 10YR 5/2 GRAYISH BROWN, VERY FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ 24"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 24"
P = 20 MIN./IN.

TEST PIT #2
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
6-12 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
12-20 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
20-62 10YR 5/2 GRAYISH BROWN, VERY FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 20"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 20"
P = 24 MIN./IN.

TEST PIT #3
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
5-13 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
13-28 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
28-62 10YR 5/2 GRAYISH BROWN, FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 13"
RESTRICTIVE LAYER @ 28"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 28"
P = 24 MIN./IN.

TEST PIT #4
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
5-12 10YR 3/4 DARK YELLOWISH BROWN, SAND, GRANULAR, FRIABLE
12-26 10YR 5/3 BROWN, SAND WITH REDOXIMORPHIC FEATURES PRESENT, GRANULAR, FRIABLE
26-64 10YR 5/2 GRAYISH BROWN, FINE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 12"
RESTRICTIVE LAYER @ 26"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 26"
P = 24 MIN./IN.

TEST PIT #5
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-12 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
12-20 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
20-65 5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 20"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ 22"
P = 18 MIN./IN.

TEST PIT #6
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAM, GRANULAR, FRIABLE
18-32 2.5Y5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 32"
RESTRICTIVE LAYER @ 32"
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 5 MIN./IN.

TEST PIT #7
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-20 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
20-38 2.5Y5/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
38-68 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 6 MIN./IN.

TEST PIT #8
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-65 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
65-70 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 37"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 6 MIN./IN.

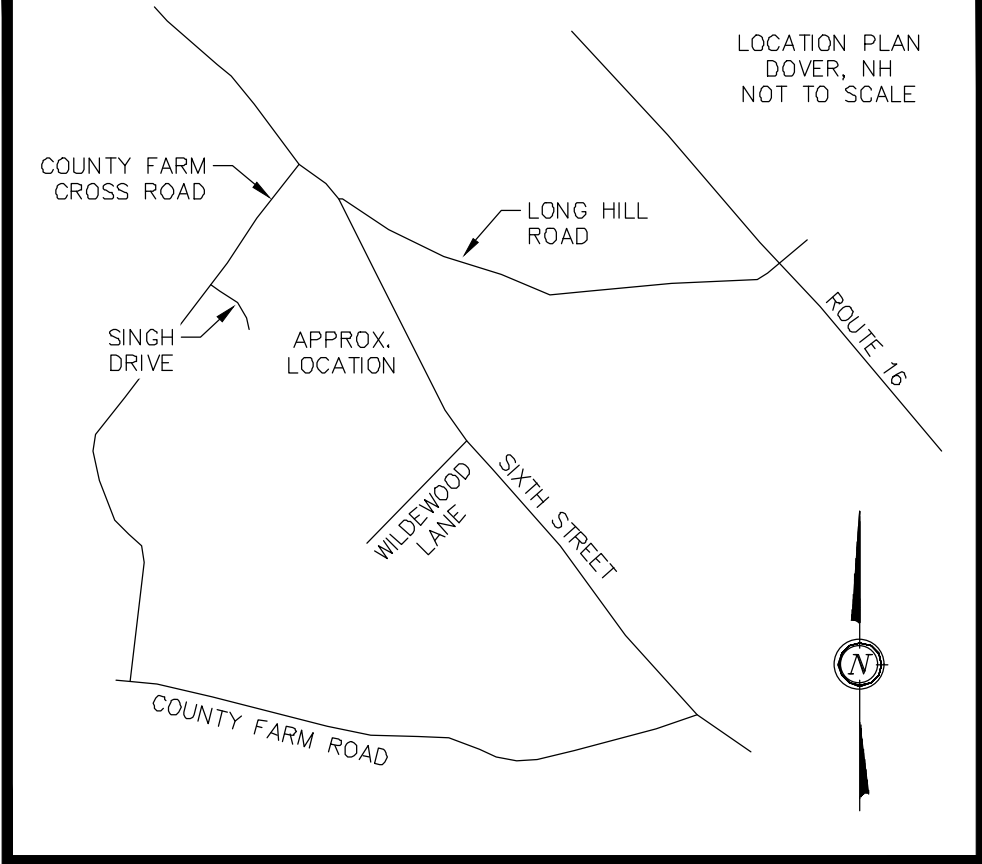
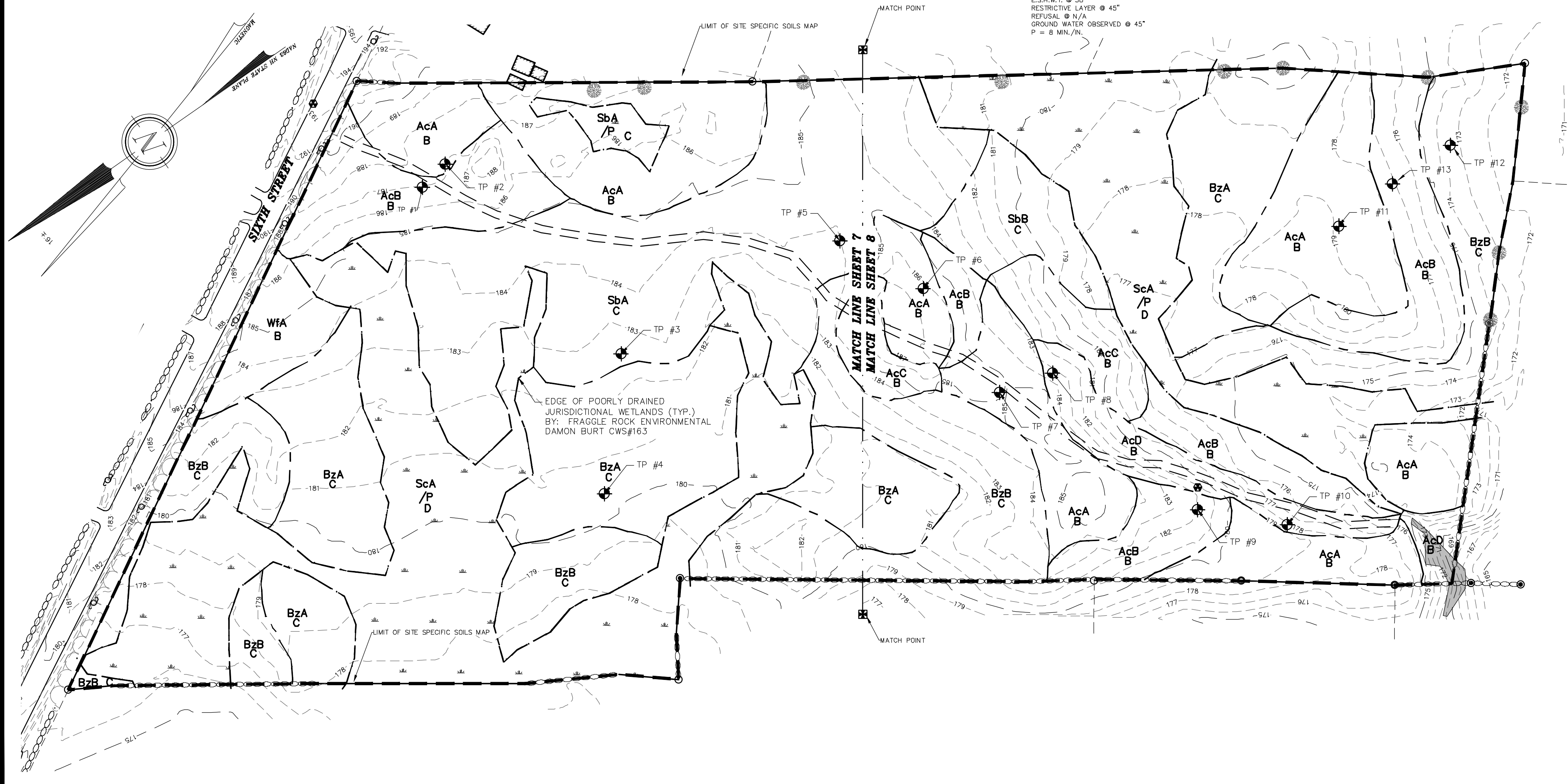
TEST PIT #9
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-65 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
65-70 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 65" NOTE: MANY STONES IN PROFILE 18-65"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ N/A
P = 8 MIN./IN.

TEST PIT #10
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-16 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
16-30 2.5Y5/4 LIGHT OLIVE BROWN, LOAMY SAND, GRANULAR, FRIABLE
30-64 2.5Y 5/2 GRAYISH BROWN, LOAMY COARSE SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
64-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 64" NOTE: MANY STONES IN PROFILE 16-64"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ N/A
REFUSAL @ N/A
GROUND WATER OBSERVED @ 22"
P = 6 MIN./IN.

TEST PIT #11
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
18-36 2.5Y6/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
36-45 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
45-65 5Y 5/3 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 36"
RESTRICTIVE LAYER @ 45"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 45"
P = 6 MIN./IN.

TEST PIT #12
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-16 10YR 5/4 YELLOWISH BROWN, LOAMY SAND, GRANULAR, FRIABLE
16-24 10YR 4/4 DARK YELLOWISH BROWN, LOAMY FINE SAND, GRANULAR, FRIABLE
24-70 5Y 5/2 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 28"
P = 10 MIN./IN.

TEST PIT #13
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18 10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
18-30 2.5Y6/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
30-45 2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
45-65 5Y 5/2 OLIVE, SILT LOAM WITH REDOXIMORPHIC FEATURES PRESENT, BLOCKY, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ 45"
REFUSAL @ N/A
GROUND WATER OBSERVED @ 45"
P = 6 MIN./IN.



NOTES:

OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820

- TAX MAP B, LOT 5
- LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
- S.C.R.D. BOOK 4861, PAGE 409
- I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #3301700310C, DATED: SEPTEMBER 30, 2015.
- VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
- THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING SOIL CONDITIONS OF TAX MAP B LOT 5.

LEGEND:

- IRON BOUND~FND~
- DRILL HOLE ~FND~
- IRON PIPE ~FND~
- TREE W/ BARBED WIRE
- TEST PIT
- MATCH POINT
- NRCS SOIL DELINEATION LINE
- STONE WALL
- WETLAND LINE
- MATCH LINE
- SOIL LINE
- LIMIT OF SOIL SURVEY
- SOIL SERIES
- STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP.
- FND
- FOUND

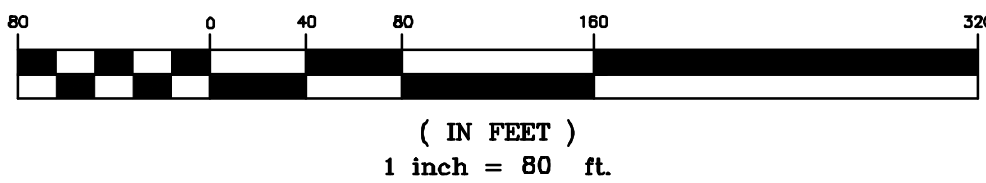
WETLAND NOTE:

THE WETLAND DELIEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:

- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987).
- U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
- COWARDIN, LEWIS M., GOLET, FRANCIS C. AND LAROE, EDWARD T. CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
- FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
- NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE, 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA



GRAPHIC SCALE



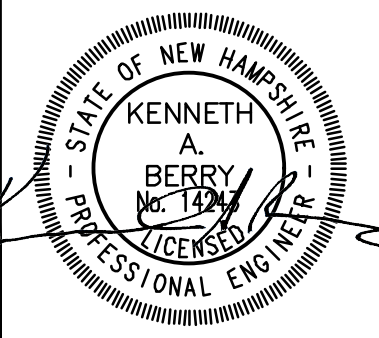
SITE SPECIFIC SOILS MAP OVERVIEW
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

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

SCALE : 1 IN. EQUALS 80 FT.

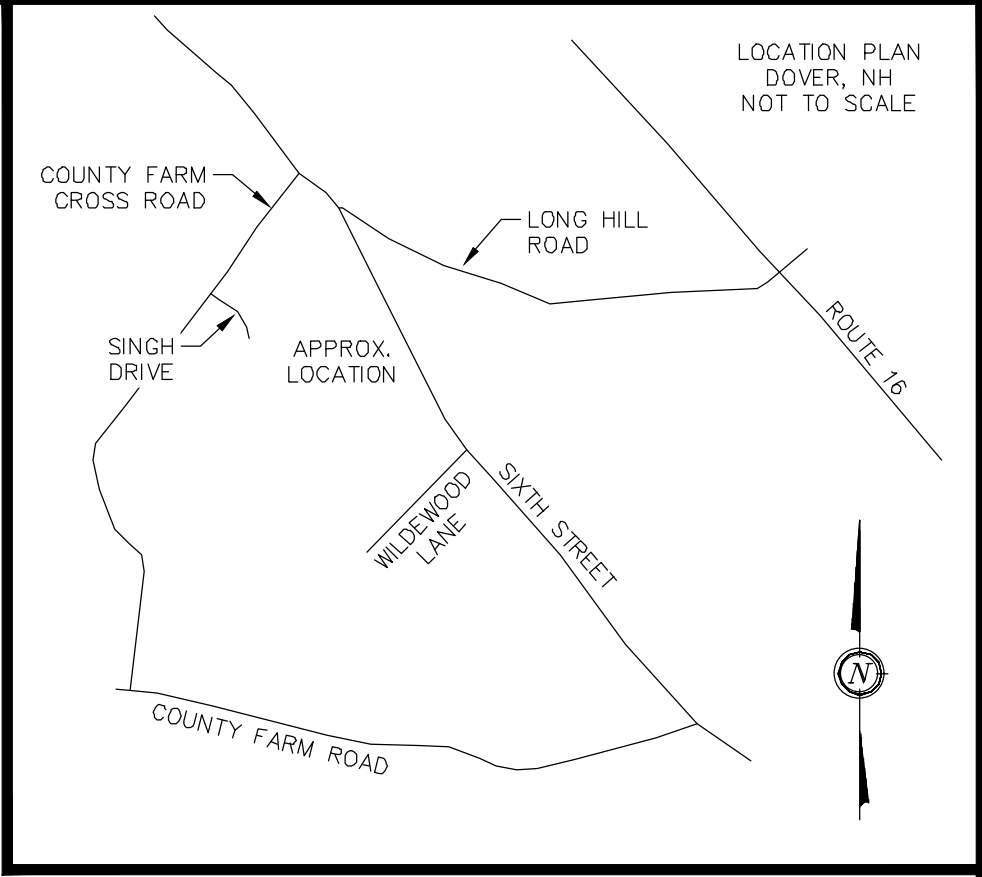
DATE : JUNE 10, 2021

FILE NO. : DB 2021-011



SITE SPECIFIC SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
AcA	ACTON (VERY STONY)	B
AcB	ACTON (VERY STONY)	B
AcC	ACTON (VERY STONY)	B
AcD	ACTON (VERY STONY)	B
BzA	BUXTON	C
BzB	BUXTON	C
DeA	DEERFIELD	B
SbA	SAUGATUCK	C
ScA	SCANTIC	D
ScB	SCANTIC	D
WfA	WINDSOR VARIANT (CLAY SUBSOIL)	B
WfB	WINDSOR VARIANT (CLAY SUBSOIL)	B
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		



NOTES:

- OWNER: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- TAX MAP B, LOT 5
 - LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
 - S.C.R.D. BOOK 4861, PAGE 409
 - I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP #33017C0310E, DATED: SEPTEMBER 30, 2015.
 - VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.
 - THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING SOIL CONDITIONS OF TAX MAP B LOT 5.

LEGEND:

- IRON BOUND~FND~
DRILL HOLE ~FND~
IRON PIPE ~FND~
TREE W/ BARBED WIRE
TEST PIT
MATCH POINT
NRCS SOIL DELINEATION LINE
STONE WALL
WETLAND LINE
WATCH LINE
SOIL LINE
LIMIT OF SOIL SURVEY
SOIL SERIES
STRAFFORD COUNTY REGISTRY OF DEEDS
TYPICAL
FND
FOUND

WETLAND NOTE:

- THE WETLAND DELINEATION WAS COMPLETED JANUARY 2021 ACCORDING TO THE FOLLOWING STANDARDS:
- CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT 4-87-1, (JANUARY, 1987)
 - U.S. ARMY CORPS OF ENGINEERS, REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, 3909 HALLS FERRY ROAD, VICKSBURG, MS 39180-6199, JANUARY 2012, ERDC/EL TR-12-1
 - COWARDIN, LEWIS M., GOLET, FRANCOIS C. AND LAROE, EDWARD T. CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES, USFWS, DEPT. OF THE INTERIOR, WASH. D.C., 1979.
 - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.1, 2017 (INCLUDING CORRECTIONS TO VERSION 8.0, 2016, ON PAGES 21, 25, AND 34)
 - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2017 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA

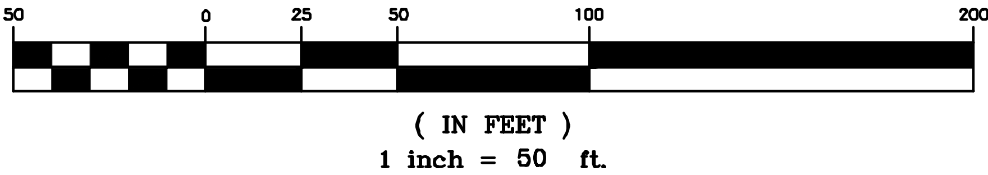


FRAGGLE ROCK ENVIRONMENTAL
DAMON BURT, CWS #163



JOHN P. HAYES III, CSS #87

GRAPHIC SCALE



REVISION	DATE	DESCRIPTION

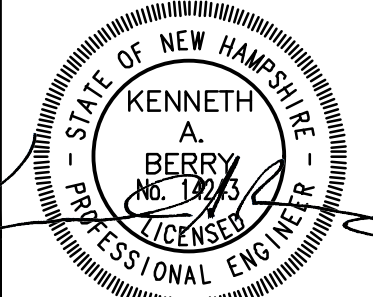
SITE SPECIFIC SOILS MAP - NORTHEAST
LAND OF
SETTLEMENT ON 6TH, LLC
SIXTH STREET
DOVER, N.H.
TAX MAP B, LOT 5

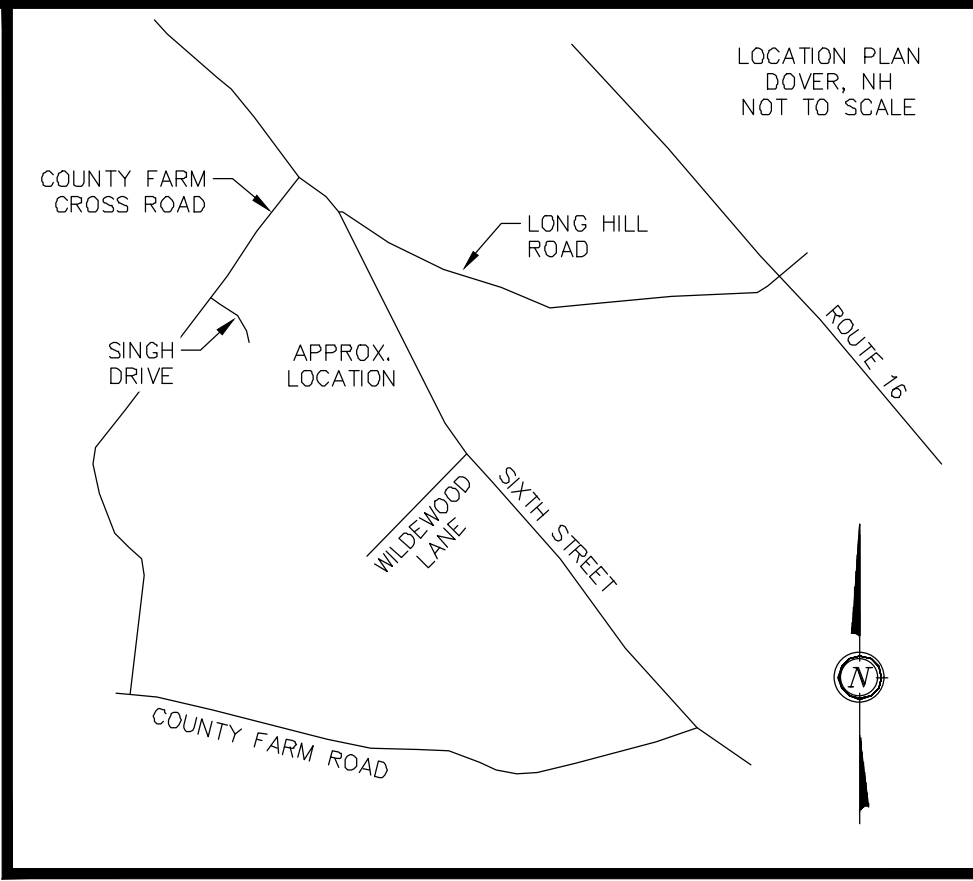
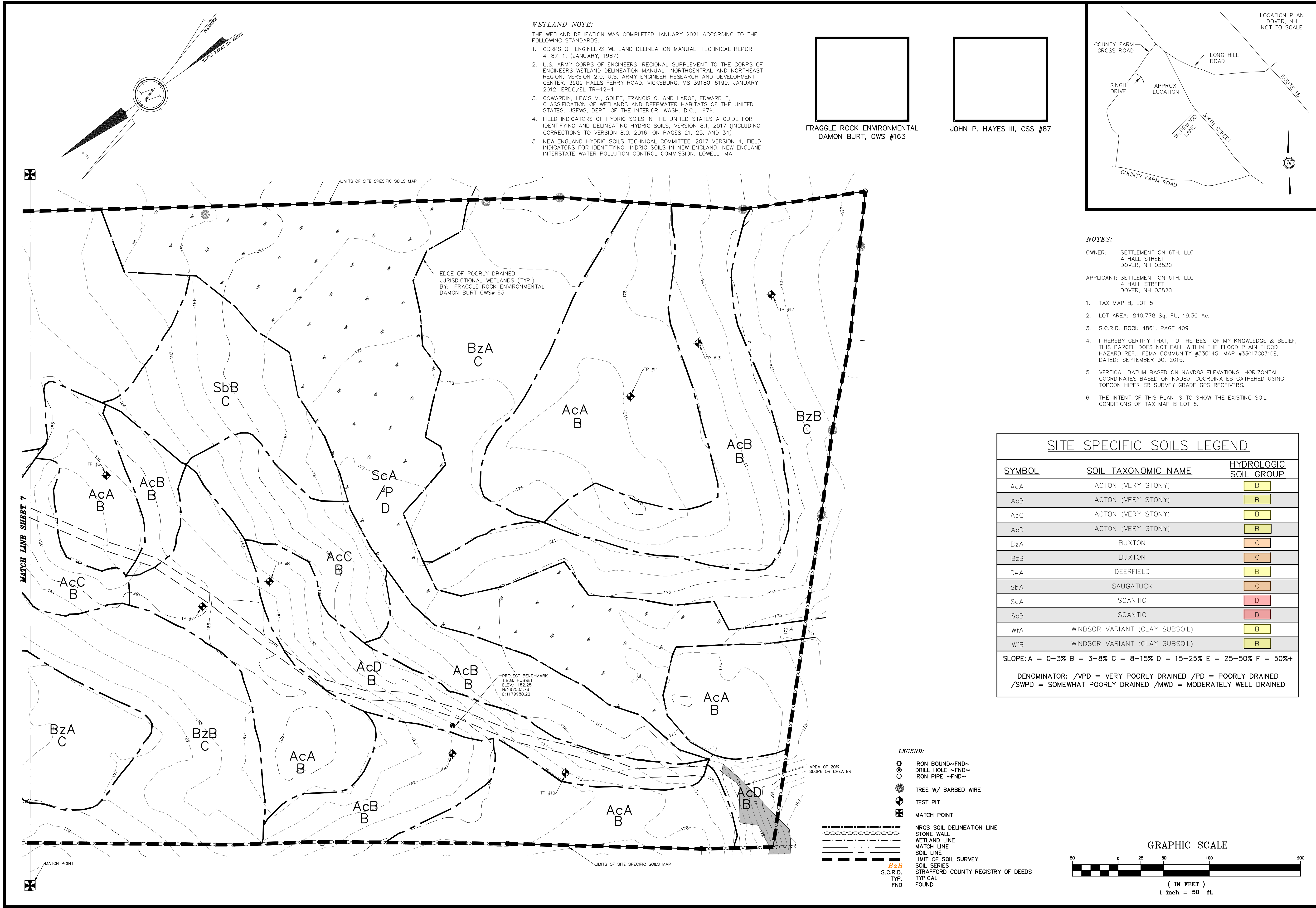
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.

DATE : JUNE 10, 2021

FILE NO. : DB 2021-011





REVISION	DATE	DESCRIPTION

SITE SPECIFIC SOILS MAP -- SOUTHWEST LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, N.H. TAX MAP B, LOT 5
--

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

KENNETH A. BERRY
No. 1246
LICENSED PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE



BERRY SURVEYING & ENGINEERING

335 Second Crown Point Road

Barrington, NH 03825

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Stormwater System Management Inspection and Maintenance Manual

**Settlement on 6th
Sixth Street
Dover, NH 03820**

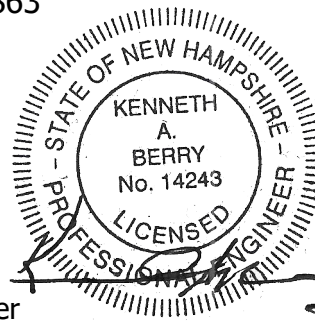
Tax Map B, Lot 5

Prepared for:

**Settlement on 6th, LLC
4 Hall Street
Dover, NH 03820**

Prepared By

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



File Number
DB2021-011

June 10, 2021

Inspection and Maintenance Manual

Stormwater System Management

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Owner Certification.....	Page 17
Operation & Maintenance Plans	Attached – 1 Page
Control of Invasive Plants, NH Department of Agriculture	Attached – 4 Pages
NHDES Green SnoPro Utilization Chart	Attached – 1 Page
UNH Stormwater Center Subsurface Gravel Wetland Design Specifications	10 Pages
NHDOT Design and Maintenance of Subsurface Gravel Wetlands, 2/2015	43 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/>)

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 provided 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, June 10, 2021, as revised. See also plan set completed for **Settlement on 6th, LLC**, originally dated June 10, 2021, as revised.

Settlement on 6th, LLC, development company with John Haley as the Managing Member, is responsible for the Operation, Inspection, and Maintenance of the Stormwater Management System. 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 followed diligently. 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 / developer must maintain, and have available, plans of the Stormwater System in order properly inspect and maintain the system. (Reduced copies attached.) The responsible party will conduct the inspections, complete the required maintenance, and will maintain the Inspection & Maintenance Check Lists and Logs, and will provide copies with the Annual Report to the City of Dover, DPW Engineering Department and provided a copy to NHDES AoT by December 15th of each year. If the development is converted from rental units or is sold to a subsequent party, copies of the Inspection & Maintenance Manual complete with attachments and plans must be transferred to the incoming management / ownership team.

The owner of Tax Map B, Lot 5, Settlement on 6th, LLC, are proposing a Transfer of Development Rights subdivision consisting of 13 residential lots and 1,095 linear feet of roadway.

The following practices and drainage features will all require periodic inspections and maintenance based on this manual and drainage layout:

Culvert Inlet Sumps

Catch Basins & Drainage Pipes

Conveyance Swales

Cross Culverts

Subsurface Gravel Wetland #101 with forebay, spillway, and outlet structure.

Subsurface Gravel Wetland #102 with forebay, spillway, and outlet structure.

Rain Garden w/ Infiltration #103 with forebay and spillway.

Rain Garden #104 with underdrain and spillway.

Note: In addition to the inspection and maintenance requirements contained in this narrative, attached in the appendix is a NHDOT document entitled Design and Maintenance of Subsurface Gravel Wetlands, dated February 2015, which is a part of the inspection and maintenance requirements for the operation of a Subsurface Gravel Wetland.

Culvert Inlet Sumps

Description: In two locations, to capture the surface water runoff that is trapped within the outside of the residential roadway and off-site runoff, there are Culvert Inlet Sumps. This culvert pipes, flared end sections, and constructed sumps will collect the runoff that is directed to that location during and after the residential development. The culvert will allow the runoff to enter the drainage network where the runoff will be pre-treated and treated at a treatment practice. The location of the Culvert Inlet Sumps will be marked and identified with painted and distinctive fence post.

Maintenance Considerations: Vegetation and debris will need to be removed from the culvert inlet several times a year, especially late fall after the majority of the leaves have fallen and in the spring. In addition to the sump and culverts themselves, the drainage channel will need to be inspected to ensure that the runoff intended to get to the inlets is making it to the sump. The identification fence post will be inspected for structural condition and painted condition.

Catch Basin, and Drain Pipes

Description: Catch Basins are used throughout the site to capture and, along with culvert pipes and manhole, route surface water runoff to stormwater treatment and detention infrastructure. During construction the catch basins will be protected by inlet protection per the approved construction plans. The practice of street sweeping on a bi-annual basis will help reduce maintenance of these catch basins and culvert pipes.

Note: Deep sump catch basins are not allowed to be used on this proposed development due to wildlife concerns and any manufacturer sump resulting in a catch basin must be filled with washed crushed stone. Sediment should be trapped in the sediment forebays but is also a concern in earlier structures.

Maintenance Considerations: Sediment must be removed from Catch Basins and Manholes on a regular basis, at least twice a year and more often if post-winter maintenance and street sweeping is not conducted. Inspections should be conducted periodically. At a minimum they should be cleaned after snow-melt and after leaf-drop. Disposal of all material, sediment, and debris must be done in accordance with state and federal regulations. Culvert pipes will be inspected to ensure that surface water runoff is capable of leaving the structures.

Treatment & Conveyance Swales

Description: "Swales are stabilized channels designed to convey runoff at non-erosive velocities." (NHDES SWM) They will be trapezoidal or parabolic in section view. 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. See SWM Volume 2, 4.3 Treatment Practices, 5. Treatment Swales, page 123.

Project Intent: The swales are individually designed in the drainage analysis and specified on the design plans. The designed swales must have greater than 85% vegetated growth prior to receiving runoff. The bottom of a treatment swale must be above the seasonal high water table.

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.

Culvert Pipes, Flared End Sections / Headwalls

Description: Culvert pipes are placed to route surface water runoff from catch basins to drain manholes, and drain manholes to a discharge point conveying the runoff in such a manner that erosion does not take place. Culvert pipes are often terminated with flared end sections or headwalls.

Maintenance Considerations: The entrance and exit of the culvert pipe should be cleaned of any trash and sediment build-up. The culvert should be clear to let runoff pass through the culvert unobstructed. Flared end sections and headwalls should be inspected for erosion and destabilization, with repairs made as required.

Sediment Forebay

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 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 10% the volume of the Water Quality Volume (WQV) for gravel wetlands, and 25% for rain gardens. A dewatering drain is designed into the two-foot berm of the forebay. 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) Inspect and clean the dewatering drain to ensure runoff is not trapped for more than 72 hours in the forebay.

Infiltration Basins & Detention Ponds

Description: Infiltration Basins are constructed ponds that are intended to detain surface water runoff and during the detention to infiltrate runoff into the ground. 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.

Bio-Filtration System (Rain Gardens) & Bio-Swales

Description: Rain Gardens, or bio-filtration areas are located close to the source of runoff. They are intended to integrate with the site landscaping and become an aesthetically attractive opportunity to provide highly effective stormwater treatment. The rain gardens associated with this proposed development contribute toward recharge of surface water run-off into the ground. It is important that sediment be removed from run-off prior to discharge into the bio-filtration area to preserve the mulch and soil mix ratio. 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, 4c Bioretention System. (Bio-media and bio-filtration mean bioretention filter media.)

Maintenance Considerations:

Rain Gardens 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 bio-filtration system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the rain garden 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, dated February 2015, attached. Specifically Attachment B, Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device and Checklist for Inspection of Gravel Wetland.

Rip Rap Outlet Protection, Level Spreaders, & Emergency Spillways

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. Emergency Spillways are rip rap reinforced outlets near the top of the berm that allow runoff to leave a practice during periods of very high flow. Ref.: NHDES SWM Volume 2, Section 4-6 Conveyance Practices, 6. Outlet Protection and 1. Detention Ponds, Note 3, Page 158.

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.

Stabilization for Long Term Cover

Vegetated Stabilization – Original Planting

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	Pounds per
	per Acre	1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
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 be used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer. As the site is to be stabilized with erosion control mix as a mulch, the vegetation should be established with a high percentage of white clover for growth to be established.

Rain garden mix

The grass that is planted within a rain garden bio-filtration system within the bio-media must consist of a combination of warm season grass seed and cold season grass seed in order for the grass to start growing for stabilization and continue growing in the sandy well-drained environment. Planting specification will meet the requirements as outlined in 'Vegetation New Hampshire Sand and Gravel Pits' mix 1 (warm season grasses) (15 lbs/ac) and include annual and perennial rye grass seed (15 lbs/ac); the New England native warm season grass mix (23 lbs/ac) by New England Wetland Plants, Inc.; rain garden mix 180 (15 lbs/ac & 15 lbs/ac of rye) / rain garden grass mix 180-1 (20 lbs/ac & 10 lbs/ac of rye) by Ernst Conservation Seeds; or approved equal.

Detention Pond Mix:

The grass that is planted within a Detention Pond will be a mix designed for both inundation and dry conditions such as Ernst Seeds, Retention Basin Floor Mix ERNMX-126.

Subsurface Gravel Wetland Mix:

The grass that is planted within a Subsurface Gravel Wetland will be a diverse mix of species to provide food and cover as well as erosion control in the seasonally flooded conditions such as Ernst Seeds Seasonally Flooded Wildlife Mix ERNMX-128.

Maintenance Considerations: Permanent seeded areas for long-term cover will be inspected on a periodic basis looking for signs of growth loss or erosion. Any areas found to be damaged will be repaired and replanted to reestablish the growth. The grass should be mowed at least twice per year and any dead material removed. Any woody growth that becomes established will need to be cut and removed.

Long-term maintenance of the land cover is critical and must be maintained at least 85% grass / vegetation coverage, must be inspected for concentrated flow, rills, and channels; and must be repaired as necessary to prevent erosion.

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 Inspection & Maintenance Manual, Stormwater System Management, copies of past logs and check lists. This includes any owner association that might become involved with the property. The Annual Report will be prepared and submitted to the City of Dover Engineering Department / DPW with copies of both logs and check lists no later than December 15th of each year and made provided to NHDES on that same date. 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 four sheets, "Drainage Inspection, & Maintenance Plan". The owners and municipality will also maintain a complete set of the approved original design plans.

Respectfully,
BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, EIT
Project Engineer / Manager



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

STORMWATER SYSTEM: INSPECTION AND MAINTENANCE MANUAL

Inspection & Maintenance Manual Checklist

Settlement on 6th

Sixth Street
Dover, NH 03820
Tax Map B, Lot 5

☒	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 & Inlet Sumps	2 years per year	Check for sediment accumulation & clogging.	Less than 2" sediment depth
		Deep Sump Catch Basins	2 times per year	Check for sediment accumulation & clogging.	Sediment accumulated to a depth of 2 feet.

		& Catch Basins			
☒	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Subsurface Gravel Wetlands, Detention Ponds, bio-swales & Infiltration Ponds	2 times per year	Check for sediment and debris accumulation buildup.	Remove sediment & debris when required. Remove Invasive Species
		Subsurface Gravel Wetland & bio-swale and system clean-outs.	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Remove dead & diseased vegetation along with all debris, take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		Infiltration Ponds	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Remove dead & diseased vegetation along with all debris, take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		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. Vegetation per approved plans.
		Annual Report	1 time per year	Submit Annual Report to Dover Engineering Dept. / DPW and kept on file by the owner.	Report to be submitted on or before December 15th each year. Copies submitted to NHDES by that date.

See also Design and Maintenance of Subsurface Gravel Wetlands, dated February 2015, attached. Specifically Attachment B, Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device and Checklist for Inspection of Gravel Wetland.

The following practices and drainage features will all require periodic inspections and maintenance based on this manual and drainage layout:

Culvert Inlet Sumps

Catch Basins & Drainage Pipes

Conveyance Swales

Cross Culverts

Subsurface Gravel Wetland #101 with forebay, spillway, and outlet structure.

Subsurface Gravel Wetland #102 with forebay, spillway, and outlet structure.

Rain Garden w/ Infiltration #103 with forebay and spillway.

Rain Garden #104 with underdrain and spillway.

Sixth Street
Dover, NH 03820
Tax Map B, Lot 5

[illegible]

Sixth Street
Dover, NH 03820
Tax Map B, Lot 5

[illegible]

STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN CERTIFICATION

Owner		Responsibility
Name:	Settlement on 6th, LLC John P Haley	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.
Address:	4 Hall Street Dover, NH 03820	
Telephone:	(603) 674-1870 (Mobile)	

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:

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.

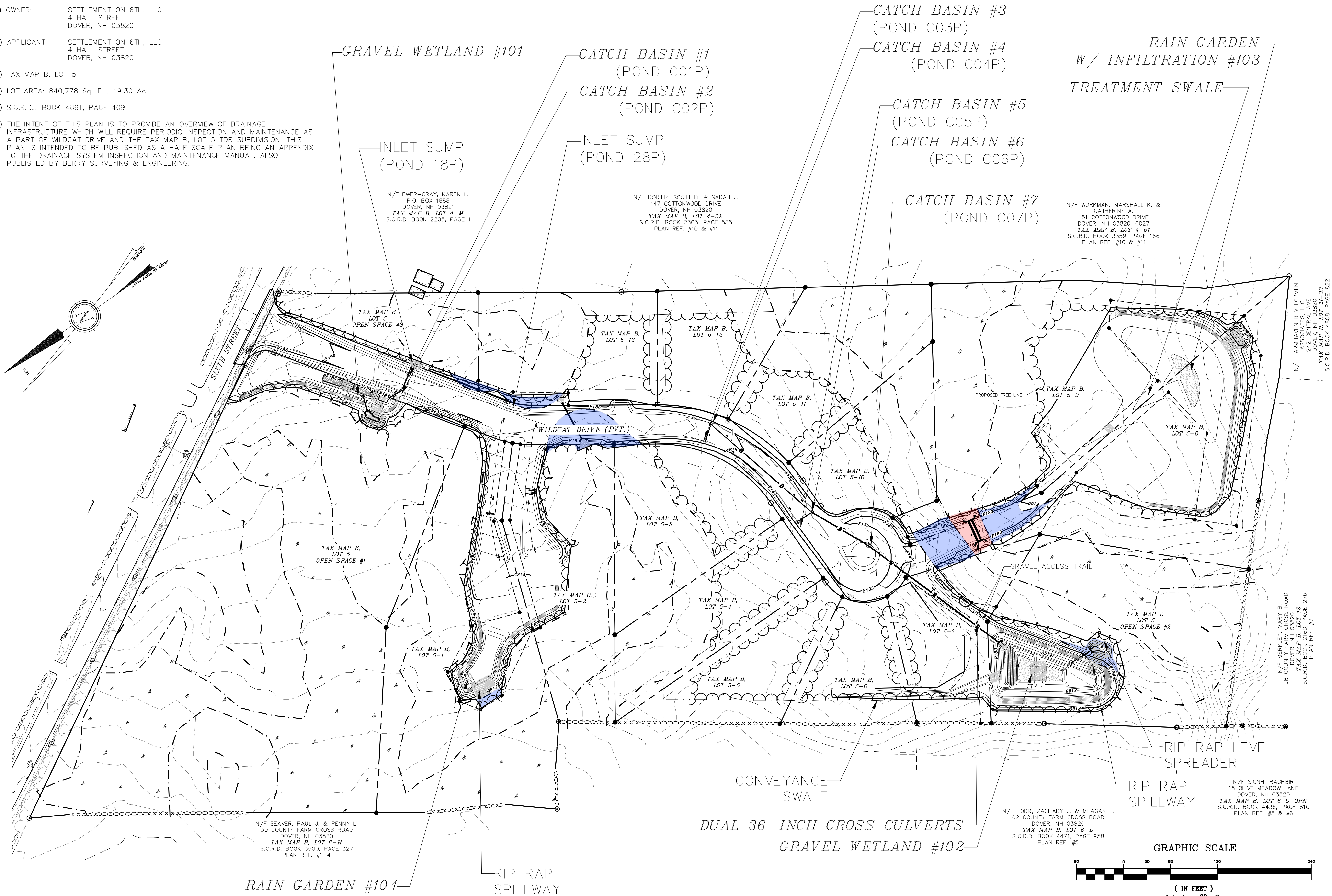
Pavement Temp. (°F) and Trend (↑ ↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only				Not recommended
	Frz. Rain	Apply 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: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 2.) APPLICANT: SETTLEMENT ON 6TH, LLC
4 HALL STREET
DOVER, NH 03820
- 3.) TAX MAP B, LOT 5
- 4.) LOT AREA: 840,778 Sq. Ft., 19.30 Ac.
- 5.) S.C.R.D.: BOOK 4861, PAGE 409
- 6.) THE INTENT OF THIS PLAN IS TO PROVIDE AN OVERVIEW OF DRAINAGE INFRASTRUCTURE WHICH WILL REQUIRE PERIODIC INSPECTION AND MAINTENANCE AS A PART OF WILDCAT DRIVE AND THE TAX MAP B, LOT 5 TDR SUBDIVISION. THIS PLAN IS INTENDED TO BE PUBLISHED AS A HALF SCALE PLAN BEING AN APPENDIX TO THE DRAINAGE SYSTEM INSPECTION AND MAINTENANCE MANUAL, ALSO PUBLISHED BY BERRY SURVEYING & ENGINEERING.

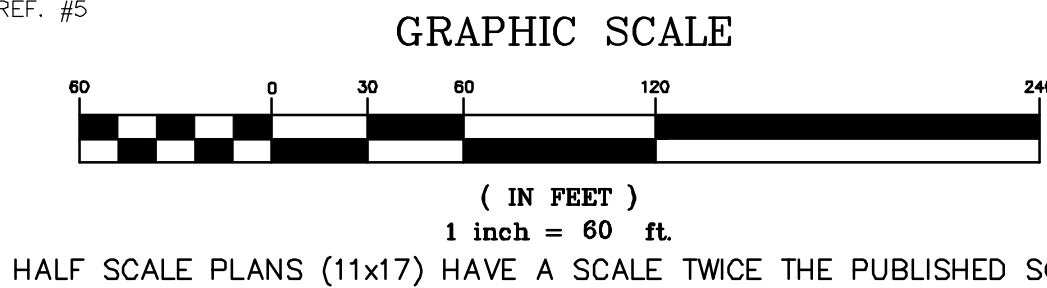


REVISION	DATE	DESCRIPTION

DRAINAGE INSPECTION & MAINTENANCE PLAN LAND OF SETTLEMENT ON 6TH, LLC SIXTH STREET DOVER, NH TAX MAP B, LOT 5
--

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 60 FT.
DATE : JUNE 10, 2021
FILE NO. : DB 2021-011

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
REGISTERED PROFESSIONAL ENGINEER
No. 7440



Infiltration Feasibility Report

**Tax Map B, Lot 5
Sixth Street
Dover, NH**

Prepared for:

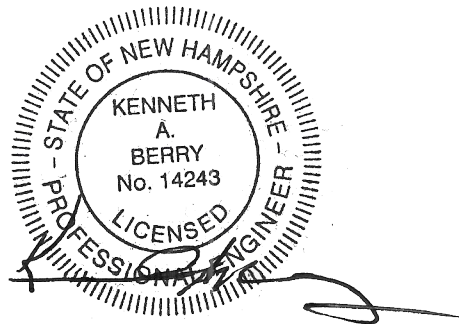
Settlement on 6th, LLC
4 Hall Street
DOVER, NH 03820

LAND OF:

Settlement on 6th, LLC
4 Hall Street
DOVER, NH 03820

Prepared by:

**Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825**



Project Number:
DB 2021-011

June 10, 2021

Table of Contents

1.0	Location of Practice	Page 2
2.0	Existing Topography at Location of Practice	Page 2
3.0	Test Pit Location	Page 2
4.0	Seasonal High Water Table and Bedrock Elevations	Page 4
5.0	Profile Descriptions	Page 4
6.0	Soil Plan	Page 5
7.0	Summary of Infiltration Rates	Page 6

1.0 Location of Practices:

The project proposes one location of infiltration for ground water recharge as well as channel flow protection purposes. The following is a list by Pond number designation in the HydroCAD report.

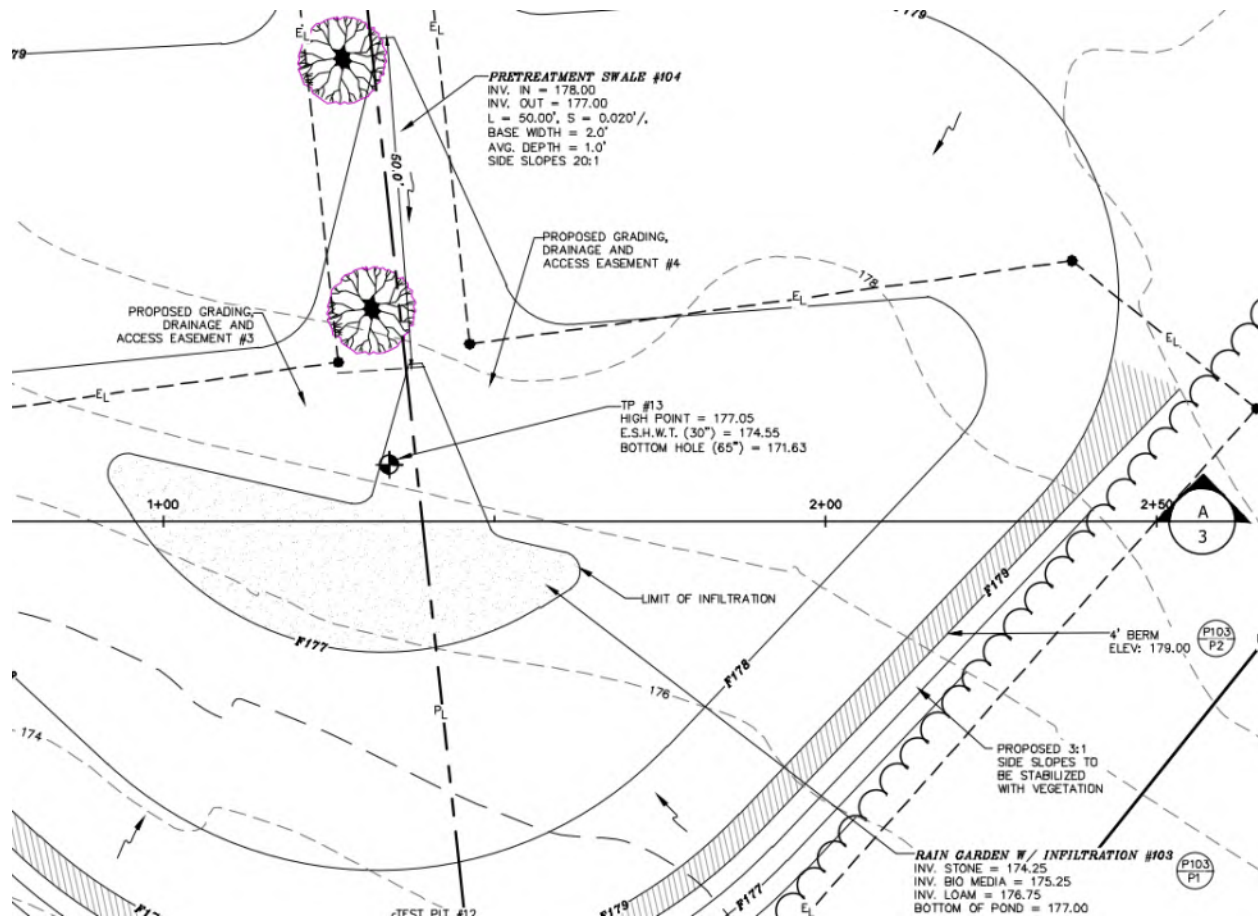
Rain Garden w/ Infiltration #103 (POND 103) – This is an Infiltration Rain Garden located at the rear of proposed lots 5-8 & 5-9. It directly receives runoff from the shared driveway, two proposed houses, and area upslope and directly over the practice. Pre-treatment is provided by a 50' long pre-treatment swale. The emergency spillway is minimally active (0.03' over the weir) on the 25 year event and is set 0.75' below the top of the berm to minimize ponding and provide separation in ponding area from the proposed houses.

2.0 Existing topography at the location of the practice

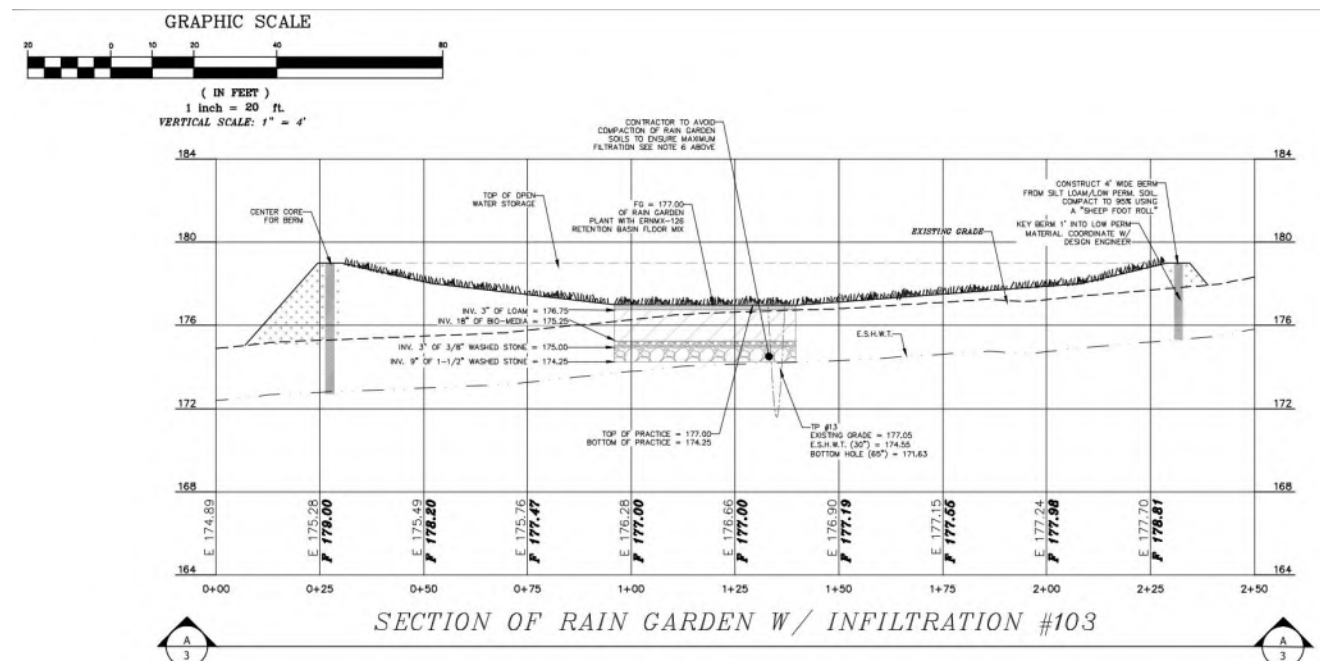
Rain Garden w/ Infiltration #103 (POND 103) – The existing topography within the area is at an approximate 5% slope. The area was woodlands and is comprised of a natural state soils.

3.0 Test Pit Location

Rain Garden w/Infiltration #103 (POND 103P) – The practice has a surface area of 1,257 SF. The practice is located over test pit #13. See test pit profiles below. See test pit locations on Sheet P-103, Rain Garden w/ Infiltration #103 Detail Plan. This test hole was completed in the Spring of 2021. See Site Specific Soil Map Report by John P Hayes III, CWS, CSS. There is one soil in the vicinity of this practice, Acton. Acton, considered to be HSG B soil where the most restrictive published Ksat is 2.0 inches per hour. This practice was designed using 1.0 in. / hr.



Rain Garden w/ Infiltration #103 (POND 103) – (Reference Sheet P-103)



Section of Rain Garden w/ Infiltration #103

4.0 Seasonal high water table (SHWT) elevation

Rain Garden w/ Infiltration #103 (Pond 103)

TP#13:	Existing Surface Elevation of TP =	177.05'
	SHWT = 30 - Inches	174.55'
	Bedrock = N/A	
	Ground Water = 45"	
	Deepest Elevation of TP = 65 - Inches	171.63

RG #103 w/ INF (Pond 103):	Bottom of Pond Elevation: 177.00'
	Bottom of Organic Loam: 176.75'

See section on page #3. Top of practice is at 177.00', highest existing grade of practice is 176.75'.

5.0 Profile descriptions

The following test pit data was collected in Spring of 2021.

TEST PIT #13

0-5"	10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-18"	10YR 5/6 YELLOWISH BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
18-30"	2.5Y 6/4 LIGHT OLIVE BROWN, GRAVELLY LOAMY SAND, GRANULAR, FRIABLE
30-45"	2.5Y 5/3 GRAYISH BROWN, GRAVELLY LOAMY SAND W/ REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
45-60"	5Y 5/3 OLIVE, SILT LOAM W/ REDOXIMORPHIC FEATURES PRESENT, BLOCKY FIRM

TERMINATED: 65"

E.S.H.W.T.: 30"

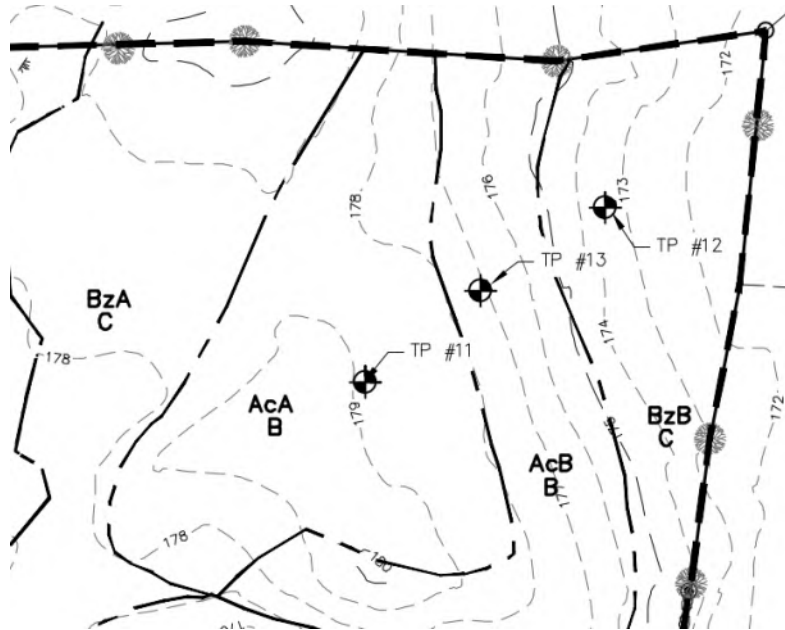
RESTRICTIVE LAYER: 45"

REFUSAL: N/A

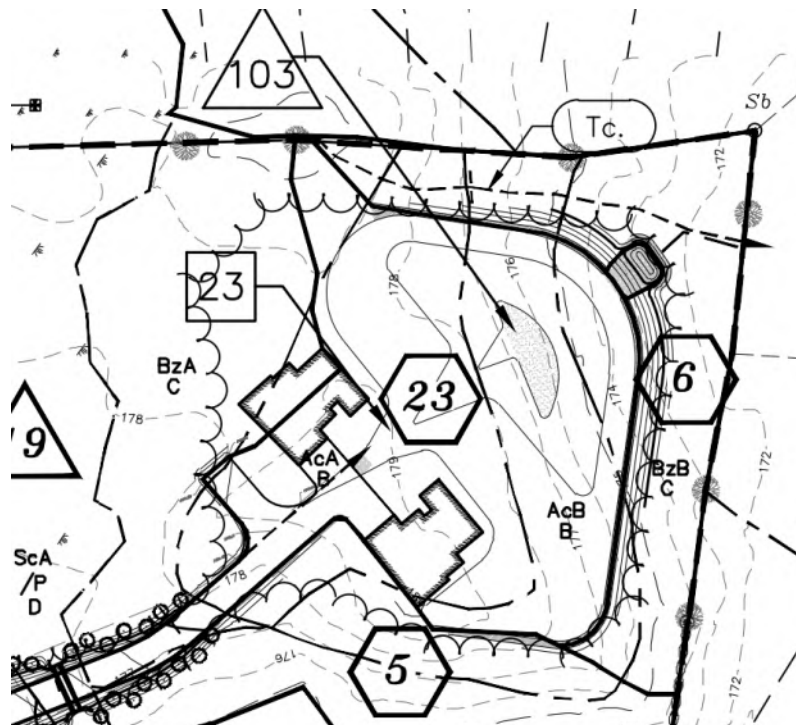
GROUND WATER OBSERVED: 45"

6.0 Soil plan in the area of the proposed practices

The infiltration practice is located over Acton Soil.



Rain Garden w/ Infiltration #103 (Pond 103)



Rain Garden w/ Infiltration #103 (Pond 103)

7.0 Summary of Infiltration Rate

Test holes were conducted during the spring of 2021. The Site Specific Soil Mapping documented that the soil in the area of the practice is Acton Soil. (See Site Specific Soil Map Report prepared by John P Hayes, CWS, CSS, dated March 22, 2021. The most restrictive Ksat documented in the report in the area of the practice is 2.0 inches per hour. The practice has been designed with an infiltration rate of 1.0 inches per hour based on this range with a 50% safety factor.

Amoozemeter testing was not conducted on site and the alternate method of using the USDA / NRCS published values was employed. Reference is made to K Sat Values for New Hampshire Soils (Including Hydrologic and DES Soil Lot Sizing Groups, sponsored by the Society of Soil Scientists of Norther New England, Publication #5 dated September 2009.

Respectfully submitted:

BERRY SURVEYING & ENGINEERING



Kevin R. Poulin, EIT
Project Engineer



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

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 2020 [Consolidated Assessment and Listing Methodology](#) (CALM).

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at the NHDES [FTP site](#).

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.

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	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
		Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Not Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	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

Watershed 305(b) Assessment Summary Report:

Assessment Cycle: Draft 2020

HUC 12: 010600030608

HUC 12 Name: Lower Cochecho River

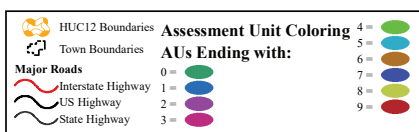
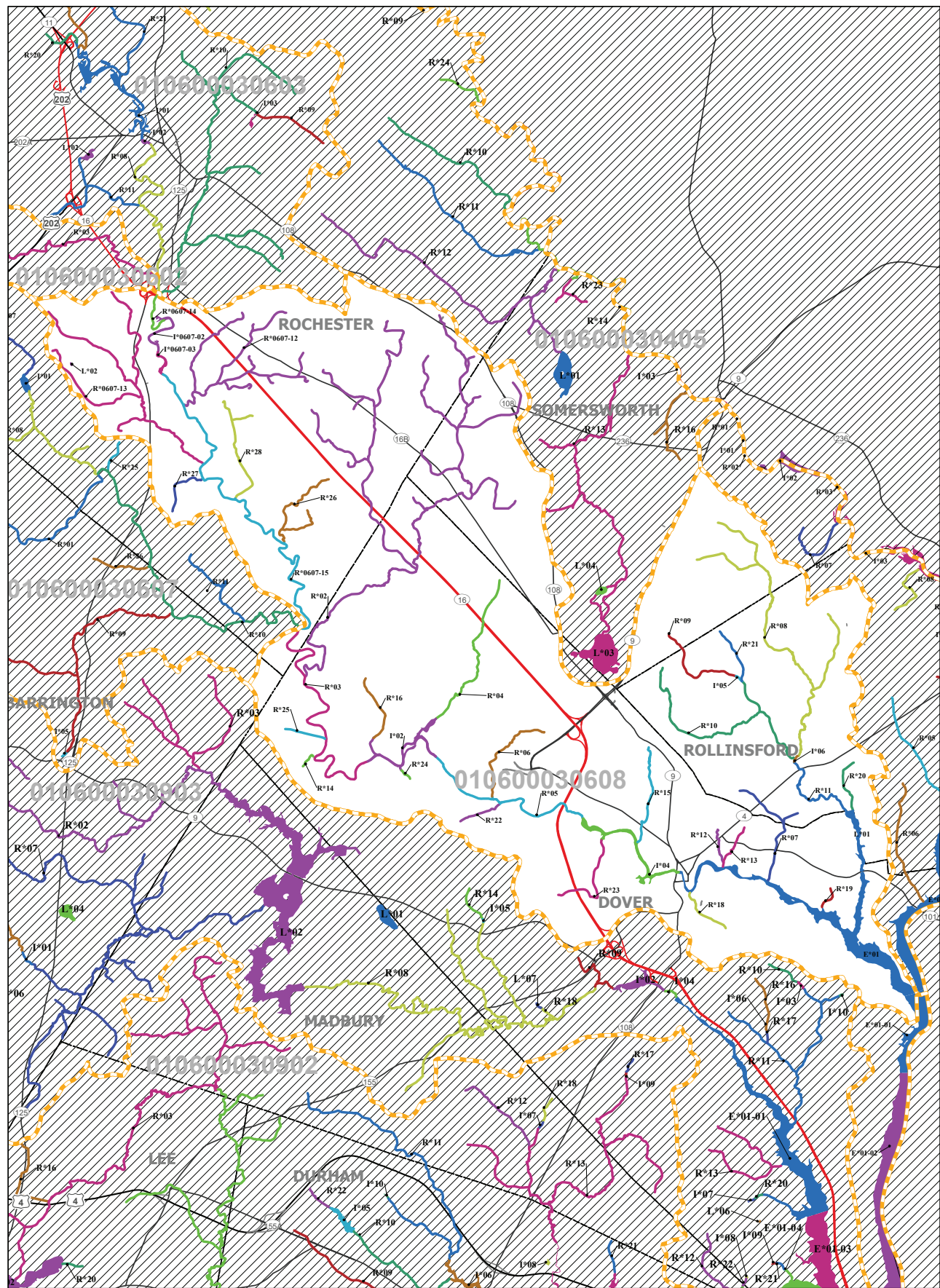
(Locator map on next page only applies to this HUC12)

Good	Meets water quality standards/thresholds by a relatively large margin.
Marginal	Meets water quality standards/thresholds but only marginally.
Likely Good	Limited data available, however, the data that is available suggests that the parameter is Potentially Attaining Standards (PAS).
No Current Data	Insufficient information to make an assessment decision.
Likely Bad	Limited data available, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.
Poor	Not meeting water quality standards/thresholds. The impairment is marginal.
Severe	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.



Assessment Unit ID	Map Label	Assessment Unit Name	Aquatic Life	Fish Consump.	Swimming	Boating
NHEST600030608-01	E*01	Cochecho River		5-M	5-P	4A-M
NHIMP600030607-02	I*0607-02	Cochecho River - Gonic Dam Pond	5-M	4A-M	4A-P	2-G
NHIMP600030607-03	I*0607-03	Cochecho River - Mill Pond Dam	3-PNS	4A-M	3-ND	3-ND
NHIMP600030608-02	I*02	Cochecho River - Watson Waldron Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-04	I*04	Cochecho River - Central Ave Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-05	I*05	Conservation Pond Dam	3-ND	4A-M	3-ND	3-ND
NHIMP600030608-06	I*06	Fresh Creek - Farm Pond	3-ND	4A-M	3-ND	3-ND
NHLAK600030608-01	L*01	Fresh Creek Pond	5-M	4A-M	4A-P	3-ND
NHLAK600030608-02	L*02	Unnamed Pond	3-ND	4A-M	3-PAS	3-PAS
NHRIV600030607-12	R*0607-12	Unnamed Tributary - To Cochecho River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-13	R*0607-13	Unnamed Brook - To Cochecho River	3-ND	4A-M	3-ND	3-ND

NHRIV600030607-14	R*0607-14	Cochecho River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-15	R*0607-15	Cochecho River	5-M	4A-M	2-G	2-G
NHRIV600030608-02	R*02	Blackwater Brook-Clark Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-03	R*03	Cochecho River - Unnamed Brook	5-M	4A-M	4A-M	3-ND
NHRIV600030608-04	R*04	Reyners Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-05	R*05	Cochecho River	5-M	4A-M	4A-M	3-ND
NHRIV600030608-06	R*06	Indian Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-07	R*07	Emerson Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-08	R*08	Fresh Creek - Twombly Brook	5-P	4A-M	4A-M	3-ND
NHRIV600030608-09	R*09	Unnamed Brook - Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-10	R*10	Rollins Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-11	R*11	Fresh Creek	3-PNS	4A-M	4A-P	4A-M
NHRIV600030608-12	R*12	Unnamed Tributary - To Cochecho River (Dover (Downstream Of Portland Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-13	R*13	Unnamed Tributary - To Cochecho River - (Dover (Upstream Of Atlantic Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-14	R*14	Unnamed Trib. To Cochecho River, Dover (From Landfill)	5-M	4A-M	3-ND	3-ND
NHRIV600030608-15	R*15	Berry Brook	5-M	4A-M	4A-P	2-G
NHRIV600030608-16	R*16	Jackson Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-18	R*18	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-19	R*19	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-20	R*20	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-21	R*21	Unnamed Brook - To Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-22	R*22	Horn Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-23	R*23	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-24	R*24	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-25	R*25	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-26	R*26	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-27	R*27	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-28	R*28	Unnamed Brook	3-ND	4A-M	3-ND	3-ND



Abbrev. Label

L*03

HUC 12

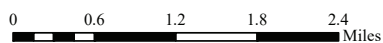
010700060201

AUID = NH LAK700060201-03

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.



Scale: 1:59,820

Town(s) Primary Town is Listed First: Dover, Rochester, Somersworth

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	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			3-ND	
Fish Consumption	4A-M	Mercury - Fish Consumption Advisory	N			4A-M	
Potential Drinking Water Supply	2-G	Escherichia Coli	N	2007	2007	3-ND	
Primary Contact Recreation	4A-P	Escherichia Coli	N	2007	2007	4A-P	
Secondary Contact Recreation	3-ND	Escherichia Coli	N	2007	N/A	3-ND	
Wildlife	3-ND						

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.

Assessment Unit ID: NHRIV600030608-16

Size: 0.7240 MILES

Draft 2020, 305(b)/303(d) - All

Assessment Unit Name: Jackson Brook

Assessment Unit Category: 4A-P

Reviewed Parameters by Assessment

Town(s) Primary Town is Listed First: Dover

Beach: N

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	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			3-ND	
Fish Consumption	4A-M	Mercury - Fish Consumption Advisory	N			4A-M	
Potential Drinking Water Supply	2-G	Escherichia Coli	N	2007	2007	3-ND	
Primary Contact Recreation	4A-P	Escherichia Coli	N	2007	2007	4A-P	
Secondary Contact Recreation	3-ND	Escherichia Coli	N	2007	N/A	3-ND	
Wildlife	3-ND						

Good Meets water quality standards/thresholds by a relatively large margin.	Marginal Meets water quality standards/thresholds but only marginally.	Likely Good Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	No Current Data Insufficient information to make an assessment decision.	Likely Bad Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Poor Not meeting water quality standards/thresholds. The impairment is marginal.	Severe Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.
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2018	NHRIV600030603-08	COCHECO RIVER	ROCHESTER	2.428 MILES	Aquatic Life Integrity	Habitat Assessment (Streams)	4C-P	Non-ORW
2018	NHRIV600030603-08	COCHECO RIVER	ROCHESTER	2.428 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030603-08	COCHECO RIVER	ROCHESTER	2.428 MILES	Primary Contact Recreator	Escherichia coli	4A-P	3972
2018	NHRIV600030603-10	WILLOW BROOK	ROCHESTER	7.347 MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessme	5-P	Non-ORW
2018	NHRIV600030603-10	WILLOW BROOK	ROCHESTER	7.347 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P	Non-ORW
2018	NHRIV600030603-10	WILLOW BROOK	ROCHESTER	7.347 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	Non-ORW
2018	NHRIV600030603-10	WILLOW BROOK	ROCHESTER	7.347 MILES	Aquatic Life Integrity	pH	4A-P	3972
2018	NHRIV600030603-10	WILLOW BROOK	ROCHESTER	7.347 MILES	Primary Contact Recreator	Escherichia coli	5-M	Non-ORW
2018	NHRIV600030603-11	UNNAMED BROOKS - TO BOW LAKE	STAFFORD	4.812 MILES	Aquatic Life Integrity	pH	5-M	ORW
2018	NHRIV600030604-01	UNNAMED BROOK - TO BOW LAKE	STAFFORD	1.323 MILES	ORW			ORW
2018	NHRIV600030604-02	UNNAMED BROOK - TO BOW LAKE	STAFFORD	0.873 MILES	ORW			ORW
2018	NHRIV600030604-03	UNNAMED BROOK - TO BOW LAKE	STAFFORD	2.885 MILES	ORW			ORW
2018	NHRIV600030604-04	SHERBOURNE BROOK	NORTHWOOD	0.823 MILES	ORW			ORW
2018	NHRIV600030604-05	SHERBOURNE BROOK	NORTHWOOD	1.357 MILES	ORW			ORW
2018	NHRIV600030604-06	SHERBURNE BROOK	NORTHWOOD	0.643 MILES	ORW			ORW
2018	NHRIV600030604-07	UNNAMED BROOK - A FROM PINE ROCK FJ	STAFFORD	0.982 MILES	ORW			ORW
2018	NHRIV600030604-08	UNNAMED BROOK - TO BOW LAKE	STAFFORD	0.479 MILES	ORW			ORW
2018	NHRIV600030604-09	UNNAMED BROOK	NORTHWOOD	0.609 MILES	ORW			ORW
2018	NHRIV600030604-10	UNNAMED BROOK	STAFFORD	0.168 MILES	ORW			ORW
2018	NHRIV600030604-11	UNNAMED BROOK	NORTHWOOD	0.07 MILES	ORW			ORW
2018	NHRIV600030604-12	UNNAMED BROOK	STAFFORD	0.086 MILES	ORW			ORW
2018	NHRIV600030604-13	UNNAMED BROOK	STAFFORD	1.276 MILES	ORW			ORW
2018	NHRIV600030604-14	UNNAMED BROOK	NORTHWOOD, STAFFORD	0.63 MILES	ORW			ORW
2018	NHRIV600030604-15	UNNAMED BROOK	NORTHWOOD	2.178 MILES	ORW			ORW
2018	NHRIV600030604-16	UNNAMED BROOK	NORTHWOOD	0.388 MILES	ORW			ORW
2018	NHRIV600030604-17	UNNAMED BROOK	STAFFORD	3.474 MILES	ORW			ORW
2018	NHRIV600030605-01	UNNAMED BROOKS - TO UNNAMED POND	STAFFORD	1.467 MILES	ORW			ORW
2018	NHRIV600030605-03	UNNAMED BROOK - TO UNNAMED POND	STAFFORD	0.31 MILES	ORW			ORW
2018	NHRIV600030605-04	UNNAMED BROOK - TO WILDLIFE POND	STAFFORD	10.233 MILES	ORW			ORW
2018	NHRIV600030605-05	MOHAWK BROOK	STAFFORD, BARRINGTON	0.75 MILES	ORW			ORW
2018	NHRIV600030605-06	UNNAMED BROOK - TO UNNAMED POND	STAFFORD	0.511 MILES	ORW			ORW
2018	NHRIV600030605-07	UNNAMED BROOK - TO HUCKINS MILL POJ	STAFFORD	0.469 MILES	ORW			ORW
2018	NHRIV600030605-08	UNNAMED BROOK - FROM HUCKINS MILL	STAFFORD	1.912 MILES	ORW			ORW
2018	NHRIV600030605-09	PENNY BROOK	STAFFORD	0.459 MILES	ORW			ORW
2018	NHRIV600030605-10	ISINGLASS RIVER	STAFFORD	4.467 MILES	ORW			ORW
2018	NHRIV600030605-11	ISINGLASS RIVER	STAFFORD, BARRINGTON	2.183 MILES	ORW			ORW
2018	NHRIV600030605-12	UNNAMED BROOK - TO ISINGLASS RIVER	STAFFORD	0.729 MILES	ORW			ORW
2018	NHRIV600030605-13	UNNAMED BROOK - TO ISINGLASS RIVER	STAFFORD	7.02 MILES	ORW			ORW
2018	NHRIV600030605-14	STONEHOUSE BROOK - HALL BROOK	BARRINGTON, NORTHWOOD, STAFFORD	12.125 MILES	Primary Contact Recreator	Escherichia coli	4A-M	3973
2018	NHRIV600030605-15	NIPPO BROOK	BARRINGTON, STAFFORD	0.778 MILES	ORW			Review OneStop GIS
2018	NHRIV600030605-16	ISINGLASS RIVER	STAFFORD, BARRINGTON	1.609 MILES	ORW			ORW
2018	NHRIV600030605-17	UNNAMED BROOK	STAFFORD	0.865 MILES	ORW			ORW
2018	NHRIV600030605-18	UNNAMED BROOK	STAFFORD	0.359 MILES	ORW			ORW
2018	NHRIV600030605-19	UNNAMED BROOK	STAFFORD	0.46 MILES	ORW			ORW
2018	NHRIV600030605-20	BERRY'S RIVER	STAFFORD, FARMINGTON, ROCHESTER	5.2 MILES	Aquatic Life Integrity	pH	5-P	Non-ORW
2018	NHRIV600030606-03	BERRY'S RIVER - UNNAMED BROOK	STAFFORD, BARRINGTON	5.705 MILES	Aquatic Life Integrity	Low flow alterations	4C-P	Non-ORW
2018	NHRIV600030606-04	BERRY'S RIVER - UNNAMED BROOK	STAFFORD, BARRINGTON	5.705 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINT BARRINGTON	STAFFORD, BARRINGTON	0.107 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	Non-ORW
2018	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINT BARRINGTON	BARRINGTON	0.107 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	Non-ORW
2018	NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINT BARRINGTON	BARRINGTON	0.107 MILES	Aquatic Life Integrity	pH	5-P	Non-ORW
2018	NHRIV600030606-07	BERRY'S RIVER	BARRINGTON	1.26 MILES	Aquatic Life Integrity	pH	5-P	Non-ORW
2018	NHRIV600030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER	7.336 MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessme	5-M	Non-ORW
2018	NHRIV600030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER	7.336 MILES	Aquatic Life Integrity	pH	5-P	Non-ORW
2018	NHRIV600030607-03	AYERS POND BROOK	BARRINGTON	0.128 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	Non-ORW
2018	NHRIV600030607-03	AYERS POND BROOK	BARRINGTON	0.128 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-04	AYERS POND BROOK	BARRINGTON	1.691 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	Non-ORW
2018	NHRIV600030607-04	AYERS POND BROOK	BARRINGTON	1.691 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-08	GREEN HILL BROOK	ROCHESTER, BARRINGTON	2.411 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-09	GREEN HILL BROOK	BARRINGTON	3.224 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	Non-ORW
2018	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON	3.796 MILES	Primary Contact Recreator	Escherichia coli	4A-M	4063
2018	NHRIV600030607-15	COCHECO RIVER	ROCHESTER	4.414 MILES	Aquatic Life Integrity	Iron	5-M	Non-ORW
2018	NHRIV600030607-15	COCHECO RIVER	ROCHESTER	4.414 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	Non-ORW
2018	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	Non-ORW
2018	NHRIV600030607-16	SCRUTON POND OUTLET BROOK	BARRINGTON	0.071 MILES	Aquatic Life Integrity	pH	5-P	Non-ORW
2018	NHRIV600030608-02	BLACKWATER BROOK-CLARK BROOK	ROCHESTER, DOVER, SOMERSWORTH	15.228 MILES	Primary Contact Recreator	Escherichia coli	4A-P	3972
2018	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	Non-ORW
2018	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267 MILES	Primary Contact Recreator	Escherichia coli	4A-M	3972
2018	NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	DOVER, ROCHESTER	3.267 MILES	Primary Contact Recreator	Escherichia coli	4A-P	3972
2018	NHRIV600030608-04	REYNERS BROOK	DOVER	1.77 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW
2018	NHRIV600030608-05	COCHECO RIVER	DOVER	2.06 MILES	Aquatic Life Integrity	pH	5-M	Non-ORW

2018	NHRIV600030608-05	COACHEO RIVER	DOVER	2.06 MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-06	INDIAN BROOK	DOVER	1.106 MILES	Aquatic Life Integrity	Chloride	5-P			Non-ORW
2018	NHRIV600030608-06	INDIAN BROOK	DOVER	1.106 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-08	FRESH CREEK - TWO MBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030608-08	FRESH CREEK - TWO MBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030608-08	FRESH CREEK - TWO MBLY BROOK	ROLLINSFORD, SOMERSWORTH	4.983 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030608-08	ROLLINS BROOK	ROLLINSFORD, SOMERSWORTH	4.983 MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030608-10	ROLLINS BROOK	ROLLINSFORD	2.856 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-11	FRESH CREEK	ROLLINSFORD	1.126 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-14	UNNAMED TRIB. TO COACHEO RIVER, DOV	DOVER	0.169 MILES	Aquatic Life Integrity	Iron	5-M			Non-ORW
2018	NHRIV600030608-15	BERRY BROOK	DOVER	1.106 MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessme	5-M			Non-ORW
2018	NHRIV600030608-15	BERRY BROOK	DOVER	1.106 MILES	Aquatic Life Integrity	Chloride	5-M			Non-ORW
2018	NHRIV600030608-15	BERRY BROOK	DOVER	1.106 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030608-16	JACKSON BROOK	DOVER	0.724 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBU	NORTHWOOD, DEERFIELD	13.652 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBU	NORTHWOOD, DEERFIELD	13.652 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBU	NORTHWOOD, DEERFIELD	13.652 MILES	Aquatic Life Integrity	pH	5-P			Non-ORW
2018	NHRIV600030701-01	HARTFORD BROOK	DEERFIELD	10.734 MILES	Aquatic Life Integrity	Aluminum	5-M			Non-ORW
2018	NHRIV600030701-08	HARTFORD BROOK	DEERFIELD	10.734 MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessme	5-P			Non-ORW
2018	NHRIV600030701-08	HARTFORD BROOK	DEERFIELD	10.734 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030701-09	LAMPREY RIVER	DEERFIELD	7.767 MILES	Aquatic Life Integrity	pH	5-P			Non-ORW
2018	NHRIV600030701-13	LAMPREY RIVER	DEERFIELD	0.041 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030701-13	LAMPREY RIVER	DEERFIELD	0.041 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030701-14	LAMPREY RIVER	RAYMOND, DEERFIELD	6.776 MILES				Review OneStop GIS		ORW
2018	NHRIV600030702-01	TR NORTH BRANCH RIVER - UNNAMED BR	CANDIA	8.629 MILES				ORW		ORW
2018	NHRIV600030702-01	UNNAMED BROOKS - TO NORTH BRANCH	CANDIA	3.68 MILES				ORW		ORW
2018	NHRIV600030702-02	UNNAMED BROOK - FROM SPRUCE POND	DEERFIELD	0.131 MILES				ORW		ORW
2018	NHRIV600030702-03	UNNAMED BROOK - FROM SPRUCE POND	DEERFIELD	0.131 MILES				ORW		ORW
2018	NHRIV600030702-05	NORTH BRANCH RIVER - UNNAMED BROO	DEERFIELD, CANDIA	3.563 MILES				ORW		ORW
2018	NHRIV600030702-06	NORTH BRANCH RIVER - UNNAMED BROO	DEERFIELD, CANDIA	5.185 MILES				ORW		ORW
2018	NHRIV600030702-07	NORTH BRANCH RIVER - UNNAMED BROO	CANDIA, DEERFIELD	10.013 MILES				ORW		ORW
2018	NHRIV600030702-08	UNNAMED BROOK - TO NORTH BRANCH	R CANDIA, RAYMOND	1.171 MILES				ORW		ORW
2018	NHRIV600030702-09	NORTH BRANCH RIVER	RAYMOND, CANDIA	0.974 MILES				Review OneStop GIS		ORW
2018	NHRIV600030702-10	UNNAMED BROOK	CANDIA	1.071 MILES				ORW		ORW
2018	NHRIV600030702-11	UNNAMED BROOK	CANDIA	0.839 MILES				ORW		ORW
2018	NHRIV600030702-12	UNNAMED BROOK	DEERFIELD	0.59 MILES				ORW		ORW
2018	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.45 MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessme	5-P			Non-ORW
2018	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.45 MILES	Aquatic Life Integrity	Habitat Assessment (Streams)	4C-M			Non-ORW
2018	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.45 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDIA	5.45 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM	4.34 MILES	Aquatic Life Integrity	Lead	5-M			Non-ORW
2018	NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM	4.34 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM	4.34 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-05	LAMPREY RIVER	RAYMOND	2.647 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-07-02	LAMPREY RIVER - CARROLL LAKE BEACH	RAYMOND	0.02 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39276	Non-ORW
2018	NHRIV600030703-09	LAMPREY RIVER	RAYMOND	2.295 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-10	LAMPREY RIVER	RAYMOND	0.558 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-11	LAMPREY RIVER	EPPING, RAYMOND	3.27 MILES	Aquatic Life Integrity	Aluminum	5-M			Non-ORW
2018	NHRIV600030703-11	LAMPREY RIVER	EPPING, RAYMOND	3.27 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-14	PAWTUCKAWAY RIVER - UNNAMED BROO	NOTTINGHAM, EPPING, RAYMOND	6.751 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030703-14	PAWTUCKAWAY RIVER - UNNAMED BROO	NOTTINGHAM, EPPING, RAYMOND	6.751 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030703-14	PAWTUCKAWAY RIVER - UNNAMED BROO	NOTTINGHAM, EPPING, RAYMOND	6.751 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-15	LAMPREY RIVER	EPPING	4.692 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030703-15	LAMPREY RIVER	EPPING	4.692 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M			Non-ORW
2018	NHRIV600030703-15	LAMPREY RIVER	EPPING	4.692 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-15	LAMPREY RIVER	EPPING	4.692 MILES	Primary Contact Recreation	Escherichia coli	4A-P	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030703-17	UNNAMED BROOK - TO LAMPREY RIVER	EPPING	3.28 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-18	LAMPREY RIVER	EPPING	3.247 MILES	Aquatic Life Integrity	Ammonia (Total)	4B-T			Non-ORW
2018	NHRIV600030703-18	LAMPREY RIVER	EPPING	3.247 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030703-18	LAMPREY RIVER	EPPING	3.247 MILES	Aquatic Life Integrity	Phosphorus (Total)	4B-T			Non-ORW
2018	NHRIV600030703-18	LAMPREY RIVER	EPPING	3.247 MILES	Aquatic Life Integrity	Total Suspended Solids (TSS)	4B-T			Non-ORW
2018	NHRIV600030703-18	LAMPREY RIVER	EPPING	3.247 MILES	Primary Contact Recreation	Escherichia coli	4A-M	9/21/2010 NEW HAMPSHIRE STATEWIDE I	39272	Non-ORW
2018	NHRIV600030703-20	RUM BROOK	EPPING	4.791 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030704-02	BACK CREEK - UNNAMED BROOK	DEERFIELD, NOTTINGHAM	6.449 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030704-04	BACK CREEK - UNNAMED BROOK	DEERFIELD, NOTTINGHAM	8.064 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030704-06	ROUND POND BROOK	NOTTINGHAM	3.701 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW
2018	NHRIV600030704-07	MOUNTAIN BROOK - UNNAMED BROOKS	NOTTINGHAM, DEERFIELD	6.199 MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M			Non-ORW
2018	NHRIV600030704-07	MOUNTAIN BROOK - UNNAMED BROOKS	NOTTINGHAM, DEERFIELD	6.199 MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P			Non-ORW
2018	NHRIV600030704-07	MOUNTAIN BROOK - UNNAMED BROOKS	NOTTINGHAM, DEERFIELD	6.199 MILES	Aquatic Life Integrity	pH	5-P			Non-ORW
2018	NHRIV600030704-08	UNNAMED BROOK - TO PAWTUCKAWAY P	NOTTINGHAM	1.706 MILES	Aquatic Life Integrity	pH	5-M			Non-ORW

2020	NHRV60030603-10	WILLOW BROOK	ROCHESTER		Yes	7.347	MILES	Aquatic Life integrity	Benthic-Mac invertebrate Bioassessments (Streams)	5-P	LOW	N	2011
2020	NHRV60030603-10	WILLOW BROOK	ROCHESTER		Yes	7.347	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-P	LOW	N	2011
2020	NHRV60030603-10	WILLOW BROOK	ROCHESTER		Yes	7.347	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2011
2020	NHRV60030603-10	WILLOW BROOK	ROCHESTER		Yes	7.347	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2017
2020	NHRV60030603-11	HURD BROOK	ROCHESTER		Yes	1.621	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2007
2020	NHRV60030605-05	MOHAWK BROOK	STRAFFORD, BARRINGTON			10.233	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2009
2020	NHRV60030605-05	MOHAWK BROOK	STRAFFORD, BARRINGTON			10.233	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2009
2020	NHRV60030605-10	ISINGLASS RIVER	STRAFFORD			10.233	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2009
2020	NHRV60030605-11	ISINGLASS RIVER	STRAFFORD, BARRINGTON			4.467	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030605-12	UNNAMED BROOK - TO SINGLASS RIVER	STRAFFORD			2.183	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2016
2020	NHRV60030605-14	STONEHOUSE BROOK - HALL BROOK	BARRINGTON, NORTHWOOD, STRAFFORD			7.020	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2009
2020	NHRV60030605-14	STONEHOUSE BROOK - HALL BROOK	BARRINGTON, NORTHWOOD, STRAFFORD			7.020	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2009
2020	NHRV60030605-15	NIPPO BROOK	BARRINGTON, STRAFFORD			12.125	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2009
2020	NHRV60030605-15	NIPPO BROOK	BARRINGTON, STRAFFORD			12.125	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2009
2020	NHRV60030605-16	ISINGLASS RIVER	STRAFFORD, BARRINGTON			0.778	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2019
2020	NHRV60030605-16	ISINGLASS RIVER	STRAFFORD, BARRINGTON			0.778	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030606-03	BERRY'S RIVER	ROCHESTER			5.200	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2009
2020	NHRV60030606-04	BERRY'S RIVER - UNNAMED BROOK	STRAFFORD, BARRINGTON			5.705	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2007
2020	NHRV60030606-06	BERRY'S RIVER - FROM LONG POND TO SINGLASS RIVER	BARRINGTON			0.107	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2009
2020	NHRV60030606-06	BERRY'S RIVER - FROM LONG POND TO SINGLASS RIVER	BARRINGTON			0.107	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-M	LOW	N	2009
2020	NHRV60030606-06	BERRY'S RIVER - FROM LONG POND TO SINGLASS RIVER	BARRINGTON			0.107	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2009
2020	NHRV60030606-07	BERRY'S RIVER	BARRINGTON		Yes	1.260	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2009
2020	NHRV60030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER		Yes	7.336	MILES	Aquatic Life integrity	Benthic-Mac invertebrate Bioassessments (Streams)	5-M	LOW	N	2015
2020	NHRV60030607-01	ISINGLASS RIVER	BARRINGTON, ROCHESTER		Yes	7.336	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030607-03	AYERS POND BROOK	BARRINGTON			0.128	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-M	LOW	N	2009
2020	NHRV60030607-03	AYERS POND BROOK	BARRINGTON			0.128	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030607-04	AYERS POND BROOK	BARRINGTON			1.691	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-M	LOW	N	2009
2020	NHRV60030607-04	AYERS POND BROOK	BARRINGTON			1.691	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030607-08	HANSON BROOK	ROCHESTER, BARRINGTON		Yes	2.411	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2009
2020	NHRV60030607-09	GREEN HILL BROOK	BARRINGTON			3.224	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2008
2020	NHRV60030607-10	ISINGLASS RIVER	ROCHESTER, BARRINGTON		Yes	3.796	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2019
2020	NHRV60030607-15	COCHEO RIVER	ROCHESTER		Yes	4.414	MILES	Aquatic Life integrity	Iron	5-M	LOW	N	2013
2020	NHRV60030607-15	COCHEO RIVER	ROCHESTER			4.414	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030607-16	SCRUTTON POND OUTLET BROOK	BARRINGTON			0.071	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2008
2020	NHRV60030607-16	SCRUTTON POND OUTLET BROOK	BARRINGTON			0.071	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2008
2020	NHRV60030607-16	SCRUTTON POND OUTLET BROOK	BARRINGTON			0.071	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2008
2020	NHRV60030608-03	COCHEO RIVER - UNNAMED BROOK	DOVER, ROCHESTER		Yes	3.267	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2013
2020	NHRV60030608-03	COCHEO RIVER - UNNAMED BROOK	DOVER, ROCHESTER		Yes	3.267	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2013
2020	NHRV60030608-05	COCHEO RIVER	DOVER, ROCHESTER		Yes	2.060	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2013
2020	NHRV60030608-06	INDIAN BROOK	DOVER		Yes	1.106	MILES	Aquatic Life integrity	Chloride	5-P	LOW	N	2009
2020	NHRV60030608-08	ROLLINSFORD, SOMERSWORTH	DOVER		Yes	4.983	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2009
2020	NHRV60030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH		Yes	4.983	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2009
2020	NHRV60030608-08	FRESH CREEK - TWOMBLY BROOK	ROLLINSFORD, SOMERSWORTH		Yes	4.983	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2009
2020	NHRV60030608-10	ROLLINS BROOK	ROLLINSFORD		Yes	2.856	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2009
2020	NHRV60030608-10	ROLLINS BROOK	ROLLINSFORD		Yes	2.856	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2009
2020	NHRV60030608-10	ROLLINS BROOK	ROLLINSFORD		Yes	2.856	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2009
2020	NHRV60030608-14	UNNAMED TRIB. TO COCHEO RIVER, DOVER (FROM DOVER)	ROLLINSFORD		Yes	0.169	MILES	Aquatic Life integrity	Iron	5-M	LOW	N	2013
2020	NHRV60030608-15	BERRY BROOK	DOVER		Yes	1.106	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2001
2020	NHRV60030608-15	BERRY BROOK	DOVER		Yes	1.106	MILES	Aquatic Life integrity	Benthic-Mac invertebrate Bioassessments (Streams)	5-M	LOW	N	2016
2020	NHRV60030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD			13.652	MILES	Aquatic Life integrity	Chloride	5-P	LOW	N	2014
2020	NHRV60030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD			13.652	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-P	LOW	N	2016
2020	NHRV60030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	NORTHWOOD, DEERFIELD			13.652	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2016
2020	NHRV60030701-08	HARTFORD BROOK	DEERFIELD			10.734	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2016
2020	NHRV60030701-08	HARTFORD BROOK	DEERFIELD			10.734	MILES	Aquatic Life integrity	Aluminum	5-M	LOW	N	2006
2020	NHRV60030701-08	HARTFORD BROOK	DEERFIELD			10.734	MILES	Aquatic Life integrity	Benthic-Mac invertebrate Bioassessments (Streams)	5-P	LOW	N	2003
2020	NHRV60030701-09	LAMPREY RIVER	DEERFIELD			7.767	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2006
2020	NHRV60030701-09	LAMPREY RIVER	DEERFIELD			7.767	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-P	LOW	N	2017
2020	NHRV60030701-09	LAMPREY RIVER	DEERFIELD			7.767	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2017
2020	NHRV60030701-13	LAMPREY RIVER	DEERFIELD			0.041	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2017
2020	NHRV60030701-13	LAMPREY RIVER	DEERFIELD			0.041	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2017
2020	NHRV60030702-06	NORTH BRANCH RIVER - UNNAMED BROOKS	DEERFIELD, CANDA			5.185	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2017
2020	NHRV60030702-06	NORTH BRANCH RIVER - UNNAMED BROOKS	DEERFIELD, CANDA			5.185	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2017
2020	NHRV60030702-06	NORTH BRANCH RIVER - UNNAMED BROOKS	DEERFIELD, CANDA			5.185	MILES	Aquatic Life integrity	pH	5-P	LOW	N	2017
2020	NHRV60030702-07	NORTH BRANCH RIVER - UNNAMED BROOKS	CANDIA, DEERFIELD			10.013	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2017
2020	NHRV60030702-07	NORTH BRANCH RIVER - UNNAMED BROOKS	CANDIA, DEERFIELD			10.013	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2017
2020	NHRV60030702-07	NORTH BRANCH RIVER - UNNAMED BROOKS	CANDIA, DEERFIELD			10.013	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2017
2020	NHRV60030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDA			5.450	MILES	Aquatic Life integrity	Benthic-Mac invertebrate Bioassessments (Streams)	5-P	LOW	N	1998
2020	NHRV60030703-01	UNNAMED BROOK - TO ONWAY LAKE	RAYMOND, CANDA			5.450	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM		Yes	4.340	MILES	Aquatic Life integrity	Dissolved oxygen saturation	5-M	LOW	N	2004
2020	NHRV60030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM		Yes	4.340	MILES	Aquatic Life integrity	Lead	5-M	LOW	N	2000
2020	NHRV60030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM		Yes	4.340	MILES	Aquatic Life integrity	Oxygen, Dissolved	5-P	LOW	N	2004
2020	NHRV60030703-04	DUDLEY BROOK - UNNAMED BROOK	RAYMOND, DEERFIELD, NOTTINGHAM		Yes	4.340	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2005
2020	NHRV60030703-05	LAMPREY RIVER	RAYMOND		Yes	2.647	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2019
2020	NHRV60030703-09	LAMPREY RIVER	RAYMOND		Yes	2.295	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2006
2020	NHRV60030703-10	LAMPREY RIVER	RAYMOND		Yes	0.558	MILES	Aquatic Life integrity	pH	5-M	LOW	N	2004

SWPPP Cut Sheet:

Filtrex[®] Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrex[®] 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

Filtrex[®] 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 Filtrex[®] Soxx[™] Material Specifications and use Certified Filtrex[®] FilterMedia[™].
2. Contractor is required to be Filtrex[®] Certified[™], or use pre-filled Filtrex[®] Sediment control

products manufactured by a Filtrex[®] Certified Manufacturer[™] as determined by Filtrex[®] International, LLC (440-926-2607 or visit www.filtrex.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrex[®] 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. Filtrex[®] Sediment control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrex[®] 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.

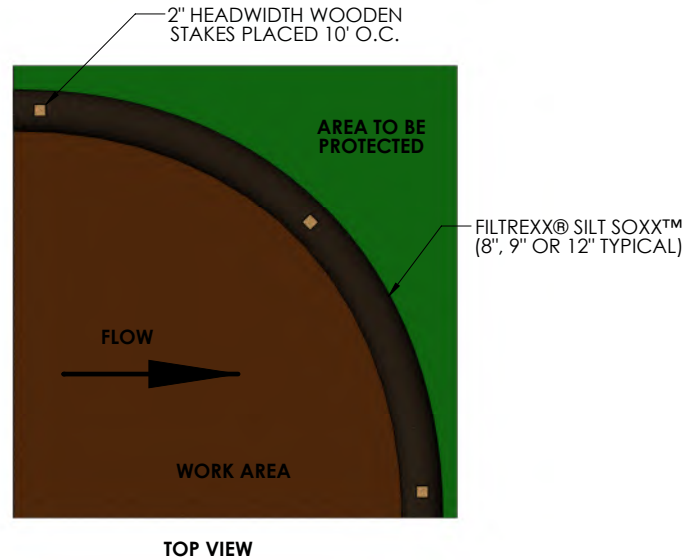
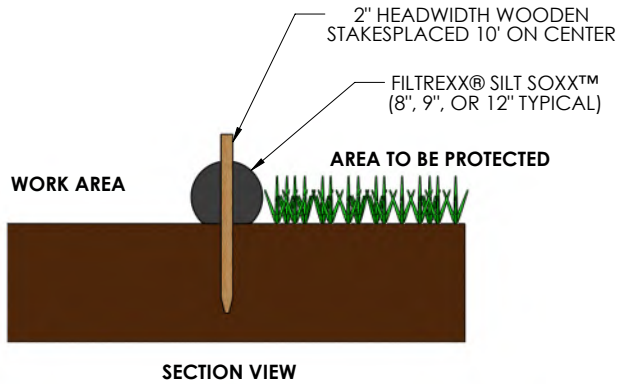
Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (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.

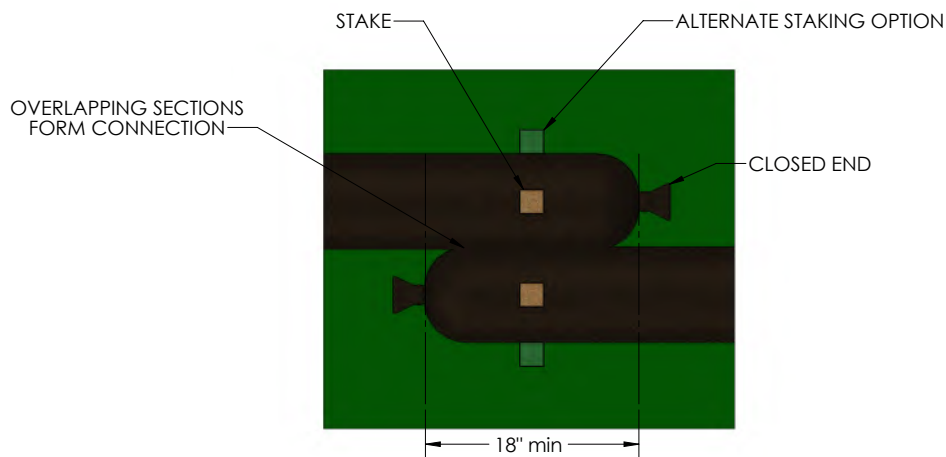
** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.



FILTREXX® SILT SOXX™



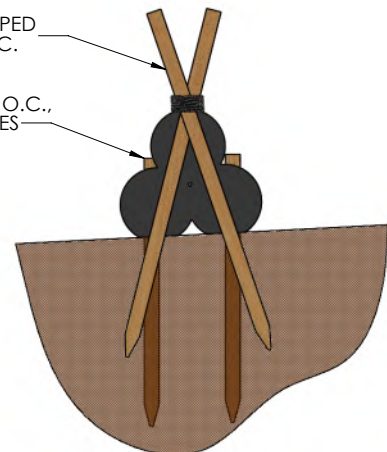
COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL

(2) 2"x2"x48+" HARDWOOD STAKES, WRAPPED TOGETHER WITH 16 GAUGE WIRE, 10' O.C.

2"x2"x36" HARDWOOD STAKE, 10' O.C., STARTING 5' FROM ANGLED STAKES



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:

Filtrex[®] Inlet Protection *Sediment & Perimeter Control Technology*

PURPOSE & DESCRIPTION

Filtrex[®] 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 Filtrex[®] FilterSoxx[™] Material Specifications and use Certified Filtrex[®] FilterMedia[™].
2. Contractor is required to be a Filtrex[®] Certified[™] Installer as determined by Filtrex[®] International, LLC (440-926-2607 or visit web site at [Filtrex.com](http://www.filtrex.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.filtrex.com). Look for the Filtrex[®] 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.

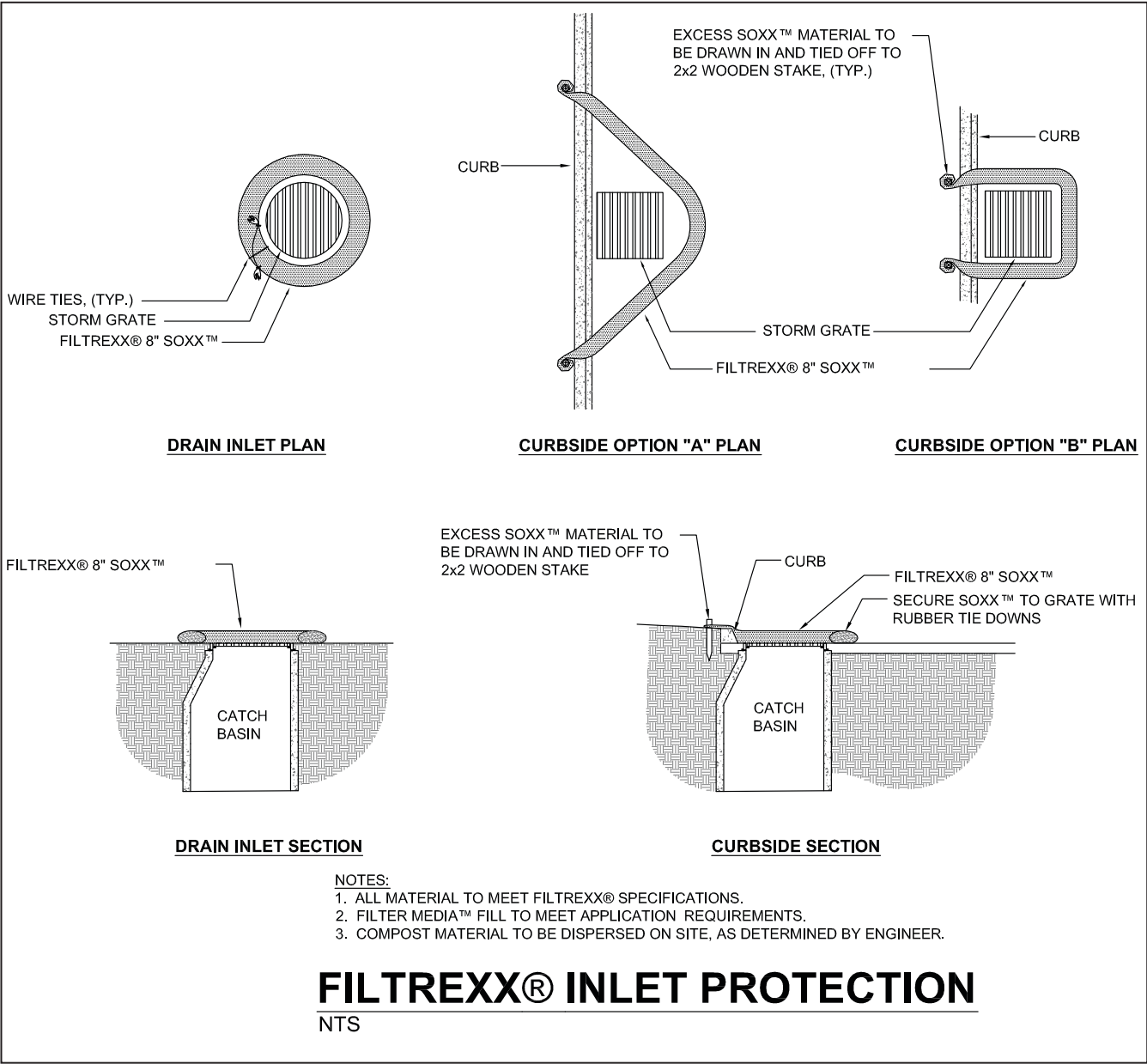
Table 2.4 Spacing for Curb Sediment Containment Systems.

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



The diagram consists of two parts: a cross-section and a plan view.

Cross-Section: Shows a curb on the left, followed by a layer of Filtrex 8" Soxx, and then a wire-tied Soxx end. The Soxx is shown as a textured material.

Plan View: Shows two parallel sections of Filtrex 8" Soxx installed along a curb. The curb is on the left, and the flow direction is indicated by a downward arrow labeled "FLOW". The Soxx sections are shown as textured material. Labels indicate "EXCESS SOXX MATERIAL TO BE DRAWN IN AND TIED OFF TO STAKE" at the curb, "CURB" pointing to the curb line, "FLOW" with a downward arrow, "SPACING VARIES REFER TO SPECS" with a vertical double-headed arrow, and "LENGTH VARIES" with a horizontal double-headed arrow.

SECTION NTS

PLAN NTS

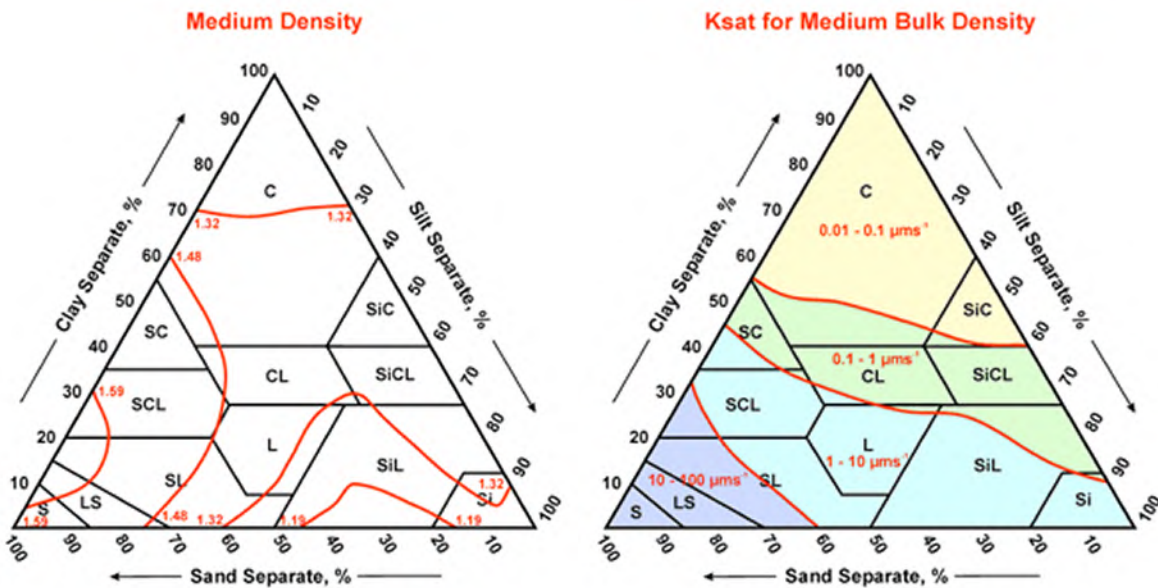
NOTE:
1. INLET PROTECTION SHOULD NOT BE PLACED DIRECTLY UPSLOPE FROM DRAIN INLETS

K_{sat} VALUES

FOR

NEW HAMPSHIRE SOILS

(Including Hydrologic and DES Soil Lot Sizing Groups)



From: Guide for Estimating K_{sat} from Soil Properties (Exhibit 618-9). (<http://soils.usda.gov/technical/handbook/contents/part618ex.html>)

Sponsored by the Society of Soil Scientists of Northern New England
SSSNNE Special Publication No. 5
September, 2009

K_{sat} VALUES FOR NEW HAMPSHIRE SOILS

ABOUT THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND

The Society of Soil Scientists of Northern New England (SSSNNE) is a non-profit professional organization of soil scientists, both in the private and public sectors, which is dedicated to the advancement of soil science. The Society fosters the profession of soil classification, mapping and interpretation, and encourages the dissemination of information concerning soil science. With the intent of contributing to the general human welfare, the Society seeks to educate the public on the wise use of soils and the associated natural resources.

INTRODUCTION

The publication “K_{sat} Values for New Hampshire Soils” is designed to assist soil scientists, engineers, and other professionals by assembling tables of existing data for all soil series currently on the state soil legend with regard to K_{sat} values and hydrologic groupings (Hyd.Grp.). The need for this information has become more important since the adoption by the New Hampshire Department of Environmental Services of the revised Alteration of Terrain rules for stormwater management. Additional information has been provided for each soil series with regard to landform, temperature regime (Temp.), soil textures, NHDES Soil Lot Size Groupings (Group), whether the soil is a Spodosol (Spodosol?) and other information which will be valuable to a variety of soil information users.

The data for each soil series has been sorted 3 ways for ease of searching:

Table A-Sorted by Numerical Legend

Table B-Sorted by Soil Series Name

Table C-Sorted by NHDES Soil Group for Establishing Lot Size

The report represents cumulative efforts by private soil scientists and NHDES staff with assistance from the USDA Natural Resource Conservation Service.

Comments or inquiries on the information in this publication may be directed to the Board of Directors at the following address:

**Society of Soil Scientists
of Northern New England
PO Box 76
Durham, NH 03824**

SATURATED HYDRAULIC CONDUCTIVITY (K_{SAT})

K_{sat} refers to the ease with which pores in a saturated soil transmit water. The estimates presented here are expressed in terms of inches per hour (NRCS official data presents K_{sat} in both micrometers per second and inches per hour). K_{sat} values are based on soil characteristics observed in the field, particularly structure, consistence, porosity, and texture. (USDA NRCS, Web Soil Survey)

Saturated flow occurs when the soil water pressure is positive; that is, when the soil matric potential is zero (saturated wet condition). In most soils this situation takes place when about 95 percent of the total pore space is filled with water. The remaining 5 percent is filled with entrapped air. Saturated hydraulic conductivity cannot be used to describe water movement under unsaturated conditions. (Soil Survey Manual, 1993)

It is commonly known that soil features (and thus data) for a certain soil series name may be slightly different from one county soil survey to the next and the range in characteristics (via the Typical Pedon) may be slightly different. For example – a Marlow soil (series) in Carroll County may have a higher sand content in its B horizon as opposed to a Marlow soil (series) in Coos County; resulting in a slightly different K_{sat} range for the B horizon.

The K_{sat} data for this publication was obtained from the USDA-NRCS Soil Data Mart using the Typical Pedon from the county that best reflected the soil and/or had the most acres of that soil. This data is presented in B and C horizons only as it is assumed that the topsoil (A or A_p horizon) will be removed in typical construction practices.

References:

Web Soil Survey. *Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>.*

Soil Data Mart. <http://soildatamart.nrcs.usda.gov/>.

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.*

HYDROLOGIC SOIL GROUPS

Hydrologic group is a group of soils having the same runoff potential under similar storm and cover conditions.

Hydrologic groups are used in equations that estimate runoff from rainfall. These estimates are needed for solving hydrologic problems that arise in planning stormwater management, watershed protection, and flood-prevention projects and for planning or designing structures for the use, control, and disposal of water.

Classifications assigned to soils were based on the use of rainfall-runoff data from small watersheds and infiltrometer plots. From these data, relationships between soil properties and hydrologic groups were established. Assignment of soils to hydrologic groups is based on the relationship between soil properties and hydrologic groups. Wetness characteristics, permeability after prolonged wetting, and depth to very slowly permeable layers are properties that assist in estimating hydrologic groups. Minimum annual steady ponded infiltration rate for a bare ground surface determines the hydrologic soil groups.

Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. (The influence of ground cover is treated independently, not in hydrologic soil groups.).

The soils in the United States are placed into four groups, A, B, C, and D, and three dual classes, *A/D*, *B/D*, and *C/D*. In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by soil properties. Definitions of the classes are as follows:

Group A- Saturated hydraulic conductivity is very high or in the upper half of high and internal free water occurrence is very deep. Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures. Some soils having loamy sand, sandy loam, loam or silt loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group A are as follows. The saturated hydraulic conductivity of all soil layers exceeds 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer are in group A if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 10 micrometers per second (1.42 inches per hour).

Group B- Saturated hydraulic conductivity is in the lower half of high or in the upper half of moderately high and free water occurrence is deep or very deep. Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group B are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] ranges from 10.0 micrometers per second (1.42 inches per hour) to 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer or water table are in group B if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 4.0 micrometers per second (0.57 inches per hour) but is less than 10.0 micrometers per second (1.42 inches per hour).

Group C- Saturated hydraulic conductivity is in the lower half of moderately high or in the upper half of moderately low and internal free water occurrence is deeper than shallow. Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay and less than 50 percent sand and have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group C are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] is between 1.0 micrometers per second (0.14 inches per hour) and 10.0 micrometers per second (1.42 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a restriction or water table are in group C if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 0.40 micrometers per second (0.06 inches per hour) but is less than 4.0 micrometers per second (0.57 inches per hour).

Group D- Saturated hydraulic conductivity is below the upper half of moderately low, and/or internal free water occurrence is shallow or very shallow and transitory through permanent. Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 50 centimeters [20 inches] and all soils with a water table within 60 centimeters [24 inches] of the surface are in this group, although some may have a dual classification, as described in the next section, if they can be adequately drained. The limits on the physical diagnostic characteristics of group D are as follows. For soils with a water impermeable layer at a depth between 50 centimeters and 100 centimeters [20 and 40 inches], the saturated hydraulic conductivity in the least transmissive soil layer is less than or equal to 1.0 micrometers per second (0.14 inches per hour). For soils that are deeper than 100 centimeters [40 inches] to a restriction or water table, the saturated hydraulic

conductivity of all soil layers within 100 centimeters [40 inches] of the surface is less than or equal to 0.40 micrometers per second (0.06 inches per hour).

Dual hydrologic soil groups-Certain wet soils are placed in group D based solely on the presence of a water table within 60 centimeters [24 inches] of the surface even though the saturated hydraulic conductivity may be favorable for water transmission. If these soils can be adequately drained, then they are assigned to dual hydrologic soil groups (*A/D*, *B/D*, and *C/D*) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state.

References:

National Engineering Handbook, Natural Resource Conservation Service, U.S. Department of Agriculture.

Soil Data Mart. <http://soildatamart.nrcs.usda.gov/>.

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 18.*

TABLE A

NUMERICAL LEGEND

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Madawaska, aquatic	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravely loamy sand in C
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	crylic	loamy	no	
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrodept
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravely sandy loam in Cd
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Ricker	674	2.0	6.0	2.00	6.0	A	4	Organic over bedrock (up to 4" of mineral)	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep



no longer recognized
organic materials

TABLE B

SOIL SERIES

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquifer	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravelly loamy sand in C
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravely sandy loam in Cd
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Ricker	674	2.0	6.0	2.00	6.0	A	4	Organic over bedrock (up to 4" of mineral)	crylic	fibric to hemic	no	well drained, less than 20 in. deep
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	crylic	loamy	yes	less than 20 in. deep
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravely sand in 2C
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravely coarse sand
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	crylic	loamy	yes	sandy loam in Cd
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrodept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

 no longer recognized
 organic materials

TABLE C

NHDES SOIL GROUPINGS

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Adams	36	1	6.0	20.0	20.00	99.0	A	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Caesar	526	1	20.0	100.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	coarse sand	no	
Champlain	35	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	gravelly sand	no	
Colton	22	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Gloucester	11	1	6.0	20.0	6.00	20.0	A	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hermon	55	1	2.0	20.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hoosic	510	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Masardis	23	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Merrimac	10	1	2.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Quonset	310	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Redstone	665	1	2.0	6.0	6.00	20.0	A	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Success	154	1	2.0	6.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	cemented
Suncook	2	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Warwick	210	1	2.0	6.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Windsor	26	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	sandy	no	
Abenaki	501	2	0.6	2.0	6.00	99.0	B	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Agawam	24	2	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	2	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Bangor	572	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Berkshire	72	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bice	226	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	no	sandy loam
Canton	42	2	2.0	6.0	6.00	20.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Charlton	62	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Dutchess	366	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Fryeburg	208	2	0.6	2.0	2.00	6.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Groveton	27	2	0.6	2.0	0.60	6.0	B	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	2	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	2	0.6	2.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Houghtonville	795	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Lombard	259	2	0.6	6.0	2.00	20.0	C/D	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Monadnock	142	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravelly loamy sand in C
Occum	1	2	0.6	2.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Salmon	630	2	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Stetson	523	2	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Unadilla	30	2	0.6	2.0	2.00	20.0	B	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Chichester	442	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Acton	146	3	2.0	20.0	2.00	20.0	B	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Becket	56	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	3	0.6	2.0	0.06	2.0	B	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bernardston	330	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Boxford	32	3	0.1	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	silty clay loam

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Buckland	237	3	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Buxton	232	3	0.1	0.6	0.00	0.2	C	Silt and Clay Deposits	frigid	fine	no	silty clay
Canterbury	166	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Chatfield Var.	289	3	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	mwd to swp
Chesuncook	126	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Colonel	927	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Croghan	613	3	20.0	100.0	20.00	100.0	B	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	3	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	3	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Eldridge	38	3	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elmridge	238	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116	3					C	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Gilmanton	478	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Henniker	46	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hitchcock	130	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Howland	566	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Lanesboro	228	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Lovewell	307	3	0.6	2.0	0.60	2.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Machias	520	3	2.0	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Madawaska	28	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquifer	48	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Melrose	37	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Metacomet	458	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	3	6.0	100.0	6.00	100.0	B	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39	3					C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Montauk	44	3	0.6	6.0	0.06	0.6	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Mundak	610	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	gravely sandy loam in Cd
Newfields	444	3	0.6	2.0	0.60	2.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	3	0.6	2.0	0.60	2.0	C	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	3	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Paxton	66	3	0.6	2.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Peru	78	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	
Pittstown	334	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	3	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Poocham	230	3	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Scio	531	3	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	mesic	silty	no	gravely sand in 2C
Scituate	448	3	0.6	2.0	0.06	0.2	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Sheepscot	14	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravely coarse sand
Sisk	667	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Sudbury	118	3	2.0	6.0	2.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	no	loam over gravely sand
Suffield	536	3	0.6	2.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	frigid dystroch
Surplus	669	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	3	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	
Telos	123	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd

Sorted by DES Soil Group for Establishing Lot Size
K_{sat} B and C horizons
SSSNNE pub no. 5

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Waumbeck	58	3	2.0	20.0	6.00	20.0	B	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Winooski	103	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Woodbridge	29	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Winooski	9	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Canaan	663	4	2.0	20.0	2.00	20.0	C	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Cardigan	357	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Chatfield	89	4	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Elliottsville	128	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Glebe	671	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Glover	NA	4	0.6	2.0	0.60	2	D	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Hogback	91	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	4	0.6	6.0	0.60	6.0	C/D	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Kearsarge	359	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Lyman	92	4	2.0	6.0	2.00	6.0	A/D	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Macomber	252	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Millsite	251	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monson	133	4	0.6	2.0	0.60	2.0	D	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Pennichuck	460	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Rawsonville	98	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Ricker	674	4	2.0	6.0	2.00	6.0	A	Organic over bedrock (up to 4" of miner)	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Saddleback	673	4	0.6	2.0	0.60	2.0	C/D	Loose till, bedrock	cryic	loamy	yes	
Shapleigh	136	4					C/D	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Thorndike	84	4	0.6	2.0	0.60	2.0	C/D	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Tunbridge	99	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Winnecook	88	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Woodstock	93	4	2.0	6.0	2.00	6.0	C/D	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Au Gres	516	5					B	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bemis	224	5	0.6	0.2	0.00	0.2	C	Firm, platy, loamy till	cryic	loamy	no	
Binghamville	534	5	0.2	2.0	0.06	0.2	D	Terraces and glacial lake plains	mesic	silty	no	
Brayton	240	5	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Cabot	589	5	0.6	2.0	0.06	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Charles	209	5	0.6	100.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	silty	no	
Cohas	505	5	0.6	2.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Grange	433	5	0.6	2.0	0.60	2.0	C	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Kinsman	614	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Leicester	514	5	0.6	6.0	0.60	20.0	C	Loose till, loamy textures	mesic	loamy	no	
Lim	3	5	0.6	2.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	5	0.6	2.0	0.60	2.0	C	Flood Plain (Bottom Land)	mesic	silty	no	
Lyme	246	5	0.6	6.0	0.60	6.0	C	Loose till, sandy textures	frigid	loamy	no	
Mashpee	315	5	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	yes	
Monarda	569	5	0.2	2.0	0.02	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Moosilauke	414	5	6.0	20.0	6.00	20.0	C	Loose till, sandy textures	frigid	sandy	no	
Naumburg	214	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Pemi	633	5	0.6	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	5	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314	5					B	Outwash and Stream Terraces	mesic	sandy	yes	
Raynham	533	5	0.2	2.0	0.06	0.2	C	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	5	0.6	2.0	6.00	100.0	D	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Ridgebury	656	5	0.6	6.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	5	0.2	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	frigid	loamy	no	

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Saugatuck	16	5	0.06	0.2	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	5	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	
Scitico	33	5	0.0	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	
Shaker	439	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Squamscott	538	5	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stissing	340	5	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Swanton	438	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Walpole	546	5	2.0	6.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Biddeford	234	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	organic over clay
Bucksport	895	6					D	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	6	0.2	6.0	0.02	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Catden	296	6					A/D	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Chocorua	395	6			6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Greenwood	295	6					A/D	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Ipswich	397	6					D	Tidal Flat	mesic	hemic/sapric	no	deep organic
Matunuck	797	6			20.00	100.0	D	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	6	0.6	2.0	0.60	2.0	D	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Natchaug	496	6			0.20	2.0	D	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Ossipee	495	6			0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497	6			20.00	100.0	D	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Peacham	549	6	0.6	2.0	0.00	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Pondicherry	992	6			6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Saco	6	6	0.6	2.0	6.00	20.0	D	Flood Plain (Bottom Land)	mesic	silty	no	strata
Scarboro	115	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Searsport	15	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Timakwa	393	6			6.00	100.0	D	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Vassalboro	150	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waskish	195	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Westbrook	597	6			0.00	2.0	D	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	6	0.0	0.2	0.00	0.2	D	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Wonsqueak	995	6			0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam

no longer recognized organic materials denotes break between Soil Group

ORDER FORM

**Ksat VALUES
FOR
NEW HAMPSHIRE SOILS**
(Including Hydrologic and Soil Lot Sizing Groups)

SSSNNE Publication #5

DATE_____

Mail Copy of Publication #5 to:

Name_____

Address_____

City_____State_____Zip_____

Quantity of Publications_____ @ \$8.00 = Total Order: \$_____

Amount Enclosed: \$_____

Enclose check or money order for the full amount payable to:

**Society of Soil Scientists of Northern New England
PO Box 76
Durham, NH 03824**

Please allow 4 weeks for delivery.

HANCOCK ASSOCIATES

Surveyors | Engineers | Scientists

September 8, 2021

City of Dover Planning Board
288 Central Avenue
Dover, NH 03820
Donna Benton, AICP, City Planner

Subject: Proposed Townhome Project
71/73 Rutland Street and Abbey Lane

Dear Ms. Benton:

Hancock Associates hereby submits an application for Site Plan Review for a proposed townhome residential project in accordance with Chapter 153 Site Plan Regulations. The following is submitted herein:

- Site Plan Application and Checklist
- Site Plan prepared by Hancock Associates containing 8 sheets.
- Architectural Plans prepared by Koal Architecture, PLLC
- Streetscape Rendering prepared by Koal Architecture, PLLC
- Traffic Assessment prepared by Hancock Associates
- Stormwater Management Report prepared by Hancock Associates
- Stormwater Operation & Maintenance Plan
- Landscape Operation & Maintenance Plan
- Soils Report prepared by Gove Environmental
- Filing fee (sent under separate cover by Applicant)

Existing Conditions

The project site is comprised of two properties at 71 and 73 Rutland Street containing a combined one acre (43,560 square feet). The site is bounded by Rutland Street to the north, Abbey Lane (a public way) to the east and property of Rutland Manor to the south and west. Rutland Manor is a 50-unit apartment complex containing two buildings built in the 1970s. Directly across Rutland Street are two single family homes at 70 and 72 Rutland and the Assembly of God Restoration Church. Single-family homes currently exist on each of the lots at 71 and 73 Rutland with individual driveways onto Rutland. Rutland Street is a city street with a 50 foot right of way, 30 feet of pavement and a sidewalk on the south (locus) side. Abbey Lane is a city street with a 50 foot right of way, 30 feet of pavement and no sidewalk. Neither street is stiped. Rutland Street connects Central Ave (NH Route 108) at the interchange with the Spaulding Turnpike to the east and Cataract Avenue to the west. The area including the subject parcel is in Dover's Gateway Zoning District. The half-acre development area is currently lawn with some trees, which have been located on the attached existing condition survey. The site slopes from west to east toward Abbey Lane. A set of catch basins exist on Abbey Lane that are piped to a low area near the intersection of Abbey and Rutland. No utilities exit in Abbey Lane. A 12-inch sewer main, 6-inch water main and a 3-inch high pressure gas line exist in Rutland Street as well as overhead electric and communication wires.

HANCOCK ASSOCIATES

Surveyors | Engineers | Scientists

Proposed Conditions

The proposal calls for the merger of the two lots, retaining the two structures and the construction of eight three-bedroom townhomes in a single building at the back of the lot. Access to the townhomes will be via a new driveway from Abbey Lane. The two existing homes and the eight new townhomes will be sold under a condominium form of ownership. The two existing homes will continue to utilize their driveways onto Rutland with the townhomes using a proposed 22-foot-wide paved access drive from Abbey Lane. Each townhome will have a single car garage and one space in front of the garage door. The project meets the 4,000 square feet per dwelling unit considering the eight proposed and two exiting units on the single merged lot. All other zoning requirements are met as outlined in the zoning table on the Title Sheet of the Site Plan.

Hancock believes the information contained in this Site Plan submission demonstrates compliance with the Site Design and Development Criteria outlined in Chapter 153-14.

Stormwater

The proposed stormwater management system has been designed in full compliance with City of Dover requirements and NH DES Stormwater requirements for land development. An Alteration of Terrain Permit (AoT) is not required given the quantity of proposed land disturbance. The proposed stormwater system consists of a roof drain underground infiltration system and a wet pond located near the Abbey Lane entrance. Soils on site have been classified by Luke Hurley of Gove Environmental as a Scio Variant which are somewhat poorly drained with a very high water table. We have therefore gone with the wet pond and installation of the roof drain system in fill to the side of the first unit. Please see our full Stormwater Report for more details.

Utilities

Proposed sewer, water, gas, electric and communication utilities will be extended up Abbey Lane from Rutland Street as depicted on the Site Plan set. The water line in Rutland is a 6-inch main. Chapter 153-14 B(1)(a) requires all water line extensions to be 12-inch. We do not see this as an extension per se as the purpose of the line is to only service the project as no other developable land exists on Abbey Lane. We have however provided a proposed 8-inch main along with a new hydrant at the property line. Electric and communication lines are proposed to be underground as required.

Driveways, Accessways and Internal Drives

The internal drive is not considered a roadway and therefore not subject to the roadway requirements of Chapter 153-14 C. The plans comply with all other provisions of this section.

Parking

Each townhome will have a single car garage and one space in front of the garage door which complies with the 1.9 required by zoning in that $16/1.9 = 15.2$ spaces rounded up is 16. A bicycle rack has not been proposed here as bicycles can be stored within the unit garages. The developer will offer to those purchasing units an option to install vehicle charging facilities within each garage thereby satisfying the vehicle charging requirement. The parking spaces comply with the dimensional requirements (9' x 18') and aisle width of 22'.

HANCOCK ASSOCIATES

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Outdoor Lighting

Three pole mounted lights (8' mounting height) are proposed along the right side of the driveway. Additionally, a doorway sconce is proposed at each unit. This landscape plan shows the proposed lighting locations and detail along with isolux lines showing light levels. All lighting will fully meet the requirements of Chapter 153-14 E.

Landscaping

A landscape plan has been prepared by James K. Emmanuel, a Registered Landscape Architect. We have requested a waiver from the provision that the RLA be licensed in New Hampshire. Mr. Emmanuel is licensed in Massachusetts based out of Marblehead. He has over 20 years' experience planning site developments such as this one. He has reviewed Chapter 153-14 G and we feel the project complies with the applicable criteria. We are calling for the preservation of four trees along Abbey Lane, providing tree protection during construction and minimizing grade changes around the drip line of the trees in the final grading. There are no other existing natural features of special interest as the lots are developed single family home back yards. Trees along the back property line are within the Rutland Manor property and will remain serving as a buffer between the townhomes and the Rutland Manor parking lot. We did not note any invasive species within the lot but if encountered will be removed by appropriate means. We have provided plantings in accordance with the requirements of 153-14 G (c) through (g) and provided a landscape maintenance plan within the submission materials. Snow storage areas are indicated on Landscape Plan in grass areas. The interior landscaping requirements of 153-14.G(2) and perimeter landscaping requirements of 153-14 G(3) do not apply to the project as there are only eight (8) exterior spaces.

Architectural Design Standards will be covered under a separate pending correspondence to the Board during the TRC process.

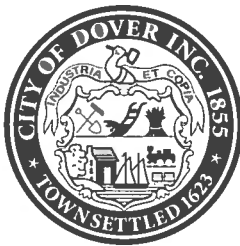
Gateway District

The project fully complies with the dimensional zoning requirements of the gateway district. The specific architectural standards will be discussed in a separate correspondence from the architect as mentioned above. We see the Gateway streetscape standards being more applicable to mixed use areas where a vibrant sidewalk interacting with storefronts and business is proposed. This project being located along Rutland Street and Abbey Lane does not lend itself to application of these standards. We are happy to discuss this further at TRC and with the Board.

We feel we have demonstrated compliance with the applicable sections of the Zoning Ordinance and Site Plan Regulations. We look forward to starting the approval process with the Technical Review Committee. We see this document as a living document to revisit and revise as the project evolves through the review process.

Sincerely,
Hancock Associates
Acting On Behalf of Diamond Capital, LLC

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



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

City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

INSTRUCTIONS TO APPLICANTS TO THE DOVER PLANNING BOARD

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

Dear Applicant:

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

The Board primarily reviews 5 types of applications:

1. **Site Plans** - A site plan is a professionally rendered drawing which delineates the proposed development of a site. This plan is required for non-residential development, creation of multi-family residential structures, and for extensions of parking lots and alteration of an acre or more of land. These plans require meeting with the Technical Review Committee before Planning Board review.
2. **Subdivisions** - A subdivision is the division of the lot, tract, or parcel of land into two (2) or more lots, plats, sites or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. Major subdivision plans (4+) require meeting with the Technical Review Committee before Planning Board review.
3. **Lot Line Adjustments** - A lot line adjustment alters the size of two (2) or more lots, but does not create a new buildable lot.
4. **Conditional Use Permits** - A conditional use permit is required for any alteration of wetlands, wetland buffers or work within the City's conservation district. Additionally, a conditional use permit could be issued as to offer relief in the Central Business District, for plans in the Residential Mixed Use Overlay District, or parking relief. Environmental Conditional Use Permits are acted on after Conservation Commission review.
5. **Excavation Permits** - NH RSA Chapter 155-E grants municipalities the authority to regulate earth excavations within their borders. This authority rests with the Planning Board.

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

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

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

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

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

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

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

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



City of Dover, New Hampshire SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

Office Use Only

Project #: _____

Date Received: _____

Amount Paid: _____

Time Received: _____

APPLICANT AND OWNER INFORMATION

Name of Applicant: Diamond Capital, LLC Telephone # 978-255-2410

Address of Applicant: 170 Commerce Way Suite 200 Portsmouth, NH 03801

E-Mail Address: Sarah@SavageBuilders.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 71 and 73 Rutland Street

Assessor's Map # 14 Lot(s) # 17 and 17A

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

Size of Parcel: 43560 sq. ft. 1.0 ac. Property Deed: Book _____ Page: _____

Existing Use of Property: Residential

SITE PLAN INFORMATION

Describe Proposed Use: Multi-family

Area of Parcel to be Developed: 43,560 sq. ft.

If Multi-family Residential: Number of Units 10 & Buildings Proposed 3 (2 exist/1 proposed)

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

Number of Parking Spaces: Existing 4 Proposed 16

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

Number of Employees Total: n/a In Maximum Shift: _____

Disposition of Parcel:

Building Setbacks:

Building Footprint 7,040 sq. ft.

Front Yard 20 ft.

Total Building Area 14,340 sq. ft.

Rear Yard 15 ft.

Paved Area 8,650 sq. ft.

Side Yard: n/a Right _____ ft. Left _____ ft.

City Water? ☒ Yes ☐ No How far is city water from the property? In street in front

City Sewer? ☒ Yes ☐ No How far is city sewer from the property? In street in front

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

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

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

BUILDING INFORMATION

Type of Building to be Built: 2-story wood framed townhouse (standard construction)

Height of Building: 32 feet to peak of roof Finished Floor Elevation: Stepped slabs, see plan

Number of Seats (where applicable) n/a

Estimated value of construction: \$1.736M Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: 153-13(12) partial

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

Waiver requested from requirement to have landscape plan prepared by a N.H. Landscape Architect. Applicant unable to secure a NH RLA. Plan completed by James Emmanuel who is a Registered Landscape Architect in Massachusetts with extensive experience.

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Wayne C. Jalbert, PLS, Hancock Survey Assoc., Inc.

Address 10 Ferry Street Suite 406 Concord, NH 03301 Telephone #: 603-223-1950

Professional License #: 0861 E-mail address: wjalbert@hancockassociates.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Joseph D. Peznola, PE, Hancock Survey Assoc., Inc.

Address 10 Ferry Street Suite 406 Concord, NH 03301 Telephone #: 603-223-1950

Professional License #: 10270 E-mail address: jpeznola@hancockasscoaites.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) Donald W. Bladjda, AIA Koal, PLLC

Address 42 Gilford East Dr. , Gilford, NH 03249 Telephone #: 603-215-7055

Professional License #: 0260 E-mail address: donald@koalpllc.com

LANDSCAPE ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Luke Hurley Gove Environmental Services, Inc.

Address 8 Continental Drive Bldg 2 Unit H Exeter, NH 03883 Telephone #: 603-418-7260

Professional License #: 0095 E-mail address: lhurley@gesinc.biz

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: n/a Telephone # _____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: Mark Lee Date: 9-8-21

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

Signature of Agent: Jason S. Sargent Date: 9-8-21

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: Mark Lee Date: 9-8-21

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: Mark Lee Date: 9-8-21

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: Mark Lee Date: 9-8-21

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

***CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS***

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

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
14	17&17A	Diamond Capital, LLC	170 Commerce Way Portsmouth NH

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
Same		

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Joseph Peznola, PE	Hancock Associates	10 Ferry St Suite 406 Concord, NH

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS
n/a			

PLANNING BOARD FEE SCHEDULE/INVOICE

(Revised July 1, 2021)

Below are the fees associated with plan review and are subject to a nonrefundable application fee to cover administrative expenses. 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 Application fee \$200.00 + \$150.00 x # _____ new lots created = \$ _____
- ☐ LOT LINE ADJUSTMENT Application fee \$200.00 + \$100.00 X # _____ of lots involved = \$ _____
- ☐ TRANSFER OF DEVELOPMENT RIGHTS Application fee \$200.00 = \$ _____
- ☐ SITE REVIEW – RESIDENTIAL Application fee \$200.00+ \$100.00 x # _____ per dwelling unit = \$ _____
- ☒ SITE REVIEW – NON-RESIDENTIAL Application fee \$200.00 + (not to exceed \$10,000)
 - New construction \$.15 sq. ft. x # 14,340 sq. ft.= \$ 2,151.00
 - Additions (new floor space) \$.10 per sq. ft. x # _____ sq. ft.= \$ _____
- ☐ MOTEL/HOTEL \$35.00 x # _____ per lodging unit= \$ _____
- ☐ CHANGE OF USE Application fee \$200.00 + (not to exceed \$5,000)
 - Existing floor spaces \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
- ☐ CONDITIONAL USE PERMIT Application fee \$200.00 x # _____ per Application = \$ _____
- ☐ GRAVEL PIT/ EXCAVATIONS
 - Application fee \$50.00= \$ _____
 - Permit fee \$75.00= \$ _____
- ☐ EXTENSIONS/AMENDMENTS/WAIVERS FOR AN APPROVED PLAN Application fee \$200.00 = \$ _____
- ☐ REQUEST FOR REZONING Application fee \$200.00 = \$ _____
- ☐ DRIVEWAY WAIVER Application fee \$200.00 = \$ _____

2. TOTAL IMPERVIOUS PAVED AREA (for new development, roadways or additions to

existing parking lots, (not to exceed \$10,000)) Application fee of \$200.00 is N/A if it is part

of a Site Review or Subdivision Plan. \$200.00 + \$.07 per sq. ft. x # 8,650 sq. ft. = \$ 605.50

SUBTOTAL PLAN REVIEW FEE (A) = \$ 2,756.50

AND

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 review the list for accuracy and provide to us 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 # 5 of x \$8.00= \$ 40.00
- ☒ 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= \$?

C. Foster's newspaper public notice fee \$100.00 x # 1 applications = \$ 100.00

SUBTOTAL NOTICE FEE (B & C) = \$ 140.00

TOTAL INVOICE AMOUNT (A, B & C) = \$ 2,896.50

PLAN REVIEW FEE COLLECTED/PAID = \$ _____

BALANCE DUE = \$ _____

The balance due must be paid 28 hours prior to the Planning Board Meeting, to be heard.



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: Diamond Capitol, LLC File Number: _____

PROJECT TITLE: TBD

PROPERTY LOCATION: 71 & 73 Rutland St Tax Map: 14 Lot: 17 & 17A

	Where/How Provided	Reviewed
1. Completed and signed Application form	x	
2. Plan Review Fees are provided	pending abutter number	
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)	waiver requested	
6. Waiver requests to the Site Plan Review Regulations, with written justification	x	
7. Conditional Use Permit applications	n/a	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	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:	x	
Location map at appropriate scale	x	
Proposed Project name and title and Planning File #	Planning File # pending	
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 width of existing and proposed access/egress ways	x	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	x	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	x	
Existing and proposed topographic information at two foot intervals	x	
Existing and proposed buildings and structure locations	x	
Minimum building setbacks or build to lines on all lots	x	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	x	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	3,600 GPD	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	3,600 GPD	
Existing and proposed stormwater lines and facilities	x	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	x	
Location of Flood Hazard Zone	n/a	
Location of all bodies of water and watercourses	none	
Location of wetlands and buffers	none	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	x	
Existing natural features and/or significant vegetation on property	x	
Depict existing contours up to 100 ft. beyond project limits	x	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	x	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	x	
Location, material and size of existing and proposed pavement area	x	
Location of proposed fire lanes		
Specify finished floor elevations of buildings	x	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	x	
Depict all service, storage, loading bays and utility areas	x	
All applicable Dover Common Site Plan notes	x	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	x	
Stormwater Management System Operation and Maintenance Plan	x	
Letter to Serve from Public and Private Utilities	pending	
Erosion and Sedimentation Control Plan	x	
Landscape Operation and Maintenance Plan	x	
Proposed restrictive covenants or homeowners association documents	pending	
Dates and permit numbers of all required state and federal permits	none	
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	see soils report by Gove	
Location of proposed drive-in facilities	none	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required		

REVIEWED BY: _____ DATE _____ TRC DATE _____

CITY OF DOVER PLANNING DEPARTMENT
Revised August 10, 2020

APPLICANT: Diamond Capital, LLC FILE NUMBER: _____

List of Common Site Plan Notes

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

1. The intent of this plan is to *(describe the purpose of the plan)*.
2. Owners of Record are: Name
Street address
Municipality, State, Zip Code

Authorized Signature
3. The parcel(s) is *(are)* shown as Lot No. 17/17A, Map 14 of the City of Dover Tax Assessor's Maps.
4. The subject parcel(s) contains 1.0 acres or 43,560 sq. ft. area of land.
5. Title reference for the project parcel(s) is the Strafford County Registry of Deeds, Book No. ____, Page No. ____.
6. Reference Plans: *(List all reference plans and their SCRD #)*
7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note.
8. Zoning dimensional and density requirements are as follows:

Required:

Provided:

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

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

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the proposed use or structure, including the case number and date of decision and any conditions.
10. Property line information has been obtained from a survey performed by *(surveyor)* on *(date)* with an error not greater than 1 in 10,000 *(or has been obtained from _____ Plan, prepared by (surveyor))*.
11. Subject parcel is *(is not)* located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015).
12. Wetlands were delineated by _____, Certified Wetlands Scientist, Certification Number _____, in accordance with Chapter 170-27.1 of the Zoning Ordinance, on _____, 20____.
13. As-built plans of the subdivision shall be submitted on paper and in digital format AutoCAD DWG, AutoCAD DXF or ESRI format to the City of Dover Engineer's Office upon completion of project if a street is proposed for City acceptance. As-built plans shall be prepared and certified correct by a L.L.S. or P.E. Digital files shall be geo-referenced to New Hampshire State Plane Coordinates NAD83 and shall be expressed in feet.
14. The installation of electric power, cable television and telephone lines shall be underground throughout the site for which development is proposed.
15. The subject parcel(s) is (are) served by municipal water and sewer *(or is served by on-site well and septic system)*.
16. All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT) "Standard Specifications for Road and Bridge Construction" and with the City of Dover Community Services Regulations and standard specification for construction. The more stringent specification shall apply.
17. All erosion control notes shall include provisions for construction sequencing, temporary erosion control measures, and permanent standards such as loam spread rate for disturbed areas, rates of lime, type and rates for fertilizer, and seed and mulch mixture with rates of application.
18. The limits of construction disturbance that are located in or within the 50 ft. of Conservation and Wetland Districts shall be staked, flagged and clearly identified prior any earth disturbing activity occurs.
19. All treatment swales to be constructed shall have sod bottoms.
20. A letter of credit for the cost of revegetating all disturbed areas on the site shall be submitted, and the approved construction sign installed prior to any earth disturbing activity occurs.
21. A pre-construction conference with the developer, the design engineer, the earthwork contractor and the City Engineer shall occur prior to any earth disturbing activity.
22. Site Construction hours shall be limited to Monday-Friday 7 AM-6 PM, Saturday and Sunday 9 AM-4 PM. Hours of construction must be documented on a site construction sign along with the contact information for the general contractor. Said signage must be located and approved by the City Engineer or Assistant City Manager.

23. Building addresses (including apt/unit numbers if applicable) shall be assigned by the Building Official at the time of issuance of a building permit.
24. The proposed use for the site (structure) is _____. (More specific uses are encouraged, such as single family, duplex, multi-family, restaurant, hotel, doctor's office, etc. Should more than one use be proposed, an indication of the percentage of each use is suggested.)
25. The following federal and state permits have been issued for the subject property: (*List permit type, number and date of issuance.*)
26. Commercial vehicle route during construction shall conform to Dover City Code or be coordinated with the Community Services Director.
27. Any retaining wall taller than four feet (4') requires issuance of a building permit from Inspection Services.
28. Any fence taller than seven feet (7') requires the issuance of a building permit from Inspection Services.
29. Applicant shall complete Land Use Development Tracking Form, most recently revised version, utilizing the online Pollution Tracking and Accounting Pilot Project (PTAPP) portal.
<https://www.unh.edu/unhsc/ptapp>
30. The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons/entities that may acquire any property subject to the requirements and responsibilities described in the approved STORMWATER Management Plan. The notice shall comply with the applicable requirements for recording contained in RSA 477 and 478. The notice need not set forth the requirements at length, so long as it is sufficient to provide notice to prospective purchasers to the requirements for maintenance and reporting.
31. Fire department access road(s) shall be installed and maintained to support the imposed loads of fire apparatus in all weather conditions at all times.
32. The maximum parking space calculation is _____ (broken down) and _____ spaces are provided.
33. Exterior lighting shall be cut-off type fixtures per Chapter 153-14-E and shall provide lighting directed on-site only.
34. Topographic survey performed by _____ on (*dates*).
35. Elevations are based on U.S.G.S. NVD 1988 datum. (**or** Elevations depicted are based on information obtained from the City Engineer's Office and was derived from coordinates for control stations _____ and _____. These coordinates have not been adjusted to 1983 datum).
36. A security system shall be installed as required by Chapter 45, Article I, section 45-2 of the Code of the City of Dover. (*If a business establishment or multi-family dwelling contained in a new, altered or repaired structure*)
37. Approved backflow preventers shall be provided for both fire and domestic water lines.

- 38. The (*existing or proposed*) structure shall be served by a sprinkler system as required by Chapter 81- 30 of the Code of the City of Dover and the adopted State of NH Building and Fire Codes.
- 39. Sprinkler connections must be flushed in accordance with NFPA 24 and a Contractor’s Material and Test Certificate for Underground Piping form must be completed and approved by Inspection Services prior to connection of the backflow device.
- 40. Fire department connection(s) shall be located on the street side of the building per NFPA 13. Access to the FDC shall maintain a clear and unobstructed path at all times.
- 41. The site layout is designed in compliance with applicable accessibility regulations. The proposed structure will be also be designed in accordance with applicable accessibility regulations. (i.e. IBC, ANSI-117.1) and NH RSA 155-A:5.

REMARKS:

GENERAL NOTES:

1. LOCATIONS AND ELEVATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE REFERENCED PLAN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. HANCOCK ASSOCIATES ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES INACCURATELY SHOWN OR OMITTED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY DEPARTMENT SHALL BE NOTIFIED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHALL BE VERIFIED IN THE FIELD. CALL THE DIG-SAFE CALL CENTER, (888)344-7233, 72 HOURS (3 WORKING DAYS) PRIOR TO EXCAVATION.
2. ELEVATIONS ARE BASED ON U.S.G.S. NAVD 1988 DATUM.
3. SUBJECT PARCELS ARE NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA.
4. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION, AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
5. THE SUBJECT PARCELS ARE SERVED BY MUNICIPAL WATER AND SEWER.
6. 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 SERVICE REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
7. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, 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.
8. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
9. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6PM, SATURDAY AND SUNDAY 9AM-4PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
10. BUILDING ADDRESS (INCLUDING APT./UNIT NUMBERS IF APPLICABLE), SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
11. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
12. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
13. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNT PILOT PROJECT (PTAPP) PORTAL.
14. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
15. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF CITY OF DOVER.
16. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
17. THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED BY CHAPTER 81-30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NH BUILDING AND FIRE CODES.
18. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
19. FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.
20. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS (i.e. IBC, ANSI-117.1) AND NH RSA 155-A:5.
21. IF EXISTING ABANDONED UTILITY LINES ARE ENCOUNTERED THEY SHALL BE CUT AND CAPPED.
22. CONSTRUCTION ACCESS DRIVES SHALL HAVE CRUSHED STONE TO MINIMIZE MUD FROM BEING TRACKED ONTO THE ROADWAYS. MUD TRACKED ONTO ROADWAYS SHALL BE SWEEPED CLEAN.
23. CONTRACTOR TO EMPLOY MEASURES TO CONTROL DUST DURING CONSTRUCTION.
24. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM AND OTHER PRIVATE UTILITIES BY THE RESPECTIVE UTILITY COMPANIES, AS REQUIRED.
25. IF ANY CHANGES FROM THE FINAL APPROVED DESIGN PLAN THAT ARE REQUIRED DUE TO UNFORESEEN SITE CONDITIONS, THE CONTRACTOR OF RECORD SHALL CONTACT THE DESIGN ENGINEER OF RECORD AND SUBMIT REVISED DESIGN AND STAMPED FULL SCALE PLANS FOR REVIEW AND APPROVAL PRIOR TO CONTINUING WITH CONSTRUCTION.

SHEET INDEX

SHEET C-0.....	COVER SHEET
SHEET C-1.....	SITE PREPARATION & DEMOLITION PLAN
SHEET C-2.....	LAYOUT & MATERIALS PLAN
SHEET C-3.....	UTILITY PLAN
SHEET C-4.....	GRADING & DRAINAGE PLAN
SHEET C-5.....	LANDSCAPE PLAN
SHEET C-6.....	DETAILS 1
SHEET C-7.....	DETAILS 2
SHEET EX-1.....	EXISTING CONDITIONS PLAN

PERMIT SITE PLAN

FOR

71 & 73 RUTLAND STREET

RESIDENTIAL DEVELOPMENT



LOCUS MAP
SCALE: 1" = 300'

ZONING DIMENSIONAL TABLE			
ZONE: GATEWAY DISTRICT (G)			
PARCEL ID: #14017 (LOT B); #14017-A (LOT A)			
DEED REFERENCE: BOOK 4776 PAGE 392; BOOK 4909 PAGE 701			
	REQUIRED	EXISTING	PROPOSED
LOT AREA	N/A	20,000 S.F. (LOT A) 23,550 S.F. (LOT B)	43,550 S.F.*
LOT COVERAGE	50% MAX.	17.2%	44.0%
FRONTAGE BUILD OUT	60% MIN.	—	—
PRIMARY FRONT SETBACK	5.0' MIN. — 20' MAX.	22.1' **	22.1' **
SECONDARY FRONT SETBACK	5.0' MIN. — 20' MAX.	18.3'	18.3'
SIDE SETBACK	5.0' MIN.	22.7'	21.8'
REAR SETBACK	0.0' MIN.	124.1'	10.0'
BUILDING HEIGHT	4 STORY MAX. — 2 STORY MIN.	N/A	3 STORY
PARKING REQUIREMENTS			
PER CH. 153 SECTION 14			
RESIDENTIAL PARKING SPACES	1.9 PER UNIT x 8 UNITS = 16 SPACES	N/A	16 SPACES
ACCESSIBLE PARKING	N/A	N/A	0 SPACES
TOTAL PARKING	16 SPACES	N/A	16 SPACES
*LOTS A AND B TO BE COMBINED			
** EXISTING NON-CONFORMING			

LEGEND

	PROP. CONTOUR
	SPOT GRADE
	PROP. FENCE
	PROP. BITUMINOUS PAVEMENT
	PROP. CONCRETE CEMENT
	PROP. RETAINING WALL
	PROP. BITUMINOUS BERM
	PROP. DRAIN
	PROP. ROOF DRAIN
	PROP. WATER LINE
	PROP. FIRE PROTECTION LINE
	PROP. SEWER
	PROP. ELECTRIC, CABLE, & TELE.
	PROP. TELEVISION
	PROP. EROSION CONTROL
	PROP. OUTLET CONTROL MANHOLE
	PROP. OUTLET CONTROL STRUCTURE
	PROP. SEWER MANHOLE
	PROP. FLARED END SECTION W/RIP RAP
	TOP OF CURB/BOTTOM OF CURB
	TOP OF WALL/BOTTOM OF WALL
	PROP. CLEANOUT
	HIGH-DENSITY POLYETHYLENE
	POLYVINYL CHLORIDE
	PROP. FLOW ARROW
	PROP. HYDRANT

APPLICANT/OWNER

DIAMOND CAPITAL, LLC
170 COMMERCE WAY, SUITE 200
PORTSMOUTH, NH 03801

ARCHITECT

KOAL ARCHITECTURE, PLLC
42 GILFORD E. DRIVE, SUITE 4
GILFORD, NH 03249

LANDSCAPE ARCHITECT

JAMES K. EMMANUAL ASSOCIATES
22 CARLTON ROAD
MARBLEHEAD, MA 01945

CIVIL ENGINEER

HANCOCK ASSOCIATES
10 FERRY STREET, SUITE 406
CONCORD, NH 03301

SURVEYOR

HANCOCK ASSOCIATES
10 FERRY STREET, SUITE 406
CONCORD, NH 03301

PERMIT
SITE
PLAN

71 & 73 Rutland Street
Dover, New Hampshire 03820

ASSESSORS:

PARCEL ID:
#14017 (LOT B)
#14017-A (LOT A)

PREPARED FOR:

Diamond
Capital, LLC

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

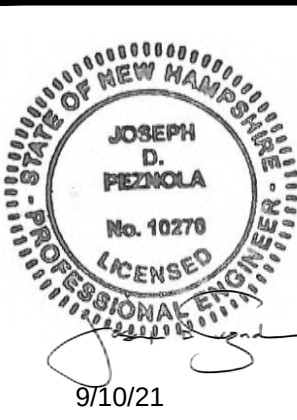
HANCOCK
ASSOCIATES

Civil Engineers

Land Surveyors

Wetland Scientists

10 FERRY STREET, SUITE 406, CONCORD, NH 03301
VOICE (603) 223-1950, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM



NO.	BY	APP.	DATE	ISSUE/REVISION DESCRIPTION
DATE:	09/10/21	DESIGN BY:	E.R.	
SCALE:	AS INDICATED	DRAWN BY:	E.R.	
APPRVD. BY:	JPA	CHECK BY:	AD	

COVER
SHEET

PLOT DATE: Sep 10, 2021 12:35 pm
Path: O:\2021-20 Projects\23800 - Diamond Cap - Dover, NH\Eng\DWG\

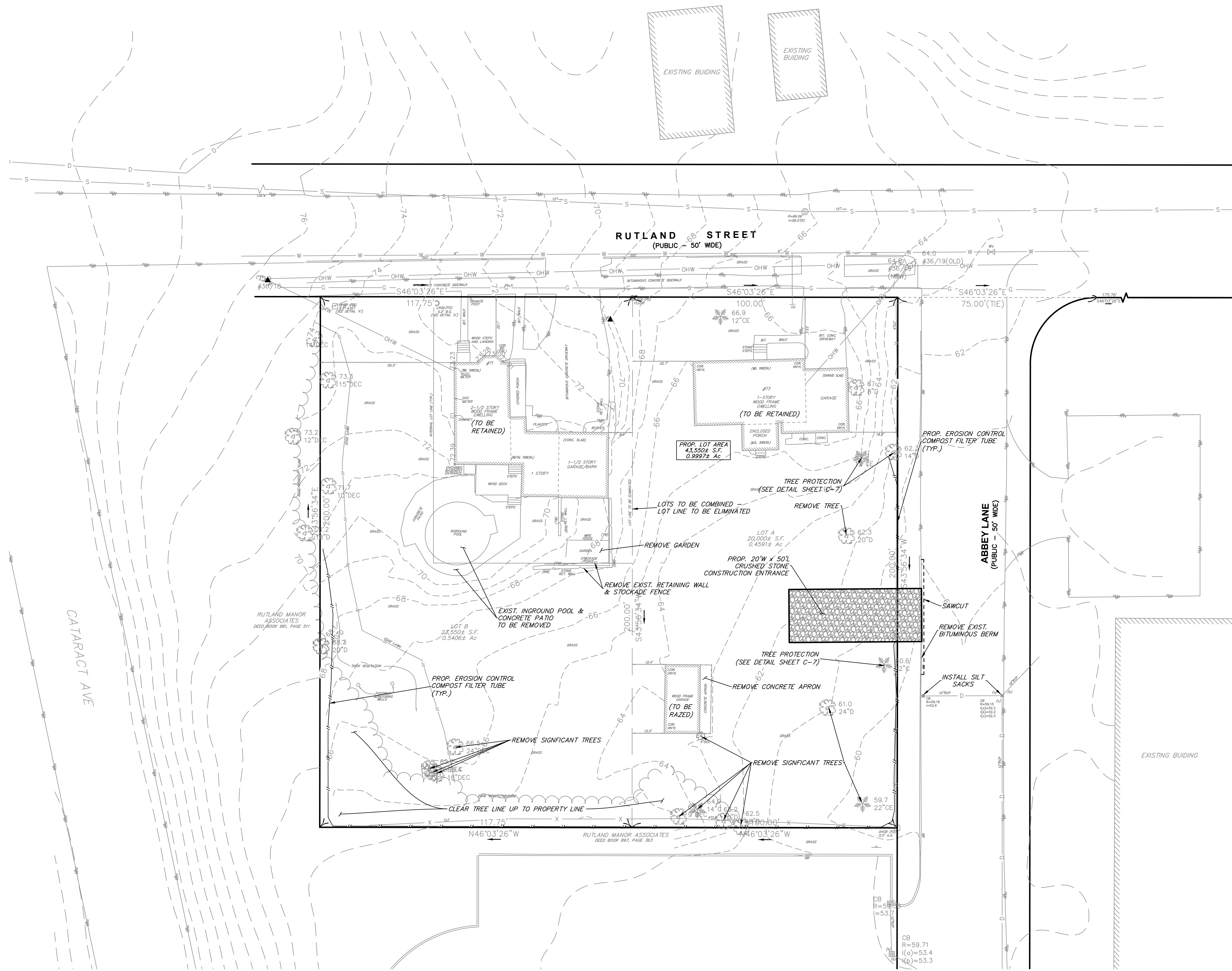
DWG: 23800sp1.dwg

LAYOUT: Cover

SHEET: 1 OF 8

PROJECT NO.: 23800

NOT FOR CONSTRUCTION - PERMITTING USE ONLY



EROSION & SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
- SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 5%.
- INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
- TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
- CONTRACTOR TO INSTALL COMPOST FILTER TUBES DOWN SLOPE OF ALL EXCAVATIONS.

CONSTRUCTION NOTES

- SELECTED GENERAL CONTRACTOR (GC) MUST ADVISE ALL SUB-CONTRACTORS OF PROPOSED PARKING LOCATIONS, STABILIZED CONSTRUCTION ENTRANCE, AND STAGING LOCATIONS.
- CONTACT DIG-SAFE 72 HOURS PRIOR TO ANY EARTHWORK.
- GIVEN THE SEASONAL HIGH-WATER ELEVATIONS DETERMINED FOR THE SITE, DE-WATERING IS ANTICIPATED. SHOULD ANY DE-WATERING BE REQUIRED, GC TO INCORPORATE THE USE OF DE-WATERING BAGS OR OTHER ACCEPTABLE MEANS TO DE-WATER. DIRECT DISCHARGE TO CATCH BASIN STRUCTURES IS FORBIDDEN.
- REFUELING OF MACHINERY OVER CATCH BASINS IS FORBIDDEN. GC TO HAVE AN EMERGENCY SPILL KIT ON SITE AT ALL TIMES. IMMEDIATELY REPORT ANY FUEL SPILLS TO THE BROOKLINE FIRE DEPARTMENT.
- CONTRACTOR TO USE WATER AS A MEANS FOR DUST CONTROL AS NECESSARY DURING CONSTRUCTION.
- ALL EQUIPMENT MUST BE SECURED OVERNIGHT.

LEGEND

- | | |
|--|------------------------------------|
| | PROP. CONTOUR |
| | SPOT GRADE |
| | PROP. FENCE |
| | PROP. BITUMINOUS PAVEMENT |
| | PROP. CONCRETE CEMENT |
| | PROP. RETAINING WALL |
| | PROP. BITUMINOUS BERM |
| | PROP. DRAIN |
| | PROP. ROOF DRAIN |
| | PROP. WATER LINE |
| | PROP. FIRE PROTECTION LINE |
| | PROP. SEWER |
| | PROP. ELECTRIC, CABLE, & TELE. |
| | PROP. TELEVISION |
| | PROP. EROSION CONTROL |
| | PROP. OUTLET CONTROL MANHOLE |
| | PROP. OUTLET CONTROL STRUCTURE |
| | PROP. SEWER MANHOLE |
| | PROP. FLARED END SECTION W/RIP RAP |
| | TOP OF CURB/BOTTOM OF CURB |
| | TOP OF WALL/BOTTOM OF WALL |
| | PROP. CLEANOUT |
| | HIGH-DENSITY POLYETHYLENE |
| | POLYVINYL CHLORIDE |
| | PROP. FLOW ARROW |
| | PROP. HYDRANT |

PLAN REFERENCE:

- EXISTING CONDITIONS TAKEN FROM A PLAN TITLED "EXISTING CONDITIONS PLAN OF LAND IN DOVER, NH," DATED MARCH 12, 2020 AND LAST REVISED ON MARCH 24, 2020. PLAN WAS PREPARED BY HANCOCK ASSOCIATES.
- PROPOSED BUILDING FOOTPRINT DESIGNED BASED ON THE PLAN TITLED "FIRST FLOOR CONCEPT," DATED 03/16/21, PREPARED BY KOAL ARCHITECTURE, PLLC.

PERMIT SITE PLAN

71 & 73 Rutland Street
Dover, New Hampshire 03820

ASSESSORS:

PARCEL ID:
#14017 (LOT B)
#14017-A (LOT A)

PREPARED FOR:

Diamond
Capital, LLC

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

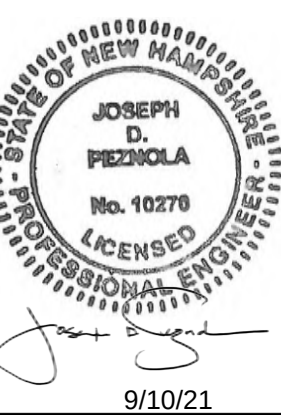
HANCOCK ASSOCIATES

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Land Surveyors

Wetland Scientists

10 FERRY STREET, SUITE 406, CONCORD, NH 03301
VOICE (603) 223-1950, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM



NO.	BY	APP.	DATE	ISSUE/REVISION DESCRIPTION
1	JPA		09/10/21	DESIGN BY: E.R. SCALE: 1" = 20' DRAWN BY: E.R. APPROVED BY: JPA CHECK BY: AD

SITE PREPARATION & DEMOLITION PLAN

PLST DATE: Sep 10, 2021 12:35 pm
PLST: 03/24/20 Project: 23800 - Diamond Cap - Dover, NH (Eng/DWG)

DWG: 23800sp1.dwg

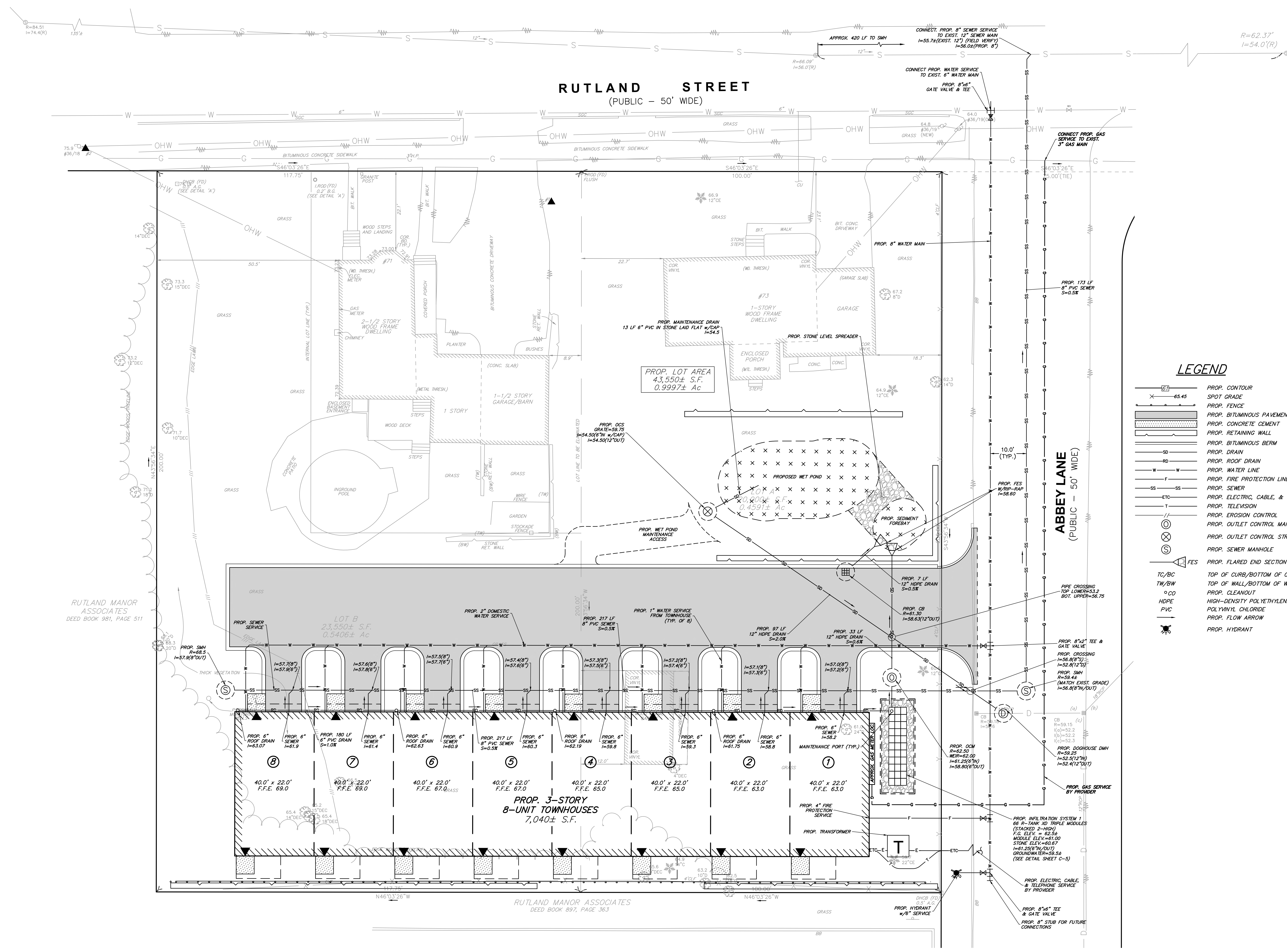
LAYOUT: Site

SHEET: 2 OF 8

PROJECT NO.:

23800

C-1



PERMIT
SITE
PLAN

71 and 73 Rutland Street
Dover, New Hampshire 03820

ASSESSORS:
PARCEL ID:
#14017 (LOT B)
#14017-A (LOT A)

PREPARED FOR:

Diamond
Capital, LLC

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

HANCOCK
ASSOCIATES

Civil Engineers

Land Surveyors

Wetland Scientists

10 FERRY STREET, SUITE 406, CONCORD, NH 03301
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JOSEPH
PEZZICOLA
No. 10279
LICENSED PROFESSIONAL ENGINEER
EXPIRATION DATE 9/30/21

NO.	BY	APP.	DATE	ISSUE/REVISION DESCRIPTION
1	JPA		09/10/21	DESIGN BY: EJP DRAWN BY: EJP CHECK BY: AD

UTILITY PLAN

PROJECT NO.: 23800

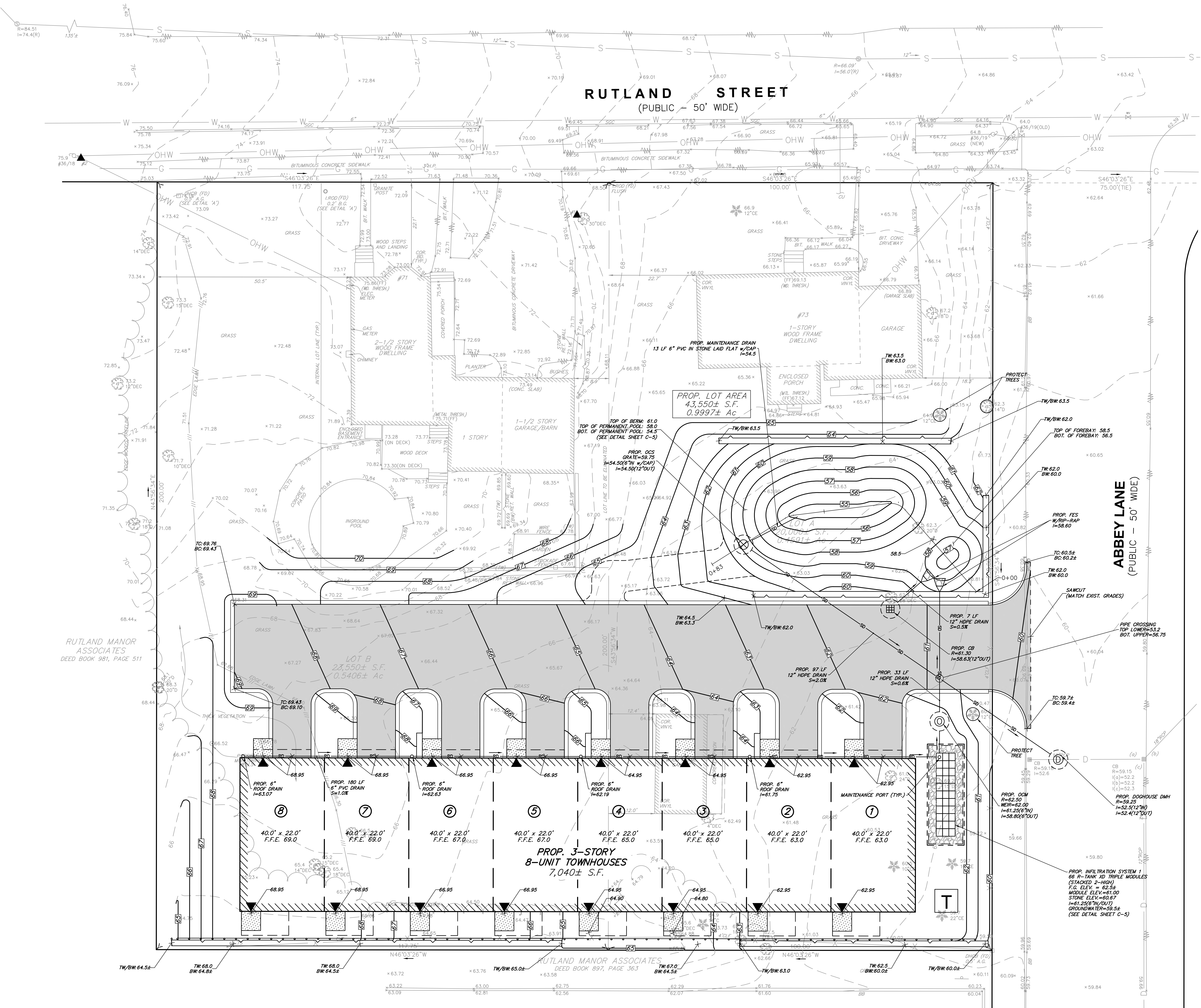
DWG: 23800sp1.dwg
LAYOUT: Utility
SHEET: 4 OF 8

PLST DATE: Sep 10, 2021 2:48 pm
PLT BY: S:\CHM 3D Projects\23800 - Diamond Cap - Dover, NH\Eng\DWG

C-3

PLAN REFERENCE:

- EXISTING CONDITIONS TAKEN FROM A PLAN TITLED "EXISTING CONDITIONS PLAN OF LAND IN DOVER, NH," DATED MARCH 12, 2020 AND LAST REVISED ON MARCH 24, 2020. PLAN WAS PREPARED BY HANCOCK ASSOCIATES.
- PROPOSED BUILDING FOOTPRINT DESIGNED BASED ON THE PLAN TITLED "FIRST FLOOR CONCEPT," DATED 01/01/21, PREPARED BY KOAL ARCHITECTURE, PLLC.



BMP SIZING CALCULATIONS:

WET POND
TOTAL AREA DRAINING TO PRACTICE (A) = 16,710 S.F. (0.44 Ac)
IMPERVIOUS AREA DRAINING TO PRACTICE (A_i) = 6520 S.F. (0.15 Ac)
PERCENT IMPERVIOUS AREA DRAINING TO PRACTICE (I) = 0.15 Ac/0.44 Ac = 0.34
RUNOFF COEFFICIENT (R_i) = 0.05 + (0.34 x 1) = 0.39
WQV = 1" x R_i x A = 1" x 0.39 x 0.44 Ac = 0.16 Ac-in = 569 C.F.
PER NHDES DESIGN STANDARDS:
REQ. VOLUME OF FOREBAY = 10% x WQV = 57 C.F.
REQ. VOLUME OF PERMANENT POOL = 2 x WQV = 1,138 C.F.
PROP. VOLUME OF FOREBAY = 64 C.F.
PROP. VOLUME OF PERMANENT POOL = 1,282 C.F.
(FOR MORE WET POND INFORMATION SEE STORMWATER REPORT)

INFILTRATION SYSTEM 1 (ROOF DRAINAGE)
EFFECTIVE IMPERVIOUS AREA ON PROJECT SITE (A_i) = 19,600 S.F.
GROUNDWATER RECHARGE DEPTH (R_d) = 0.10' (HYDRAULIC SOIL GROUP C)
GROUNDWATER RECHARGE VOLUME (GRV) = A_i x R_d = 19,600 S.F. x 0.10' = 1,960 S.F.-in
GRV = 163.3 C.F.
PROP. INFILTRATION SYSTEM 1: 60 R-TANK XD TRIPLE MODULES (STACKED 2-HIGH)
VOLUME/MODULE = 1.43 C.F. (PER R-TANK DESIGN MANUAL)
MODULE HEIGHT = 5.91' (PER R-TANK DESIGN MANUAL)
MODULE VOLUME = 66 MODULES x (1.43 C.F./MODULE) = 94.4 C.F.
CR. STONE VOLUME (BOSHS) = 228.8 S.F. x 108 S.F. x 11.82712' x 40% VOIDS = 48.2 C.F.
CR. STONE VOLUME (BOTTOM) = 228.8 S.F. x 0.33' x 40% VOIDS = 30.2 C.F.
PROP. RECHARGE VOLUME = 94.4 C.F. + 48.2 C.F. + 30.2 C.F. = 172.8 C.F. ≥ 163.3 C.F.

LEGEND

62	PROP. CONTOUR
65.45	SPOT GRADE
X	PROP. FENCE
---	PROP. BITUMINOUS PAVEMENT
---	PROP. CONCRETE CEMENT
---	PROP. RETAINING WALL
---	PROP. BITUMINOUS BERM
SD	PROP. DRAIN
RD	PROP. ROOF DRAIN
W	PROP. WATER LINE
F	PROP. FIRE PROTECTION LINE
SS	PROP. SEWER
ETC	PROP. ELECTRIC, CABLE, & TELE.
T	PROP. TELEVISION
○	PROP. EROSION CONTROL
⊗	PROP. OUTLET CONTROL MANHOLE
⊙	PROP. OUTLET CONTROL STRUCTURE
⊙	PROP. SEWER MANHOLE
⊙	PROP. FLARED END SECTION W/ RIP RAP
TC/BC	TOP OF CURB/BOTTOM OF CURB
TW/BW	TOP OF WALL/BOTTOM OF WALL
○	PROP. CLEANOUT
HDPE	HIGH-DENSITY POLYETHYLENE
PVC	POLYVINYL CHLORIDE
→	PROP. FLOW ARROW
⊙	PROP. HYDRANT

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PERMIT SITE PLAN

71 and 73 Rutland Street
Dover, New Hampshire 03820

ASSESSORS: PARCEL ID:
#14017 (LOT B)
#14017-A (LOT A)

PREPARED FOR: **Diamond Capital, LLC**

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

HANCOCK ASSOCIATES

Civil Engineers
Land Surveyors
Wetland Scientists

10 FERRY STREET, SUITE 406, CONCORD, NH 03301
VOICE (603) 223-1950, FAX (978) 774-7816
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JOSEPH D. PIZZICOLA
No. 10370
LICENSED PROFESSIONAL SURVEYOR
9/10/21

NO.	BY	APP.	DATE	ISSUE/REVISION DESCRIPTION
1			09/10/21	DESIGN BY: E.P. DATE: 10/10/21 SCALE: 1" = 10' APPROV. BY: JPA CHECK BY: AD

GRADING & DRAINAGE PLAN

PLST DATE: Sep 10, 2021 2:48 pm
PLST: 2/24/21 3D Project/23800 - Diamond Cap - Dover, NH (Eng/DWG)

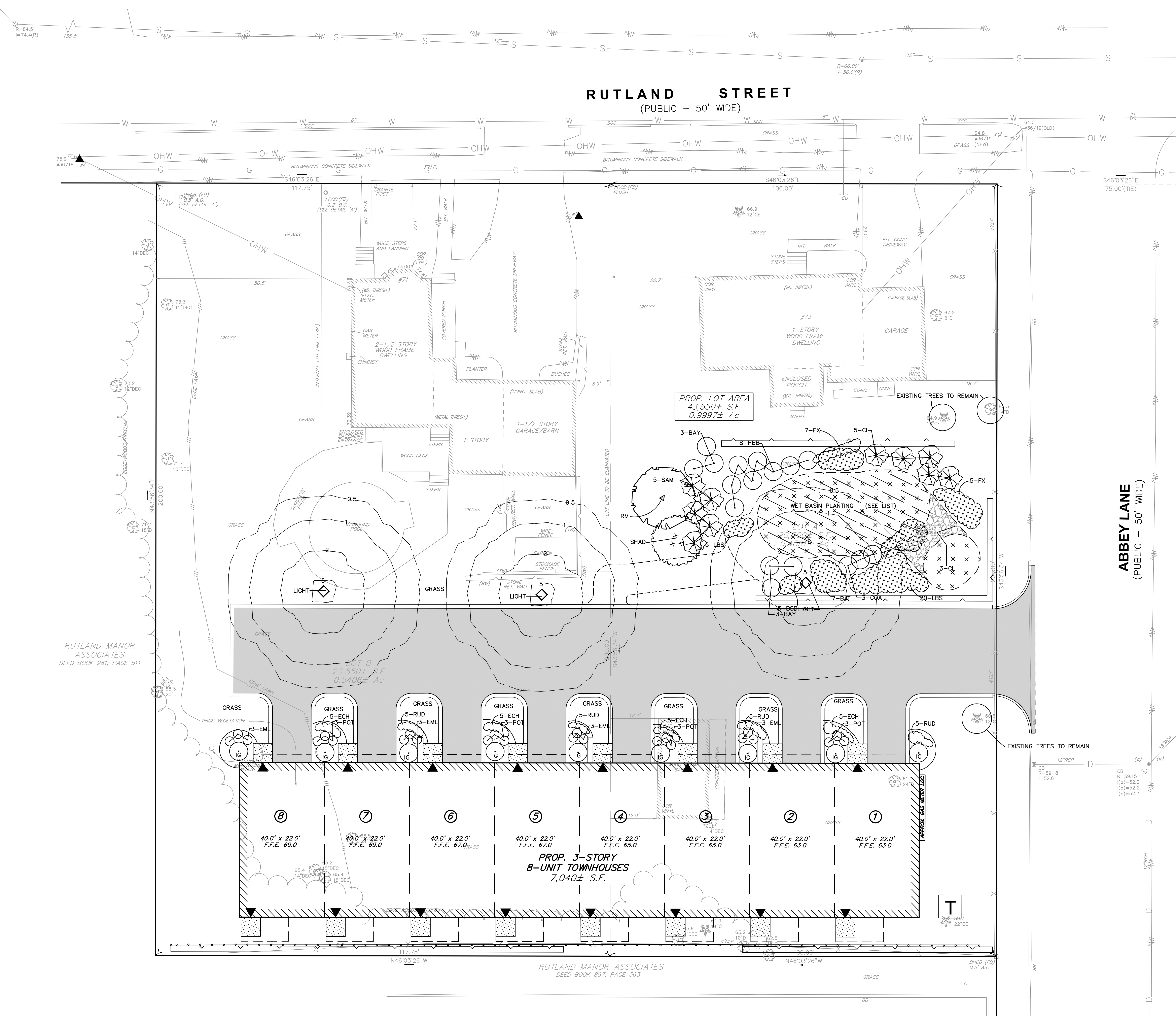
DWG: 23800sp1.dwg
LAYOUT: Grading
SHEET: 5 OF 8
PROJECT NO.: 23800

GRAPHIC SCALE" 1 INCH = 10 FEET

0 5 10 20 40

C-4

23800



Plant Schedule				
Qty	Key	Botanical Name	Common Name	Size
TREES:				
1	RM	Acer rubrum 'Red Sunset'	Red Sunset Maple	2-2.5'
1	SHAD	Amelanchier canadensis	Downy Shadblow	8-10'
SHRUBS:				
12	EML	Kalmia angustifolia	Sheep Laurel	2'h
1	IG	Ilex glabra 'Shamrock'	Shamrock Inkberry	#3pot
12	POT	Potentilla 'Abbotswood'	Abbotswood Potentilla	#3pot
GRASSES/GROUNDCOVERS:				
20	ECH	Echinacea	Purple Coneflower	#1pot
20	RUD	Rudbeckia	Black Eyed Susan	#1pot
WET BASIN AREA PLANTINGS:				
SHRUBS:				
6	BAY	Myrica pensylvanica	Northern Bayberry	#3pot
8	CL	Clethra alnifolia	Sweet Pepper	#3pot
3	COA	Cornus amomum	Silky Dogwood	#3pot
12	HBB	Vaccinium corymbosum	Highbush Blueberry	#3pot
5	SAM	Sambucus canadensis	American Elderberry	#3pot
GRASSES:				
7	BJT	Andropogon gerardi	Bluejoint	#1pot
5	BSB	Andropogon virginicus	Broom Sedge Bluestem	#1pot
12	FX	Carex vulpinoidea	Fox Sedge	#1pot
25	LBS	Schizachyrium scoparium	Little Bluestem	#1pot

WET BASIN PLANTINGS: (2" PLUGS)

QTY - SPECIES:

- 5 - Fox Sedge (Carex vulpinoidea)
- 5 - Lurid Sedge (Carex lurida)
- 5 - Blunt Broom Sedge (Carex scoparia)
- 5 - Blue Vervain (Verbena hastata)
- 5 - Fowl Bluegrass (Poa palustris)
- 5 - Hop Sedge (Carex lupulina)
- 5 - Green Bulrush (Scirpus atrovirens)
- 5 - Creeping Spike Rush (Eleocharis palustris)
- 5 - Fringed Sedge (Carex crinita)
- 5 - Soft Rush (Juncus effusus)
- 5 - Spotted Joe Pye Weed (Eupatorium maculatum)
- 5 - Rattlesnake Grass (Glyceria canadensis)
- 5 - Swamp aster (Aster puniceus)
- 5 - Blueflag (Iris versicolor)
- 5 - Swamp Milkweed (Asclepias incarnata)
- 5 - Square stemmed Monkey Flower (Mimulus ringens)



LEGEND	
	PROP. CONTOUR
	SPOT GRADE
	PROP. FENCE
	PROP. BITUMINOUS PAVEMENT
	PROP. CONCRETE CEMENT
	PROP. RETAINING WALL
	PROP. BITUMINOUS BERM
	PROP. DRAIN
	PROP. ROOF DRAIN
	PROP. WATER LINE
	PROP. FIRE PROTECTION LINE
	PROP. SEWER
	PROP. ELECTRIC, CABLE, & TELE.
	PROP. TELEVISION
	PROP. EROSION CONTROL
	PROP. OUTLET CONTROL MANHOLE
	PROP. OUTLET CONTROL STRUCTURE
	PROP. SEWER MANHOLE
	PROP. FLARED END SECTION W/RIP RAP
	TOP OF CURB/BOTTOM OF CURB
	TOP OF WALL/BOTTOM OF WALL
	PROP. CLEANOUT
	HIGH-DENSITY POLYETHYLENE
	POLYVINYL CHLORIDE
	PROP. FLOW ARROW
	PROP. HYDRANT

PLAN REFERENCE:

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PERMIT SITE PLAN

71 and 73 Rutland Street
Dover, New Hampshire 03820

ASSESSORS: PARCEL ID:
#14017 (LOT B)
#14017-A (LOT A)

PREPARED FOR:

Diamond Capital, LLC

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

HANCOCK ASSOCIATES

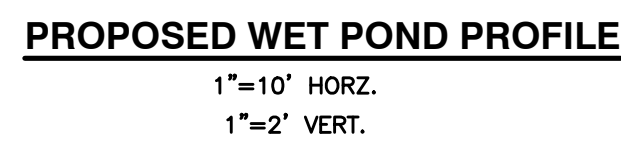
Civil Engineers
Land Surveyors
Wetland Scientists

10 FERRY STREET, SUITE 406, CONCORD, NH 03301
VOICE (603) 223-1950, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM

LANDSCAPE PLAN

DATE: 09/10/21 2:47 pm
DESIGN BY: E.P.
SCALE: 1" = 10' DRAWN BY: E.P.
APPROVED BY: JPA CHECK BY: AD

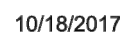
PROJECT NO.: 23800



Mid Atlantic Region

888-9 Oldcastle
(888-965-3227)

PROP. DOGHOUSE DRAIN MANHOLE
(NOT TO SCALE)

R-TANK^{XD}

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

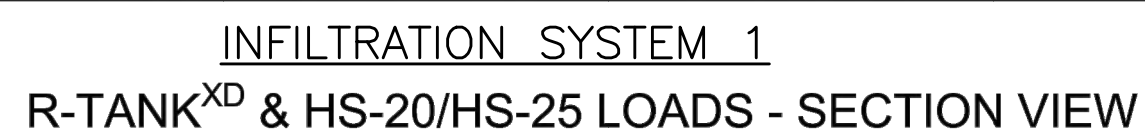


FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

5/16

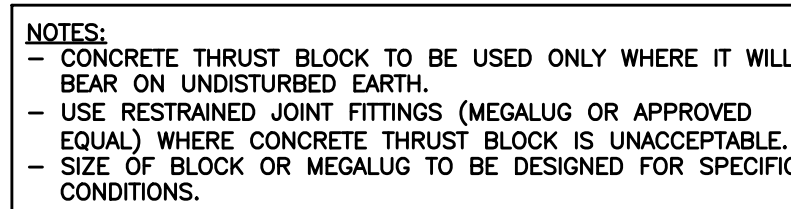
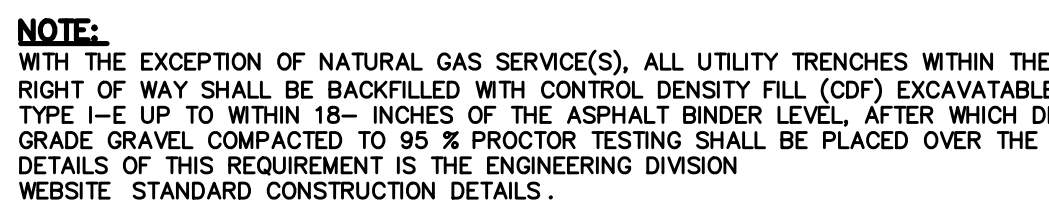


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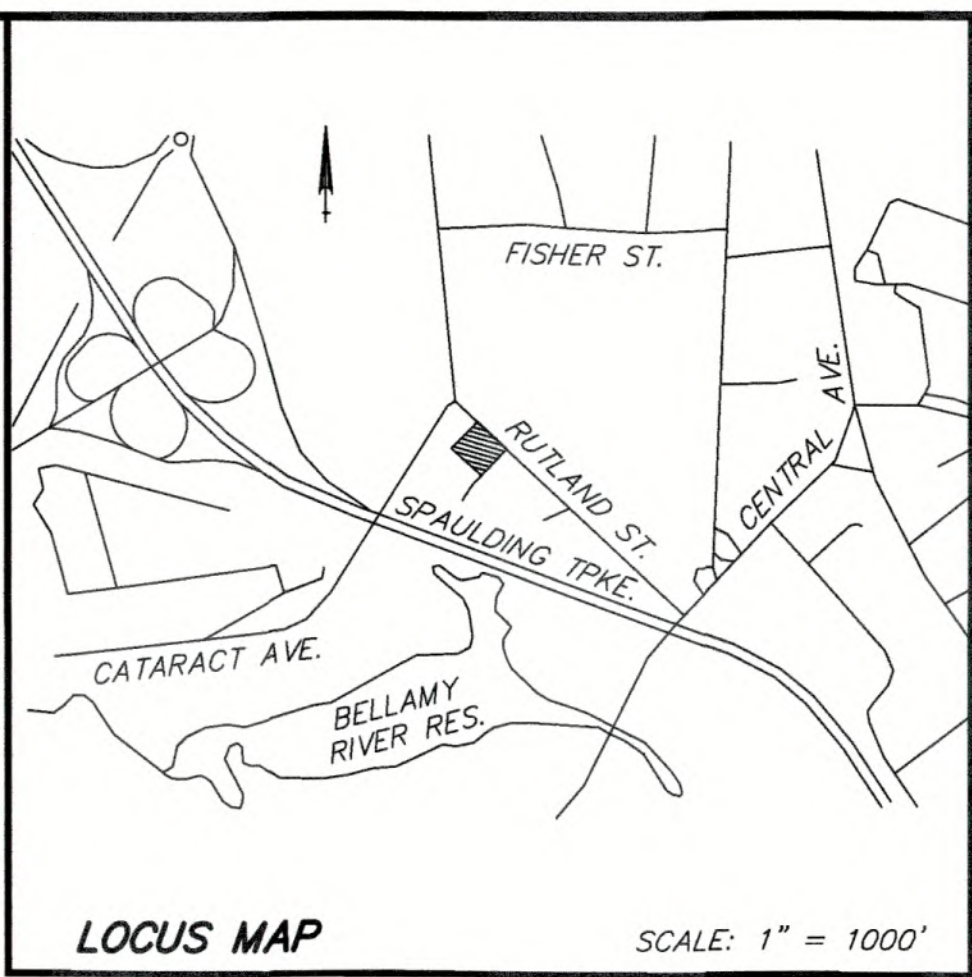
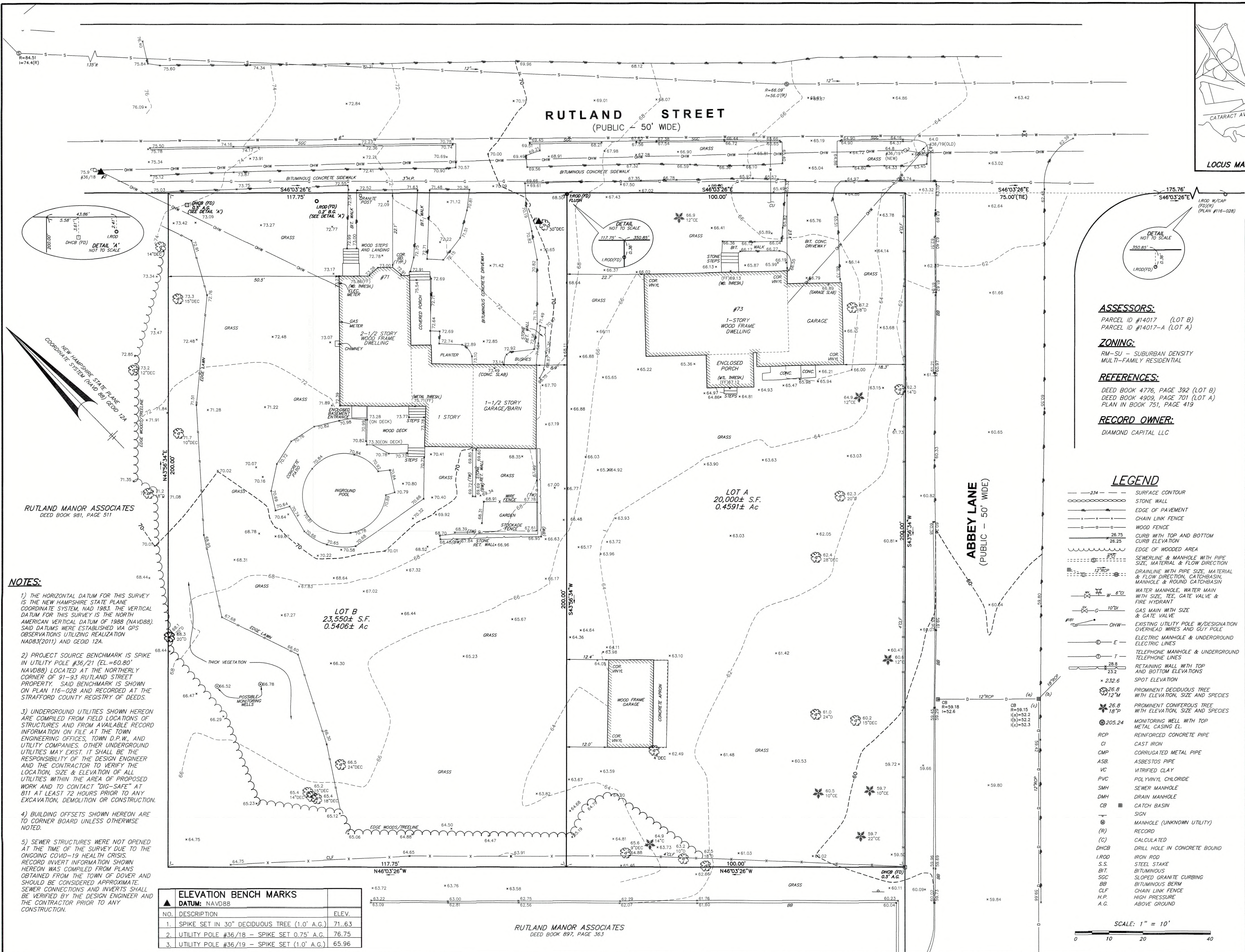


FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

PLOT DATE: Sep 10, 2021 2:47 pm
 PATH: Q:\GWI 3D Projects\23800 - Diamond Cap - Dower, NH\Eng\DWG: 23800sp1.dwg
 LAYOUT: Details - 1
 SHEET: 7 OF 8
 PROJECT NO.: 23800



PLOT DATE: Sep 10, 2021 1:01 pm PATH: C:\civil 3d Projects\23800 - Diamond Cap - Dover, NH\Eng\DWG	
DWG: 23800sp1.dwg	C-7
LAYOUT: Details - 2	
SHEET: 8 OF 8	
PROJECT NO.: 23800	



**#71 & 73
Rutland
Street**

Dover, New Hampshire

ASSESSORS:
PARCEL ID #14017 (LOT B)
PARCEL ID #14017-A (LOT A)

ZONING:
RM-SU - SUBURBAN DENSITY
MULTI-FAMILY RESIDENTIAL

REFERENCES:
DEED BOOK 4776, PAGE 392 (LOT B)
DEED BOOK 4909, PAGE 701 (LOT A)
PLAN IN BOOK 751, PAGE 419

RECORD OWNER:
DIAMOND CAPITAL LLC

**Diamond
Capital LLC**

170 Commerce Way, Suite 200
Portsmouth, New Hampshire 03801

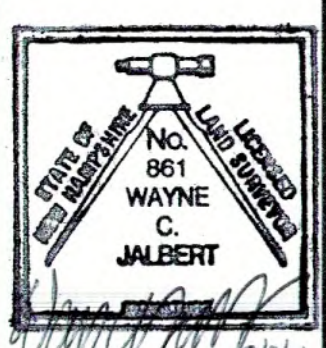
**HANCOCK
ASSOCIATES**

Civil Engineers

Land Surveyors

Wetland Scientists

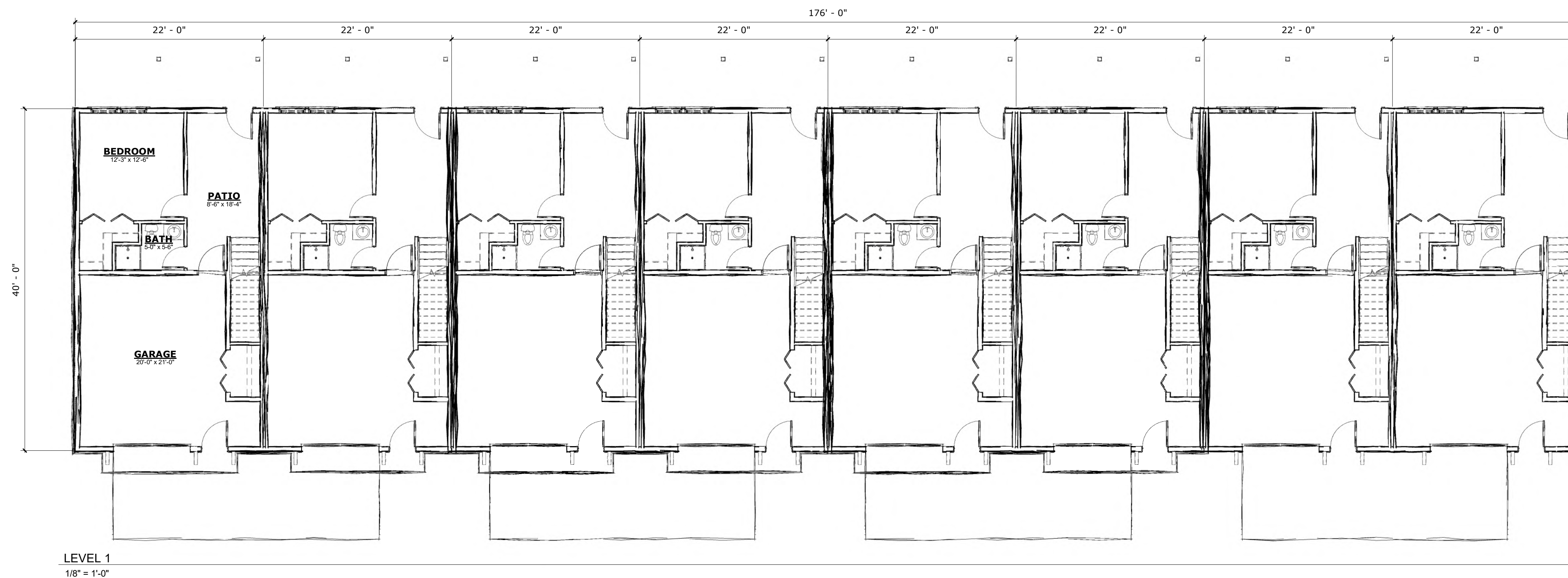
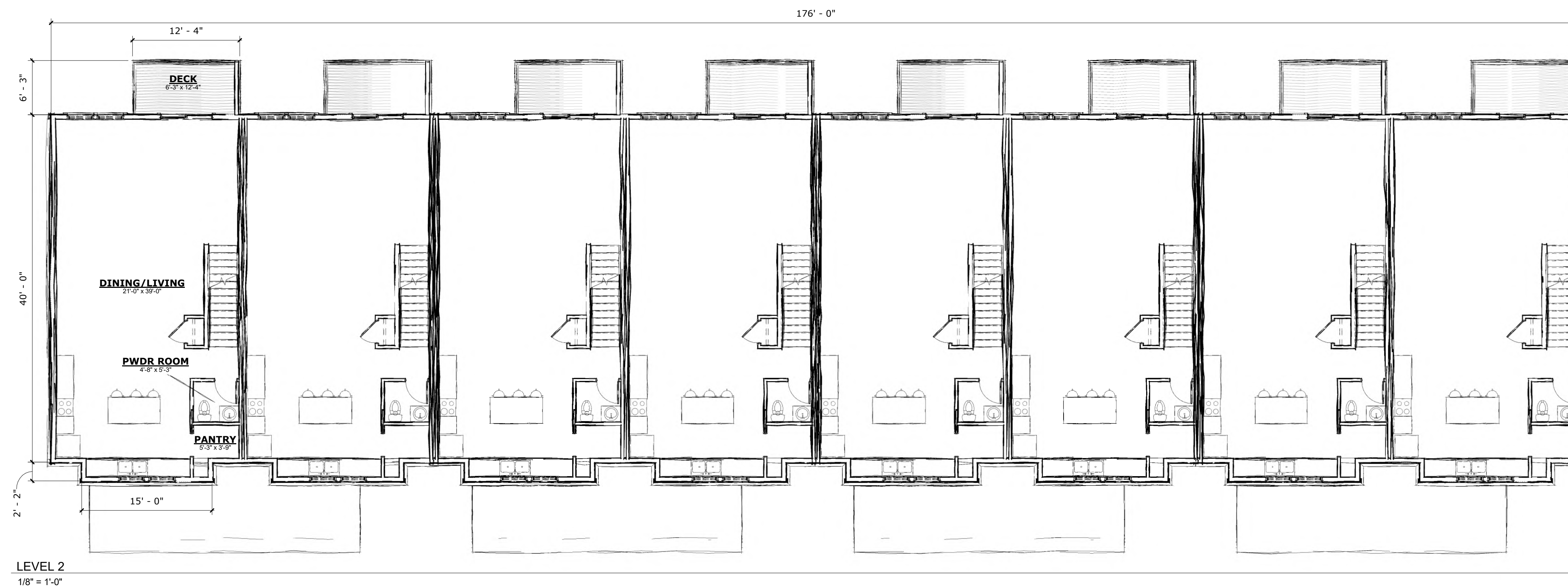
185 CENTRE STREET, DANVERS, MA 01923
VOICE (978) 777-3050, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM



**EXISTING CONDITIONS
PLAN OF LAND
IN
DOVER, NH**

PLOT DATE: Sep 08, 2021 9:31 am
PATH: G:\dtd 30 Projects\23800 - Diamond Cap - Dover, NH\DWG\

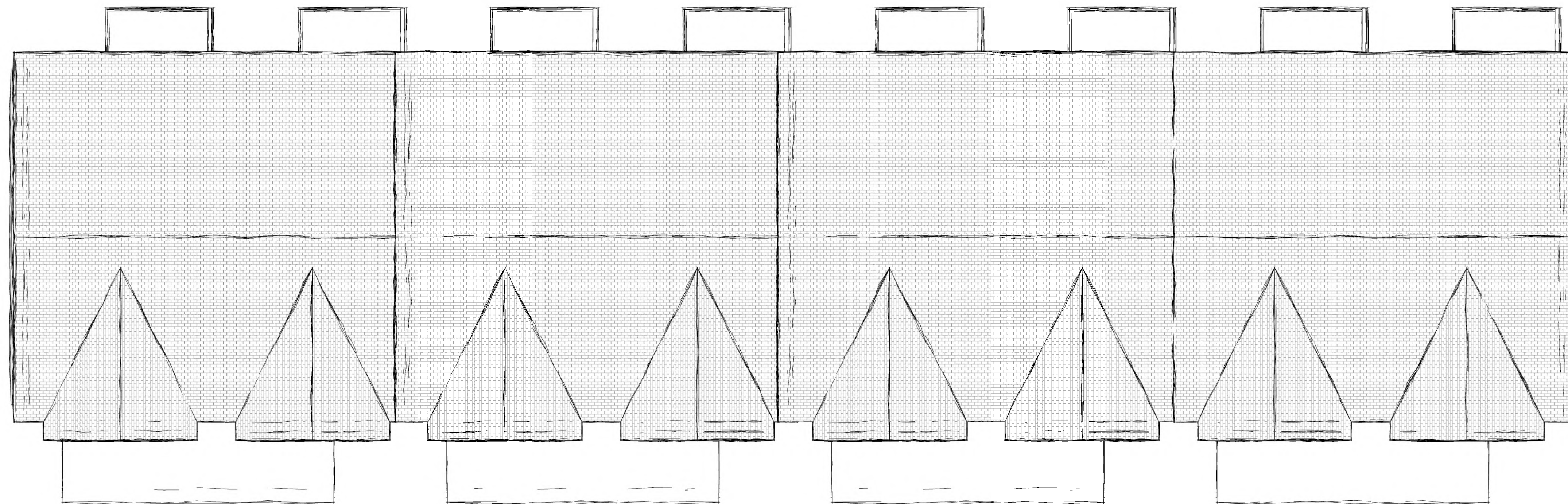
DWG: 23800ec2.dwg
LAYOUT: EC
SHEET: 1 OF 1
PROJECT NO.: 23800



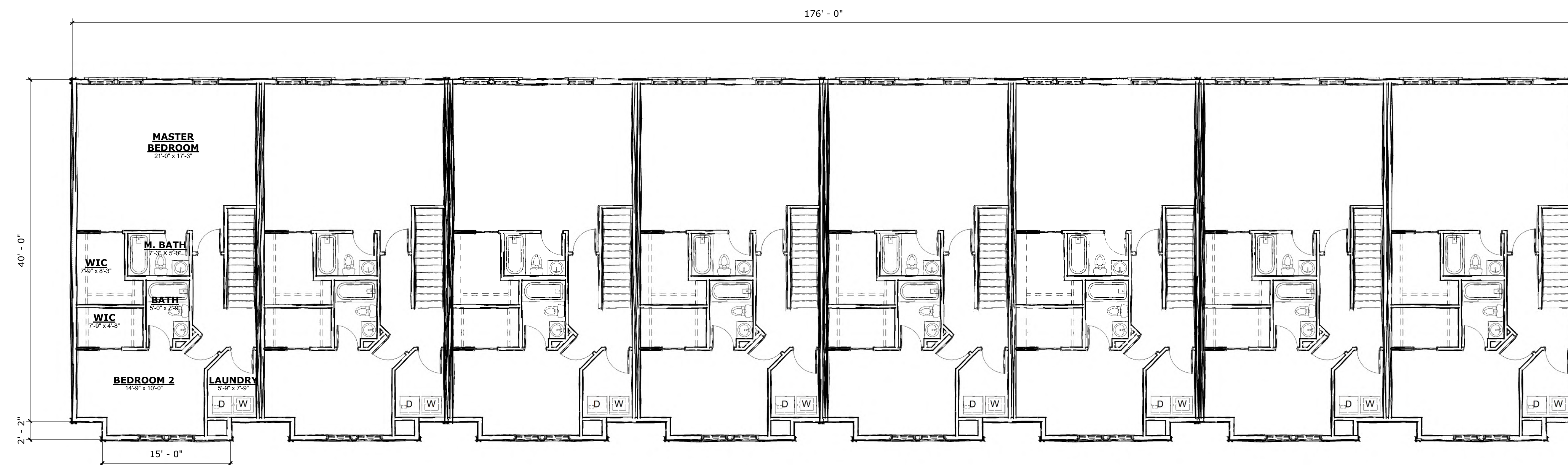
PROGRESS PRINT
NOT FOR
CONSTRUCTION

71 & 73 Rutland Street
Dover, New Hampshire 03820

8/27/2021



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



LEVEL 3
1/8" = 1'-0"



PROGRESS PRINT
NOT FOR
CONSTRUCTION

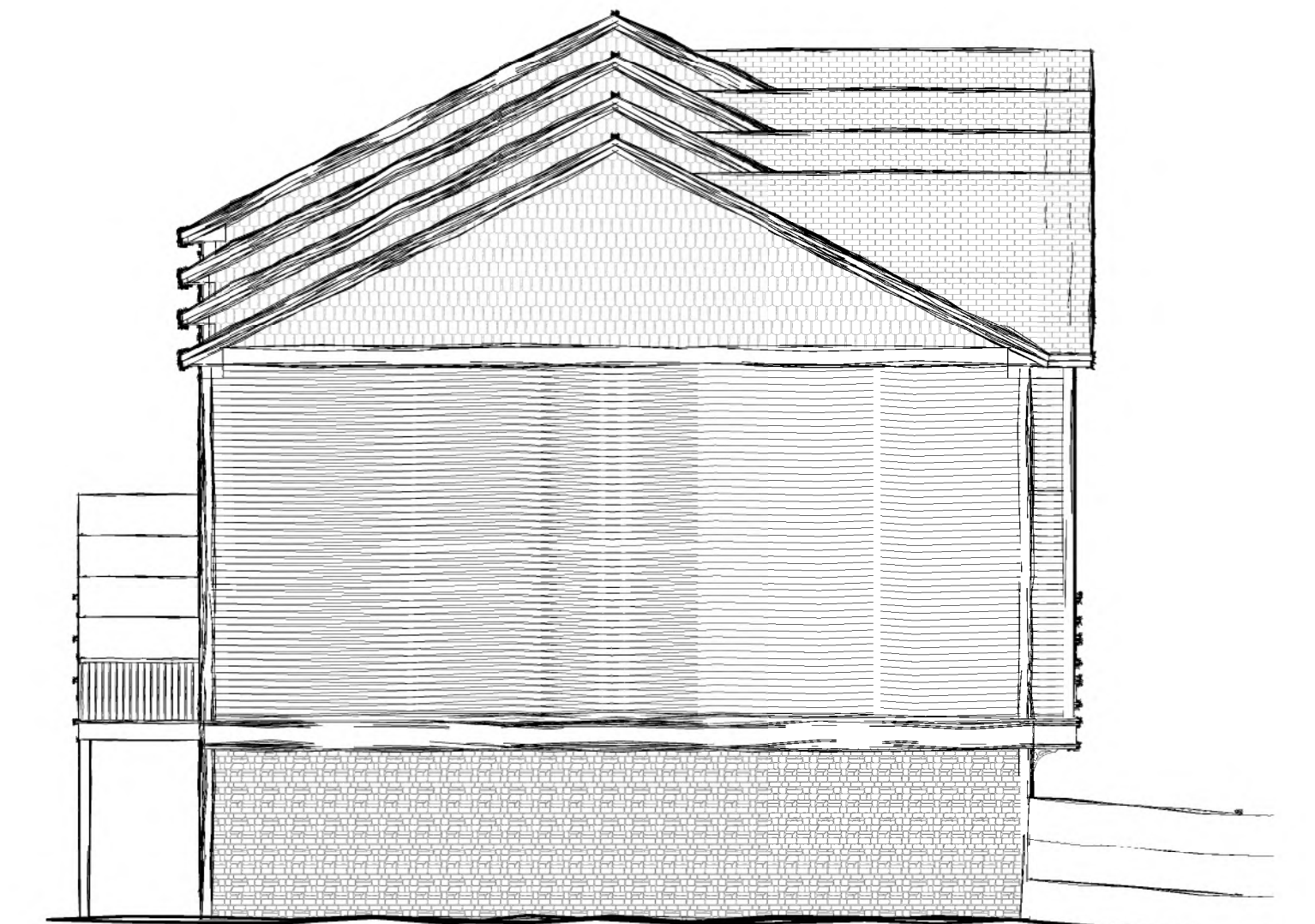
71 & 73 Rutland Street
Dover, New Hampshire 03820

8/27/2021





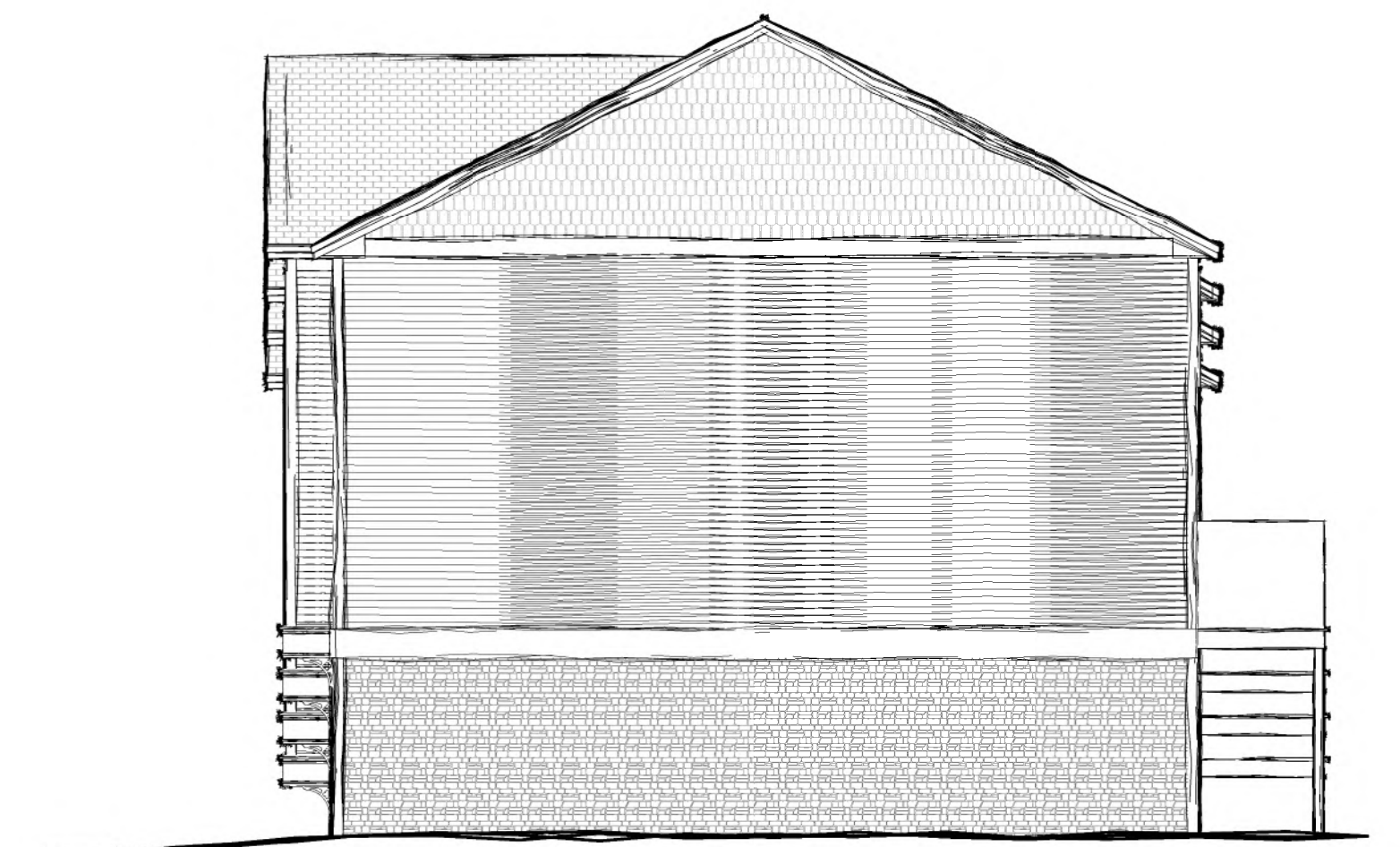
SOUTH ELEVATION
1/8" = 1'-0"



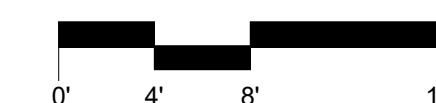
EAST ELEVATION
1/8" = 1'-0"



NORTH ELEVATION
1/8" = 1'-0"



WEST ELEVATION
1/8" = 1'-0"



PROGRESS PRINT
NOT FOR
CONSTRUCTION

71 & 73 Rutland Street
Dover, New Hampshire 03820

8/27/2021



① ABBEY LANE AND RUTLAND STREET

PROGRESS PRINT
NOT FOR
CONSTRUCTION

71 & 73 Rutland Street
Dover, New Hampshire 03820

8/27/2021



① FRONT DRIVEWAY VIEW



② FRONT YARD VIEW

PROGRESS PRINT
NOT FOR
CONSTRUCTION

71 & 73 Rutland Street
Dover, New Hampshire 03820

8/27/2021



LANDSCAPE MAINTENANCE PLAN

General

The Owner of each lot shall be responsible for the maintenance of all landscaped open space, natural screens, and constructed screens within the lot. Landscaping shall be maintained in good condition such that planting shall be vigorous and in good health at all times and that the parcel shall present a healthy, neat, and orderly appearance, free from refuse and debris.

Integrated Turf Management Plan

Maintenance of lawn areas shall generally consist of watering, weeding, mowing and edging, replacement of dead sod, disease and insect control, repair of erosion, and any and all procedures consistent with good horticultural practice, as necessary to insure normal, vigorous and healthy growth of grass,

The lot Owner shall provide the following maintenance activities as specified:

1. Mowing: Once a week or more often as conditions warrant.
2. Watering: by natural rainfall after establishment period. Seed to be kept moist during establishment period.
3. Fertilizing: Early spring and fall.
4. Weeding: Once or twice a year.
5. Pest and Disease Control: Only as needed
6. De-thatching: spring and fall.
7. Liming: Once a year, in the fall and as soil tests indicate need.
8. Raking, edging, debris removal, sod replacement, erosion repair: As needed.
9. Soil testing shall be performed once every 3 years or more frequent if conditions warrant. Soil shall be amended as indicated by test for turf grass.
10. Lawns shall be aerated annually during late summer or early fall. Thinning lawns shall be over-seeded with a certified general turf blended seed mix and top-dressed with a compost/sand mixture ¼-1/2" in the late summer and early fall.

11. Soil and seed shall be kept moist during seed establishment period. Late summer/early fall application of seed is preferable.
12. Turf fertilizer (slow release) shall be applied mid to late fall according to manufacturers recommended rates.
13. Weeds shall be mechanically removed from the site as feasible and disposed of in a legal manner.
14. Grass clippings shall be left on turf areas using mulching mowers. Mowing patterns shall be alternated to avoid ruts and compaction. Care shall be taken to avoid damage to lawn areas.

Shrub and Groundcover Management

The lot Owner shall provide the following shrub and maintenance activities as specified:

1. Mulching: Once each year in spring. Mulch shall be 2"-3" maximum depth and shall always be kept pulled 2"-3" away from tree trunk. Mulch shall be shredded bark, 100% organic and be free of any disease, pests, and insects. Mulch may be applied by manual or mechanical methods where appropriate.
2. Weeding: Once or twice a year as needed. Weeds shall be removed and disposed of off site in a legal manner.
3. Watering: weekly minimum during the establishment period. Long term watering typically only warranted by severe weather conditions.
4. Pruning: To include cleaning, raising and reduction, spring to fall, dependent on accepted practice for each particular species.
5. Preventative pest/disease management: Avoid shrubs and groundcover known to be susceptible to various pests. Establish pest thresholds prior to treatment with acceptable pesticides. Pesticide application to be performed by certified applicator. See tree pest management below.
6. Fertilizer shall be granular 16-16-16 formulation or similar in the spring prior to anticipated rainfall.
7. Once established, plantings shall be watered by natural rainfall. During excessive drought periods watering by hand or drip irrigation bags may be required.
8. Shrubs shall be pruned in accordance with generally accepted standards for proper pruning. Shrubs shall be pruned to remove branches that are dead, broken, extending beyond the face of curbs (where applicable). Shrubs shall not be sheared into topiary shapes.

9. Known invasive plants shall be identified, removed from site as practicable, and disposed of in a legal manner.

Tree Management

The lot Owner shall provide the following tree maintenance activities as specified:

1. Risk Management: this includes management of existing trees to minimize risk of tree failure and possible damage or injury. This includes:
 - Removal of trees that show significant decline or serious defects in their structure.
 - Hazard pruning to remove a dead or broken portion of the tree.
2. Pruning: These include three different types of pruning as defined by the American National Standard for Tree Operations: Tree, Shrub and Other Woody Plant Maintenance - Standard Practices.
 - Crown Cleaning - selective pruning to remove one or more of the following parts: dead, diseased, and/or broken branches
 - Crown Raising - selective pruning to provide vertical clearance
 - Crown Reduction - selective pruning to decrease height and/or spread
3. Mulching: Once each year In spring. Mulch shall be 2”-3” maximum depth and shall always be kept pulled 2”-3” away form tree trunk. Mulch shall be shredded bark, 100% organic and be free of any disease, pests, and insects. Mulch may be applied by manual or mechanical methods where appropriate.
4. Pest and Disease Control: Only as needed. Dead or diseased branches shall be removed and disposed of off site in a legal manner.
5. Watering: weekly minimum during the establishment period. Long term shall be by natural rainfall. During excessive drought periods watering by hand or drip irrigation bags may be required.
6. Fertilization: early spring or fall. Formulation shall depend on soil test recommendations and plant variety. Granular type fertilizer to be used and watered in.
7. Soil additives: Only as needed.
8. Root crown excavation: This is required where excessive soil or mulch has been placed over the base of the tree.
9. Only trees on slopes 2:1 or greater shall be staked. Stakes shall be removed after first growing season.
10. Preventative pest/disease management: Avoid trees known to be susceptible to various pests. Establish acceptable pest thresholds. Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, evaluate the proper control method both for effectiveness and risk. Effective, less risky pest controls are chosen first, including highly targeted chemicals, such as pheromones

to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such as targeted spraying of pesticides. Broadcast spraying of non-specific pesticides is a last resort. Pesticides, if required, to be applied by a certified applicator.

11. Replacement Trees: Owner shall replace dead or missing trees according to the following:

- Lost, dead or diseased trees shall be replaced with the same or similar species.
- New trees shall be 3" in caliper for shade trees and to 2" in caliper for ornamental trees.

Watering during establishment period

Water source shall consist of local water supply systems. At a minimum trees and shrubs shall be watered by flooding as follows:

Month 0-3: Once per week

Month 3-6: Twice per month

Month 6-12: Once per month.

Watering frequency may be increased or decreased depending upon excessive rainfall or drought conditions.

Seasonal Maintenance

Each lot Owner shall maintain a plan for seasonal activities including raking, de thatching, removal of dead brush and flowers, fertilizing, watering, pruning, mowing, weeding, etc. for each of the following:

1. Spring Clean-up Plan
2. Fall Clean-up Plan
3. Leaf & Plant Debris Disposal
4. Winter Plowing: Prior to the start of each winter season, curb lines and planting beds should be stacked out with brightly colored wooden stakes to demarcate edges. Snow storage will be in designated open areas adjacent to parking and walks. During periods of extreme snowfall, portions of the common area may be utilized for storage of snow. Springtime cleanup will typically include repair of any turf damage related to plowing operations.
5. Winter Deicing Plan: Only calcium based products will be utilized for deicing on an as-needed basis to control ice build-up.

Wet Pond Area - First Year Maintenance Guidelines

Successful establishment of wet ponds requires that the following tasks be undertaken during the first year following construction.

- Initial inspections. For the first six months following construction, the site should be inspected at least twice after storm events that exceed a 1/2-inch of rainfall.
- Remove and replace dead or dying plants.
- Spot Reseeding. Inspect for eroding areas in the contributing drainage area or around the pond buffer, and make sure they are immediately stabilized with grass cover.
- Watering. Trees planted in the pond buffer need to be watered during the first growing season. In general, consider watering every 3 days for first month, and then weekly during the remainder of the first growing season (April - October), depending on rainfall.

Routine Maintenance Guidelines

Wet Ponds must be inspected to ensure that they operate in good working condition. Items in need of repair must be immediately addressed.

Routine Maintenance Tasks

Remove trash and debris As needed Check and repair eroded areas - Annually

Check for and remove nuisance animals and burrows - Annually

Forebay inspection and cleanout Annually-remove sediment when forebay reaches 50% capacity or every 7 years

Inspect plant composition for consistency with approved plans and correct any deficiencies Annually

Inspect and repair any clogging or damage to the orifice - Annually

Inspect and exercise all mechanical devices - Annually

Inspect for and repair structural damage and leaks - Annually

Inspect and repair any damaged or clogged inlets and outlets - Annually

Remove woody vegetation on or near, forebays, spillways, and outlets - Annually

Check sediment accumulation in the permanent pool - Annually, dredge if necessary

Replace dead or damaged plant material As needed Repair broken pipes - As needed

STORMWATER REPORT

FOR

71-73 Rutland Street

DOVER, NEW HAMPSHIRE

September 10, 2021

Prepared for: Diamond Capital, LLC
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Portsmouth, NH 03801

Prepared by: Hancock Associates, Inc.
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HANCOCK
ASSOCIATES, INC.

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STORMWATER REPORT
71-73 RUTLAND STREET
DOVER, NH

1.0 PROJECT DESCRIPTION

Diamond Capital, LLC proposes to merge 71 and 73 Rutland Street parcels to construct eight-unit three-story townhouses. The project will include a new drive, utility services, and site alterations which will disturb 27,500± sq. ft. (0.63± acres). In accordance with the New Hampshire Department of Environmental Services (NHDES) requirements for land development, an Alteration of Terrain (AoT) permit will not be required for this project.

1.1 Existing Site Description

The project site includes both 71 and 73 Rutland Street parcels, which are adjacent, rectangular lots with a total area of 43,550± sq. ft. (1.0± acres). 71 Rutland Street (Lot B) has 118± ft. of frontage on Rutland Street. 73 Rutland Street (Lot A) has 100± ft. of frontage on Rutland Street and 200± ft. of frontage on Abbey Lane. The lots will be merged for the proposed project.

The existing 2-½ story wood frame dwelling on Lot B is located on the northern portion of the property, facing Rutland Street. Attached to the dwelling is a 1-½ story garage, with a bituminous concrete driveway and walk providing access to Rutland Street. The dwelling and attached garage will be retained. A wood deck is attached to the rear of the dwelling, which leads to an inground pool surrounded by a concrete patio. The pool and patio will be removed prior to construction of the townhouses. A garden, fence, and 1-foot-tall stone retaining wall are located to the rear of the garage, adjacent to the pool area, and will also be removed. The back of the lot is grass covered with some areas of thick vegetation.

The existing 1-story wood frame dwelling on Lot A is located on the northeastern portion of the property, facing Rutland Street. Attached to the dwelling is a 1-story garage, with a bituminous concrete driveway and walk providing access to Rutland Street. An enclosed porch is attached to the rear of the dwelling. The dwelling, attached garage, and porch will be retained. A 1-story wood frame garage is located on the southwest corner of the existing lot, with a concrete apron along the eastern side of the building. Both the garage and the concrete apron will be removed prior to construction of the townhouses. The back of the lot is grass covered with some areas of thick vegetation.

Topography of the overall site consists mostly of flat to moderate slopes. Generally, the site slopes south. The high point onsite is at the northern corner of the parcel at elevation 74.2, and the low elevation onsite is 59.5 is located at the southern corner of the parcel. The average slope between the high and low point is roughly 5 percent.

Stormwater from the dwellings discharges via downspouts to grade without any stormwater controls. Two catch basins located south of the site on Abbey Lane collect the sheet flow and carry the runoff to an existing BMP system offsite.

The project site is not within a federally designated flood hazard area and there are no wetlands on or near the project site.

1.2 Proposed Site Description

The proposed project includes three-story eight-unit townhouses with a new drive entrance from Abbey Lane, parking, retaining walls, transformer, utility connections and an associated stormwater management system. The proposed building is located on the rear of the two adjacent lots. Facing the front of the townhouses is a 22 ft.-wide bituminous concrete drive, which provides access to Abbey Lane. Each townhouse will be provided two parking spots: one in the garage and one in front of the garage.

The proposed stormwater management system will utilize a subsurface infiltration system and a wet pond. Both BMPs will comply with the City of Dover and NHDES stormwater management design standards.

1.3 Soil conditions

A review of Web Soil Survey (Appendix G) operated by the Natural Resource Conservation Service (NRCS) indicates Scantic silt loam, 3 to 8 percent slopes (Map Unit ScB) and Suffield silt loam, 8 to 15 percent slopes (Map Unit SfC) to be the primary soil groups onsite. Both soil groups predominantly consist of silty loam, with silty clay in the deeper layers. Scantic is classified into hydraulic soil group "C/D" and Suffield is classified into hydraulic soil group "C".

A site-specific soil survey report was prepared by certified soil scientist Luke Hurley of GES, Inc. on August 16, 2021, for Hancock Associates. Utilizing *Society of Soil Scientists of Northern New England (SSSNE)* standards, GES, Inc. determined the project site to contain Scio Variant soils, which are dominated by silt and very fine sand and is classified into hydraulic soil group "C". Based on this report, it was decided that hydrological soil group "C" and an assumed Rawls' Rate of 0.27 in/hr are used in the stormwater mitigation and recharge calculations.

2.0 STORMWATER MANAGEMENT STANDARDS

The City of Dover follows the *New Hampshire Stormwater Manual Volume 2*, issued by NHDES, for all proposed stormwater practices and measures. The chapter 2 of the manual states, "Land development projects should employ site design and Best Management Practices (BMPs) to control peak runoff rates, provide stormwater quality treatment, use stormwater for groundwater recharge, and provide for stream channel protection". The proposed project has been designed in compliance with these standards as follows:

2.1 Peak Control

Post-development peak discharge rates can not exceed pre-development peak discharge rates for the 10- & 50-year, 24-hour storm events.

Stormwater runoff calculations contained herein for site related runoff have been computed in accordance with methods developed by the NRCS, as described in the "NRCS National Engineering Handbook, Section 5, and Hydrology for Small Watersheds." Storm hydrographs were generated and routed using the NRCS TR-20/TR-55 methodologies (incorporated into the hydraulic modeling software HydroCAD) with a Type III Storm Distribution.

The methodologies provide for hydraulic analyses of a watershed under various combinations of land cover/use. Surface runoff hydrographs were developed from storm rainfall data using a dimensionless unit hydrograph, drainage areas, times of concentration (Tc), and NRCS runoff curve numbers. These computer simulated hydrographs have been flood-routed, when appropriate, to account for effects of surface storage and hydraulic constraints provided by the designed mitigative measures.

For this analysis, hydrographs were developed to simulate peak storm runoff flows under existing and proposed conditions for the 2, 10, 25, and 50-year storm events. 24-hour values of 3.0, 4.3, 5.2, and 5.7 inches of rainfall were utilized for the respective storm events, as interpolated from *Technical Paper No. 40 (TP40) Rainfall Frequency Atlas of the Eastern United States*, by NHDES. These calculations indicate the order-of-magnitude of existing and proposed peak runoff rates anticipated from the project site. The following section provides a brief description of the existing and proposed watershed areas and associated downstream facilities.

2.1.1 Existing Watersheds

Existing Watershed E1 – includes the roofs on the existing dwellings of each lot, the roof on the existing garages, the bituminous concrete drives, the bituminous and cement concrete walkways, patios, decks, lawn, vegetation and wooded areas. Stormwater runoff in this watershed primarily drains towards the existing stormwater system on Abbey Lane.

Area = 43,550 sq. ft.

2.1.2 Proposed Watersheds

Proposed Watershed P1 – includes the proposed bituminous concrete driveway, the wet pond area, and the surrounding area around the wet pond that will flow into the BMP. Stormwater is collected and treated in this BMP, which overflows into the existing system on Abbey Lane. Approximately 600 sq. ft. of the proposed driveway will miss the catch basin at the end of the driveway and flow into the existing Abbey Lane system (P3). The wet pond treating this watershed designed to accommodate for this additional impervious area.

Area = 12,202 sq. ft. (11,602 sq. ft. + 600± sq. ft.).

Proposed Watershed P2 – consists of the roof area of the proposed townhouses. Stormwater is collected and treated in the proposed infiltration system. Overflow from the proposed system will be drained into the wet pond, which overflows into the existing system on Abbey Lane.

Area = 7,040 sq. ft.

Proposed Watershed P3 – consists of the remaining area on the site, including the roofs on the existing dwellings of each lot, the roof on the existing garage, the existing bituminous concrete drives, the existing bituminous and cement concrete walkways, and the proposed grading around the new townhouses which does not flow into watersheds P1 or P2. This sheet flow drains into the existing system on Abbey Lane.

Area = 24,908 sq. ft.

2.1.3 Pre-Development vs. Post-Development

Attenuation of peak runoff rates and stormwater volumes from the project site has been provided

through construction of a subsurface infiltration system and a wet pond. Under the existing conditions, all stormwater flows offsite to the existing drainage system on Abbey Lane. Under the proposed conditions, some of the existing impervious area is removed and all new impervious area is treated within the proposed subsurface infiltration system and wet pond. This in turn will provide adequate mitigation and reduction of runoff to the existing Abbey Lane BMP.

As noted in the following sections, the proposed project will result in significant decrease in both peak flow and volume of stormwater runoff. Additionally, the project includes stormwater recharge and best management practices (BMPs) to improve stormwater quality.

The peak flow calculations indicate the “order-of magnitude” of runoff rates under existing and proposed conditions for the 2, 10, 25, and 50-year storm event recurrence intervals. Refer to **Table 1** for a summary of the peak runoff rates. As shown in the table, there is no increase in the peak rate of runoff for the 10-year and 50-year storm events.

Table 1 – Peak Flow Reduction

Storm Event	Watershed	Existing Peak Rate	Proposed Peak Rate	% Change
		cfs	cfs	
50-yr	Exist. Abbey Ln. BMP (R1/R2)	3.81	2.80	-26.5%
25-yr	Exist. Abbey Ln. BMP (R1/R2)	3.31	2.36	-28.7%
10-yr	Exist. Abbey Ln. BMP (R1/R2)	2.44	1.77	-27.5%
2-yr	Exist. Abbey Ln. BMP (R1/R2)	1.26	0.95	-24.6%

Water Quality Volume

The amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis.

Water Quality Volume (WQV) in New Hampshire is associated with the first inch of rainfall, and is calculated using the following equation:

$$\text{WQV} = (\text{P})(\text{Rv})(\text{A})$$

Where:

P = 1 inch

Rv = the unitless runoff coefficient, $\text{Rv} = 0.05 + 0.9(\text{I})$

I = the percent impervious cover draining to the structure, in decimal form

A = total site area draining to the structure

When calculating the WQV of the area draining into the proposed wet pond:

$$\text{I} = 0.15 \text{ Ac.} / 0.44 \text{ Ac.} = 0.34$$

$$\text{Rv} = 0.05 + 0.9(0.34) = 0.35$$

$$\text{WQV} = (1 \text{ in.}) * (0.35) * 0.44 \text{ Ac.}$$

$$\text{WQV} = 569 \text{ cubic ft.}$$

Table 2 - Wet Pond Elevations

Pond Elevation or Storm Event	Elevation (ft)
Top of Berm	61.00
50-yr Storm	59.91
25-yr Storm	59.88
10-yr Storm	59.81
2-yr Storm	59.76
Permanent Pool/Groundwater Elev. (2 * WQV)	58.00
Bottom of Pond	54.50

Typically, a wet pond is used when treating larger areas (10 acres or greater), but with the poorly drained soils on site and the estimated seasonal highwater table (ESHWT) being 0 to 15 inches below the existing grade, it is the preferred method of stormwater pollutant removal. The pond will utilize an outlet control structure to meet the design discharge capacity and divert overflow to the existing system on Abbey Lane.

Additionally, with the project site located in an MS4 area, pretreatment is required prior to the wet pond. A sediment forebay is proposed to act as pretreatment, with a stone level spreader used to disperse the flow.

The wet pond was sized to treat proposed watersheds P1 and P2 and control specific storm events using the NHDES BMP worksheet (Appendix C), which follows all the NH Stormwater Manual design criteria. **Table 2** shows the corresponding HydroCAD pond elevations to storm events. NH requires that all stormwater ponds must provide at least 1-foot of freeboard during a 50-year storm event, which is achieved in the proposed BMP.

2.2 Groundwater Recharge Volume

The purpose of the groundwater recharge volume criterion is to protect groundwater resources by minimizing the loss of annual pre-development recharge as a result of the proposed development.

Groundwater recharge is heavily dependent on the existing soil conditions of the project site. The equation to calculate groundwater recharge volume (GRV) is as follows:

$$GRV = (A_I)(R_d)$$

Where:

A_I = the total effective area of impervious surfaces that exist on the site after development

R_d = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group

When calculating the GRV for the project site:

$A_I = 19,600$ sq. ft.

$R_d = 0.10$ in.

GRV = 19,600 sq. ft. * 0.10 in. = 163.3 cubic ft.

To reach the recharge requirement, a subsurface infiltration system will be utilized. Roof water from the proposed townhouses will be captured using a gutter system and brought to 66 *R-Tank XD Triple* Modules, surrounded by crushed stone, to be infiltrated.

Table 3 summarizes the on-site recharge requirements and the proposed recharge volumes provided by the proposed stormwater infiltration system. The “Static” Method was used to calculate the volume required for the project.

Table 3 – Recharge Compliance Summary

Impervious Area		Recharge Required	Recharge Vol. Required	BMP	Recharge Vol. Provided
(sf)		(in)	(CF)		(CF)
Exist. Imp Area	7,650	0.10	63.8	N/A	0
Prop. Imp Area	19,600	0.10	163.3	Infiltration System	172.8

2.3 Effective Impervious Cover and Undisturbed Cover

NHDES has proposed a target 10% effective impervious cover (%EIC) maximum and 65% undisturbed cover (%UDC) minimum for development sites, referred to as “the 1065 Rule”.

The proposed project does not need to meet these antidegradation requirements. Chapter 5 of the *NH Stormwater Manual Volume 1* states that a NHDES Antidegradation Review is only required for projects that trigger one of the following state or federal permits:

- NHDES Shoreland
- NHDES Wetland
- NHDES AoT

- NHDES AoT
- NHDES Individual 401 Certification
- NPDES CGP
- USACOE404 Individual Permit

2.4 Channel Protection

The purpose of this design criterion is to protect stream channels, downstream receiving waters, and wetlands from erosion and associated sedimentation resulting from the urbanization within a watershed.

The existing collection point on Abbey Lane drains to a brook. To protect the channel, the following NHDES design criteria was followed:

- If the 2-year, 24-hour post-development storm volume **has not increased** over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour pre-development flow rate.
- If the 2-year, 24-hour post-development storm volume **has increased** over the pre-development volume, then control the 2-year, 24-hour post-development peak flow rate to 50 percent of the 2-year.

The storm runoff volume calculations indicate the “order-of magnitude” of volumes under existing and proposed conditions for the 2, 10, 25, and 50-year storm event recurrence intervals. Refer to **Table 4** for a summary of the runoff volumes. As shown in the table, there is no increase in volume for the 2-yr storm. Thus, the 2-year, 24-hour post-development peak flow rate must be equal to or below the pre-development peak flow rate. The City of Dover also requirements that the runoff volumes decrease in the 10, 25, and 50-year storms. As shown in **Table 1**, these requirements are met.

Table 4 – Runoff Volume Reduction

Storm Event	Watershed	Existing Volume	Proposed Volume	% Change
		cf	cf	
50-yr	Exist. Abbey Ln. BMP (R1/R2)	11242	10862	-3.4%
25-yr	Exist. Abbey Ln. BMP (R1/R2)	9754	9266	-5.0%
10-yr	Exist. Abbey Ln. BMP (R1/R2)	7171	6455	-10.0%
2-yr	Exist. Abbey Ln. BMP (R1/R2)	3760	2605	-30.7%

3.0 EROSION AND SEDIMENT CONTROL

Downslope areas will be protected through the installation of a combination of erosion control tubes and filter fabric fence to be located along the perimeter and/or elsewhere as required to protect and stabilize earthwork. All embankment slopes will be fine graded and stabilized by the means of wood chip mulch, shrubs, sod and/or seed and mulch as is appropriate. All pipe drains and catch basins will be installed early in the construction period in order to provide early control of site runoff. Crushed stone will be judiciously applied to stabilize select areas, as required during the course of construction. The erosions controls are further described in the Operation and Maintenance Plan located in the appendix.

4.0 SUMMARY AND CONCLUSIONS

Significant attention and consideration has been given to proper management of stormwater runoff from the project site. The unique site-specific characteristics and hydrologic setting has been carefully studied to develop a comprehensive plan that fully utilizes and recognizes these attributes. Disposition of stormwater has been considered, with respect to its peak rate, total volume, groundwater recharge, and water quality aspects, to ensure appropriate mitigation upon project completion.

- There will be no adverse impact to any surrounding areas.
- The drainage systems have been properly designed to handle the design flow rates.
- A significant decrease in stormwater rate and volume will be realized.
- The project will provide groundwater recharge and increase stormwater quality off the site.

A

LOCUS MAP



DOVER, NEW HAMPSHIRE

Source: NH GraniteView web mapping application.

HANCOCK
ASSOCIATES

Project Title **71-73 Rutland Street**
Location **Dover, NH**
Plan Title **Locus Map**

Project #: **23800**
Date: **9/8/2021**
Scale: **1" = 500'**

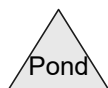
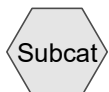
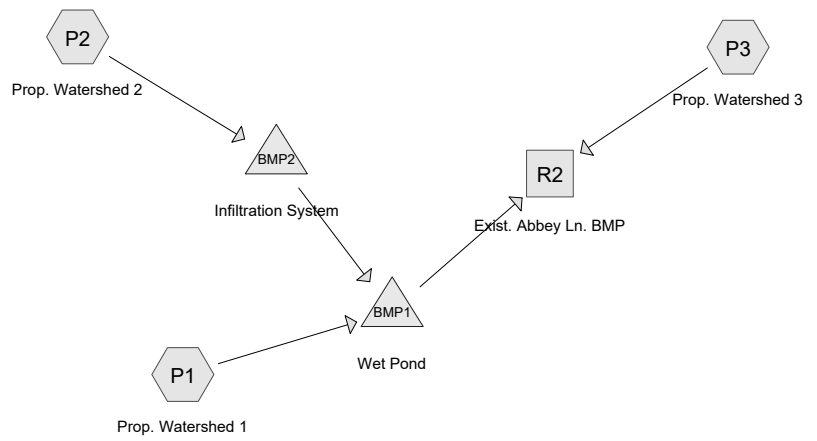
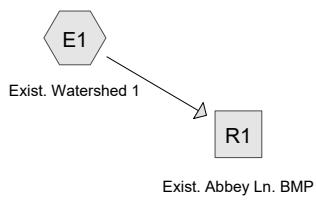
FIGURE: **1**

B

HYDROCAD CALCULATIONS

Pre-Development

Post-Development



23800-Dover-NH-Stormwater*Type III 24-hr 2-Year Storm Rainfall=3.00"*

Prepared by Hancock Associates

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Page 2

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Exist. Watershed 1	Runoff Area=43,550 sf 17.53% Impervious Runoff Depth>1.04" Tc=6.0 min CN=78 Runoff=1.26 cfs 3,760 cf
SubcatchmentP1: Prop. Watershed 1	Runoff Area=12,202 sf 50.81% Impervious Runoff Depth>1.55" Tc=6.0 min CN=86 Runoff=0.54 cfs 1,576 cf
SubcatchmentP2: Prop. Watershed 2	Runoff Area=7,040 sf 100.00% Impervious Runoff Depth>2.59" Tc=6.0 min CN=98 Runoff=0.46 cfs 1,520 cf
SubcatchmentP3: Prop. Watershed 3	Runoff Area=24,908 sf 26.15% Impervious Runoff Depth>1.15" Tc=0.0 min CN=80 Runoff=0.95 cfs 2,397 cf
Reach R1: Exist. Abbey Ln. BMP	Inflow=1.26 cfs 3,760 cf Outflow=1.26 cfs 3,760 cf
Reach R2: Exist. Abbey Ln. BMP	Inflow=0.95 cfs 2,605 cf Outflow=0.95 cfs 2,605 cf
Pond BMP1: Wet Pond	Peak Elev=59.76' Storage=2,587 cf Inflow=0.99 cfs 2,790 cf Outflow=0.02 cfs 208 cf
Pond BMP2: Infiltration System	Peak Elev=62.09' Storage=224 cf Inflow=0.46 cfs 1,520 cf Discarded=0.00 cfs 91 cf Primary=0.46 cfs 1,214 cf Outflow=0.46 cfs 1,305 cf

23800-Dover-NH-Stormwater

Prepared by Hancock Associates

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Type III 24-hr 2-Year Storm Rainfall=3.00"

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Page 3

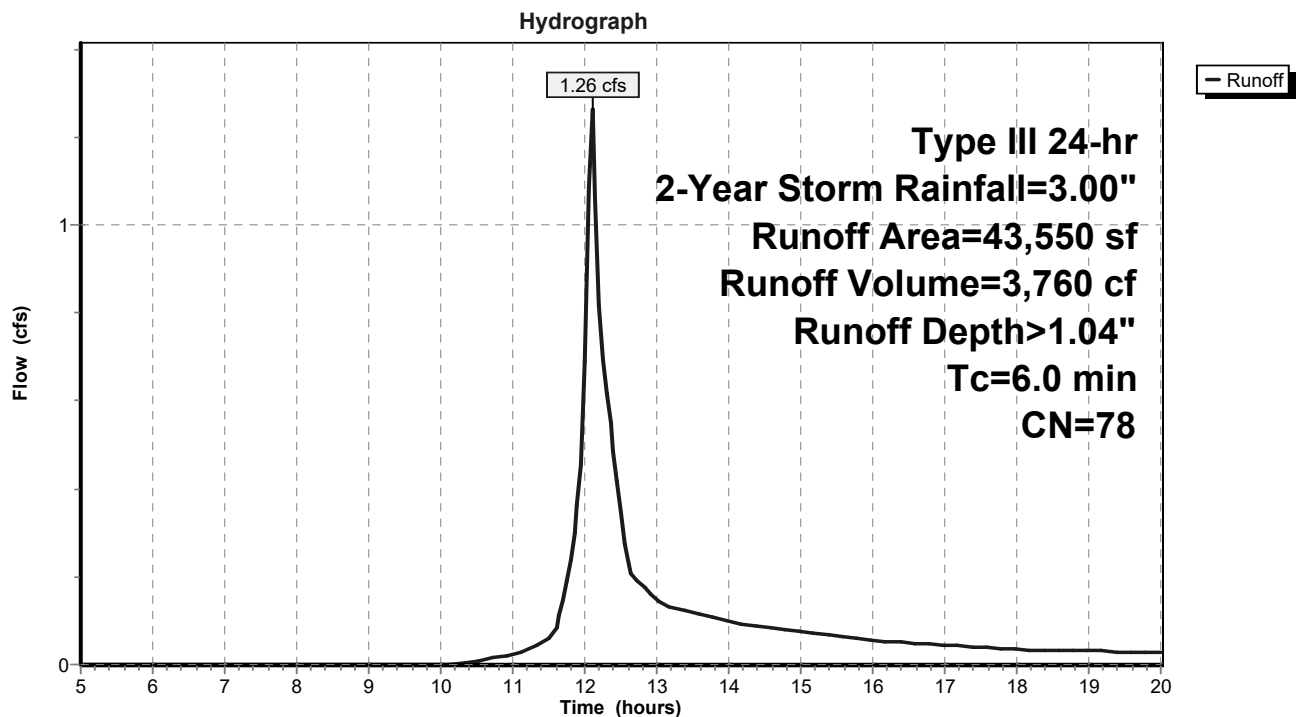
Summary for Subcatchment E1: Exist. Watershed 1

Runoff = 1.26 cfs @ 12.10 hrs, Volume= 3,760 cf, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

	Area (sf)	CN	Description
*	7,635	98	Paved parking, roofs, walks
	35,915	74	>75% Grass cover, Good, HSG C
	43,550	78	Weighted Average
	35,915		82.47% Pervious Area
	7,635		17.53% Impervious Area

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

Subcatchment E1: Exist. Watershed 1

23800-Dover-NH-Stormwater

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Type III 24-hr 2-Year Storm Rainfall=3.00"

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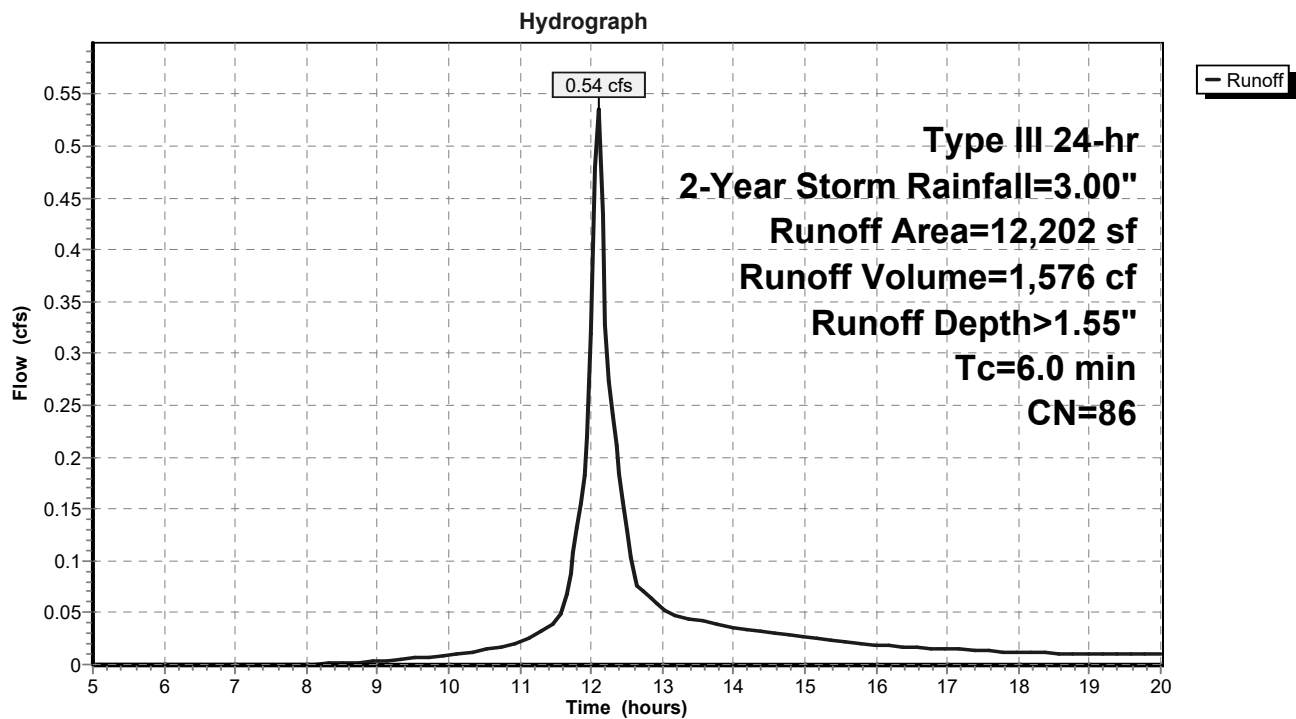
Summary for Subcatchment P1: Prop. Watershed 1

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 1,576 cf, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
6,200	98	Paved parking, HSG A
* 6,002	74	>75% Grass cover, Good, HSG C
12,202	86	Weighted Average
6,002		49.19% Pervious Area
6,200		50.81% Impervious Area

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

Subcatchment P1: Prop. Watershed 1

23800-Dover-NH-Stormwater

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Type III 24-hr 2-Year Storm Rainfall=3.00"

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Page 5

Summary for Subcatchment P2: Prop. Watershed 2

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 1,520 cf, Depth> 2.59"

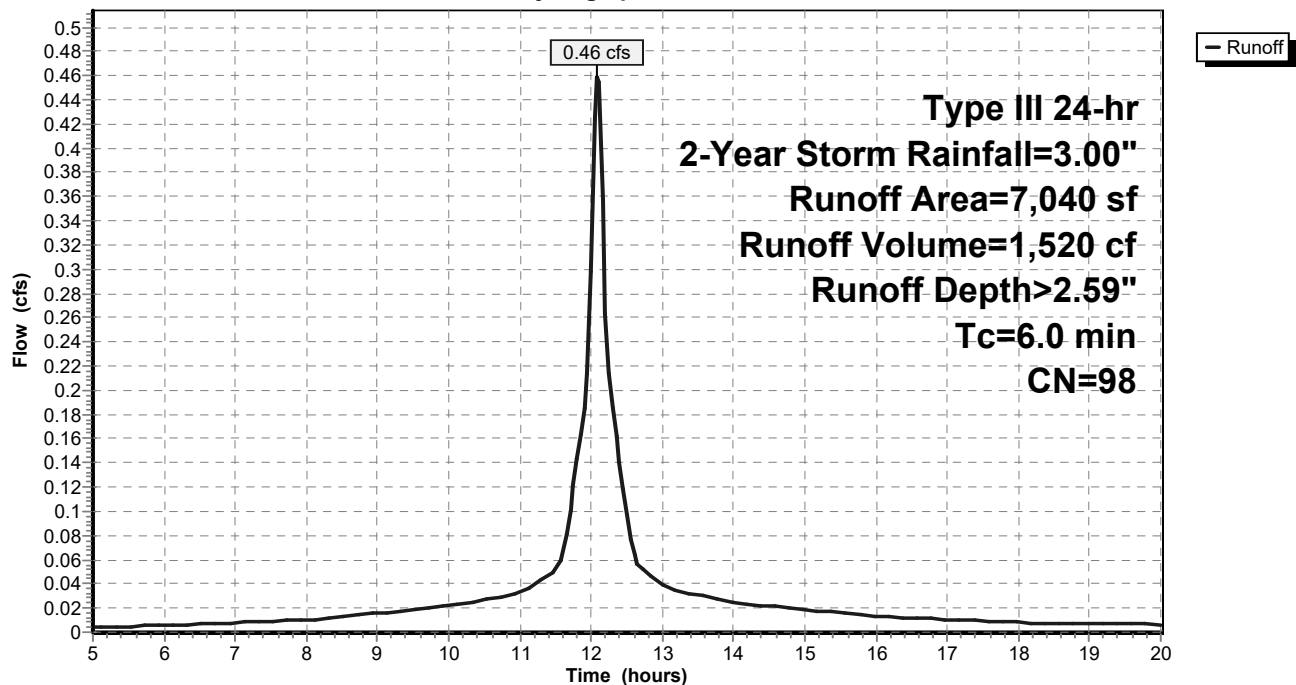
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
7,040	98	Roofs, HSG C
7,040		100.00% Impervious Area

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

Subcatchment P2: Prop. Watershed 2

Hydrograph



23800-Dover-NH-Stormwater

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Type III 24-hr 2-Year Storm Rainfall=3.00"

Printed 9/10/2021

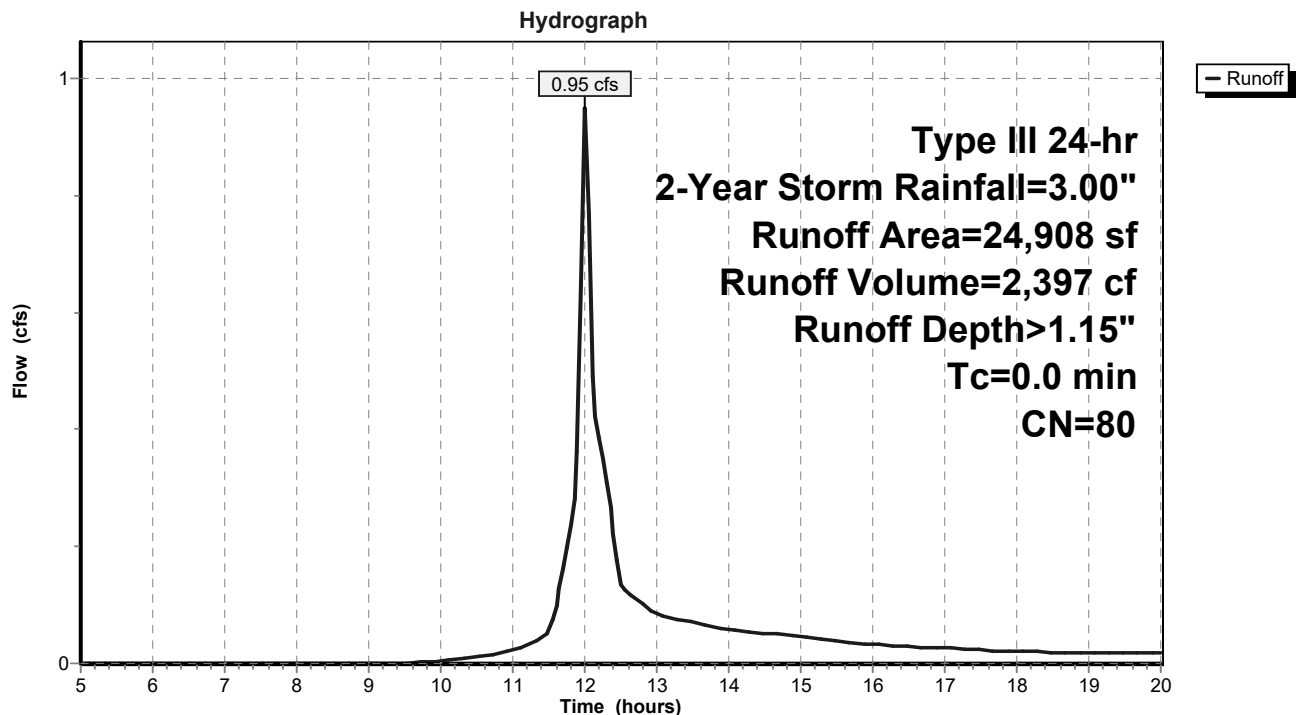
Page 6

Summary for Subcatchment P3: Prop. Watershed 3

Runoff = 0.95 cfs @ 12.01 hrs, Volume= 2,397 cf, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

	Area (sf)	CN	Description
*	6,514	98	Paved parking, exist houses HSG C
	18,394	74	>75% Grass cover, Good, HSG C
	24,908	80	Weighted Average
	18,394		73.85% Pervious Area
	6,514		26.15% Impervious Area

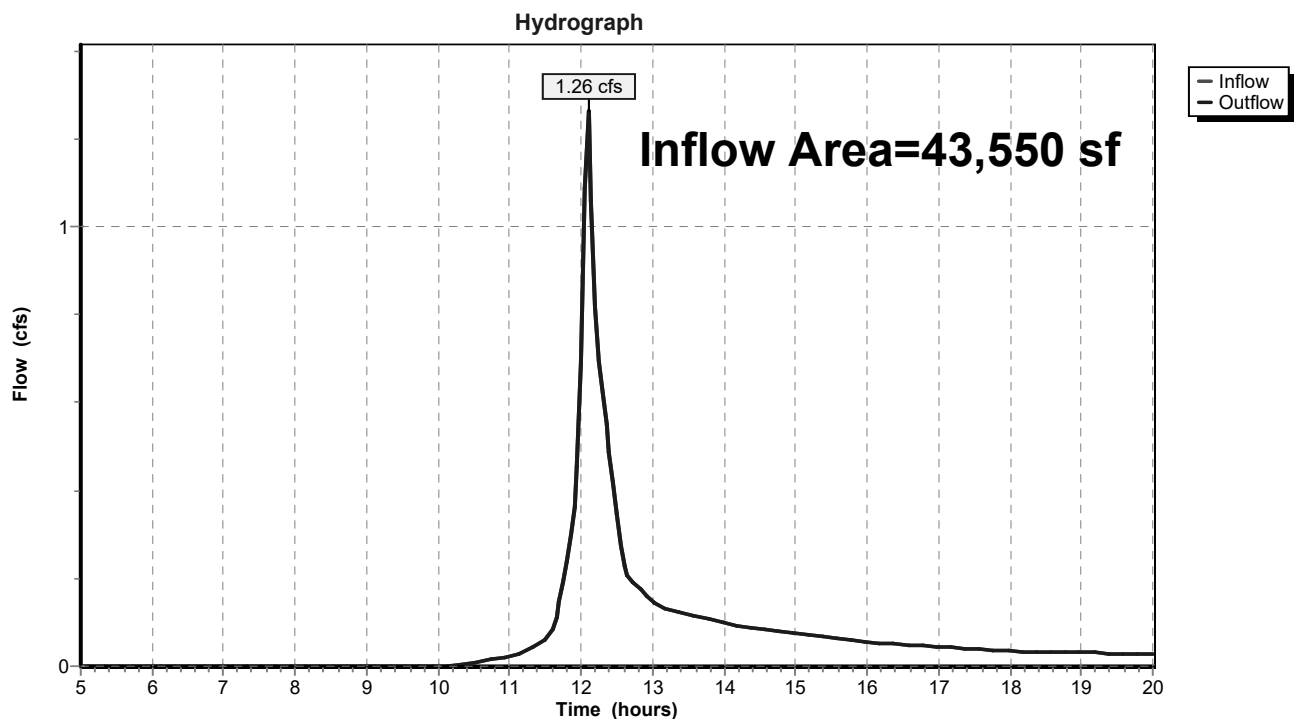
Subcatchment P3: Prop. Watershed 3

Summary for Reach R1: Exist. Abbey Ln. BMP

Inflow Area = 43,550 sf, 17.53% Impervious, Inflow Depth > 1.04" for 2-Year Storm event
 Inflow = 1.26 cfs @ 12.10 hrs, Volume= 3,760 cf
 Outflow = 1.26 cfs @ 12.10 hrs, Volume= 3,760 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

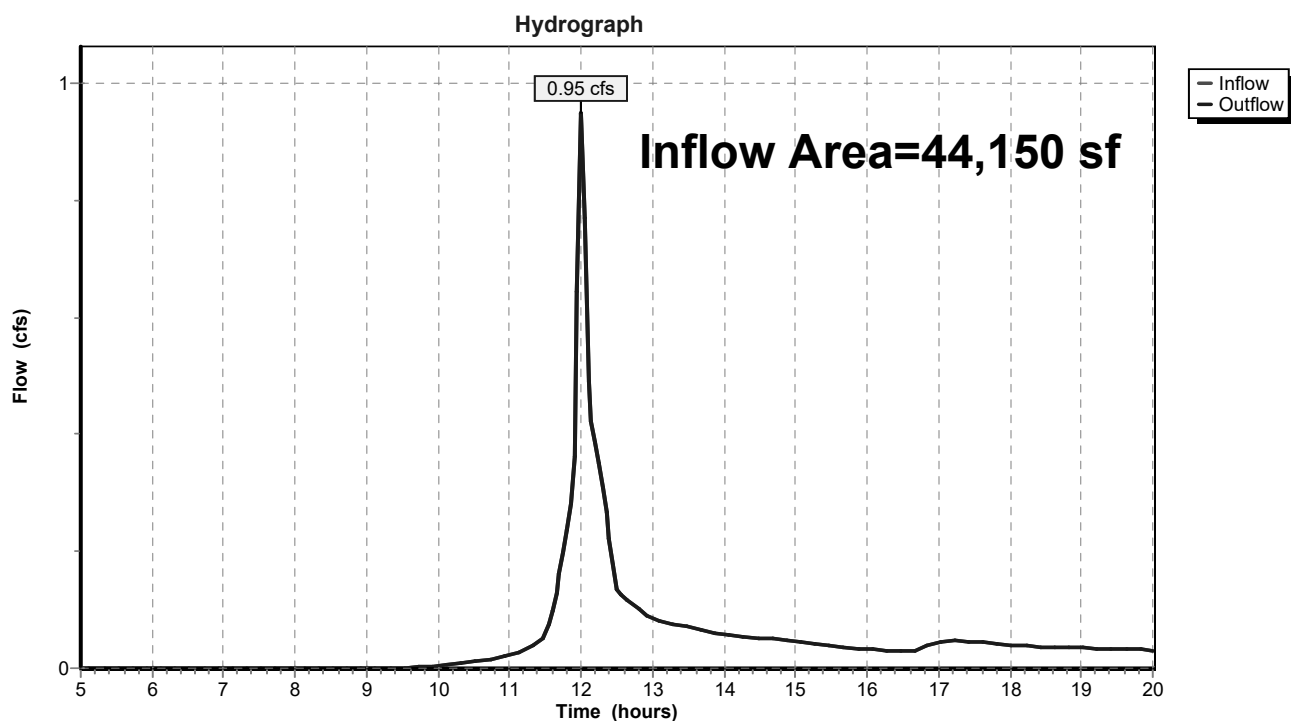
Reach R1: Exist. Abbey Ln. BMP



Summary for Reach R2: Exist. Abbey Ln. BMP

Inflow Area = 44,150 sf, 44.74% Impervious, Inflow Depth > 0.71" for 2-Year Storm event
Inflow = 0.95 cfs @ 12.01 hrs, Volume= 2,605 cf
Outflow = 0.95 cfs @ 12.01 hrs, Volume= 2,605 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R2: Exist. Abbey Ln. BMP

Summary for Pond BMP1: Wet Pond

Inflow Area = 19,242 sf, 68.81% Impervious, Inflow Depth > 1.74" for 2-Year Storm event
 Inflow = 0.99 cfs @ 12.09 hrs, Volume= 2,790 cf
 Outflow = 0.02 cfs @ 17.26 hrs, Volume= 208 cf, Atten= 98%, Lag= 310.3 min
 Primary = 0.02 cfs @ 17.26 hrs, Volume= 208 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.76' @ 17.26 hrs Surf.Area= 2,864 sf Storage= 2,587 cf

Plug-Flow detention time= 452.3 min calculated for 207 cf (7% of inflow)
 Center-of-Mass det. time= 314.2 min (1,097.9 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	123 cf	Sediment Forebay (Conic) Listed below (Recalc)
#2	54.50'	0 cf	Permanent Pool (assumed full) (Prismatic) Listed below (Recalc) 1,292 cf Overall x 0.0% Voids
#3	58.00'	5,089 cf	Wet Pond (Prismatic) Listed below (Recalc)
		5,212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
56.50	2	0	0	2
57.00	20	5	5	21
58.00	99	54	59	104
58.50	160	64	123	168

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.50	9	0	0
55.00	82	23	23
56.00	278	180	203
57.00	530	404	607
58.00	840	685	1,292

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	840	0	0
59.00	1,523	1,182	1,182
60.00	1,974	1,749	2,930
61.00	2,344	2,159	5,089

Device	Routing	Invert	Outlet Devices
#1	Primary	54.50'	12.0" Round Culvert L= 97.0' Ke= 0.200 Inlet / Outlet Invert= 54.50' / 52.50' S= 0.0206 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	59.75'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

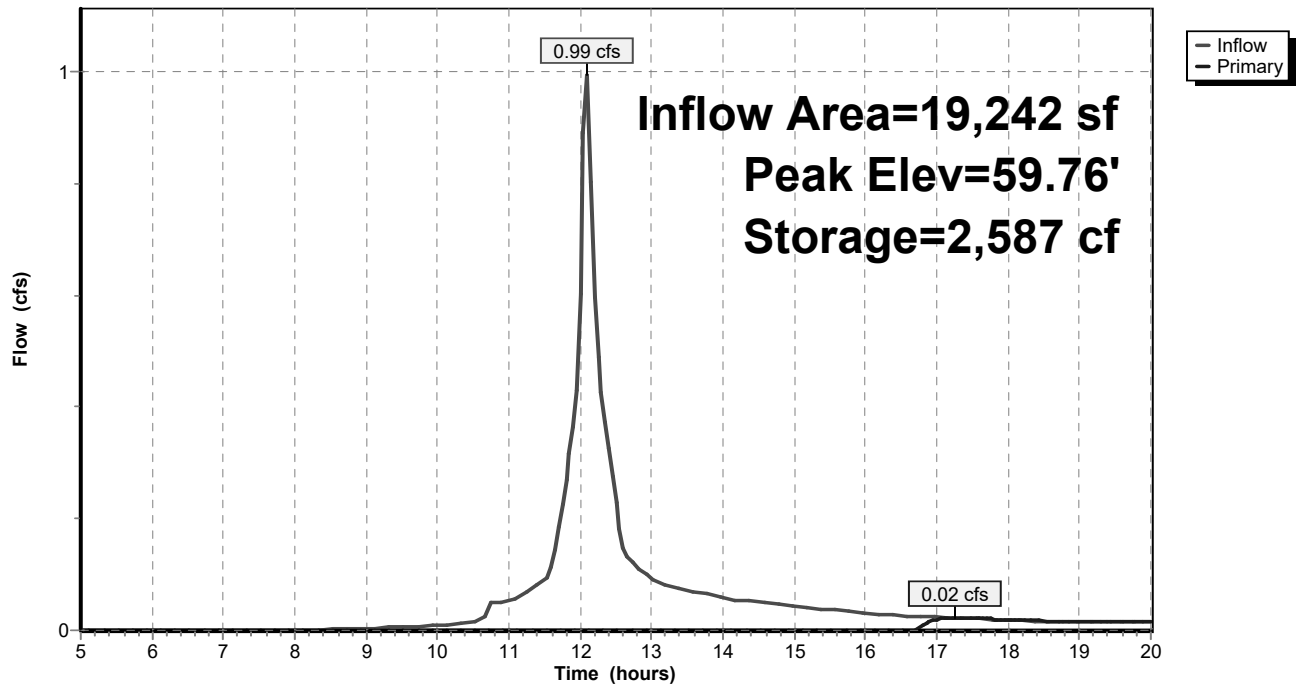
Primary OutFlow Max=0.02 cfs @ 17.26 hrs HW=59.76' (Free Discharge)

1=Culvert (Passes 0.02 cfs of 9.10 cfs potential flow)

2=Orifice/Grate (Weir Controls 0.02 cfs @ 0.27 fps)

Pond BMP1: Wet Pond

Hydrograph



Summary for Pond BMP2: Infiltration System

Inflow Area = 7,040 sf, 100.00% Impervious, Inflow Depth > 2.59" for 2-Year Storm event
 Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,520 cf
 Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,305 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.00 cfs @ 5.15 hrs, Volume= 91 cf
 Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,214 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.09' @ 12.09 hrs Surf.Area= 271 sf Storage= 224 cf

Plug-Flow detention time= 78.4 min calculated for 1,305 cf (86% of inflow)
 Center-of-Mass det. time= 34.7 min (774.0 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.67'	141 cf	10.56'W x 25.65'L x 1.82'H Field A 492 cf Overall - 140 cf Embedded = 353 cf x 40.0% Voids
#2A	61.00'	126 cf	ACF R-Tank XD 6 x 44 Inside #1 Inside= 19.7"W x 11.8"H => 1.45 sf x 1.97'L = 2.9 cf Outside= 19.7"W x 11.8"H => 1.61 sf x 1.97'L = 3.2 cf 4 Rows of 11 Chambers
		267 cf	Total Available Storage

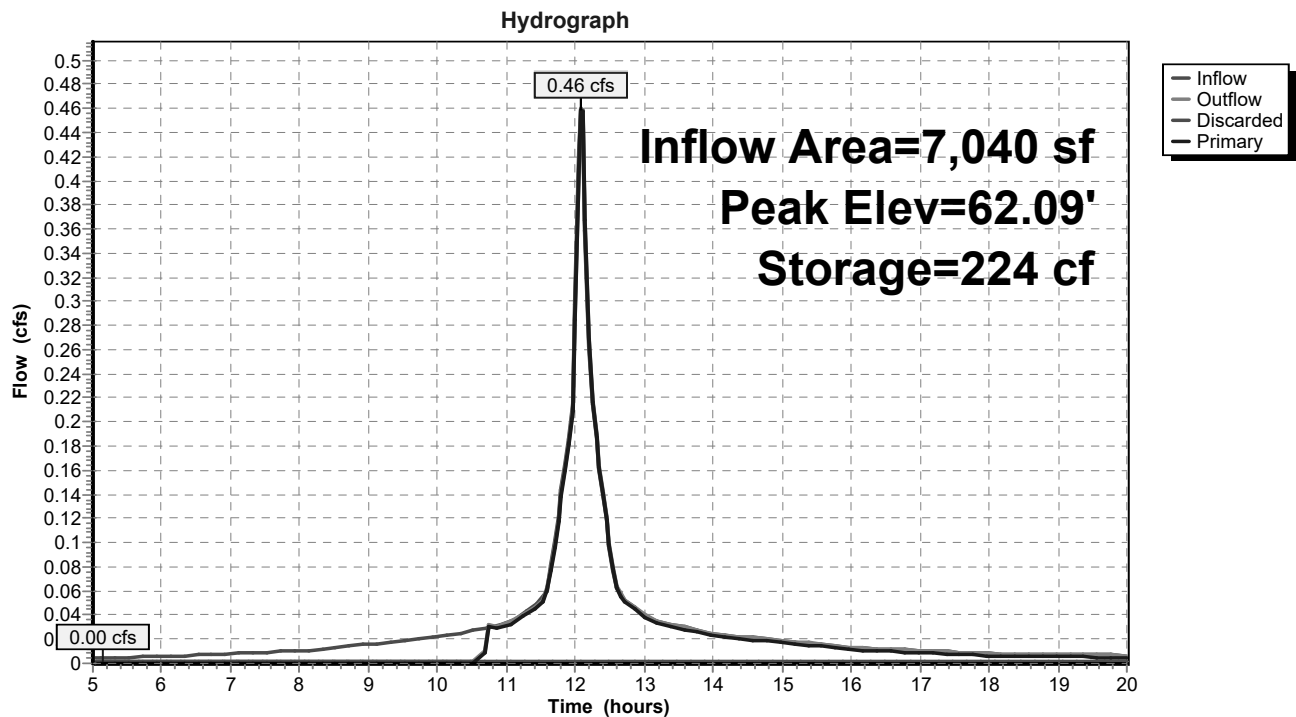
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	61.25'	6.0" Round 6" PVC out L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.25' / 58.00' S= 0.8125 ' / Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Device 1	62.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Discarded	60.67'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 5.15 hrs HW=60.69' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=62.09' (Free Discharge)
 ↑ **1=6" PVC out** (Passes 0.45 cfs of 0.57 cfs potential flow)
 ↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.45 cfs @ 0.99 fps)

Pond BMP2: Infiltration System



23800-Dover-NH-Stormwater*Type III 24-hr 10-Year Storm Rainfall=4.30"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Exist. Watershed 1	Runoff Area=43,550 sf 17.53% Impervious Runoff Depth>1.98" Tc=6.0 min CN=78 Runoff=2.44 cfs 7,171 cf
SubcatchmentP1: Prop. Watershed 1	Runoff Area=12,202 sf 50.81% Impervious Runoff Depth>2.65" Tc=6.0 min CN=86 Runoff=0.90 cfs 2,692 cf
SubcatchmentP2: Prop. Watershed 2	Runoff Area=7,040 sf 100.00% Impervious Runoff Depth>3.78" Tc=6.0 min CN=98 Runoff=0.66 cfs 2,218 cf
SubcatchmentP3: Prop. Watershed 3	Runoff Area=24,908 sf 26.15% Impervious Runoff Depth>2.14" Tc=0.0 min CN=80 Runoff=1.77 cfs 4,438 cf
Reach R1: Exist. Abbey Ln. BMP	Inflow=2.44 cfs 7,171 cf Outflow=2.44 cfs 7,171 cf
Reach R2: Exist. Abbey Ln. BMP	Inflow=1.77 cfs 6,455 cf Outflow=1.77 cfs 6,455 cf
Pond BMP1: Wet Pond	Peak Elev=59.81' Storage=2,690 cf Inflow=1.51 cfs 4,604 cf Outflow=0.44 cfs 2,017 cf
Pond BMP2: Infiltration System	Peak Elev=62.18' Storage=233 cf Inflow=0.66 cfs 2,218 cf Discarded=0.00 cfs 92 cf Primary=0.61 cfs 1,912 cf Outflow=0.62 cfs 2,003 cf

23800-Dover-NH-Stormwater

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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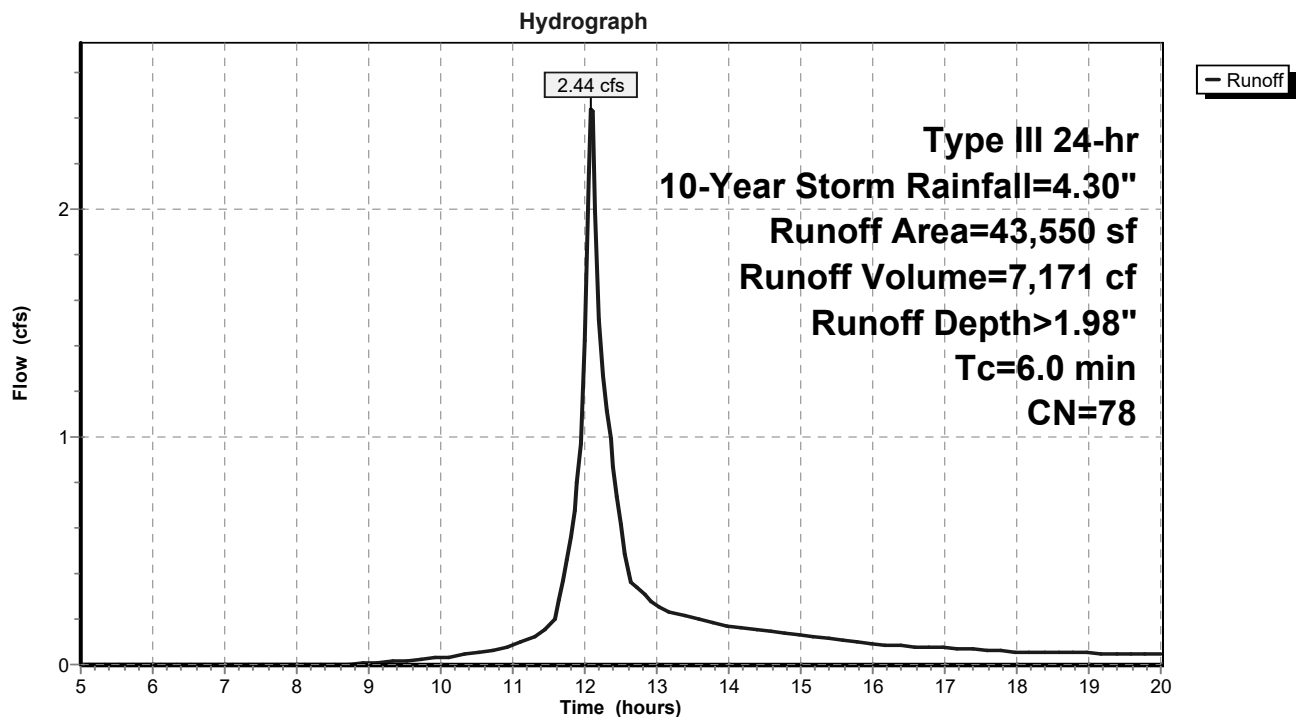
Summary for Subcatchment E1: Exist. Watershed 1

Runoff = 2.44 cfs @ 12.09 hrs, Volume= 7,171 cf, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.30"

	Area (sf)	CN	Description
*	7,635	98	Paved parking, roofs, walks
	35,915	74	>75% Grass cover, Good, HSG C
	43,550	78	Weighted Average
	35,915		82.47% Pervious Area
	7,635		17.53% Impervious Area

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

Subcatchment E1: Exist. Watershed 1

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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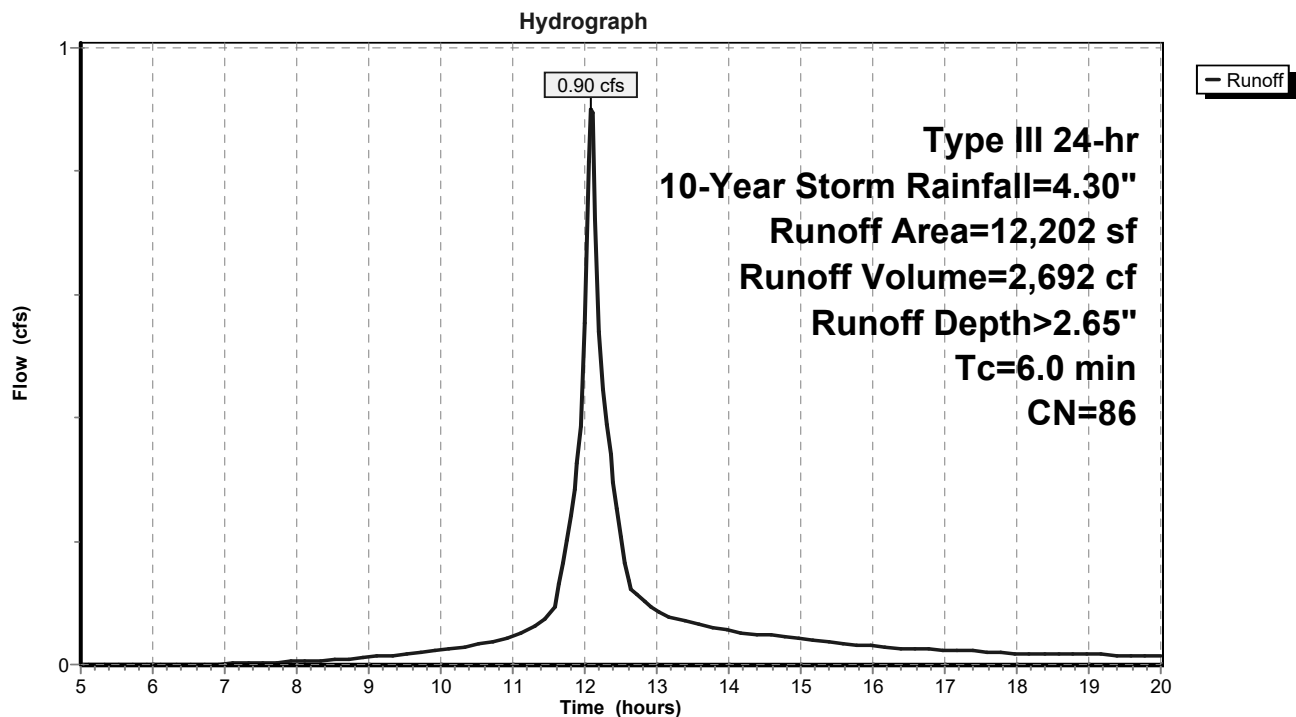
Summary for Subcatchment P1: Prop. Watershed 1

Runoff = 0.90 cfs @ 12.09 hrs, Volume= 2,692 cf, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.30"

Area (sf)	CN	Description
6,200	98	Paved parking, HSG A
* 6,002	74	>75% Grass cover, Good, HSG C
12,202	86	Weighted Average
6,002		49.19% Pervious Area
6,200		50.81% Impervious Area

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

Subcatchment P1: Prop. Watershed 1

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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Summary for Subcatchment P2: Prop. Watershed 2

Runoff = 0.66 cfs @ 12.09 hrs, Volume= 2,218 cf, Depth> 3.78"

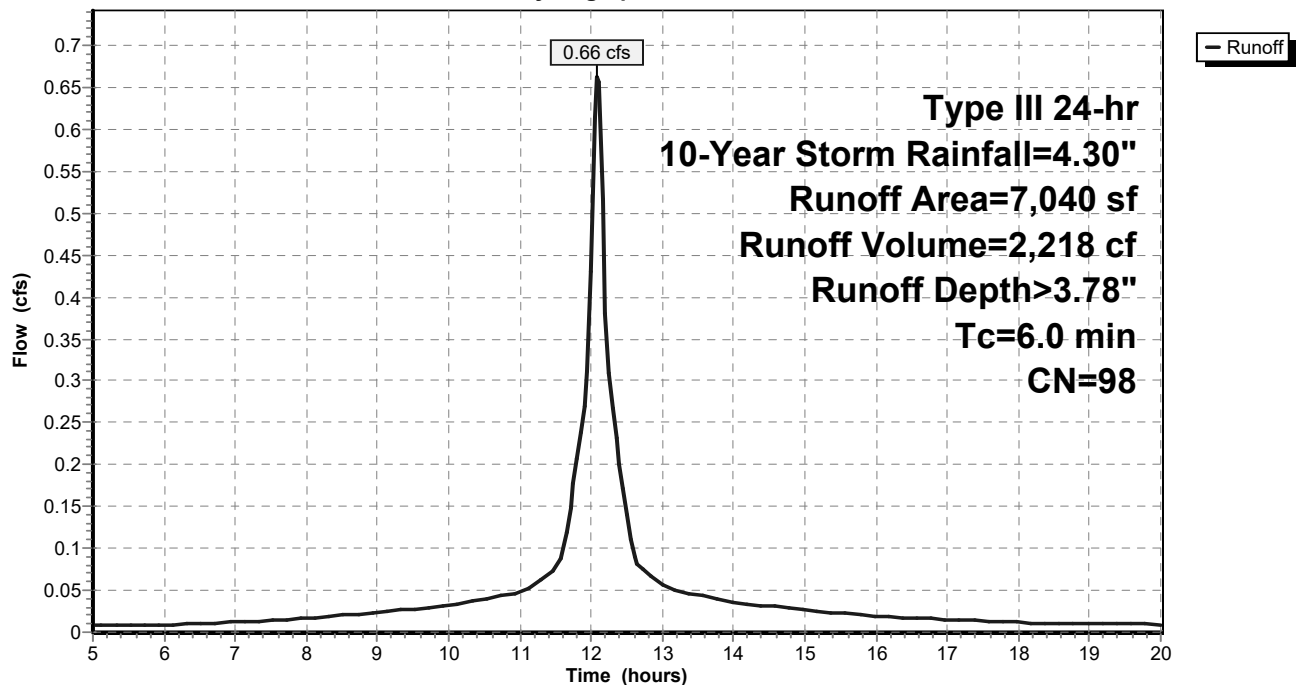
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.30"

Area (sf)	CN	Description
7,040	98	Roofs, HSG C
7,040		100.00% Impervious Area

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

Subcatchment P2: Prop. Watershed 2

Hydrograph



23800-Dover-NH-Stormwater

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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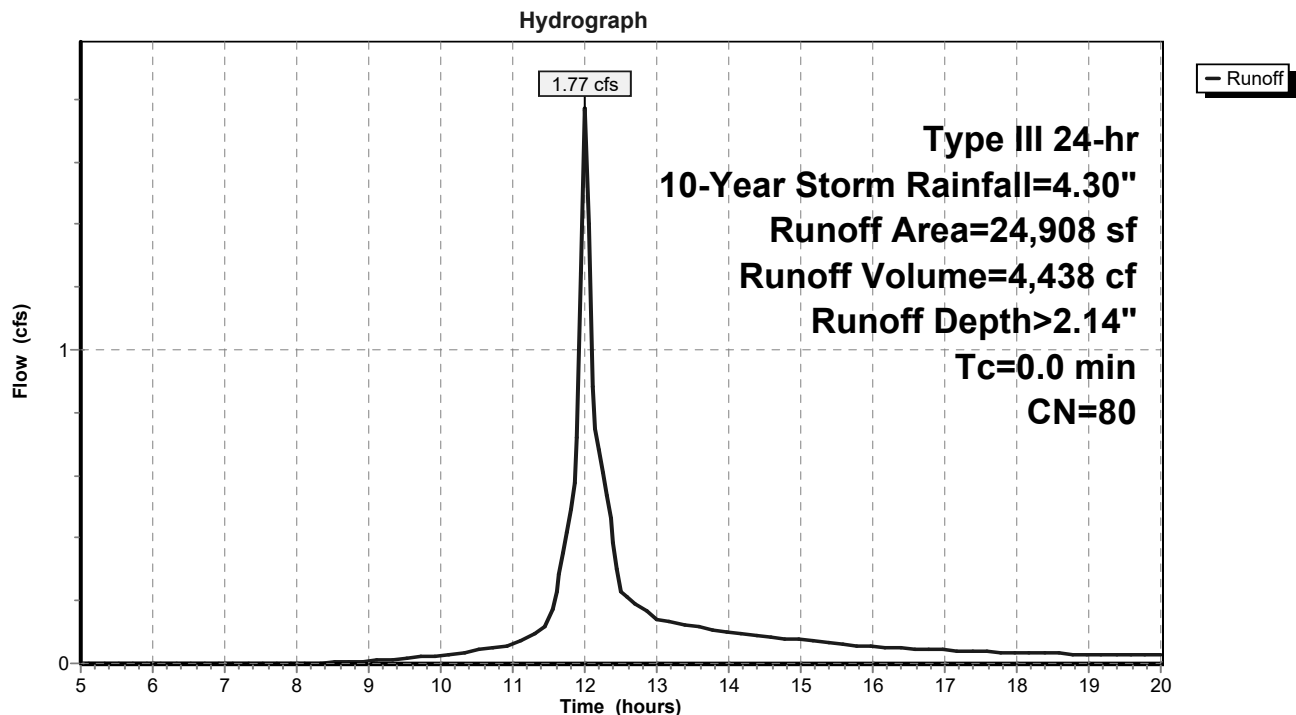
Summary for Subcatchment P3: Prop. Watershed 3

Runoff = 1.77 cfs @ 12.00 hrs, Volume= 4,438 cf, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.30"

	Area (sf)	CN	Description
*	6,514	98	Paved parking, exist houses HSG C
	18,394	74	>75% Grass cover, Good, HSG C
	24,908	80	Weighted Average
	18,394		73.85% Pervious Area
	6,514		26.15% Impervious Area

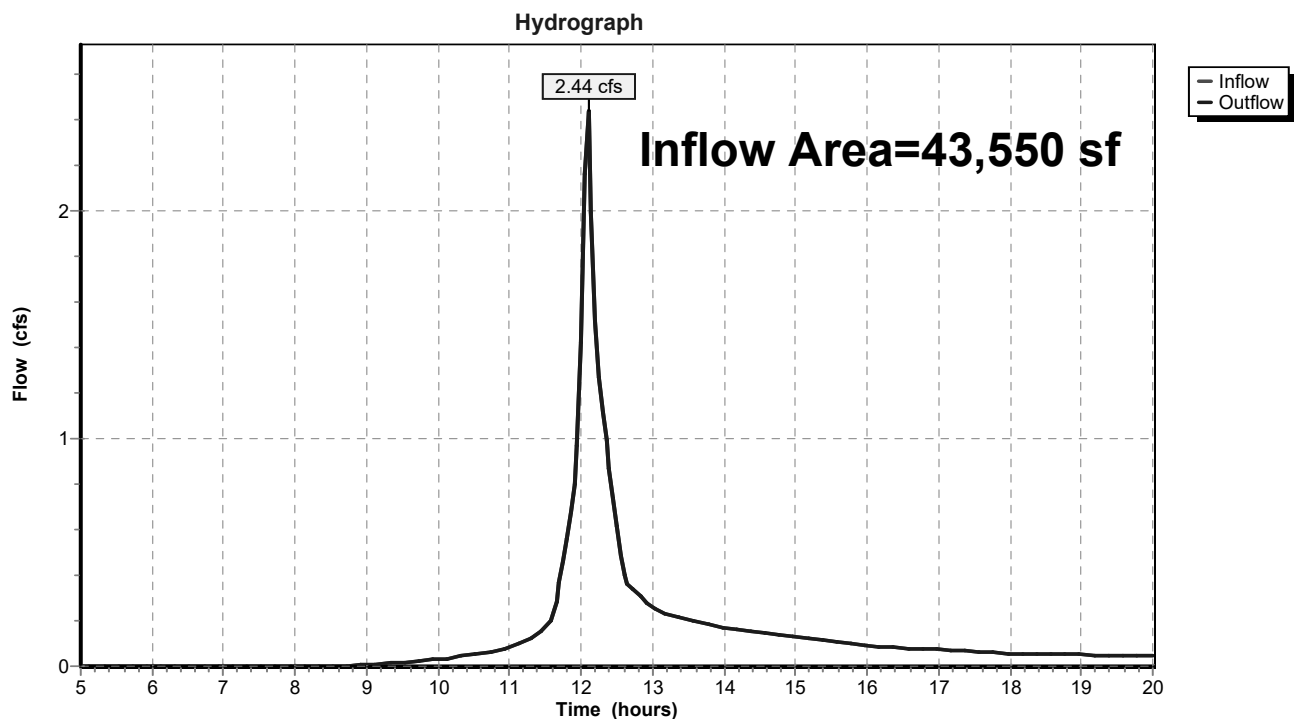
Subcatchment P3: Prop. Watershed 3



Summary for Reach R1: Exist. Abbey Ln. BMP

Inflow Area = 43,550 sf, 17.53% Impervious, Inflow Depth > 1.98" for 10-Year Storm event
Inflow = 2.44 cfs @ 12.09 hrs, Volume= 7,171 cf
Outflow = 2.44 cfs @ 12.09 hrs, Volume= 7,171 cf, Atten= 0%, Lag= 0.0 min

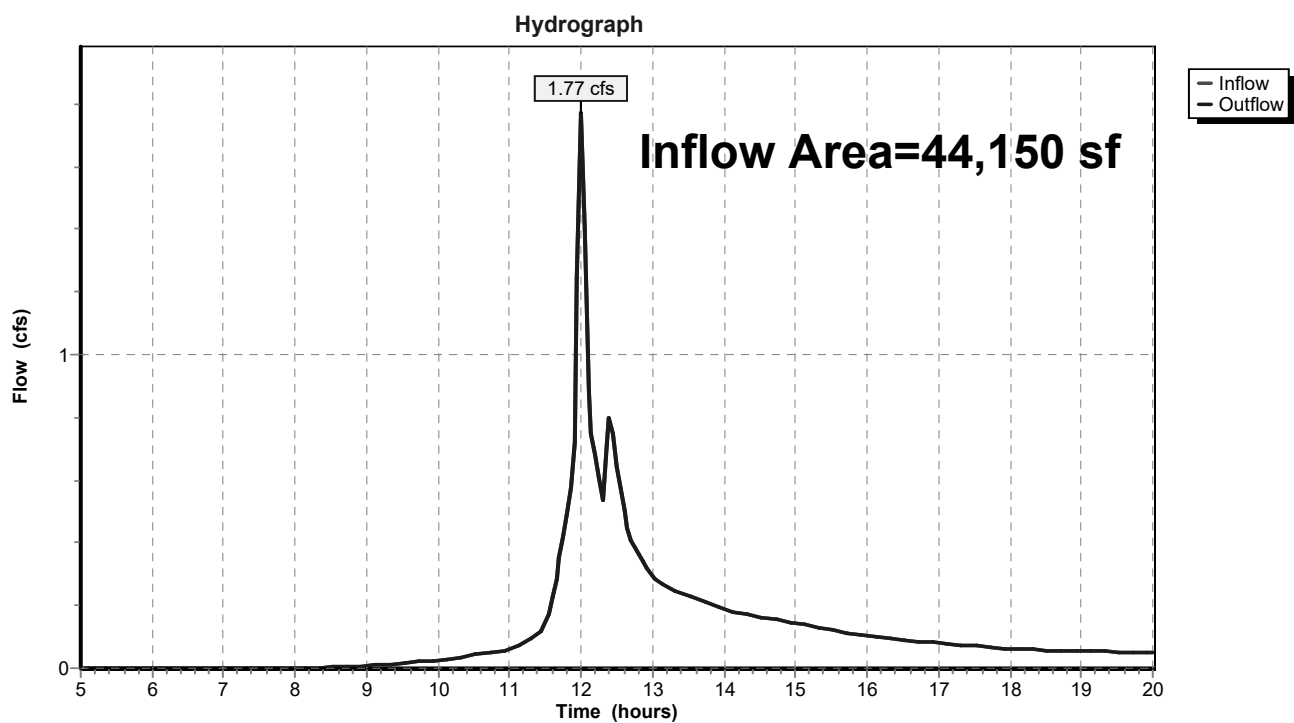
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R1: Exist. Abbey Ln. BMP

Summary for Reach R2: Exist. Abbey Ln. BMP

Inflow Area = 44,150 sf, 44.74% Impervious, Inflow Depth > 1.75" for 10-Year Storm event
Inflow = 1.77 cfs @ 12.00 hrs, Volume= 6,455 cf
Outflow = 1.77 cfs @ 12.00 hrs, Volume= 6,455 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R2: Exist. Abbey Ln. BMP

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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Summary for Pond BMP1: Wet Pond

Inflow Area = 19,242 sf, 68.81% Impervious, Inflow Depth > 2.87" for 10-Year Storm event
 Inflow = 1.51 cfs @ 12.09 hrs, Volume= 4,604 cf
 Outflow = 0.44 cfs @ 12.45 hrs, Volume= 2,017 cf, Atten= 71%, Lag= 21.3 min
 Primary = 0.44 cfs @ 12.45 hrs, Volume= 2,017 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.81' @ 12.45 hrs Surf.Area= 2,889 sf Storage= 2,690 cf

Plug-Flow detention time= 180.8 min calculated for 2,017 cf (44% of inflow)
 Center-of-Mass det. time= 98.3 min (870.8 - 772.5)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	123 cf	Sediment Forebay (Conic) Listed below (Recalc)
#2	54.50'	0 cf	Permanent Pool (assumed full) (Prismatic) Listed below (Recalc) 1,292 cf Overall x 0.0% Voids
#3	58.00'	5,089 cf	Wet Pond (Prismatic) Listed below (Recalc)
		5,212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
56.50	2	0	0	2
57.00	20	5	5	21
58.00	99	54	59	104
58.50	160	64	123	168

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.50	9	0	0
55.00	82	23	23
56.00	278	180	203
57.00	530	404	607
58.00	840	685	1,292

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	840	0	0
59.00	1,523	1,182	1,182
60.00	1,974	1,749	2,930
61.00	2,344	2,159	5,089

Device	Routing	Invert	Outlet Devices
#1	Primary	54.50'	12.0" Round Culvert L= 97.0' Ke= 0.200 Inlet / Outlet Invert= 54.50' / 52.50' S= 0.0206 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	59.75'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

23800-Dover-NH-Stormwater

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Type III 24-hr 10-Year Storm Rainfall=4.30"

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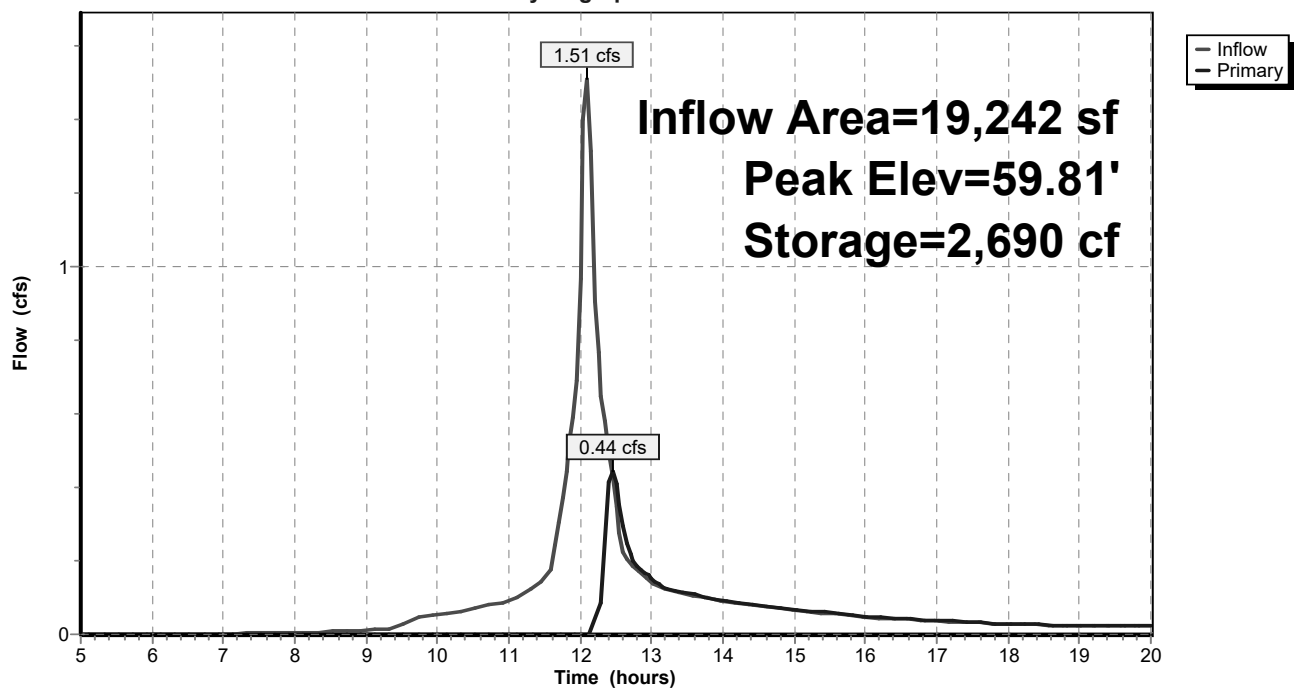
Primary OutFlow Max=0.40 cfs @ 12.45 hrs HW=59.81' (Free Discharge)

1=Culvert (Passes 0.40 cfs of 9.14 cfs potential flow)

2=Orifice/Grate (Weir Controls 0.40 cfs @ 0.81 fps)

Pond BMP1: Wet Pond

Hydrograph



Summary for Pond BMP2: Infiltration System

Inflow Area = 7,040 sf, 100.00% Impervious, Inflow Depth > 3.78" for 10-Year Storm event
 Inflow = 0.66 cfs @ 12.09 hrs, Volume= 2,218 cf
 Outflow = 0.62 cfs @ 12.11 hrs, Volume= 2,003 cf, Atten= 7%, Lag= 1.2 min
 Discarded = 0.00 cfs @ 5.10 hrs, Volume= 92 cf
 Primary = 0.61 cfs @ 12.11 hrs, Volume= 1,912 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.18' @ 12.11 hrs Surf.Area= 271 sf Storage= 233 cf

Plug-Flow detention time= 61.8 min calculated for 1,996 cf (90% of inflow)
 Center-of-Mass det. time= 28.9 min (764.9 - 736.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.67'	141 cf	10.56'W x 25.65'L x 1.82'H Field A 492 cf Overall - 140 cf Embedded = 353 cf x 40.0% Voids
#2A	61.00'	126 cf	ACF R-Tank XD 6 x 44 Inside #1 Inside= 19.7"W x 11.8"H => 1.45 sf x 1.97'L = 2.9 cf Outside= 19.7"W x 11.8"H => 1.61 sf x 1.97'L = 3.2 cf 4 Rows of 11 Chambers
		267 cf	Total Available Storage

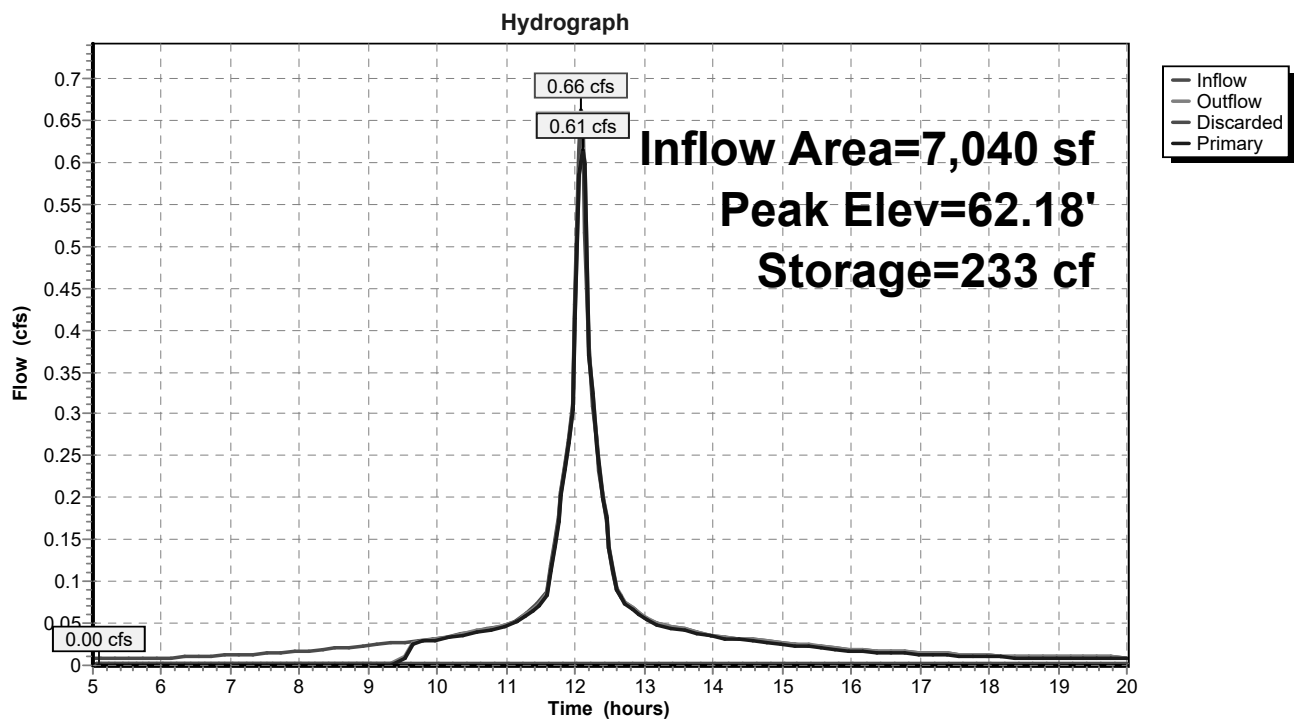
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	61.25'	6.0" Round 6" PVC out L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.25' / 58.00' S= 0.8125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Device 1	62.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Discarded	60.67'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 5.10 hrs HW=60.70' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.61 cfs @ 12.11 hrs HW=62.17' (Free Discharge)
 ↑ **1=6" PVC out** (Inlet Controls 0.61 cfs @ 3.12 fps)
 ↑ **2=Sharp-Crested Rectangular Weir** (Passes 0.61 cfs of 1.16 cfs potential flow)

Pond BMP2: Infiltration System



23800-Dover-NH-Stormwater*Type III 24-hr 25-Year Storm Rainfall=5.20"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Exist. Watershed 1	Runoff Area=43,550 sf 17.53% Impervious Runoff Depth>2.69" Tc=6.0 min CN=78 Runoff=3.31 cfs 9,754 cf
SubcatchmentP1: Prop. Watershed 1	Runoff Area=12,202 sf 50.81% Impervious Runoff Depth>3.44" Tc=6.0 min CN=86 Runoff=1.16 cfs 3,499 cf
SubcatchmentP2: Prop. Watershed 2	Runoff Area=7,040 sf 100.00% Impervious Runoff Depth>4.60" Tc=6.0 min CN=98 Runoff=0.80 cfs 2,699 cf
SubcatchmentP3: Prop. Watershed 3	Runoff Area=24,908 sf 26.15% Impervious Runoff Depth>2.87" Tc=0.0 min CN=80 Runoff=2.36 cfs 5,965 cf
Reach R1: Exist. Abbey Ln. BMP	Inflow=3.31 cfs 9,754 cf Outflow=3.31 cfs 9,754 cf
Reach R2: Exist. Abbey Ln. BMP	Inflow=2.36 cfs 9,266 cf Outflow=2.36 cfs 9,266 cf
Pond BMP1: Wet Pond	Peak Elev=59.88' Storage=2,822 cf Inflow=1.85 cfs 5,892 cf Outflow=1.26 cfs 3,302 cf
Pond BMP2: Infiltration System	Peak Elev=62.41' Storage=259 cf Inflow=0.80 cfs 2,699 cf Discarded=0.00 cfs 92 cf Primary=0.71 cfs 2,393 cf Outflow=0.72 cfs 2,485 cf

23800-Dover-NH-Stormwater

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Type III 24-hr 25-Year Storm Rainfall=5.20"

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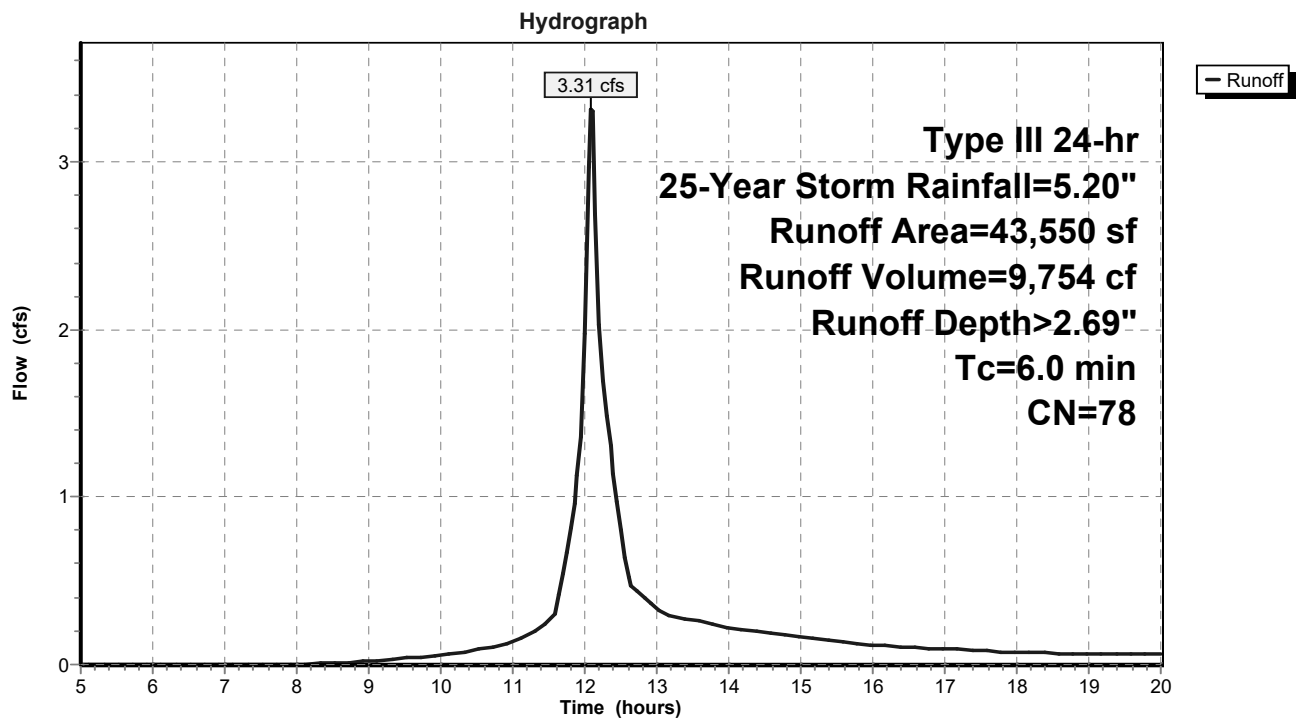
Summary for Subcatchment E1: Exist. Watershed 1

Runoff = 3.31 cfs @ 12.09 hrs, Volume= 9,754 cf, Depth> 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.20"

	Area (sf)	CN	Description
*	7,635	98	Paved parking, roofs, walks
	35,915	74	>75% Grass cover, Good, HSG C
	43,550	78	Weighted Average
	35,915		82.47% Pervious Area
	7,635		17.53% Impervious Area

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

Subcatchment E1: Exist. Watershed 1

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Type III 24-hr 25-Year Storm Rainfall=5.20"

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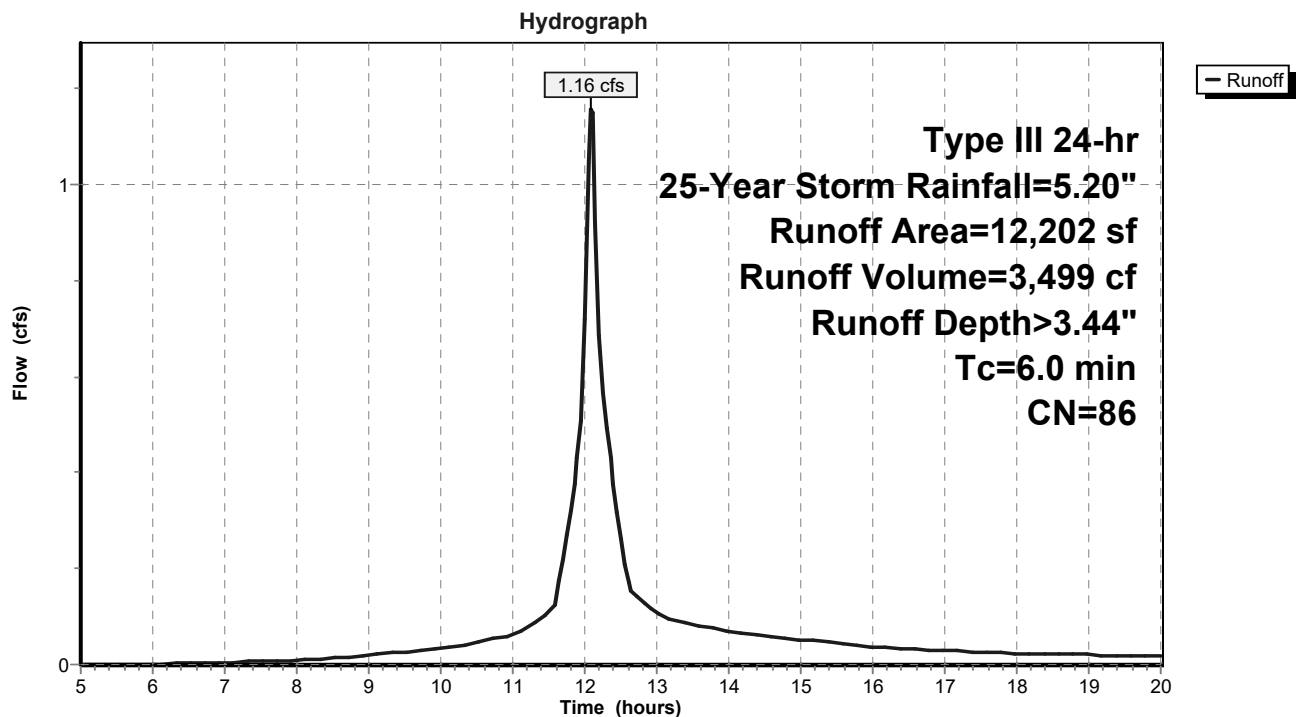
Summary for Subcatchment P1: Prop. Watershed 1

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 3,499 cf, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.20"

Area (sf)	CN	Description
6,200	98	Paved parking, HSG A
* 6,002	74	>75% Grass cover, Good, HSG C
12,202	86	Weighted Average
6,002		49.19% Pervious Area
6,200		50.81% Impervious Area

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

Subcatchment P1: Prop. Watershed 1

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Type III 24-hr 25-Year Storm Rainfall=5.20"

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Summary for Subcatchment P2: Prop. Watershed 2

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 2,699 cf, Depth> 4.60"

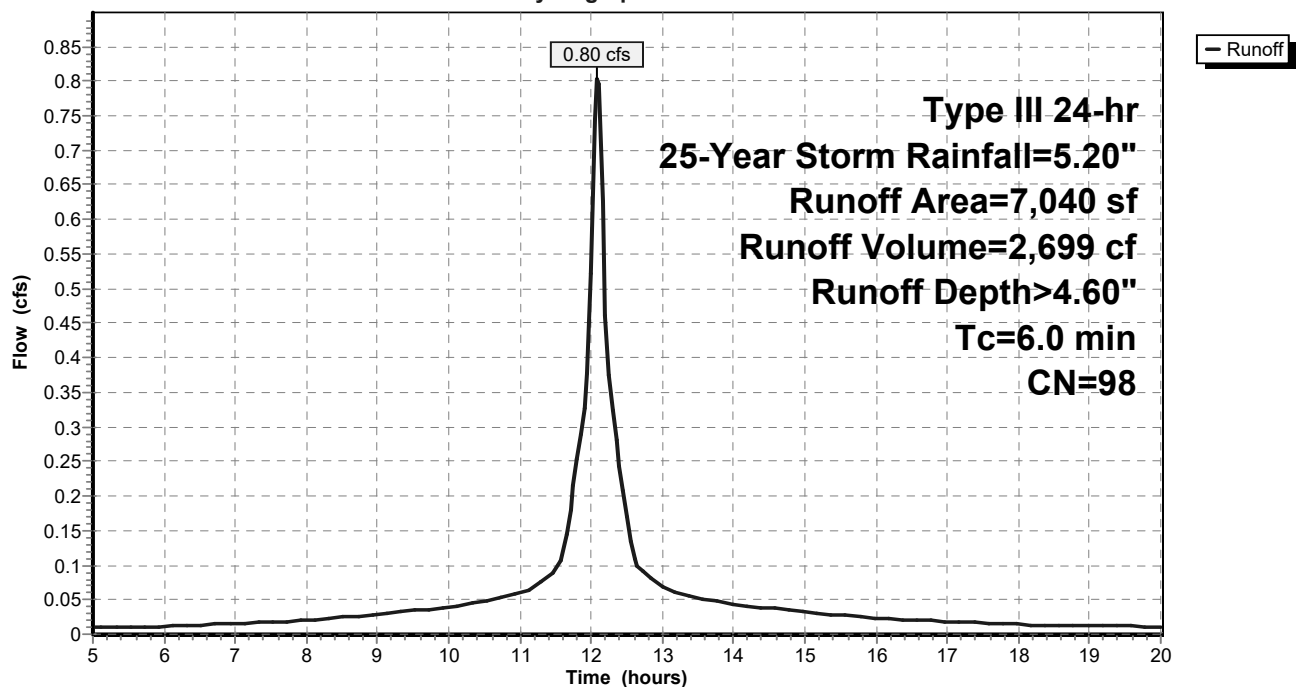
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.20"

Area (sf)	CN	Description
7,040	98	Roofs, HSG C
7,040		100.00% Impervious Area

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

Subcatchment P2: Prop. Watershed 2

Hydrograph



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Type III 24-hr 25-Year Storm Rainfall=5.20"

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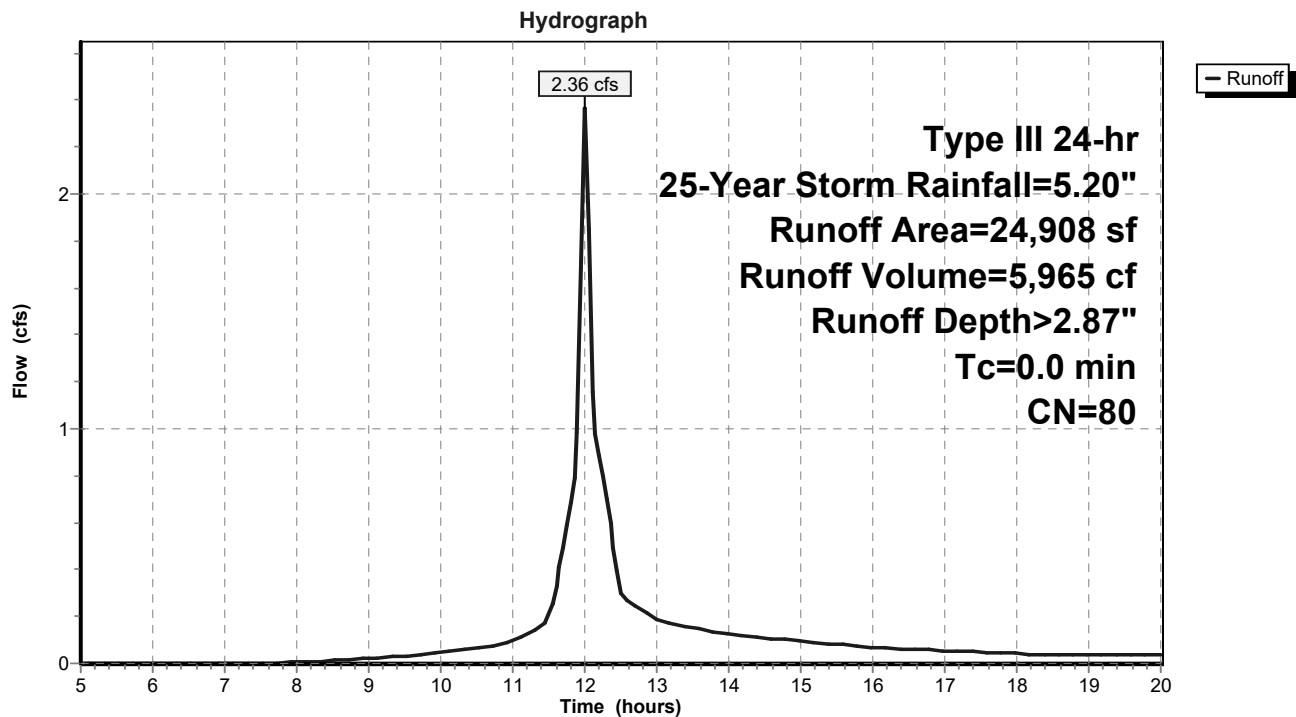
Summary for Subcatchment P3: Prop. Watershed 3

Runoff = 2.36 cfs @ 12.00 hrs, Volume= 5,965 cf, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.20"

	Area (sf)	CN	Description
*	6,514	98	Paved parking, exist houses HSG C
	18,394	74	>75% Grass cover, Good, HSG C
	24,908	80	Weighted Average
	18,394		73.85% Pervious Area
	6,514		26.15% Impervious Area

Subcatchment P3: Prop. Watershed 3

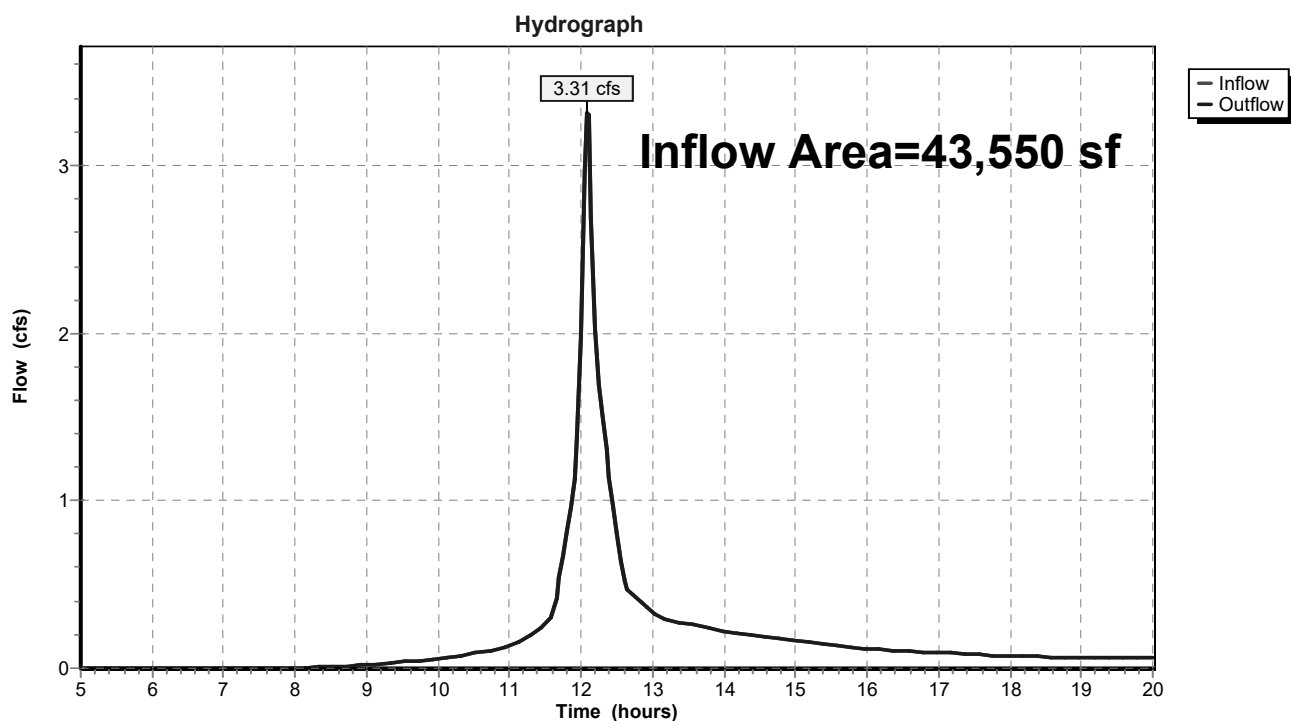


Summary for Reach R1: Exist. Abbey Ln. BMP

Inflow Area = 43,550 sf, 17.53% Impervious, Inflow Depth > 2.69" for 25-Year Storm event
 Inflow = 3.31 cfs @ 12.09 hrs, Volume= 9,754 cf
 Outflow = 3.31 cfs @ 12.09 hrs, Volume= 9,754 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

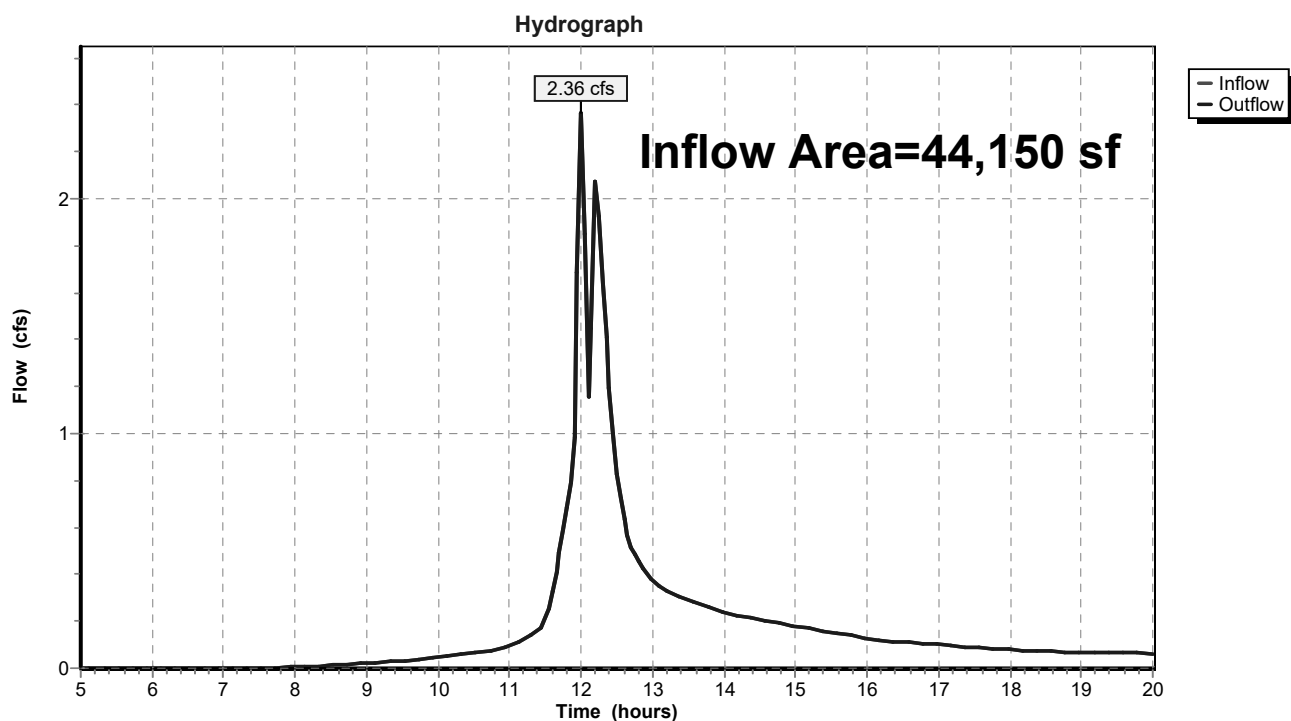
Reach R1: Exist. Abbey Ln. BMP



Summary for Reach R2: Exist. Abbey Ln. BMP

Inflow Area = 44,150 sf, 44.74% Impervious, Inflow Depth > 2.52" for 25-Year Storm event
Inflow = 2.36 cfs @ 12.00 hrs, Volume= 9,266 cf
Outflow = 2.36 cfs @ 12.00 hrs, Volume= 9,266 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R2: Exist. Abbey Ln. BMP

Summary for Pond BMP1: Wet Pond

Inflow Area = 19,242 sf, 68.81% Impervious, Inflow Depth > 3.67" for 25-Year Storm event
 Inflow = 1.85 cfs @ 12.10 hrs, Volume= 5,892 cf
 Outflow = 1.26 cfs @ 12.22 hrs, Volume= 3,302 cf, Atten= 32%, Lag= 7.5 min
 Primary = 1.26 cfs @ 12.22 hrs, Volume= 3,302 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.88' @ 12.22 hrs Surf.Area= 2,920 sf Storage= 2,822 cf

Plug-Flow detention time= 143.9 min calculated for 3,291 cf (56% of inflow)
 Center-of-Mass det. time= 70.7 min (837.7 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	123 cf	Sediment Forebay (Conic) Listed below (Recalc)
#2	54.50'	0 cf	Permanent Pool (assumed full) (Prismatic) Listed below (Recalc) 1,292 cf Overall x 0.0% Voids
#3	58.00'	5,089 cf	Wet Pond (Prismatic) Listed below (Recalc)
		5,212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
56.50	2	0	0	2
57.00	20	5	5	21
58.00	99	54	59	104
58.50	160	64	123	168

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.50	9	0	0
55.00	82	23	23
56.00	278	180	203
57.00	530	404	607
58.00	840	685	1,292

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	840	0	0
59.00	1,523	1,182	1,182
60.00	1,974	1,749	2,930
61.00	2,344	2,159	5,089

Device	Routing	Invert	Outlet Devices
#1	Primary	54.50'	12.0" Round Culvert L= 97.0' Ke= 0.200 Inlet / Outlet Invert= 54.50' / 52.50' S= 0.0206 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	59.75'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 25-Year Storm Rainfall=5.20"

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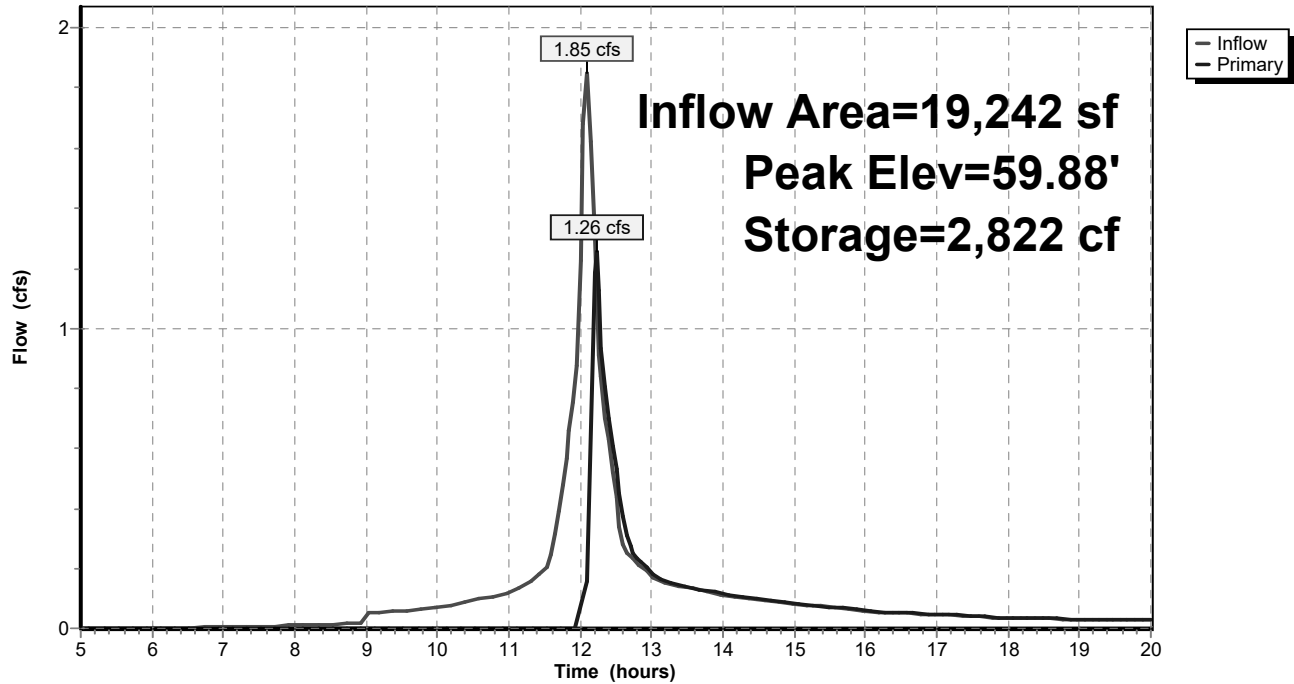
Primary OutFlow Max=1.13 cfs @ 12.22 hrs HW=59.87' (Free Discharge)

1=Culvert (Passes 1.13 cfs of 9.18 cfs potential flow)

2=Orifice/Grate (Weir Controls 1.13 cfs @ 1.15 fps)

Pond BMP1: Wet Pond

Hydrograph



Summary for Pond BMP2: Infiltration System

Inflow Area = 7,040 sf, 100.00% Impervious, Inflow Depth > 4.60" for 25-Year Storm event
 Inflow = 0.80 cfs @ 12.09 hrs, Volume= 2,699 cf
 Outflow = 0.72 cfs @ 12.13 hrs, Volume= 2,485 cf, Atten= 11%, Lag= 2.5 min
 Discarded = 0.00 cfs @ 5.05 hrs, Volume= 92 cf
 Primary = 0.71 cfs @ 12.13 hrs, Volume= 2,393 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.41' @ 12.13 hrs Surf.Area= 271 sf Storage= 259 cf

Plug-Flow detention time= 54.1 min calculated for 2,476 cf (92% of inflow)
 Center-of-Mass det. time= 25.6 min (760.5 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.67'	141 cf	10.56'W x 25.65'L x 1.82'H Field A 492 cf Overall - 140 cf Embedded = 353 cf x 40.0% Voids
#2A	61.00'	126 cf	ACF R-Tank XD 6 x 44 Inside #1 Inside= 19.7"W x 11.8"H => 1.45 sf x 1.97'L = 2.9 cf Outside= 19.7"W x 11.8"H => 1.61 sf x 1.97'L = 3.2 cf 4 Rows of 11 Chambers
		267 cf	Total Available Storage

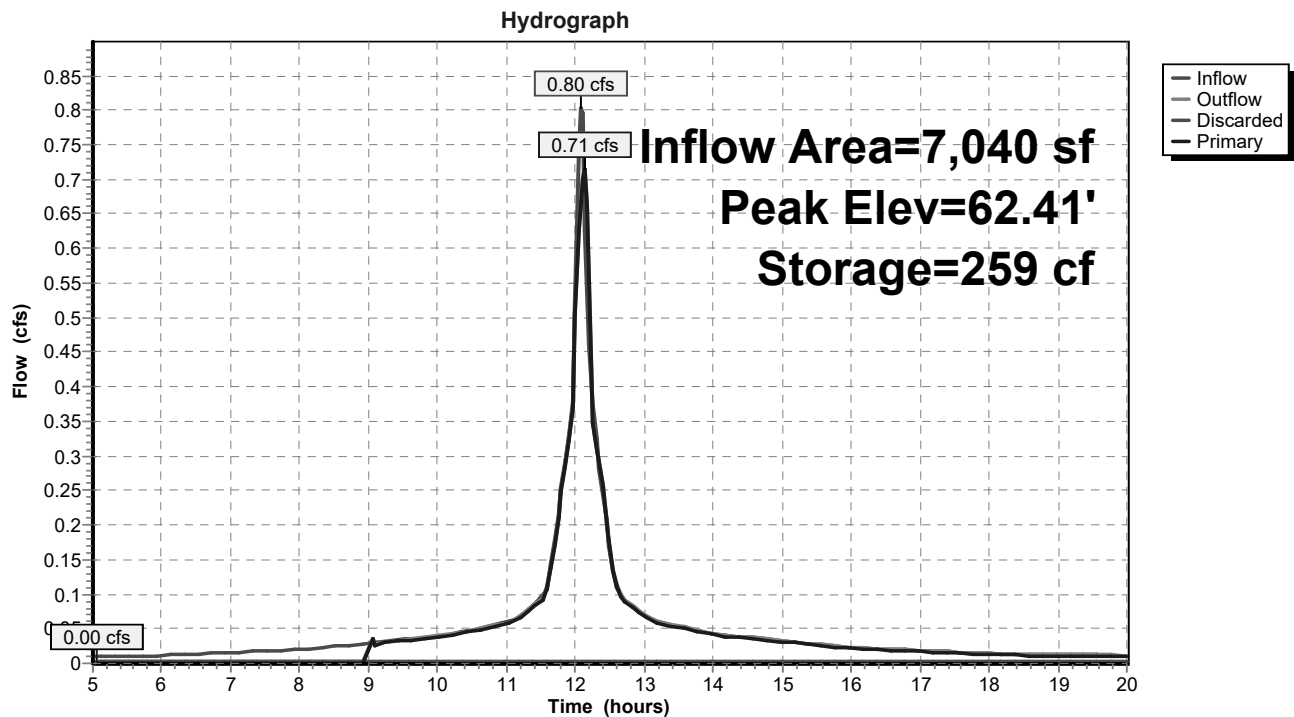
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	61.25'	6.0" Round 6" PVC out L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.25' / 58.00' S= 0.8125 ' / Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Device 1	62.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Discarded	60.67'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 5.05 hrs HW=60.69' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.70 cfs @ 12.13 hrs HW=62.39' (Free Discharge)
 ↑ **1=6" PVC out** (Inlet Controls 0.70 cfs @ 3.58 fps)
 ↑ **2=Sharp-Crested Rectangular Weir** (Passes 0.70 cfs of 3.87 cfs potential flow)

Pond BMP2: Infiltration System



23800-Dover-NH-Stormwater*Type III 24-hr 50-Year Storm Rainfall=5.70"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Exist. Watershed 1	Runoff Area=43,550 sf 17.53% Impervious Runoff Depth>3.10" Tc=6.0 min CN=78 Runoff=3.81 cfs 11,242 cf
SubcatchmentP1: Prop. Watershed 1	Runoff Area=12,202 sf 50.81% Impervious Runoff Depth>3.89" Tc=6.0 min CN=86 Runoff=1.30 cfs 3,954 cf
SubcatchmentP2: Prop. Watershed 2	Runoff Area=7,040 sf 100.00% Impervious Runoff Depth>5.06" Tc=6.0 min CN=98 Runoff=0.88 cfs 2,966 cf
SubcatchmentP3: Prop. Watershed 3	Runoff Area=24,908 sf 26.15% Impervious Runoff Depth>3.29" Tc=0.0 min CN=80 Runoff=2.70 cfs 6,839 cf
Reach R1: Exist. Abbey Ln. BMP	Inflow=3.81 cfs 11,242 cf Outflow=3.81 cfs 11,242 cf
Reach R2: Exist. Abbey Ln. BMP	Inflow=2.80 cfs 10,862 cf Outflow=2.80 cfs 10,862 cf
Pond BMP1: Wet Pond	Peak Elev=59.91' Storage=2,874 cf Inflow=2.05 cfs 6,614 cf Outflow=1.66 cfs 4,022 cf
Pond BMP2: Infiltration System	Peak Elev=62.65' Storage=267 cf Inflow=0.88 cfs 2,966 cf Discarded=0.00 cfs 92 cf Primary=0.80 cfs 2,660 cf Outflow=0.80 cfs 2,752 cf

23800-Dover-NH-Stormwater

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Type III 24-hr 50-Year Storm Rainfall=5.70"

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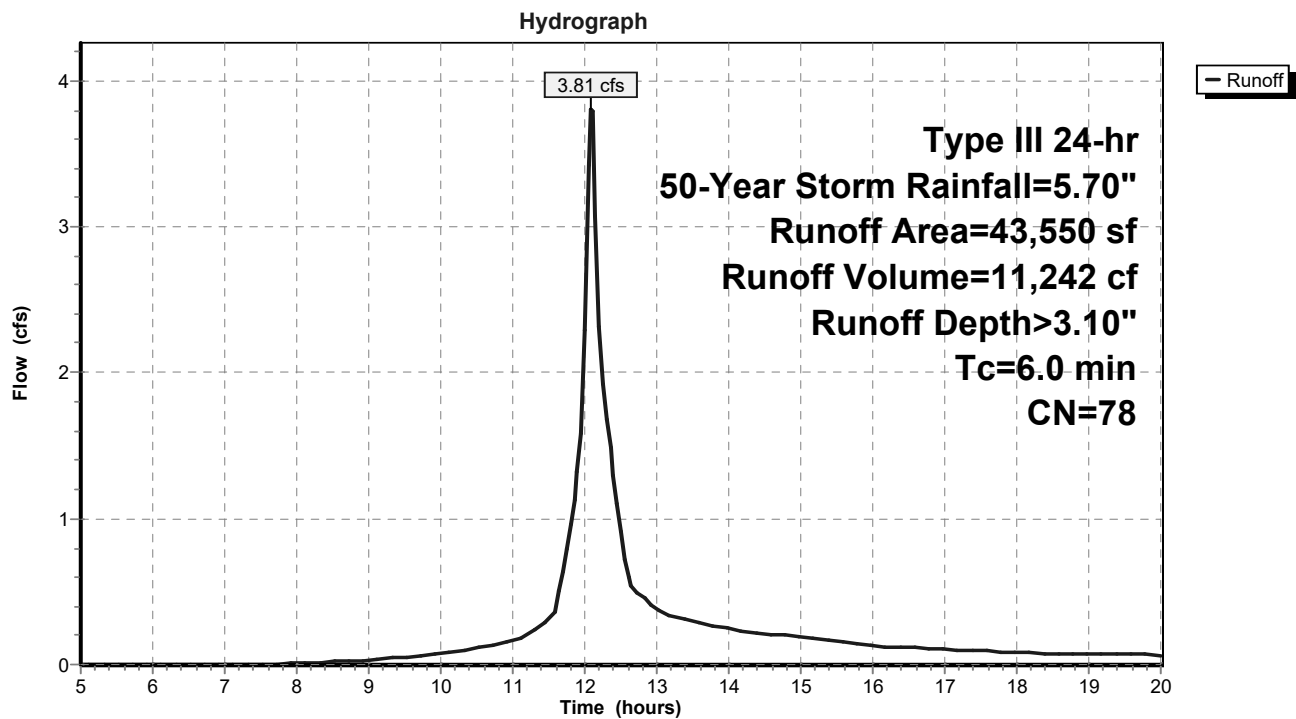
Summary for Subcatchment E1: Exist. Watershed 1

Runoff = 3.81 cfs @ 12.09 hrs, Volume= 11,242 cf, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Storm Rainfall=5.70"

	Area (sf)	CN	Description
*	7,635	98	Paved parking, roofs, walks
	35,915	74	>75% Grass cover, Good, HSG C
	43,550	78	Weighted Average
	35,915		82.47% Pervious Area
	7,635		17.53% Impervious Area

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

Subcatchment E1: Exist. Watershed 1

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Type III 24-hr 50-Year Storm Rainfall=5.70"

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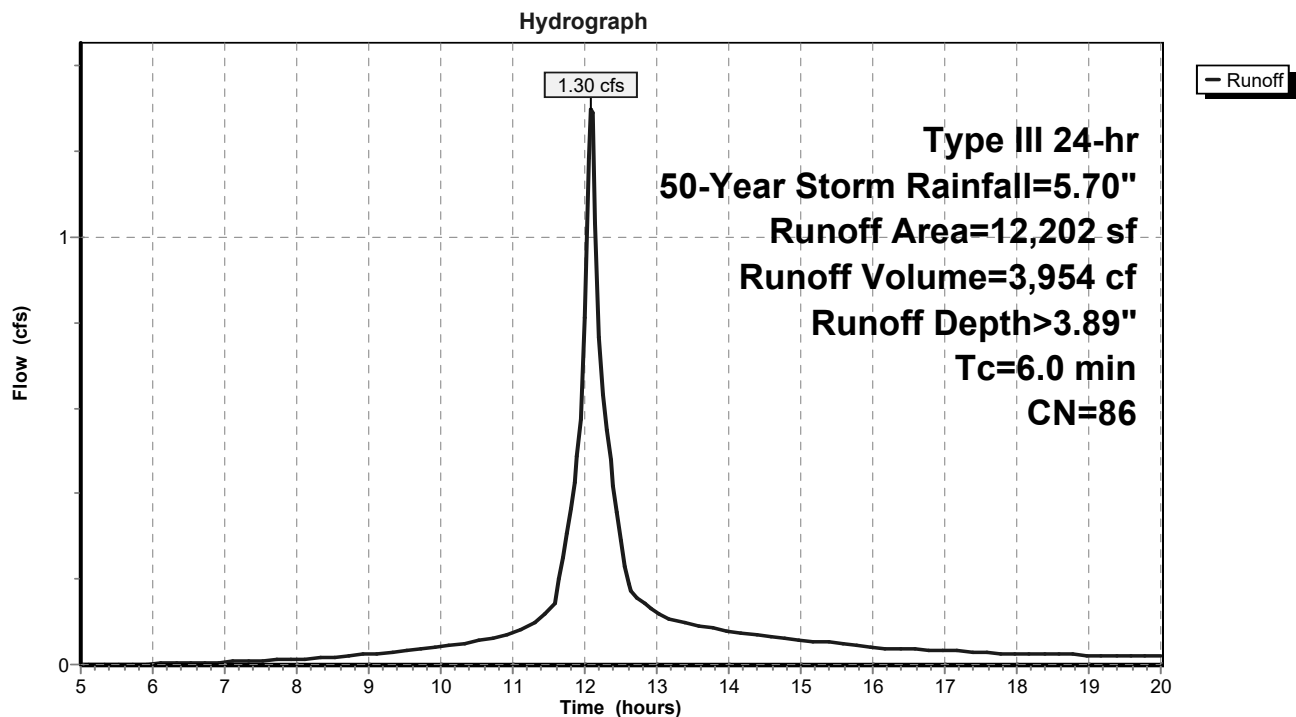
Summary for Subcatchment P1: Prop. Watershed 1

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 3,954 cf, Depth> 3.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Storm Rainfall=5.70"

Area (sf)	CN	Description
6,200	98	Paved parking, HSG A
* 6,002	74	>75% Grass cover, Good, HSG C
12,202	86	Weighted Average
6,002		49.19% Pervious Area
6,200		50.81% Impervious Area

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

Subcatchment P1: Prop. Watershed 1

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Type III 24-hr 50-Year Storm Rainfall=5.70"

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Summary for Subcatchment P2: Prop. Watershed 2

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 2,966 cf, Depth> 5.06"

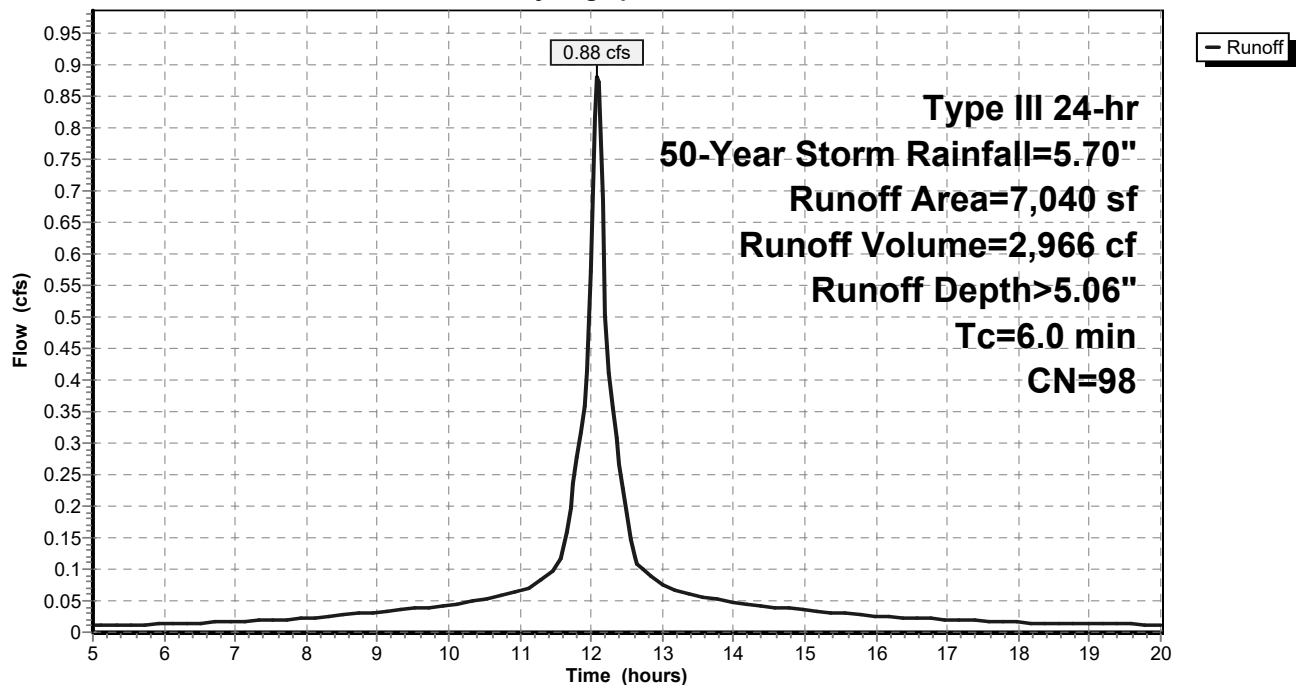
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Storm Rainfall=5.70"

Area (sf)	CN	Description
7,040	98	Roofs, HSG C
7,040		100.00% Impervious Area

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

Subcatchment P2: Prop. Watershed 2

Hydrograph



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Type III 24-hr 50-Year Storm Rainfall=5.70"

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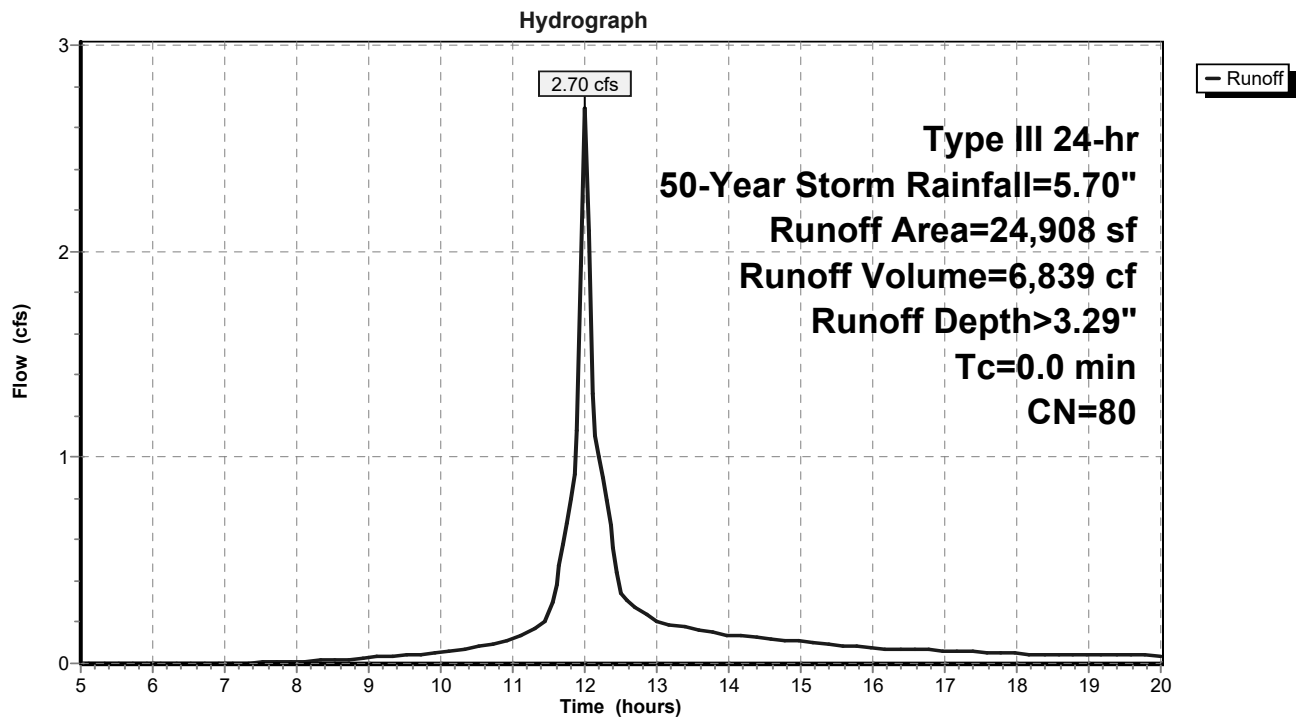
Summary for Subcatchment P3: Prop. Watershed 3

Runoff = 2.70 cfs @ 12.00 hrs, Volume= 6,839 cf, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Storm Rainfall=5.70"

	Area (sf)	CN	Description
*	6,514	98	Paved parking, exist houses HSG C
	18,394	74	>75% Grass cover, Good, HSG C
	24,908	80	Weighted Average
	18,394		73.85% Pervious Area
	6,514		26.15% Impervious Area

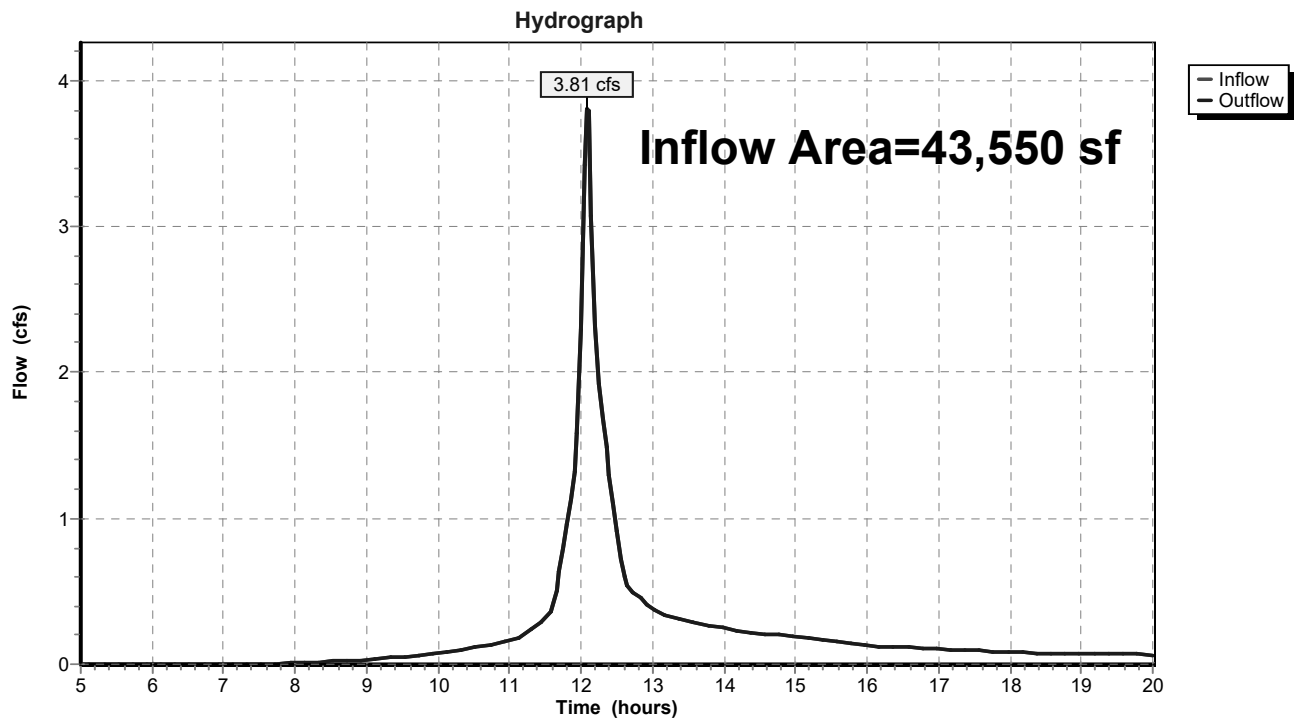
Subcatchment P3: Prop. Watershed 3



Summary for Reach R1: Exist. Abbey Ln. BMP

Inflow Area = 43,550 sf, 17.53% Impervious, Inflow Depth > 3.10" for 50-Year Storm event
Inflow = 3.81 cfs @ 12.09 hrs, Volume= 11,242 cf
Outflow = 3.81 cfs @ 12.09 hrs, Volume= 11,242 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

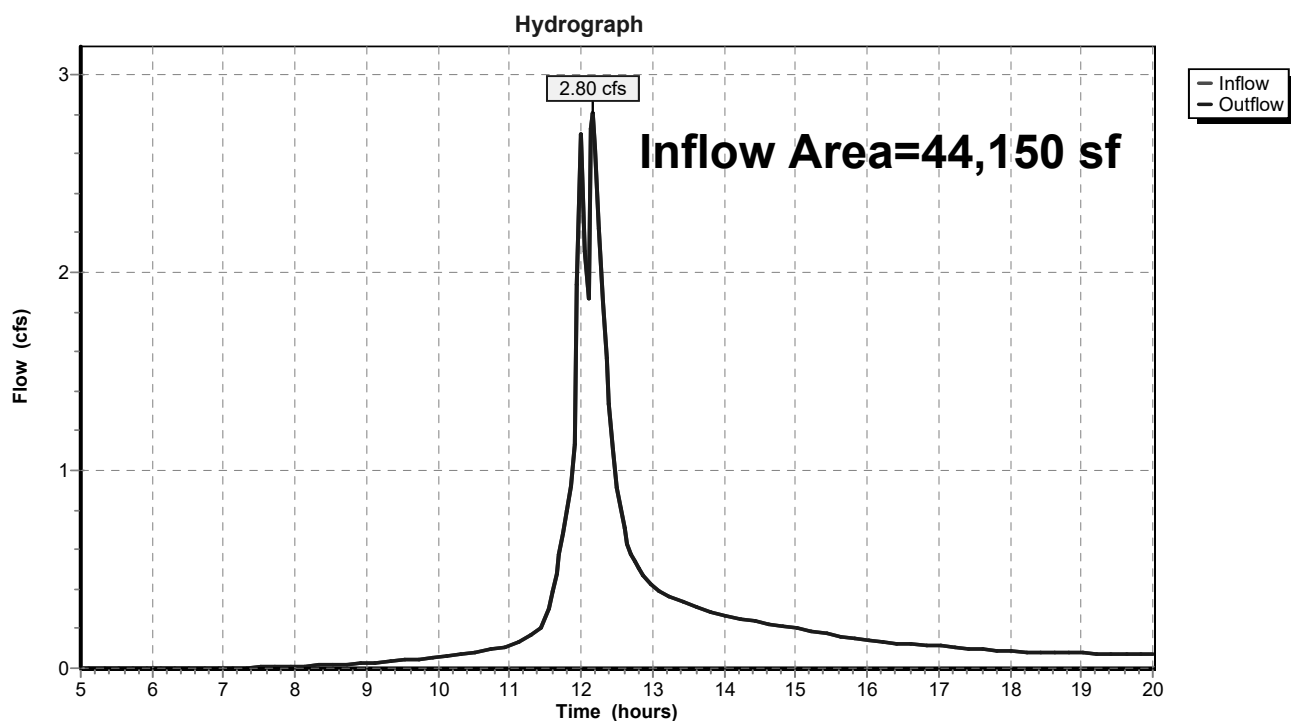
Reach R1: Exist. Abbey Ln. BMP

Summary for Reach R2: Exist. Abbey Ln. BMP

Inflow Area = 44,150 sf, 44.74% Impervious, Inflow Depth > 2.95" for 50-Year Storm event
 Inflow = 2.80 cfs @ 12.17 hrs, Volume= 10,862 cf
 Outflow = 2.80 cfs @ 12.17 hrs, Volume= 10,862 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R2: Exist. Abbey Ln. BMP



Summary for Pond BMP1: Wet Pond

Inflow Area = 19,242 sf, 68.81% Impervious, Inflow Depth > 4.12" for 50-Year Storm event
 Inflow = 2.05 cfs @ 12.10 hrs, Volume= 6,614 cf
 Outflow = 1.66 cfs @ 12.18 hrs, Volume= 4,022 cf, Atten= 19%, Lag= 4.6 min
 Primary = 1.66 cfs @ 12.18 hrs, Volume= 4,022 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.91' @ 12.18 hrs Surf.Area= 2,933 sf Storage= 2,874 cf

Plug-Flow detention time= 133.1 min calculated for 4,009 cf (61% of inflow)
 Center-of-Mass det. time= 63.2 min (827.6 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	123 cf	Sediment Forebay (Conic) Listed below (Recalc)
#2	54.50'	0 cf	Permanent Pool (assumed full) (Prismatic) Listed below (Recalc) 1,292 cf Overall x 0.0% Voids
#3	58.00'	5,089 cf	Wet Pond (Prismatic) Listed below (Recalc)
		5,212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
56.50	2	0	0	2
57.00	20	5	5	21
58.00	99	54	59	104
58.50	160	64	123	168

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.50	9	0	0
55.00	82	23	23
56.00	278	180	203
57.00	530	404	607
58.00	840	685	1,292

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	840	0	0
59.00	1,523	1,182	1,182
60.00	1,974	1,749	2,930
61.00	2,344	2,159	5,089

Device	Routing	Invert	Outlet Devices
#1	Primary	54.50'	12.0" Round Culvert L= 97.0' Ke= 0.200 Inlet / Outlet Invert= 54.50' / 52.50' S= 0.0206 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	59.75'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 50-Year Storm Rainfall=5.70"

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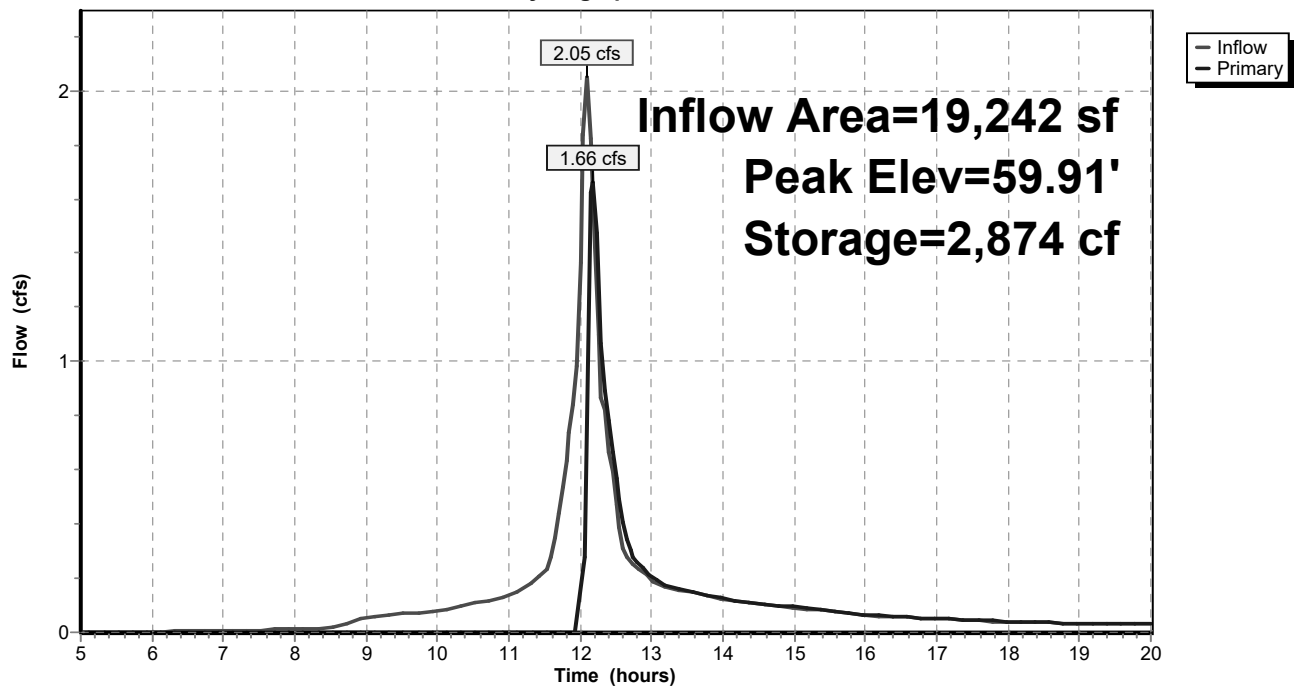
Primary OutFlow Max=1.61 cfs @ 12.18 hrs HW=59.91' (Free Discharge)

1=Culvert (Passes 1.61 cfs of 9.21 cfs potential flow)

2=Orifice/Grate (Weir Controls 1.61 cfs @ 1.29 fps)

Pond BMP1: Wet Pond

Hydrograph



Summary for Pond BMP2: Infiltration System

Inflow Area = 7,040 sf, 100.00% Impervious, Inflow Depth > 5.06" for 50-Year Storm event
 Inflow = 0.88 cfs @ 12.09 hrs, Volume= 2,966 cf
 Outflow = 0.80 cfs @ 12.14 hrs, Volume= 2,752 cf, Atten= 9%, Lag= 2.9 min
 Discarded = 0.00 cfs @ 5.05 hrs, Volume= 92 cf
 Primary = 0.80 cfs @ 12.14 hrs, Volume= 2,660 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.65' @ 12.14 hrs Surf.Area= 271 sf Storage= 267 cf

Plug-Flow detention time= 51.1 min calculated for 2,751 cf (93% of inflow)
 Center-of-Mass det. time= 24.1 min (758.5 - 734.4)

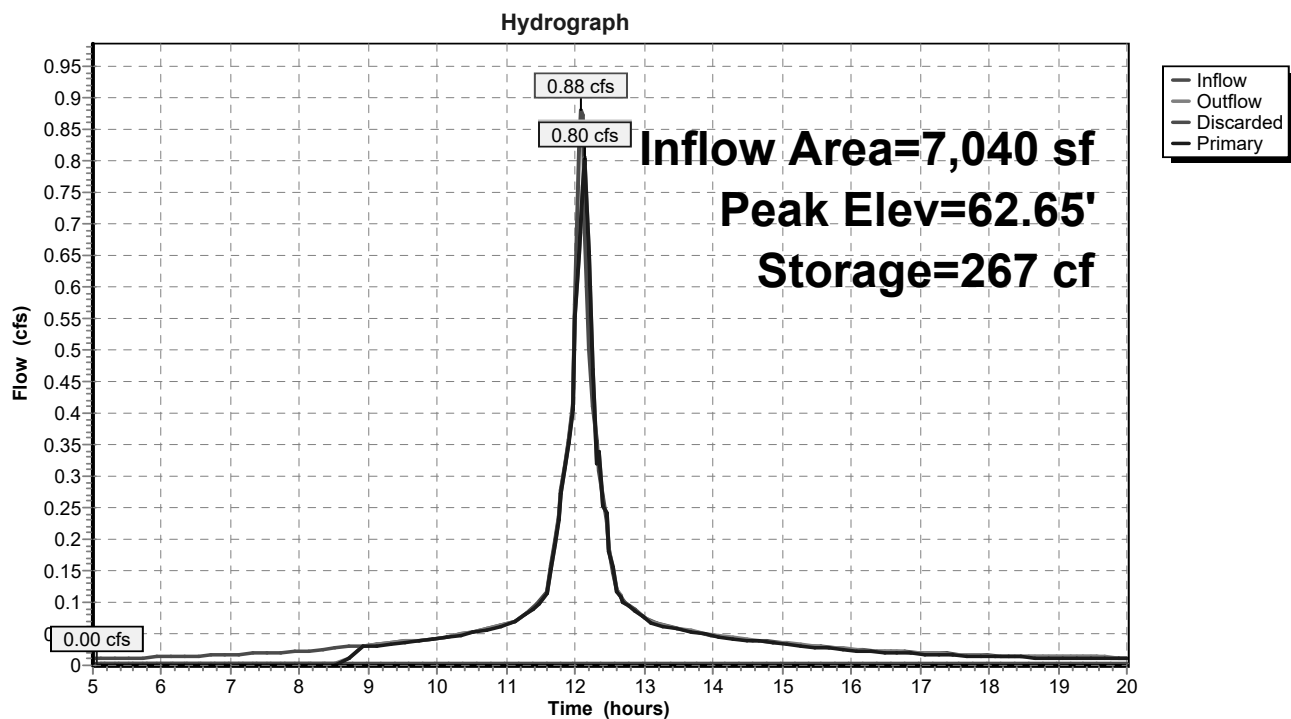
Volume	Invert	Avail.Storage	Storage Description
#1A	60.67'	141 cf	10.56'W x 25.65'L x 1.82'H Field A 492 cf Overall - 140 cf Embedded = 353 cf x 40.0% Voids
#2A	61.00'	126 cf	ACF R-Tank XD 6 x 44 Inside #1 Inside= 19.7"W x 11.8"H => 1.45 sf x 1.97'L = 2.9 cf Outside= 19.7"W x 11.8"H => 1.61 sf x 1.97'L = 3.2 cf 4 Rows of 11 Chambers
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	61.25'	6.0" Round 6" PVC out L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.25' / 58.00' S= 0.8125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Device 1	62.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Discarded	60.67'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 5.05 hrs HW=60.69' (Free Discharge)
 ↑ **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.78 cfs @ 12.14 hrs HW=62.61' (Free Discharge)
 ↑ **1=6" PVC out** (Inlet Controls 0.78 cfs @ 4.00 fps)
 ↑ **2=Sharp-Crested Rectangular Weir** (Passes 0.78 cfs of 7.53 cfs potential flow)

Pond BMP2: Infiltration System

C

NHDES BMP WORKSHEET



STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **BMP #1 (Wet Pond)**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

0.44	ac	A = Area draining to the practice	
0.15	ac	A _i = Impervious area draining to the practice	
0.34	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.35	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.16	ac-in	WQV = 1" x R _v x A	
569	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
57	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
285	cf	50% x WQV (check calc for extended detention volume)	
123	cf	V _{SED} = Sediment forebay volume	≥ 10%WQV
1,292	cf	V _{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention? ¹	≤ 50% WQV
-		V _{ED} = Volume of extended detention (if "yes" is given in box above)	
		E _{ED} = Elevation of WQV if "yes" is given in box above ⁴	
-	cfs	2Q _{avg} = 2 * V _{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q _{EDmax} below)	
	cfs	Q _{EDmax} = Discharge at the E _{ED} (attach stage-discharge table)	< 2Q _{avg}
-	hours	T _{ED} = Drawdown time of extended detention = 2V _{ED} /Q _{EDmax}	≥ 24-hrs
3.00	:1	Pond side slopes	≥ 3:1
58.00	ft	Elevation of seasonal high water table	
59.10	ft	Elevation of lowest pond outlet	
53.00	ft	Max floor = Maximum elevation of pond bottom (ft)	
50.00	ft	Minimum floor (to maintain depth at less than 8')	≤ 8 ft
54.50	ft	Elevation of pond floor ³	≤ Max floor and > Min floor
80.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
20.00	ft	Average width ([average of the top width + average bottom width]/2)	
4.00	:1	Length to average width ratio	≥ 3:1
Yes	Yes/No	Is the perimeter curvilinear.	← Yes
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	← Yes
Yes	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:			
Prop. 2' x 2' grate; 6" dia. Orifice	What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?		
59.85	ft	Peak elevation of the 50-year storm event	
61.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	← yes

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.
2. This is the elevation of WQV if the hydrologic analysis is set up to include the permanent pool storage in the node description.
3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

The pond floor was set 3.5' below the groundwater table, so there will always be greater than 3' in depth.

No hydrologic budget necessary.

D

GROUNDWATER RECHARGE CALCULATIONS

GROUNDWATER RECHARGE CALCULATION

PROPOSED INFILTRATION SYSTEM

INFILTRATION SYSTEM STORAGE VOLUME

R-TANK XD TRIPLE MODULE

OUTLET ORIFICE INVERT	I_W	=	62.00	ft.
BOTTOM INVERT CHAMBERS	I_C	=	61.00	ft.
STORMWATER DEPTH	D_C	=	1.00	ft.
VOLUME PER CHAMBER	V_C	=	1.43	cf.
NUMER OF ROWS	R_C	=	3	
CHAMBERS PER ROW	C_C	=	22	
NUMBER OF CHAMBERS	N_C	=	66	

$$N_C = (R_C * C_C)$$

$$V_{CHAMBERS} = (V_C * N_C)$$

$$\text{TOTAL VOLUME OF CHAMBERS BELOW OUTLET } V_{CHAMBERS} = 94.4 \text{ cf.}$$

STONE VOLUME

STONE BOTTOM INVERT	I_S	=	60.67	ft.
STONE STORMWATER DEPTH	D_S	=	1.33	ft.
STONE WIDTH	W_S	=	8.9	ft.
STONE LENGTH	L_S	=	25.7	ft.
% VOIDS	VOIDS	=	40%	

$$D_S = I_W - I_S$$

$$V_{STONE} = [(W_S * L_S * (I_W - I_S)) - V_{CHAMBERS}] * \text{VOIDS}$$

$$\text{STONE VOLUME } V_{stone} = 83.9 \text{ cf.}$$

TOTAL VOLUME BELOW INVERT

$$V_{TOTAL} = V_{CHAMBERS} + V_{STONE}$$

$$\text{TOTAL STORAGE VOLUME } V_{TOTAL} = 178.3 \text{ cf.}$$

BOTTOM AREA

$$A_{bottom} = W_S * L_S$$

$$\text{BOTTOM SURFACE AREA } A_{bottom} = 228.7 \text{ sf.}$$

REQUIRED RECHARGE VOLUME

STATIC METHOD

SOIL TYPE		=	C	
RECHARGE DEPTH	F	=	0.1	in.
IMPERVIOUS AREA	A_{IMP}	=	19,600	sf
% IMPERVIOUS AREA CAPTURED		=	100%	
RECHARGE STORAGE VOLUME	Rv	=	163.3	cf.

$$Rv = (F * A_{imp})$$

178.3 cf.

>>>

163.3 cf.

STANDARD 3 SATISFIED

72 HOUR DRAWDOWN

SOIL TYPE		=	C	
RAWLS RATE	K	=	0.27	in/hr
REQUIRED RECHARGE VOLUME	Rv	=	178.3	cf.
BOTTOM AREA	A_{bottom}	=	228.7	sf.

$$T_D = (Rv) / (K * A_{bottom})$$

$$\text{DRAWDOWN TIME } T_D = 34.6 \text{ hr.}$$

34.6 hr.

<<<

72.0 hr.

72 DRAWDOWN SATISFIED

E

OPERATION AND MAINTENANCE PLAN

- OPERATION AND MAINTENANCE PLAN -

Owner & Responsible Party:

Diamond Capital, LLC
170 Commerce Way, Suite 200
Portsmouth, NH 03801

Date: 9/8/2021

I. Short Term Maintenance Program During Construction – Responsible Party: Site Contractor

- Contractor shall refer to Site Plans dated 9/10/21, prepared by Hancock Associates for additional information.
- Site contractor shall provide Dover Engineering Department a 24 hour emergency contact (name and number) prior to start of construction.
- Care shall be taken at all times to control erosion and sediment movement by the use of compaction of disturbed areas and the use of straw wattles as shown on the plan. Other than erosion, no pollutant discharges are expected during construction.
- The contractor shall ensure that all runoff is collected in the appropriate structures as they are constructed and that uncontrolled runoff is kept to a minimum
- During construction the straw wattles, must be inspected every week and rain events greater than 1". Repair and replace as necessary, and remove any sediment buildup behind the devices.
- After installation of the drainage control devices and temporary erosion protection, weekly inspections are required to ensure they are operating as designed and to determine maintenance/cleaning requirements. Structures are to be cleaned either by hand, or mechanical means. Refer to following schedule.
- Sweeping of tracked soils on public way to be performed weekly, or as necessary. Additional crushed stone to be placed within the filter berm as required to prevent tracking of soils offsite.
- If storm events occur after the side slopes and other areas that are to be stabilized have been planted, but prior to seed germination, then re-grading and replanting of those areas may be required.
- Contractor shall take all measures to protect trees marked on site plans.
- Contractor shall maintain a weekly log of inspections using template below. Logs shall be made available to municipal representatives at request.
- In the event of a fuel spill immediately contact the Dover Fire Department (617-796-2210).
- Contractor shall clean all drainage and stormwater control structures at completion of construction

Maintenance Schedule during Construction

Sediment Control	Inspection	Maintenance Thresholds	Maintenance Action
Erosion control silt sacks, straw wattles, soil stockpiles	Weekly and after large storm events (more than 0.5-inch of rainfall in 24-hour period)	If integrity of the system is compromised	Restore the integrity of the system and/or clean sediment out
Drainage Structures	Weekly and after large storm events (more than 1.0-inches of rainfall in 24-hour period)	If the sump is 1/3 full with sediment	Clean sediment out
Infiltration Chambers	Weekly and after large storm events (more than 1.0-inches of rainfall in 24-hour period)	When sediment is observed in infiltration units	Remove sediment by jetting system. Replace system if infiltration component is compromised.
Loamed and seeded areas	Weekly and after large storm events (more than 1.0-inches of rainfall in 24-hour period)	When sediment is greater than 2-inches in depth, vegetation is not taking	Remove sediment by non-intrusive means (non-mechanical), repair vegetation
Adjacent Roadways and Parking Areas	Weekly and after large storm events (more than 1.0 -inches of rainfall in 24-hour period)	If sediment is greater than 1/2 inch in any area of the paved surfaces	Sweep/clean sediment from street

71-73 Rutland Street, Dover, New Hampshire
Short Term – Operation and Maintenance
To be performed by site contractor

WEEKLY INSPECTION SCHEDULE AND EVALUATION CHECKLIST

Best Management practice	Current Conditions and Minimum Maintenance / Repairs, If Necessary	Completed Maintenance / Repair (i.e. date, contractor, tasks complete, etc.)
<i>Catch Basins/</i>		
<i>Straw Wattles</i>		
<i>Soil Stockpiles</i>		
<i>Subsurface Infiltration Systems</i>		
<i>Crushed Stone Filter Berm</i>		
<i>Slope Stabilization Condition</i>		
<i>Soils tracked offsite</i>		
<i>Overall Site Condition</i>		

Inspected by: _____ Date: _____

II. Long Term Maintenance Program After Construction – Responsible Party: Owner

After construction and issuance of Occupancy Permit, the owner, shall be the responsible party for maintenance as outlined below:

**Diamond Capital, LLC
170 Commerce Way, Suite 200
Portsmouth, NH 03801**

Long Term Maintenance Schedule after Construction

Task	Inspection	Maintenance Thresholds	Maintenance Action
Drainage Structures	Twice a year – spring and fall	If the sump is 1/3 full with sediment	Clean sediment out
Infiltration Chambers	Twice a year – spring and fall	When sediment is observed in infiltration units, or standing water	Remove sediment by jetting system. Replace system if infiltration component is compromised. Contact a registered engineer if standing water is observed.
Wet Pond and Sediment Forebay	Twice a year – spring and fall	When sediment is accumulating, debris is observed in outlet structures, and vegetation is overgrowing	Remove woody vegetation, remove debris from outlet structures, remove sediment, inspect and repair embankments, inlet and outlet structures, and appurtenances.

Title:

F

SITE-SPECIFIC SOIL SURVEY REPORT

SITE-SPECIFIC SOIL SURVEY REPORT

For
Rutland Street, Dover

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 5.0, December 2017. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.

Scale of soil map:

Approximately 1" equals

Contours:

Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 8/16/21

Date(s) of test pits: None Performed for Soil Map by GES, Inc.

Test pits recorded by:

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Dover

Location: Rutland Street

Size of area: approximately 0.5 acre

Was the map for the entire lot? no

If no, where was the mapping conducted on the parcel: rear of lot

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? No

If no, what was the purpose of the map? City of Dover

Who was the map prepared for? Hancock Associates

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
933	Scio Variant	431	C

SLOPE PHASE:

0-8% B 8-15% C 15-25% D 25%+ E

6. SOIL MAP UNIT DESCRIPTIONS

933 The Scio Variant series consists of very deep, somewhat poorly drained soils formed in eolian, lacustrine, or alluvial sediments dominated by silt and very fine sand. They are on terraces, old alluvial fans, lake plains, outwash plains and lakebeds. Saturated

hydraulic conductivity is moderately high or high to a depth of 100 centimeters and ranges from moderately low through very high below 100 centimeters. Slope ranges from 0 through 25 percent. ESHWT ranges between 0-15"

7. RESPONSIBLE SOIL SCIENTIST

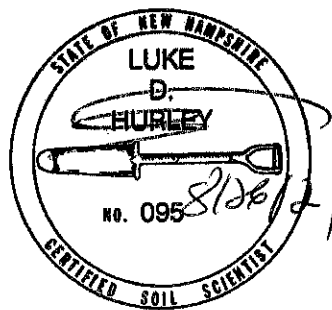
Name: Luke Hurley

Certified Soil Scientist Number: 095

8. OTHER DISTINGUISHING FEATURES OF SITE

Is the site in a natural condition? Yes

If no, what is the nature of the disturbance? Residential backyard.



G

NRCS SOILS MAP



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Strafford County, New Hampshire

71-73 Rutland Street



August 5, 2021

Custom Soil Resource Report
Soil Map



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 20, May 29, 2020

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
ScB	Scantic silt loam, 3 to 8 percent slopes	0.7	68.4%
SfC	Suffield silt loam, 8 to 15 percent slopes	0.3	31.6%
Totals for Area of Interest		1.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Strafford County, New Hampshire

ScB—Scantic silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9d8t
Elevation: 0 to 260 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Scantic and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 23 inches: silty clay loam
H3 - 23 to 40 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Swanton

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Not named wet

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Custom Soil Resource Report

Buxton

Percent of map unit: 5 percent
Hydric soil rating: No

SfC—Suffield silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9d8v
Elevation: 0 to 250 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Suffield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suffield

Typical profile

H1 - 0 to 19 inches: silt loam
H2 - 19 to 28 inches: silt loam
H3 - 28 to 41 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY017NH - Well Drained Lake Plain
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 9 percent
Hydric soil rating: No

Custom Soil Resource Report

Buxton

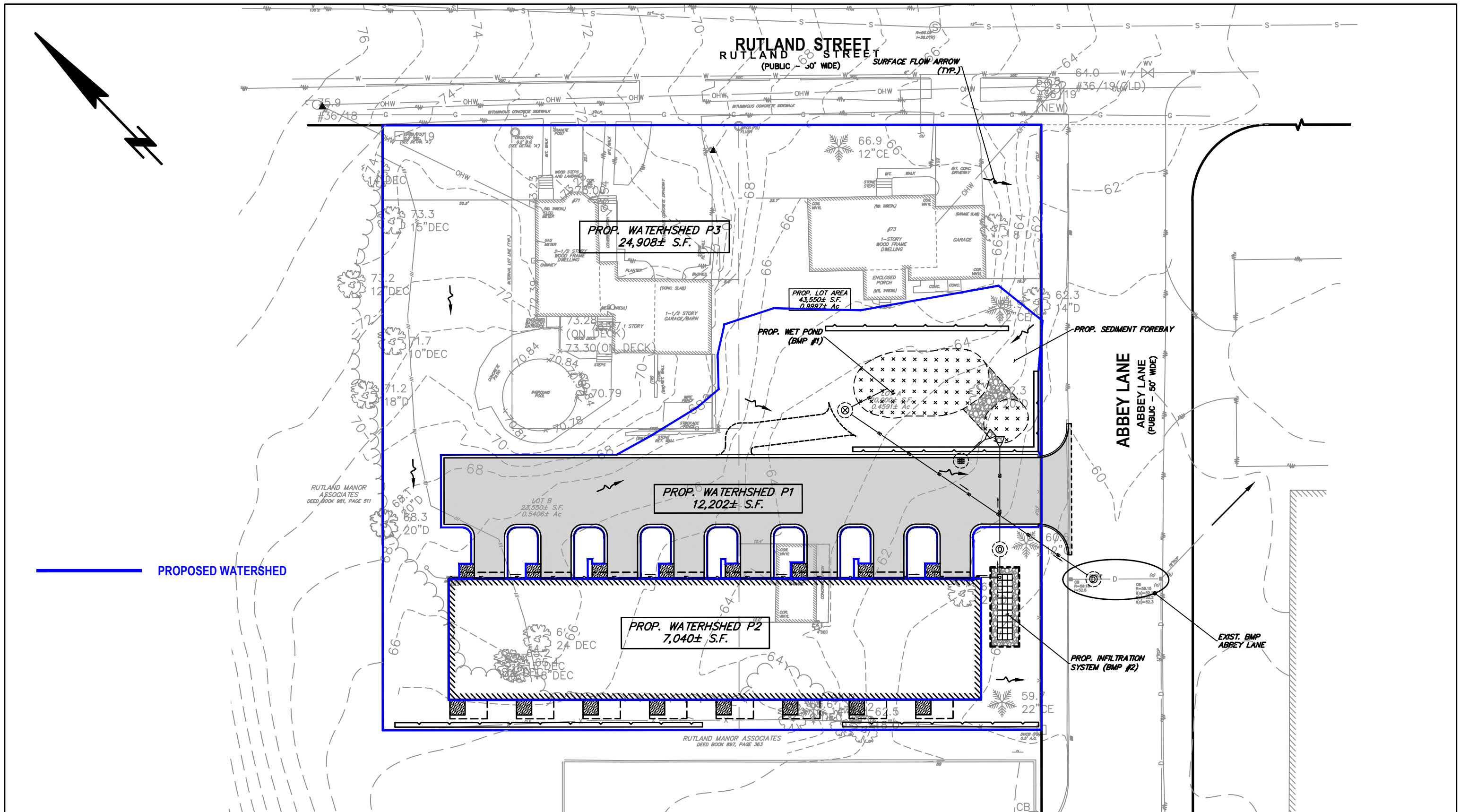
Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

H

WATERSHED PLANS



HANCOCK ASSOCIATES 10 Ferry Street, Suite 406 Concord, NH 03301 tel 603-223-1950 fax 978-774-7816	71-73 RUTLAND STREET			
	DOVER, NEW HAMPSHIRE		Scale: 1" = 30' SCALE IN FEET	
	PROP. WATERSHEDS		Date: Sept. 8, 2021	SHEET
			Rev: -	W2

HANCOCK ASSOCIATES

Surveyors | Engineers | Scientists

September 8, 2021

City of Dover Planning Board
288 Central Avenue
Dover, NH 03820
Donna Benton, AICP, City Planner

Subject: Traffic Assessment 71/73 Rutland Street and Abbey Lane

Dear Ms. Benton:

Hancock Associates has reviewed the requirements of Chapter 157, Land Subdivision Regulations, Subsection 157-10D regarding the proposed project.

This assessment considers the safety of the proposal along with a general assessment of the potential impact of the project. This is not a full Traffic Impact Analysis considering the project is proposing only eight townhomes.

Existing Conditions

The project site is comprised of two properties at 71 and 73 Rutland Street containing a combined one acre (43,550 square feet). The site is bounded by Rutland Street to the north, Abbey Lane (a public way) to the east and property of Rutland Manor to the south and west. Rutland Manor is a 50-unit apartment complex containing two buildings built in the 1970s. Directly across Rutland Street are two single family homes at 70 and 72 Rutland and the Assembly of God Restoration Church. Single-family homes currently exist on each of the lots at 71 and 73 Rutland with individual driveways onto Rutland. Rutland Street is a city street with a 50 foot right of way, 30 feet of pavement and a sidewalk on the south (locus) side. Abbey Lane is a city street with a 50 foot right of way, 30 feet of pavement and no sidewalk. Neither street is stiped. Rutland Street connects Central Ave (NH Route 108) at the interchange with eth Spaulding Turnpike to the east and Cataract Avenue to the west. The area including the subject parcel is in Dover's Gateway Zoning District. Existing traffic volumes were not obtained.

Proposed Conditions

The proposal calls for the merger of the two lots, retaining the two structures and the construction of eight three-bedroom townhomes in a single building at the back of the lot. Access to the townhomes will be via a new driveway on Abbey Lane. The two existing homes and the eight new townhomes will be sold under a condominium form of ownership. The two existing homes will continue to utilize their driveways onto Rutland with the townhomes using the new drive from Abbey Lane

Project Generated Traffic

The anticipated vehicle trips generated by the proposed eight (8) townhouse condominiums are as follows in accordance with the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017:

HANCOCK ASSOCIATES

Surveyors | Engineers | Scientists

Vehicle Trips

Average Weekday	90 (50% entering/50% exiting)
AM peak hour (7:00 a.m. to 9:00 a.m.)	7 (24% entering/76% exiting)
PM peak hour (4:00 p.m. to 6:00 p.m.)	9 (62% entering/38% exiting)

Based on ITE LUC 210, Single-Family Detached Housing; 8 dwelling units.

Pedestrian and Bike Facilities

A sidewalk exists on the south side of Rutland Street out to Central Street where Central Street has sidewalks on both sides and is striped with a double yellow center and 1–2-foot fog lines. There are no designated bicycle lanes in the area.

Public Transportation

The nearest bus stop on the Cooperative Alliance for Seacoast Transportation (COAST) system is on the Regional Route 13 at the Dover Transportation Center 1.3 miles away.

Sight Distance Assessment

At the intersection of Abbey Lane and Rutland Street sight distances are unobstructed to the west to Cataract Ave., 370 feet away and to the east over 1,200 feet to Central Ave. There is no posted speed limit on Rutland Street. We did not perform a speed study. The sight distances would support a required minimum stopping sight distance (SSD), per AASHTO 2018 standards of 45 miles per hour at 360 feet. Intersection sight distance (ISD) at 45 miles per hour is 500 feet, available to the east and outside the distance to the intersection to the west.

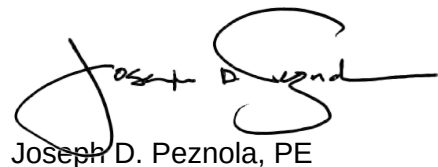
Summary

Hancock Associates does not believe the proposed project poses any safety concerns given the use of existing roadways, available sight distance and the relative low trip generation.

Recommendations

- The project site driveway should be a minimum of 20 feet wide.
- On street parking on Abbey Lane and Rutland Street should be prohibited by residents and guests.
- Vehicles existing the site should be placed under stop sign control with a stop line provided.
- All signs and pavement markings to be installed should conform to the applicable standards of the Manual on Uniform Traffic Control Devices (MUTCD).
- Signs and landscaping at the site drive intersection with Abbey Lane should be installed so as not to impede line of sight.
- Snow accumulation within the project site should not impede parking or sight lines.

Hancock Associates
Acting on Behalf of Diamond Capital, LLC



Joseph D. Peznola, PE



10 Ferry Street, Suite 406 | Concord, NH 03301 | V: 603-223-1950 | HancockAssociates.com

er and Princeton, MA | Concord, NH

SITE-SPECIFIC SOIL SURVEY REPORT

For
Rutland Street, Dover

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 5.0, December 2017. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.

Scale of soil map:

Approximately 1" equals

Contours:

Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 8/16/21

Date(s) of test pits: None Performed for Soil Map by GES, Inc.

Test pits recorded by:

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Dover

Location: Rutland Street

Size of area: approximately 0.5 acre

Was the map for the entire lot? no

If no, where was the mapping conducted on the parcel: rear of lot

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? No

If no, what was the purpose of the map? City of Dover

Who was the map prepared for? Hancock Associates

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
933	Scio Variant	431	C

SLOPE PHASE:

0-8% B 8-15% C 15-25% D 25%+ E

6. SOIL MAP UNIT DESCRIPTIONS

933 The Scio Variant series consists of very deep, somewhat poorly drained soils formed in eolian, lacustrine, or alluvial sediments dominated by silt and very fine sand. They are on terraces, old alluvial fans, lake plains, outwash plains and lakebeds. Saturated

hydraulic conductivity is moderately high or high to a depth of 100 centimeters and ranges from moderately low through very high below 100 centimeters. Slope ranges from 0 through 25 percent. ESHWT ranges between 0-15"

7. RESPONSIBLE SOIL SCIENTIST

Name: Luke Hurley

Certified Soil Scientist Number: 095

8. OTHER DISTINGUISHING FEATURES OF SITE

Is the site in a natural condition? Yes

If no, what is the nature of the disturbance? Residential backyard.

