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, June 16, 2022**
	Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review using Transfer of Development Rights Knox Marsh Development LLC., Assessor's Map 28, Lot 7, zoned G, located at 757 Central Avenue. (Proposal is to construct two 4-unit multi-family buildings with parking under the structure as well as purchase the existing single-family home). A related Conditional Use Permit application will also appear before the Planning Board. (P22-15) *[This was previously heard on March 17, 2022]*

2. 11:15 AM – 12:00 PM: Site Review for City of Dover Recreation, Assessor's Map 26, Lot 2, zoned RM-U, located at 150 Portland Avenue. (Proposal is to construct a 17,000 s.f. skatepark in two phases.) (P22-25) *[This was previously heard on April 14, 2022]*

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 Office
Attn: Mrs. Donna Benton, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

June 2, 2022

Re: Site Plan Review
Berry Surveying & Engineering
Knox Marsh Development, LLC
757 Central Avenue
Tax Map 28, Lot 7
Dover File #P22-15

Mrs. Benton,

Enclosed please find the following required material in support of the TDR Site Plan response at 757 Central Ave:

- 9 Copies of the Full size plans with architectural renderings
- 9 Copies of the TRC comment response letter
- Drainage submitted electronically

Thank you for your time and attention to this matter.

BERRY SURVEYING & ENGINEERING

Christopher R. Berry
Principal, President

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 Office
Attn: Mrs. Donna Benton, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

May 12, 2022

Re: Site Plan Review
Berry Surveying & Engineering
Knox Marsh Development, LLC
757 Central Avenue
Tax Map 28, Lot 7
Dover File #P22-15

Based on comments from the Technical Review Committee Minutes from March 17, 2022, we respectfully submit the following comments and revisions. Our comments are in **bold**. In addition to the comments, the applicant has modified the original proposed four-plex (units #5-8) into a duplex (now units #5 & 6). The existing structure on site is now known as unit #7.

PLANNING COMMENTS

1. Provide letters to serve.
   Applicant is in the process of corresponding with Eversource and will provide letter when received.

2. Impact Fees.
   Applicant acknowledges comment and will pay fees when due.

3. TDR Fees.
   Applicant acknowledges comment and will pay fees when due.

4. Water and Sewer Investment Fees.
   Applicant acknowledges comment and will pay fees when due.

5. Reminder: Recreation fee required.
   Applicant acknowledges comment and will pay fees when due.

6. Provided Condo docs for review.
   The applicant requests that condo docs are a condition of approval.

7. Add condensers and screens to plan set.
   These have been added to the proposed structures. See Site Plan, sheet #3.

8. Stockade fence for trash enclosure.
   Fence for trash enclosure has been revised to stockade. See Site Plan, Sheet #3.

9. Revise Plan to:

   a. Add Planning File Number P22-15.
      This is now added to the Title Block.

   b. Revise Streetscape to include existing abutting conditions & match renderings with landscape plans.
      Please find revised Streetscape.

   c. Add architectural packages to plan set.
      Please find architectural package.

   d. Add town house floorplans?
      Please find attached townhouse floor plans.

   e. Architectural renderings also include elevations and materials.
      Please find revised architectural renderings.

   f. Add or indicate location of the following common notes: 8 (i.e. 'Provided' column), 11 (update to 9/30/2015 Community Panel), 18,34 & 35
      The panel number has been updated and a provided column is now provided. See Site Plan, sheet #3.

ENGINEERING COMMENTS

<u>Sheet 2 of 21:</u>

1. Plan shall show sewer service for 1 Abbey Sawyer Memorial Drive as it may extend over subject parcel. If sewer crosses subject parcel, plan should indicate easement or means by which sewer service to 1 Abbey Sawyer Memorial Drive will be maintained.
   The sewer service for 1 Abbey Sawyer Memorial Drive is located on the abutting property to south of the subject parcel (Tax Map 28, Lot 9-A).

Sheet 3 of 21:

2. Tree clearing shall be stopped at the limits of the abutting property to the east. Applicant shall coordinate with the City prior to clearing within ROW to adhere to City's Tree Policy.
   The treeline along Abbey Sawyer Memorial Drive has been modified as requested. See Site Plan, sheet #3.

3. Applicant shall consider striping or signage to restrict parking within the mail kiosk area.
   Striping has been added in front of the mail kiosk. See Site Plan, sheet #3.

4. Parking aisle width is shown as 20' but shall be 22' per City Code 153-14(6)(a).
   Parking aisle width has been revised to 22'. See Site Plan, sheet #3.

5. Van accessible parking spot requires an 8' aisle, 5' aisle has been provided – or not van?
   The ADA aisle has been modified to 8' wide. See Site Plan, sheet #3.

6. Applicant to identify the ADA route from the ADA accessible parking spot to the ADA accessible unity or entrance.
   Comment no longer applicable due to four-plex building being converted to duplex. See Site Plan, sheet #3.

7. Snow storage area appears to be inaccessible due to the placement of the handicap parking sign. If adequate snow storage cannot be provided onsite, a note shall be provided requiring offsite disposal, in accordance with all applicable laws and codes, once snow storage area is filled.
   The handicap sign has been moved to the side of the parking array. Snow will now be taken to an approved off-site location. The area shown will be for temporary storage as needed. See Site Plan, sheet #3.

8. Provide a detail and identification for the residential walls.
   These have been graphically revised. The intention is for these to be a piece of VGC to allow for grading as needed. See Grading Plan, sheet #4.

9. Identify all proposed egress locations on plans.
   All proposed egress locations are now called out on the Site Plan, sheet #3.

10. Edge of pavement at end of pavement appears to be flush with sidewalk; applicant shall provide wheel stops or other means for vehicles from obstructing pedestrian movement.
    Concrete wheel stops are now proposed at these parking spots. See Site Plan, sheet #3.

11. 3' porous walkway adjacent to existing southern building leads to a 2' gravel shoulder; applicant shall provide connection from stairs to parking lot.
    Pavement has been extended to the top of the stairs. See Site Plan, sheet #3.

12. Consider connecting porous walk to the bike rack.
    The bike rack has been relocated per other comments and is now connected to the porous walkway. See Site Plan, sheet #3.

13. Concrete pad, benches, and trash receptacles to be relocated outside of City ROW; provide connection to porous sidewalk within parcel.
    All concrete pads, benches, and trash receptacles have been relocated outside of the City ROW. See Site Plan, sheet #3.

14. Modify note #39; Municipal sidewalk shall be operational at all times and shall have a 5' width minimum in its final condition.
    Note has been modified. See note #39, sheet #3.

15. Modify note #12 to state as-builts are required regardless of ownership of road.
    Note has been modified. See note #12, sheet #3.

16. Reveal of new curb shall match reveal of exiting curb.
    This has been added to the sidewalk note along Central Avenue. See Grading Plan, sheet #4.

17. Note #29) clarify intent of this note as there doesn't appear to be a fire access road.
    This note has been modified. The intent of this note is for the driveway to be accessible for a fire apparatus. See Site Plan, sheet #3.

<u>Sheet 4 of 21:</u>

1. Regrade driveway on Abbey Sawyer Lane to prevent water on road from entering property.
   BS&E has kept the same grading along Abbey Sawyer Mem. Dr. for multiple reasons. If bituminous rounded lip was proposed along the driveway or curbing along Abbey Sawyer Mem. Dr., it would channelize

stormwater water in a location that does not currently experience channelization. Additionally, the proposed condition model relies on capturing and detention of this generated stormwater runoff for compliance with the peak rate of runoff at Final Reach #100.

2. Review grading in front of Units #1 to #4 as it appears the pavement is pitching back into the buildings. Consider adding spot grades along front to depict how drainage is intended to flow.
   Spot grades and flow arrows have been shown on the Grading Plan, sheet #4. On the northern side of each unit, a portion of the traveled way is above the unit FF. As the down grade of the traveled way occurs, it becomes lower than the unit FF and provides positive drainage.

3. Confirm 2% cross slope in all directions for ADA parking space.
   The relocated ADA parking space provides no more than a 2% cross slope in all directions. See Grading Plan, sheet #4.

4. Verify maximum wall height on the northern end of the retaining wall around unit 9; it appears the top of wall may be elevation 152'.
   This callout has been updated and grading at the base of the wall revised as need. See Grading Plan, sheet #4.

5. Clarify how stormwater is conveyed from between Unit #9 and the retaining wall.
   Additional proposed contours are now shown. See Grading Plan, sheet #4.

6. Verify clearance between outlet of DM#1 and sand filter.
   The sand filter has been reconfigured. See P-101, sheet #6.

7. Evaluate condition CBM 1745 and its outlet pipe.
   BS&E attempted to evaluate the condition of CB 1745, to find a silt sac remaining in the structure from Central Avenue construction. BS&E originally obtained invert of structure from plan provided by Dover Engineering. BS&E will work with DPW on removal of silt sac to evaluate condition of structure.

8. Revise curb cut note to clarify what is proposed for the impacted sidewalk.
   This callout has been revised. See Grading Plan, sheet #4.

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

Sheet 6 of 21:

1. In the Drainage Analysis the BMP worksheet for Pond 101P Sand filter indicates seasonal high-water elevation is noted to be 147'; however, proposed 100-year flood elevation is calculated to be 144.67'. Please clarify how the system will function with high groundwater conditions present.
   The system is underdrained, which will lower the seasonal high water table surrounding the system.

2. There is no apparent overflow outlet for larger storms.
   An overflow outlet has been added to the system. See P-101, sheet #6.

3. Invert of 6" underdrain in plan does not match elevation in detail; coordinate elevation with drainage analysis.
   Underdrain invert has been revised. See P-101, sheet #6.

4. Comment on infiltration and exfiltration of system.
   There is no infiltration component to this BMP and the exfiltration though the sand media is recreated with a 100 min TC, which has been used on prior sand filter design projects in Dover in coordination with the Engineering Department. As discussed in the drainage narrative, the sand filter can infiltrated unexpected amounts of stormwater, but this is not taken into account in the model.

5. Recommend relocating cleanouts outside of pavement; if not possible, relocate out of vehicle paths.
   Cleanouts for the sand filter has been relocated outside of the vehicle path. See Grading Plan, sheet #4.

Sheet 7 of 21:

1. Limit of tree clearing is beyond construction fence. Adjust erosion and construction fence accordingly to encompass the full limits of work.
   Adjustments have been made to the construction fence to place closer to the tree line. See Erosion & Sediment Control Plan, sheet #7.

Sheet 8 of 21:

Water:

1. City will provide one meter for one domestic service; otherwise, a domestic service shall be provided for each unit with curb boxes outside of water closet.
   Waterline has been revised. See Utility Plan, sheet #8.

2. Water pipes shall be installed 5′ below grade to eliminate need for insulation.
   Waterline has been revised. See Utility Plan, sheet #8.

3. Use regular hydrant (Eddy 2641) to allow flushing; difficult to flush the 4″ line with a post hydrant. Use a 6′x4″ reducer to the hydrant or provide 6 inch main from Abbey Sawyer Memorial Drive.
   Waterline has been revised. See Utility Plan, sheet #8.

4. Recommend placing curb boxes closer to units and out of vehicle paths; roadway box is required for curb boxes within pavement.
   Waterline has been revised. See Utility Plan, sheet #8.

5. Move 4″ gate valve closer to tapping sleeve.
   The gate has now been revised to a 6″ and moved closer to tapping sleeve.

   Sewer:

1. Application shall utilize gravity sewer to service new and existing structures on site.
   Sewer design has been revised to gravity. See Utility Plans, sheets #8 & 9.

2. Sewer service for Units #1 to #8 shall transition to an 8″ that connects directly to the City's sewer main in Central Ave; service shall not tie into existing service of Unit #9.
   This has been revised and proposed services are no longer proposed t tie into the existing structures.

<u>Sheet 9 of 21:</u>

1. There is a conflict between the proposed sewer service, bike rack, and tree
   This conflict has been revised. See Landscaping Plan, sheet #10.

<u>Sheet 10 of 21:</u>

1. Identify type of lights at rear of units.
   Type types are shown on the Lighting Plan, sheet #11.

<u>Sheet 18 of 21:</u>

1. Please use a hinge-type lid for the drainage manholes.

Drain manhole lids have been modified to Pamrex Rims. See Grading Plan, sheet #5.

General:

1. Please reduce details to include only details pertinent to the project.
   Erosion & Sediment control details have been revised to remove extraneous details. See E-101 & E-102.

2. Drainage analysis shows post development flows are greater than pre-development flows for Reach 100. Revise drainage design to reduce flows in the post-development condition.
   Drainage analysis has been revised. Please find attached drainage binder.

POLICE DEPARTMENT COMMENTS

1. Reconstruct sidewalk at Central/Abbey Sawyer to get around PSNH 1/56
   Sidewalk is now proposed to be reconstructed at this location. See Site Plan, sheet #3.

2. Snow storage is nonexistent on site, except for 1 area that is not viable as currently configured (blocked by sign)
   This parking area has been reconfigured to allow for better access to temporary snow storage. Snow will now be moved to an approved off-site location. See Site Plan, sheet #3.

3. Relocate accessible space to the first parking bay (this helps partially solve the snow storage issue). Consider reconfiguring block retaining wall to regain that lost parking space in second parking bay.
   Two units have been removed from the project bringing the total to 7. The four-plex of units 5-8 is now a duplex. The driveway grade in this area is too steep to allow for ADA parking.

4. Is existing white vinyl fence on south P/L yours or abutters? What type of fence extends from the end of this fence to Central? Not labeled on site plan – update EC plan.
   This existing white vinyl fence is owned by the abutter. This adjacent fence is now called out as post and rail fence. See Existing Conditions Plan, sheet #2 and Site Plan, sheet #3.

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

5. Sheet 3, Note 38: reimagine screening for trash enclosure (what's shown is not solid), and add note regarding private collection of trash bins along Central Avenue > cedar panels?
   The screening has been changed to stockade in order to have a solid enclosure. See Site Plan, sheet #3. The applicant's trash service will come into the driveway as opposed to pick up along Central Avenue to allow for safe stoppage.

6. Are the pavers extending out from garage corners at grade?
   These are considered residential retaining walls (approximately 0.5' tall). This allows for driveway grading between the units.

7. If 3 benches are not required, 2 would be sufficient
   Two benches are now proposed. See Site Plan, sheet #3.

8. Why septic tanks?
   Comment no longer applicable.

9. The renderings show substantially more side screening (especially street trees) from Abbey Sawyer than is provided on landscape plan L-01
   Please find revised rendering.

10. Bike rack – for security, move near mail kiosks
    The bike rack has been moved further from Central Avenue to the corridor between units #5/6 & #7. Sufficient room is not available by the mail kiosk for the bike rack. See Site Plan, sheet #3.

FIRE /INSPECTION COMMENTS

1. Sheet 3 accessible space is not van space – consider relocation to four-unit structure.
   Accessible space is now a van space in the previous location.

2. Accessibility shall be provided to first floor unit(s) of four-unit building
   Comment no longer applicable, building is now a two unit building.

3. Review location of FDC, sprinkler room and toter location
   The location of the FDC has been revised to not conflict with electric meters for units #1-4. The sprinkler room has been removed from prior units #5-8, since this building is a duplex as opposed to a four-plex. Trash pickup will be done through a private service. Toters for units #1-4 will be kept in induvial garages and units #5-7 toter location allows for convenient private pick up.

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

4. Review installation of site stairs at unit 8 and 9 vs ramp
   With the former four-plex become a duplex, the ramp for accessibility is no longer needed at this location.

5. Clarify if the 10' wide area at the mail kiosk is a parking space
   Striping has been added to indicate no parking. See Site Plan, sheet #3.

6. Clarify the 4500-gallon pump chamber installation, indicate pump controller location > back of building.
   Comment no longer applicable.

7. Sheet 7 indicate how unit 5-8 and unit 9 are intended to be treated for separation.
   There is now more separation provided between these units.

8. Provide egress windows for bedrooms below fourth floor
   All bedroom windows are considered egress.

9. Add guardrails to second floor deck along central
   Please find revised renderings.

10. Address building showing on 9' apart
    The building layout has been reconfigured to be 15' apart. See Site Plan, sheet #3.

PLANNING BOARD COMMENTS:

1. Gravity sewer > individual
   Sewer has been revised to gravity. See Utility Plan #8.

2. Snow storage is insufficient
   Snow will now be removed to an approved off-site location. See Site plan, sheet #3.

3. Encourage plantings around rubbish totes enclosure
   Shrubs are now added to this location. See Landscaping Plan, sheet #10.

4. Accessibility at parking area?

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

The parking area has been reconfigured based upon previous comments. The four-plex building has been modified to a duplex.

5. Echo Police on bike rack – location needs to change
   Bike rack has been relocated. See Site Plan, sheet #3.

6. Re – construction hours; Saturday okay but not Sundays or Federal Holidays
   This note has been updated. See sheet #3, note #20.

7. Connect to Bob Stowell's property? Better access
   This does not work with the site design topographically. Additionally, Mr. Stowell is not interested in allowing a connection to this project.

8. Provide a grounds/flower maintenance plan
   A plant maintenance guide is included on the landscaping plan in the bottom right corner. See Landscaping Plan, sheet #10.

9. Round or square columns?
   In discussion with the Planning Department, either round or square columns are acceptable. This will be decided closer to construction.

Very truly yours,
BERRY SURVEYING & ENGINEERING

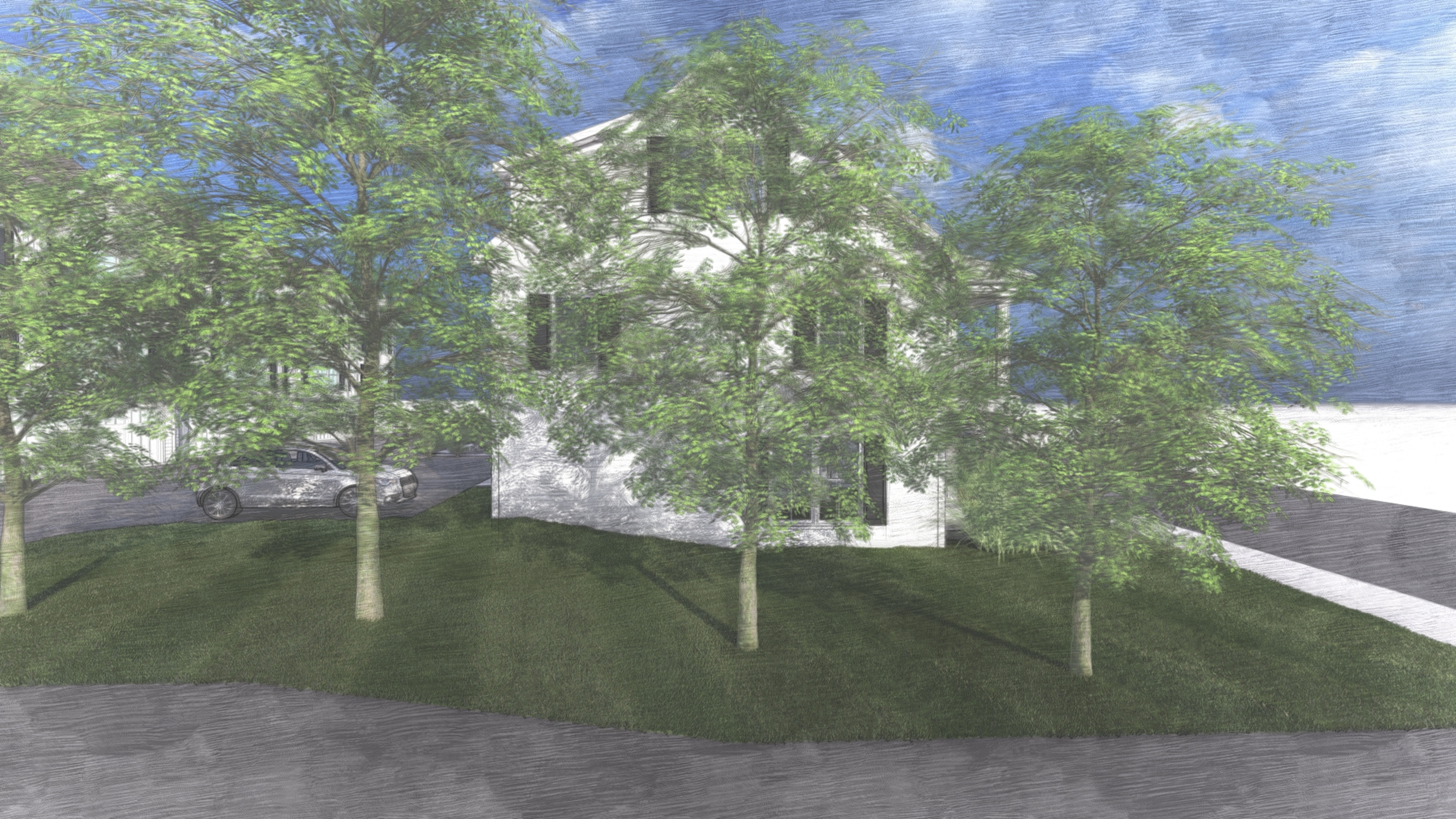
Christopher R. Berry
Principal, President

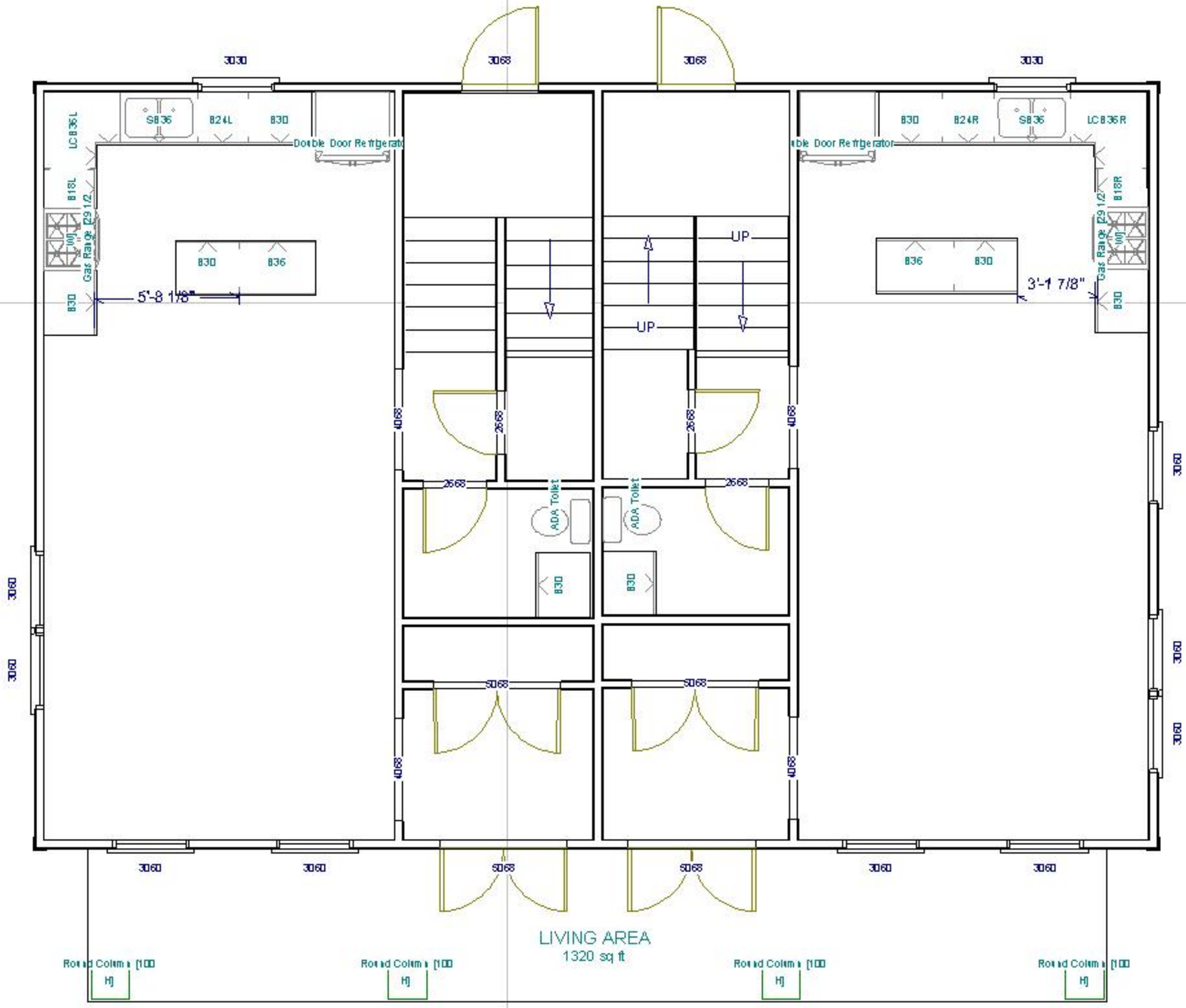
Kenneth A. Berry, PE, LLS
VP – Technical Operations

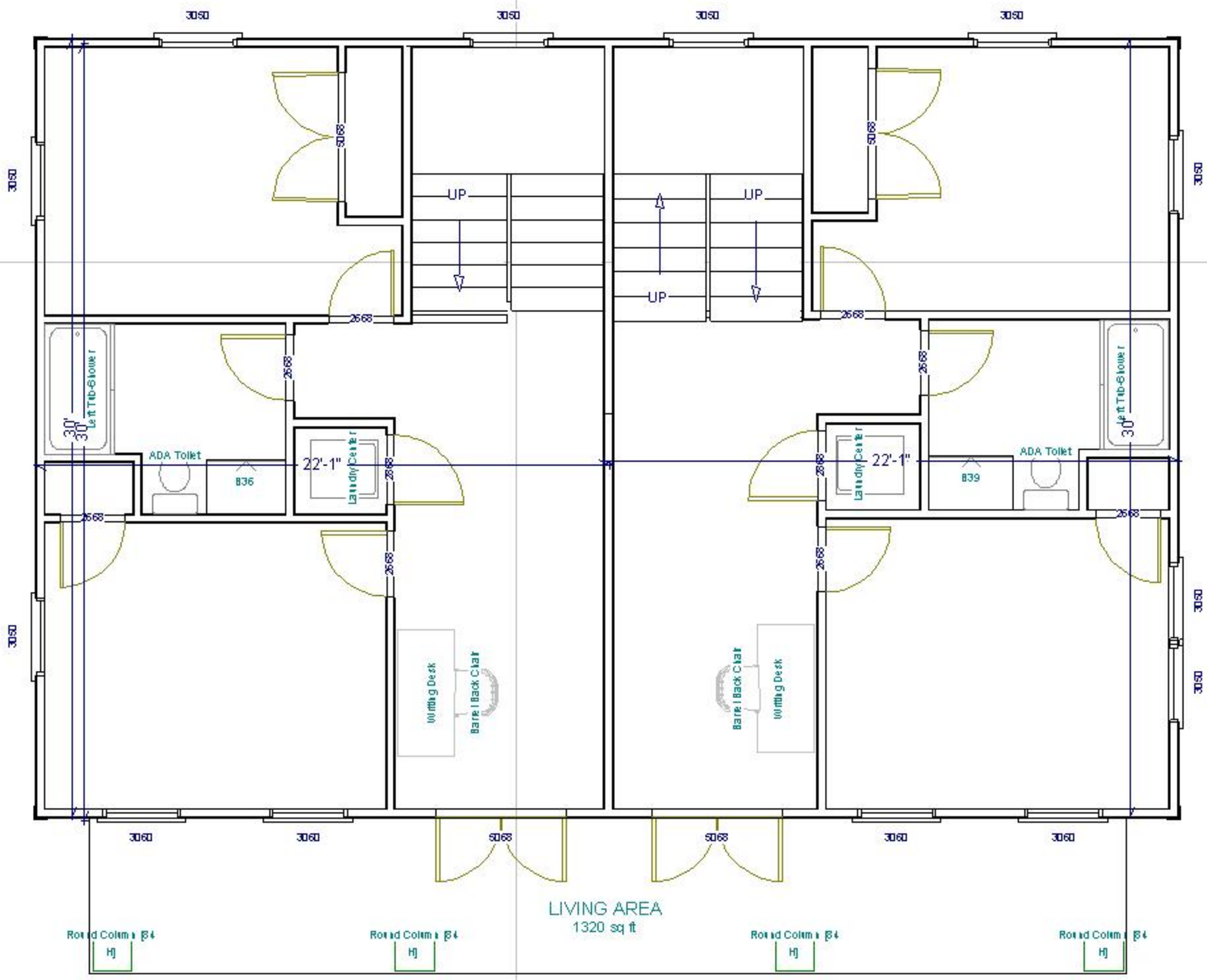
Kevin R. Poulin, EIT
Design Engineer

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

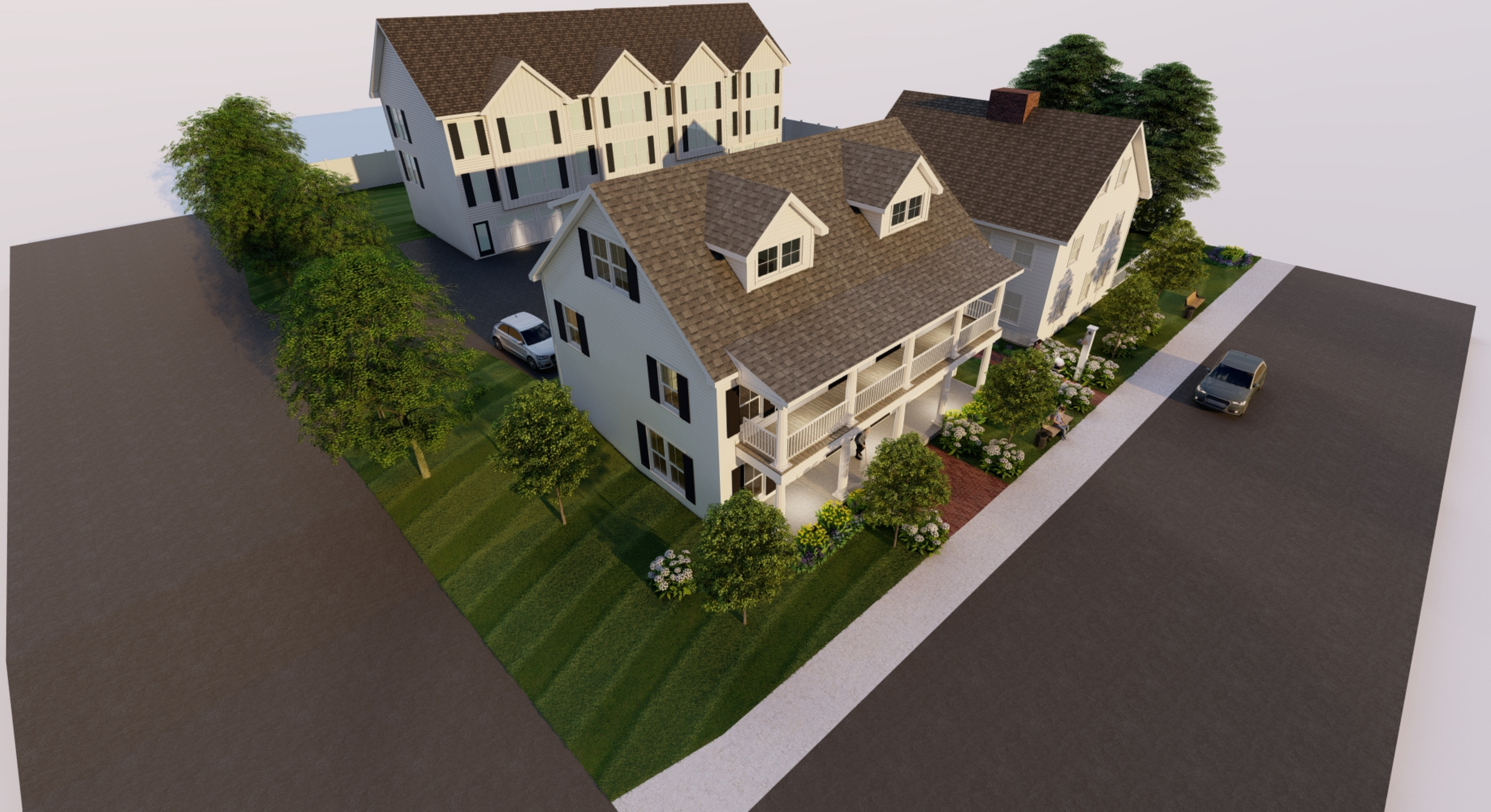
Board and Batten Siding on Dormers
Architectural Asphault Shingles
Siding: White Clapboard Impressions
Coil Sofits and Composite Trim on Deck
Composite Pillars

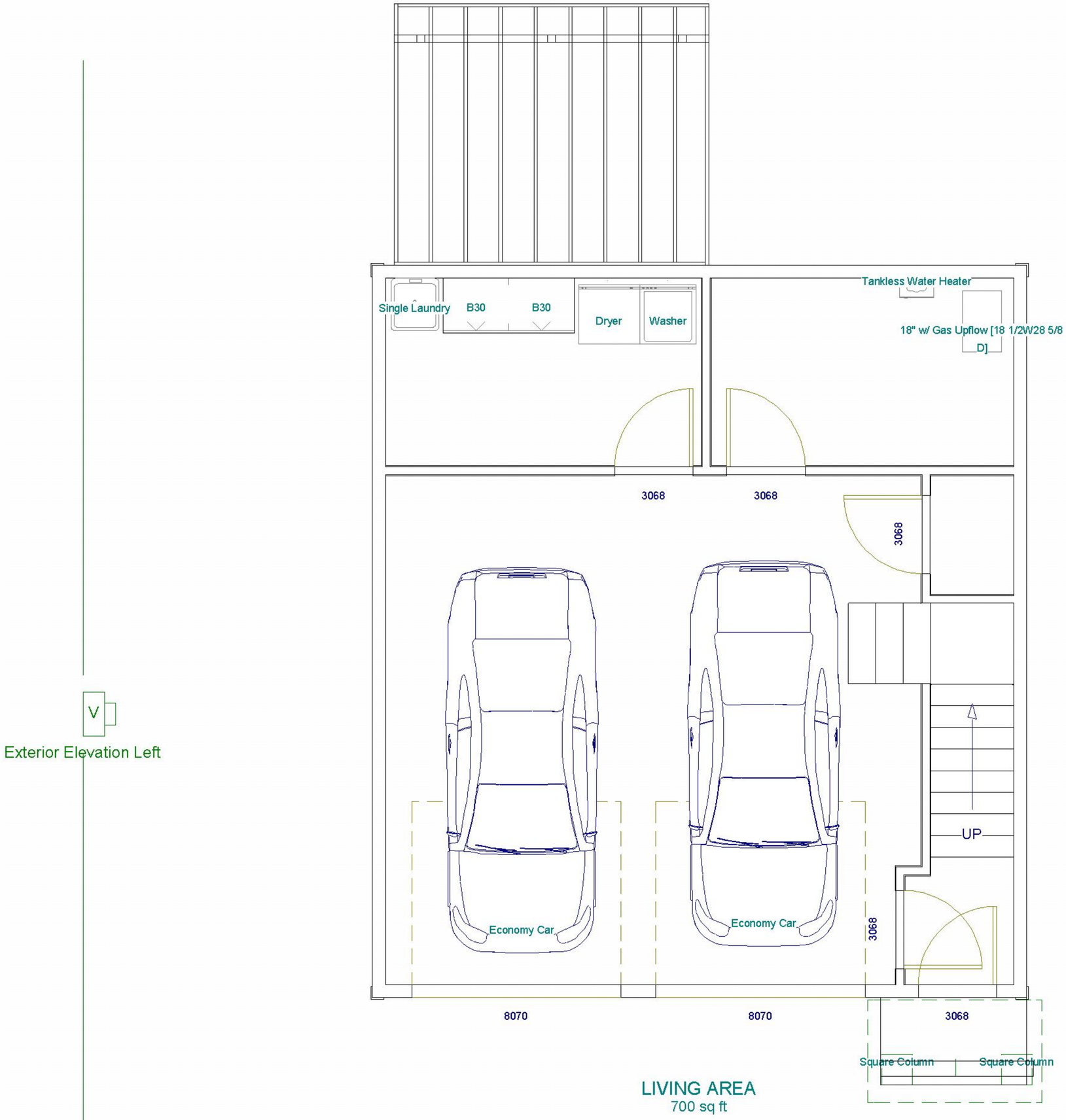


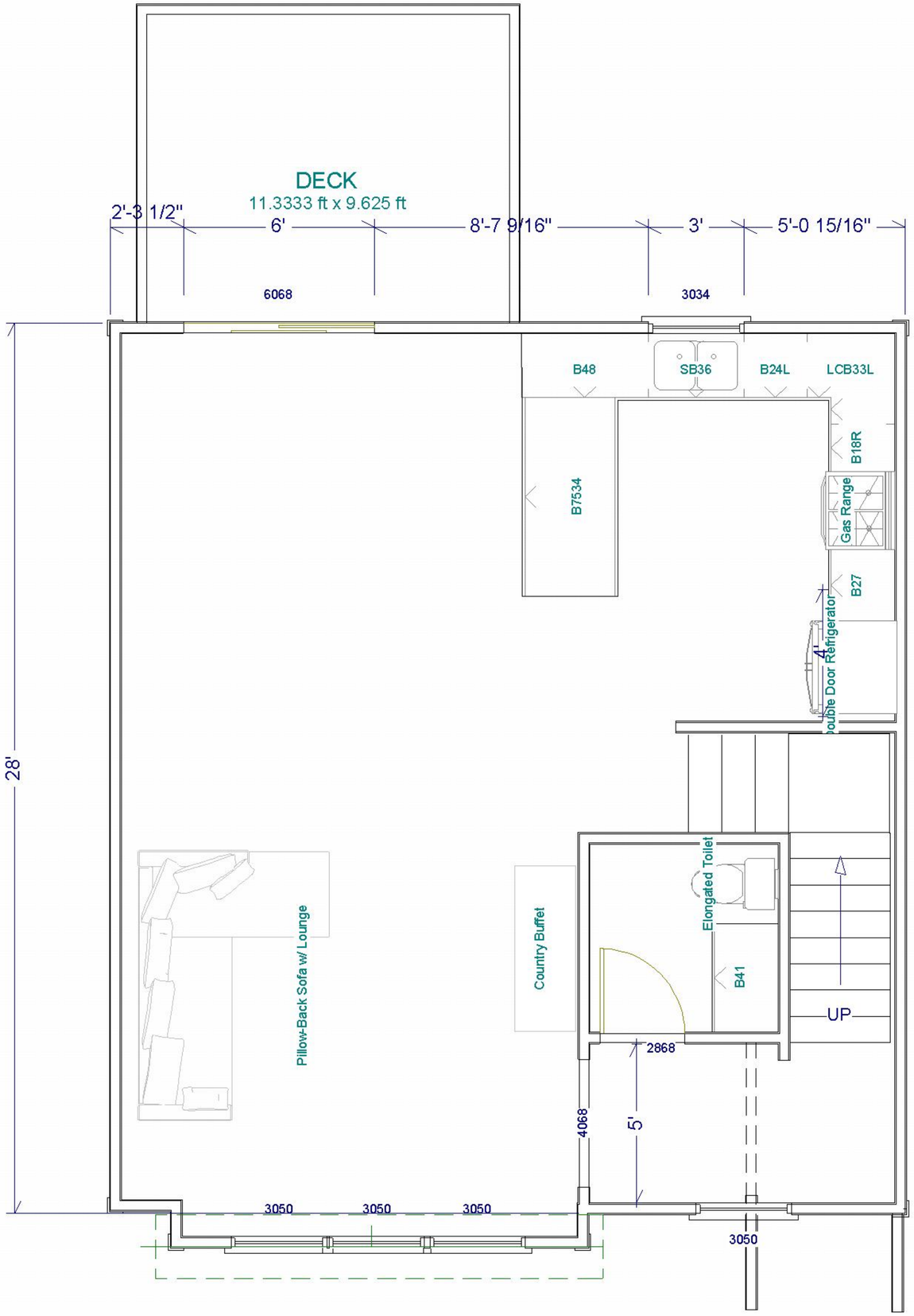

3030
3068
3068
3030
S836
B24L
B30
Double Door Refrigerator
LC836L
B18L
Gas Range
B29 1/2
B30
B36
5'-8 1/8"
B30
B24R
S836
LC836R
Double Door Refrigerator
B18R
Gas Range
B29 1/2
B36
B30
3'-1 7/8"
B30
UP
UP
4068
2668
2668
4068
2668
2668
ADA Toilet
ADA Toilet
B30
B30
5068
5068
4068
4068
3060
3060
3060
3060
3060
3060
3060
3060
3060
3060
5068
5068
LIVING AREA
1320 sq ft
Round Column [100
H]
Round Column [100
H]
Round Column [100
H]
Round Column [100
H]


3050
UP
UP
UP
2668
5068
ADA Toilet
B36
B39
22'-1"
30'
Left Tub-Shower
Laundry Center
Writing Desk
Barrel Back Chair
3060
LIVING AREA
1320 sq ft
Round Column
H

Left Tub-Shower
ADA Toilet
830
UP
2668
Bedspread (King)
3050
3030



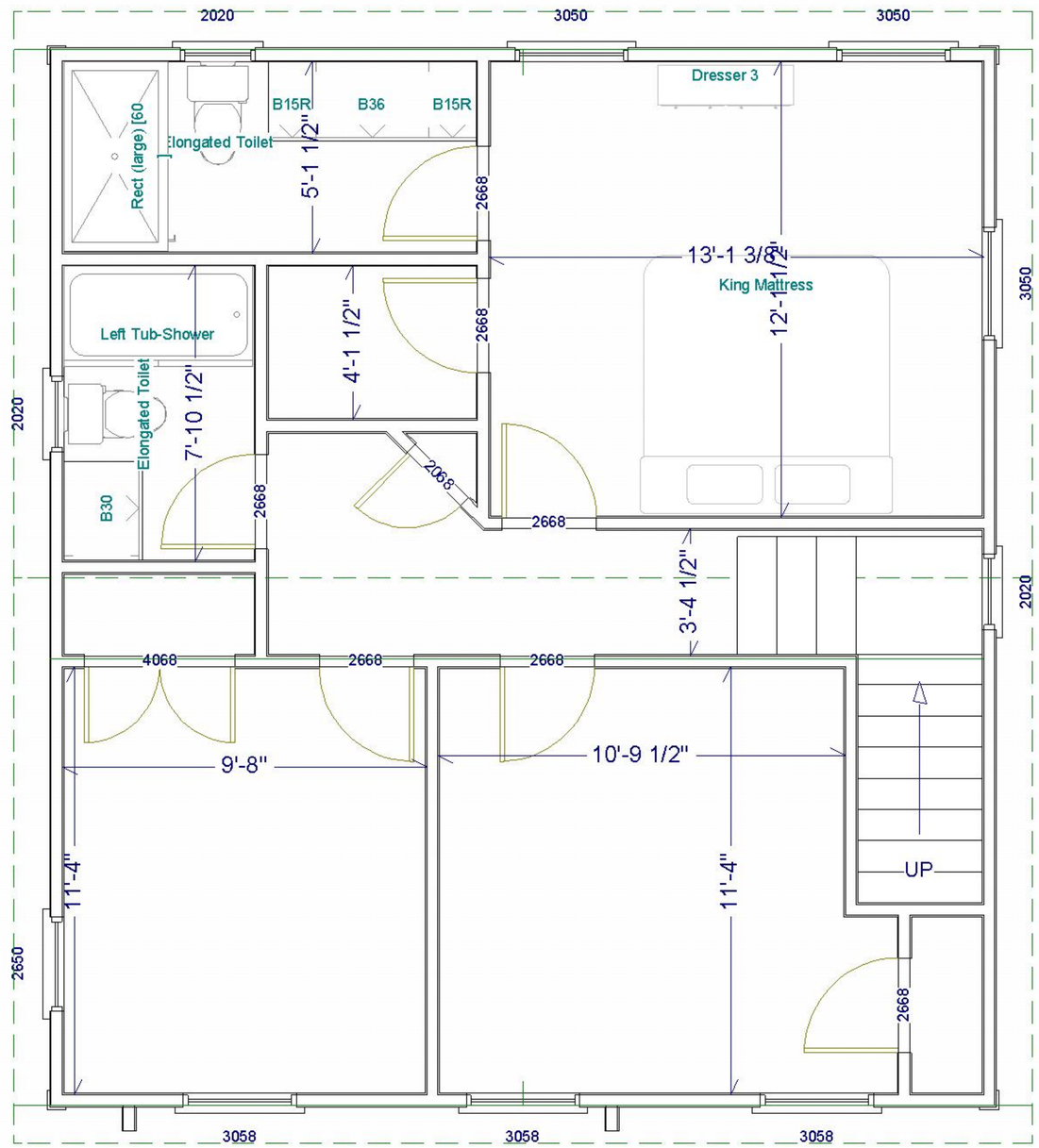

Single Laundry
B30
B30
Dryer
Washer
Tankless Water Heater
18" w/ Gas Upflow [18 1/2W28 5/8 D]
3068
3068
3068
Economy Car
Economy Car
UP
3068
8070
8070
3068
Square Column
Square Column
V
Exterior Elevation Left
LIVING AREA
700 sq ft



V

Exterior Elevation Left

LIVING AREA
714 sq ft



V

Exterior Elevation Left

LIVING AREA

700 sq ft

"RESIDENCES ALONG ABBEY SAWYER"
TRANSFER OF DEVELOPMENT RIGHTS
RESIDENTIAL SITE PLAN
FOR
KNOX MARSH DEVELOPMENT, LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

TABLE OF CONTENTS:

SHEET 1 ~ NEIGHBORHOOD PLAN
SHEET 2 ~ EXISTING CONDITIONS PLAN
SHEET 3 ~ SITE PLAN
SHEET 4 ~ GRADING PLAN
SHEET 5 ~ GRADING PROFILE
SHEET 6 ~ P101– SUBSURFACE SAND FILTER PLAN
SHEET 7 ~ EROSION & SEDIMENT CONTROL PLAN
SHEET 8 ~ UTILITY PLAN & PROFILE
SHEET 9 ~ GRAVITY SEWER CONNECTION PLAN & PROFILE
SHEET 10 ~ LANDSCAPING PLAN
SHEET 11 ~ LIGHTING PLAN
SHEET 12 ~ CROSS SECTIONS
SHEET 13 ~ SIGHT DISTANCE PLAN
SHEET 14 ~ FIRE TRUCK TURNING TEMPLATE
SHEET 15 ~ E101–SEDIMENT & EROSION DETAILS
SHEET 16 ~ E102–SEDIMENT & EROSION DETAILS
SHEET 17 ~ C101–CONSTRUCTION DETAILS
SHEET 18 ~ C102–CONSTRUCTION DETAILS
SHEET 19 ~ D101–DRAINAGE CONSTRUCTION DETAILS
SHEET 20 ~ U101–UTILITY CONSTRUCTION DETAILS
SHEET 21 ~ U102–UTILITY CONSTRUCTION DETAILS
SHEET 22 ~ L101–LANDSCAPING CONSTRUCTION DETAILS

OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVENUE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVENUE
DOVER, NH 03820

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

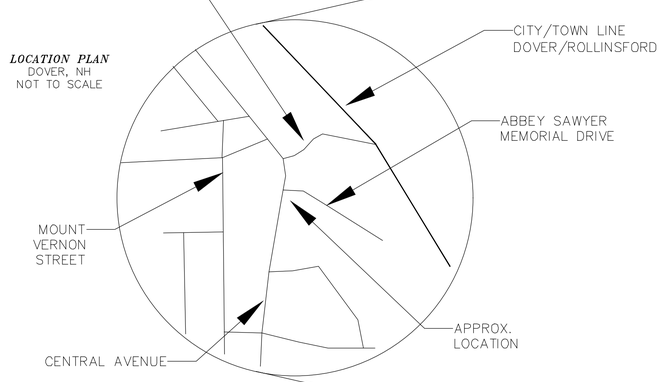
ENGINEER OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825
(603) 332–2863

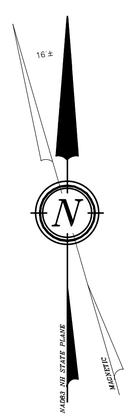
WETLAND SCIENTIST: DEIDRA BENJAMIN, CWS
100 LEAVITT ROAD
PITTSFIELD, NH 03263
(603)–496–3307

NOTE:

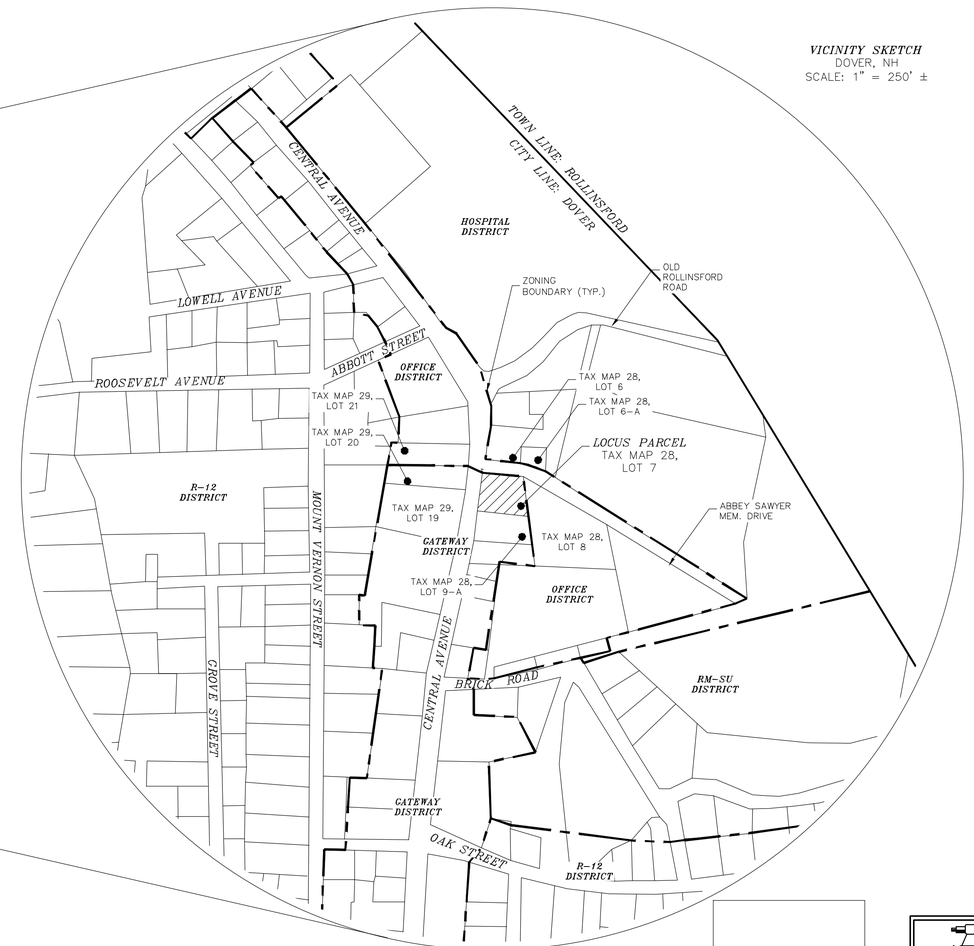
BERRY SURVEYING & ENGINEERING HAS PREPARED AN INSPECTION & MAINTENANCE MANUAL AS PART OF THIS PROJECTS DOCUMENTATION. ALL USERS ARE BOUND TO THIS DOCUMENT AS PART OF THE APPROVAL OF THE PLANNING BOARD. COPIES OF THE YEARLY INSPECTIONS ARE TO BE DELIVERED TO THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

LOCATION PLAN
DOVER, NH
NOT TO SCALE





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



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

GENERAL PLAN SET NOTES:

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

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

OWNER'S SIGNATURE DATE

APPROVED DOVER

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

DOVER PLANNING FILE #22–15

REVISION	DATE	DESCRIPTION
#1	5–12–22	REVISED PER TRC COMMENT

TRANSFER OF DEVELOPMENT RIGHTS RESIDENTIAL SITE PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : AS SHOWN
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

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

ABBREVIATION LEGEND:

BITUM.	BITUMINOUS
E.O.P.	EDGE OF PAVEMENT
S.G.C.	SLOPED GRANITE 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

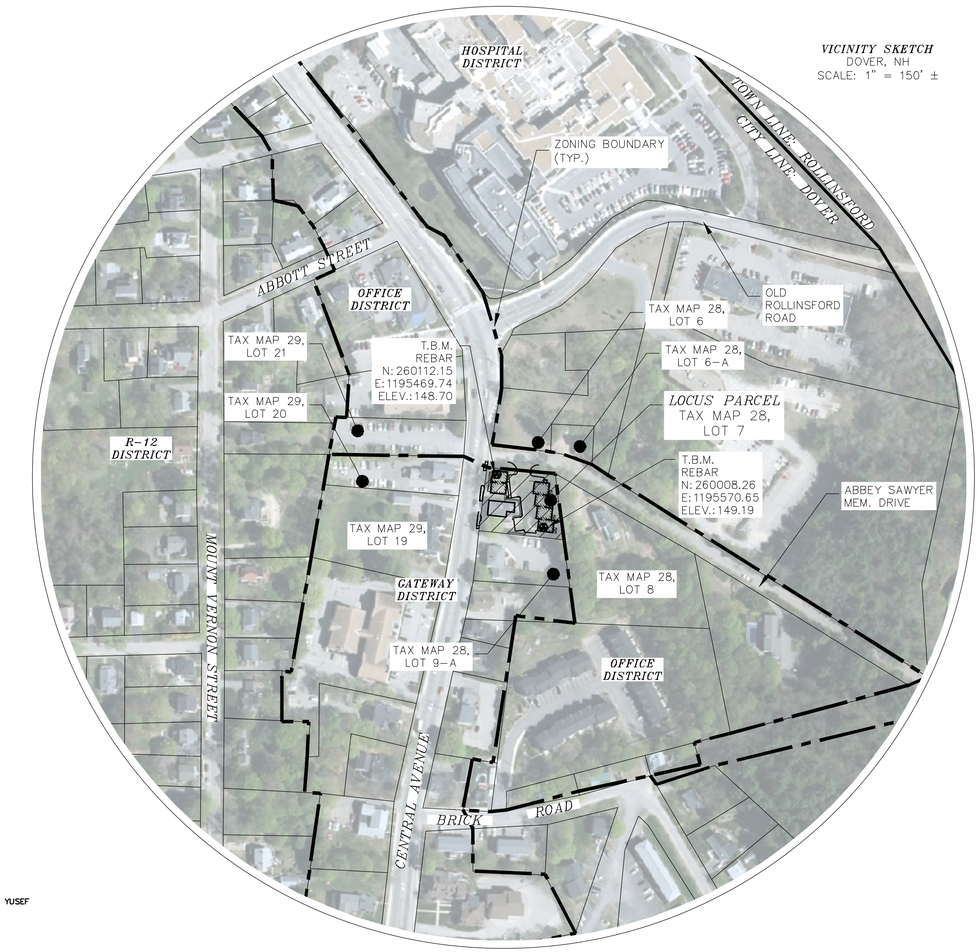
{ } SSL ( ) ~ {SIZE} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } DSL ( ) ~ {SIZE} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } SSB ( ) ~ {SIZE} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } SBL ( ) ~ {SIZE} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } DBL ( ) ~ {SIZE} DOUBLE BROKEN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

EXISTING LEGEND:

IRON BOUND ~FND~
GRANITE BOUND ~FND~
STEEL STAKE ~FND~
UTILITY POLE / GUY WIRE
SINGLE POST SIGN
CURB STOP
GATE VALVE
FIRE HYDRANT
CATCH BASIN
SEWER MANHOLE
DRAIN MANHOLE
E248.60 — EXISTING SPOT ELEVATION
ZONE LINE
BUILDING SETBACK LINE
PERIMETER BOUNDARY
EWL — EXISTING WATER LINE
S — EXISTING SEWER LINE
D — EXISTING DRAIN LINE
OHU — OVERHEAD UTILITIES
229 — EXISTING CONTOUR MINOR
230 — EXISTING CONTOUR MAJOR
GsB — NRCS SOIL DELINEATION SOIL TYPE

PROPOSED LEGEND:

UTILITY POLE
LIGHT TYPE "A" MOUNTED ON LIGHT POLE
LIGHT TYPE "B" MOUNTED ON BUILDING
LIGHT TYPE "B" MOUNTED ON LIGHT POLE
DRAIN MANHOLE W/STRUCTURE
SEWER MANHOLE W/STRUCTURE
CATCH BASIN W/STRUCTURE
SIGNAGE
CHECK DAM–MATERIAL AS SPECIFIED
FLOW ARROW
TEMPORARY BENCHMARK (T.B.M.)
E101 / E6 — DETAIL SHEET / DETAIL
P241 — CONTOUR MINOR, PROPOSED
P240 — CONTOUR MAJOR, PROPOSED
D — DRAIN CULVERT
SHOULDER
CENTER LINE
BUILDING SETBACK LINE
TRANSFORMER / J.BOX
UGE — UNDERGROUND UTILITY
U.D — UNDER DRAIN
SF — SILT FENCE / EROSION MIX BERM
SS — FILTREXX 8" – 12" SILT SOXX AS SPECIFIED
C — ORANGE CONSTRUCTION PERIMETER FENCE
RIP RAP
STORMWATER BEST MANAGEMENT PRACTICE
SNOW STORAGE AREA
GATE VALVE
CURB STOP
POST HYDRANT
THRUST BLOCKS
F231.65 — PROPOSED SPOT ELEVATION
W — PROPOSED WATER LINE
S — PROPOSED SEWER LINE



SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R7–8	12"x18"	RESERVED PARKING	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN W/ WHITE SYMBOL ON BLUE	RED	SQUARE (1)
R7–8a	12"x6"	VAN ACCESSIBLE	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN	GREEN	SQUARE (1)
R8–31	12"x18"	NO PARKING ANY TIME FIRE LANE	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	2	WHITE	RED	RED	SQUARE (2)

ABUTTERS WITHIN 200':

N/F QUANTUM OFFICE, LLC
755 CENTRAL AVE.
DOVER, NH 03821
TAX MAP 28, LOT 9–A
S.C.R.D. BOOK 3024, PAGE 343

N/F ADAM AL–GHAITHY, WENDIE & YUSEF
1 ABBEY SAWYER MEM. DRIVE
DOVER, NH 03820
TAX MAP 28, LOT 8
S.C.R.D. BOOK 3809, PAGE 906

N/F VACCARO, RALPH
GAGES HILL AUTO
2 ABBEY SAWYER MEM. DRIVE
DOVER, NH 03820
TAX MAP 28, LOT 6–A
S.C.R.D. BOOK 1460, PAGE 654

N/F WENTWORTH DOUGLASS HOSPITAL
C/O MASS GENERAL BRIGHAM
399 REVOLUTION DRIVE SUITE 1345
SOMERVILLE, MA 02145
TAX MAP 28, LOT 6
S.C.R.D. BOOK 3702, PAGE 187

N/F LAGCHECK REALTY
770 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 29, LOT 21
S.C.R.D. BOOK, 1365, PAGE 705

N/F JOHNSTONE FAMILY ASSET HOLDING COMPANY
1 WENTWORTH TERRACE
DOVER, NH 03820
TAX MAP 29, LOT 20
S.C.R.D. BOOK, 4739, PAGE 835

N/F TASKER, GROVER L. SR. & SUSAN R. TRUSTEES
TASKER FAMILY LIVING TRUST
756 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 29, LOT 19
S.C.R.D. BOOK, 3736, PAGE 454

N/F CENTRAL COMMONS
750 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 29, LOT 17
S.C.R.D. BOOK 1170, PAGE 568

ABUTTERS WITHIN 200' CONT.:

N/F LPPR, LLC
71 WHITEHOUSE ROAD
ROCHESTER, NH 03867
TAX MAP 29, LOT 12
S.C.R.D. BOOK 4902, PAGE 384

N/F BENNETT SOJA–PARK REV TRUST 94
BENNETT SOJA PARK TRUSTEE
749 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 28, LOT 10
S.C.R.D. BOOK 1773, PAGE 757

N/F WENTWORTH DOUGLASS HOSPITAL
C/O MASS GENERAL BRIGHAM
399 REVOLUTION DRIVE SUITE 1345
SOMERVILLE, MA 02145
TAX MAP 28, LOT 5
S.C.R.D. BOOK 3702, PAGE 187

N/F WENTWORTH DOUGLASS HOSPITAL
C/O MASS GENERAL BRIGHAM
399 REVOLUTION DRIVE SUITE 1345
SOMERVILLE, MA 02145
TAX MAP 28, LOT 3
S.C.R.D. BOOK 3656, PAGE 648

N/F LAGCHECK REALTY
770 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 29, LOT 22
S.C.R.D. BOOK, 3906, PAGE 601

ABUTTERS WITHIN 200' CONT.:

N/F WENTWORTH DOUGLASS HOSPITAL
C/O MASS GENERAL BRIGHAM
399 REVOLUTION DRIVE SUITE 1345
SOMERVILLE, MA 02145
TAX MAP 28, LOT 37
S.C.R.D. BOOK 4514, PAGE 636

N/F 6 BRICK ROAD LLC.
42 J DOVER POINT ROAD
DOVER, NH 03820
TAX MAP 28, LOT 9–C
S.C.R.D. BOOK 3986, PAGE 60

N/F BENNETT SOJA–PARK REV TRUST 94
BENNETT SOJA PARK TRUSTEE
749 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 28, LOT 11
S.C.R.D. BOOK 1773, PAGE 760

N/F CENTRAL PARTNERS REALTY LLC.
784 CENTRAL AVENUE
DOVER, NH 03820
TAX MAP 29, LOT 23
S.C.R.D. BOOK 4471, PAGE 221

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

DOVER PLANNING FILE #22–15

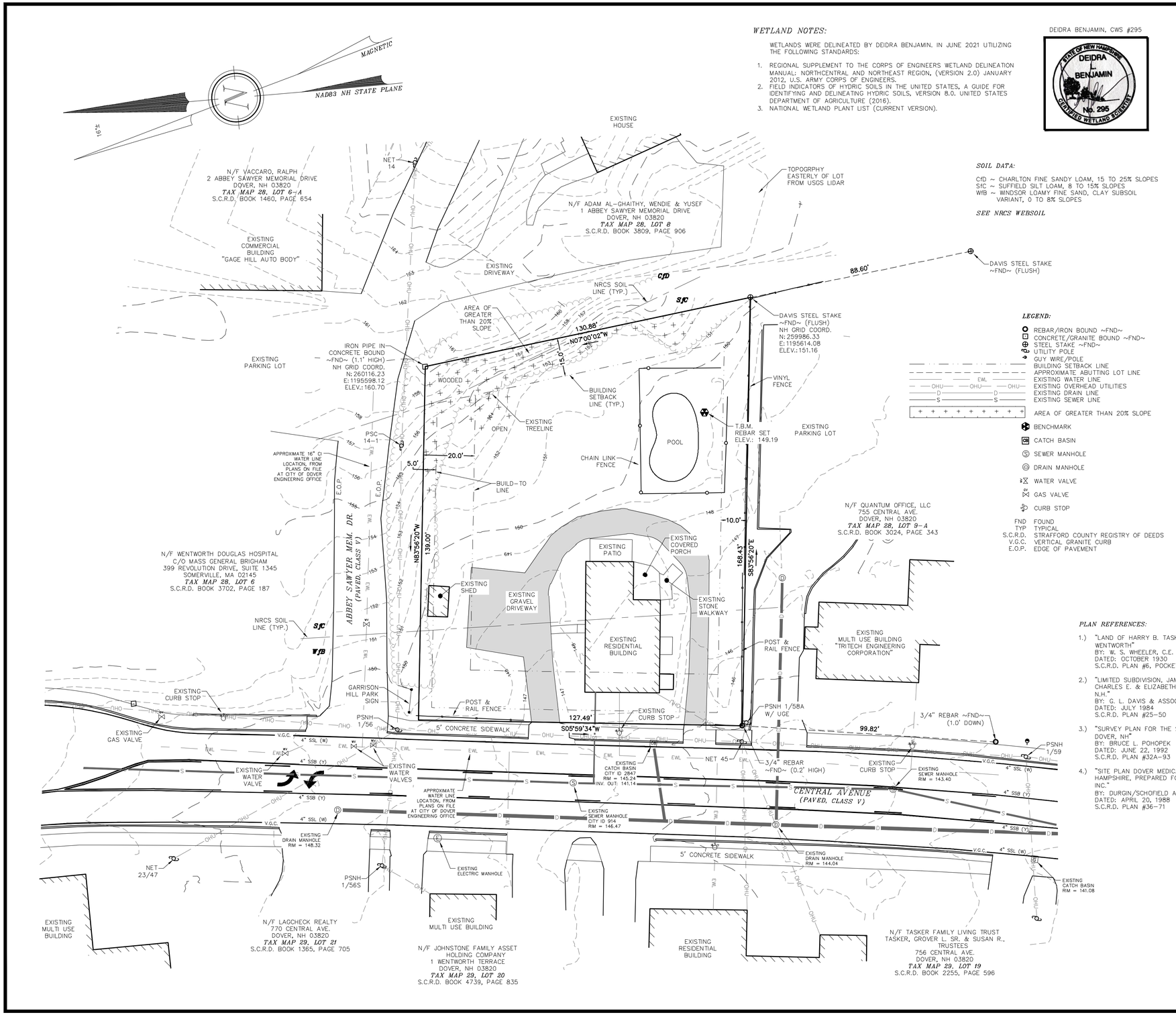
REVISION	DATE	DESCRIPTION
#1	5–12–22	REVISED PER TRC COMMENT

NEIGHBORHOOD PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : AS SHOWN
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

STATE OF NEW HAMPSHIRE — KENNETH A. BERRY — No. 14242 — LICENSED — PROFESSIONAL ENGINEER



WETLAND NOTES:

WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN. IN JUNE 2021 UTILIZING THE FOLLOWING STANDARDS:

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

DEIDRA BENJAMIN, CWS #295

STATE OF NEW HAMPSHIRE
DEIDRA L. BENJAMIN
No. 295
CERTIFIED WETLAND SCIENTIST

SOIL DATA:

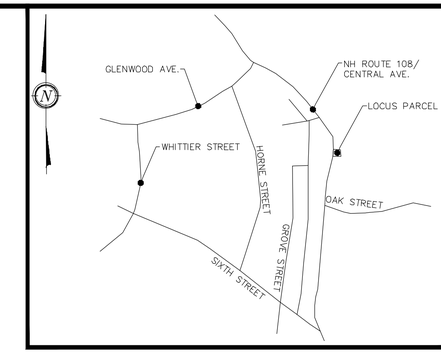
CfD ~ CHARLTON FINE SANDY LOAM, 15 TO 25% SLOPES
SfC ~ SUFFIELD SILT LOAM, 8 TO 15% SLOPES
WfB ~ WINDSOR LOAMY FINE SAND, CLAY SUBSOIL VARIANT, 0 TO 8% SLOPES

SEE NRCS WEBSOIL

LEGEND:

- REBAR/IRON BOUND ~FND~
- CONCRETE/GRANITE BOUND ~FND~
- STEEL STAKE ~FND~
- UTILITY POLE
- GUY WIRE/POLE
- BUILDING SETBACK LINE
- APPROXIMATE ABUTTING LOT LINE
- EXISTING WATER LINE
- EXISTING OVERHEAD UTILITIES
- EXISTING DRAIN LINE
- EXISTING SEWER LINE
- AREA OF GREATER THAN 20% SLOPE
- BENCHMARK
- CATCH BASIN
- SEWER MANHOLE
- DRAIN MANHOLE
- WATER VALVE
- GAS VALVE
- CURB STOP

FND	FOUND
TYP	TYPICAL
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
V.G.C.	VERTICAL GRANITE CURB
E.O.P.	EDGE OF PAVEMENT



NOTES:

1.) OWNERS: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) ZONING: GATEWAY DISTRICT
SETBACKS
FRONT BUILD TO LINE ~ 5-20'
SIDE ~ 10'
REAR ~ 15'
MIN. LOT SIZE: N/A
MIN. LOT COVERAGE: 50%
FRONTAGE BUILD-OUT ~ 60% MIN.
MAX. BUILDING HEIGHT: 4 STORY MAX., 2 STORY MIN.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING BOUNDARIES AND CONDITIONS OF TAX MAP 28, LOTS 7 LOCATED IN DOVER, N.H., AS OF THE FIELD SURVEY IN JUNE 2021.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0330E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN JUNE OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

10.) TOPOGRAPHY PROVIDED IS DEMARCATED AT 1' INTERVALS, AND IS THE RESULT OF A FIELD SURVEY PERFORMED JUNE OF 2021.

11.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

12.) NO WETLANDS WERE FOUND ON SITE.

PLAN REFERENCES:

1.) "LAND OF HARRY B. TASKER AND IRVING T. WENTWORTH"
BY: W. S. WHEELER, C.E.
DATED: OCTOBER 1930
S.C.R.D. PLAN #6, POCKET #4, FOLDER #2

2.) "LIMITED SUBDIVISION, JAMES E. WENTWORTH AND CHARLES E. & ELIZABETH C. TASKER DOVER N.H."
BY: G. L. DAVIS & ASSOCIATES
DATED: JULY 1984
S.C.R.D. PLAN #25-50

3.) "SURVEY PLAN FOR THE SCHWARTZ PROPERTY IN DOVER, NH"
BY: BRUCE L. POHOPEK
DATED: JUNE 22, 1992
S.C.R.D. PLAN #32A-93

4.) "SITE PLAN DOVER MEDICAL CENTER DOVER, NEW HAMPSHIRE, PREPARED FOR SPINELLI COMPANIES, INC."
BY: DURGIN/SCHOFIELD ASSOCIATES
DATED: APRIL 20, 1988
S.C.R.D. PLAN #36-71

PLAN REFERENCES (CONT'D):

5.) "MINOR LOT LINE ADJUSTMENT, LOT CONSOLIDATION PLAN, AND OLD ROLLINSFORD ROAD REALIGNMENT 789, 781, 779, 775, & 773 CENTRAL AVENUE, DOVER, NEW HAMPSHIRE" SHEETS 1 & 3 OF 3
BY: JAMES VERRA AND ASSOCIATES, INC.
DATED: APRIL 8, 2009
S.C.R.D. PLANS #101-66 & #101-68

6.) "SITE DEVELOPMENT PLAN TRITECH ENGINEERING CORPORATION 753-755 CENTRAL AVENUE DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: APRIL 19, 2004
ON FILE AT DOVER PLANNING OFFICE

7.) "AS BUILT PLAN TRITECH ENGINEERING CORPORATION 753-755 CENTRAL AVENUE DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: OCTOBER 3, 2006
ON FILE AT DOVER PLANNING OFFICE

8.) "GENERAL SITE PLAN 6 BRICK ROAD BRICK ROAD DOVER, NEW HAMPSHIRE"
BY: TRITECH ENGINEERING CORPORATION
DATED: OCTOBER 18, 20011
ON FILE AT DOVER PLANNING OFFICE

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

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

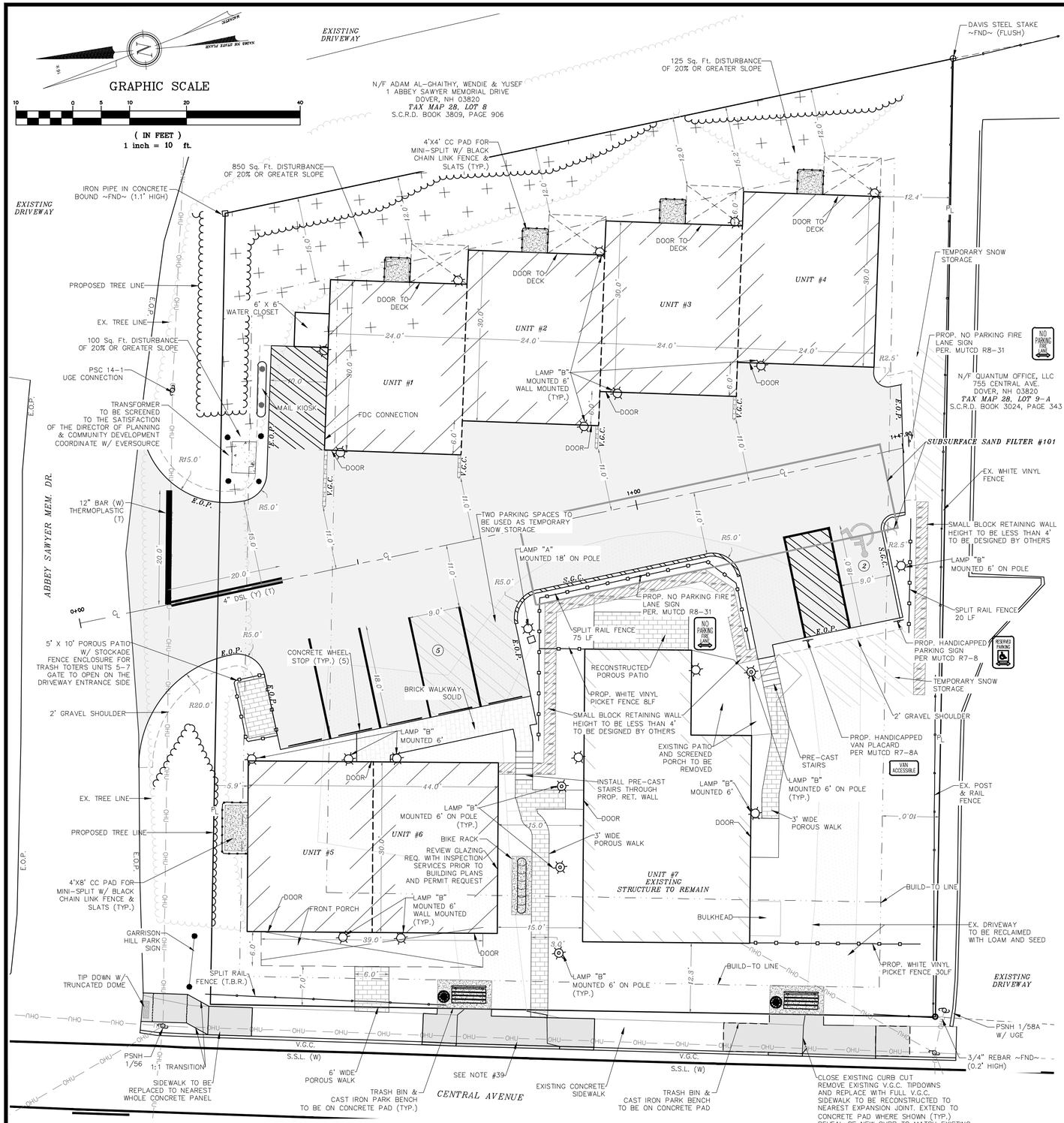
EXISTING CONDITIONS PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 20 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

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

SHEET 2 OF 22



NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) ZONING: GATEWAY DISTRICT SETBACKS
FRONT BUILD TO LINE ~ 5-20'
SIDE ~ 10'
REAR ~ 15'
MIN. LOT SIZE: N/A
MIN. LOT COVERAGE: 50%
FRONTAGE BUILD-OUT ~ 60% MIN.
MAX. BUILDING HEIGHT: 4 STORY MAX., 2 STORY MIN.

ZONING: TRANSFER OF DEVELOPMENT RIGHTS (TDR)	PROVIDED
LOT SIZE: N/A Sq. Ft.	
MAX. LOT COVERAGE: N/A	
MINIMUM FRONTAGE: 40'	
ABUT A STREET SETBACK: 20'	5-20' BUILD-TO
ABUT A SIDE LOT LINE: 10'	10'
ABUT A REAR LOT LINE: 30'	15'
30' EXTERIOR BUFFER	REMOVED

6.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW SITE PLAN.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WTHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0330E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN JUNE OF 2021 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

10.) 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:
NONE

11.) WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN, CERTIFIED WETLANDS SCIENTIST, IN ACCORDANCE WITH CHAPTER 170-27.1 OF THE ZONING ORDINANCE, IN JUNE OF 2021. NO WETLANDS WERE FOUND ON SITE.

12.) AS-BUILT PLANS OF THE SITE PLAN 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. AS-BUILTS ARE REQUIRED REGARDLESS OF OWNERSHIP OF ROAD. 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.

13.) THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.

14.) THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.

15.) 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.

16.) 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.

17.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.

18.) A LETTER OF CREDIT FOR THE COST OF RE-VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED, AND THE APPROVED CONSTRUCTION SIGN INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS. THE PROPOSED PROJECT WILL CONSIST OF ONE PHASE AND WILL DISTURB 15,350 Sq.Ft. 0.35 Ac.

19.) 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.

20.) SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY 7 AM-6 PM, NO SUNDAY HOURS OR FEDERAL HOLIDAYS. 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.

21.) BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

22.) THE PROPOSED USE IS FOR ONE (1) SINGLE FAMILY HOME (EXISTING), FOUR (4) DRIVE UNDER TOWNHOUSES, AND A TWO (2) UNIT DUPLEX BUILDING.

23.) THE FOLLOWING FEDERAL AND STATE PERMITS OR UTILITY ORDERS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
EVERSOURCE WORK ORDER NUMBER XXXXX

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

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

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

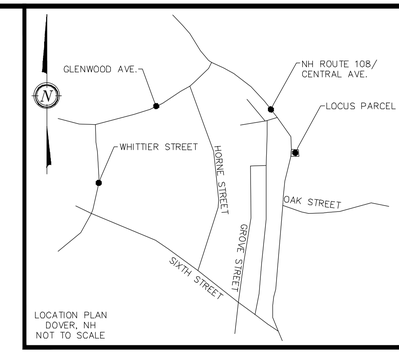
27.) APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.

28.) 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.

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

30.) EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.

31.) A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.



NOTES CONTINUED:

32.) APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.

33.) 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.

34.) 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.

35.) 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.

36.) 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.

37.) EXISTING BUILDING IMPERVIOUS AREA: 1,590 Sq. Ft. (8.1%)
EXISTING PAVED/GRAVEL IMPERVIOUS AREA: 2,918 Sq. Ft. (14.9%)
TOTAL EXISTING IMPERVIOUS COVER IS 4,508 Sq. Ft. (23.0%)
PROPOSED BUILDING IMPERVIOUS AREA: 6,097 Sq. Ft. (31.1%)
PROPOSED PAVED IMPERVIOUS AREA: 5,200 Sq. Ft. (26.5%)
TOTAL PROPOSED IMPERVIOUS COVER IS 11,297 Sq. Ft. (57.6%)

38.) PRIVATE TRASH PICKUP WILL BE USED THROUGH THE USE OF TOTERS PLACED IN FRONT OF GARAGE FOR UNITS 1-4 AND ON THE PROVIDED PAD AND STOCKADE ENCLOSURE FOR UNITS 5-7.

39.) MUNICIPAL SIDEWALK TO REMAIN OPERATIONAL AT ALL TIMES AND SHALL HAVE A 5' WIDTH MINIMUM IN FINAL CONDITION.

40.) UNITS 1-4 ARE THREE (3) BEDROOM UNITS, UNITS 5 & 6 ARE TWO (2) BEDROOM UNITS, AND UNIT 7 IS A FOUR (4) BEDROOM UNIT.

41.) THE CLOSEST FIRE HYDRANT IS AT THE OPPOSITE CORNER OF CENTRAL AVE. AND OLD ROLLINSFORD ROAD WHICH IS 375' FROM THE SOUTHERN CORNER OF THE SUBJECT PARCEL.

TRANSFER OF DEVELOPMENT RIGHTS (TDR) CALCULATION:

GATEWAY DISTRICT DENSITY CALCULATION
- LOT AREA = 19,597 Sq.Ft.
- WETLANDS = 0 Sq.Ft.
- UPLANDS = 19,597 Sq.Ft.
- NUMBER OF UNITS = 19,597 Sq.Ft./4,000 Sq.Ft. PER UNIT = 4.9 UNITS

TOTAL ALLOWED UTILIZING GATEWAY DISTRICT ZONING = 4 UNITS
TOTAL PROPOSED UNITS USING TDR = 7 UNITS

TRANSFER OF DEVELOPMENT RIGHTS REQUEST:
4 UNITS CALCULATED BY RIGHT, 3 UNITS TO BE PURCHASED VIA TDR: 7 TOTAL
REMOVAL OF 30' EXTERIOR BUFFER

CONDITIONAL USE PERMITS:
FRONTAGE BUILD-OUT OF 57.5% WHERE 60% IS REQ. (CENTRAL AVE.)
FRONTAGE BUILD-OUT OF 43.2% WHERE 60% IS REQ. (ABBEY SAWYER MEM. DR.)
LOT COVERAGE OF 31.1% WHERE 50% IS REQ.

WAIVER REQUEST:
UNIFORMITY RATIO REQUIREMENT 153-14(E)(2)(b): TO PERMIT 2:1 WHERE 5:1 IS REQUIRED
SITE SPECIFIC SOILS MAP 153-14(A)(3)(f)(2)(C)

RECREATION SPACE REQUIREMENTS:
PROPOSED NUMBER OF BEDROOMS: 20
OPEN SPACE REQUIREMENT (100 SF PER BEDROOM): 2,000 SF
½ RECREATION SPACE FOR PASSIVE USE: 1,000 SF (PARTIALLY SATISFIED ON SITE)
100 SF/ BENCH (300 SF SATISFIED) 700 SF REMAINING (SATISFIED OFF SITE)
½ RECREATION SPACE FOR ACTIVE USE: 1,000 SF (SATISFIED OFF SITE)
RECREATION FEE REQUIRED

PARKING REQUIREMENTS:

CHAPTER 153-14D PARKING TABLE
- RESIDENTIAL
  - RESIDENTIAL (CBD-GATEWAY) 1.65 SPACES PER UNIT:
  - 7 UNITS x 1.65 SPACES = 12 SPACES

TOTAL PROPOSED = 15 SPACES
UNITS 1-4 HAVE TWO CAR, DRIVE UNDER GARAGES FOR 8 SPACES
7 SPACES PROPOSED ALONG DRIVEWAY ALIGNMENT

SNOW STORAGE CALCULATION:

- STORAGE CALCULATION (6:1 RATIO USED)
  - PAVED AREA = 5,767 Sq.Ft. / 6 = 962 Sq.Ft.
  - 650 Sq.Ft. PROVIDED FOR TEMPORARY SNOW STORAGE

SNOW TO BE REMOVED TO AN APPROVED OFF-SITE LOCATION

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

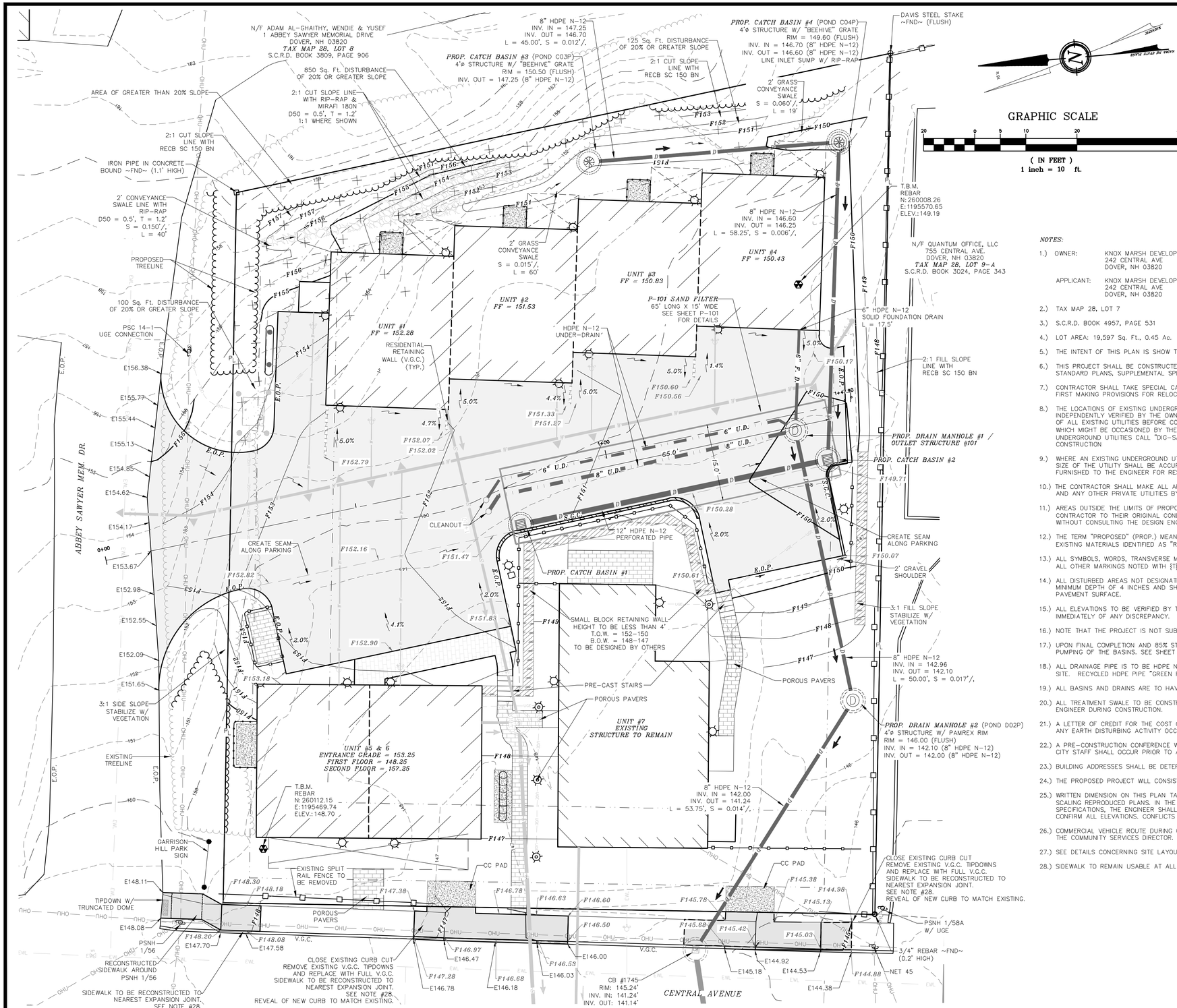
SITE PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

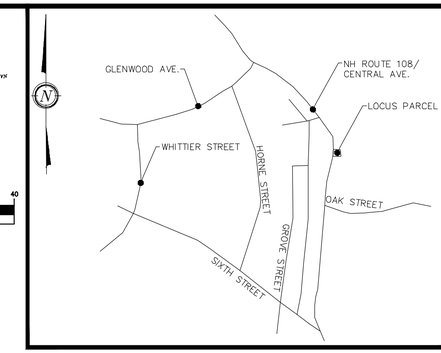
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14293
LICENSED
PROFESSIONAL ENGINEER

SHEET 3 OF 22





NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE OVERVIEW GRADING AND DRAINAGE DESIGN FOR THE PROPOSED DEVELOPMENT.

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

7.) CONTRACTOR SHALL TAKE SPECIAL CARE IN NOT DISTURBING EXISTING MONUMENTS BOUNDS, AND OR BENCHMARKS WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION

8.) 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

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. LIMIT OF GRADING SHOULD NOT BE EXPANDED WITHOUT CONSULTING THE DESIGN ENGINEER. SEE ALSO E&SC PLAN.

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

14.) 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.

15.) 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.

16.) NOTE THAT THE PROJECT IS NOT SUBJECT TO THE EPA NPDES PHASE II.

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

18.) 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.

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

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

21.) 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.

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

23.) BUILDING ADDRESSES SHALL BE DETERMINED BY THE BUILDING OFFICIAL.

24.) THE PROPOSED PROJECT WILL CONSIST OF ONE PHASE AND WILL DISTURB 15,250 Sq.Ft. 0.35 Ac.

25.) 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.

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

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

28.) SIDEWALK TO REMAIN USABLE AT ALL TIMES DURING RECONSTRUCTION PROCESS.

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

GRADING PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14293
LICENSED
PROFESSIONAL ENGINEER

SHEET 4 OF 22

NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

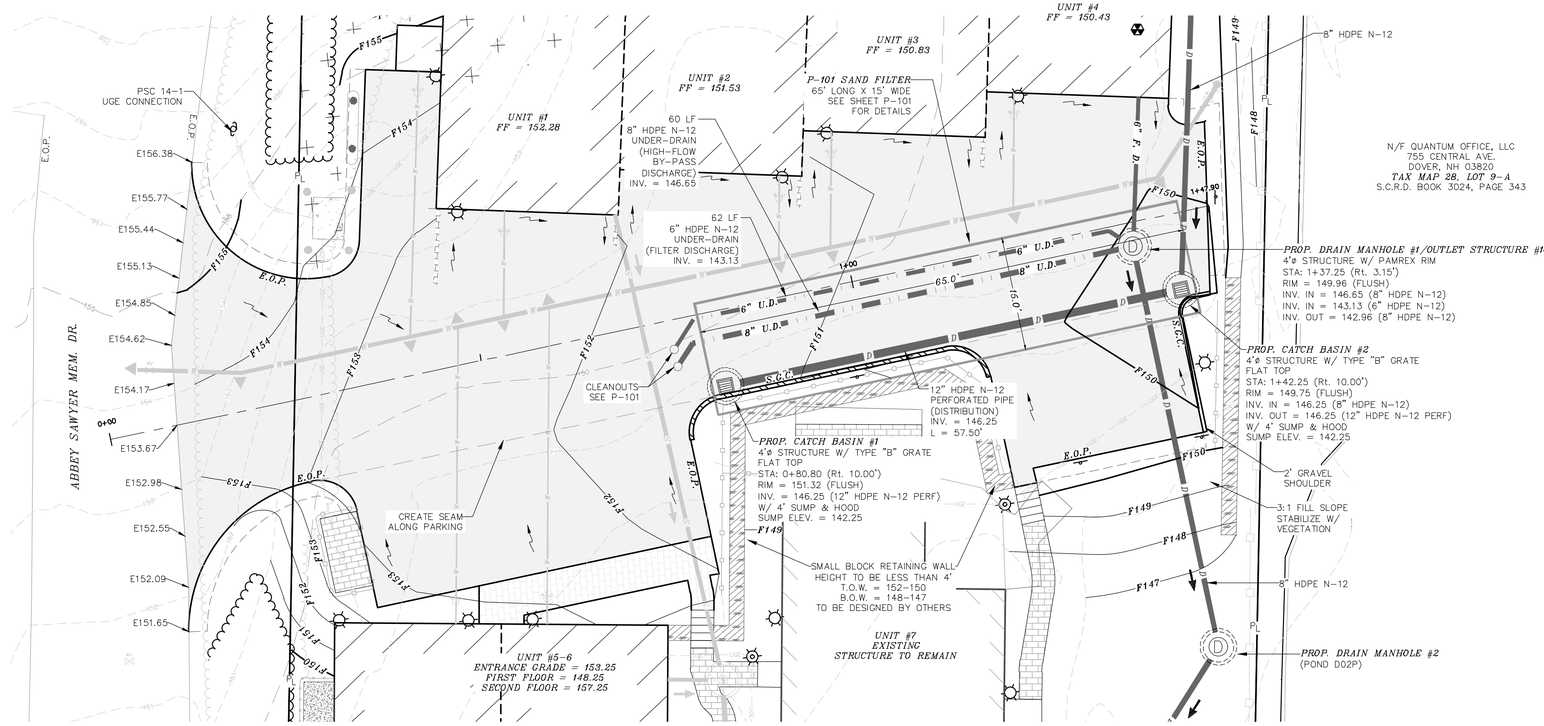
4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING & ENGINEERING DETAILS OF THE PROPOSED DRIVEWAY OF TAX MAP 28, LOT 7.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

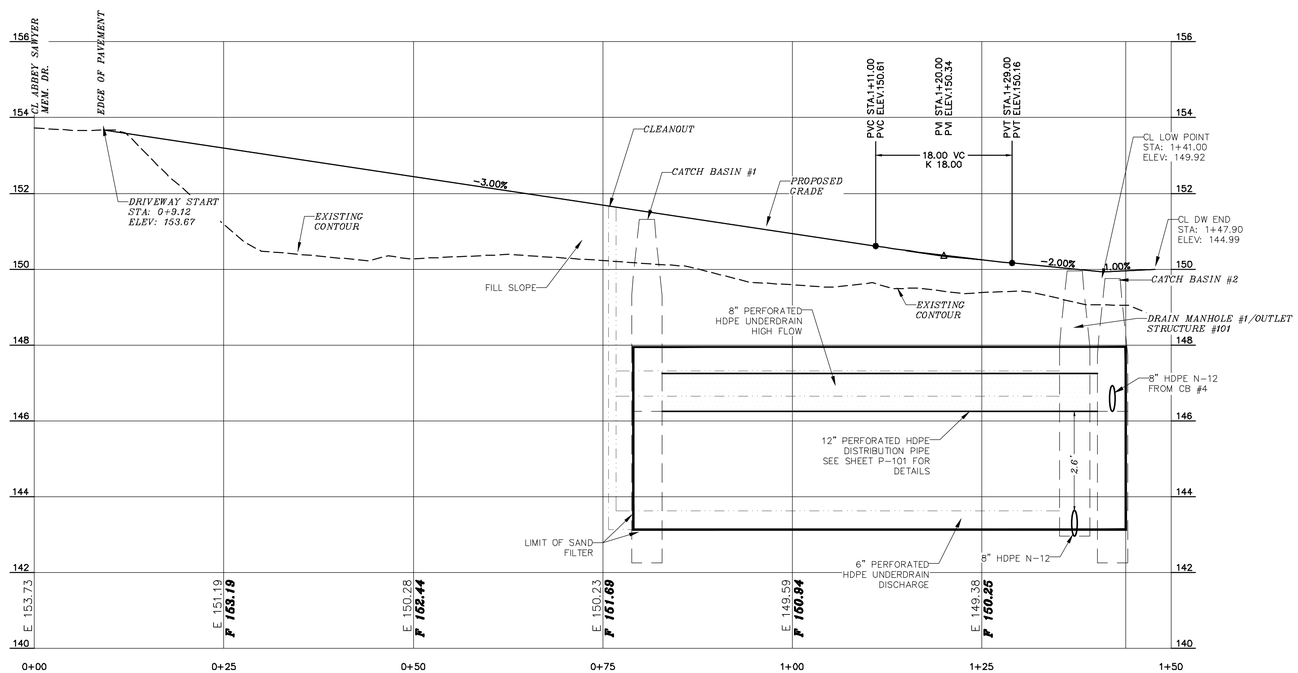
7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS.



PLAN VIEW DRIVEWAY 0+00-END

PROFILE VIEW DRIVEWAY 0+00-END



DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

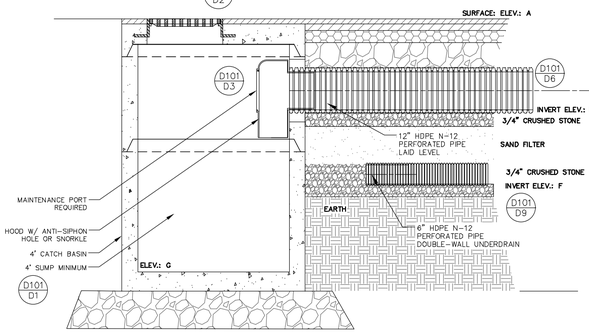
GRADING PROFILE
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

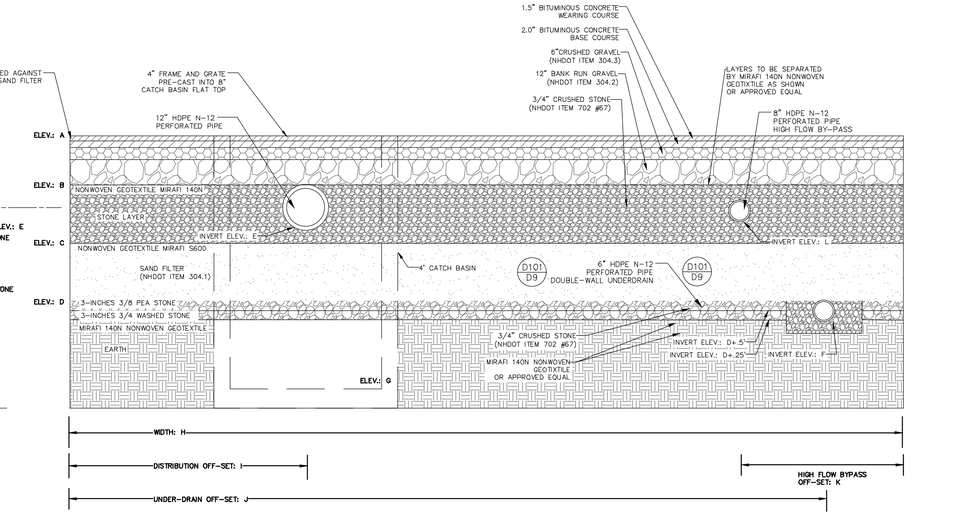
SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14043
LICENSED
PROFESSIONAL ENGINEER

SHEET 5 OF 22



PROFILE OF SAND FILTER & CATCH BASIN



SECTION OF SAND FILTER

A 1

A 1

ELEVATION A	ELEVATION B	ELEVATION C	ELEVATION D	ELEVATION E	ELEVATION F	ELEVATION G	DISTANCE H	DISTANCE I	DISTANCE J	DISTANCE K	ELEVATION L
149.80 FEET	147.95 FEET	145.63 FEET	143.63 FEET	146.25 FEET	143.13 FEET	142.25 FEET	15.0 FEET	3.5 FEET	13.00 FEET	4.75 FEET	146.65 FEET
SURFACE	TOP OF SYSTEM	TOP OF SAND FILTER	BOTTOM OF SYSTEM	DISTRIBUTION CULVERT	UNDER DRAIN	SUMP ELEVATION	SYSTEM WIDTH	DISTRIBUTION OFF-SET	UNDER-DRAIN OFF-SET	DOWNSPOUT UNDER-DRAIN OFF-SET	HIGH FLOW BYPASS INVERT

SAND FILTER DRAINAGE SYSTEM

NOT TO SCALE

CRUSHED STONE BEDDING *

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 –10
# 8	0 – 5

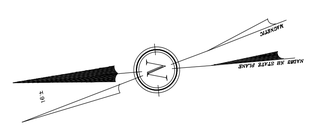
* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS
* WASHED STONE

GRAPHIC SCALE

20 0 5 10 20 40

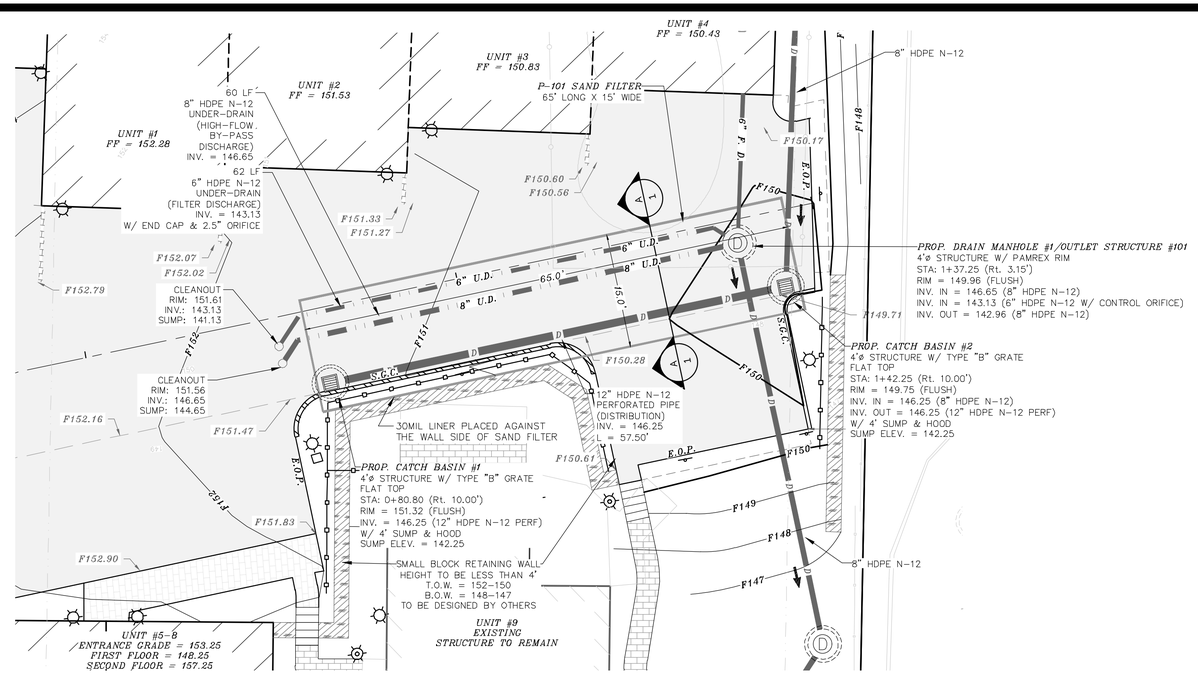
(IN FEET)
1 inch = 10 ft.

SAND FILTER DRAINAGE SYSTEM PLAN VIEW



CAP WITH CONTROL ORIFICE

NOT TO SCALE



DOVER PLANNING FILE #22-15

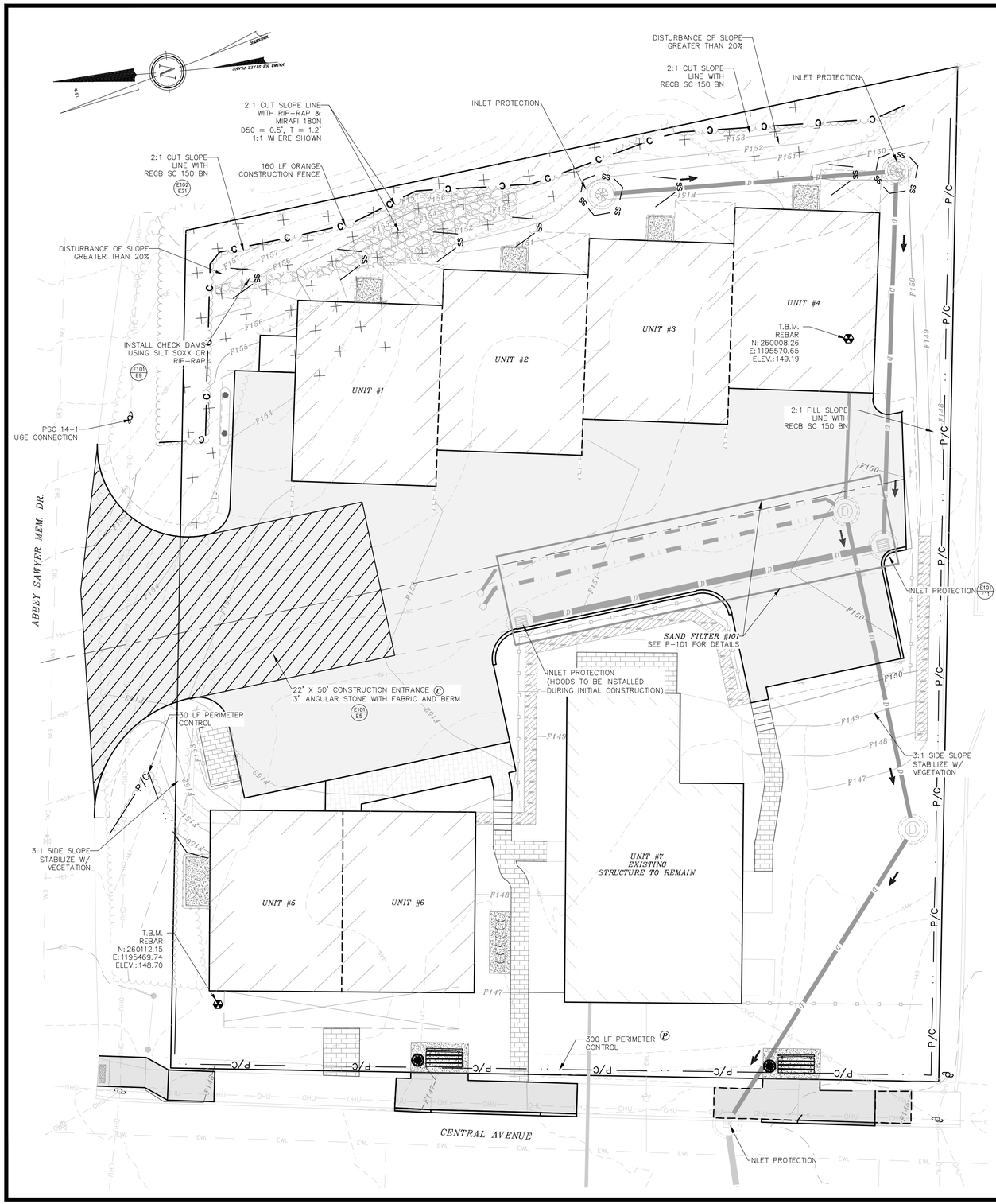
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

SUBSURFACE SAND FILTER DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : AS SHOWN
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14242
LICENSED
PROFESSIONAL ENGINEER



NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

6.) CONTRACTOR IS TO INSTALL A CONSTRUCTION ENTRANCE PRIOR TO EARTH DISTURBING ACTIVITIES.

7.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PARKING LOT, SIDEWALKS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO BELLAMY ROAD OR THE EXISTING DRIVEWAY.

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

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

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

11.) 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.

12.) CATCH BASIN HOODS WILL BE INSTALLED AS SOON AS THE BASIN IS PUT ON LINE. RIM IS TO BE RAISED WITH FINAL GRADE SO THAT STORMWATER RUNOFF CAN DRAIN PROPERLY THROUGHOUT CONSTRUCTION.

13.) CITY OF DOVER: IN ACCORDANCE WITH SITE PLAN REVIEW REGULATIONS (153-14) THE FOLLOWING STORMWATER MEASURES ARE REQUIRED.

A.) ALL PROPOSED BMPs WILL CONFORM TO THE NH STORMWATER MANUAL VOLUME 3.
B.) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY COMMUNITY SERVICE.
C.) 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 SOKL AREAS.
D.) ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL STABILIZATION IS ACCOMPLISHED.
E.) 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.
F.) 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.
G.) 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 (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORMWATER QUALITY (CPSWQ). INSPECTION REPORTS WILL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.

SOILS & DEWATERING:

CfD	*CHARLTON*	*FINE SANDY LOAM*	*K= 0.43*
SfC	*SUFFIELD*	*SILT LOAM*	*K= 0.49*
WfB	*WINDSOR*	*LOAMY FINE SAND*	*K= 0.17*

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

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

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

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

LEGEND:

- (P) PERIMETER CONTROL
- (C) RESIDENTIAL/ROADWAY CONSTRUCTION
- UTILITY POLE
- GUY WIRE
- P/C — PERIMETER CONTROL SEE E-101
- SF — SILT FENCE
- SS — FILTREXX SILTSOXX
- C — ORANGE CONSTRUCTION FENCE

GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #22-15

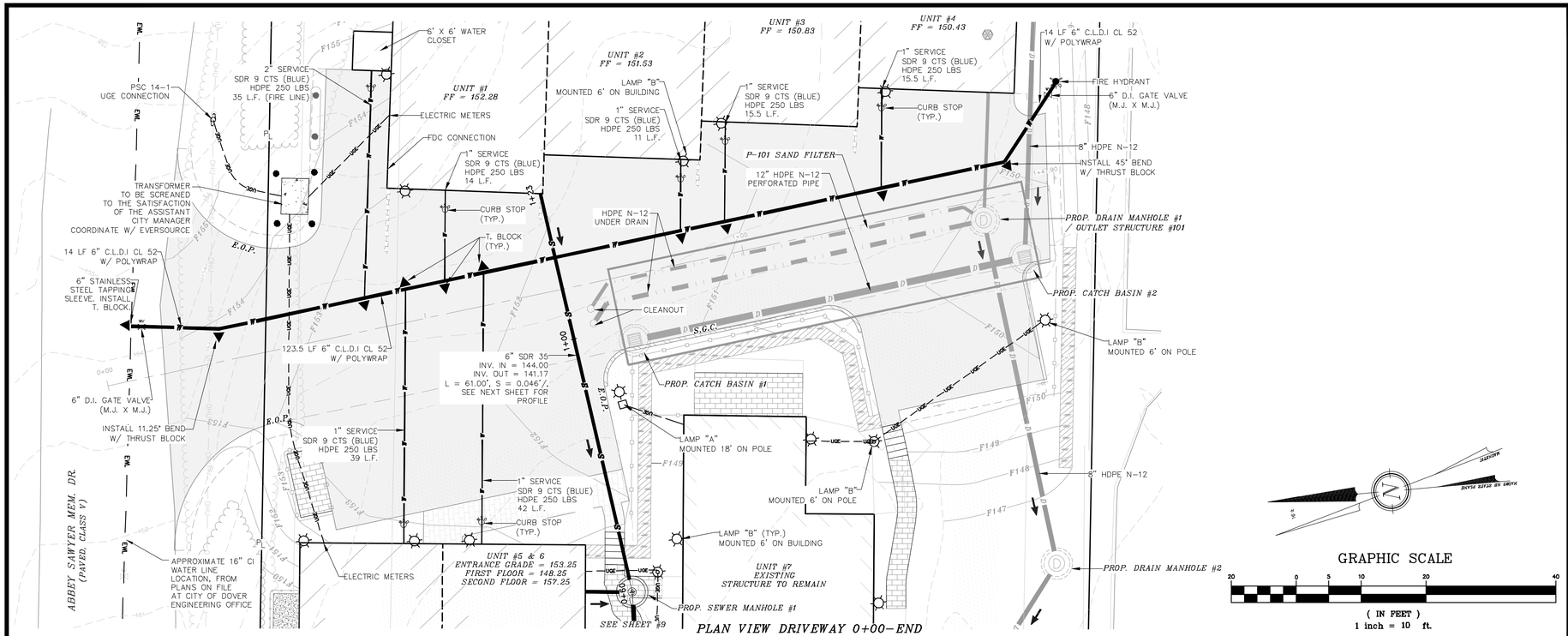
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

EROSION AND SEDIMENT CONTROL PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

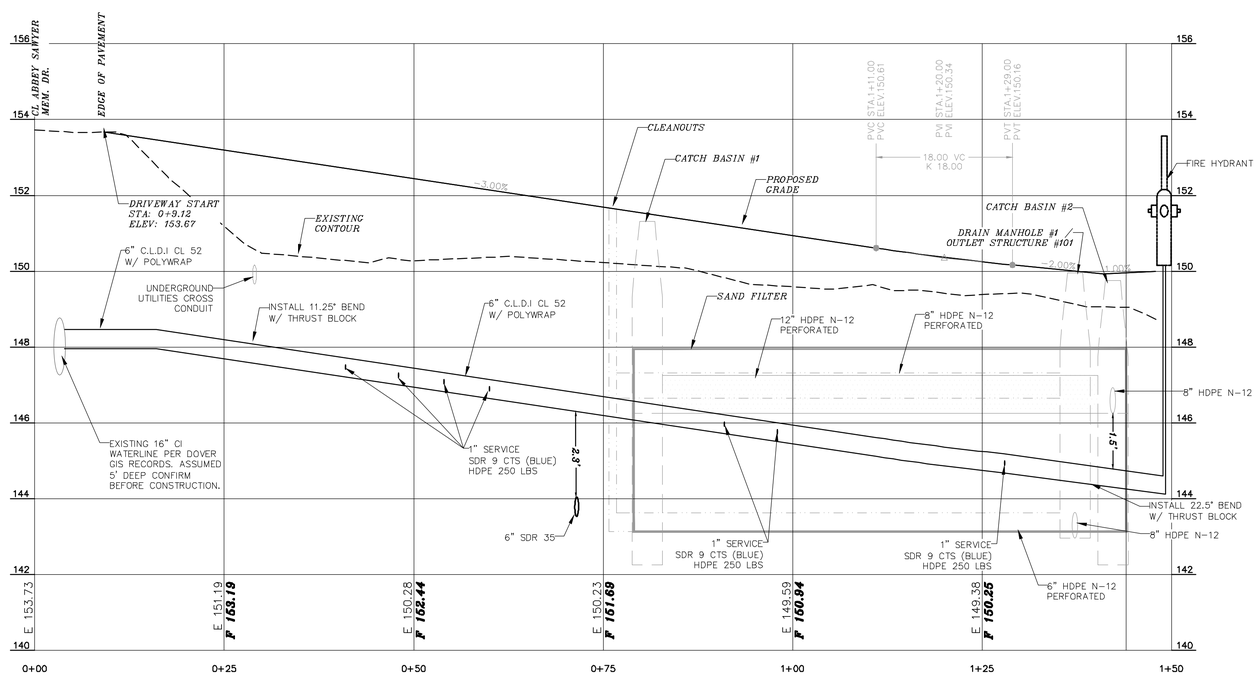
SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14043
LICENSED
PROFESSIONAL ENGINEER



PLAN VIEW DRIVEWAY 0+00-END

PROFILE VIEW DRIVEWAY 0+00-END



NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED UTILITY DESIGN.

6.) 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.

7.) 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.

8.) 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 RUNOGF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAGFIC IN SENSITIVE AREAS, AND MAINTAINING AN EGFECTIVE 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.

9.) 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.

10.) 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.

11.) FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE DOVER DPW.

12.) 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.

13.) ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL CONFORM TO CITY OF DOVER STANDARDS. ALL HIGHWAY CONSTRUCTION WILL MEET THE CITY OF DOVER STANDARDS.

14.) 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.

15.) CONTRACTOR SHALL COORDINATE ALL TELECOMMUNICATIONS INSTALLATIONS WITH FAIRPOINT COMMUNICATIONS AT (603) 427-5525.

16.) CONTRACTOR SHALL COORDINATE ALL CABLE INSTALLATIONS WITH COMCAST.

17.) ALL SEWER MAN HOLE RIMS & COVERS ARE TO BE NH STANDARD.

18.) 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.

19.) CURB BOXES SHOULD BE PLACED IN THE LAWN AREA, OR IF PLACED IN PAVEMENT, A ROAD BOX IS REQUIRED.

20.) SEE EXISTING CONDTIONS PLAN FOR DATUM. VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUS BASED ON NAD83 STATE PLANE COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS.

21.) MINIMUM SLOPE FOR ALL 6" SEWER SERVICE CONNECTIONS IS TO BE NO LESS THAN 0.01 FT/FT.

22.) 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.

23.) CONTRACTOR TO TRANSFER TEMPORARY BENCHMARK TO A SUITABLE BENCHMARK TO CONTROL CONSTRUCTION. ANY ELEVATION DISCREPANCIES ARE TO BE REPORTED TO THE THE DESIGN ENGINEER IMMEDIATELY.

24.) ALL SEWER AND WATER CROSSINGS ARE TO MAINTAIN A 1.5' OF SEPARATION.

25.) HEATING AND COOLING FOR UNITS 1-6 WILL BE DONE VIA MINI-SPLIT.

26.) ALL UTILITIES AND SERVICES ARE TO REMAIN THE SAME FOR THE EXISTING STRUCTURE (UNIT 7).

DOVER PLANNING FILE #22-15

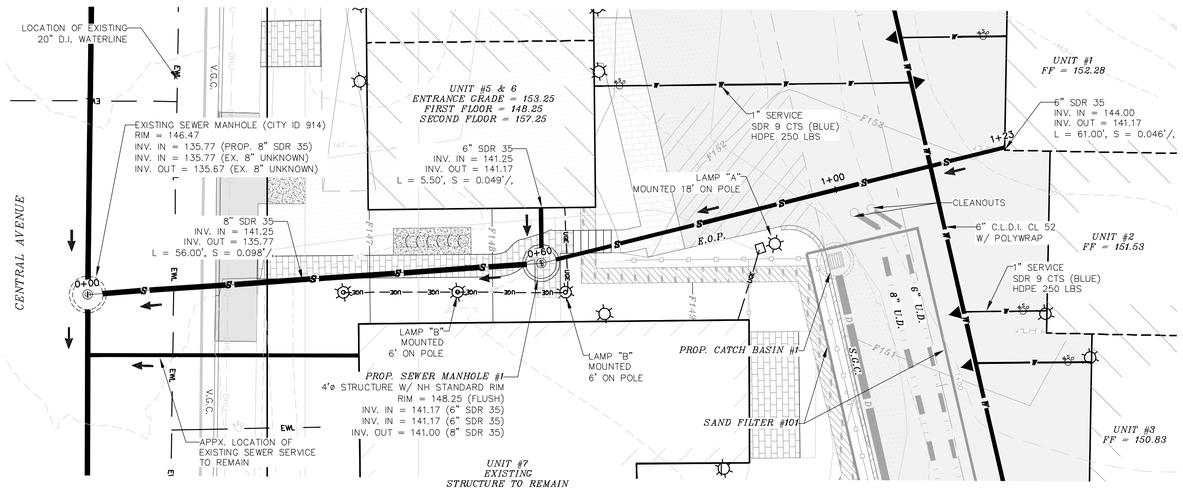
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

UTILITY PLAN & PROFILE
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

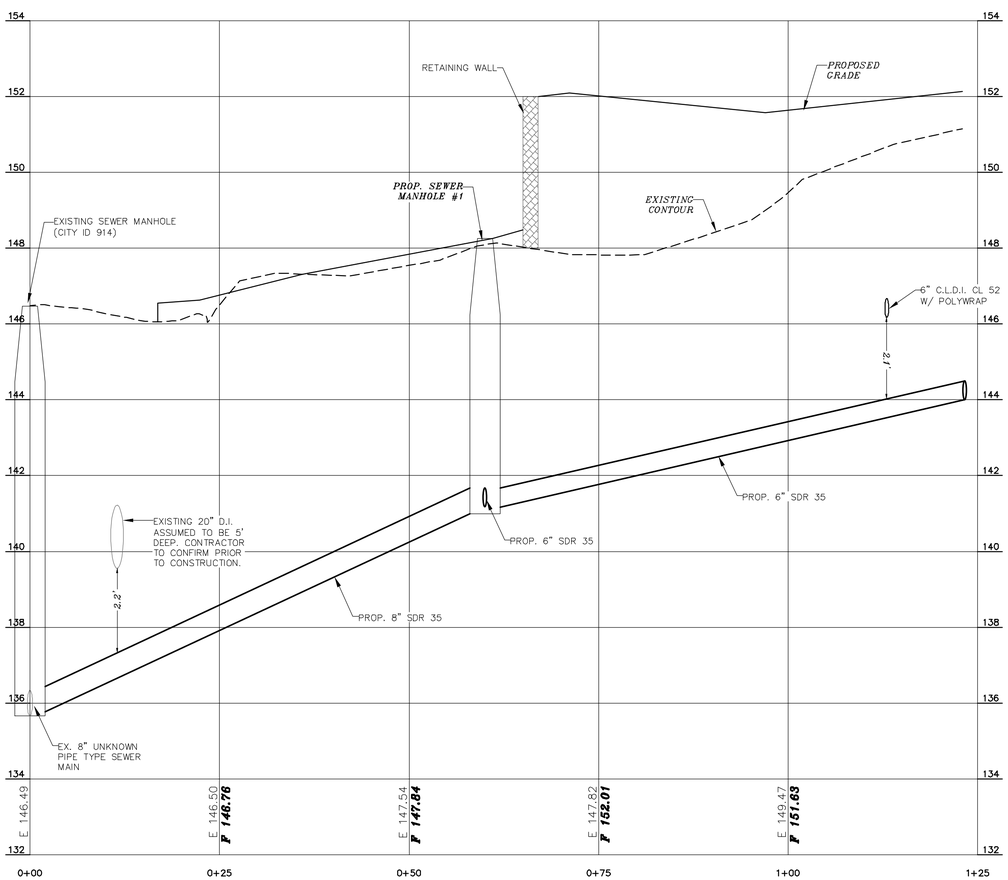
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14293
LICENSED
PROFESSIONAL ENGINEER



GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

PLAN VIEW GRAVITY SEWER CONNECTION



PROFILE VIEW GRAVITY SEWER CONNECTION

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.
VERTICAL SCALE: 1" = 2'

DOVER PLANNING FILE #22-15

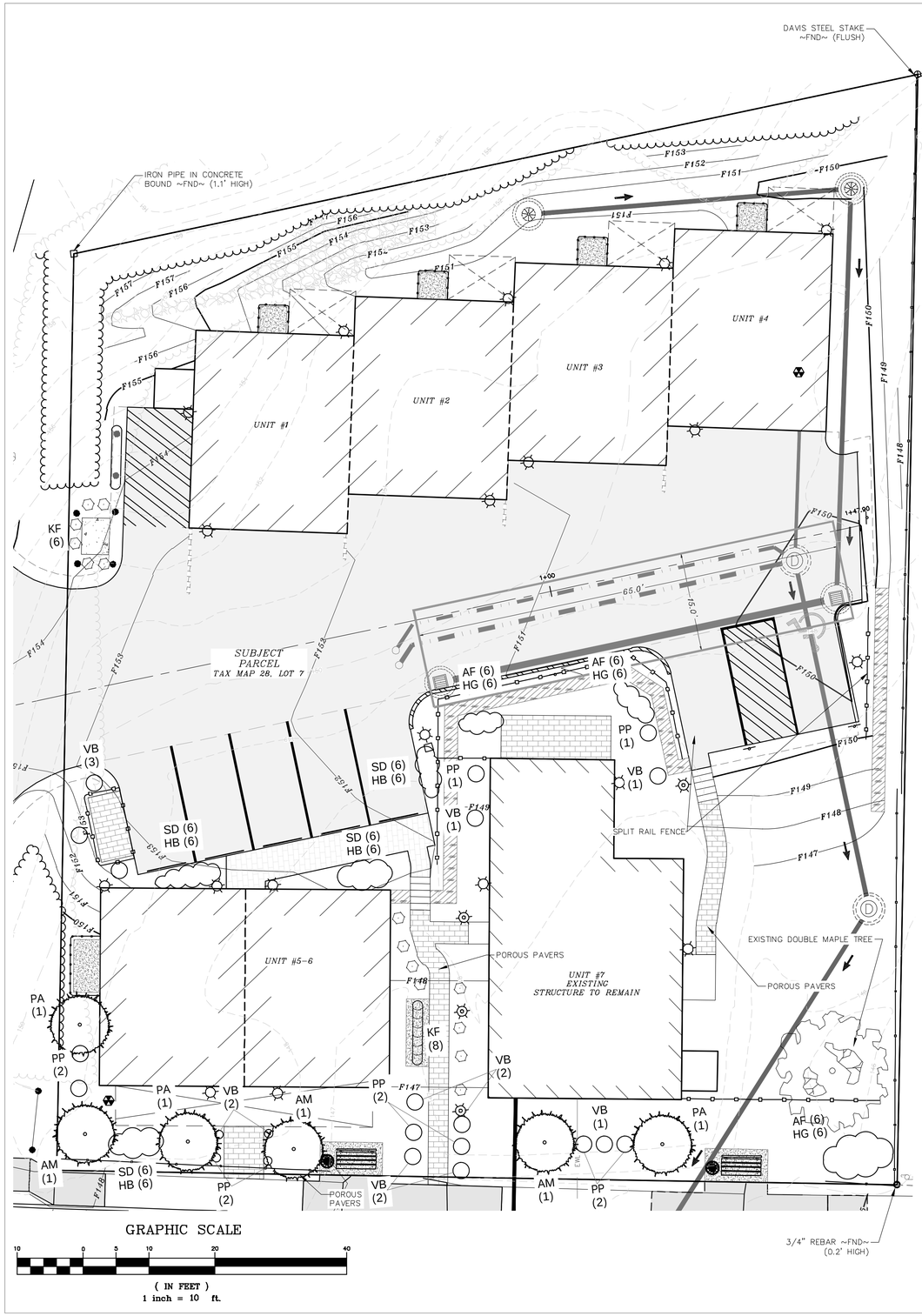
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

GRAVITY SEWER CONNECTION PLAN & PROFILE
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

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



NOTES:

1. CALL DIG SAFE PRIOR TO BEGINNING WORK. (1-888-344-7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.
2. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
3. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS. VARIATIONS IN QUANTITIES ARE TO BE APPROVED BY THE DESIGN ENGINEER.
4. PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
5. ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN
6. ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.
7. ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.
8. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.
10. NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.
11. ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
13. MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWING AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.
14. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.
15. THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWING SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.
16. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.
17. ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.
18. SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.
19. ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.
20. TREES ARE TO BE 6' TALL AT PLANTING.
21. ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)
22. 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY-PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.
23. PLANT-PIT BACK-FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON-SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.
24. ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.
25. TOPSOIL WILL BE TESTED FOR FERTILIZATION REQUIREMENTS, AND SLOW RELEASE ENVIRONMENTALLY FRIENDLY FERTILIZER WILL BE APPLIED AT THE RECOMMENDED RATES.
26. ALL DISTURBED WETLAND BUFFER AREAS, EXCEPT FOR AREAS THAT ARE PART OF THE DRAINAGE SYSTEM, ARE TO BE RESEEDED WITH A CONSERVATION SEED MIX AND ONLY MOWED TWICE PER YEAR.
27. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER.
28. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ONGOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
29. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
30. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NO LESS THAN ONE FULL YEAR FROM THE TIME OF INSTALLATION. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE OWNER IN WRITING OR OTHERWISE FORFEIT HIS CLAIM.
31. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, THAT HAS LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESS PRUNING OR INADEQUATE OR IMPROPER CARE, OR IS, IN THE OPINION OF THE OWNER, IN UNHEALTHY OR UNSIGHTLY CONDITION.
32. THE CONTRACTOR IS TO USE TEMPORARY MEASURES FOR WATERING PLANTS DURING THE ESTABLISHMENT PERIOD. INCLUDING CONNECTING TEMPORARY HOSES TO THE STRUCTURE WATER SUPPLY LINE AND UTILIZING SPRINKLERS UNTIL 85% GROWTH OCCURS.

PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM L.A. PRIOR TO PURCHASING &/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.

2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY L.A. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.

3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY L.A. ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.

4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.

5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY & FLOURISHING CONDITION FOR ONE YEAR FROM THE DATE OF FINAL INSTALLATION APPROVAL BY L.A. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE L.A. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY L.A.

6. ALL BEDS TO BE MULCHED WITH 3" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.

7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.

8. ALL PLANT MATERIAL TO COMPLY WITH THE CITY OF DOVER'S SITE REVIEW REGULATIONS, 149-14(G), SUCH THAT THERE SHALL BE DECIDUOUS SHADE TREES PLANTED 40 FEET O.C. ALONG THE PERIMTERE OF THE PARKING LOTS AND SHRUBS PLANTED 5 FEET O.C. WITHIN THE PERIMETER BUFFER. SEE PLANT LIST FOR SPECIES AND SIZE OF PLANTS.

TEMPORARY WATERING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR MAKING SURE ALL PLANT MATERIAL HAS ADEQUATE WATER DURING THE ESTABLISHMENT PERIOD.

2. THE USE OF GATOR BAGS, SOAKER HOSE, HAND WATERING AND OTHER TECHNIQUES SHOULD BE USED TO ASSURE PROPER HYDRATION OF THE PLANTINGS IS MAINTAINED.

3. TEMPORARY IRRIGATION SYSTEMS CAN BE SET UP TO ASSIST IN WATERING ACTIVITIES.

PLANTING SCHEDULE
River Side Estates
Botanical Name/ Common Name

	Size	Qty	Label
Trees			
Plantanus acerifolia/London Planetree	3" Cal.	3	PA
Maackia amurensis 'Starburst' / Starburst Amur Maackia	3" Cal.	3	AM
Shrubs			
Prunus pumila / Sand Cherry	3 Gal.	10	PP
Viburnum / Viburnum	3 Gal.	12	VB
Perennials			
Hemerocallis 'Happy Returns' / Happy Returns Daylily	#1	24	SD
Astilbe x arendsii 'Bridal Veil' / Bridal Veil Astilbe	#1	18	AF
Hosta 'Big Daddy' / Big Daddy Plantain Lily	#1	24	HB
Hosta 'Guacamole' / Guacamole Plantain Lily	#1	18	HG
Grasses			
Calamagrostis acutifolia 'Karl Foerster' / Feather Reed Grass	#2	14	KF

terrain
planning & design llc

General Plant Maintenance Guide

General Plant Bed Maintenance:

- All plant maintenance should be performed by a qualified horticulturalist or licensed arborist. Cleaning the dead material out of the planting bed in the fall helps keep litter from building up around the plants and in some cases killing the plants. Watering the first year during dry periods will help get the plants established. Mulching every year is not necessary. Raking the old mulch and turning it over is all that is needed. When necessary only install one inch of mulch and do not place the mulch closer than 3" to the trunks or stems of woody plants.

Trees

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the trunk.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after trees have dropped their leaves for the year.
- Prune dead wood once a year.
- Depending on the amount of compaction the bed area receives, deep root aeration may be needed over time

Woody Shrubs

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the stems.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after shrubs have dropped their leaves or gone dormant for the year.
- Prune dead wood once a year.

Grasses

- Grasses only need to be clipped back at the end of the growing season and all the clippings removed from the area.
- Do not over mulch. Too much mulch will prohibit the grass from developing into a strong clump.

Perennials

- All perennials need to be pruned back after the first or second hard frost. A two-step method; first dead head all the flower heads and let drop to the ground for re-seeding. Second cut the stems back to 3" above the ground and remove the stem and leaf litter and place in compost. Do not over mulch. Too much mulch will prohibit the growth and development
- Fertilizing perennials once in the spring with a low phosphate fertilizer will help the plants to get started in the spring.

www.terrainplanning.com 311 kast hill road hopkinton nh 03229 T:603-491-2322

terrain
planning & design llc
311 kast hill road
hopkinton, nh 03229
603. 491. 2322
terrainplanning.com

260 LOCUST STREET

Site Location:
757 Central Ave.
Dover, NH
Tax Map: 28

Prepared For:
Berry Surveying & Engineering
335 Second Crown Point Rd
Barrington, NH 03825

LANDSCAPE PLAN

DATE:

SCALE: 1" = 10'

PROJECT #: 1802

Drawn By: ID

Checked By: ERB

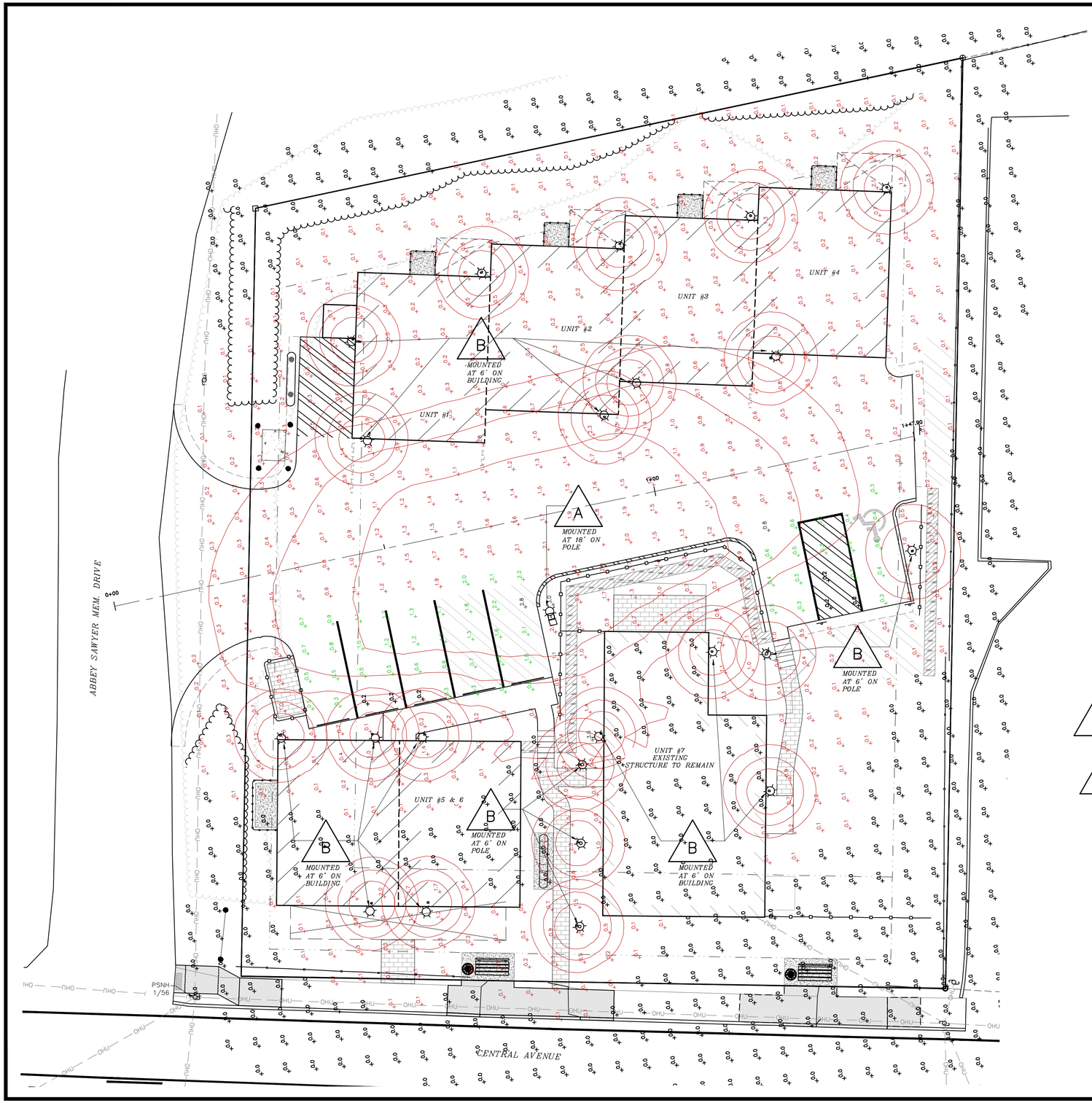
REVISIONS: DATE:
Issued for Client Review

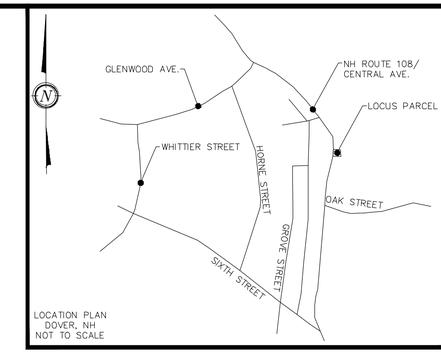
This plan is the property of Terrain Planning & Design LLC. Use or reproduction of this plan by any means without permission or purchase from Terrain Planning & Design LLC is prohibited.

L - 01

SHEET 10 OF 22

LICENSED LANDSCAPE ARCHITECT
ERIC R. BUCK
078
STATE OF NEW HAMPSHIRE





NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE PROPOSED LIGHTING DESIGN.

6.) LAMP "A" IS MOUNTED 18' ABOVE GRADE
LAMP "B" IS MOUNTED 6' ON THE BUILDINGS AND ABOVE GRADE ON THE POLE MOUNTED AREAS.

7.) SEE CONSTRUCTION DETAILS FOR LIGHT CUT SHEETS.

8.) EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	0.4 fc	3.1 fc	0.0 fc	N/A	N/A
Stat Zone # 1	×	0.4 fc	0.8 fc	0.2 fc	4:1	2.0:1
Stat Zone # 2	×	1.1 fc	2.8 fc	0.4 fc	7:1	2.8:1

Schedule

Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
	A		1	Lithonia Lighting	DSX1 LED P1 30K T3M MVOLT	DSX1 LED P1 30K T3M MVOLT	1	6279	1	54	
	B		22	Lithonia Lighting	ODSLN3 SRC	CRAFTSTON WALL MOUNTED SMALL DECORATIVE LANTERN, ONE LAMP 13W SPIRAL COMPACT FLUORESCENT, BUTTE GLASS, CAST ALUMINUM 9" DIA. X 8.68" HIGH, ELECTRONIC BALLAST	1	900	1	12.6	

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #22-15

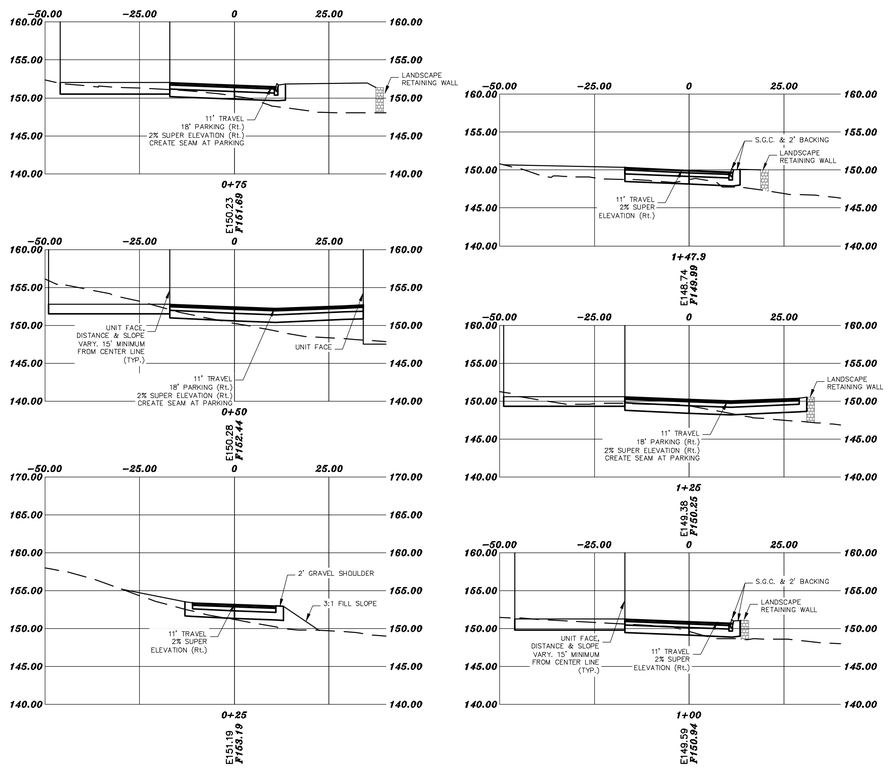
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

LIGHTING PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14293
LICENSED
PROFESSIONAL ENGINEER



GRAPHIC SCALE

20 0 10 20 40 80

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

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

DRIVEWAY CROSS SECTIONS 0+00 – END
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 20 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

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

SHEET 12 OF 22

NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THIS IS A RESIDENTIAL SITE PLAN.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED SUBJECT PARCEL DRIVEWAY.

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.

LEGEND:

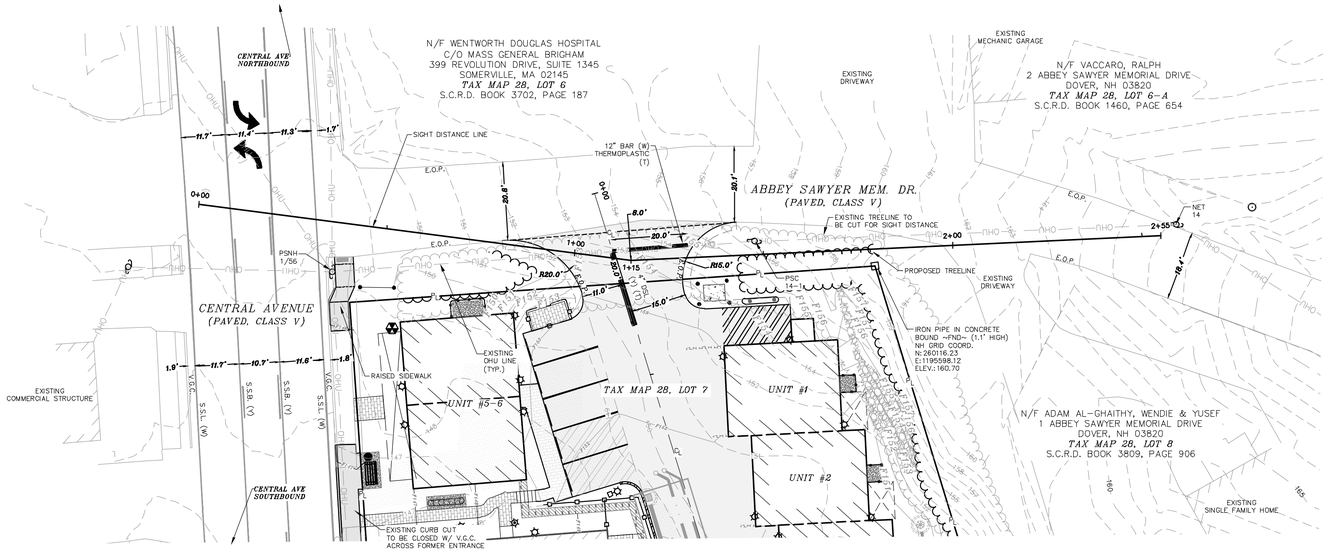
- REBAR/IRON BOUND ~FND~
- CONCRETE/GRANITE BOUND ~FND~
- STEEL STAKE ~FND~
- UTILITY POLE
- GUY WIRE/POLE
- APPROXIMATE ABUTTING LOT LINE
- EXISTING OVERHEAD UTILITIES

FND	FOUND
TYP	TYPICAL
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
V.G.C.	VERTICAL GRANITE CURB
E.O.P.	EDGE OF PAVEMENT
S.S.L. (W)	SINGLE SOLID LINE (WHITE)
S.S.B. (Y)	SINGLE SOILD W/ BROKEN LINE (YELLOW)

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



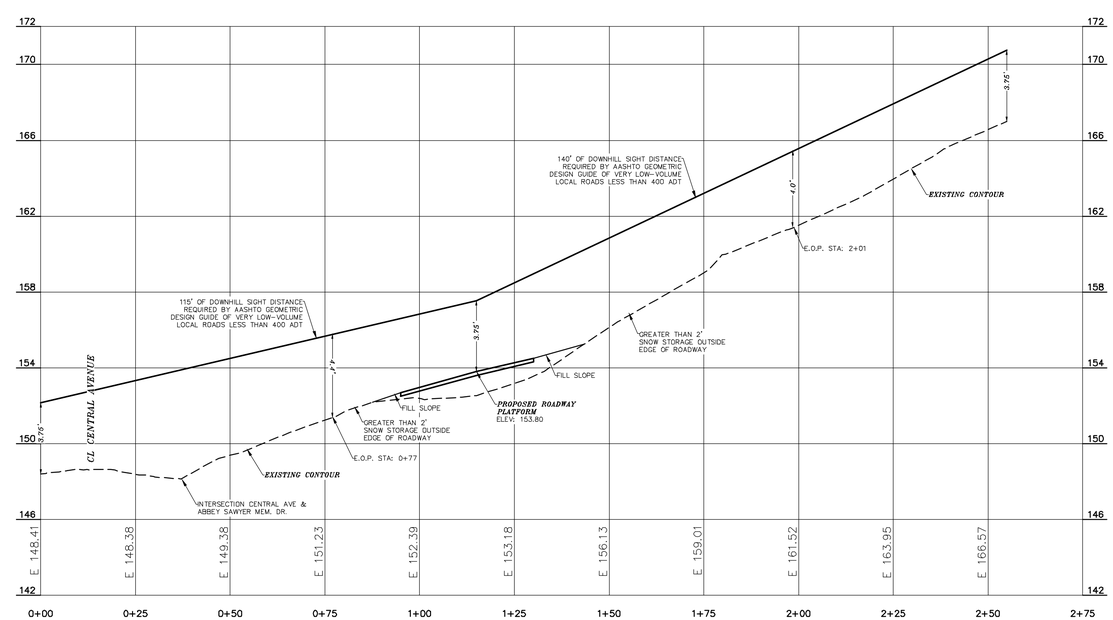
PLAN VIEW ABBEY SAWYER MEMORIAL DRIVE

GRAPHIC SCALE

20 0 10 20 40 80

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

PROFILE VIEW SIGHT LINE



RWA-1

DOVER PLANNING FILE #22-15

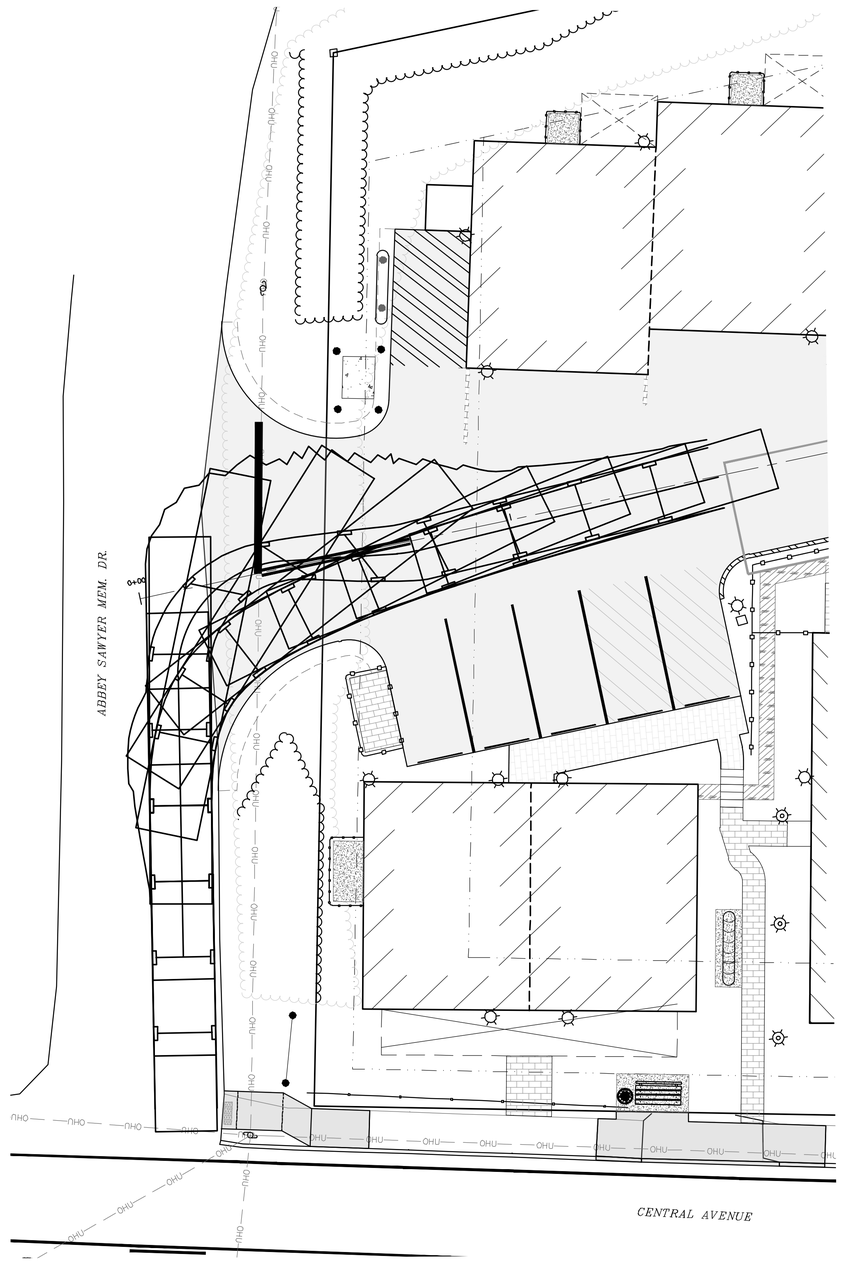
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

ROADWAY ACCESS / SIGHT DISTANCE PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 20 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 4243
LICENSED
PROFESSIONAL ENGINEER



DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

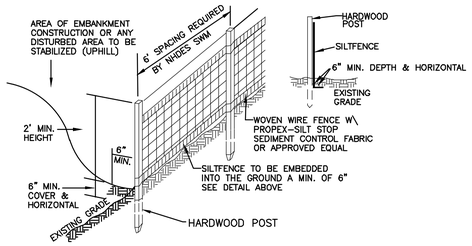
DOVER FIRE TRUCK TURNING TEMPLATE
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14033
LICENSED
PROFESSIONAL ENGINEER

E1



SILT FENCE CONSTRUCTION SPECIFICATIONS

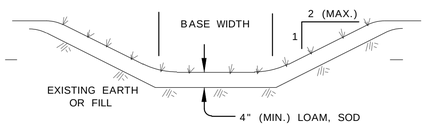
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF. SEE MAINTENANCE NOTE BELOW. REMOVAL OF SEDIMENT REQUIRED AT A DEPTH OF 6-INCHES.
4. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
5. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
6. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
7. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, SILT FENCE, PAGE 90.

SILT FENCE MAINTENANCE

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

SILT FENCE DETAIL
NOT TO SCALE

E2



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 CONSTRUCATION

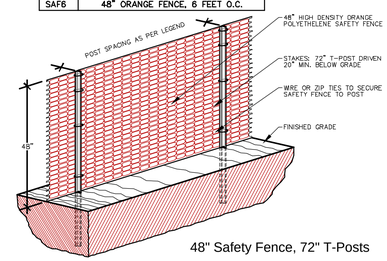
TO BE CONSTRUCTED IAW NH SWM #2 CHAPTER 4, #5 TREATMENT SWALES, PAGE 123.

E3

CONSTRUCTION SAFETY FENCE
NOT TO SCALE

LEGEND

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



48" Safety Fence, 72" T-Posts

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

E4

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

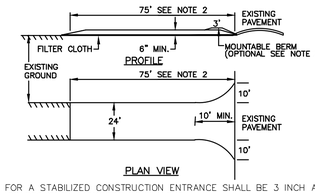


TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES

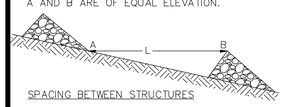
d50 SIZE=	0.5 FEET	6 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH ANGULAR STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CONSTRUCTION EXIT, PAGE 124.

E5

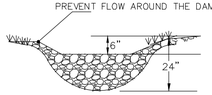
STONE CHECK DAM
NOT TO SCALE

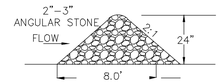
THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.



SPACING BETWEEN STRUCTURES

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



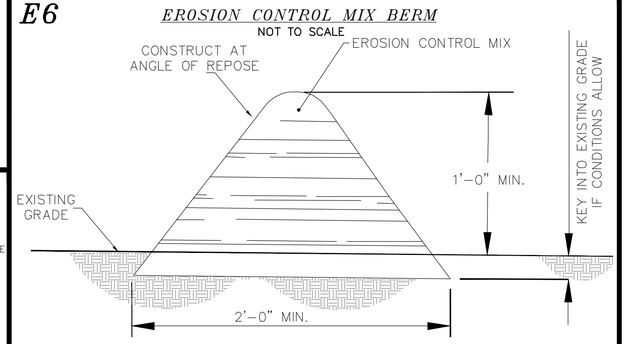


STONE GRADE STABILIZATION STRUCTURE

1.) CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2.) THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THEN ONE ACRE.
3.) THE MAXIMUM HEIGHT OF THE DAM SHOULD BE TWO FEET.
4.) THE CENTER OF THE DAM SHOULD BE AT LEAST SIX INCHES LOWER THAN THE OUTER EDGES.
5.) THE MAXIMUM SPACING IS AS SHOWN ON THE PROJECT SITE PLANS.
6.) CHECK DAMS WILL NOT BE USED IN A FLOWING STREAM.
7.) TEMPORARY CHECK DAMS WILL BE REMOVED ONCE THE SWALE OR DITCH IS DETERMINED STABLE.
8.) FOR ALTERNATIVE MATERIALS: 12" SILT SOXX @ 2% SLOPE (FOR EXAMPLE 1' / .02 = 50')
9.) TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CHECK DAMS, PAGE 114.

E6

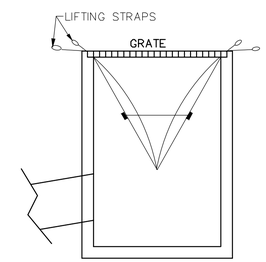
EROSION CONTROL MIX BERM
NOT TO SCALE



EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSLY AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%.
4. SUBJECT TO (E), BELOW, THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
7. 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.
8. THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
9. THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
10. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, EROSION CONTROL MIX BERMS, PAGE 106.

E7



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.

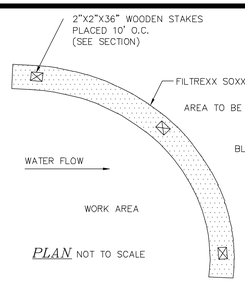
SILTSACK DETAIL
NOT TO SCALE

E8

TEMPORARY EROSION CONTROL MEASURES

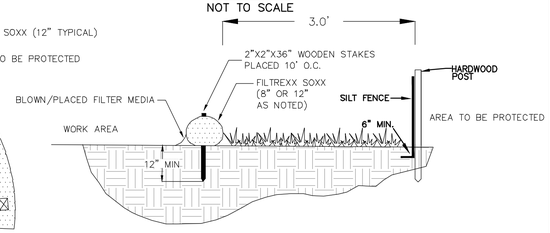
1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS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

E9



PLAN NOT TO SCALE

FILTREXX SEDIMENT CONTROL
NOT TO SCALE



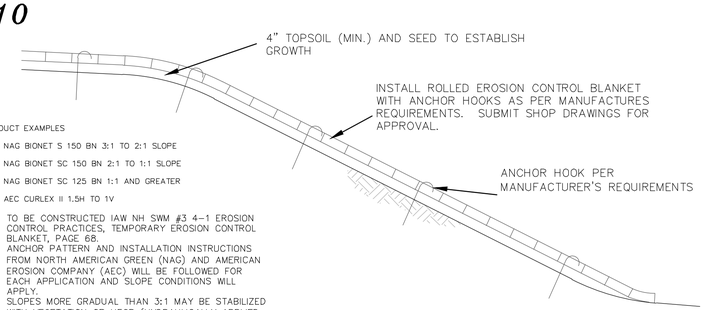
NOTE: FOR AREAS REQUIRING DOUBLE PERIMETER CONTROL WITHIN 50' OF JURISDICTIONAL WETLANDS AND NOT FOR ALL SILT SOXX APPLICATIONS. THIS DUPLICATION MAY BE SPECIFIED AS 12" SILT SOXX OR ORANGE CONSTRUCTION FENCE AS NOTED.

SECTION NOT TO SCALE

NOTES

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

E10



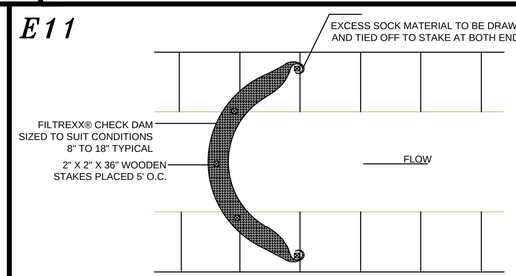
PRODUCT EXAMPLES

1.) NAG BIONET S 150 BN 3:1 TO 2:1 SLOPE
2.) NAG BIONET SC 150 BN 2:1 TO 1:1 SLOPE
3.) NAG BIONET SC 125 BN 1:1 AND GREATER
4.) AEC CURLEX II 1.5H TO 1V

1. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 68.
2. ANCHOR PATTERN AND INSTALLATION INSTRUCTIONS FROM NORTH AMERICAN GREEN (NAG) AND AMERICAN EROSION COMPANY (AEC) WILL BE FOLLOWED FOR EACH APPLICATION AND SLOPE CONDITIONS WILL APPLY.
3. SLOPES MORE GRADUAL THAN 3:1 MAY BE STABILIZED WITH VEGETATION OR HECP (HYDRAULICALLY APPLIED EROSION CONTROL MIX)/BONDED FIBER MATRIX. HOWEVER THE ENGINEER RESERVES THE RIGHT TO REQUEST INCREASED RECB TO BE INSTALLED ON ANY SLOPE.
4. ALL RECB IS TO CONSIST OF ALL NATURAL MATERIAL WITH NO SYNTHETIC COMPONENTS (NO PHOTO BIODEGRADABLE NETTING)

ROLLED EROSION CONTROL BLANKET (RECB) SLOPE STABILIZATION DETAIL
NOT TO SCALE

E11



NOTES:

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

FILTREXX CHECK DAM
NOT TO SCALE

E-101

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

EROSION & SEDIMENT CONTROL DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

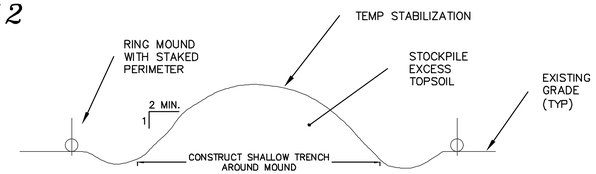
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE: NONE
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

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

SHEET 15 OF 22

E12

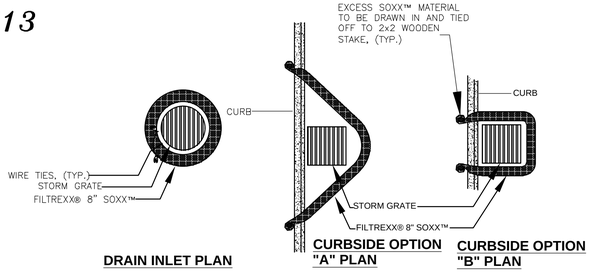


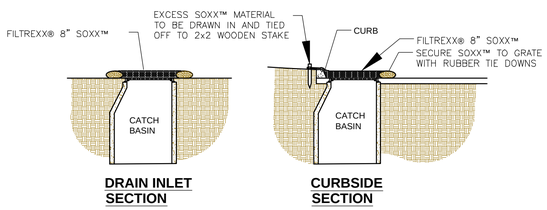
TO BE CONSTRUCTED IAW NH SWM #3 4–1 EROSION CONTROL PRACTICES, SOIL STOCKPILE PRACTICES, PAGE 46.

TOPSOIL STOCKPILE MOUND

NOT TO SCALE

E13





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

E14

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

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

SEEDING GUIDE

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

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

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

RECOMMENDED *

SEEDING RATES

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

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

SEEDING SPECIFICATIONS

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

E15

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 SEEDED 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 INSPECTOR (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT. EROSION AND SEDITMENT 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.

E16 *DEFINITION OF STABLE:*

PER ENV–WQ 1500 ALTERATION OF TERRAIN

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

ADDITION STABILIZATION NOTES:

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

DOVER PLANNING FILE #22–15

REVISION	DATE	DESCRIPTION
#1	5–12–22	REVISED PER TRC COMMENT

EROSION & SEDIMENT CONTROL DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

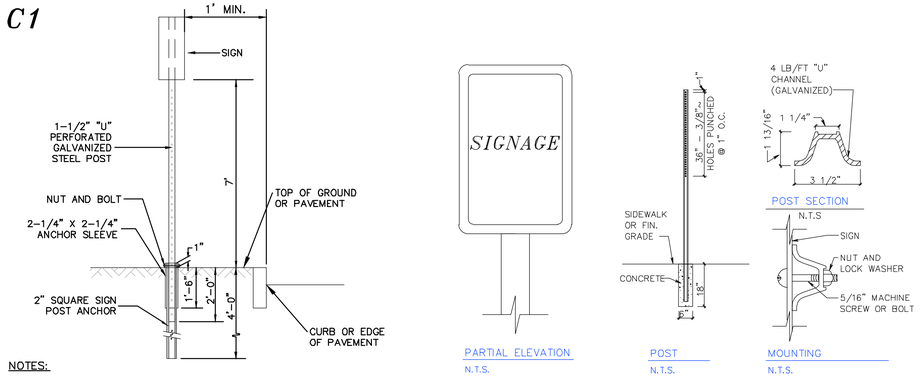
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE: NONE
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

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

E–102

C1

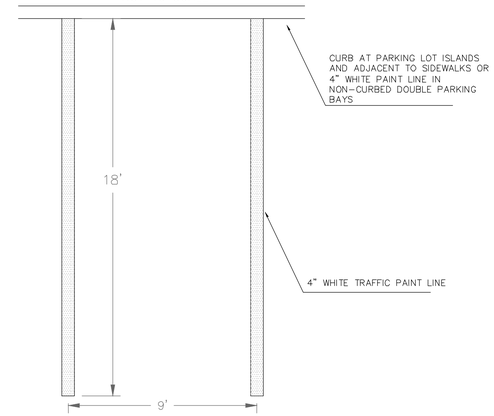


NOTES:

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

TYPICAL SIGN POST
(NOT TO SCALE)

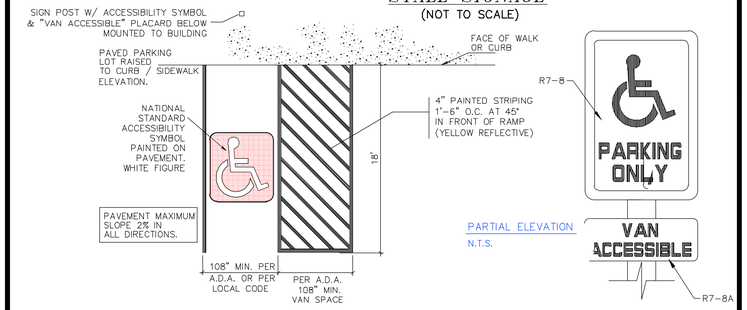
C2 PARKING SPACE DETAIL
NOT TO SCALE



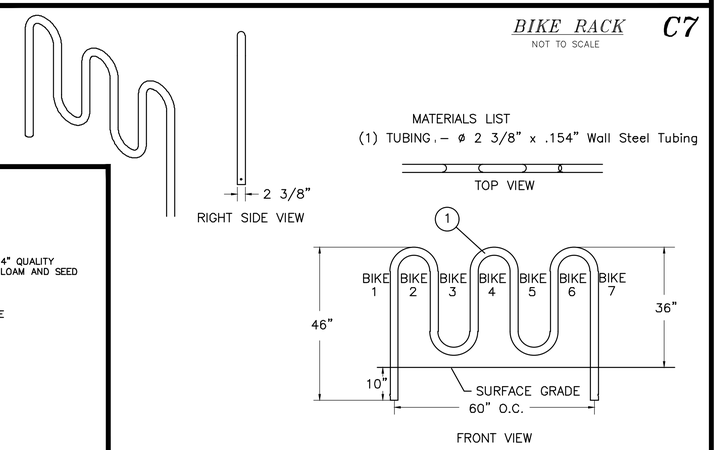
NOTES:

1.) PROVIDE TWO COATS OF PAINT ON ALL PARKING LINES.
2.) SEE PROPOSED SITE PLANS FOR LOCATION OF PARKING SPACES.
3.) PAINTED SPACES ONLY WHERE MARKED ON SITE PLAN

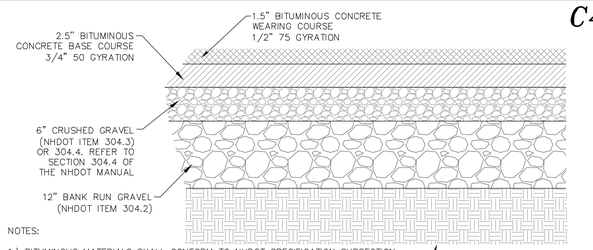
C3 ACCESSIBLE PARKING STALL SIGNAGE
(NOT TO SCALE)



C7 BIKE RACK
NOT TO SCALE



C4



NOTES:

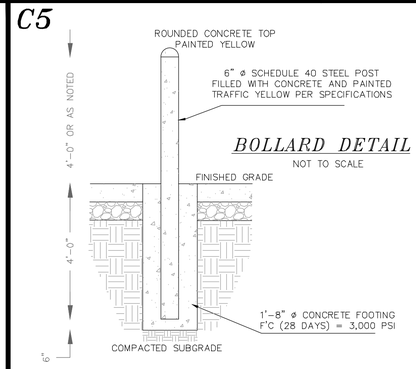
1.) BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SUBSECTION 401.3.6.

2.) PAVEMENT BASE COURSE AGGEGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3.) PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOFROLLED AND COMPABED TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY. FOR NEW CONSTRUCTION AREAS ONLY. IN EXISTING PAVEMENT AREAS THE CONTRACTOR IS TO ENSURE THE BASE MATERIAL IS SUITABLE TO THE OWNER FOR RE-PAVING

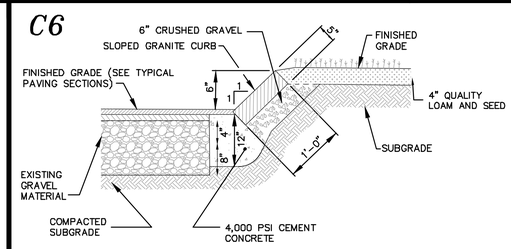
BITUMINOUS CONCRETE PAVEMENT SECTION
NOT TO SCALE

C5



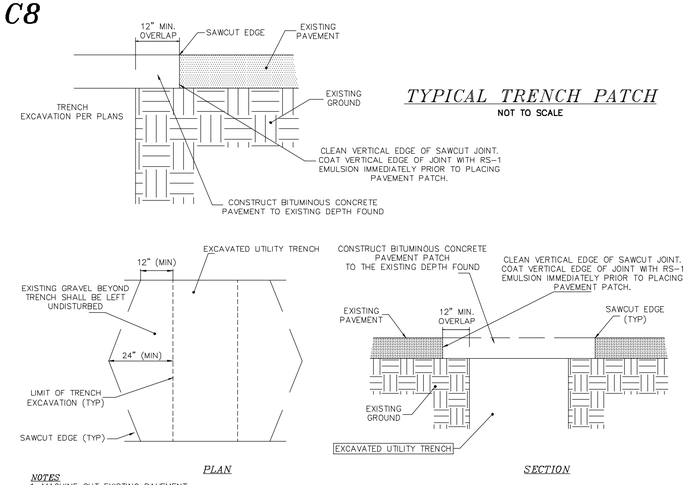
BOLLARD DETAIL
NOT TO SCALE

C6



SLOPE GRANITE CURB DETAIL
NOT TO SCALE

C8



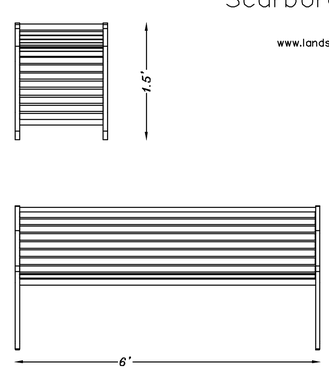
TYPICAL TRENCH PATCH
NOT TO SCALE

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

C9

Scarborough™ Bench, 24" Backed, with Horizontal Strap Seat

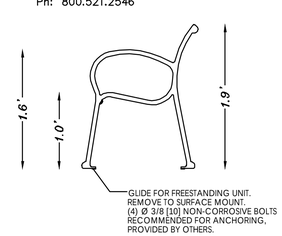
BENCH DETAIL
(NOT TO SCALE)



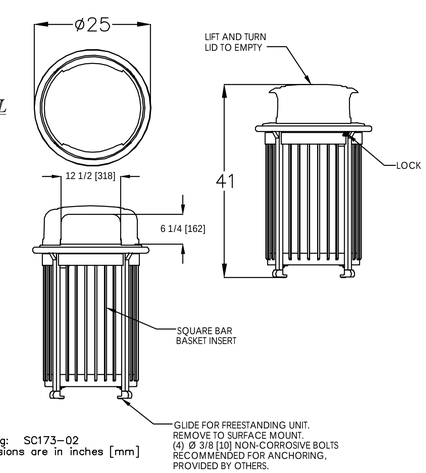
Scarborough™ Bench, 24" Backed, with Horizontal Strap Seat
Product Drawing

Scarborough™ Bench, 24" Backed, with Horizontal Strap Seat

www.landscapeforms.com
Date: 5/19/2010
Ph: 800.521.2546



BIN DETAIL
(NOT TO SCALE)



landscapeforms®
Drawing: SC173-02
Dimensions are in inches [mm]

C-101

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

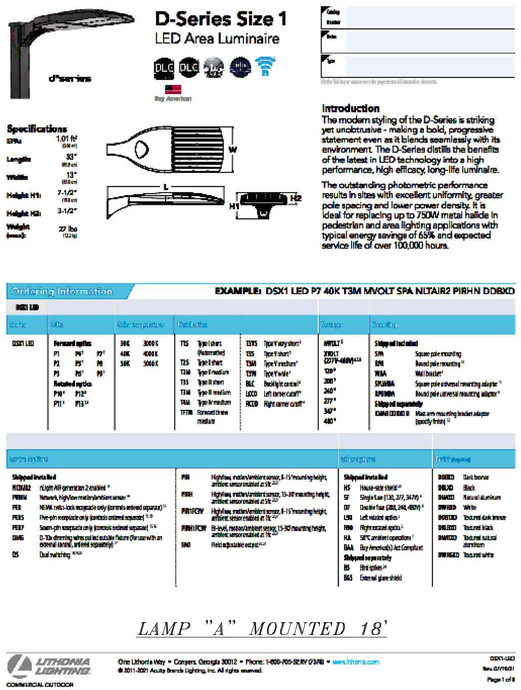
CONSTRUCTION DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE: NONE
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14143
LICENSED
PROFESSIONAL ENGINEER

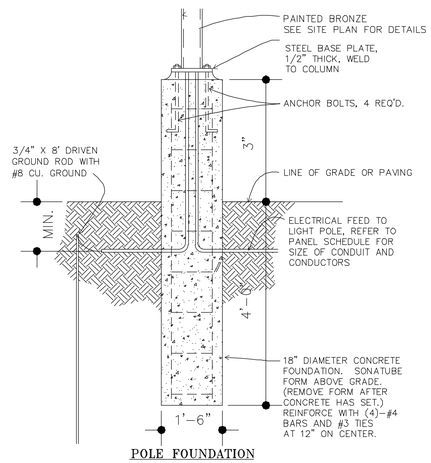
C10



LAMP "A" MOUNTED 18'

TYPICAL RESIDENTIAL LAMP "B" MOUNTED AT 6' ON POST, BUILDING OR ABOVE DECK AS SHOWN

NOT TO SCALE

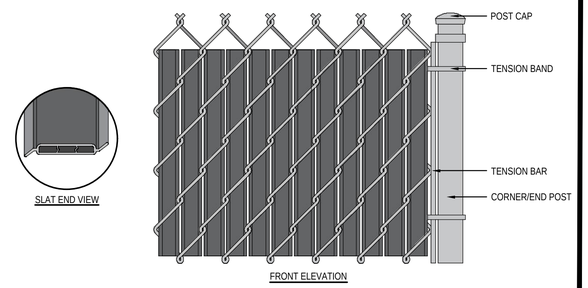


LIGHT BASE DETAIL

NOT TO SCALE

C11

PRIVACYLINK® 3 1/2 IN. X 5 IN. MESH W/ SUPREME PRIVACY SLATS

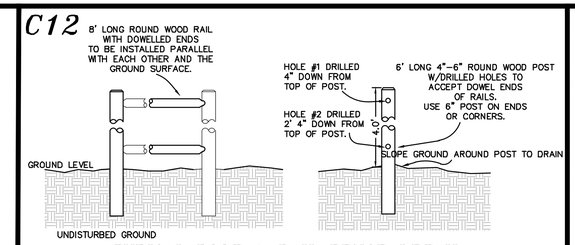


NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

CHAIN LINK FENCE W/ BLACK SLATS

NOT TO SCALE

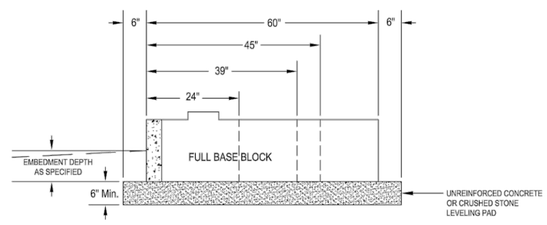
C12



TYPICAL POST & RAIL FENCE DETAIL

NOT TO SCALE

C13



NOTES:
1. LEVELING PAD SHOULD BE AS SPECIFIED BY THE DESIGN ENGINEER IN THE PROJECT PLAN SET.
2. THE WIDTH OF THE LEVELING PAD MUST EXTEND 6" (MINIMUM) IN FRONT AND 6" (MINIMUM) IN BACK OF THE BASE BLOCK. AS A RESULT, THE TYPICAL WIDTH OF LEVELING PAD WOULD BE:
   24" DEEP BASE BLOCK...LEVELING PAD WIDTH IS 36"
   39" DEEP BASE BLOCK...LEVELING PAD WIDTH IS 51"
   45" DEEP BASE BLOCK...LEVELING PAD WIDTH IS 57"
   60" DEEP BASE BLOCK...LEVELING PAD WIDTH IS 72"
3. **WHEN SETTING THE BASE BLOCK AND CHECKING FOR LEVEL FROM FRONT TO BACK, IT IS RECOMMENDED THAT THE BACK EDGE OF THE BLOCK BE ABOUT 1/2" BELOW THE FRONT EDGE OF THE BLOCK.**
4. COMPACTION TO THE SPECIFIED EMBEDMENT DEPTH SHALL BE DONE IN FRONT OF THE BASE BLOCK **BEFORE** COMPACTION IS DONE BEHIND THE BASE BLOCK. THIS REDUCES THE CHANCE THAT COMPACTION BEHIND THE BASE BLOCK WILL ROLL THE BASE BLOCK FORWARD.
5. SEE BLOCK SPECIFICATION & INSTALLATION INSTRUCTIONS FOR MORE DETAILS.

Copyright 2009 Shea Wall Systems, Inc.

Design is for internal stability of the Shea wall structure only. External stability, including but not limited to foundation and slope stability is the responsibility of the Owner. The design is based on the assumption that the materials within the retained mass, methods of construction, and quality of materials conform to Shea's specification for this project.

Disclaimer: This drawing was prepared by Shea Wall Systems, Inc. and to the best of our knowledge, accurately represents the product use in the application that is illustrated. This drawing is for conceptual, instructional, and estimating purposes only. Anyone making use of this drawing does so at their own risk and assumes all liability for such use. Final design for construction purposes must be done by a registered professional engineer who is familiar with the product and who has taken into account the specific site conditions.

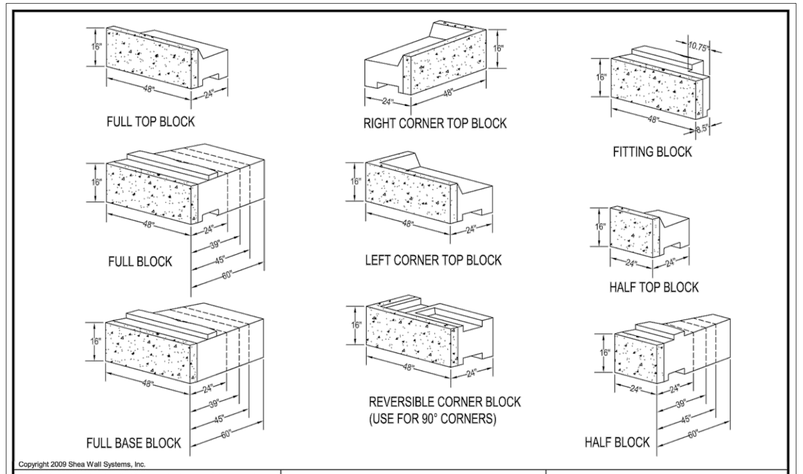
SHEA CONCRETE PRODUCTS
Retaining Wall Systems

DRAWING # 101

TYPICAL BASE BLOCK PLACEMENT

SHEA WALL SYSTEMS, INC
87 Haverhill Street
Amesbury,MA 01913
Phone: 800-696-7432
Phone: 978-388-1509
www.sheaconcrete.com

C14



Copyright 2009 Shea Wall Systems, Inc.

Design is for internal stability of the Shea wall structure only. External stability, including but not limited to foundation and slope stability is the responsibility of the Owner. The design is based on the assumption that the materials within the retained mass, methods of construction, and quality of materials conform to Shea's specification for this project.

Disclaimer: This drawing was prepared by Shea Wall Systems, Inc. and to the best of our knowledge, accurately represents the product use in the application that is illustrated. This drawing is for conceptual, instructional, and estimating purposes only. Anyone making use of this drawing does so at their own risk and assumes all liability for such use. Final design for construction purposes must be done by a registered professional engineer who is familiar with the product and who has taken into account the specific site conditions.

SHEA CONCRETE PRODUCTS
Retaining Wall Systems

DRAWING # 100

BLOCK TYPES

SHEA WALL SYSTEMS, INC
87 Haverhill Street
Amesbury,MA 01913
Phone: 800-696-7432
Phone: 978-388-1509
www.sheaconcrete.com

C-102

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

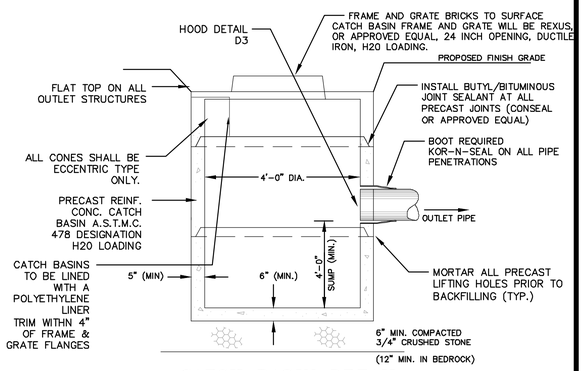
CONSTRUCTION DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE: NONE
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

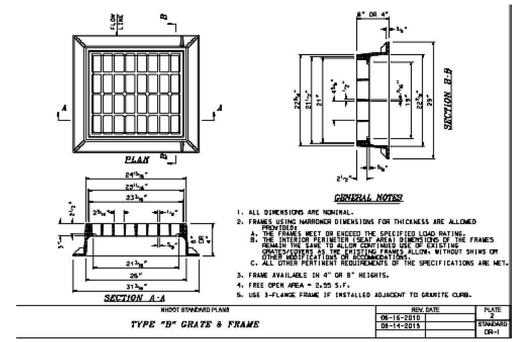
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 9434
LICENSED
PROFESSIONAL ENGINEER

D1



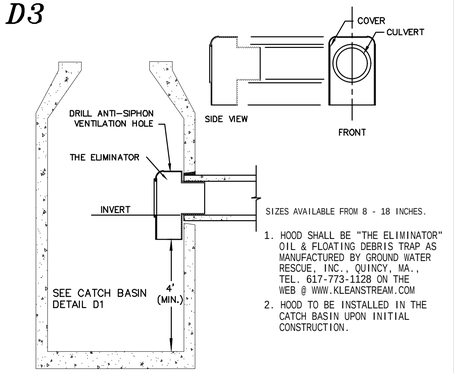
CATCH BASIN DETAIL
NOT TO SCALE

D2



CATCH BASIN GRATE (TYPE "B")
NOT TO SCALE

D3

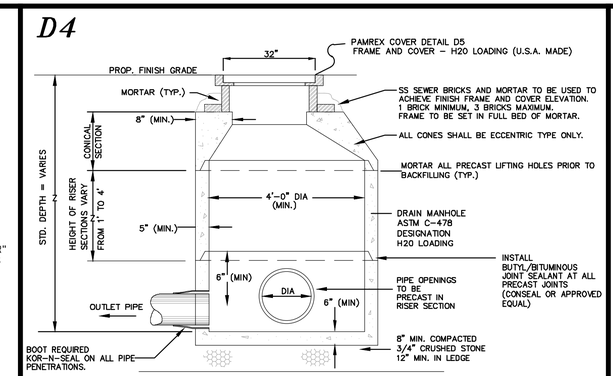


SIZES AVAILABLE FROM 8 - 18 INCHES.

1. HOOD SHALL BE "THE ELIMINATOR" OIL & FLOATING DEBRIS TRAP AS MANUFACTURED BY GROUND WATER RESCUE, INC., QUINCY, MA., TEL. 617-773-1128 ON THE WEB @ WWW.KLEANSTREAM.COM
2. HOOD TO BE INSTALLED IN THE CATCH BASIN UPON INITIAL CONSTRUCTION.

CATCH BASIN HOOD DETAIL
NOT TO SCALE

D4



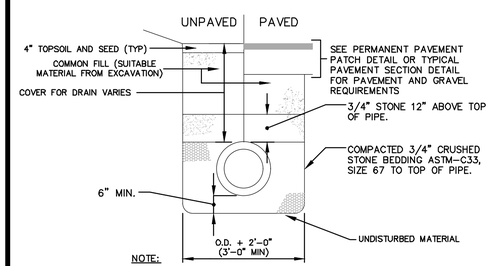
PRECAST DRAIN MANHOLE DETAIL
NOT TO SCALE

D5

DRAIN MANHOLE FRAME AND GRATE WILL BE NEW HAMPSHIRE STANDARD, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H20 LOADING.

DRAIN MANHOLE COVER DETAIL
NOT TO SCALE

D6



NOTE:

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

DI DRAIN PIPE SHALL BE CL. 50.

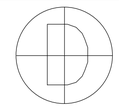
RC DRAIN PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.

TYPICAL DRAIN PIPE TRENCH
NOT TO SCALE

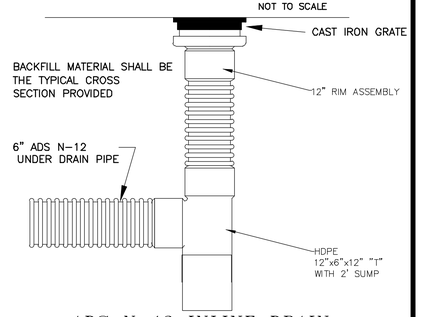
D7

CASTINGS ARE RATED FOR H20 WHEEL LOAD TRAFFIC

PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT



12" CAST IRON GRATE
NOT TO SCALE



ADS N-12 INLINE DRAIN
NOT TO SCALE

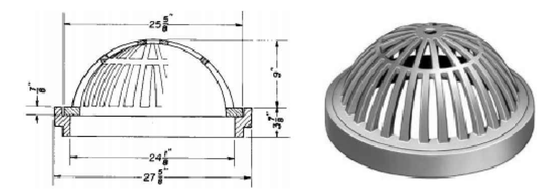
D8

R-4353

Beehive Grate, Frame

Light Duty

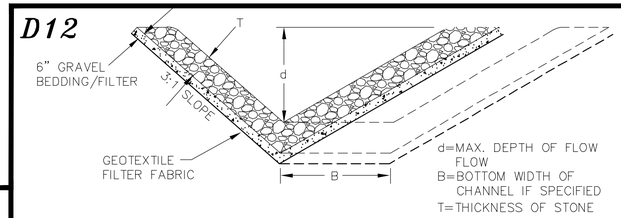
CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-4353	Beehive	1.8	6.7



Also available with 2 - 7/8" tall frame, if requested.

CATCH BASIN IN GRASSED AREA FRAME & GRATE DETAIL
NOT TO SCALE

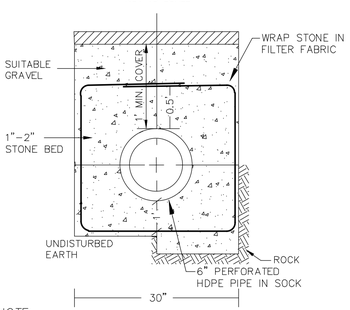
D12



TYPICAL SECTION FOR A RIPRAP LINED CHANNEL
NOT TO SCALE

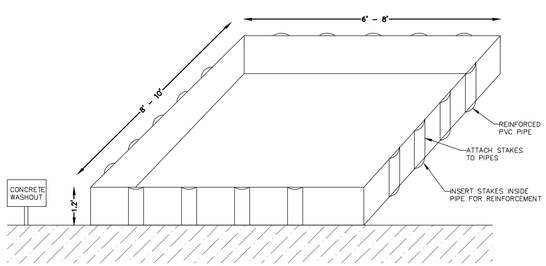
D9

UNDERDRAIN TRENCH DETAIL
NOT TO SCALE



NOTE:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECS.

D10



NOTES:

1.) CONCRETE WASHOUT SHALL BE INSTALLED PRIOR TO ANY CONCRETE POURS.

2.) SIGNS SHALL BE INSTILLED TO CLEARLY INDICATE WHERE THE LOCATION OF THE WASHOUT AREA IS.

3.) CONTRACTOR IS IRRESPONSIBLE TO MAINTAIN AND REPLACE WASHOUT AREA AS NEEDED.

4.) RESIDUE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

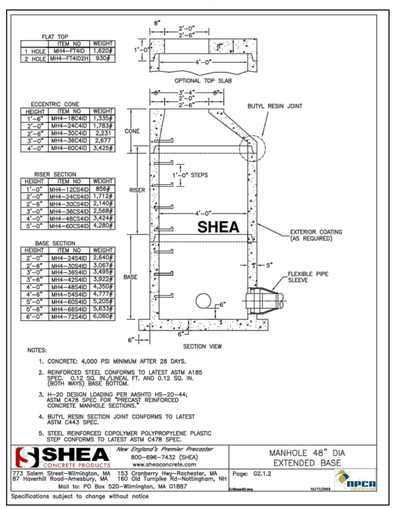
5.) DO NOT WASH CONCRETE TRUCKS OUT INTO DRAINAGE AREAS, SWALES, STREETS OR UNDISTURBED AREAS.

6.) WASHOUT AREA SHALL BE PLACED AWAY FROM DRAINAGE FEATURES AND OUTSIDE AND WETLAND BUFFERS.

CONCRETE WASHOUT
NOT TO SCALE

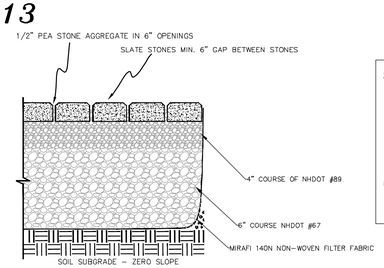
D11

48" MANHOLE ROUND EXTENDED BASE
NOT TO SCALE



D13

PERVIOUS PATIO DETAIL
NOT TO SCALE



1.) INSTALL AT THE WALKWAYS IN ALONG UNITS 5-8 & 9

2.) STONE TO MEET THE SPECIFICATIONS PROVIDED.

CRUSHED STONE BEDDING	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	20 - 55
# 4	0 -10
# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

COMPACTED SUBGRADE - CONTRACTOR SHALL SCARIFY SUBGRADE TO A DEPTH OF 24 INCHES. 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 CITY'S AGENT AND/OR THE CITY'S ENGINEER.

CRUSHED STONE BEDDING *	
SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	90 - 100
#4	20 - 55
# 8	5 -30
# 16	0 - 10
# 50	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #89 - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

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

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

DRAINAGE DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE: NONE
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14043
LICENSED
PROFESSIONAL ENGINEER

NOTES ON MANHOLE AND SEWER CONSTRUCTION:

1) 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 ADOPTED OCTOBER 15, 2014

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE. (IAW ENV.-WQ 704.12 (d))

3) SEWER MANHOLE DIAMETER SHALL BE AS INDICATED ON THE PLANS.

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

5) 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.

6) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF 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. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY. (IAW ENV.-WQ 704.13 (a) (9)), MORTAR SHALL CONFORM WITH REQUIREMENTS OF IAW ENV.-WQ 704.13 (c).

7) 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 (a) (4-6)) SEWER MAN HOLE COVERS ARE TO PAMREX.

8) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 8 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

9) 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 WATERTIGHTNESS 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.

10) IN CROSS COUNTRY AREAS OUTSIDE OF THE PAVED ROADWAY SURFACE, THE MANHOLE FRAME ELEVATION SHALL BE A MINIMUM OF 6" ABOVE FINISHED GRADE. GRADE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE MANHOLE. SEE TYPICAL TRENCH DETAIL ON SHEET D-102.

11.) 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-WQ 704.14.

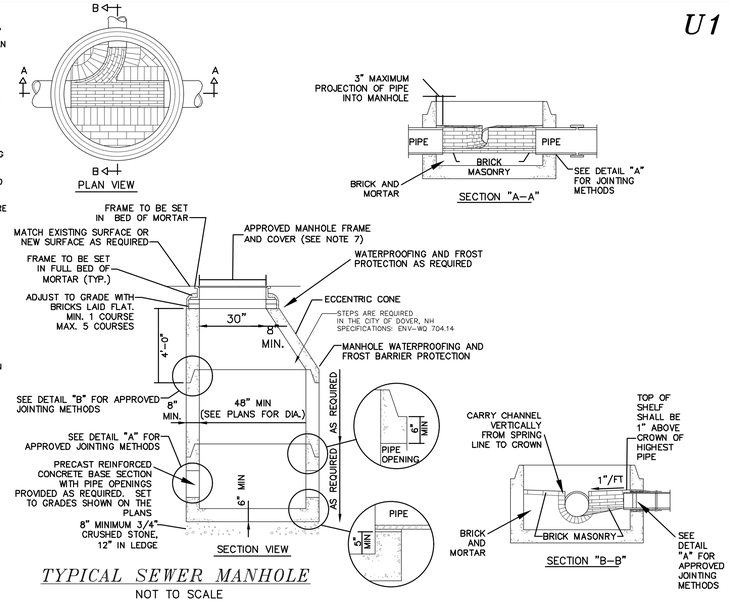
12.) THE CONTRACTOR TO WORK WITH CITY OF DOVER REVIEW ENGINEER AND SEWER DEPARTMENT ON THE MEANS AND METHODS USED TO INSTALL ALL SEWER STRUCTURES.

13.) ANY WORK INVOLVING THE CUTTING INTO THE EXISTING A.C. PIPE SHALL MEET THE REQUIREMENTS OF ENV-A 1800.

14.) THE "CITY OF DOVER, NEW HAMPSHIRE, DEPARTMENT OF COMMUNITY SERVICES, CONSTRUCTION GUIDELINES, PERMITS, RULES, AND REGULATIONS" (DATED MARCH 13, 2018) ARE A PART OF THE CONSTRUCTION DETAILS AND TO BE FOLLOWED.

15.) MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST IN ACCORDANCE WITH THE ASTM C1244 STANDARD AND ENV-WQ 704.17.

U1



TYPICAL SEWER MANHOLE

NOT TO SCALE

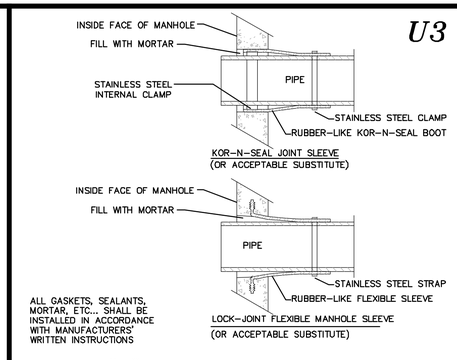
U2

SEWER MANHOLE FRAME AND GRATE WILL BE PAMREX, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H20 LOADING.

SEWER MANHOLE COVER DETAIL

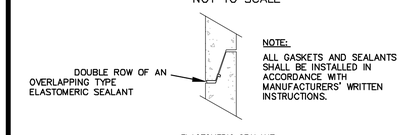
NOT TO SCALE

U3



DETAIL "A" – PIPE TO MANHOLE JOINTS

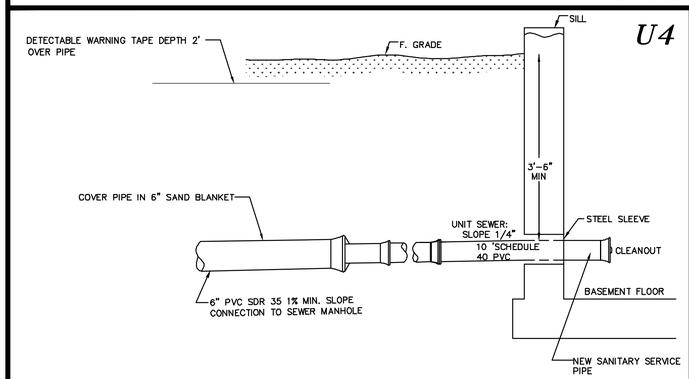
NOT TO SCALE



DETAIL "B" HORIZONTAL JOINTS

NOT TO SCALE

U4



1.) SEE DETAILS FOR SERVICE CONNECTION REQUIREMENTS

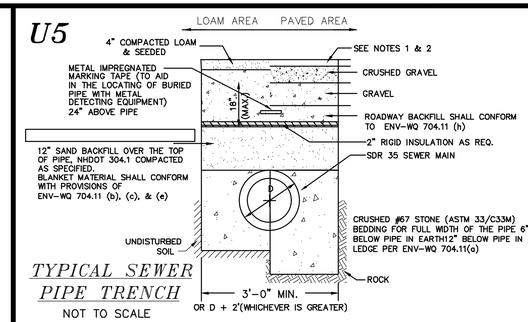
2.) SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.

3.) CLEANOUTS SHALL BE INSTALLED INSIDE EACH BUILDING EXIT POINT

DETAIL OF UNIT SEWER SERVICE

NOT TO SCALE

U5

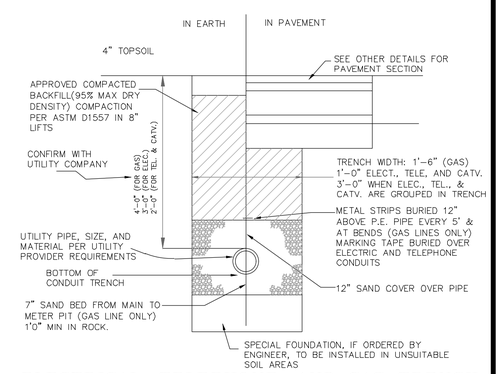


TYPICAL SEWER PIPE TRENCH

NOT TO SCALE

NOTE:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPEC'S.
3. ANTI-SEEP COLLARS OR CLAY CHECK DAMS ON STEEP RUNS IN WET CONDITIONS.
4. 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.
5. SEE DETAIL U8 BELOW FOR INSULATION DETAILS.
6. SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN CHAPTER II-8

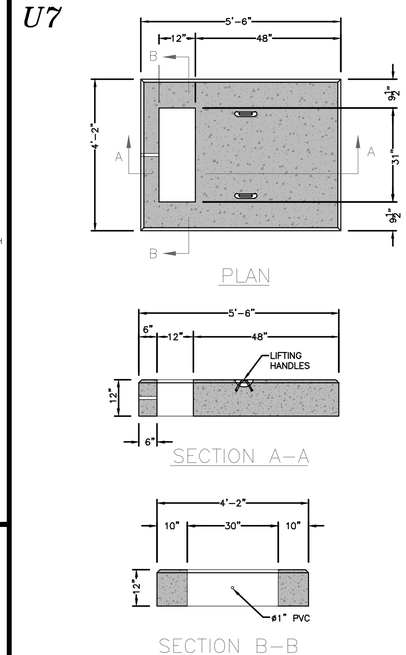
U6



ELECTRICAL, TELEPHONE, AND GAS TRENCH

NOT TO SCALE

U7

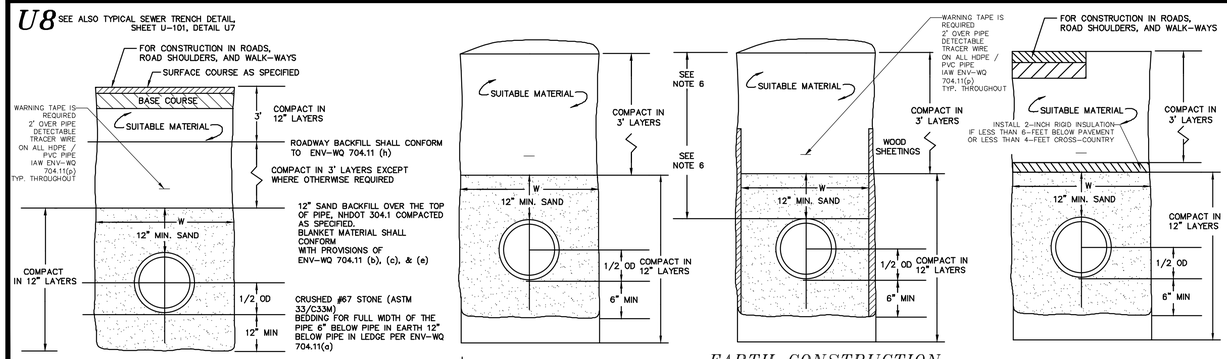


NOTES:
1. CONCRETE MINIMUM STRENGTH 4,000 PSI AFTER 28 DAYS
2. REINFORCEMENT STEEL CONFORMS TO ASTM A615 GRADE 60 #6 REBAR.
3. MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS.
4. MUST BE A SHEA CONCRETE PRODUCT OR EQUAL.

TRANSFORMER AND PAD DETAIL

NOT TO SCALE

U8 SEE ALSO TYPICAL SEWER TRENCH DETAIL, SHEET U-101, DETAIL U7



LEDGE CONSTRUCTION

NOT TO SCALE

EARTH CONSTRUCTION

NOT TO SCALE

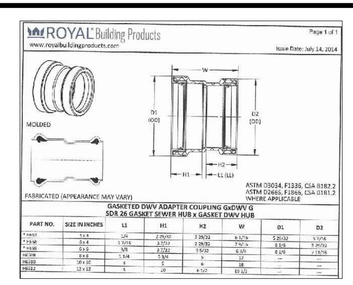
EARTH CONSTRUCTION WITH SHEETING

NOT TO SCALE

TRENCH INSULATION

NOT TO SCALE

U9



COUPLING DETAIL

NOT TO SCALE

U-101

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

UTILITY DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

AS NOTED

DATE : FEBRUARY 24, 2022

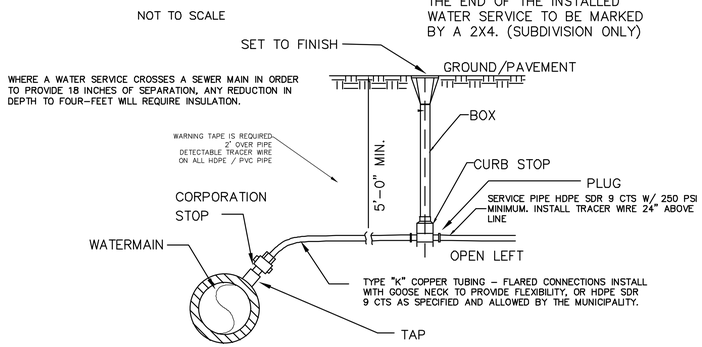
FILE NO. : DB 2021 – 133

STATE OF NEW HAMPSHIRE KENNETH A. BERRY No. 14043 LICENSED PROFESSIONAL ENGINEER

U10

TYPICAL WATER SERVICE CONNECTION

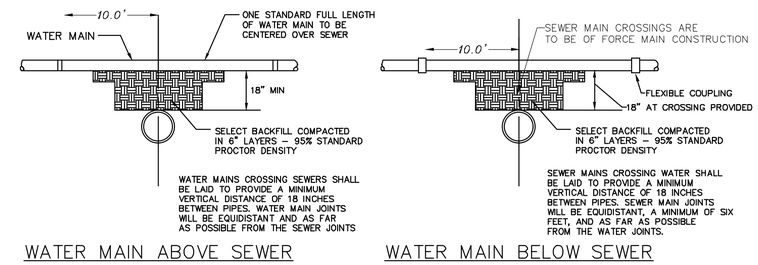
NOT TO SCALE



U11

SEPERATION NOTES:

1. WATER MAIN SHALL BE IN ACCORDANCE WITH THE "RECOMMENDED STANDARDS FOR WATER WORKS" SO-CALLED TEN STATE STANDARDS AND NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL DESIGN STANDARDS, ENV-WQ 700 ADOPTED OCTOBER 14, 2014.
2. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IF THIS DISTANCE CANNOT BE OBTAINED, THEN THE PIPES SHALL BE INSTALLED IN A SEPARATE TRENCH AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
3. VERTICAL SEPARATION REQUIREMENTS APPLY TO WATER AND SEWER MAINS AND SERVICE LINES. WHERE SEWER CROSSES WATER MAIN AND WATER SERVICE CROSSES SEWER MAIN, 18 INCH VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER OVER SEWER.

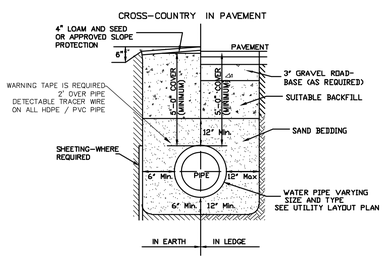


WATER MAIN ABOVE SEWER — WATER MAIN BELOW SEWER

TYPICAL WATER/SEWER SEPERATION DETAILS

NOT TO SCALE

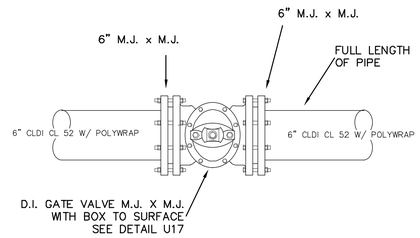
U12



TYPICAL TRENCH DETAIL FOR WATER SYSTEM

NOT TO SCALE

U13



SHUTOFF VALVE DETAIL

NOT TO SCALE

1.) ALL VALVES ARE TO OPEN LEFT
2.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS

U14

TYPICAL THRUST BLOCKS

NOT TO SCALE

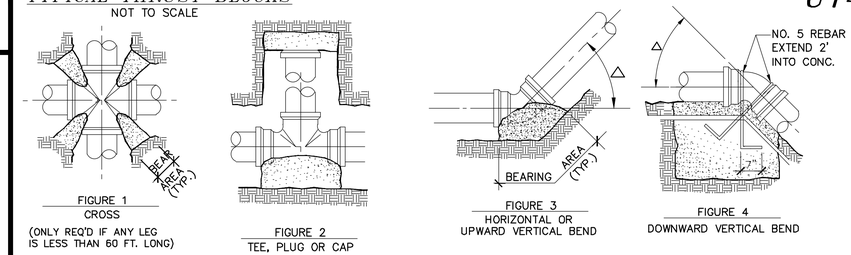


FIGURE 1 CROSS (ONLY REQ'D IF ANY LEG IS LESS THAN 60 FT. LONG)

FIGURE 2 TEE, PLUG OR CAP

FIGURE 3 HORIZONTAL OR UPWARD VERTICAL BEND

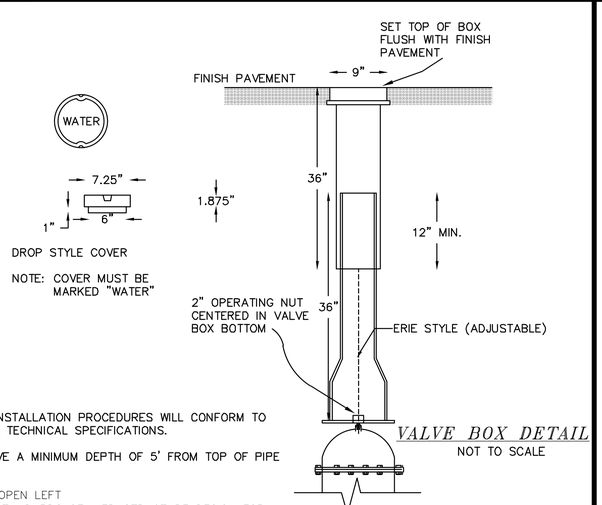
FIGURE 4 DOWNWARD VERTICAL BEND

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

GENERAL NOTES:

1. ALL FITTINGS & EXPOSED REBAR TO BE RAPPED W/ TWO LAYERS OF 6 MIL. POLYETHYLENE WHERE COVERED WITH CONCRETE.
2. ALL CONCRETE SHALL BE CLASS C 3000 P.S.I. MINIMUM 28 DAYS COMPRESSIVE STRENGTH.
3. PLACE CONCRETE AGAINST UNDISTURBED EARTH.
4. TABLE DENOTES MINIMUM BEARING AREA OR VOLUME OF THRUST BLOCK. SPECIAL DESIGN FOR EACH INSTALLATION IS REQUIRED IF ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN 3000 P.S.F.
5. VERTICAL SURFACES NOT BEARING AGAINST UNDISTURBED EARTH SHALL BE FORMED.
6. KEEP CONCRETE AWAY FROM FLANGE BOLTS AND FITTINGS.
7. MECHANICAL JOINTS AT ALL FITTINGS IE: BENDS,
8. TEES, CROSSES, AND VALVES SHALL BE THRUST RESTRAINT. (MEGA-LUG OR APPROVED EQUAL.

U15



NOTES:

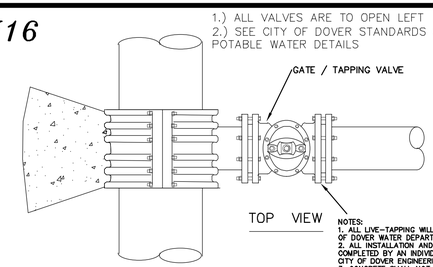
1.) ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO LOCAL WATER WORKS TECHNICAL SPECIFICATIONS.
2.) ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3.) ALL VALVES ARE TO OPEN LEFT
4.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS

VALVE BOX DETAIL

NOT TO SCALE

U16

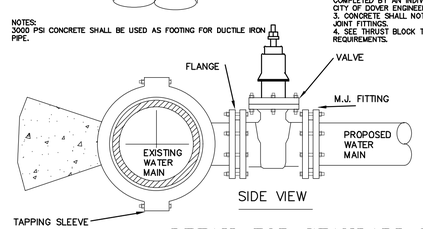
1.) ALL VALVES ARE TO OPEN LEFT
2.) SEE CITY OF DOVER STANDARDS OF INFRASTRUCTURE DESIGN FOR POTABLE WATER DETAILS



TOP VIEW

NOTES:
1. ALL LIVE-TAPPING WILL BE COMPLETED IN ACCORDANCE WITH CITY OF DOVER WATER DEPARTMENT REGULATIONS.
2. ALL INSTALLATION AND TAPPING OF EXISTING WATER MAINS WILL BE COMPLETED BY AN INDIVIDUAL OR FIRM THAT IS APPROVED BY THE CITY OF DOVER ENGINEERING
3. CONCRETE SHALL NOT CONTACT BOLTS OR END OF MECHANICAL JOINT FITTINGS.
4. SEE THRUST BLOCK TABLES FOR AREA OF CONCRETE REQUIREMENTS.

NOTES:
3000 PSI CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.

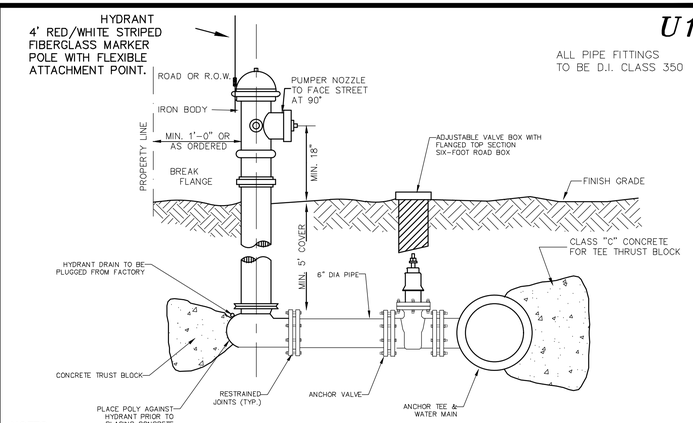


SIDE VIEW

DETAIL FOR STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

NOT TO SCALE

U17



NOTES :

1.) THE FIRE HYDRANT IS TO BE PAINTED CITY OF DOVER STANDARD COLORS AND BE EQUIPPED WITH A HYDRANT LOCATOR.
2.) THE FIRE HYDRANT SHALL BE THE "EDDY" TYPE.
3.) GATE VALVES OPEN LEFT.

HYDRANT INSTALLATION DETAIL

NOT TO SCALE

U-102

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

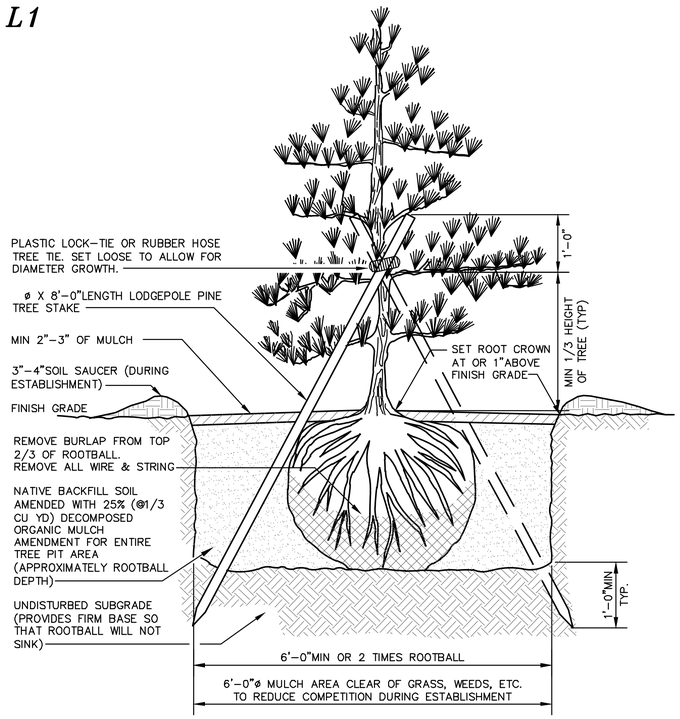
UTILITY DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

AS NOTED
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

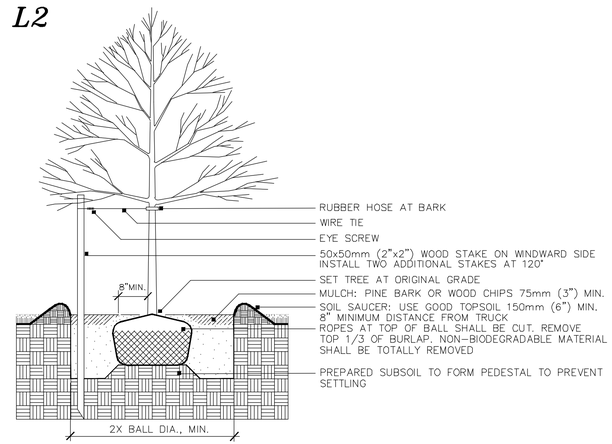
STATE OF NEW HAMPSHIRE — KENNETH A. BERRY No. 14043 — LICENSED PROFESSIONAL ENGINEER

L1



CONIFEROUS TREE PLANTING

L2



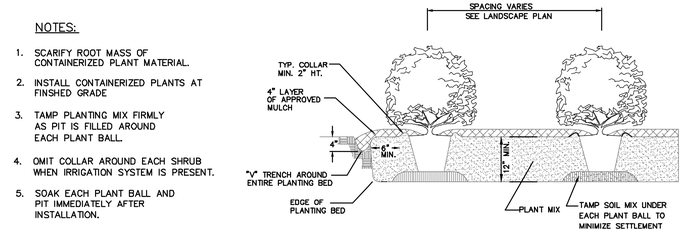
DECIDUOUS TREE PLANTING

NOTE: STAKING TO BE USED IN PARKING ISLANDS AND OTHER CONFINED AREAS AS NECESSARY TO AVOID CONFLICTS WITH PEDESTRIANS

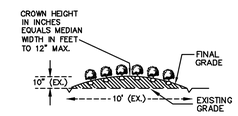
L3

NOTES:

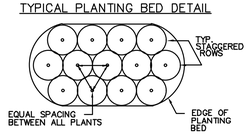
1. SCARIFY ROOT MASS OF CONTAINERIZED PLANT MATERIAL.
2. INSTALL CONTAINERIZED PLANTS AT FINSHED GRADE
3. TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.
4. OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.
5. SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.



TYPICAL PLANTING BED DETAIL



TYPICAL BED CROWNING

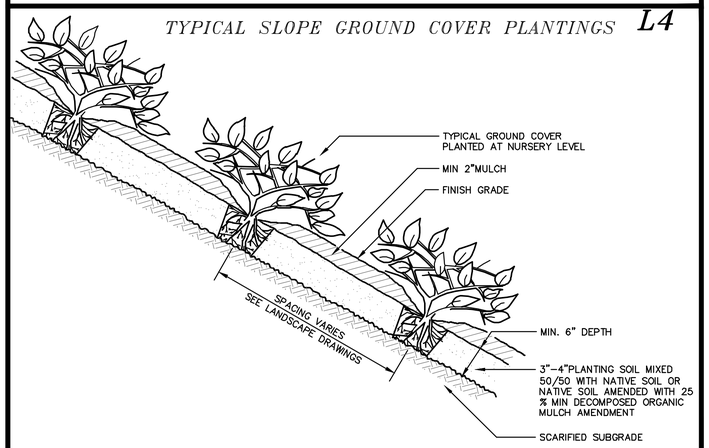


TYPICAL PLANTING BED PLAN

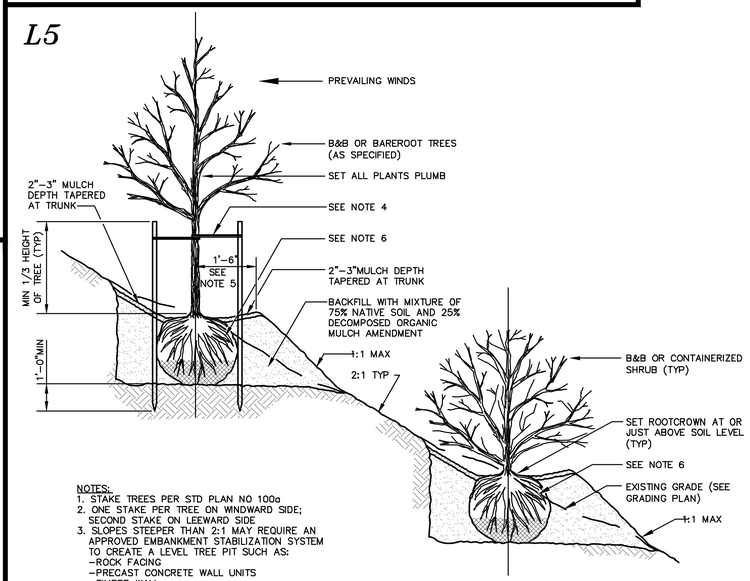
SHRUB & HEDGE PLANTING

L4

TYPICAL SLOPE GROUND COVER PLANTINGS



L5



NOTES:
1. STAKE TREES PER STD PLAN NO 100a
2. ONE STAKE PER TREE ON WINDWARD SIDE; SECOND STAKE ON LEEWARD SIDE
3. SLOPES STEEPER THAN 2:1 MAY REQUIRE AN APPROVED EMBANKMENT STABILIZATION SYSTEM TO CREATE A LEVEL TREE PIT SUCH AS:
   –ROCK FACING
   –PRECAST CONCRETE WALL UNITS
   –TIMBER WALL
   –MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLOCK TREE TIE. LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3' DIAMETER OR ROOTBALL DIAMETER, WHICHEVER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE AND STRING. REMOVE TOP 2/3 OF BURLAP.

TREE PLANTING ON SLOPES

L6

NOTES:

1.) CALL DIG SAFE PRIOR TO BEGINNING WORK. (1–888–344–7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.

2.) CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.

3.) PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.

4.) ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

5.) ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.

6.) ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.

7.) ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.

8.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.

9.) NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.

10.) ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH.

11.) WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL–ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.

12.) MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWING AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.

13.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.

14.) THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWING SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.

15.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.

16.) ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.

17.) SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.

18.) ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.

19.) TREES ARE TO BE 3.5" CALIPER 6" OFF THE ROOT BALL.

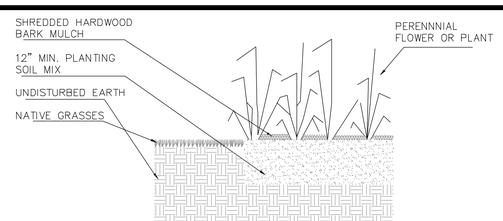
20.) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)

21.) 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY–PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.

22.) PLANT–PIT BACK–FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON–SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.

23.) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.

L7



PERENNIAL PLANTING DETAIL

L–101

DOVER PLANNING FILE #22–15

REVISION	DATE	DESCRIPTION
#1	5–12–22	REVISED PER TRC COMMENT

LANDSCAPING DETAILS
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

AS NOTED
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 – 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14043
LICENSED
PROFESSIONAL ENGINEER

SHEET 22 OF 22

DRAINAGE ANALYSIS
&
EROSION AND SEDIMENT CONTROL PLAN

Prepared for:

Knox Marsh Development, LLC
242 Central Avenue
DOVER, NH 03820

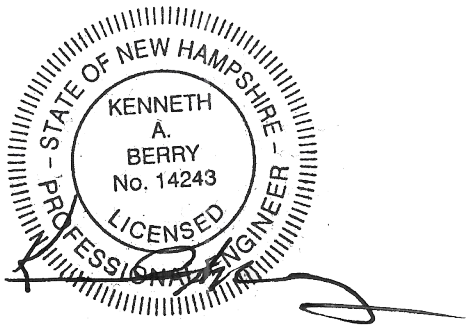
Land of

Knox Marsh Development, LLC
242 Central Avenue
DOVER, NH 03820

757 CENTRAL AVENUE, DOVER, NH
TAX MAP 28, LOT 7

Prepared by:

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



Project Number:
DB 2021-133

February 24, 2022
Revised: May 12, 2022

Table of Contents

USGS Quadrangle Location Map

Design Method Objectives Page 2

1.0 Existing Conditions Analysis Page 2

2.0 Proposed Subdivision Analysis Page 3

3.0 Full Comparative Analysis Page 5

4.0 Erosion & Sediment Control, BMP's Page 6

5.0 Conclusion Page 13

Appendix I - Existing Conditions Analysis

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

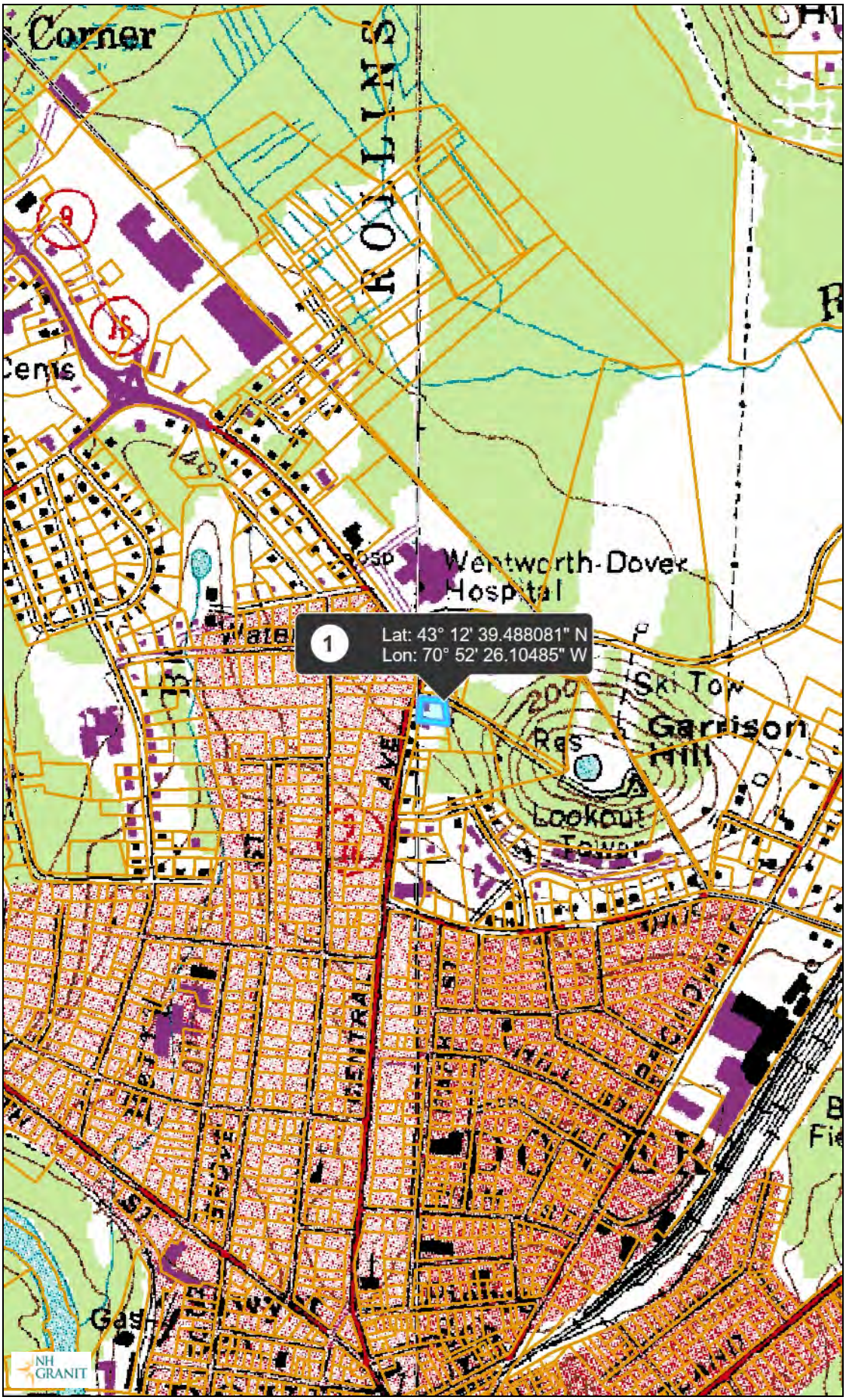
Appendix II - Proposed Conditions Analysis

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

Appendix III - Calculations, Charts, & Graphs
Extreme Precipitation Tables
NCRS USDA Web-soil Map
Pond #101 Stage-Area-Storage Table
Pond #101 Treatment Sheets
Stormwater System Operation & Maintenance Plan
& Inspection and Maintenance Manual
Watershed Report Card and Impaired Waters

Enclosed:	W-1 Sheet	Existing Conditions Watershed Plan	Sheet 1
	W-2 Sheet	Post Construction Watershed Plan	Sheet 2

Map by NH GRANIT



Legend

Parcels
- Parcel Polygons
- Attributes for Additional Lines

State

County

City/Town

Map Scale

1: 10,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 1/17/2022

Notes

Map by NH GRANIT

Legend

Parcels
- Parcel Polygons
- Attributes for Additional Lines

State

County

City/Town

Map Scale

1: 24,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 1/17/2022

Notes

DESIGN METHOD OBJECTIVES

Knox Marsh Development, LLC is proposing to develop four townhouse units and two multi-family units adjacent to a single family structure for a total of seven units the property at 757 Central Avenue (Tax Map 28, Lot 7.) The property is currently occupied by a single-family structure and the majority of the lot is open.

The northern portion of the subject parcel surface water runoff is currently collected in a catch basin in front of the existing structure (Dover GIS #1745) and into the Central Ave MS4 system. The southern portion of the parcel exits the site at the southern boundary line as shallow concentrated flow and is collected further down in the same Central Ave MS4 system.

An Existing and Proposed Conditions analysis was conducted for the purpose of estimating the peak rate of stormwater run-off from the property, Abby Sawyer Memorial Drive, and Central Avenue and to subsequently design adequate mitigation of drainage. There are two 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 W1, Existing Conditions Watershed Plan, outlines the characteristics of the site in its existing or pre-construction conditions. The second analysis displays the proposed (post-construction) conditions (See Sheet W2.) The analysis was conducted using data for; 2 Yr – 24 Hr (3.62”), 10 Yr – 24 Hr (5.46”), 25 Yr -24 Hr (6.91”), 50 Yr – 24 Hr (8.27”), and 100 YR-24 Hr (9.89”) 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). As Dover is considered a Seacoast Community by NHDES the Extreme Precipitation quantities have been adjusted to be 115% of the documented rainfalls for the 24-hour events.

1.0 Existing Conditions Analysis:

Reference: Sheet W1 - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plan

The existing property consists of a residential parcel with a horseshoe driveway. There are two subcatchments, #1 and #2 from the north side of Abbey Sawyer Memorial Drive to the south property line of the locus and includes land to the east part-way up the hill. The surface water runoff is evaluated at two location, Catch Basin #2487, (City of Dover GIS) and along the curb-line of Central Avenue adjacent to the property line. This analysis includes both surface water and runoff that enters the MS4 drainage system.

The receiving watershed is the Lower Chocheco (Cocheco) River.

The area of the property is 0.45 acres and the area of the analysis is 0.90 acres. There were no wetlands identified on the site. The current use is supported by municipal water and sewer.

The soils are made up of WfB – Windsor Loamy Fine Sand, which is classified as Hydrologic Soil Group (HSG) A, CfD – Charlton Fine Sandy Loam which is classified as HSG B, and SfC – Suffield silt loam, which is classified as Hydrologic Soil Group C, based on the USDA, NRCS Websoil.

Final Reach #100:

Subcatchment #1 consists of the northern portion of the analysis and is defined by the runoff that drains to the existing catch basin #1745 in front of the residence. Although the catch basin is modelled as a reach, the runoff from this subcatchment in the analysis may not be the total amount runoff that reaches this point. The discharge from the reach in the model is sent directly to the final reach.

Final Reach #200:

Subcatchment #2 consists of the southern portion of the analysis and is modelled directly to the analysis reach at the curb-line. This is likewise routed directly to the final reach.

Final Reach #200 is a combination of surface runoff and runoff that is intercepted by the MS4 drainage system and used for comparative purposes.

2.0 Proposed Conditions Analysis:

Reference: Sheet W2 - Proposed Conditions Watershed Plan (Enclosed)
Proposed Site Plan
Proposed Site Detail Plans

The proposed conditions analysis consists of 6 subcatchments. Subcatchment #1 and #2 are the remaining area of the Existing Conditions subcatchments that are not diverted by the proposed development. Subcatchment #3 and #4 are defined by the location of the four-unit building and divided by diversion swales and catch basins. The catch basins are modelled as ponds and routed to the sand filter system.

The fifth subcatchment (Subcatchment #11) is captured in two catch basins, Catch Basin #1 and #2 which are an integral part of the sand filter. Although two catch basins, this is modelled as one pond, Pond #101. The two catch basins are connected by a 12-inch HDPE N-12 Perforated Distribution Pipe.

Sand Filter System (Pond #101)

Pond #101 is a proprietary sand filter designed based in part on a filtration system developed by the City of Dover, Engineering Department, Community Services, and in part on the NHDES Stormwater Manuals and other published resources. Prior to the above referenced culvert distribution pipe, each of the catch basins are designed to have four foot sumps and to be installed with hoods or snouts. This pre-treatment is critical in keeping gross solids and heavy sediment from entering the system distribution culvert. The crushed three-quarter inch stone envelope around the level perforated culvert pipe distributes the pre-treated runoff over the top of the sand filter. The distribution and sand filter layers are separated by Mirafi S600 non-woven geotechnical fabric. Under the sand filter, an underdrain pipe intercepts the runoff where it is then discharged. The six-inch underdrain, installed with two clean-outs, is wrapped in a three-quarter inch stone blanket and non-woven geotechnical fabric. Although the HydroCad model does not take into consideration any exfiltration, it is anticipated that during times of the year surface water runoff will also be infiltrated to ground water. A time-of-concentration (Tc) for the subcatchments contributing to the sand filter have been assigned as 100 minutes. Larger Tc's are utilized for porous pavement designs which is well documented. Until such time as research can be completed on the timing of these sand filters, a more conservative Tc was utilized.

Final Reach #100:

The discharge from the sand filter is through a culvert pipe from DMH #1 and DMH #2 to existing catch basin #1745.

Final Reach #200:

Final Reach #200 is a combination of surface runoff and runoff that is intercepted by the MS4 drainage system and used for comparative purposes. Surface runoff is a result of runoff from the remaining areas of Subcatchment #2.

Summary

The sand filter captures all of the runoff from the proposed pavement and the roofs of units 1-4. This runoff is pretreated in the deep sump of the catch basins and treated in the sand filter before discharge into the municipal drainage system. The roof from the buildings, existing and proposed, do not require treatment. The peak rate of runoff from the proposal is reduced in the five storm events analyzed comparing pre-conditions to post-conditions.

This sand filter is not anticipated to infiltrate runoff into the soil and exfiltration has not been used in the model. Sand Filters of this nature have been found to infiltrate unexpected amounts of runoff into the soil.

3.0 FULL COMPARATIVE ANALYSIS

ANALYSIS	COMPONENT	PEAK RATE DISCHARGE (Cubic Feet / Second)				
		2 Yr	10 Yr	25 Yr	50 Yr.	100 Yr.
Final Reach #100	Existing	0.69	1.32	1.84	2.32	2.90
	Proposed	0.62	1.12	1.52	1.90	2.34
Final Reach #200	Existing	1.53	2.98	4.20	5.34	6.69
	Proposed	0.75	1.42	1.97	2.48	3.10

ANALYSIS	COMPONENT	VOLUME (ACRE FEET)
		2 Yr
Final Reach #100	Existing	0.056
	Proposed	0.137
Final Reach #200	Existing	0.124
	Proposed	0.149

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

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plan
Erosion & Sediment Control Details

The proposed site development is protected from erosion and the abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA); and City of Dover Chapter 149-14 A, Stormwater Management, Erosion Control, and Flood Hazards. **Any area disturbed by construction will be re-stabilized within 14 calendar days and abutting properties will not be adversely affected by this development. All disturbed soils within 100 feet of surface waters or wetlands will be temporarily or permanently stabilized within 7 calendar days. Erosion and sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the City of Dover Community Services Department. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them.** Reference is also made to the Stormwater System Operation Inspection & Maintenance Manual which has been written specifically for this project and available to the owner.

As this proposed site redevelopment will disturb less than one acre of land, a Notice of Intent does not need to be submitted to the US EPA. This project will not be covered by the Construction General Permit. As this project proposes less than 100,000 square feet of impact it does not require an issued permit by NHDES AoT, however construction is governed by a General Permit by Rule under NH RSA 485-A:17. Either a Stormwater Pollution Prevention Plan (SWPPP) or a Stormwater Management Plan (SWMP) as required by the City of Dover will be required. In either case, the requirements of Chapter 149-14 A will be included in the plan.

Silt Fence

The plan set demonstrates the location of silt fence for sediment control. The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation and maintenance of the silt fence. It is noted that the City of Dover prefers the mulch berms below as well as the Filtrexx product.

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.

Underground Sand Filter (Dover, NH Design)

Description: The intent of a sand filter in general is to treat surface water runoff to enhance the water quality prior to discharge into the environment. In this instance of the Dover, New Hampshire inspired Sand Filter Design, the intent is to pre-treat runoff for gross solids, litter and trash, and course sediment in a catch basin with deep sumps and hoods, and to remove additional finer sediment through distribution through crushed stone to and through a sand filter. After filtration, any runoff that cannot infiltrate into the soil will be intercepted by an underdrain where it is discharged through a drain manhole and culvert pipe to a gravity day-light. The underdrain system will be equipped with multiple clean-outs. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities, if any, of the existing soil. Construction specifications are included in the plan set and reference is made to New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 4b Underground Sand Filter System and EPA Storm Water Technology Fact Sheet, Sand Filter.

The Dover, NH Sand Filter is intended to be treated as a Low Impact Development design feature and each catch basin will accept runoff from an area less than ¼ acre to maximize the pre-treatment capabilities of the deep sumps and hoods and to treat surface water runoff as close to the source as source. The storage capacity of the sand filter is to be designed to accept the Water Quality Volume. (WQV) This application is appropriate in redevelopment site situations where Green Infrastructure applications such as a rain garden or gravel wetland is not practical.

Maintenance Considerations:
Sand Filters should be inspected at least twice annually and following any rainfall event exceeding 2.5 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 from the catch basin grates and semi-annually from the sumps. The initial inspiration of the Dover NH Sand Filter was that it can be maintained by equipment normally owned by the municipality commonly used for catch basin / drain manhole maintenance. A maintenance / access port in the hood is a critical component of the design so that hose and hydraulic cleaning can be conducted in the distribution culvert.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the sand filter system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the sand filter to determine measures required to restore the functionality. 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 growth in an around the level spreader should be inspected to ensure healthy condition and proper operation. Invasive species need to be removed along with dead or diseased vegetation.

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

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. (If applicable)

Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' 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.

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.

Inlet Protection / Storm Drain Inlets

Storm drain inlet protection will be installed per the Erosion & Sediment Control Details as a sediment barrier installed around a storm drain inlet, catch basin, or curb inlet to reduce sediment intrusion into a system after it has been constructed and existing catch basins. These are to be constructed in accordance with the Erosion & Sediment Control Details, Sheet E-101 and maintained after every rain event.

At a minimum, you must comply with following (EPA CGP Part 2.1.2.9.b) "Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, you must remove the deposited sediment by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible."

It is vital in the construction of this site that the existing MS4 drainage system not be impacted by sediment. See also sediment track out below.

Sediment Track-Out / Stabilized Construction Entrance / Exit

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 between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' 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 Construction Details Plan. The Construction Exit will be maintained in a condition that will prevent tracking of sediment onto the public highway. When the control pad becomes ineffective, the stone should be removed along with the collected soil material, regraded on site, and stabilized. A plan view and profile are shown on the Construction Details Plan in E-101 Erosion & Sediment Control Details.

Off-site Vehicle Tracking: A stabilized construction entrance has been provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept every other week or as necessary to remove any excess mud, dirt or rock tracked from the site. After the binder pavement has been placed, any construction activity that causes the tracking of sediments will also result in street sweeping. Pavement should be swept prior to surface pavement and periodically to remove materials. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

At a minimum, you must provide for maintenance that meets the following (EPA CGP Part 2.1.2.3.d) "Where sediment has been tracked-out from your site onto the surface of off-site streets, other paved areas, and sidewalks, you must remove the deposited sediment by the end of the same work day in which the track-out occurs or by the end of the next work day if track-out occurs on a non-work day. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water."

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 form 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 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 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 9.1.2 NHR12000 State of New Hampshire and "Clarification of Section 9.1.2 … and other New Hampshire specific information for the U.S. EPA 2012 NPDES Construction General Permit (CGP), May 3, 2012"

Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-102 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions (If applicable).

Construction Sequence

1. Cut and remove trees in construction area only as required.

2. Construct and/or install temporary and permanent sediment erosion and detention control facilities as required.

3. Erosion, sediment and detention control facility shall be installed & stabilized prior to any earth moving operation & or directing runoff to them.

4. Clear, cut and dispose of debris in approved facility.

5. Construct temporary culverts as required, or directed.

6. Construct roadways for access to desired construction areas. All roads shall be stabilized immediately.

7. Install pipe and construction associated appurtenances as required or directed. Install rain gardens. All disturbed areas shall stabilized immediately after grading.

8. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded or mulched as required, or directed. No area is allowed to be disturbed for a length of time that exceeds 60 days before being stabilized. Daily, or as required. All roadways and parking areas shall be stabilized within 72 hours of achieving finished grades. All cut and fill slopes shall be stabilized within 72 hours of achieving finished grades.

9. Construct temporary berms, drains ditches, silt fences, sediment traps, etc. mulch and seed as required.

10. Inspect and maintain all erosion and sediment control measures during construction.

11. Complete permanent seeding and landscaping.

12. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete.

13. Smooth and revegetate all disturbed areas.

14. Finish paving all roadways.

Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion, sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt fences and other barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired, sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and re-vegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 3 days of final grading, or temporarily stabilized within 14 days of initial disturbance of soil.

Inspection and Maintenance Schedule

Sediment control measures will be inspected during and after storm events to ensure that the practice still has integrity and is not allowing sediment to pass. Depending on SWPPP criteria, all controls will be inspected either once every 7 days or once every 14 days and after storm events. Inspection reports must be submitted to Town of Barrington Code Enforcement. Sediment build-up in swales and level spreaders will be removed if it is deeper than six inches. See also Stormwater System Operation: Inspection & Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) and / or Stormwater Management Plan (SWMP) developed in accordance with EPA NPDES or City of Dover requirements.

Corrective Action measures will be made in accordance with Stormwater Management Plan (SWMP) / SWPPP requirements and records maintained on site by the Contractor.

5.0 CONCLUSION

Peak rates of runoff flow are reduced in the post-construction analysis / condition, as compared to the pre-construction peak rates of runoff flow at Final Reach #100 & #200. This reduction occurs during the 2 Yr, 10 Yr, 25 Yr, 50 Yr, and 100 Yr/24 Hour extreme storm events due to the detention effect of the underground sand filter as well as lot specific storm water mitigation as shown on the development plans and details. Although the possibility of infiltration is unknown and not taken into consideration in the HydroCad model, there may in fact be infiltration with the underground sand filter. Per Env-Wq 1507.05(b)(1)(a) the channel protection volume is satisfied by the 2-year, 24-hour post-development peak flow rate generated from the proposed disturbance being less than the 2-year, 24-hour pre-development peak flow rate and the 2 year, 24-hour post-development storm volume has not increased over the pre-development volume by more than 0.1 acre-feet.

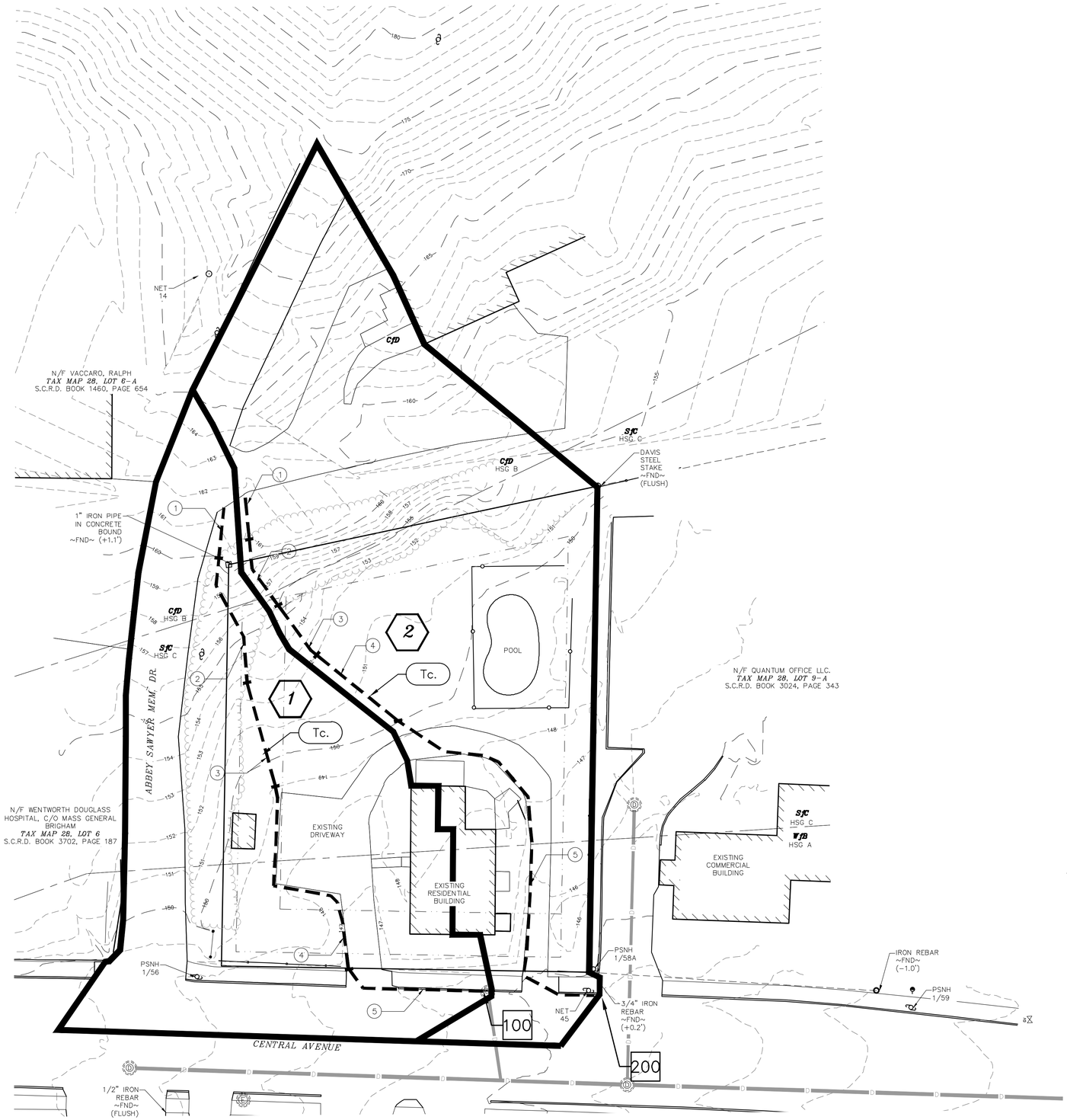
A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this site plan due to the area of disturbance being less than 100,000 SF and the site will operate as a General Permit by Rule under this rule. Because the site impact is less than one acre, a Notice of Intent with the EPA is not required but the site will operation in accordance with the City of Dover Chapter 153-14 A Stormwater Management, Erosion Control, and Flood Hazards and the approved Stormwater Management Plan.

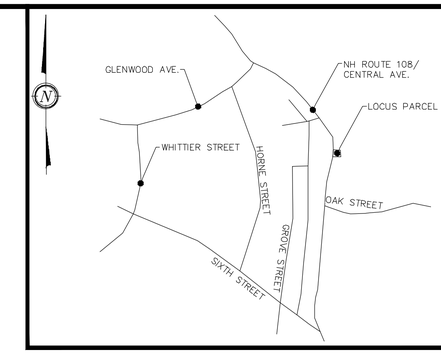
Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

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





NOTES:

1.) OWNERS: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 3187, PAGE 189

4.) LOT AREA: 19,597 Sq.Ft., 0.45 Ac.

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0320E, DATED: MAY 17, 2005.

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

7.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS OF TAX MAP 28 LOT 7 AND THE ABUTTING RELEVANT WATERSHED AREA.

LEGEND:

299	EXISTING CONTOUR MINOR
300	EXISTING CONTOUR MAJOR
	PROPERTY LINE
	SOIL LINE
448A	SOIL SERIES
	NRCS SOIL LINE
HfB	NRCS SOIL LABEL
	LIMIT OF WATERSHED
	TIME OF CONCENTRATION PATH
	FLOW REACH
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBR	TO BE REMOVED

SYMBOLS LEGEND:

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

SOIL DATA:

CfD ~ CHARLTON FINE SANDY LOAM, 15 TO 25% SLOPES HSG B
SfC ~ SUFFIELD SILT LOAM, 8 TO 15% SLOPES HSG C
WfB ~ WINDSOR LOAMY FINE SAND, CLAY SUBSOIL VARIANT, 0 TO 8% SLOPES HSG A

SEE NRCS WEBSOIL

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

REVISION	DATE	DESCRIPTION

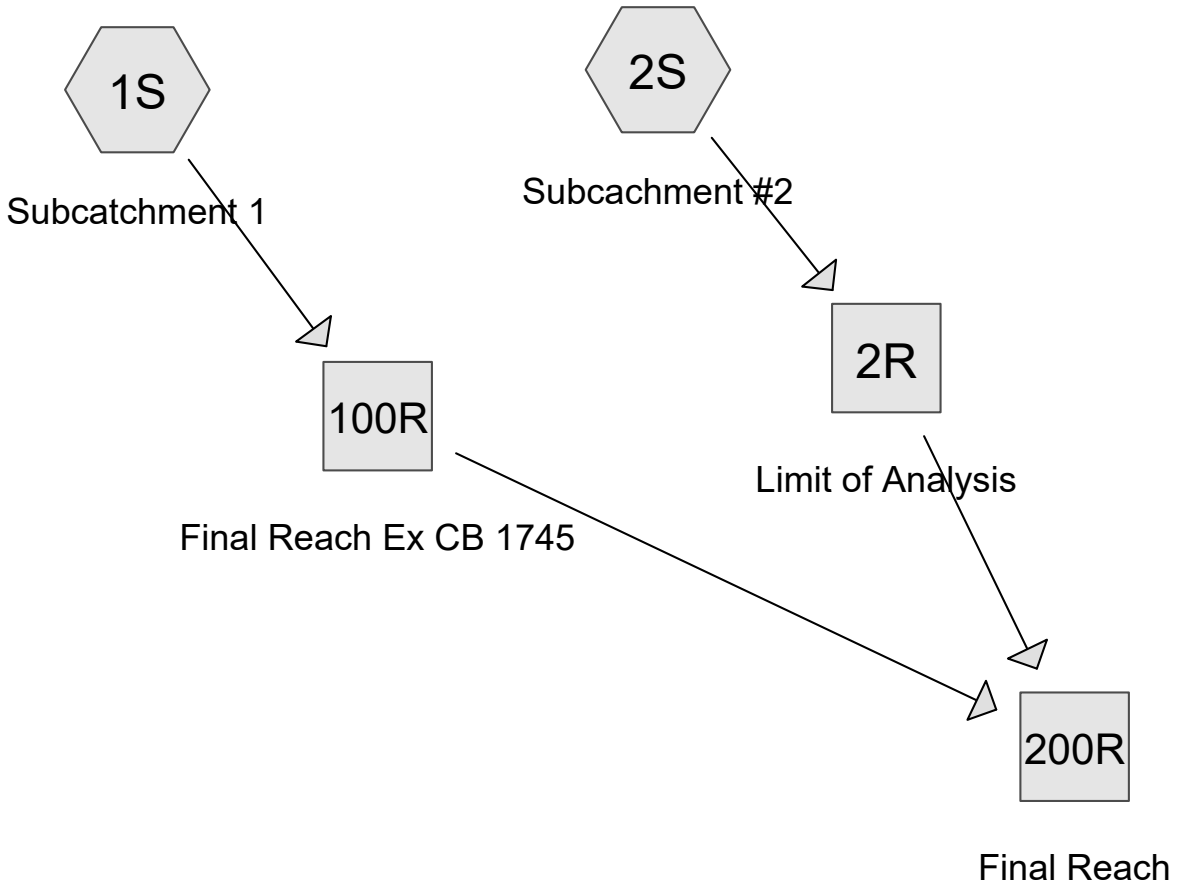
W-1 EXISTING WATERSHED PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

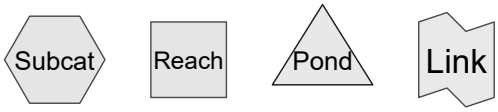
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

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

SHEET 1 OF 2





Routing Diagram for 21-133 Existing Drainage
Prepared by Berry Surveying & Engineering, Printed 2/23/2022
HydroCAD® 10.00-25 s/n 10221 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.092	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.077	61	>75% Grass cover, Good, HSG B (1S, 2S)
0.227	74	>75% Grass cover, Good, HSG C (1S, 2S)
0.123	98	Paved parking, HSG A (1S, 2S)
0.144	98	Paved parking, HSG B (1S, 2S)
0.074	98	Paved parking, HSG C (1S, 2S)
0.008	98	Unconnected pavement, HSG C (1S)
0.022	98	Unconnected roofs, HSG A (1S, 2S)
0.014	98	Unconnected roofs, HSG C (2S)
0.012	98	Water Surface, HSG C (2S)
0.007	30	Woods, Good, HSG A (1S)
0.040	55	Woods, Good, HSG B (1S, 2S)
0.062	70	Woods, Good, HSG C (1S, 2S)
0.901	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.243	HSG A	1S, 2S
0.261	HSG B	1S, 2S
0.396	HSG C	1S, 2S
0.000	HSG D	
0.000	Other	
0.901		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.092	0.077	0.227	0.000	0.000	0.396	>75% Grass cover, Good	1S, 2S
0.123	0.144	0.074	0.000	0.000	0.341	Paved parking	1S, 2S
0.000	0.000	0.008	0.000	0.000	0.008	Unconnected pavement	1S
0.022	0.000	0.014	0.000	0.000	0.036	Unconnected roofs	1S, 2S
0.000	0.000	0.012	0.000	0.000	0.012	Water Surface	2S
0.007	0.040	0.062	0.000	0.000	0.108	Woods, Good	1S, 2S
0.243	**0.261**	**0.396**	**0.000**	**0.000**	**0.901**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>4.60"
Flow Length=232' Tc=9.5 min CN=80 Runoff=1.84 cfs 0.150 af

Subcatchment 2S: Subcachment #2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>4.39"
Flow Length=240' Tc=8.4 min CN=78 Runoff=2.37 cfs 0.186 af

Reach 2R: Limit of Analysis Inflow=2.37 cfs 0.186 af
Outflow=2.37 cfs 0.186 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.84 cfs 0.150 af
Outflow=1.84 cfs 0.150 af

Reach 200R: Final Reach Inflow=4.20 cfs 0.336 af
Outflow=4.20 cfs 0.336 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.336 af Average Runoff Depth = 4.48"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac

Summary for Subcatchment 1S: Subcatchment 1

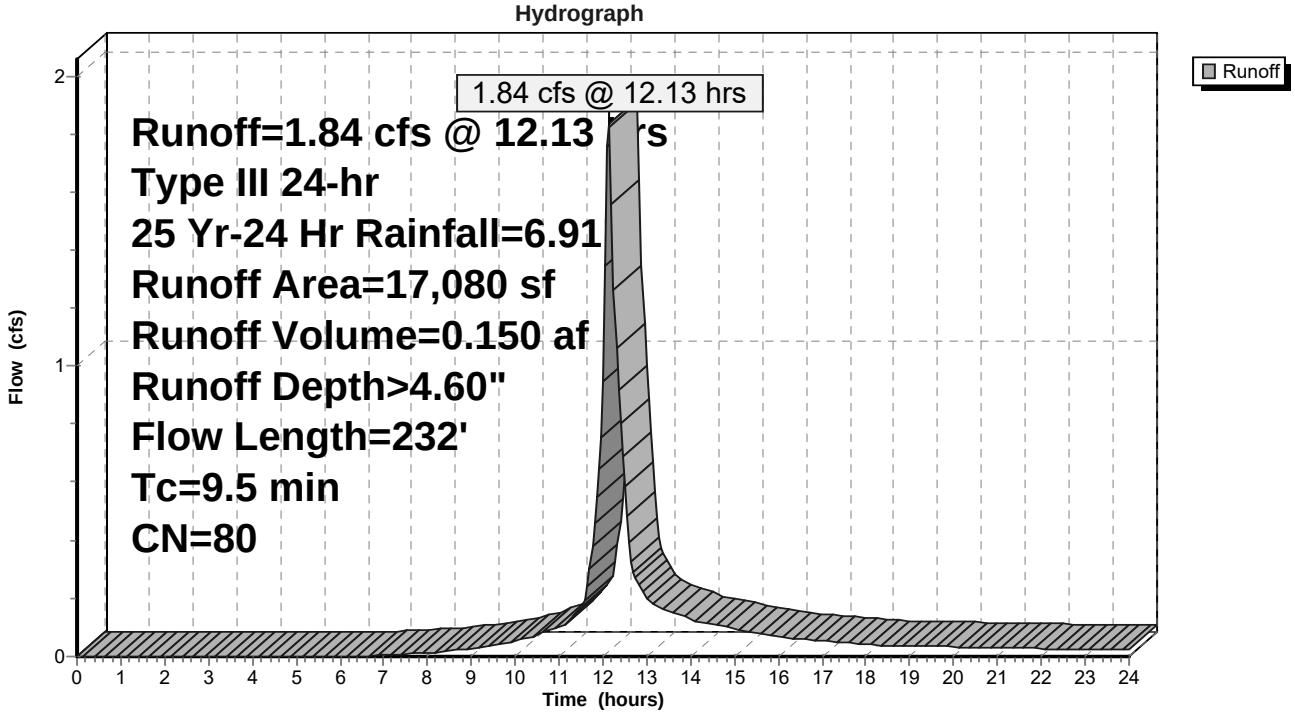
Runoff = 1.84 cfs @ 12.13 hrs, Volume= 0.150 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
455	98	Unconnected roofs, HSG A
329	98	Unconnected pavement, HSG C
2,713	39	>75% Grass cover, Good, HSG A
232	61	>75% Grass cover, Good, HSG B
2,932	74	>75% Grass cover, Good, HSG C
4,146	98	Paved parking, HSG A
1,638	98	Paved parking, HSG B
2,527	98	Paved parking, HSG C
293	30	Woods, Good, HSG A
260	55	Woods, Good, HSG B
1,555	70	Woods, Good, HSG C
17,080	80	Weighted Average
7,985		46.75% Pervious Area
9,095		53.25% Impervious Area
784		8.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	17	0.1230	0.26		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.62"
4.8	46	0.1520	0.16		**Sheet Flow, Segment 2** Woods: Light underbrush n= 0.400 P2= 3.62"
2.1	37	0.1080	0.29		**Sheet Flow, Segment 3** Grass: Short n= 0.150 P2= 3.62"
1.2	82	0.0245	1.10		**Shallow Concentrated Flow, Segment 4** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0250	3.21		**Shallow Concentrated Flow, Segment 5** Paved Kv= 20.3 fps
9.5	232	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcachment #2

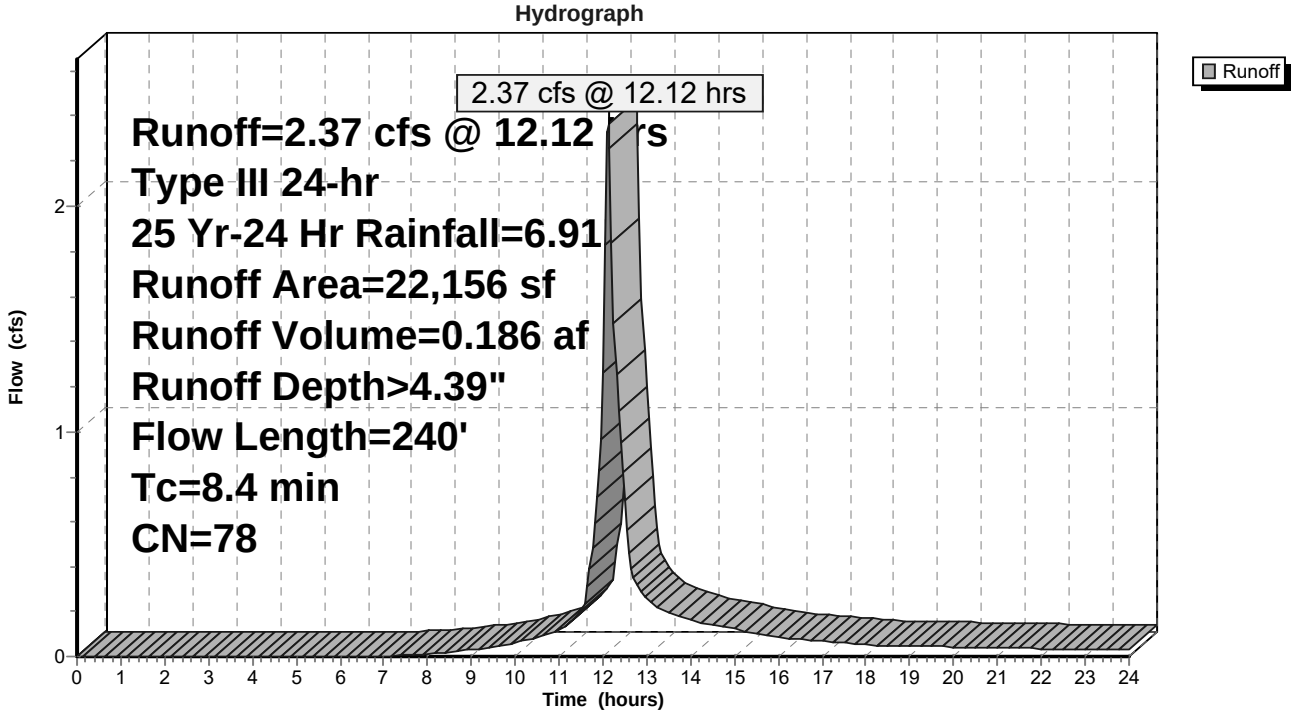
Runoff = 2.37 cfs @ 12.12 hrs, Volume= 0.186 af, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
501	98	Unconnected roofs, HSG A
600	98	Unconnected roofs, HSG C
1,292	39	>75% Grass cover, Good, HSG A
3,128	61	>75% Grass cover, Good, HSG B
6,947	74	>75% Grass cover, Good, HSG C
1,203	98	Paved parking, HSG A
4,650	98	Paved parking, HSG B
681	98	Paved parking, HSG C
1,470	55	Woods, Good, HSG B
1,146	70	Woods, Good, HSG C
538	98	Water Surface, HSG C
22,156	78	Weighted Average
13,983		63.11% Pervious Area
8,173		36.89% Impervious Area
1,101		13.47% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	12	0.0800	0.21		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.62"
2.8	27	0.2000	0.16		**Sheet Flow, Segment 2** Woods: Light underbrush n= 0.400 P2= 3.62"
1.3	22	0.1360	0.29		**Sheet Flow, Segment 3** Grass: Short n= 0.150 P2= 3.62"
2.7	36	0.0556	0.22		**Sheet Flow, Segment 4** Grass: Short n= 0.150 P2= 3.62"
0.6	143	0.0420	4.16		**Shallow Concentrated Flow, Segment 4** Paved Kv= 20.3 fps
8.4	240	Total			

Subcatchment 2S: Subcachment #2



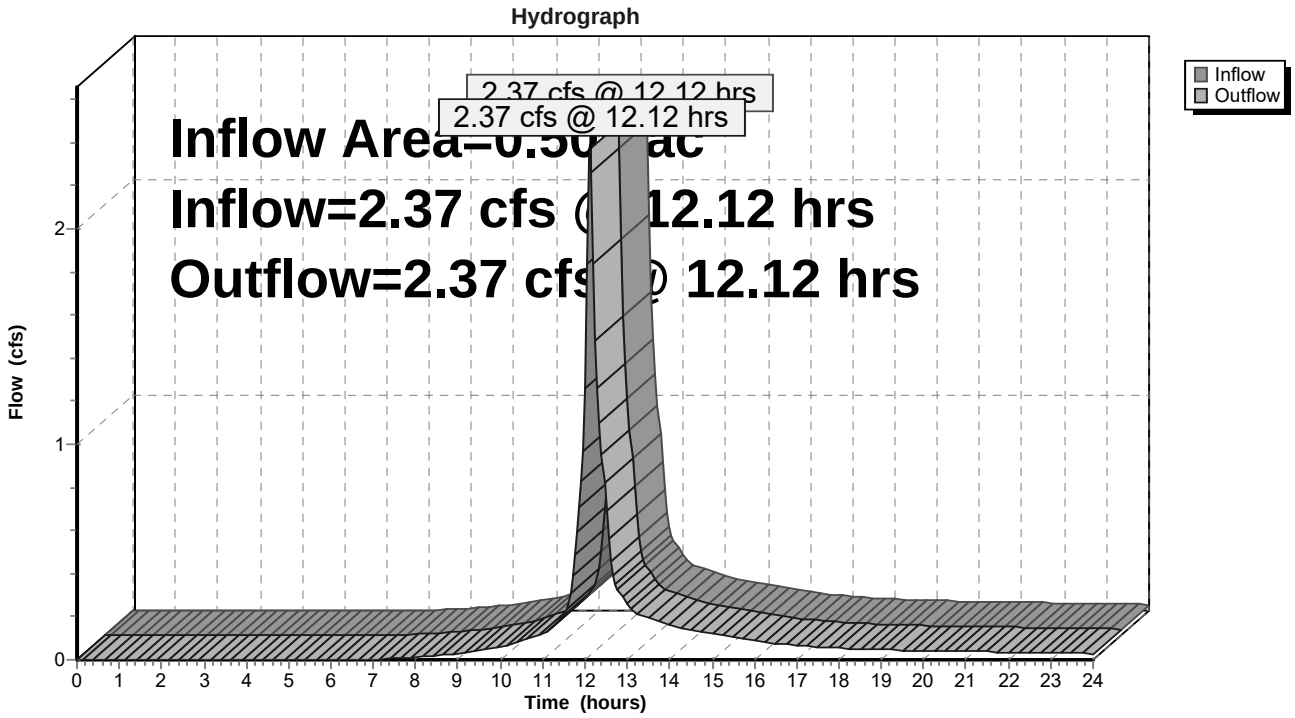
Summary for Reach 2R: Limit of Analysis

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.509 ac, 36.89% Impervious, Inflow Depth > 4.39" for 25 Yr-24 Hr event
Inflow = 2.37 cfs @ 12.12 hrs, Volume= 0.186 af
Outflow = 2.37 cfs @ 12.12 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 2R: Limit of Analysis



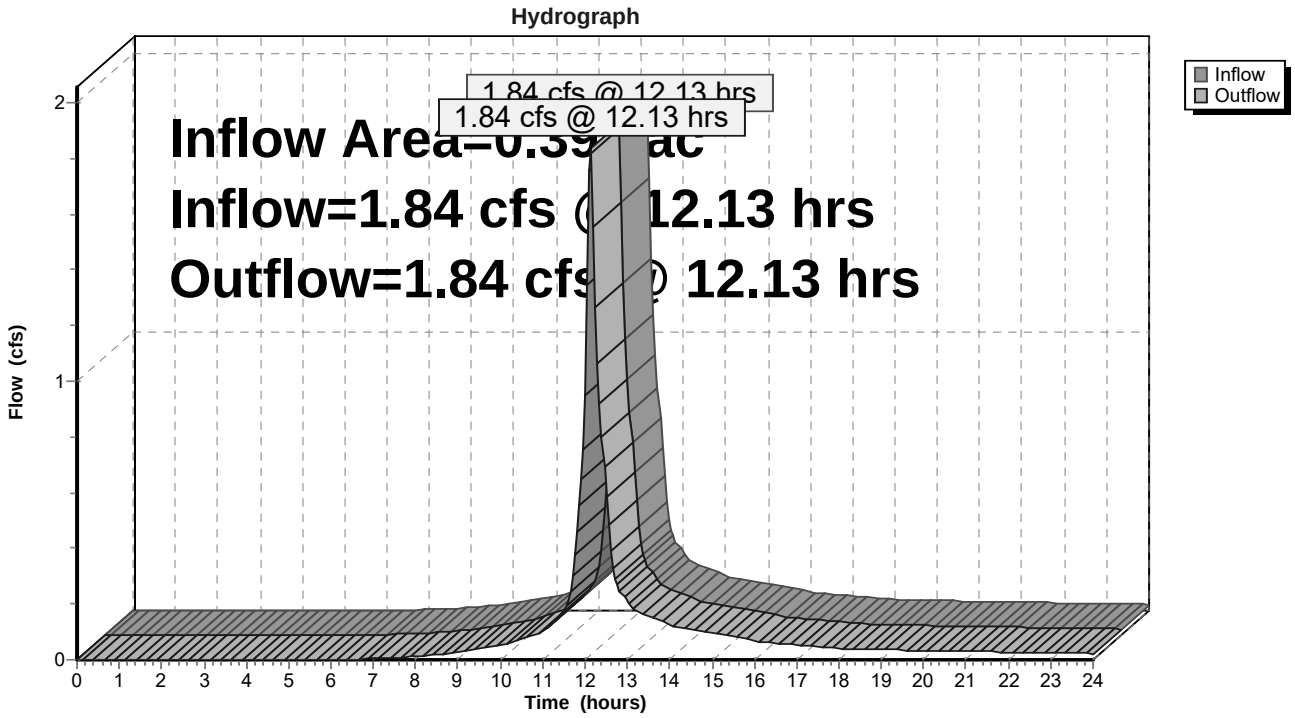
Summary for Reach 100R: Final Reach Ex CB 1745

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.392 ac, 53.25% Impervious, Inflow Depth > 4.60" for 25 Yr-24 Hr event
Inflow = 1.84 cfs @ 12.13 hrs, Volume= 0.150 af
Outflow = 1.84 cfs @ 12.13 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 100R: Final Reach Ex CB 1745



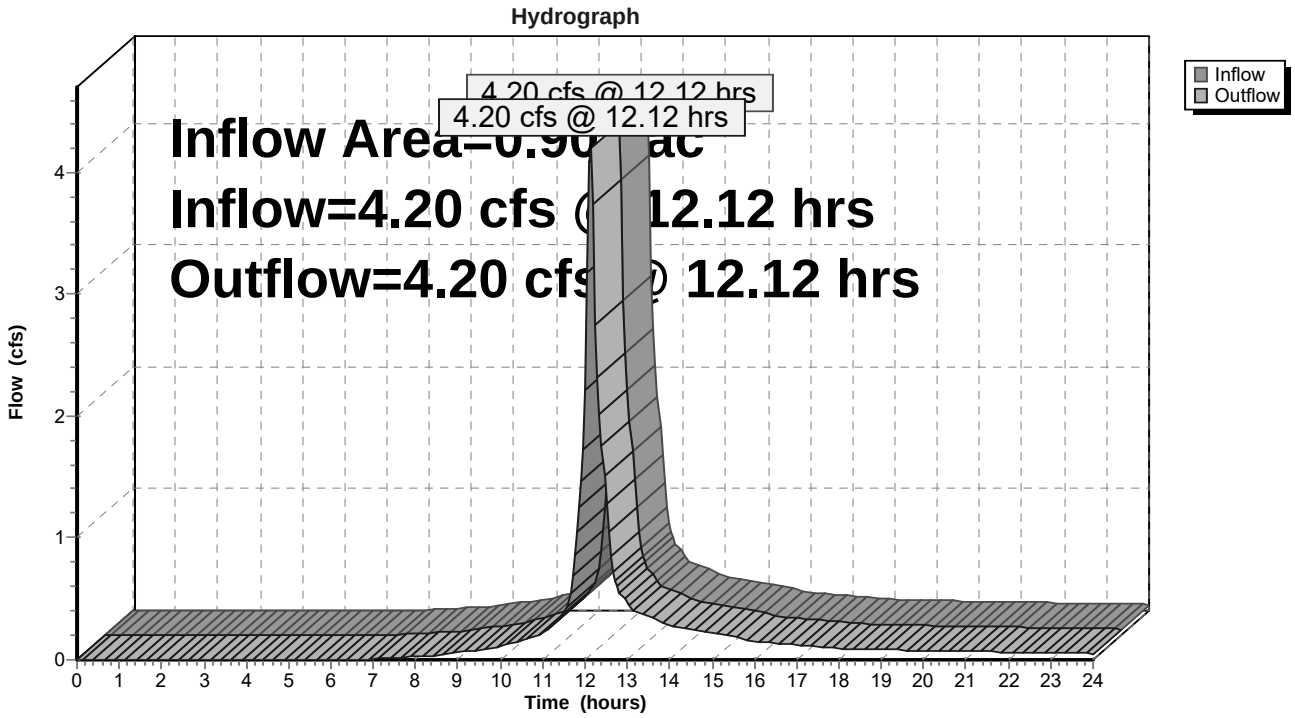
Summary for Reach 200R: Final Reach

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.901 ac, 44.01% Impervious, Inflow Depth > 4.48" for 25 Yr-24 Hr event
Inflow = 4.20 cfs @ 12.12 hrs, Volume= 0.336 af
Outflow = 4.20 cfs @ 12.12 hrs, Volume= 0.336 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 200R: Final Reach



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>1.73"
Flow Length=232' Tc=9.5 min CN=80 Runoff=0.69 cfs 0.056 af

Subcatchment2S: Subcachment#2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>1.59"
Flow Length=240' Tc=8.4 min CN=78 Runoff=0.85 cfs 0.067 af

Reach 2R: Limit of Analysis Inflow=0.85 cfs 0.067 af
Outflow=0.85 cfs 0.067 af

Reach 100R: Final Reach Ex CB 1745 Inflow=0.69 cfs 0.056 af
Outflow=0.69 cfs 0.056 af

Reach 200R: Final Reach Inflow=1.53 cfs 0.124 af
Outflow=1.53 cfs 0.124 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.124 af Average Runoff Depth = 1.65"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>3.29"
Flow Length=232' Tc=9.5 min CN=80 Runoff=1.32 cfs 0.108 af

Subcatchment 2S: Subcachment #2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>3.10"
Flow Length=240' Tc=8.4 min CN=78 Runoff=1.68 cfs 0.131 af

Reach 2R: Limit of Analysis Inflow=1.68 cfs 0.131 af
Outflow=1.68 cfs 0.131 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.32 cfs 0.108 af
Outflow=1.32 cfs 0.108 af

Reach 200R: Final Reach Inflow=2.98 cfs 0.239 af
Outflow=2.98 cfs 0.239 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.239 af Average Runoff Depth = 3.19"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>4.60"
Flow Length=232' Tc=9.5 min CN=80 Runoff=1.84 cfs 0.150 af

Subcatchment 2S: Subcachment #2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>4.39"
Flow Length=240' Tc=8.4 min CN=78 Runoff=2.37 cfs 0.186 af

Reach 2R: Limit of Analysis Inflow=2.37 cfs 0.186 af
Outflow=2.37 cfs 0.186 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.84 cfs 0.150 af
Outflow=1.84 cfs 0.150 af

Reach 200R: Final Reach Inflow=4.20 cfs 0.336 af
Outflow=4.20 cfs 0.336 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.336 af Average Runoff Depth = 4.48"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>5.87"
Flow Length=232' Tc=9.5 min CN=80 Runoff=2.32 cfs 0.192 af

Subcatchment 2S: Subcachment #2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>5.63"
Flow Length=240' Tc=8.4 min CN=78 Runoff=3.02 cfs 0.239 af

Reach 2R: Limit of Analysis Inflow=3.02 cfs 0.239 af
Outflow=3.02 cfs 0.239 af

Reach 100R: Final Reach Ex CB 1745 Inflow=2.32 cfs 0.192 af
Outflow=2.32 cfs 0.192 af

Reach 200R: Final Reach Inflow=5.34 cfs 0.431 af
Outflow=5.34 cfs 0.431 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.431 af Average Runoff Depth = 5.74"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=17,080 sf 53.25% Impervious Runoff Depth>7.41"
Flow Length=232' Tc=9.5 min CN=80 Runoff=2.90 cfs 0.242 af

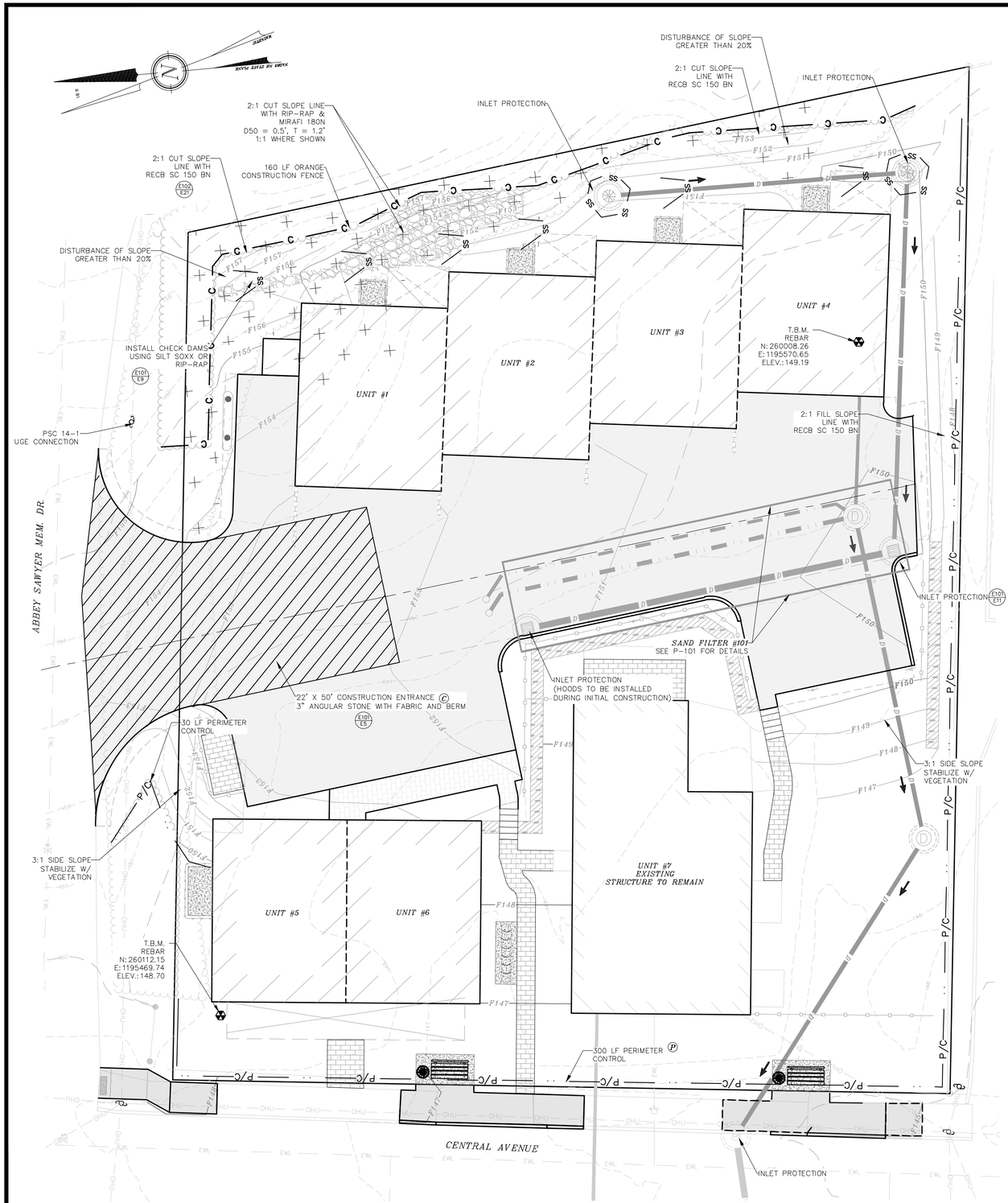
Subcatchment 2S: Subcachment #2 Runoff Area=22,156 sf 36.89% Impervious Runoff Depth>7.15"
Flow Length=240' Tc=8.4 min CN=78 Runoff=3.80 cfs 0.303 af

Reach 2R: Limit of Analysis Inflow=3.80 cfs 0.303 af
Outflow=3.80 cfs 0.303 af

Reach 100R: Final Reach Ex CB 1745 Inflow=2.90 cfs 0.242 af
Outflow=2.90 cfs 0.242 af

Reach 200R: Final Reach Inflow=6.69 cfs 0.545 af
Outflow=6.69 cfs 0.545 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.545 af Average Runoff Depth = 7.26"
55.99% Pervious = 0.504 ac 44.01% Impervious = 0.396 ac



NOTES:

1.) OWNER: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

6.) CONTRACTOR IS TO INSTALL A CONSTRUCTION ENTRANCE PRIOR TO EARTH DISTURBING ACTIVITIES.

7.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PARKING LOT, SIDEWALKS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO BELLAMY ROAD OR THE EXISTING DRIVEWAY.

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

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

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

11.) 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.

12.) CATCH BASIN HOODS WILL BE INSTALLED AS SOON AS THE BASIN IS PUT ON LINE. RIM IS TO BE RAISED WITH FINAL GRADE SO THAT STORMWATER RUNOFF CAN DRAIN PROPERLY THROUGHOUT CONSTRUCTION.

13.) CITY OF DOVER: IN ACCORDANCE WITH SITE PLAN REVIEW REGULATIONS (153-14) THE FOLLOWING STORMWATER MEASURES ARE REQUIRED.

A.) ALL PROPOSED BMPs WILL CONFORM TO THE NH STORMWATER MANUAL VOLUME 3.
B.) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY COMMUNITY SERVICE.
C.) 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 SOKL AREAS.
D.) ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL STABILIZATION IS ACCOMPLISHED.
E.) 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.
F.) 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.
G.) 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 (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORMWATER QUALITY (CPSWQ). INSPECTION REPORTS WILL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.

SOILS & DEWATERING:

CfD	*CHARLTON*	*FINE SANDY LOAM*	*K= 0.43*
SfC	*SUFFIELD*	*SILT LOAM*	*K= 0.49*
WfB	*WINDSOR*	*LOAMY FINE SAND*	*K= 0.17*

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

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

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

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

LEGEND:

- (P) PERIMETER CONTROL
- (C) RESIDENTIAL/ROADWAY CONSTRUCTION
- UTILITY POLE
- GUY WIRE
- P/C — PERIMETER CONTROL SEE E-101
- SF — SILT FENCE
- SS — FILTREXX SILTSOXX
- C — ORANGE CONSTRUCTION FENCE

GRAPHIC SCALE
20 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #22-15

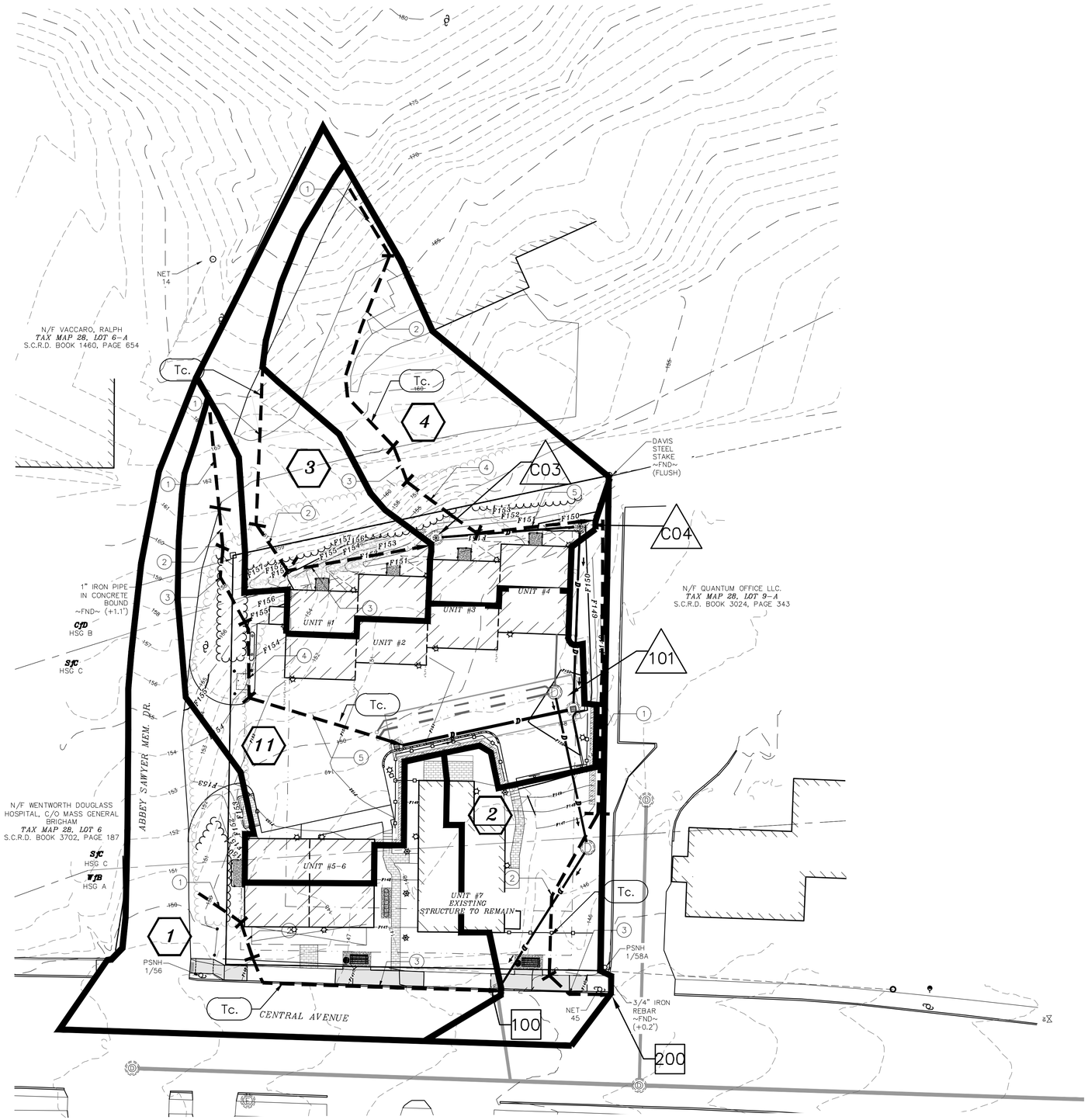
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

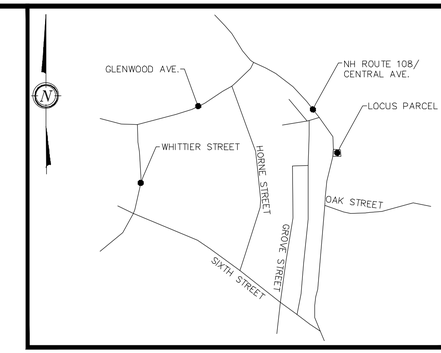
EROSION AND SEDIMENT CONTROL PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14043
LICENSED
PROFESSIONAL ENGINEER





NOTES:

1.) OWNERS: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 3187, PAGE 189

4.) LOT AREA: 19,597 Sq.Ft., 0.45 Ac.

5.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0320E, DATED: MAY 17, 2005.

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

7.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS OF TAX MAP 28 LOT 7 AND THE ABUTTING RELEVANT WATERSHED AREA.

LEGEND:

299	EXISTING CONTOUR MINOR
300	EXISTING CONTOUR MAJOR
	PROPERTY LINE
	SOIL LINE
448A	SOIL SERIES
	NRCS SOIL LINE
WfB	NRCS SOIL LABEL
	LIMIT OF WATERSHED
	TIME OF CONCENTRATION PATH
	FLOW REACH
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBR	TO BE REMOVED

SYMBOLS LEGEND:

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

SOIL DATA:

CfD ~ CHARLTON FINE SANDY LOAM, 15 TO 25% SLOPES HSG B
SfC ~ SUFFIELD SILT LOAM, 8 TO 15% SLOPES HSG C
WfB ~ WINDSOR LOAMY FINE SAND, CLAY SUBSOIL VARIANT, 0 TO 8% SLOPES HSG A

SEE NRCS WEBSOIL

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DOVER PLANNING FILE #22-15

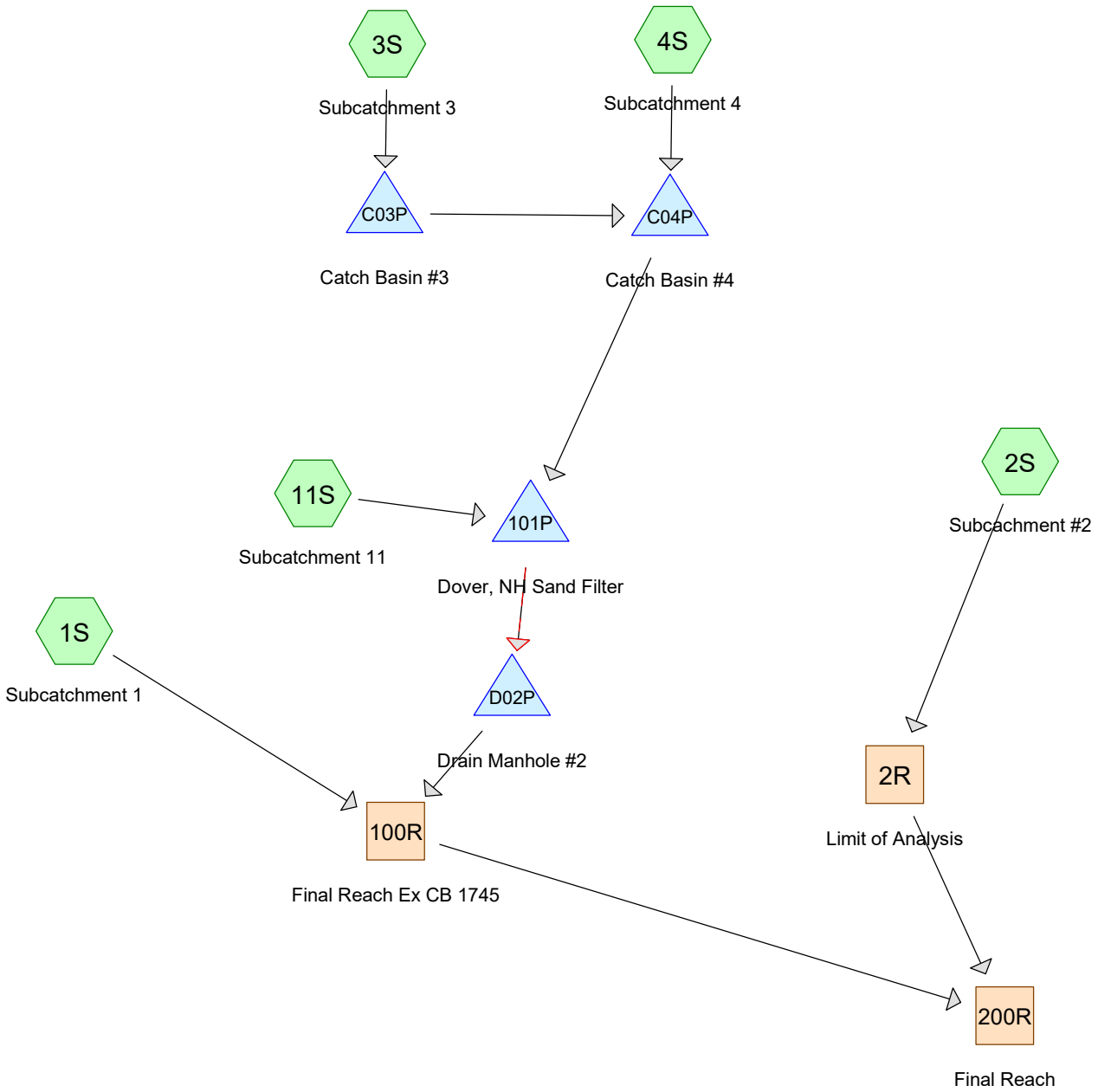
REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

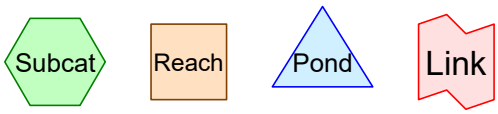
W-2 PROPOSED WATERSHED PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 20 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 7424
LICENSED
PROFESSIONAL ENGINEER





Routing Diagram for 21-133 Proposed Drainage
Prepared by Berry Surveying & Engineering (Rev 4/14/22), Printed 5/12/2022
HydroCAD® 10.00-22 s/n 07605 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.086	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.080	61	>75% Grass cover, Good, HSG B (3S, 4S, 11S)
0.116	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S, 11S)
0.100	98	Paved parking, HSG A (1S, 2S)
0.148	98	Paved parking, HSG B (1S, 3S, 4S, 11S)
0.174	98	Paved parking, HSG C (1S, 11S)
0.051	98	Roofs, HSG A (1S, 2S, 11S)
0.085	98	Roofs, HSG C (1S, 2S, 3S, 4S, 11S)
0.006	30	Woods, Good, HSG A (1S)
0.034	55	Woods, Good, HSG B (3S, 4S, 11S)
0.021	70	Woods, Good, HSG C (1S, 4S, 11S)
0.901	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.243	HSG A	1S, 2S, 11S
0.261	HSG B	1S, 3S, 4S, 11S
0.396	HSG C	1S, 2S, 3S, 4S, 11S
0.000	HSG D	
0.000	Other	
0.901		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.086	0.080	0.116	0.000	0.000	0.282	>75% Grass cover, Good	1S, 2S, 3S, 4S, 11S
0.100	0.148	0.174	0.000	0.000	0.422	Paved parking	1S, 2S, 3S, 4S, 11S
0.051	0.000	0.085	0.000	0.000	0.136	Roofs	1S, 2S, 3S, 4S, 11S
0.006	0.034	0.021	0.000	0.000	0.061	Woods, Good	1S, 3S, 4S, 11S
0.243	**0.261**	**0.396**	**0.000**	**0.000**	**0.901**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	101P	142.96	142.10	50.0	0.0172	0.012	8.0	0.0	0.0
2	101P	143.13	143.13	62.0	0.0000	0.012	6.0	0.0	0.0
3	101P	146.65	146.65	60.0	0.0000	0.012	8.0	0.0	0.0
4	C03P	147.25	146.70	45.0	0.0122	0.012	8.0	0.0	0.0
5	C04P	146.60	146.25	58.2	0.0060	0.012	8.0	0.0	0.0
6	D02P	142.00	141.24	53.7	0.0142	0.012	8.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>4.94"
Tc=6.0 min CN=83 Runoff=1.40 cfs 0.104 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>3.75"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.46 cfs 0.036 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>4.63"
Tc=100.0 min CN=81 Runoff=0.18 cfs 0.045 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>4.52"
Tc=100.0 min CN=80 Runoff=0.28 cfs 0.068 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>5.98"
Tc=100.0 min CN=93 Runoff=0.46 cfs 0.118 af

Reach 2R: Limit of Analysis Inflow=0.46 cfs 0.036 af
Outflow=0.46 cfs 0.036 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.52 cfs 0.333 af
Outflow=1.52 cfs 0.333 af

Reach 200R: Final Reach Inflow=1.97 cfs 0.369 af
Outflow=1.97 cfs 0.369 af

Pond 101P: Dover, NH Sand Filter Peak Elev=147.36' Storage=1,792 cf Inflow=0.91 cfs 0.231 af
Primary=0.33 cfs 0.186 af Secondary=0.53 cfs 0.043 af Outflow=0.86 cfs 0.229 af

Pond C03P: Catch Basin #3 Peak Elev=147.58' Storage=0.000 af Inflow=0.18 cfs 0.045 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.18 cfs 0.045 af

Pond C04P: Catch Basin #4 Peak Elev=147.46' Storage=0.000 af Inflow=0.45 cfs 0.113 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.45 cfs 0.113 af

Pond D02P: Drain Manhole #2 Peak Elev=142.60' Storage=0.000 af Inflow=0.86 cfs 0.229 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=0.86 cfs 0.229 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.371 af Average Runoff Depth = 4.94"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

Summary for Subcatchment 1S: Subcatchment 1

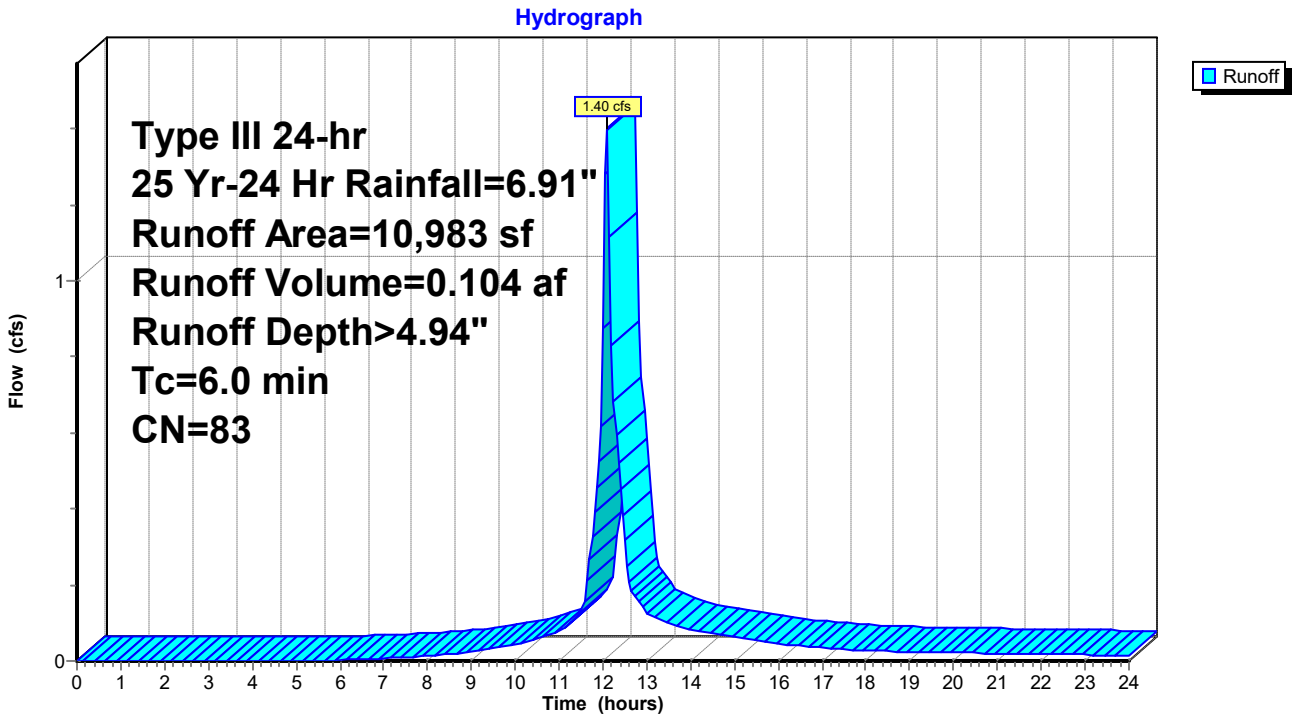
Runoff = 1.40 cfs @ 12.09 hrs, Volume= 0.104 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
1,319	98	Roofs, HSG A
253	98	Roofs, HSG C
2,255	39	>75% Grass cover, Good, HSG A
499	74	>75% Grass cover, Good, HSG C
3,349	98	Paved parking, HSG A
836	98	Paved parking, HSG B
2,058	98	Paved parking, HSG C
277	30	Woods, Good, HSG A
137	70	Woods, Good, HSG C
10,983	83	Weighted Average
3,168		28.84% Pervious Area
7,815		71.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Segment #1**

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcachment #2

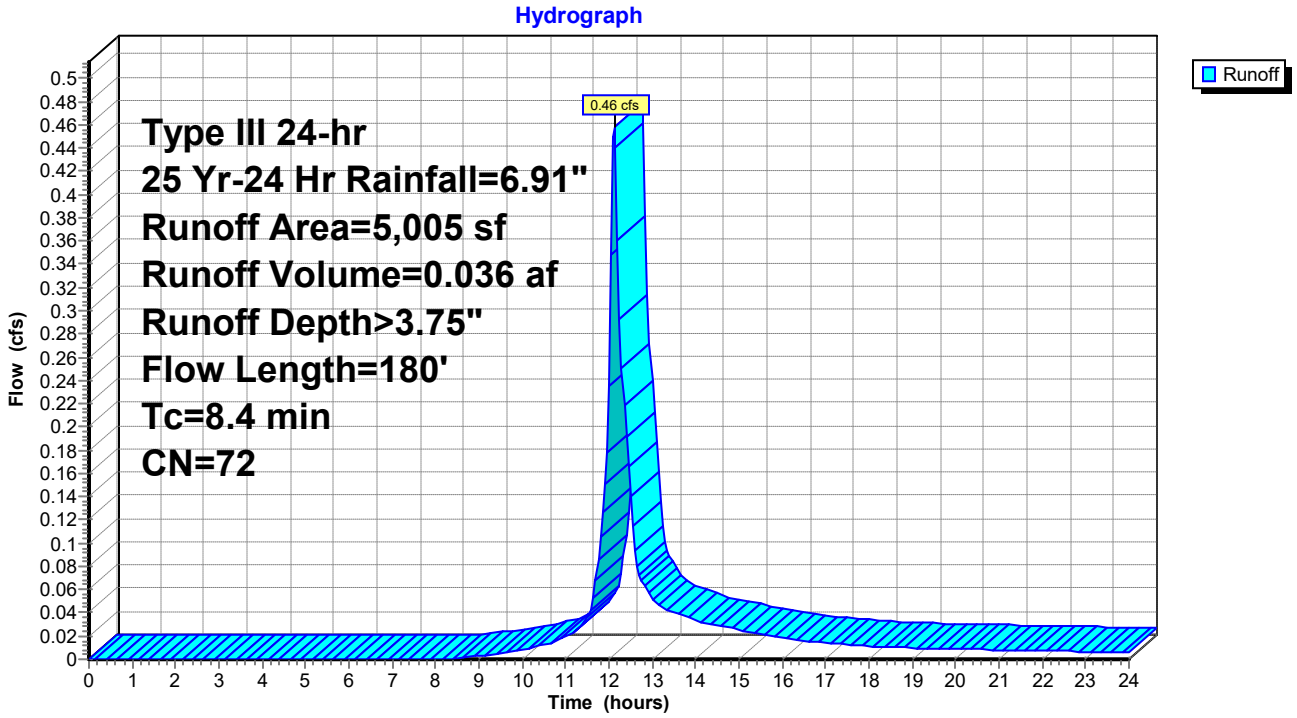
Runoff = 0.46 cfs @ 12.12 hrs, Volume= 0.036 af, Depth> 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
507	98	Roofs, HSG A
318	98	Roofs, HSG C
1,490	39	>75% Grass cover, Good, HSG A
1,694	74	>75% Grass cover, Good, HSG C
996	98	Paved parking, HSG A
5,005	72	Weighted Average
3,184		63.62% Pervious Area
1,821		36.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	100	0.0350	0.23		**Sheet Flow, Segment 1** Grass: Short n= 0.150 P2= 3.62"
0.9	59	0.0250	1.11		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0480	4.45		**Shallow Concentrated Flow, Segment 3** Paved Kv= 20.3 fps
8.4	180	Total			

Subcatchment 2S: Subcachment #2



Summary for Subcatchment 3S: Subcatchment 3

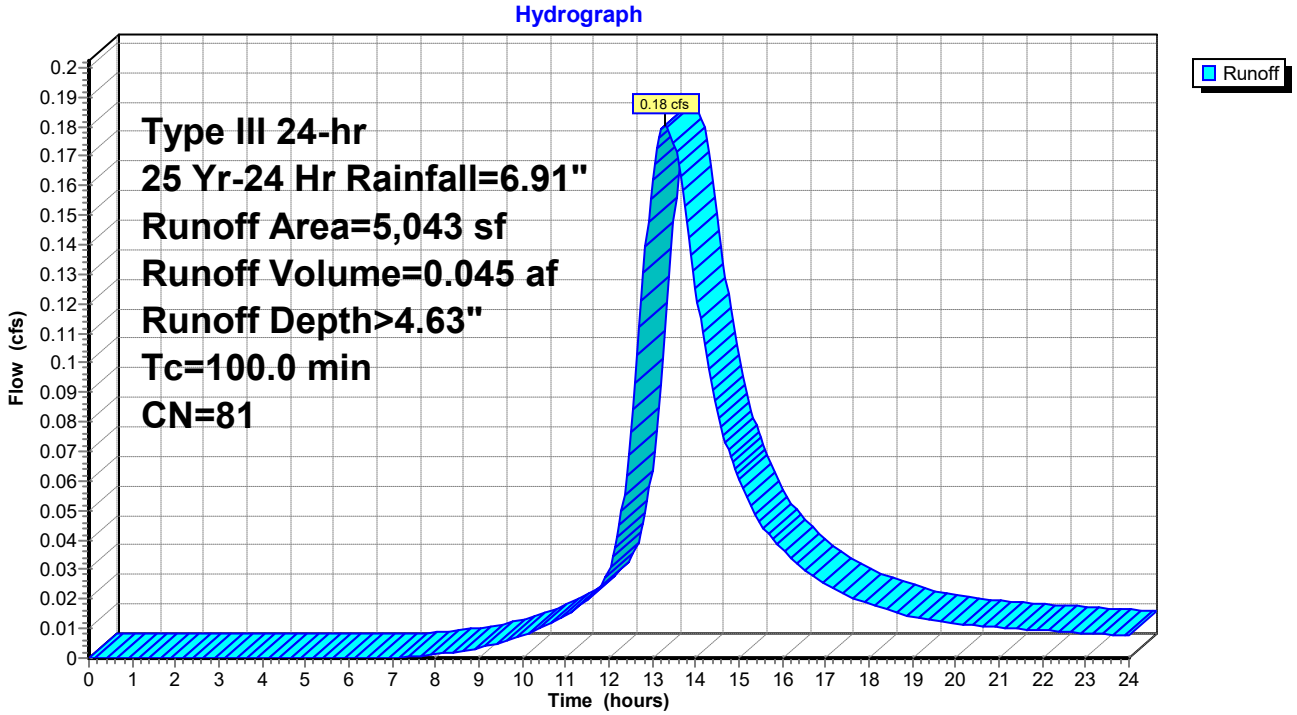
Runoff = 0.18 cfs @ 13.30 hrs, Volume= 0.045 af, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
1,131	61	>75% Grass cover, Good, HSG B
592	74	>75% Grass cover, Good, HSG C
1,892	98	Paved parking, HSG B
708	55	Woods, Good, HSG B
720	98	Roofs, HSG C
5,043	81	Weighted Average
2,431		48.21% Pervious Area
2,612		51.79% Impervious Area

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

Subcatchment 3S: Subcatchment 3



Summary for Subcatchment 4S: Subcatchment 4

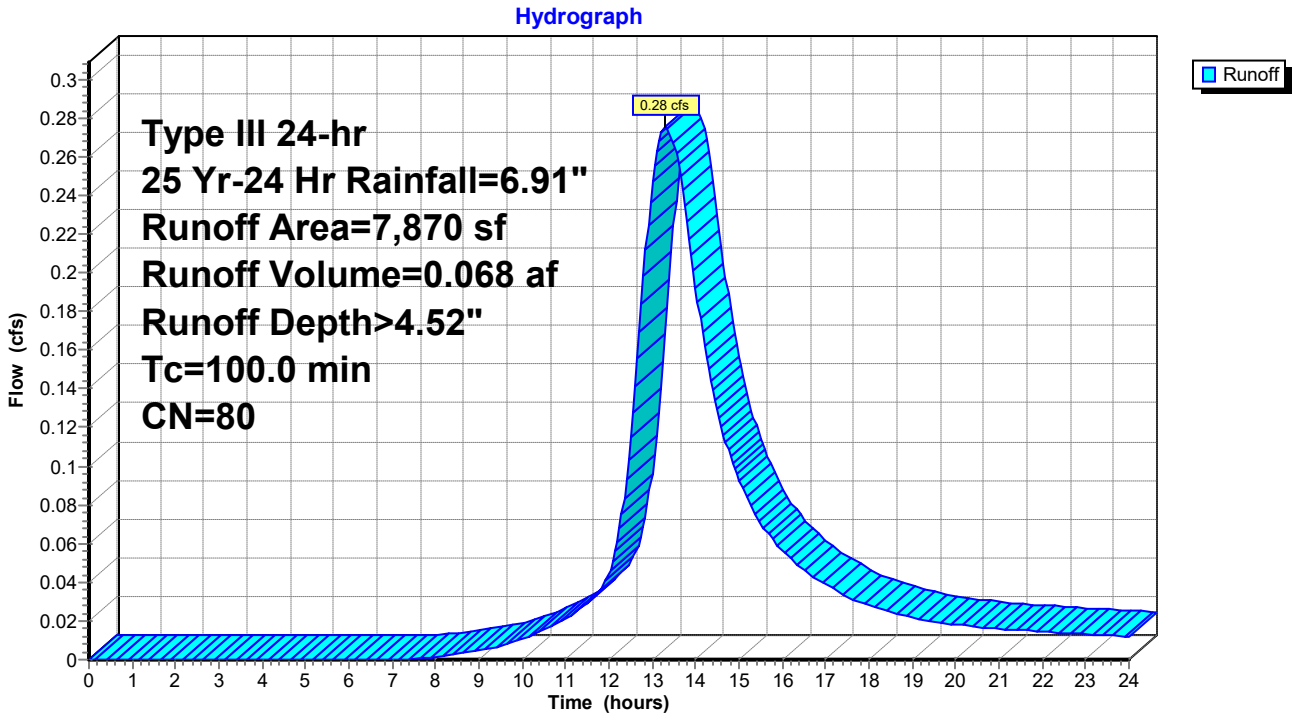
Runoff = 0.28 cfs @ 13.30 hrs, Volume= 0.068 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
2,106	61	>75% Grass cover, Good, HSG B
949	74	>75% Grass cover, Good, HSG C
2,926	98	Paved parking, HSG B
534	55	Woods, Good, HSG B
635	70	Woods, Good, HSG C
720	98	Roofs, HSG C
7,870	80	Weighted Average
4,224		53.67% Pervious Area
3,646		46.33% Impervious Area

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

Subcatchment 4S: Subcatchment 4



Summary for Subcatchment 11S: Subcatchment 11

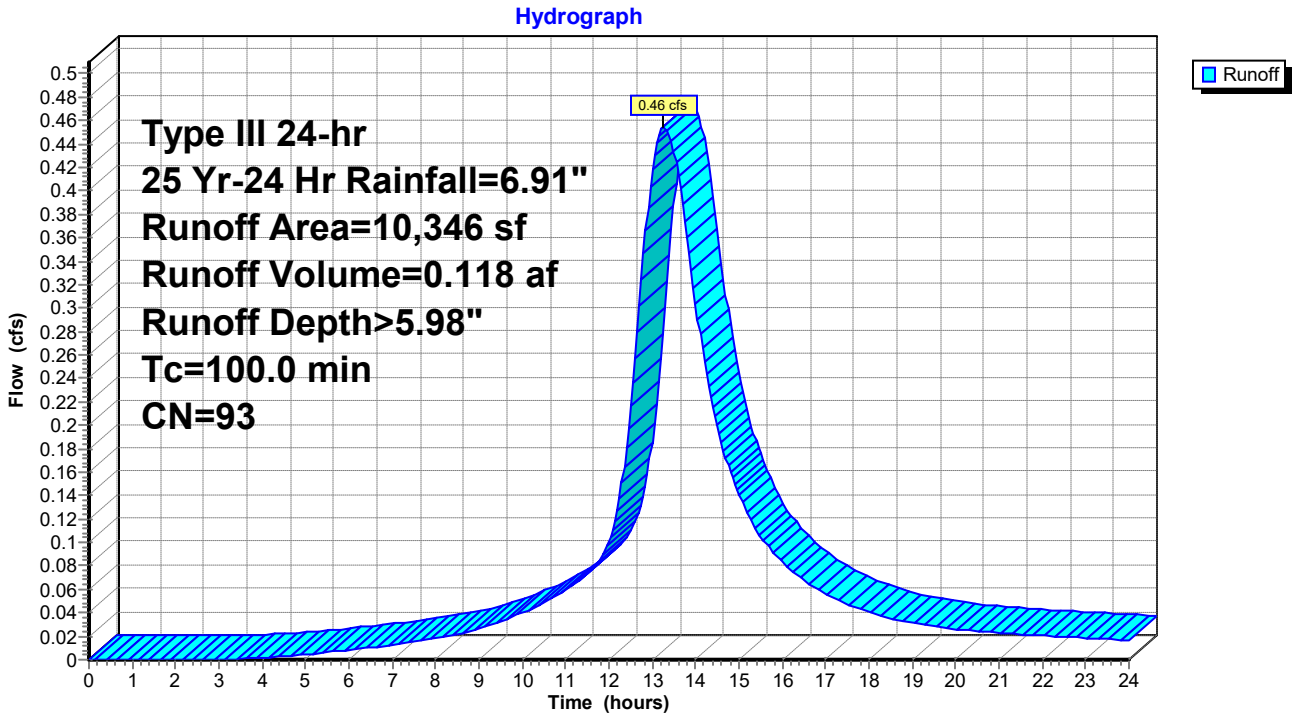
Runoff = 0.46 cfs @ 13.26 hrs, Volume= 0.118 af, Depth> 5.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Yr-24 Hr Rainfall=6.91"

Area (sf)	CN	Description
406	98	Roofs, HSG A
232	61	>75% Grass cover, Good, HSG B
1,315	74	>75% Grass cover, Good, HSG C
802	98	Paved parking, HSG B
5,525	98	Paved parking, HSG C
221	55	Woods, Good, HSG B
151	70	Woods, Good, HSG C
1,694	98	Roofs, HSG C
10,346	93	Weighted Average
1,919		18.55% Pervious Area
8,427		81.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
100.0					**Direct Entry, Direct Entry for Sand Filter**

Subcatchment 11S: Subcatchment 11



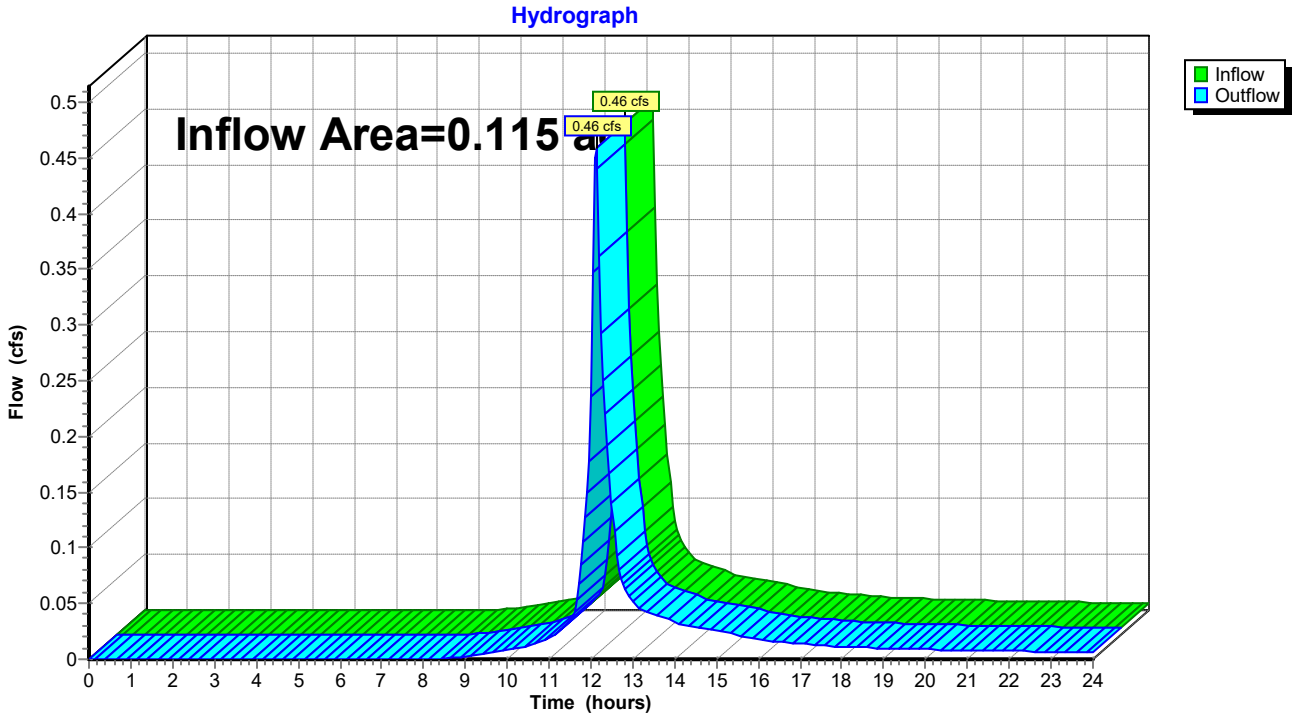
Summary for Reach 2R: Limit of Analysis

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.115 ac, 36.38% Impervious, Inflow Depth > 3.75" for 25 Yr-24 Hr event
Inflow = 0.46 cfs @ 12.12 hrs, Volume= 0.036 af
Outflow = 0.46 cfs @ 12.12 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 2R: Limit of Analysis



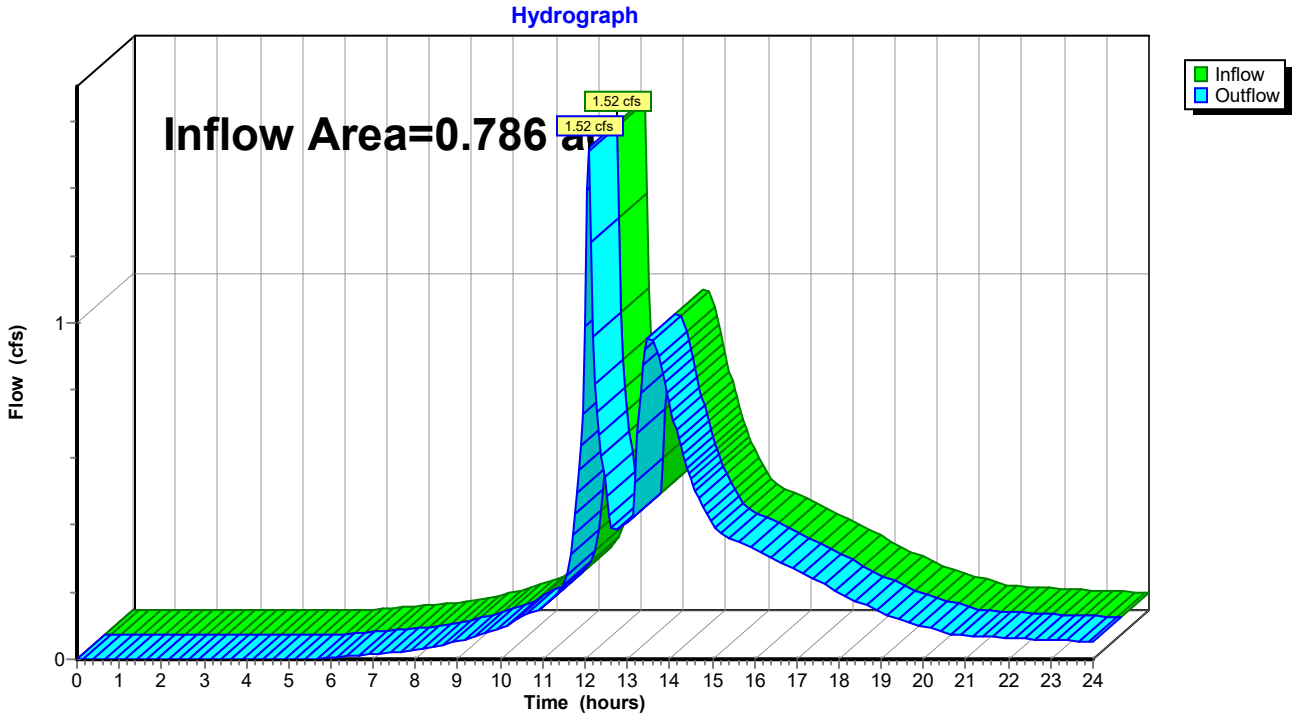
Summary for Reach 100R: Final Reach Ex CB 1745

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.786 ac, 65.71% Impervious, Inflow Depth > 5.08" for 25 Yr-24 Hr event
Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.333 af
Outflow = 1.52 cfs @ 12.09 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 100R: Final Reach Ex CB 1745



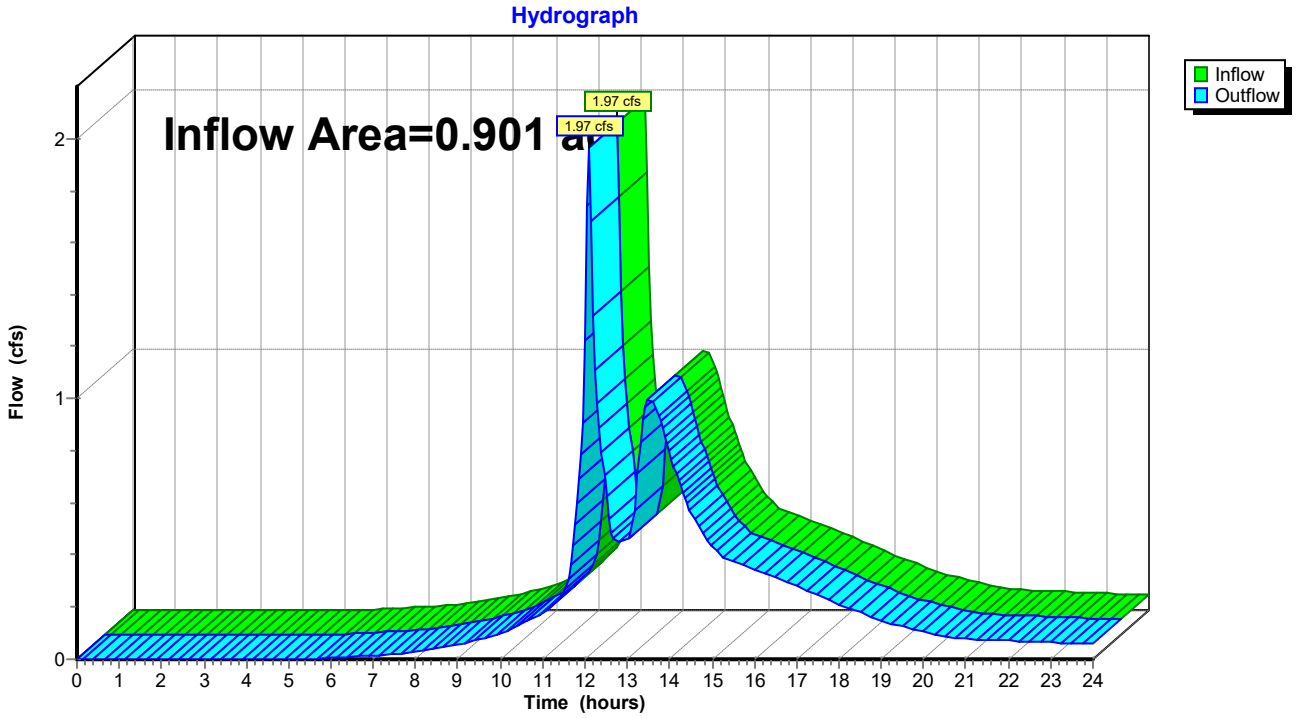
Summary for Reach 200R: Final Reach

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.901 ac, 61.97% Impervious, Inflow Depth > 4.91" for 25 Yr-24 Hr event
Inflow = 1.97 cfs @ 12.10 hrs, Volume= 0.369 af
Outflow = 1.97 cfs @ 12.10 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 200R: Final Reach



Summary for Pond 101P: Dover, NH Sand Filter

Inflow Area = 0.534 ac, 63.14% Impervious, Inflow Depth > 5.19" for 25 Yr-24 Hr event
Inflow = 0.91 cfs @ 13.30 hrs, Volume= 0.231 af
Outflow = 0.86 cfs @ 13.54 hrs, Volume= 0.229 af, Atten= 5%, Lag= 14.2 min
Primary = 0.33 cfs @ 13.54 hrs, Volume= 0.186 af
Secondary = 0.53 cfs @ 13.54 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 147.36' @ 13.54 hrs Surf.Area= 2,977 sf Storage= 1,792 cf
Flood Elev= 147.95' Surf.Area= 2,977 sf Storage= 2,053 cf

Plug-Flow detention time= 51.4 min calculated for 0.228 af (99% of inflow)
Center-of-Mass det. time= 46.3 min (910.1 - 863.8)

Volume	Invert	Avail.Storage	Storage Description
#1	143.13'	190 cf	**Stone Layer below Sand Filter (Irregular)** Listed below (Recalc) 488 cf Overall - 12 cf Embedded = 475 cf x 40.0% Voids
#2	143.63'	780 cf	**SAND FILTER LAYER (Irregular)** Listed below (Recalc) 1,950 cf Overall x 40.0% Voids
#3	145.63'	881 cf	**Stone Layer above Sand Filter (Irregular)** Listed below (Recalc) 2,262 cf Overall - 60 cf Embedded = 2,202 cf x 40.0% Voids
#4	146.25'	39 cf	**12.0" Round 12" DISTRIBUTION PIPE** Inside #3 L= 50.0'
#5	143.13'	12 cf	**6.0" Round 6" U.D.** Inside #1 L= 62.0'
#6	146.65'	21 cf	**8.0" Round 8" U.D.** Inside #3 L= 60.0'
#7	146.25'	137 cf	**5.00'D x 3.50'H CB #1 & #2 Vertical Cone/Cylinder** x 2
#8	142.96'	88 cf	**4.00'D x 7.00'H Outlet DMH**
		2,149 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
143.13	975	160.0	0	0	975
143.63	975	160.0	488	488	1,055

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
143.63	975	160.0	0	0	975
145.63	975	160.0	1,950	1,950	1,295

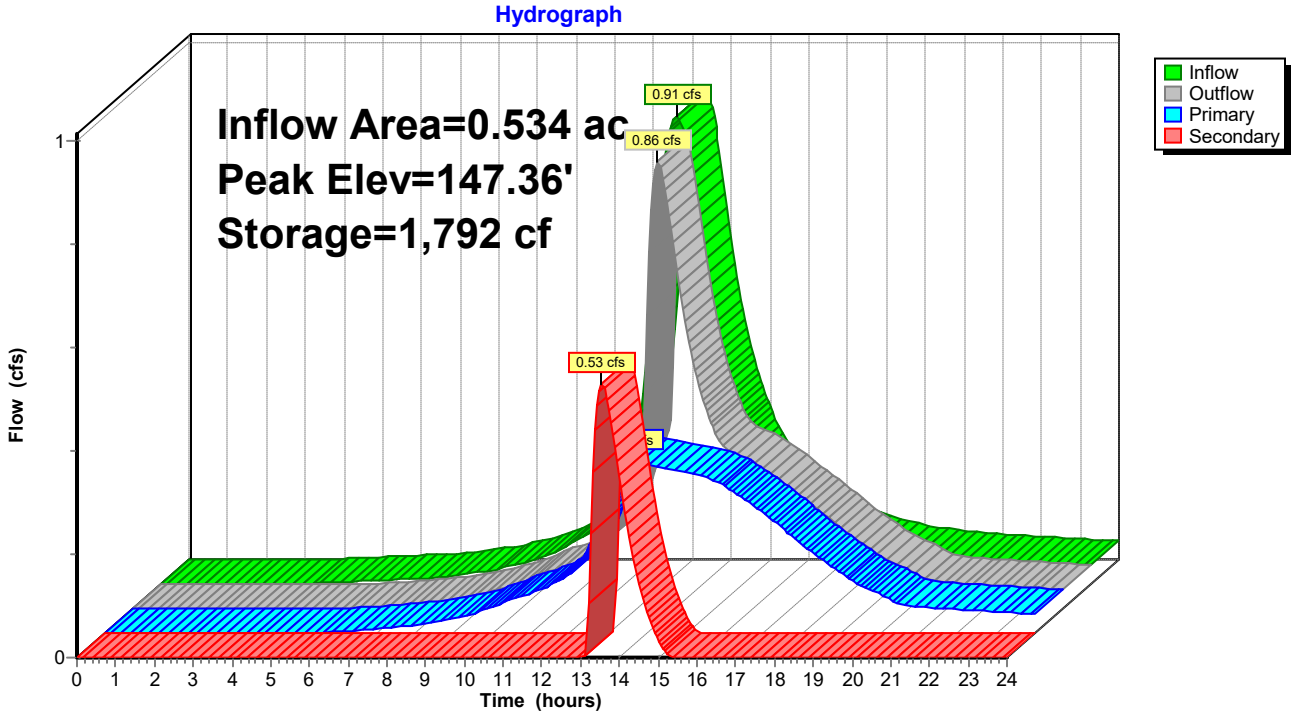
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
145.63	975	160.0	0	0	975
147.95	975	160.0	2,262	2,262	1,346

Device	Routing	Invert	Outlet Devices
#1	Primary	142.96'	**8.0" Round 8" HDPE N-12** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 142.96' / 142.10' S= 0.0172 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Device 1	143.13'	**6.0" Round 6" HDPE N-12 UD** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 143.13' / 143.13' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#3	Device 2	143.13'	**2.5" Vert. 2.5" Orifice** C= 0.600
#4	Secondary	146.65'	**8.0" Round 8" HDPE N-12 UD** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.65' / 146.65' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.33 cfs @ 13.54 hrs HW=147.36' TW=142.59' (Dynamic Tailwater)
└─**1=8" HDPE N-12** (Passes 0.33 cfs of 3.08 cfs potential flow)
└─**2=6" HDPE N-12 UD** (Passes 0.33 cfs of 1.28 cfs potential flow)
└─**3=2.5" Orifice** (Orifice Controls 0.33 cfs @ 9.78 fps)

Secondary OutFlow Max=0.53 cfs @ 13.54 hrs HW=147.36' TW=142.59' (Dynamic Tailwater)
└─**4=8" HDPE N-12 UD** (Barrel Controls 0.53 cfs @ 1.78 fps)

Pond 101P: Dover, NH Sand Filter



Summary for Pond C03P: Catch Basin #3

Inflow Area = 0.116 ac, 51.79% Impervious, Inflow Depth > 4.63" for 25 Yr-24 Hr event
Inflow = 0.18 cfs @ 13.30 hrs, Volume= 0.045 af
Outflow = 0.18 cfs @ 13.26 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 13.26 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 147.58' @ 13.53 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 150.50' Surf.Area= 0.000 ac Storage= 0.001 af

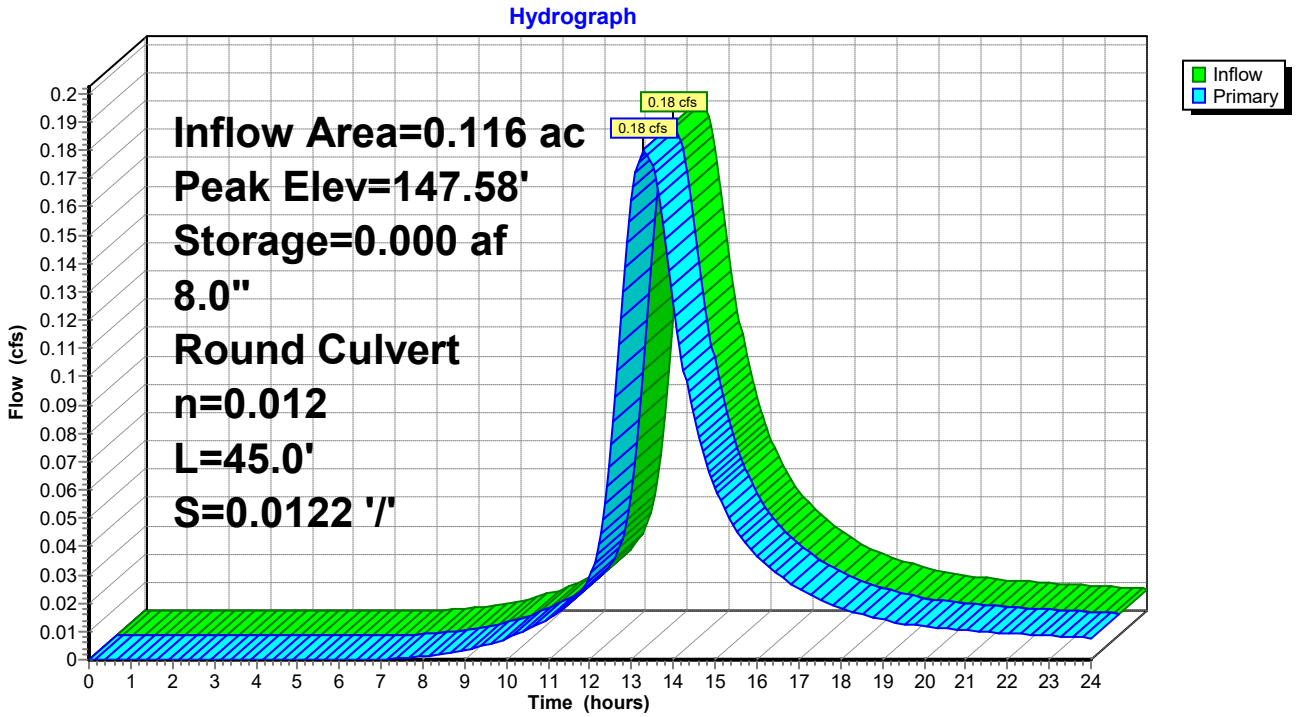
Plug-Flow detention time= 0.6 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (881.4 - 881.1)

Volume	Invert	Avail.Storage	Storage Description
#1	147.25'	0.001 af	**4.00'D x 3.25'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	147.25'	**8.0" Round 8" HDPE N-12** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 147.25' / 146.70' S= 0.0122 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.16 cfs @ 13.26 hrs HW=147.52' TW=147.27' (Dynamic Tailwater)
└**1=8" HDPE N-12** (Outlet Controls 0.16 cfs @ 1.78 fps)

Pond C03P: Catch Basin #3



Summary for Pond C04P: Catch Basin #4

Inflow Area = 0.296 ac, 48.46% Impervious, Inflow Depth > 4.56" for 25 Yr-24 Hr event
Inflow = 0.45 cfs @ 13.25 hrs, Volume= 0.113 af
Outflow = 0.45 cfs @ 13.31 hrs, Volume= 0.113 af, Atten= 1%, Lag= 3.7 min
Primary = 0.45 cfs @ 13.31 hrs, Volume= 0.113 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 147.46' @ 13.51 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 149.60' Surf.Area= 0.000 ac Storage= 0.001 af

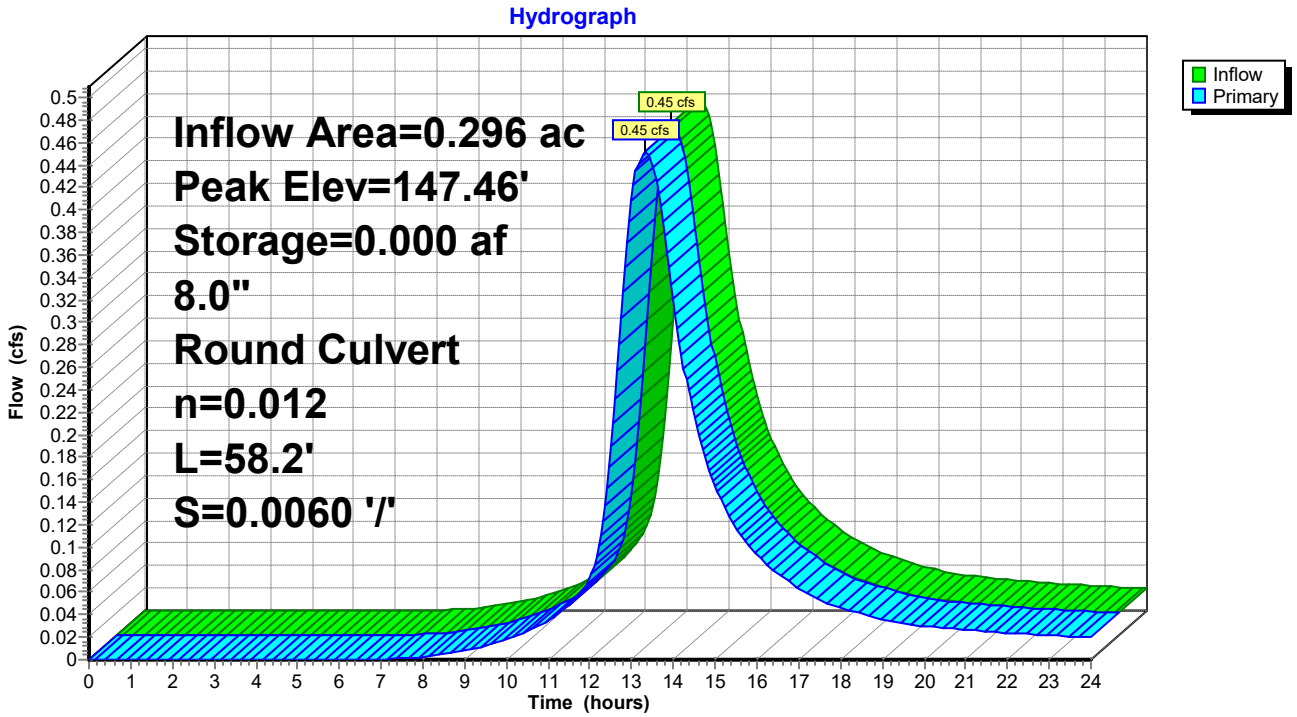
Plug-Flow detention time= 0.5 min calculated for 0.113 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (883.0 - 882.6)

Volume	Invert	Avail.Storage	Storage Description
#1	146.60'	0.001 af	**4.00'D x 3.00'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	146.60'	**8.0" Round 8" HDPE N-12** L= 58.2' Ke= 0.500 Inlet / Outlet Invert= 146.60' / 146.25' S= 0.0060 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.46 cfs @ 13.31 hrs HW=147.35' TW=147.23' (Dynamic Tailwater)
└**1=8" HDPE N-12** (Outlet Controls 0.46 cfs @ 1.46 fps)

Pond C04P: Catch Basin #4



Summary for Pond D02P: Drain Manhole #2

Inflow Area = 0.534 ac, 63.14% Impervious, Inflow Depth > 5.15" for 25 Yr-24 Hr event
Inflow = 0.86 cfs @ 13.54 hrs, Volume= 0.229 af
Outflow = 0.86 cfs @ 13.54 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.2 min
Primary = 0.86 cfs @ 13.54 hrs, Volume= 0.229 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 142.60' @ 13.54 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 146.00' Surf.Area= 0.000 ac Storage= 0.001 af

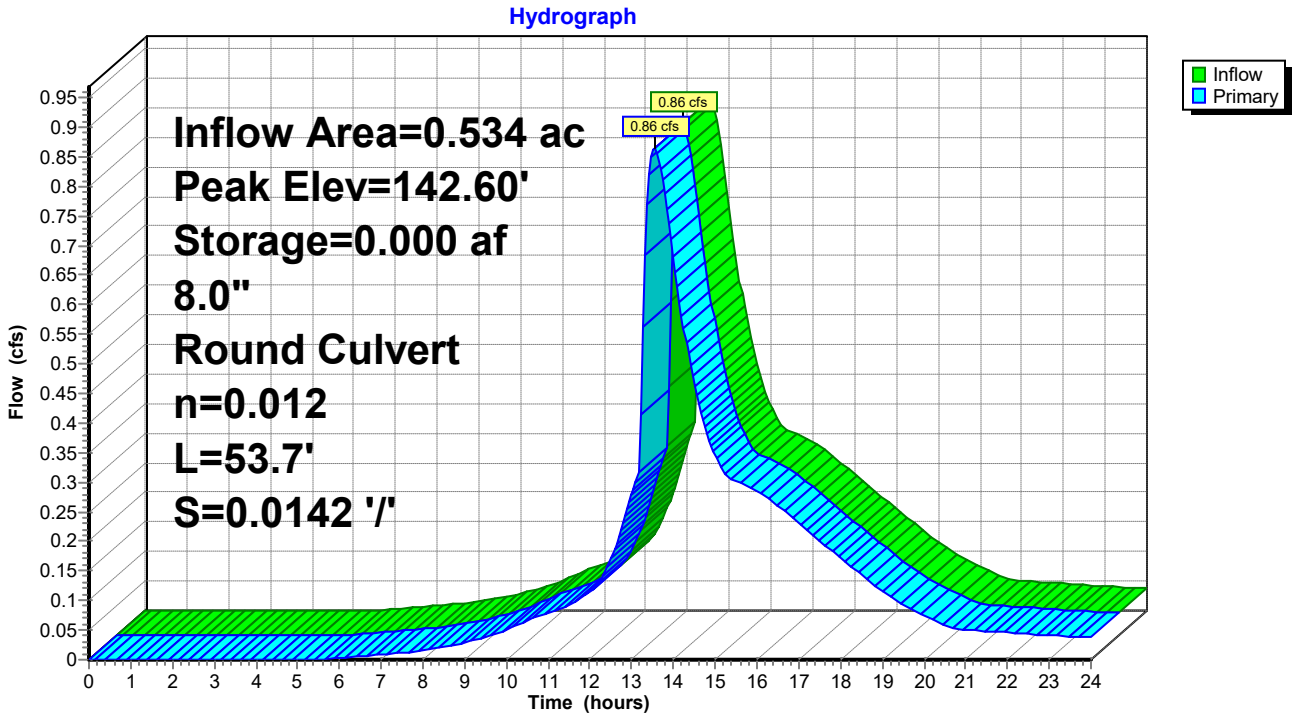
Plug-Flow detention time= 0.3 min calculated for 0.229 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (910.3 - 910.1)

Volume	Invert	Avail.Storage	Storage Description
#1	142.00'	0.001 af	**4.00'D x 4.00'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	142.00'	**8.0" Round 8" HDPE N-12** L= 53.7' Ke= 0.500 Inlet / Outlet Invert= 142.00' / 141.24' S= 0.0142 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.86 cfs @ 13.54 hrs HW=142.59' TW=0.00' (Dynamic Tailwater)
└**1=8" HDPE N-12** (Inlet Controls 0.86 cfs @ 2.63 fps)

Pond D02P: Drain Manhole #2



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>1.96"
Tc=6.0 min CN=83 Runoff=0.57 cfs 0.041 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>1.20"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.14 cfs 0.011 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>1.76"
Tc=100.0 min CN=81 Runoff=0.07 cfs 0.017 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>1.69"
Tc=100.0 min CN=80 Runoff=0.10 cfs 0.025 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>2.80"
Tc=100.0 min CN=93 Runoff=0.22 cfs 0.055 af

Reach 2R: Limit of Analysis Inflow=0.14 cfs 0.011 af
Outflow=0.14 cfs 0.011 af

Reach 100R: Final Reach Ex CB 1745 Inflow=0.62 cfs 0.137 af
Outflow=0.62 cfs 0.137 af

Reach 200R: Final Reach Inflow=0.75 cfs 0.149 af
Outflow=0.75 cfs 0.149 af

Pond 101P: Dover, NH Sand Filter Peak Elev=145.44' Storage=940 cf Inflow=0.39 cfs 0.098 af
Primary=0.24 cfs 0.096 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.096 af

Pond C03P: Catch Basin #3 Peak Elev=147.39' Storage=0.000 af Inflow=0.07 cfs 0.017 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.07 cfs 0.017 af

Pond C04P: Catch Basin #4 Peak Elev=146.85' Storage=0.000 af Inflow=0.17 cfs 0.042 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.17 cfs 0.042 af

Pond D02P: Drain Manhole #2 Peak Elev=142.28' Storage=0.000 af Inflow=0.24 cfs 0.096 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=0.24 cfs 0.096 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.150 af Average Runoff Depth = 2.00"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=83 Runoff=1.03 cfs 0.075 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>2.55"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.31 cfs 0.024 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>3.32"
Tc=100.0 min CN=81 Runoff=0.13 cfs 0.032 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>3.23"
Tc=100.0 min CN=80 Runoff=0.20 cfs 0.049 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>4.57"
Tc=100.0 min CN=93 Runoff=0.35 cfs 0.090 af

Reach 2R: Limit of Analysis Inflow=0.31 cfs 0.024 af
Outflow=0.31 cfs 0.024 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.12 cfs 0.245 af
Outflow=1.12 cfs 0.245 af

Reach 200R: Final Reach Inflow=1.42 cfs 0.269 af
Outflow=1.42 cfs 0.269 af

Pond 101P: Dover, NH Sand Filter Peak Elev=147.09' Storage=1,669 cf Inflow=0.68 cfs 0.171 af
Primary=0.32 cfs 0.156 af Secondary=0.23 cfs 0.013 af Outflow=0.55 cfs 0.169 af

Pond C03P: Catch Basin #3 Peak Elev=147.46' Storage=0.000 af Inflow=0.13 cfs 0.032 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.13 cfs 0.032 af

Pond C04P: Catch Basin #4 Peak Elev=147.17' Storage=0.000 af Inflow=0.33 cfs 0.081 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.33 cfs 0.081 af

Pond D02P: Drain Manhole #2 Peak Elev=142.44' Storage=0.000 af Inflow=0.55 cfs 0.169 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=0.55 cfs 0.169 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.271 af Average Runoff Depth = 3.61"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>4.94"
Tc=6.0 min CN=83 Runoff=1.40 cfs 0.104 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>3.75"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.46 cfs 0.036 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>4.63"
Tc=100.0 min CN=81 Runoff=0.18 cfs 0.045 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>4.52"
Tc=100.0 min CN=80 Runoff=0.28 cfs 0.068 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>5.98"
Tc=100.0 min CN=93 Runoff=0.46 cfs 0.118 af

Reach 2R: Limit of Analysis Inflow=0.46 cfs 0.036 af
Outflow=0.46 cfs 0.036 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.52 cfs 0.333 af
Outflow=1.52 cfs 0.333 af

Reach 200R: Final Reach Inflow=1.97 cfs 0.369 af
Outflow=1.97 cfs 0.369 af

Pond 101P: Dover, NH Sand Filter Peak Elev=147.36' Storage=1,792 cf Inflow=0.91 cfs 0.231 af
Primary=0.33 cfs 0.186 af Secondary=0.53 cfs 0.043 af Outflow=0.86 cfs 0.229 af

Pond C03P: Catch Basin #3 Peak Elev=147.58' Storage=0.000 af Inflow=0.18 cfs 0.045 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.18 cfs 0.045 af

Pond C04P: Catch Basin #4 Peak Elev=147.46' Storage=0.000 af Inflow=0.45 cfs 0.113 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.45 cfs 0.113 af

Pond D02P: Drain Manhole #2 Peak Elev=142.60' Storage=0.000 af Inflow=0.86 cfs 0.229 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=0.86 cfs 0.229 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.371 af Average Runoff Depth = 4.94"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>6.23"
Tc=6.0 min CN=83 Runoff=1.75 cfs 0.131 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>4.93"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.60 cfs 0.047 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>5.88"
Tc=100.0 min CN=81 Runoff=0.23 cfs 0.057 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>5.77"
Tc=100.0 min CN=80 Runoff=0.35 cfs 0.087 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>7.31"
Tc=100.0 min CN=93 Runoff=0.55 cfs 0.145 af

Reach 2R: Limit of Analysis Inflow=0.60 cfs 0.047 af
Outflow=0.60 cfs 0.047 af

Reach 100R: Final Reach Ex CB 1745 Inflow=1.90 cfs 0.417 af
Outflow=1.90 cfs 0.417 af

Reach 200R: Final Reach Inflow=2.48 cfs 0.464 af
Outflow=2.48 cfs 0.464 af

Pond 101P: Dover, NH Sand Filter Peak Elev=147.62' Storage=1,908 cf Inflow=1.12 cfs 0.288 af
Primary=0.34 cfs 0.211 af Secondary=0.75 cfs 0.075 af Outflow=1.09 cfs 0.286 af

Pond C03P: Catch Basin #3 Peak Elev=147.83' Storage=0.000 af Inflow=0.23 cfs 0.057 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.23 cfs 0.057 af

Pond C04P: Catch Basin #4 Peak Elev=147.79' Storage=0.000 af Inflow=0.58 cfs 0.144 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.57 cfs 0.144 af

Pond D02P: Drain Manhole #2 Peak Elev=142.76' Storage=0.000 af Inflow=1.09 cfs 0.286 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=1.10 cfs 0.286 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.466 af Average Runoff Depth = 6.21"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=10,983 sf 71.16% Impervious Runoff Depth>7.79"
Tc=6.0 min CN=83 Runoff=2.16 cfs 0.164 af

Subcatchment 2S: Subcachment #2 Runoff Area=5,005 sf 36.38% Impervious Runoff Depth>6.38"
Flow Length=180' Tc=8.4 min CN=72 Runoff=0.78 cfs 0.061 af

Subcatchment 3S: Subcatchment 3 Runoff Area=5,043 sf 51.79% Impervious Runoff Depth>7.40"
Tc=100.0 min CN=81 Runoff=0.29 cfs 0.071 af

Subcatchment 4S: Subcatchment 4 Runoff Area=7,870 sf 46.33% Impervious Runoff Depth>7.28"
Tc=100.0 min CN=80 Runoff=0.44 cfs 0.110 af

Subcatchment 11S: Subcatchment 11 Runoff Area=10,346 sf 81.45% Impervious Runoff Depth>8.90"
Tc=100.0 min CN=93 Runoff=0.66 cfs 0.176 af

Reach 2R: Limit of Analysis Inflow=0.78 cfs 0.061 af
Outflow=0.78 cfs 0.061 af

Reach 100R: Final Reach Ex CB 1745 Inflow=2.34 cfs 0.518 af
Outflow=2.34 cfs 0.518 af

Reach 200R: Final Reach Inflow=3.10 cfs 0.579 af
Outflow=3.10 cfs 0.579 af

Pond 101P: Dover, NH Sand Filter Peak Elev=147.87' Storage=2,016 cf Inflow=1.38 cfs 0.357 af
Primary=0.35 cfs 0.238 af Secondary=1.01 cfs 0.117 af Outflow=1.36 cfs 0.355 af

Pond C03P: Catch Basin #3 Peak Elev=148.17' Storage=0.000 af Inflow=0.29 cfs 0.071 af
8.0" Round Culvert n=0.012 L=45.0' S=0.0122 '/' Outflow=0.28 cfs 0.071 af

Pond C04P: Catch Basin #4 Peak Elev=148.14' Storage=0.000 af Inflow=0.72 cfs 0.181 af
8.0" Round Culvert n=0.012 L=58.2' S=0.0060 '/' Outflow=0.72 cfs 0.181 af

Pond D02P: Drain Manhole #2 Peak Elev=142.99' Storage=0.000 af Inflow=1.36 cfs 0.355 af
8.0" Round Culvert n=0.012 L=53.7' S=0.0142 '/' Outflow=1.36 cfs 0.355 af

Total Runoff Area = 0.901 ac Runoff Volume = 0.582 af Average Runoff Depth = 7.75"
38.03% Pervious = 0.343 ac 61.97% Impervious = 0.558 ac

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	70.890 degrees West
Latitude	43.174 degrees North
Elevation	0 feet
Date/Time	Thu, 11 Feb 2021 10:03:58 -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	1.55	2.00	2.61	2.86	**1yr**	2.31	2.75	3.15	3.87	4.45	**1yr**
2yr	0.32	0.49	0.61	0.81	1.01	1.29	**2yr**	0.88	1.17	1.50	1.91	2.45	3.15	3.49	**2yr**	2.78	3.36	3.86	4.59	5.22	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.38	3.07	3.98	4.48	**5yr**	3.52	4.31	4.92	5.80	6.56	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.82	3.66	4.75	5.40	**10yr**	4.20	5.20	5.93	6.93	7.80	**10yr**
25yr	0.46	0.74	0.94	1.29	1.72	2.27	**25yr**	1.48	2.09	2.69	3.53	4.61	6.01	6.93	**25yr**	5.32	6.67	7.58	8.77	9.80	**25yr**
50yr	0.51	0.83	1.06	1.48	2.00	2.66	**50yr**	1.72	2.46	3.18	4.18	5.49	7.19	8.38	**50yr**	6.36	8.06	9.13	10.48	11.66	**50yr**
100yr	0.58	0.93	1.20	1.70	2.32	3.12	**100yr**	2.00	2.89	3.74	4.96	6.54	8.60	10.12	**100yr**	7.61	9.74	11.00	12.53	13.88	**100yr**
200yr	0.64	1.04	1.35	1.95	2.69	3.66	**200yr**	2.32	3.40	4.42	5.89	7.80	10.29	12.24	**200yr**	9.11	11.77	13.26	15.00	16.53	**200yr**
500yr	0.75	1.24	1.62	2.35	3.29	4.52	**500yr**	2.84	4.21	5.49	7.37	9.83	13.05	15.73	**500yr**	11.55	15.13	16.99	19.02	20.84	**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	0.91	1.26	1.58	2.10	2.47	**1yr**	1.86	2.38	2.89	3.32	4.01	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.36	3.04	3.39	**2yr**	2.69	3.26	3.74	4.46	5.05	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.78	3.71	4.12	**5yr**	3.29	3.96	4.60	5.41	6.12	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.82	2.44	3.13	4.28	4.79	**10yr**	3.78	4.60	5.32	6.25	7.03	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.65	4.95	5.80	**25yr**	4.38	5.58	6.49	7.58	8.45	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.18	**50yr**	1.52	2.14	2.35	3.20	4.10	5.66	6.70	**50yr**	5.01	6.44	7.54	8.76	9.71	**50yr**
100yr	0.54	0.81	1.01	1.46	2.01	2.50	**100yr**	1.73	2.45	2.63	3.58	4.58	6.45	7.73	**100yr**	5.71	7.43	8.76	10.12	11.14	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.86	**200yr**	1.97	2.80	2.94	4.01	5.11	7.34	8.92	**200yr**	6.50	8.58	10.17	11.70	12.80	**200yr**
500yr	0.69	1.03	1.32	1.92	2.74	3.44	**500yr**	2.36	3.36	3.40	4.64	5.93	8.70	10.77	**500yr**	7.70	10.36	12.40	14.20	15.32	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.24	1.74	2.22	2.87	3.07	**1yr**	2.54	2.95	3.42	4.21	4.81	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.47	1.96	2.51	3.28	3.61	**2yr**	2.91	3.47	3.98	4.73	5.43	**2yr**
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.55	1.86	2.50	3.20	4.24	4.83	**5yr**	3.75	4.64	5.26	6.21	6.98	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.92	**10yr**	1.35	1.88	2.23	3.05	3.86	5.21	6.02	**10yr**	4.61	5.79	6.60	7.62	8.51	**10yr**
25yr	0.55	0.84	1.05	1.50	1.97	2.48	**25yr**	1.70	2.42	2.88	3.97	4.96	7.08	8.08	**25yr**	6.27	7.77	8.82	10.03	11.09	**25yr**
50yr	0.64	0.97	1.21	1.74	2.35	2.99	**50yr**	2.03	2.93	3.49	4.84	6.03	8.76	10.12	**50yr**	7.75	9.73	10.99	12.33	13.56	**50yr**
100yr	0.75	1.13	1.41	2.04	2.80	3.62	**100yr**	2.41	3.54	4.24	5.93	7.33	10.84	12.67	**100yr**	9.59	12.19	13.69	15.19	16.59	**100yr**
200yr	0.86	1.30	1.65	2.38	3.33	4.39	**200yr**	2.87	4.29	5.16	7.25	8.90	13.44	15.89	**200yr**	11.90	15.28	17.07	18.69	20.33	**200yr**
500yr	1.06	1.57	2.02	2.94	4.18	5.64	**500yr**	3.60	5.51	6.66	9.50	11.53	17.90	21.42	**500yr**	15.84	20.59	22.87	24.63	26.61	**500yr**

Powered by ACIS
Northeast Regional Climate Center

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

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil 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 22, Aug 31, 2021

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
CfD	Charlton fine sandy loam, 15 to 25 percent slopes	2.5	49.6%
SfC	Suffield silt loam, 8 to 15 percent slopes	1.4	28.2%
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	1.1	22.2%
Totals for Area of Interest		**4.9**	**100.0%**

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Sand Filter #101 (Pond 101P)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

Yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.53	ac	A = Area draining to the practice	
0.34	ac	A_I = Impervious area draining to the practice	
0.63	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.62	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.33	ac-in	WQV= 1" x Rv x A	
1,198	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
299	cf	25% x WQV (check calc for sediment forebay volume)	
898	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump		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:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
146.63	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.30	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
2.22	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
143.63	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
143.13	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
147.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
142.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
0.50	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.63	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
(3.37)	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
147.62	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
147.95	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**
1,202	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
24.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	P-101	Note what sheet in the plan set contains the filter course specification.	
YES	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 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	
	: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:			
		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 safey. 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 stucture, 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: _____

Summary for Pond 101P: Dover, NH Sand Filter

Inflow Area =	0.534 ac, 63.14% Impervious, Inflow Depth > 6.48" for 50 Yr-24 Hr event				
Inflow =	1.12 cfs @	13.28 hrs,	Volume=	0.288 af	
Outflow =	1.09 cfs @	13.47 hrs,	Volume=	0.286 af,	Atten= 2%, Lag= 11.6 min
Primary =	0.34 cfs @	13.47 hrs,	Volume=	0.211 af	
Secondary =	0.75 cfs @	13.47 hrs,	Volume=	0.075 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 147.62' @ 13.47 hrs Surf.Area= 2,977 sf Storage= 1,908 cf
Flood Elev= 147.95' Surf.Area= 2,977 sf Storage= 2,053 cf

Plug-Flow detention time= 47.5 min calculated for 0.285 af (99% of inflow)
Center-of-Mass det. time= 43.0 min (901.8 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	143.13'	190 cf	**Stone Layer below Sand Filter (Irregular)** Listed below (Recalc) 488 cf Overall - 12 cf Embedded = 475 cf x 40.0% Voids
#2	143.63'	780 cf	**SAND FILTER LAYER (Irregular)** Listed below (Recalc) 1,950 cf Overall x 40.0% Voids
#3	145.63'	881 cf	**Stone Layer above Sand Filter (Irregular)** Listed below (Recalc) 2,262 cf Overall - 60 cf Embedded = 2,202 cf x 40.0% Voids
#4	146.25'	39 cf	**12.0" Round 12" DISTRIBUTION PIPE** Inside #3 L= 50.0'
#5	143.13'	12 cf	**6.0" Round 6" U.D.** Inside #1 L= 62.0'
#6	146.65'	21 cf	**8.0" Round 8" U.D.** Inside #3 L= 60.0'
#7	146.25'	137 cf	**5.00'D x 3.50'H CB #1 & #2 Vertical Cone/Cylinder** x 2
#8	142.96'	88 cf	**4.00'D x 7.00'H Outlet DMH**
		2,149 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
143.13	975	160.0	0	0	975
143.63	975	160.0	488	488	1,055

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
143.63	975	160.0	0	0	975
145.63	975	160.0	1,950	1,950	1,295

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
145.63	975	160.0	0	0	975
147.95	975	160.0	2,262	2,262	1,346

Device	Routing	Invert	Outlet Devices
#1	Primary	142.96'	**8.0" Round 8" HDPE N-12** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 142.96' / 142.10' S= 0.0172 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Device 1	143.13'	**6.0" Round 6" HDPE N-12 UD** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 143.13' / 143.13' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#3	Device 2	143.13'	**2.5" Vert. 2.5" Orifice** C= 0.600
#4	Secondary	146.65'	**8.0" Round 8" HDPE N-12 UD** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.65' / 146.65' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.34 cfs @ 13.47 hrs HW=147.62' TW=142.76' (Dynamic Tailwater)
└─**1=8" HDPE N-12** (Passes 0.34 cfs of 3.17 cfs potential flow)
  └─**2=6" HDPE N-12 UD** (Passes 0.34 cfs of 1.32 cfs potential flow)
    └─**3=2.5" Orifice** (Orifice Controls 0.34 cfs @ 10.09 fps)

Secondary OutFlow Max=0.75 cfs @ 13.47 hrs HW=147.62' TW=142.76' (Dynamic Tailwater)
└─**4=8" HDPE N-12 UD** (Barrel Controls 0.75 cfs @ 2.15 fps)

Stage-Area-Storage for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Storage (cubic-feet)
143.13	0
143.23	41
143.33	82
143.43	124
143.53	166
143.63	207
143.73	246
143.83	285
143.93	324
144.03	363
144.13	402
144.23	441
144.33	480
144.43	519
144.53	558
144.63	597
144.73	636
144.83	675
144.93	714
145.03	753
145.13	792
145.23	831
145.33	870
145.43	909
145.53	948
145.63	987
145.73	1,026
145.83	1,065
145.93	1,104
146.03	1,143
146.13	1,182
146.23	1,221
146.33	1,264
146.43	1,309
146.53	1,354
146.63	1,400
146.73	1,446
146.83	1,492
146.93	1,538
147.03	1,583
147.13	1,628
147.23	1,673
147.33	1,716
147.43	1,759
147.53	1,802
147.63	1,845
147.73	1,887
147.83	1,930
147.93	1,973
148.03	1,985
148.13	1,989
148.23	1,993
148.33	1,997
148.43	2,001
148.53	2,005
148.63	2,009
148.73	2,013
148.83	2,016
148.93	2,020
149.03	2,024
149.13	2,028
149.23	2,032
149.33	2,036
149.43	2,040
149.53	2,044
149.63	2,048
149.73	**2,052**

WQV Draw-down
Linear Interpolation
1,198 CF Storage above
stone = 146.63'
See next Stage-Area-Storage Table
for storage volume

Stage-Discharge for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
143.13	0.00	0.00	0.00
143.23	0.01	0.01	0.00
143.33	0.03	0.03	0.00
143.43	0.07	0.07	0.00
143.53	0.09	0.09	0.00
143.63	0.10	0.10	0.00
143.73	0.12	0.12	0.00
143.83	0.13	0.13	0.00
143.93	0.14	0.14	0.00
144.03	0.15	0.15	0.00
144.13	0.16	0.16	0.00
144.23	0.16	0.16	0.00
144.33	0.17	0.17	0.00
144.43	0.18	0.18	0.00
144.53	0.19	0.19	0.00
144.63	0.19	0.19	0.00
144.73	0.20	0.20	0.00
144.83	0.21	0.21	0.00
144.93	0.21	0.21	0.00
145.03	0.22	0.22	0.00
145.13	0.23	0.23	0.00
145.23	0.23	0.23	0.00
145.33	0.24	0.24	0.00
145.43	0.24	0.24	0.00
145.53	0.25	0.25	0.00
145.63	0.25	0.25	0.00
145.73	0.26	0.26	0.00
145.83	0.26	0.26	0.00
145.93	0.27	0.27	0.00
146.03	0.27	0.27	0.00
146.13	0.28	0.28	0.00
146.23	0.28	0.28	0.00
146.33	0.29	0.29	0.00
146.43	0.29	0.29	0.00
146.53	0.30	0.30	0.00
146.63	0.30	0.30	0.00
146.73	0.31	0.31	0.00
146.83	0.34	0.31	0.03
146.93	0.40	0.32	0.08
147.03	0.48	0.32	0.16
147.13	0.59	0.32	0.26
147.23	0.71	0.33	0.38
147.33	0.83	0.33	0.50
147.43	0.94	0.34	0.60
147.53	0.99	0.34	0.65
147.63	1.10	0.34	0.76
147.73	1.22	0.35	0.87
147.83	1.32	0.35	0.97
147.93	1.42	0.36	1.06
148.03	1.51	0.36	1.15
148.13	1.59	0.36	1.22
148.23	1.66	0.37	1.30
148.33	1.74	0.37	1.37
148.43	1.81	0.37	1.43
148.53	1.87	0.38	1.50
148.63	1.94	0.38	1.56
148.73	2.00	0.38	1.61
148.83	2.06	0.39	1.67
148.93	2.12	0.39	1.72
149.03	2.17	0.40	1.78
149.13	2.23	0.40	1.83
149.23	2.28	0.40	1.88
149.33	2.33	0.41	1.93
149.43	2.38	0.41	1.97
149.53	2.43	0.41	2.02
149.63	2.48	0.42	2.07
149.73	**2.53**	**0.42**	**2.11**

Elevation 146.63' = 0.30 CFS discharge

Stage-Area-Storage for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Storage (cubic-feet)
143.13	0
143.23	41
143.33	82
143.43	124
143.53	166
143.63	207
143.73	246
143.83	285
143.93	324
144.03	363
144.13	402
144.23	441
144.33	480
144.43	519
144.53	558
144.63	597
144.73	636
144.83	675
144.93	714
145.03	753
145.13	792
145.23	831
145.33	870
145.43	909
145.53	948
145.63	987
145.73	1,026
145.83	1,065
145.93	1,104
146.03	1,143
146.13	1,182
146.23	1,221
146.33	1,264
146.43	1,309
146.53	1,354
146.63	1,400
146.73	1,446
146.83	1,492
146.93	1,538
147.03	1,583
147.13	1,628
147.23	1,673
147.33	1,716
147.43	1,759
147.53	1,802
147.63	1,845
147.73	1,887
147.83	1,930
147.93	1,973
148.03	1,985
148.13	1,989
148.23	1,993
148.33	1,997
148.43	2,001
148.53	2,005
148.63	2,009
148.73	2,013
148.83	2,016
148.93	2,020
149.03	2,024
149.13	2,028
149.23	2,032
149.33	2,036
149.43	2,040
149.53	2,044
149.63	2,048
149.73	**2,052**

```
storage Elev: 143.63 - 146.65
Storage Volume = 1,409 CF - 207 CF = 1,202 CF
```

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

Stormwater System Operation:

Inspection and Maintenance Manual

Prepared for

Knox Marsh Development, LLC
242 Central Avenue
DOVER, NH 03820

Land of

Knox Marsh Development, LLC
242 Central Avenue
DOVER, NH 03820

757 CENTRAL AVENUE, DOVER, NH
TAX MAP 28, LOT 7

Prepared By

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

February 24, 2022

File Number
2021-133

Stormwater System Operation and Maintenance Plan

And

Inspection and Maintenance Manual

Table of Contents

Introduction..... Page 2

Underground Sand Filter (Dover, NH)..... Page 3

Catch Basins & Drain Manholes..... Page 4

Treatment and Conveyance Swales..... Page 4

Snow Storage Areas & Winter Maintenance ..... Page 5

Control of Invasive Plants..... Page 5

Annual Report..... Page 6

Inspection & Maintenance Manual Checklist..... Page 7

Inspection & Maintenance Log Sheet..... Page 10

Owner Certification .....Page 12

Site Plans

NHDES Invasive Species

NHDES Green SnoPro Utilization Chart

This Operation and Maintenance Plan & Inspection and Maintenance Manual was prepared for the Stormwater System to be constructed at Tax Map 28, Lot 7. It has been prepared in accordance with RSA 485-A:17 and Administrative Rules Env-Wq 1507.08 administered by the NHDES Alteration of Terrain and City of Dover Site Plan Review Regulations.

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 checklist 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 and Sediment and Erosion Control Plan also published by Berry Surveying & Engineering originally dated February 24, 2022 as revised. See also plan set completed for Knox Marsh Development, LLC originally dated February 24, 2022, as revised.

Knox Marsh Development, LLC, Robert Baldwin, Managing Member, land owners for Tax Map 28, Lot 7, Central Avenue, Dover, NH is responsible for the Stormwater System Operation and Maintenance on the drainage infrastructure on the property. 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 requirements are documented below and must be taken seriously. Failure of any component of the system can result in surface water run-off ponding and/or freezing in the roadway, leaving the developed site untreated, and/or causing violations to issued permits. The owner must maintain, and have available, plans of the Stormwater System in order properly inspect and maintain the system. (Reduced copies attached.) The owner is responsible to ensure that any subsequent owner, owners association, or subcontractor has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs, provided to the City of Dover Community Services Department with the Annual Report and available to NHDES upon request.

Underground Sand Filter (Dover, NH Design)

Description: The intent of a sand filter in general is to treat surface water runoff to enhance the water quality prior to discharge into the environment. In this instance of the Dover, New Hampshire inspired Sand Filter Design, the intent is to pre-treat runoff for gross solids, litter and trash, and course sediment in a catch basin with deep sumps and hoods, and to remove additional finer sediment through distribution through crushed stone to and through a sand filter. After filtration, any runoff that cannot infiltrate into the soil will be intercepted by an underdrain where it is discharged through a drain manhole and culvert pipe to a gravity day-light. The underdrain system will be equipped with multiple clean-outs. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities, if any, of the existing soil. Construction specifications are included in the plan set and reference is made to New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 4b Underground Sand Filter System and EPA Storm Water Technology Fact Sheet, Sand Filter.

The Dover, NH Sand Filter is intended to be treated as a Low Impact Development design feature and each catch basin will accept runoff from an area less than ¼ acre to maximize the pre-treatment capabilities of the deep sumps and hoods and to treat surface water runoff as close to the source as source. The storage capacity of the sand filter is to be designed to accept the Water Quality Volume. (WQV) This application is appropriate in redevelopment site situations where Green Infrastructure applications such as a rain garden or gravel wetland is not practical.

Maintenance Considerations:
Sand Filters 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 from the catch basin grates and semi-annually from the sumps. The initial inspiration of the Dover NH Sand Filter was that it can be maintained by equipment normally owned by the municipality commonly used for catch basin / drain manhole maintenance. A maintenance / access port in the hood is a critical component of the design so that hose and hydraulic cleaning can be conducted in the distribution culvert.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the sand filter system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the sand filter to determine measures required to restore the functionality. 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 growth in an around the level spreader should be inspected to ensure healthy condition and proper operation. Invasive species need to be removed along with dead or diseased vegetation.

Catch Basin, and Drain Manholes

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.

Snow Storage Areas & Winter Maintenance

Description: The effective use of salt and sand for winter maintenance is both a cost and an environmental consideration. In accordance with City of Dover Chapter 149-14 A, Snow and ice removal shall be performed by a contractor certified by the "Green SnoPro" program, or approved equivalent, following the Best Management Practices for the application of deicing materials. De-icing logs will be maintained for the development.

Maintenance Considerations: Snow will be stockpiled in designated area during the course of the winter and any excess snow will be taken off-site and disposed of in an appropriate area. As the snow is melting in the spring, sand will be swept and removed from the site. The catch basin sumps will be scheduled for one of the two annual cleanings in the early spring.

Reference is made to the NHDES Green SnoPro program and Minnesota Pollution Control Agency document "Winter Parking Lot and Sidewalk Maintenance Manual"

Control of Invasive Plants

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Annual Report

Description: The owner is responsible to keep an **I & M Activity Log** that documents inspection, maintenance and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner(s) have copies of the Stormwater System Operation: Inspection and Maintenance Manual, copies of past logs and checklists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the City of Dover Community Services Department (Engineering) with copies of both logs and check lists no later than December 15th of each year and made available to NHDES upon request. Upon an ownership change, the Annual Report will include the Transfer of Ownership Responsibility Forms duplicated from the form found below.

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, EIT
Project Engineer

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

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Knox Marsh Development, LLC
757 Central Avenue
Dover, NH 03820

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Pavement Sweeping	Three Times Per Year	N/A	N/A
		Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas.	Parcel will be free of litter/trash.
		Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
		Closed Drainage System:			
		Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
		Catch Basins	2 times per year	Check for sediment accumulation & clogging.	Sediment accumulated to a depth of 2 feet.

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Sand Filter	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		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 Building Inspector and kept on file by the owner.	Report to be submitted on or before December 15th each year. Make copies available to NHDES upon request.

Inspection Check List: Page 3

Inspection Notes:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Knox Marsh Development, LLC
757 Central Avenue
Dover, NH 03820

BMP / System	Date Inspected	Inspector	Cleaning/Repair (List Items & Comments)	Repair Date	Performed By:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Deicing Log Form

Knox Marsh Development, LLC
757 Central Avenue
Dover, NH 03820

Date	Amount Applied	Performed By:	Date	Amount Applied	Performed By:

STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN CERTIFICATION

Owner	Responsibility
Name: Knox Marsh Development, LLC Robert Baldwin, Managing Member Address: 242 Central Avenue Dover, NH 03820 Telephone: 1- (603) 986-2373	The owner is responsible for the conduct of all construction activities, and ultimate compliance with all the provisions of the Stormwater System Operation & Maintenance Plan and the implementation of the Inspection and Maintenance Manual.

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____ Date: _____

Printed Name:

Representing:

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.

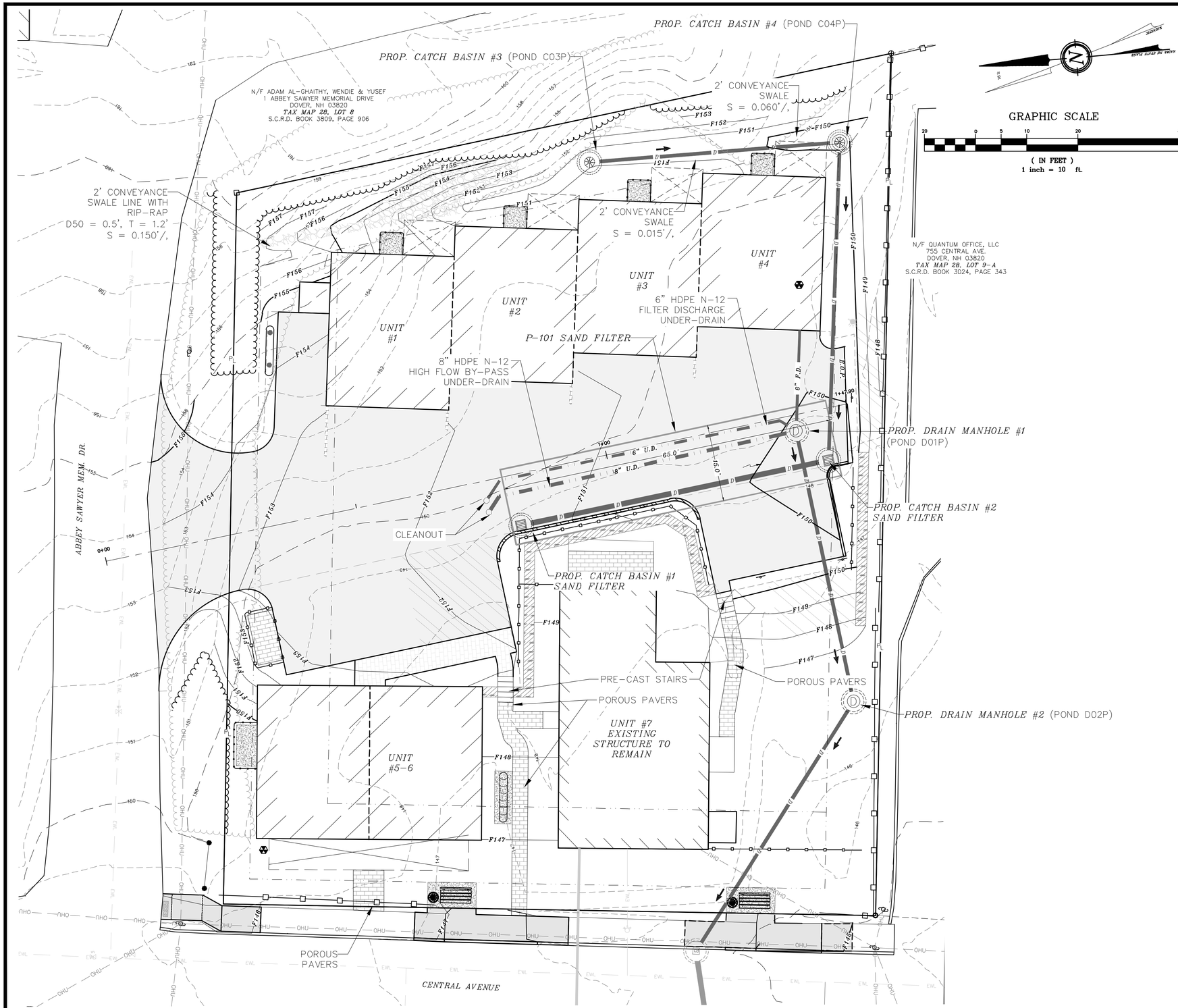
NOTE ON HERBICIDES: It is highly recommended that small populations try to be controlled using non-chemical methods wherever feasible. However, for large infestations, and for a few plants specified above, herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is 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

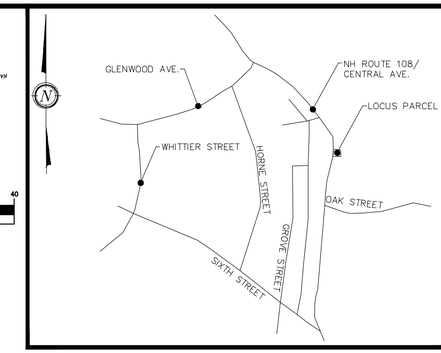
plants; for these, triclopyr (Garlon) may be indicated. When using herbicides, read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

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: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

APPLICANT: KNOX MARSH DEVELOPMENT, LLC
242 CENTRAL AVE
DOVER, NH 03820

2.) TAX MAP 28, LOT 7

3.) S.C.R.D. BOOK 4957, PAGE 531

4.) LOT AREA: 19,597 Sq. Ft., 0.45 Ac.

5.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING, FOR DETAILS SEE EXISTING CONDITIONS PLAN AND PLAN SET COMPLETED.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE DRAINAGE INFRASTRUCTURE THAT REQUIRES PERIODIC INSPECTION AND MAINTENANCE. IT IS TO ACCOMPANY A DOCUMENT ENTITLES "INSPECTION AND MAINTENANCE MANUAL, STORMWATER SYSTEM MANAGEMENT PUBLISHED BY BERRY SURVEYING & ENGINEERING ON THE SAME DATE.

NOTE: HALF SCALE PLANS, (11-INCHES X 17-INCHES) WILL HAVE A SCALE THAT IS TWICE THE PUBLISHED SCALE.

DOVER PLANNING FILE #22-15

REVISION	DATE	DESCRIPTION
#1	5-12-22	REVISED PER TRC COMMENT

DRAINAGE INSPECTION & MAINTENANCE PLAN
LAND OF
KNOX MARSH DEVELOPMENT LLC
757 CENTRAL AVENUE
DOVER, N.H.
TAX MAP 28, LOT 7

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

SCALE : 1 IN. EQUALS 10 FT.
DATE : FEBRUARY 24, 2022
FILE NO. : DB 2021 - 133

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14244
LICENSED
PROFESSIONAL ENGINEER

SWPPP Cut Sheet:

Filtrexx® Inlet Protection

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Inlet protection is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for storm drain **inlet protection** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) on and around construction activities.

APPLICATION

Drain inlets are located in areas that receive runoff from surrounding lands, often exposed and disturbed soils, and are located at a low point, or in a sump. Inlet protection used around drain inlets (or *Drain* Inlet protection) should completely enclose the circumference of the drain and where possible should not be placed on a grade or slope. Inlet protection used around drain inlets should never be the only form of site sediment control and should be accompanied by erosion control/slope stabilization practices, such as Slope protection or rolled erosion control blankets (RECB). Inlet protection should never be placed where they divert runoff flow from the drain inlet, or on top of the inlet, which can cause flooding. Under high runoff and sediment loading conditions placement of 1-2 in (25-50 mm) diameter rock (AASHTO #2) may be placed around the outer circumference of the Inlet protection up to ½ the height of the Inlet protection. This will slow runoff velocity as it contacts the Inlet protection and will reduce sediment build-up and clogging of the Inlet protection.

Curb inlets are generally located on paved surfaces and are designed to rapidly drain storm runoff from roadways to prevent flooding that poses a hazard to vehicular traffic. Inlet protection devices should be placed in a manner which intercepts runoff prior to entering the inlet, but does not block or divert runoff from the inlet. To prevent diversion of runoff, Inlet protection used around curbs (or *Curb* Inlet protection) should be used in low points, or sumps, and minor slopes or grades. Inlet protection should never be placed in or on the curb inlet drain, or placed in a manner than obstructs vehicular traffic. Inlet protection height should be at least 1 in (25 mm) lower than top of curb inlet to allow for overflow into the drain and not over the curb. Maximum sediment removal efficiency occurs when minor ponding exists behind Inlet protection but should never lead to flooding.

Curb sediment containment systems are used to reduce the sediment and pollutant load flowing to a curb inlet. They are generally placed on paved surfaces perpendicular to runoff flow and should be lower than the height of the curb. Curb sediment containment systems should never cause flooding or placed where they are a hazard to vehicular traffic. Inlet protection used for curb sediment containment (or *Curb Sediment Containment* Inlet protection) can be placed on a grade but should never be placed directly upslope from curb inlet where it may inadvertently divert runoff from entering curb inlet.

INSTALLATION

1. Inlet protection used for inlet protection to reduce sediment and soluble pollutants entering storm drains shall meet Filtrexx® FilterSoxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be a Filtrexx® Certified™ Installer as determined by Filtrexx® International, LLC (440-926-2607 or visit web site at Filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current list of installers can be found at www.filtrexx.com). Look for the Filtrexx® Certified™ Installer Seal.

3. Filtrexx® Inlet protection shall be placed at locations indicated on plans as directed by the Engineer. Inlet protection should be installed in a pattern that allows complete protection of the inlet area.
4. Installation of curb Inlet protection will ensure a minimal overlap of at least 1 ft (300mm) on either side of the opening being protected. The Inlet protection will be anchored to the soil behind the curb using staples, stakes or other devices capable of holding the Inlet protection in place.
5. Standard Inlet protection for curb inlet protection and curb sediment containment will use 8 in (200mm) diameter Inlet protection, and drain inlets on soil will use 12 in (300mm) or 18 in (450mm) diameter Inlet protection. In severe flow situations, larger Inlet protection may be specified by the Engineer. During curb installation, Inlet protection shall be compacted to be slightly shorter than curb height.
6. If Inlet protection becomes clogged with debris and sediment, they shall be maintained so as to assure proper drainage and water flow into the storm drain. In severe storm events, overflow of the Inlet protection may be acceptable in order to keep the area from flooding.
7. Curb and drain Inlet protection shall be positioned so as to provide a permeable physical barrier to the drain itself, allowing sediment to collect on the outside of the Inlet protection.
8. For drains and inlets that have only curb cuts, without street grates, a spacer is required in order to keep the Inlet protection away from the drain opening. This spacer should be a hog wire screen bent to overlap the grate opening and keep the sock from falling into the opening. Use at least one spacer for every 4 ft (1.2m) of curb drain opening. The wire grid also prevents other floatable waste from passing over the Inlet protection.
9. Stakes shall be installed through the middle of the drain Inlet protection on 5 ft (1.5m) centers, using 2 in (50mm) x 2 in (50mm) x 3 ft (1m) wood stakes.
10. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Inlet protection should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Inlet protection may be required or sediment removal may be necessary. Inlet protection shall be inspected until contributing drainage area has been permanently stabilized and construction activity has ceased

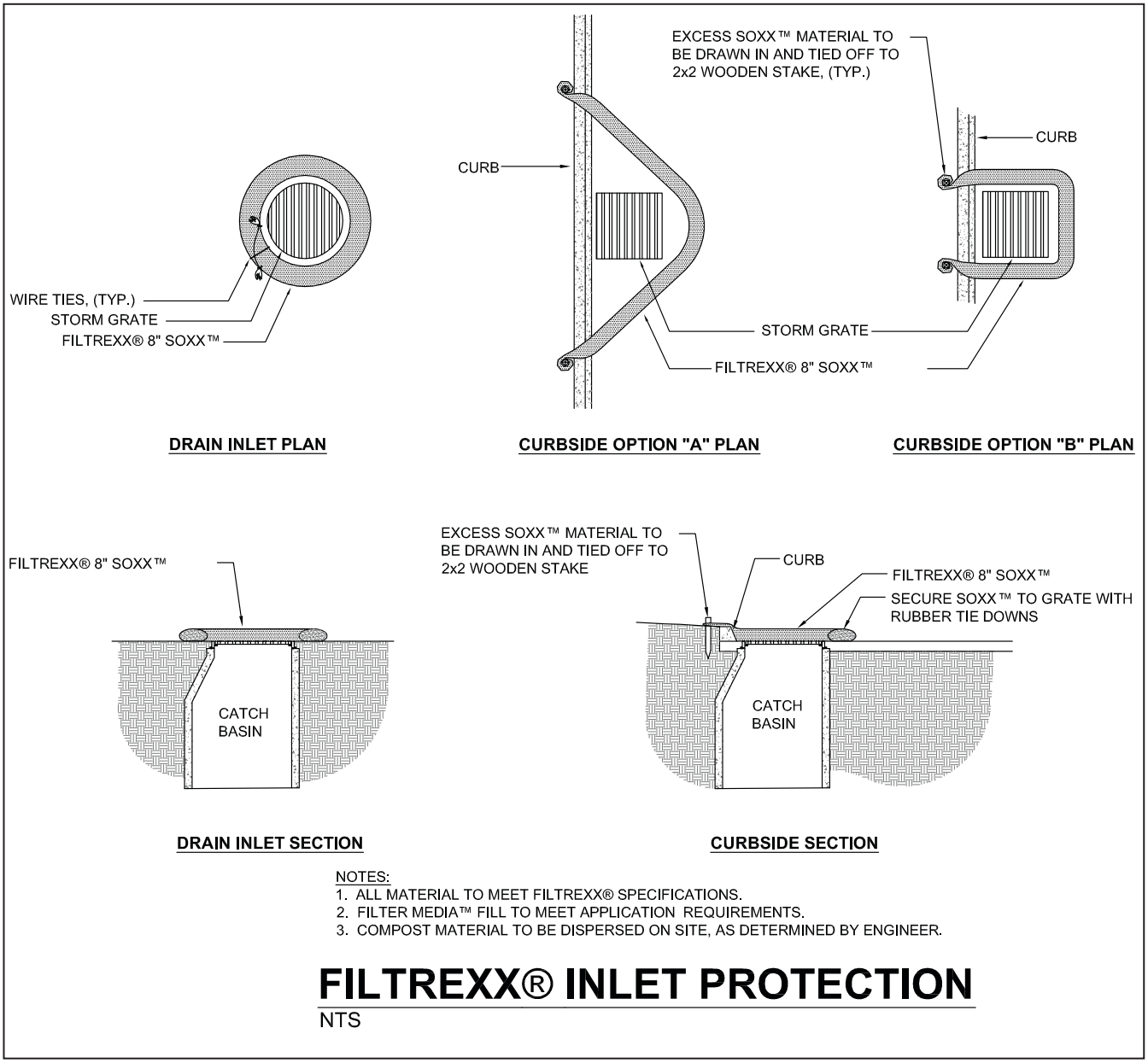
1. The Contractor shall maintain the Inlet protection in a functional condition at all times and it shall be routinely inspected.
2. If the Inlet protection has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Inlet protection when accumulation has reached 1/2 of the effective height of the Inlet protection, or as directed by the Engineer. Alternatively, for drain Inlet protection a new Soxx™ may be placed on top of the original increasing the sediment storage capacity without soil disturbance.
4. Inlet protection shall be maintained until disturbed area above or around the device has been permanently stabilized and construction activity has ceased.
5. Regular maintenance includes lifting the Inlet protection and cleaning around and under them as sediment collects.
6. The FilterMedia™ will be removed from paved areas or dispersed on site soil or behind curb once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

Table 2.4 Spacing for Curb Sediment Containment Systems.

Grade (%)	Spacing (ft)	Spacing (mm)
0.5	100	30
1.0	50	15
2.0	25	8
3.0	16	5
4.0	13	4
5.0	10	3

Source: Fifield, 2001.

Figure 2.1. Engineering Design Drawing for Curb and Drain Inlet Protection

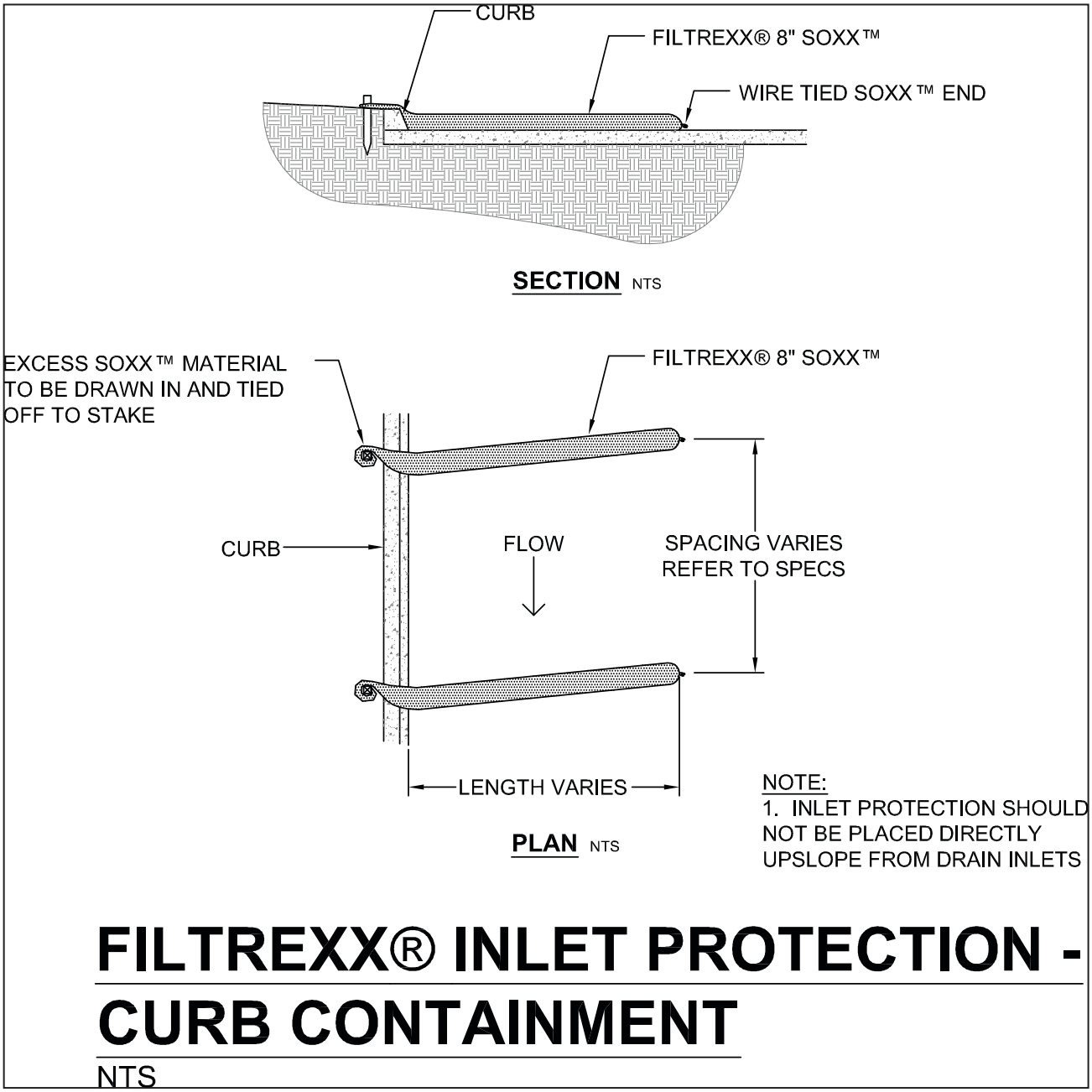


NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® INLET PROTECTION

NTS

Figure 2.2. Engineering Design Drawing for Curb Sediment Containment Inlet Protection



SWPPP Cut Sheet:

Filtrexx® Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Sediment control is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for **perimeter control** of sediment and other soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities.

APPLICATION

Filtrexx® Sediment control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Sediment control is effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.
- On frozen ground where trenching of silt fence is impossible.
- On paved surfaces where trenching of silt fence is impossible.

INSTALLATION

1. Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx® Soxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be Filtrexx® Certified™, or use pre-filled Filtrexx® Sediment control products manufactured by a Filtrexx® Certified Manufacturer™ as determined by Filtrexx® International, LLC (440-926-2607 or visit www.filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx® Certified™ Seal.
3. Sediment control will be placed at locations indicated on plans as directed by the Engineer.
4. Sediment control should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second Sediment control shall be constructed at the top of the slope.
5. Effective Soxx™ height in the field should be as follows: 8" Diameter Sediment control = 6.5" high, 12" Diameter Sediment control = 9.5" high, 18" Diameter SiltSoxx™ = 14.5" high, 24" Diameter Sediment control = 19" high.
6. Stakes shall be installed through the middle of the Sediment control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) hard wood stakes. In the event staking is not possible, i.e., when Sediment control is used on pavement, heavy concrete blocks shall be used behind the Sediment control to help stabilize during rainfall/runoff events.
7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
8. Loose compost may be backfilled along the upslope side of the Sediment control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
9. If the Sediment control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for

establishment of permanent vegetation. The Engineer will specify seed requirements.

10. Filtrexx® Sediment control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrexx® Sediment control installation (Figure 1.1).

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased

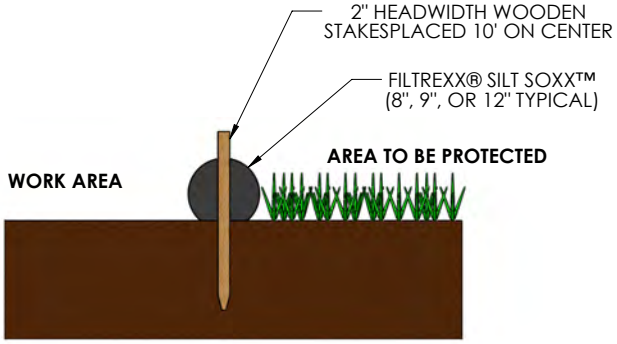
1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

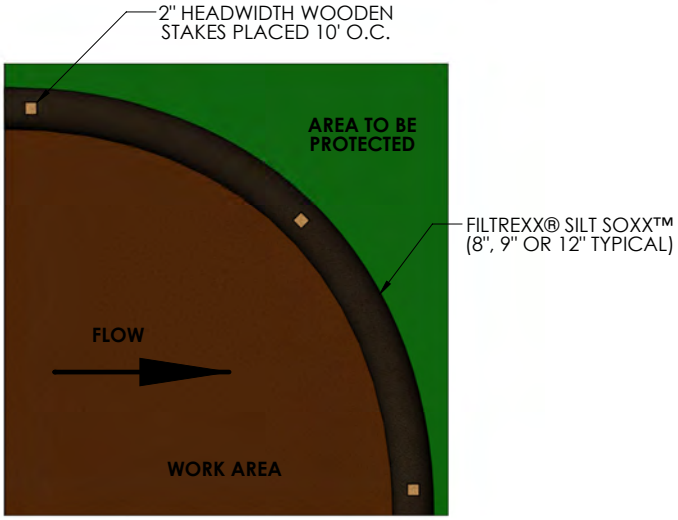
* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

FILTREXX® SILT SOXX™

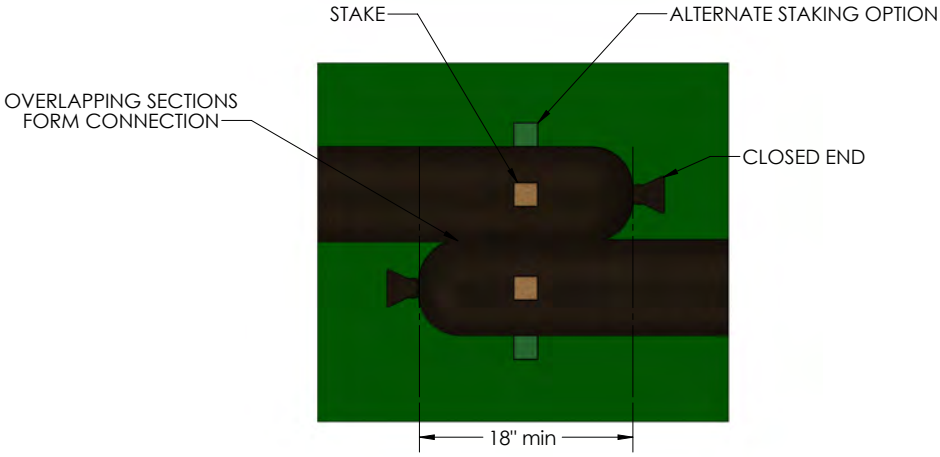


SECTION VIEW

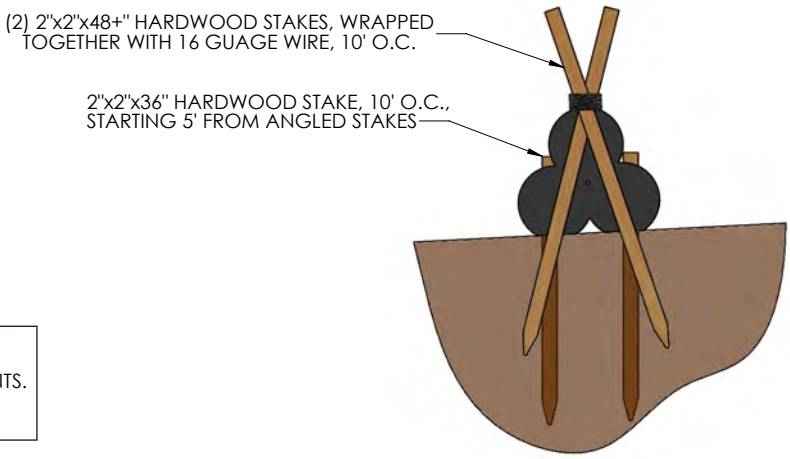


TOP VIEW

COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL



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

Welcome to New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d)

Each Watershed Report Card covers a single 12-digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 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 Not Supporting, Severe	Poor Not Supporting, Marginal	Likely Bad Insufficient Information – Potentially Not Supporting	No Data No Data	Likely Good Insufficient Information – Potentially Full Supporting	Marginal Full Support, Marginal	Good Full Support, Good
CATEGORY	**Description**							
Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL* Needed	5-P	5-M or 5-T					

* TMDL stands for Total Maximum Daily Load studies

Watershed 305(b) Assessment Summary Report:

Assessment Cycle: Draft 2020

HUC 12: 010600030608

HUC 12 Name: Lower Cocheco River

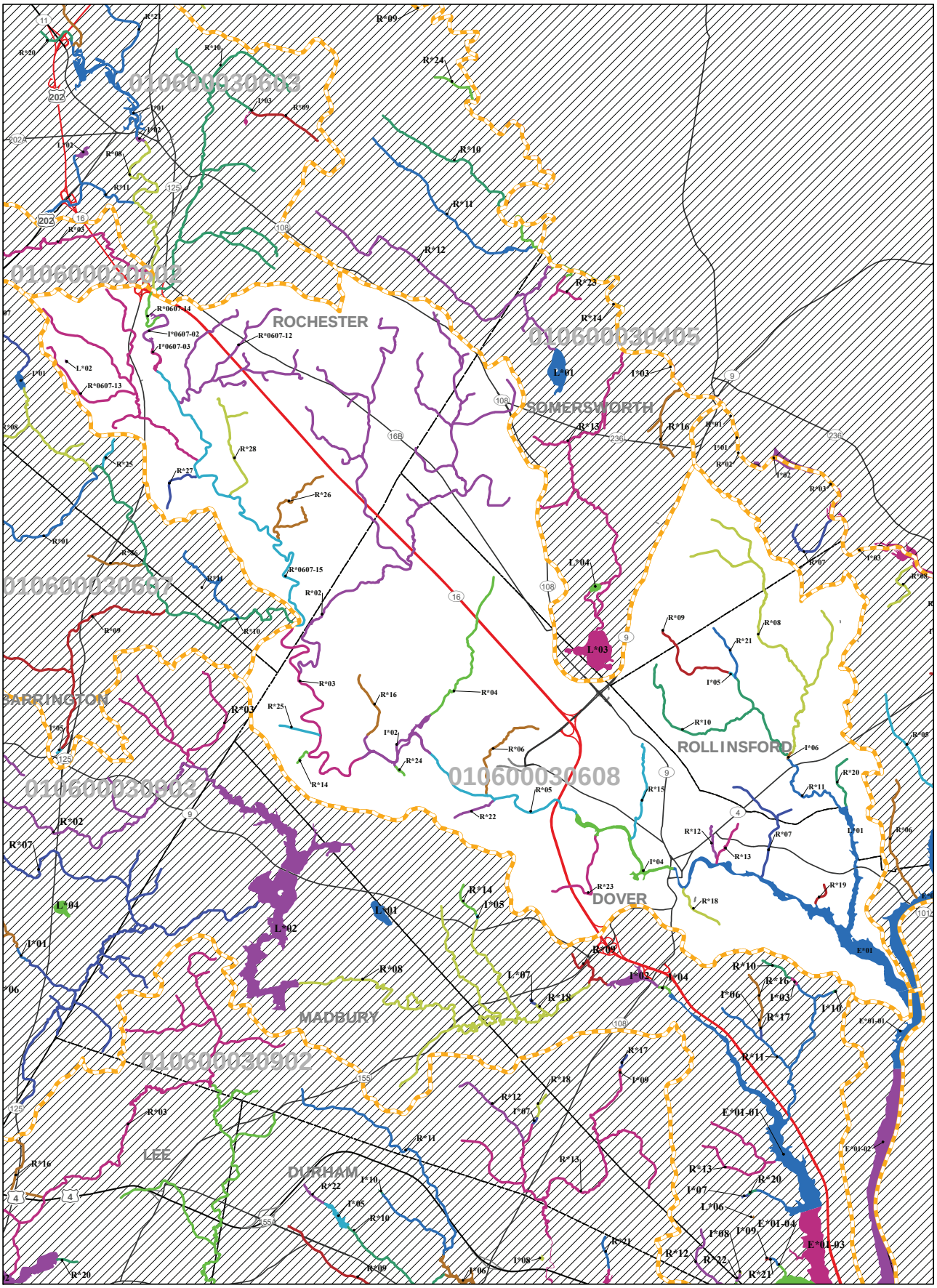
(Locator map on next page only applies to this HUC12)

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	Cocheco River		5-M	5-P	4A-M
NHIMP600030607-02	I*0607-02	Cocheco River - Gonic Dam Pond	5-M	4A-M	4A-P	2-G
NHIMP600030607-03	I*0607-03	Cocheco River - Mill Pond Dam	3-PNS	4A-M	3-ND	3-ND
NHIMP600030608-02	I*02	Cocheco River - Watson Waldron Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-04	I*04	Cocheco 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 Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-13	R*0607-13	Unnamed Brook - To Cocheco River	3-ND	4A-M	3-ND	3-ND

NHRIV600030607-14	R*0607-14	Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-15	R*0607-15	Cocheco 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	Cocheco 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	Cocheco 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 Cocheco River (Dover (Downstream Of Portland Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-13	R*13	Unnamed Tributary - To Cocheco River - (Dover (Upstream Of Atlantic Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-14	R*14	Unnamed Trib. To Cocheco 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

AUIDs For HUC12: 010600030608 - Lower Cocheco River



HUC12 Boundaries
Town Boundaries

Major Roads
Interstate Highway
US Highway
State Highway

Assessment Unit Coloring
AUs Ending with:
0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

Abbrv. Label	HUC 12
L* 03	010 700060201

AUID = NH 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.

0 0.6 1.2 1.8 2.4 Miles

Scale:1:59,820

S:\WD-Watershed\WQ_Planning\305b_303d\2020\Report_Cards\HUC12_maps

Assessment Unit ID: NHEST600030608-01
Assessment Unit Name: Cocheco River
Town(s) Primary Town is Listed First: Dover

Size: 0.276631 SQUARE MILES
Assessment Unit Category: 5-P
Beach: N

Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	5-P	.BETA.-ENDOSULFAN (ENDOSULFAN 2)	N	2005	N/A	3-ND	
		2-METHYLNAPHTHALENE	N	2005	2005	5-P	LOW
		ACENAPHTHENE	N	2005	2005	5-P	LOW
		ACENAPHTHYLENE	N	2005	2005	5-P	LOW
		ALUMINUM	N	2005	2005	3-ND	
		AMMONIA (TOTAL)	N	2018	N/A	2-G	
		ANTHRACENE	N	2005	2005	5-P	LOW
		ANTIMONY	N	2005	N/A	3-ND	
		ARSENIC	N	2005	2005	3-ND	
		BENZO(A)PYRENE (PAHS)	N	2005	2005	5-P	LOW
		BENZO[A]ANTHRACENE	N	2005	2005	5-P	LOW
		BENZO[B]FLUORANTHENE	N	2005	N/A	3-ND	
		BENZO[G,H,I]PERYLENE	N	2005	2002	5-P	LOW
		BENZO[K]FLUORANTHENE	N	2005	N/A	3-ND	
		BIPHENYL	N	2005	N/A	3-ND	
		CADMIUM	N	2005	2005	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.

Aquatic Life Integrity	5-P	CHRYSENE (C1-C4)	N	2005	2005	5-P	LOW
		COLORED DISSOLVED ORGANIC MATTER (CDOM)	N	2010	N/A	3-ND	
		COPPER	N	2005	2004	3-ND	
		Chlorophyll-a	N	2018	90th	5-P	LOW
		DDD	N	2005	2004	5-P	LOW
		DDE	N	2005	2004	5-P	LOW
		DDT	N	2005	2000	5-P	LOW
		DIBENZ[A,H]ANTHRACENE	N	2005	2005	5-P	LOW
		DIELDRIN	N	2005	2004	5-P	LOW
		DISSOLVED ORGANIC CARBON (DOC)	N	2018	N/A	3-ND	
		DISSOLVED OXYGEN SATURATION	N	2018	2018	2-M	
		ENDOSULFAN SULFATE	N	2005	N/A	3-ND	
		ENDRIN	N	2005	N/A	3-ND	
		Estuarine Bioassessments	N	2018	N/A	No Stnd	
		FLUORANTHENE	N	2005	2005	5-P	LOW
		FLUORENE	N	2005	2005	5-P	LOW
		HEXACHLOROBENZENE	N	2005	N/A	3-ND	
		INDENO[1,2,3-CD]PYRENE	N	2005	2002	5-P	LOW
		IRON	N	2005	N/A	3-ND	
		LEAD	N	2005	2005	3-ND	
		LIGHT ATTENUATION COEFFICIENT	N	2018	N/A	No Stnd	
		LINDANE	N	2005	N/A	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.

Aquatic Life Integrity	5-P	MERCURY	N	2005	2002	3-ND	
		NAPHTHALENE	N	2005	2005	5-P	LOW
		NICKEL	N	2005	2005	3-ND	
		Nitrogen (Total)	N	2018	N/A	5-M	LOW
		OXYGEN, DISSOLVED	N	2018	2018	5-M	LOW
		PH	N	2018	2018	2-M	
		PHENANTHRENE	N	2005	2005	5-P	LOW
		POLYCHLORINATED BIPHENYLS	N	2005	N/A	3-ND	
		PYRENE	N	2005	2005	5-P	LOW
		SALINITY	N	2018	N/A	3-ND	
		SILVER	N	2005	2001	3-ND	
		TEMPERATURE, WATER	N	2018	N/A	3-ND	
		TOTAL SUSPENDED SOLIDS (TSS)	N	2018	N/A	3-ND	
		TOXAPHENE	N	2005	N/A	3-ND	
		TRANS-NONACHLOR	N	2005	N/A	3-ND	
		ZINC	N	2005	2001	3-ND	
Fish Consumption	5-M	MERCURY - FISH CONSUMPTION ADVISORY	N			5-M	LOW
		PCBS - FISH CONSUMPTION ADVISORY	N			5-M	LOW
Potential Drinking Water Supply	2-G	ESCHERICHIA COLI	N	2018	2018	3-PNS	
		FECAL COLIFORM	N	2018	2018	3-PNS	
Primary Contact Recreation	5-P	CHLOROPHYLL-A	N	2018	2018	5-P	LOW
		ENTEROCOCCUS	N	2018	2017	4A-M	

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.

Primary Contact Recreation	5-P	Nitrogen (Total)	N	2013		5-P	LOW
Secondary Contact Recreation	4A-M	ENTEROCOCCUS	N	2018	2004	4A-M	
Shellfish Consumption	5-M	DIOXIN - FISH CONSUMPTION ADVISORY	N			5-M	LOW
		Fecal Coliform	N			4A-P	
		MERCURY - FISH CONSUMPTION ADVISORY	N			5-M	LOW
		PCBS - FISH CONSUMPTION ADVISORY	N			5-M	LOW
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.

Outstanding Resource Waters, Impairments, and completed TMDLs.
File last update March 26, 2020.

	2018 Assessment Mapper								NHDES TMDL Info EPA TMDL Info			OneStop Mapper
Applicable EPA Approved Assessment Cycle	Assessment Unit ID (AUID) (for mapped extent, see the 2018 Assessment Mapper)	Assessment Unit Name	Town(s) - Primary town listed first	Water Size	Size Unit	Designated Use	Parameter Name	Parameter Level - NHDES Category	TMDL Approval Date	TMDL Name [All freshwaters covered by the Mercury TMDL (Approved 12/21/2007, TMDL ID 33883)]	TMDL ID	Outstanding Resource Water (ORW) (AUIDs not shown are non ORWs) {See the OneStop Mapper if
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Aquatic Life Integrity	Chlorophyll-a	5-P				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Aquatic Life Integrity	Nitrogen (Total)	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Fish Consumption	Polychlorinated biphenyls	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Primary Contact Recreatior	Chlorophyll-a	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Primary Contact Recreatior	Enterococcus	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39277	Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Primary Contact Recreatior	Nitrogen (Total)	5-P				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Shellfish Consumption	Dioxin (including 2,3,7,8-TCDD)	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Shellfish Consumption	Fecal Coliform	4A-P	8/29/2011	58 NH BACTERIA IMPAIRED WA	40669	Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Shellfish Consumption	Mercury	5-M				Non-ORW
2018	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD, RYE	0.282457	SQUARE MILES	Shellfish Consumption	Polychlorinated biphenyls	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	2-Methylnaphthalene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Acenaphthene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Acenaphthylene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Anthracene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Benzo(a)pyrene (PAHs)	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Benzo[a]anthracene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Benzo[g,h,i]perylene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Chlorophyll-a	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Chrysene (C1-C4)	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	DDD	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	DDE	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	DDT	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Dibenz[a,h]anthracene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Dieldrin	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Fluoranthene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Fluorene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Indeno[1,2,3-cd]pyrene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Naphthalene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Nitrogen (Total)	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Phenanthrene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Aquatic Life Integrity	Pyrene	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Fish Consumption	Polychlorinated biphenyls	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Primary Contact Recreatior	Chlorophyll-a	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Primary Contact Recreatior	Enterococcus	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39277	Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Primary Contact Recreatior	Nitrogen (Total)	5-P				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Shellfish Consumption	Dioxin (including 2,3,7,8-TCDD)	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Shellfish Consumption	Fecal Coliform	4A-P	8/29/2011	58 NH BACTERIA IMPAIRED WA	40669	Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Shellfish Consumption	Mercury	5-M				Non-ORW
2018	NHEST600030608-01	COCHECO RIVER	DOVER	0.276631	SQUARE MILES	Shellfish Consumption	Polychlorinated biphenyls	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	2-Methylnaphthalene	5-P				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Acenaphthene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Acenaphthylene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Aluminum	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Anthracene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Arsenic	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Benzo(a)pyrene (PAHs)	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Benzo[a]anthracene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	BOD, Biochemical oxygen demand	4B-T				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Cadmium	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Chlorophyll-a	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Chrysene (C1-C4)	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Copper	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	DDD	5-P				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	DDE	5-P				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	DDT	5-P				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Dibenz[a,h]anthracene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Fluoranthene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Fluorene	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Lead	5-M				Non-ORW
2018	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	0.033	SQUARE MILES	Aquatic Life Integrity	Mercury	5-M				Non-ORW

Cycle	Assessment Unit ID (AUID)	Assessment Unit Name	Town(s) Primary Town is Listed First	AUID Intersects or is Adjacent to EPA's 2017 MS4 General	Water Size	Size Unit	Designated Use	Parameter Name	Parameter Level -NHDES Category	TMDL Priority	Beach	Last Sample	Last Exceedence
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Aquatic Life Integrity	Chlorophyll-a	5-P	LOW	N	2018	MED.
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	LOW	N	2018	2018
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Aquatic Life Integrity	Nitrogen (Total)	5-P	LOW	N	2018	MED.
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Aquatic Life Integrity	Oxygen, Dissolved	5-P	LOW	N	2018	2017
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Aquatic Life Integrity	pH	5-M	LOW	N	2018	2014
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Fish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Fish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Primary Contact Recreation	Chlorophyll-a	5-M	LOW	N	2018	2017
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Primary Contact Recreation	Nitrogen (Total)	5-P	LOW	N	2012	
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Shellfish Consumption	DIOXIN - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Shellfish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE	Shellfish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	2-Methylnaphthalene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Acenaphthene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Acenaphthylene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Anthracene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Benzo(a)pyrene (PAHs)	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Benzo[a]anthracene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Benzo[g,h,i]perylene	5-P	LOW	N	2005	2002
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Chlorophyll-a	5-P	LOW	N	2018	90th
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Chrysene (C1-C4)	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	DDD	5-P	LOW	N	2005	2004
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	DDE	5-P	LOW	N	2005	2004
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	DDT	5-P	LOW	N	2005	2000
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Dibenz[a,h]anthracene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Dieldrin	5-P	LOW	N	2005	2004
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Fluoranthene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Fluorene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Indeno[1,2,3-cd]pyrene	5-P	LOW	N	2005	2002
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Naphthalene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Nitrogen (Total)	5-M	LOW	N	2018	N/A
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Oxygen, Dissolved	5-M	LOW	N	2018	2018
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Phenanthrene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Aquatic Life Integrity	Pyrene	5-P	LOW	N	2005	2005
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Fish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Fish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Primary Contact Recreation	Chlorophyll-a	5-P	LOW	N	2018	2018
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Primary Contact Recreation	Nitrogen (Total)	5-P	LOW	N	2013	
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Shellfish Consumption	DIOXIN - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Shellfish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE	Shellfish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	2-Methylnaphthalene	5-P	LOW	N	2015	2003
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Acenaphthene	5-M	LOW	N	2015	2005
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Acenaphthylene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Aluminum	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Anthracene	5-M	LOW	N	2015	2005
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Arsenic	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Benzo(a)pyrene (PAHs)	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Benzo[a]anthracene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Cadmium	5-M	LOW	N	2015	2003
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Chlorophyll-a	5-M	LOW	N	2018	90th
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Chrysene (C1-C4)	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Copper	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	DDD	5-P	LOW	N	2005	2001
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	DDE	5-P	LOW	N	2015	2001
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	DDT	5-P	LOW	N	2005	2001
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Dibenz[a,h]anthracene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Dissolved oxygen saturation	5-P	LOW	N	2018	2018
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Fluoranthene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Fluorene	5-M	LOW	N	2015	2005
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Lead	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Mercury	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Naphthalene	5-P	LOW	N	2015	2000
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Nickel	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Nitrogen (Total)	5-M	LOW	N	2018	MED.
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Oxygen, Dissolved	5-P	LOW	N	2018	2018
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Phenanthrene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	Pyrene	5-M	LOW	N	2015	2015
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	pH	5-M	LOW	N	2018	2018
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Aquatic Life Integrity	trans-Nonachlor	5-M	LOW	N	2005	N/A
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Fish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Fish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Primary Contact Recreation	Chlorophyll-a	5-P	LOW	N	2018	2016
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Primary Contact Recreation	Nitrogen (Total)	5-P	LOW	N	2013	
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Shellfish Consumption	DIOXIN - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Shellfish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-01	LAMPREY RIVER NORTH	NEWMARKET	Yes	0.033	SQUARE	Shellfish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N		
2020	NHEST600030709-01-02	LAMPREY RIVER SOUTH	NEWMARKET	Yes	0.137	SQUARE	Aquatic Life Integrity	Chlorophyll-a	5-M	LOW	N	2017	90th
2020	NHEST600030709-01-02	LAMPREY RIVER SOUTH	NEWMARKET	Yes	0.137	SQUARE	Aquatic Life Integrity	Estuarine Bioassessments	5-P	LOW	N	2013	MED.
2020	NHEST600030709-01-02	LAMPREY RIVER SOUTH	NEWMARKET	Yes	0.137	SQUARE	Aquatic Life Integrity	Light Attenuation Coefficient	5-P	LOW	N		MED.

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

Office Use Only	Project #: P22-25	Date Received: RECEIVED Planning Office
	Amount Paid:	Time Received: APR 01 2022 Dover, New Hampshire

APPLICANT AND OWNER INFORMATION

Name of Applicant: City of Dover Recreation Telephone # 516-6410

Address of Applicant: 61 Locust St. Dover, NH 03820

E-Mail Address: g.bannon@dover.nh.gov

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 150 Portland Ave

Assessor's Map # 26 Lot(s) # 2

Zoning District(s) RM-U Overlay District(s) _____

Size of Parcel: _____ sq. ft. 39 ac. Property Deed: Book _____ Page: _____

Existing Use of Property: Public Recreation Parcel ID # 26002-000000

SITE PLAN INFORMATION

Describe Proposed Use: Adding a Skatepark to the Parcel

Area of Parcel to be Developed: 12,000 sq. ft.

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

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

Number of Parking Spaces: Existing 87 Proposed _____

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

Number of Employees Total: _____ In Maximum Shift: _____

Disposition of Parcel:

Building Footprint _____ sq. ft.

Total Building Area _____ sq. ft.

Paved Area _____ sq. ft.

Building Setbacks:

Front Yard _____ ft.

Rear Yard _____ ft.

Side Yard: Right____ ft. Left____ ft.

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

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

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: N A

Height of Building: _____ Finished Floor Elevation: _____

Number of Seats (where applicable) _____

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

WAIVER REQUESTS

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

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

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Tri tech Engineering

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

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

ENGINEER INFORMATION

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

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

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

ARCHITECT INFORMATION + Skatepark Engineer

Name of Architect and Company (Licensed in N.H.) Pillar Design Studios/Artism Skateparks

Address 4600 Tamarack Dr. Kitty Hawk NC 27949 Telephone #: 480-285-6787 AZ 252-202-1333 NC

Professional License #: _____ E-mail address: brad@pillardesignstudios.com

Brad Siedlecki

LANDSCAPE ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

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

Address 19 Dover St. Dover, NH, 03820 Telephone #: 603-749-1841

Professional License #: _____ E-mail address: slanne@consultjtc.com

Stephen Lanne

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: _____

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: _____

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: _____

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

CERTIFICATION OF FEES

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

Signature of Property Owner: _____ Date: _____

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: Parcel ID# 26002-00000

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
		City of Dover	288 Central Ave

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
Gary Bannon	Dover Recreation Dept.	61 Locust St Dover, NH 03820

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Brad Siedlecki	Artisan/Pillar Design	4600 Tamarack Dr. Kitty Hawk NC 27949

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

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)
  - o New construction $.15 sq. ft. x # _____ sq. ft.= $_____
  - o 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)
  - o Existing floor spaces $.10 per sq. ft. x # _____ sq. ft. = $_____
- ☐ CONDITIONAL USE PERMIT Application fee $200.00 x # _____ per Application = $_____
- ☐ GRAVEL PIT/ EXCAVATIONS
  - o Application fee $50.00= $_____
  - o 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 # _____ sq. ft. = $_____

SUBTOTAL PLAN REVIEW FEE (A) = $_____

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
  - o Certified letters fee # _____ of x $8.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $8.00= $_____
- ☐ First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X $1.00= $_____
- ☐ Creating/Printing Abutter Labels in triplicate per sheet _____ x $10.00= $_____

C. Foster's newspaper public notice fee $100.00 x # _____ applications = $_____

SUBTOTAL NOTICE FEE (B & C) = $_____

TOTAL INVOICE AMOUNT (A, B & C) = $_____

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: City of Dover File Number: _____

PROJECT TITLE: Skatepark Construction

PROPERTY LOCATION: 150 Portland Ave Tax Map: ____ Lot: ____ ID# 26002 - 000000

	Where/How Provided	Reviewed
1. Completed and signed Application form	✓	
2. Plan Review Fees are provided	N/A	
3. Electronic copy of the engineered/surveyed plan layout	via email	
4. Electronic copy of supplementary materials and application	via email	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	N/A	
6. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
7. Conditional Use Permit applications	N/A	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	See attached	
9. A colored architectural plan showing all sides of buildings	plans attached	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	See attached	
Location map at appropriate scale		
Proposed Project name and title and Planning File #	will be assigned	
Date, north arrow and scale	✓	
Names of all abutting property owners	will provide if needed	
Name and address of owners and/or applicants	✓	
Signature & stamp of NH licensed land surveyor and/or engineer	N/A	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	N/A	
Location and widths of existing & proposed easements & right of ways	N/A	
Location and width of existing and proposed access/egress ways	✓	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	On schematics	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	N/A	
Existing and proposed topographic information at two foot intervals	✓	
Existing and proposed buildings and structure locations	✓	
Minimum building setbacks or build to lines on all lots	N/A	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	N/A	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	N/A	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed stormwater lines and facilities	N/A	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	✓	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	N/A	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	N/A	
Existing natural features and/or significant vegetation on property	✓	
Depict existing contours up to 100 ft. beyond project limits	N/A	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	N/A	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Not changing	
Location, material and size of existing and proposed pavement area	Existing	
Location of proposed fire lanes	N/A	
Specify finished floor elevations of buildings	✓	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	N/A	
Depict all service, storage, loading bays and utility areas	N/A	
All applicable Dover Common Site Plan notes	will provide.	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis		
Stormwater Management System Operation and Maintenance Plan		
Letter to Serve from Public and Private Utilities		
Erosion and Sedimentation Control Plan		
Landscape Operation and Maintenance Plan		
Proposed restrictive covenants or homeowners association documents		
Dates and permit numbers of all required state and federal permits		
If wetland buffer, indicate placards locations, as applicable		
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs		
Location of proposed drive-in facilities		
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: _____ FILE NUMBER: _____

List of Common Site Plan Notes

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

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

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

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

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

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

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

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

8. Zoning dimensional and density requirements are as follows:

   Required: Provided:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

REMARKS:

_____

_____

_____

_____

_____

_____

_____

_____

Dover Skatepark – Phase I

RECEIVED
Planning Office
APR 01 2022
Dover, New Hampshire

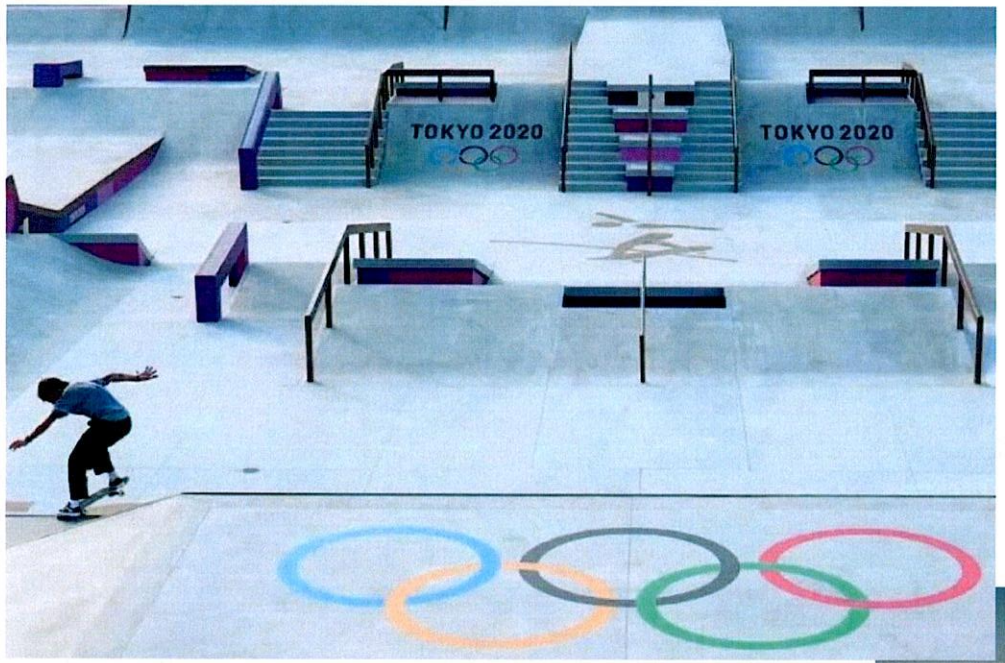
Phase I

Dover Skatepark

Phase I – 10,700 sq.ft.

- **Wide array of features to accommodate all skill levels**
- **State of the art layout and construction techniques (virtually maintenance-free)**
- **Layout maximized line-of-sight for increased safety**

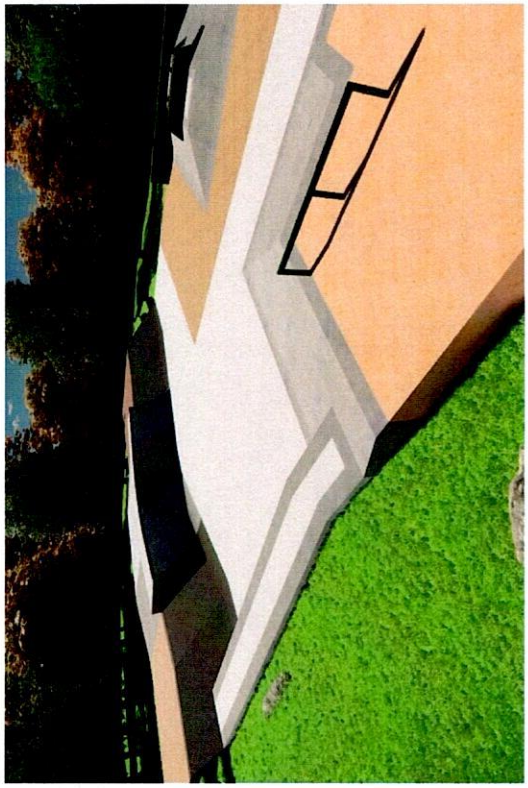
Dover Skatepark

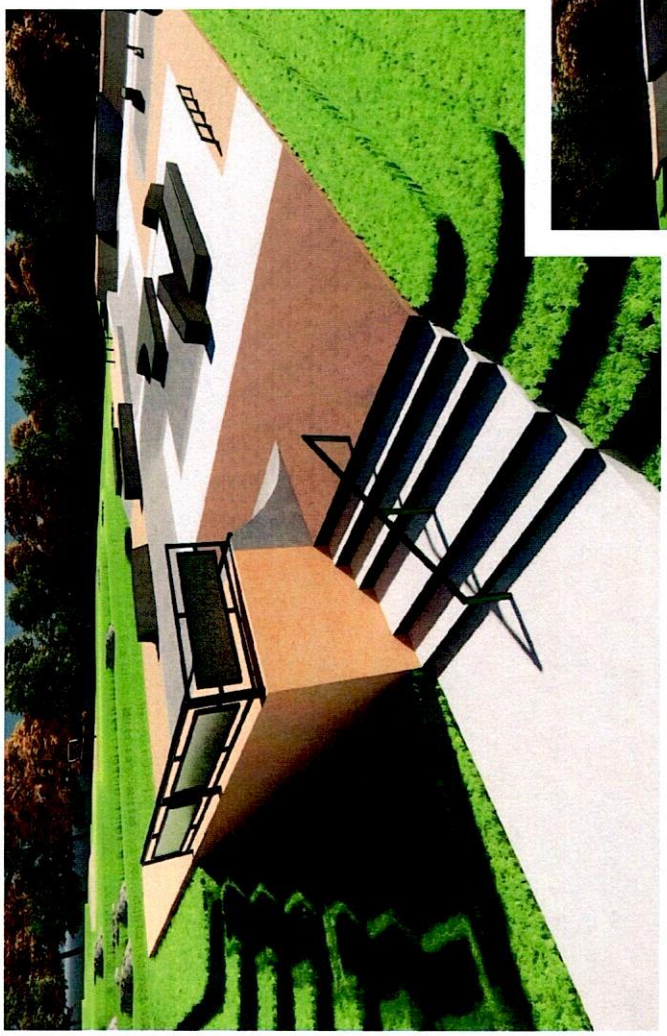


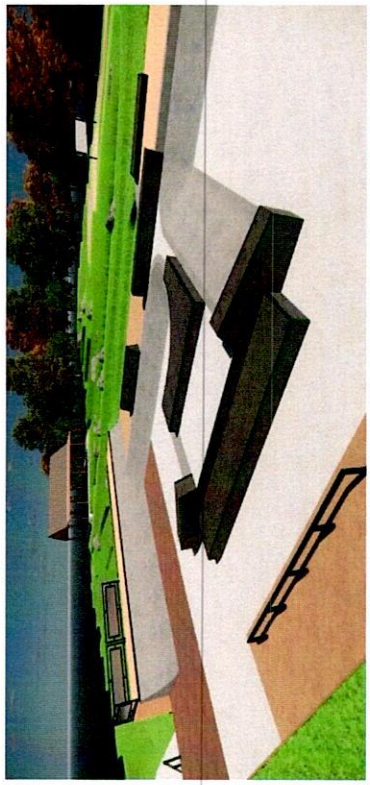
Phase I – 10,700 sq.ft.

- **Olympic-caliber skatepark design**
  - **Compliments Olympic aquatics (Jenny Thompson and Jessica Parratto)**
- **Opportunity to be first Olympic-caliber skatepark in greater Seacoast**

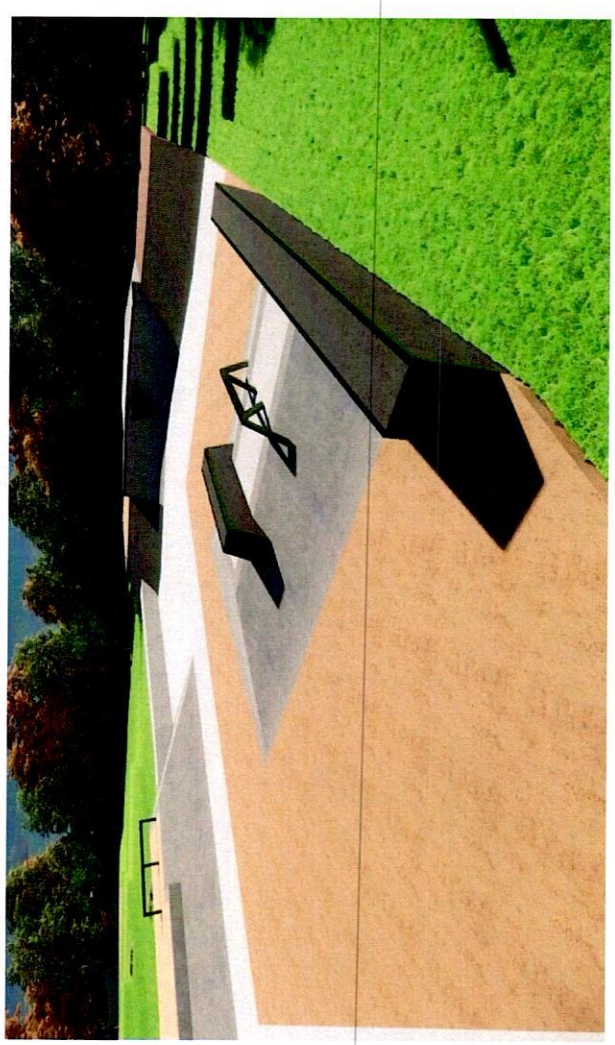
Dover Skatepark

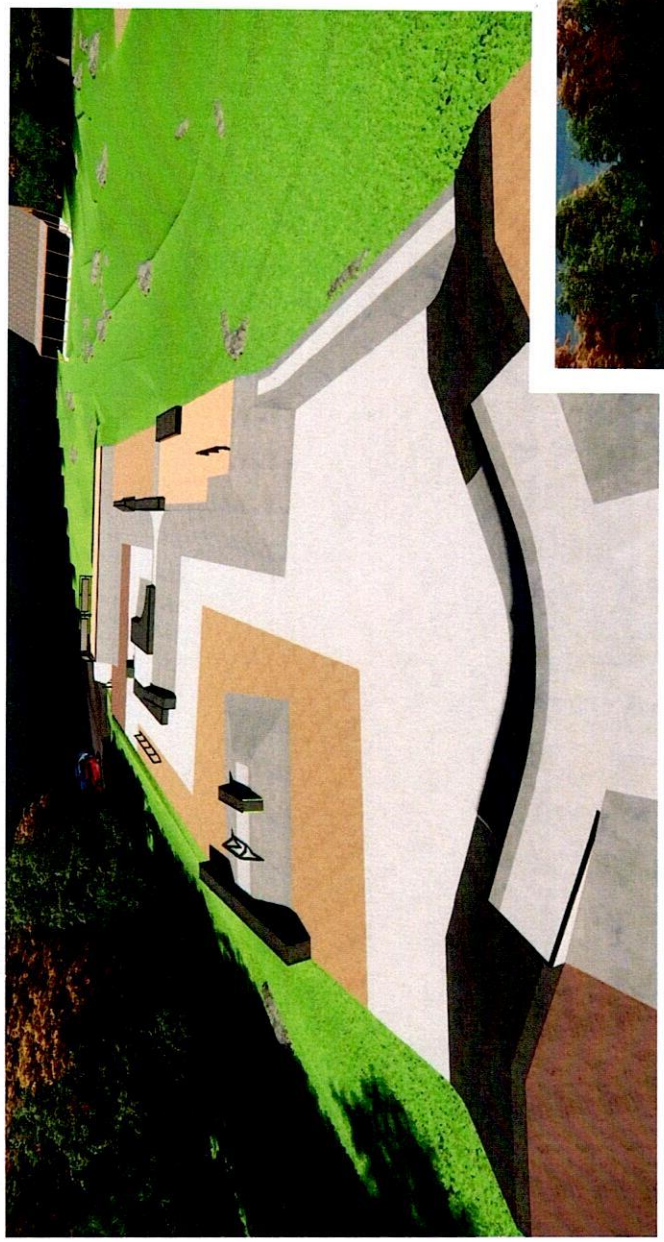


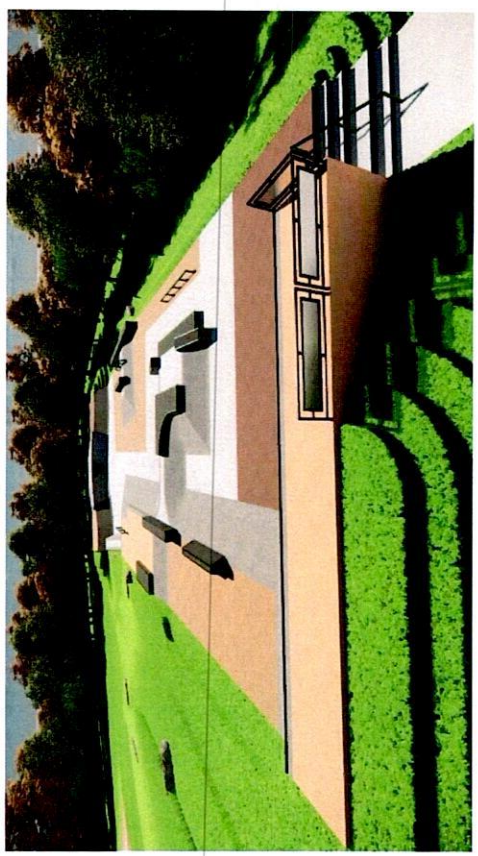


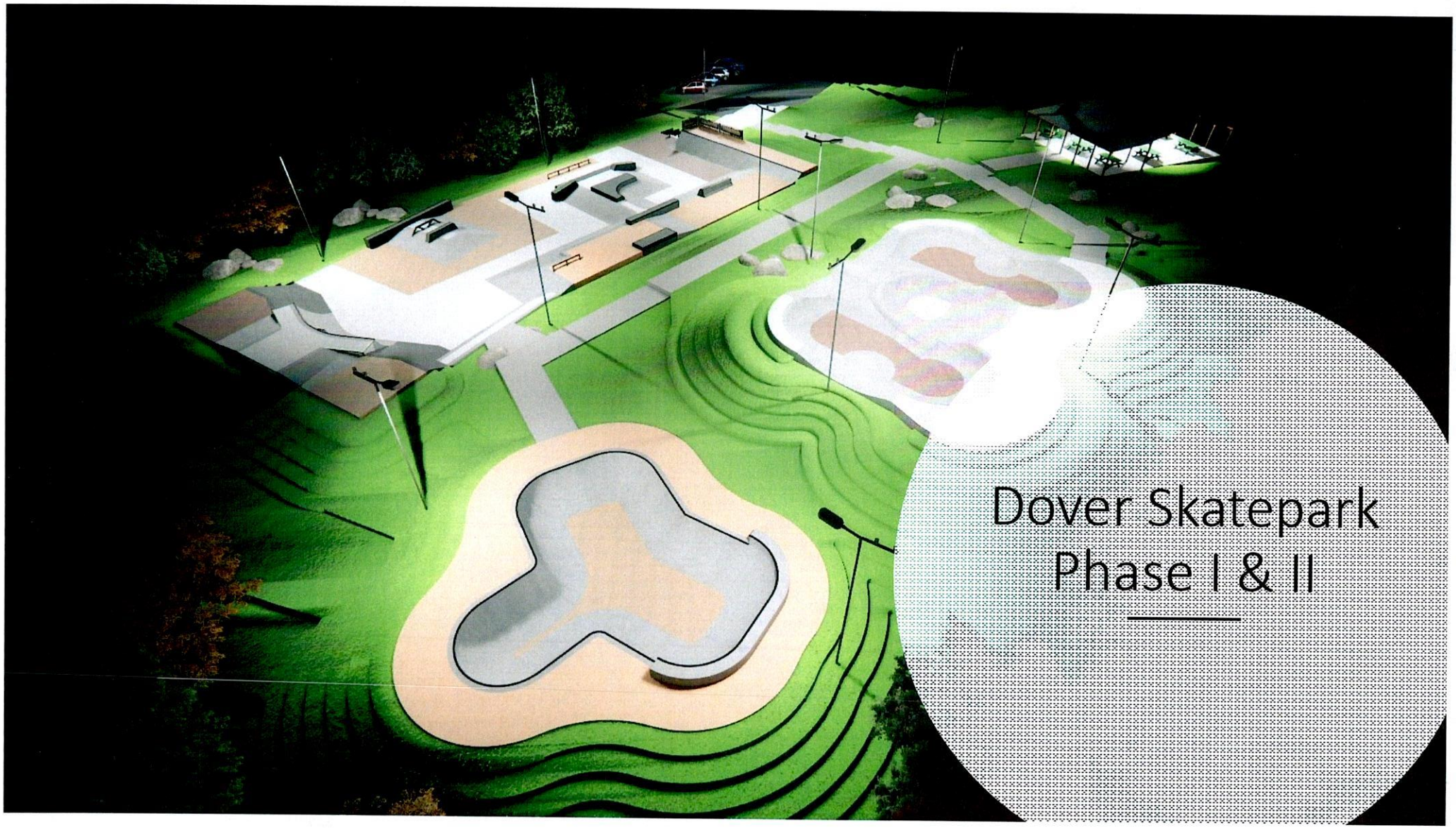


Dover Skatepark





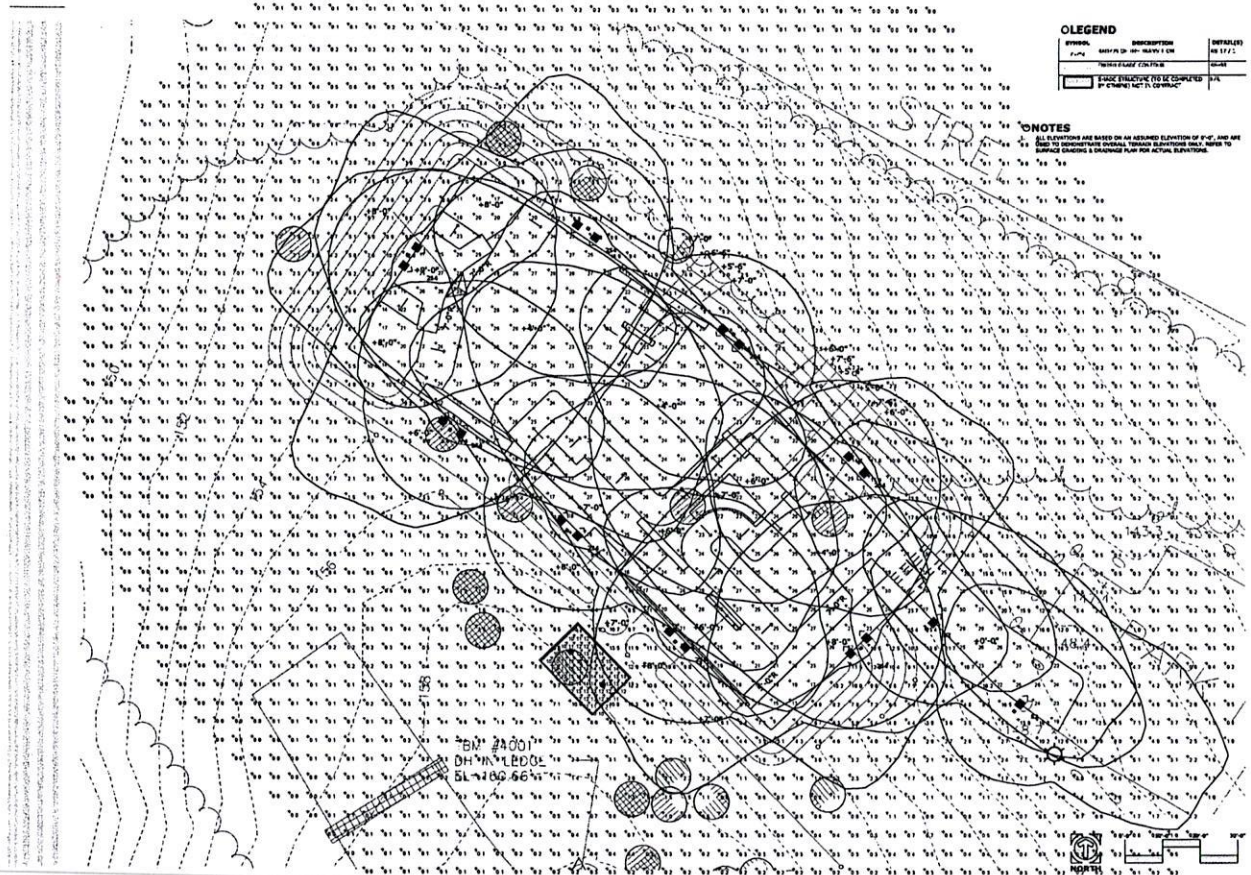




Dover Skatepark
Phase I & II

Phase II

- **Phase I & II– 17,000 sq.ft.**



Plan View
Scale - 1" = 16ft

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog Number	Description	Lamp	Filename	Lumens per Lamp	LLF	Efficiency	Distribution	Polar Plot
	2S4		8	Lithonia Lighting	RSX2 LED P6 40K R4 MVOLT SPA HS DDBXD on SSS 20 4C	RSX Area Fixture Size 2 P6 Lumen Package 4000K CCT Type R4 Distribution with HS Shield; mounted at 23ft (20ft pole on 3ft base)	LED	RSX2_LED_P6_40K_R4__HS.ies	21351	21351.16	100%	TYPE IV, SHORT, BUG RATING: B2 - U0 - G4	
	S2		2	Lithonia Lighting	RSX2 LED P6 40K R2 MVOLT SPA HS DDBXD on SSS 20 4C	RSX Area Luminaire Size 2 P6 Lumen Package 4000K CCT Type R2 Distribution; mounted at 23ft (20ft pole on 3t base)	LED	RSX2_LED__P6_40K_R2.ies	30374	30374.22	100%	TYPE II, SHORT, BUG RATING: B3 - U0 - G2	
	C		2	Lithonia Lighting	VCPG LED P4 40K TSM MVOLT UPL2 SRM DDBXD	VCPG LED WITH P4 - PERFORMANCE PACKAGE, 4000K, TSM OPTIC TYPE, UP-LIGHT 2 PACKAGE; mounted at 11ft	LED	VCPG_LED_P4_40K_TSM_MVOLT_UPL2.ies	8673	8672.7	100%	TYPE VS, BUG RATING: B3 - U4 - G2	

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Skate Park	+	1.8 fc	23.7 fc	0.0 fc	N/A	N/A
Shelter	+	12 fc	15 fc	10 fc	1.5:1	1.2:1
Skate Park	+	24 fc	31 fc	9 fc	3.4:1	2.7:1

OLEGEND

SYMBOL	DESCRIPTION	DETAIL(S)
	[illegible]	[illegible]
	[illegible]	[illegible]
	2-MAX STRUCTURE (TO BE COMPLETED BY OTHERS) NOT IN CONTRACT	N/A

NOTES

1. ALL ELEVATIONS ARE BASED ON AN ASSUMED ELEVATION OF 0'-0", AND ARE USED TO DEMONSTRATE OVERALL TERRAIN ELEVATIONS ONLY. REFER TO SURFACE GRADING & DRAINAGE PLAN FOR ACTUAL ELEVATIONS.

Pillar Design Studio

PROJECT: DOVER SKATEPARK
DOVER, NEW HAMPSHIRE
MASTER PLAN

SHEET: 04 OF 18
AS-04
SKATE PARK

VISUAL

DOVER SKATE PARK
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842
Date
12/13/2021
Scale
1"=16'
Drawing No.
Summary

2 of 2

RECEIVED
Planning Office
APR 01 2022
Dover, New Hampshire

Catalog Number: | Date: | Project:

OVERVIEW

The nLight ECLYPSE™ system controller connects an nLight® lighting network to support connectivity and management over an IP network, control and device setting adjustment, integration with building management, integration with demand response, and more.

FEATURES

- Communicates over IP, allowing the system controller and connected lighting controls devices to be accessed and configured across a local area network
- Each system controller supports up to 750 nLight and nLight AIR devices. Additional controllers can connect and scale a system of lighting controls to a maximum of 20,000 devices
- BACnet Testing Laboratories (BTL) listed as a BACnet Building Controller (B-BC)
- Can be discovered and managed through free SensorView software and through an onboard web GUI
- Provides time-of-day and astronomical time clock capabilities for scheduled lighting control events
- Manages forwarding of global control channels and system profiles to affect devices on multiple controllers at the same time
- Enhanced security through toggleable HTTP or HTTPS connections, a FIPS 140-2, Level 1 compliant security interface, SSO or Radius Server capabilities, and more
- Optional demand response client allows activation of configurable load shed dimming levels by utility DRAS through OpenADR 2.0a

Warranty

Five-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

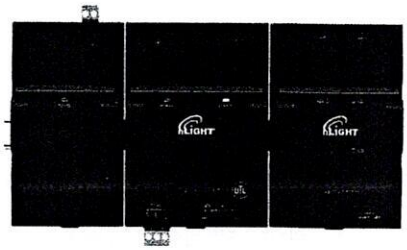
Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

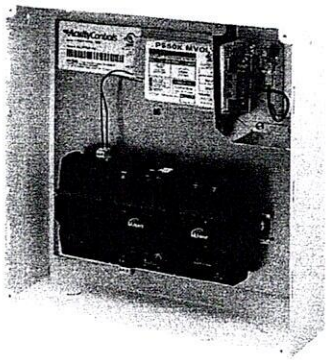
LISTED

BACnet is a registered trademark of ASHRAE.
ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet International (BI). BTL is a registered trademark of BI.

Patents:
- US9819544B2
- EP3250970B1
- EP3139697B1
- US9924243B2
- US10073423B2
- US9608538B2
- CA2971061A1

nLight ECLYPSE™
System Controller





© 2014-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 11/30/21

NECY				Example: NECY MVOLT BAC ENC
Series	**Voltage**	**BACnet**	**AutoDR**	**Visualization Software**
nECY nLight ECLYPSE	MVOLT 120-277VAC 347 120-277VAC, 347VAC	[blank] Not Enabled BAC BACnet/IP & MS/TP Enabled	[blank] Not Enabled ADR Open ADR VEN	[blank] Not Enabled SVS[1] Envysion

Cellular Modem	**Enclosure**	**Wi-Fi Adapter**	**Options**
[blank] No Cellular Modem REM[6] Prewired CLAIRITY™ Link router with cellular SIM REMR[2,6] Prewired CLAIRITY™ Link router with cellular SIM and cloud-toggleable relay	ENC NEMA Type 1 metal enclosure	[blank] Includes Wi-Fi Adapter NW No Wi-FI Adapter Included	[blank] None SEP Single Ethernet Port GFXK[3] Touchscreen interface (model nGWY2 GFX, mounted separately), PS 150 power supply, CAT5 cable AIR[4] Includes NECYD NLTAIR G2

ACCESSORIES	
nECY ENC	NEMA 1 Enclosure and pre-mounted 120-277VAC input, 24VDC output (Max 50W) power supply
nECYD NLTAIR G2	nLight AIR wireless adapter
nECYREPL INTF	nLight Interface module (introduces 750 device limit if added to an ECLYPSE with AIR option)
nECYUPG SVEA[5]	nLight ECLYPSE License, adds support of up to 5 MODBUS devices

Notes

1. Requires BACnet option.
2. Cloud-toggleable relay is prewired and intended to powercycle the nLight ECLYPSE remotely.
3. If 347 voltage option is selected, includes PS150 347.
4. AIR option supports 150 devices. RJ45 ports for connecting nLight wired devices are not available with the AIR option. GFXK option is not available with AIR option.
5. SVEA license requires SVS and BAC licenses as prerequisites. See nLight ECLYPSE Replacement Parts Guide for more information.
6. 347 option is required for cellular connectivity in Canada. MVOLT versions will support connectivity in the United States and Mexico only. Active connectivity plan required for cellular connectivity. All routers ship with 12-months Ethernet connectivity enabled. See CLAIRITY Link router specification sheet for more information.
7. Cellular connectivity performance may be affected by carrier coverage and antenna placement. Coverage by supported carriers should be verified prior to purchase.
8. See the Specifications section for a list of all supported carriers per country.
9. Use of default SIM included with hardware is required for REMCONN CELL connectivity plan. REMCONN ETH does not require use of a cellular SIM but is required for connectivity with the portal using a non-standard, third-party SIM, provided by, paid for, and maintained by others. Compatibility with non-default, third party SIMs is not guaranteed or warranted.

CONNECTIVITY PLANS

Remote support via the CL**AIR**ITY Link solution is enabled through a connectivity plan (REMCONN). Purchase of a CL**AIR**ITY Link router includes an initial 12-month Ethernet connectivity plan that begins upon shipment of hardware from the factory. For extended periods of connectivity, or for cellular connectivity, supplementary plans can be purchased. Flexible plans are offered in 3-month to 24-month durations and can be purchased at any time.

FEATURES

- Flexible connectivity periods offer affordable, connected assistance from nLight technical experts
- With no hidden fees and no continuous costs, CL**AIR**ITY Link connectivity is an on-demand service that can be purchased at any time
- On-premise systems continue to operate when a connectivity plan is inactive
- Optional service plans affordably supplement the ability to remotely connect, adding comprehensive programming, sustainment, and preventative maintenance options

			Example: REMCONN ETH 24MO CAR1
Series	**Connection Type**	**Service Length**	**Supported Countries**
REMCONN Connectivity plan to enable remote access by factory representatives	ETH Uses Ethernet connection to a customer-provided network with Internet access for communication with the CL**AIR**ITY Link portal CELL[7,8,9] Includes a cellular plan to supplement or replace Ethernet connectivity for communication with the CL**AIR**ITY Link portal	3MO 3-month length 6MO 6-month length 9MO 9-month length 12MO 12-month length 18MO 18-month length 24MO 24-month length	CAR1 US, Mexico, and Canada

© 2014-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 11/30/21

SPECIFICATIONS

Control Module

Size:	4.74" H x 3.57" W x 2.31" D (12.03 cm x 9.07 cm x 5.86 cm)
Mounting:	DIN rail mounted
nLight ECLYPSE Assembly Size:	4.74" H x 14.76" W x 2.43" D (12.03 cm x 37.5 cm x 6.16 cm)
Ports:	Ethernet: (2) switched RJ-45 Ethernet ports USB Connections: 2 x USB 2.0 ports RS-485 Serial Communications: Screw terminals (Used for either BACnet MS/TP Subnet: RJ-45
Real Time Clock (RTC):	Real Time Clock with rechargeable battery. Supports SNTP network time synchronization
RTC Battery:	20 hours charge time, 20 days discharge time. Up to 500 charge / discharge cycles
Enclosure:	FR/ABS UL94-V0 flammability rating
Environmental:	Operating Temperature: 32°F to 122°F (0 to 50°C) Storage Temperature: -22°F to 158°F (-30 to 70°C) Relative Humidity: 0 to 90% non-condensing Ingress Protection Rating: IP20
Security:	FIPS Publication 140-2, Level 1 Compliant Complies with California Civil Code Title 1.81.26, Security of Connected Devices, approved under Senate Bill No. 327 (2018)

nLight Network Interface Module

Size:	4.74" H x 3.20" W x 2.31" D (12.03 cm x 8.12 cm x 5.86 cm)
Mounting:	DIN rail mounted
Ports:	3 nLight bus ports (RJ-45)
nLight Bus Power Output:	0mA per port

Power Supply Module (24V)

Size:	24V: 4.74" H x 2.85" W x 2.31" D (12.03 cm x 7.24 cm x 5.86 cm)
Operating Voltage:	24V: 24VAC/DC; ±15%; Class 2
Output Voltage, Rated Current & Power:	24V: 18VDC regulated, 0-1.6A, 30W max

Enclosure

Type:	NEMA 1 rated surface mount screw cover
Size:	14.25"H x 14.25"W x 4.00"D (36.20cm x 36.20cm x 10.16cm)
Rating:	UL 2043 (Plenum) Rated

CLAIRITY Link Router

Size:	2.92"H x 3.27"W x 0.99"D (74mm x 83mm x 25mm)
Power Consumption:	< 6.5W
Input Voltage Range:	9-30VDC
Mobile:	4G LTE - up to 150Mbps 3G - up to 42Mbps 2G - up to 236.8kbps United States - ATT, T-Mobile/Sprint, US Cellular, Alaska Wireless Mexico - Telefonica Canada - Tellus, Bell, SaskTel[6]
Ethernet:	WAN - 10/100Mbps; connects to an owner-provided, Internet-connected network. May be used for nLight ECLYPSE controller discovery on the same network. LAN-10/100Mbps; used for discovery of nLight ECLYPSE controllers that are connected to a network without Internet connectivity Wireless Mode - IEEE 802.11b/g/n Security - WPA2-Enterprise Wi-Fi Hotspot - used for modem and SIM diagnostics Wi-Fi Client - not supported
Environmental:	Operating temperature - -40C to 75C Operating humidity - 10% to 90% non-condensing Storage temperature - -45C to 75C
Security:	Firewall - pre-configured firewall Attack Prevention - DDOS prevention, port scan prevention WEB filter - whitelist for specifying allowed sites only Access control - control of TCP, UDP, ICMP packets, MAC address filter Complies with California Civil Code Title 1.81.26, Security of Connected Devices, approved under Senate Bill No. 327 (2018)
Ingress Protection	IP30
Regulatory	FCC, IC/ISED, EAC, RCM, PTCRB, RoHS, CE/RED, WEEE, Wi-Fi Certified, CCC, Anatel, GCF, REACH, Thailand NBTC, Ukraine UCRF, SDPPI (POSTEL)
Antennas:	Mobile - 698-960/1710-2690 MHz, SMA male connector Wi-Fi - 2400-2483.5 MHz, SMA male connector
Input/Output	Input - 1x digital, non-isolated input (on 4 pin power connector) Output - 1 x digital, open collector output (30 V, 300 mA, on 4 pin power connector)
SIM	1 x SIM slot (Mini SIM – 2FF), 1.8V/3V, external SIM holder
Dimensions	83 x 25 x 74 mm

COMMUNICATION

Ethernet Connection Speed:	10/100 Mbps
Addressing:	IPv4 or Hostname
BACnet Profile:	BACnet Building Controller (B-BC)
BACnet Listing:	BTL, B-BC
BACnet Interconnectivity:	BBMD forwarding capabilities BACnet/IP to BACnet MS/TP routing
BACnet Transport Layer:	MS/TP & IP (optional)
Web Server Protocol:	HTML5
Web Server Application Interface:	REST API

Supported BACnet MS/TP and Modbus RTU Connectivity:

- BACnet MS/TP OR Modbus RTU 1 × RS-485 serial communications ports
- Each RS-485 port supports one communication protocol at a time
- RS-485 Wiring – 1-pair + Common/shield
- RS-485 EOL Resistor – Built-in
- RS-485 Baud Rates – 9600, 19200, 38400, or 76800 bps
- RS-485 Addressing – Controller's Web Configuration Interface

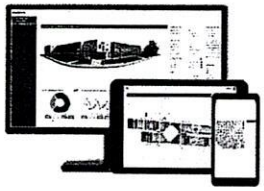
Supported Wireless Connectivity:

- Wireless Adapter – USB Port Connection
- Wi-Fi Communication Protocol – IEEE 802.11b/g/n
- Wi-Fi Network Types – Client, Access Point, Hotspot

© 2014-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 11/30/21

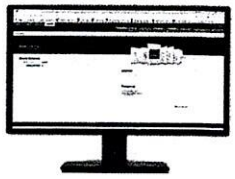
SYSTEM ARCHITECTURE

The nLight ECLYPSE serves as the backbone for nLight and nLight AIR digital lighting networks. The nLight ECLYPSE provides networked devices with schedule management and remote software programming via SensorView web-based software. The backbone also provides support for system-wide controls such as master override switches, automated demand response, and BACnet integration. One nLight ECLYPSE is capable of handling up to 750 total devices and up to 128 global channels for the entire network. The nLight ECLYPSE is also compatible with other Distech ECLYPSE products, offering a full suite of BAS capabilities.

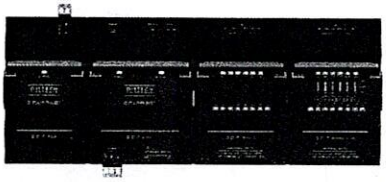


ENVYSION
Lighting Control and Visualization

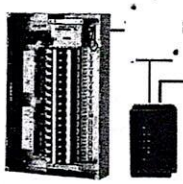
Space Utilization
Edge Application

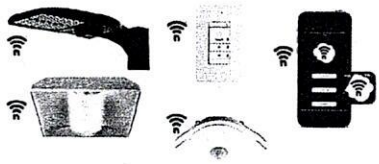


SensorView
Lighting Configuration



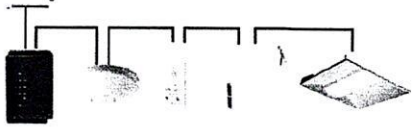
Distech ECLYPSE®
BMS/HVAC Controller





nLight® AIR Wireless Controls

nLight®



nLight network connects to nECY via onboard nLight port.
nLight AIR network connects to nECY via nECYD NLTAIR G2 adapter (connected to nECY USB port).

HVAC Integration with ECLYPSE and Third Party Controllers

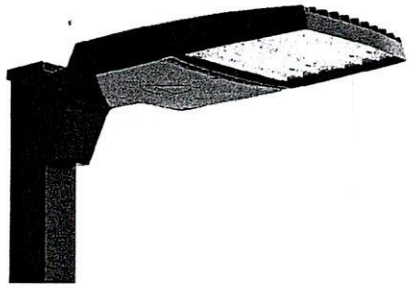
Lighting Management and Control Through Web Applications

Connection with nLight Wired and nLight AIR Devices

EXAMPLE NLIGHT ECLYPSE NOMENCLATURE AND OPTIONS

Example Nomenclature	Connection to Wired Devices	Maximum of 150 Wireless Devices	Maximum of 750 Wireless Devices	All License Options Available (BAC, SVS, SVEA)
NECY MVOLT ENC	✓	No AIR Adapter	No AIR Adapter	✓
NECY MVOLT ENC + NECYD NLTAIR G2	✓	Not Limited at 150	✓	✓
NECY MVOLT ENC AIR	No Wired Interface Module	✓	Reduced Capability	✓
NECY MVOLT ENC AIR + NECYREPLY INTF	✓	Not Limited at 150	✓	✓

© 2014-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 11/30/21



RSX2 LED
Area Luminaire

Buy American

Catalog Number

Notes

Type

Hit the tab key or mouse over the page to see all interactive elements.

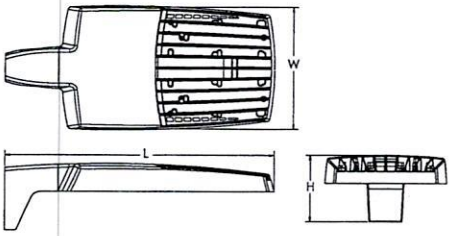
Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

Specifications

EPA (ft²@0°):	0.69 ft² (0.06 m²)
Length:	29.3" (74.4 cm) (SPA mount)
Width:	13.4" (34.0 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight: (SPA mount)	30.0 lbs (13.6 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX2 LED	P1 P2 P3 P4 P5 P6	30K 3000K 40K 4000K 50K 5000K	R2 Type 2 Wide R3 Type 3 Wide R3S Type 3 Short R4 Type 4 Wide R4S Type 4 Short R5 Type 5 Wide [1] R5S Type 5 Short [1] AFR Automotive Front Row AFRR90 Automotive Front Row Right Rotated AFRL90 Automotive Front Row Left Rotated	MVOLT (120V-277V) [2] HVOLT (347V-480V) [3] XVOLT (277V-480V) [4] **(use specific voltage for options as noted)** 120 [3] 277 [5] 208 [3] 347 [5] 240 [3] 480 [5]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°) RPA Round pole mounting (3.2" min. dia. RND pole for 2, 3, 4 at 90°, 3.0" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°) MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8" OD tenon) [6] WBA Wall bracket [1] WBASC Wall bracket with surface conduit box AASP Adjustable tilt arm square pole mounting [6] AARP Adjustable tilt arm round pole mounting [6] AAWB Adjustable tilt arm with wall bracket [6] AAWSC Adjustable tilt arm wall bracket and surface conduit box [6]

Options

Shipped Installed

HS	House-side shield [7]
PE	Photocontrol, button style [8,9]
PEX	Photocontrol external threaded, adjustable [9,10]
PER7	Seven-wire twist-lock receptacle only (no controls) [9,11,12,13]
CE34	Conduit entry 3/4" NPT (Qty 2)
SF	Single fuse (120, 277, 347) [5]
DF	Double fuse (208, 240, 480) [5]
SPD20KV	20KV Surge pack (10KV standard)
FAO	Field adjustable output [9,13]
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) [9,13]
DS	Dual switching [9,14]

Shipped Installed

***Standalone and Networked Sensors/Controls (factory default settings, see table page 9)**

NLTAIR2	nLight AIR generation 2 [13,15,16]
PIRHN	Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [13,16,17]
BAA	Buy America(n) Act Compliant

***Note: PIRHN with nLight Air can be used as a standalone dimming sensor with out-of-box settings or as a wireless networked solution. See factory default settings table. Sensor coverage pattern is affected when luminaire is tilted.**

Shipped Separately (requires some field assembly)

EGS	External glare shield [6]
EGFV	External glare full visor (360° around light aperture) [7]
BS	Bird spikes [18]

Finish

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured Dark Bronze
DBLBXD	Textured Black
DNATXD	Textured Natural Aluminum
DWHGXD	Textured White

© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

Ordering Information

Accessories

Ordered and shipped separately.

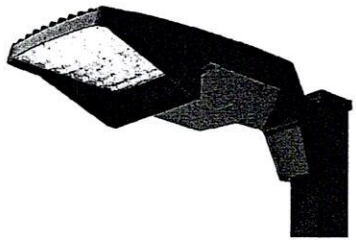
RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS (FINISH) U	External glare shield (specify finish)
RSX2HSAFRR (FINISH) U	RSX2 House side shields for AFR rotated optics (includes 2 shields)
RSX2EGFV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (specify finish)
RSXWBA (FINISH) U	RSX WBA wall bracket (specify finish) [1]
RSX5CB (FINISH) U	RSX Surface conduit box (specify finish, for use with WBA, WBA not included)
DLL127F 1.5 JU	Photocell -SSL twist-lock (120-277V) [19]
DLL347F 1.5 CUL JU	Photocell -SSL twist-lock (347V) [19]
DLL480F 1.5 CUL JU	Photocell -SSL twist-lock (480V) [19]
DSHORT SBK U	Shorting cap [19]

NOTES

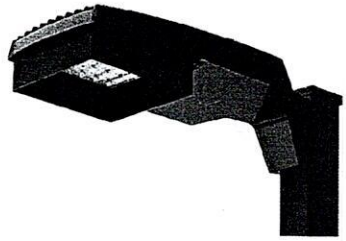
1 Any Type 5 distribution, is not available with WBA.
2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
4 XVOLT driver not available with P1. XVOLT driver operates on any line voltage from 277V-480V (50/60 Hz). XVOLT not available with fusing (SF or DF) and not available with PE or PEX.
5 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
6 Maximum tilt is 90° above horizontal.
7 It may be ordered as an accessory.
8 Requires MVOLT or 347V.
9 Not available in combination with other light sensing control options (following options cannot be combined: PE, PEX, PER7, FAO, DMG, DS, PIRHN).
10 Requires 120V, 208V, 240V, or 277V.
11 Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
12 For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
13 Two or more of the following options cannot be combined including DMG, DS, PER7, FAO and PIRHN.
14 DS only available on performance package P5 and P6.
15 Must be ordered with PIRHN.
16 Requires MVOLT or HVOLT.
17 Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
18 Must be ordered with fixture for factory pre-drilling.
19 Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

External Shields

House Side Shield



External Glare Shield

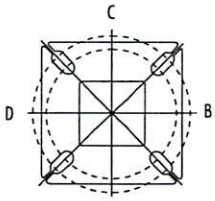


External 360 Full Visor

Pole/Mounting Informatiion

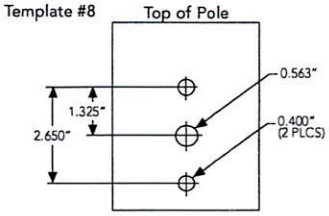
Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

HANDHOLE ORIENTATION

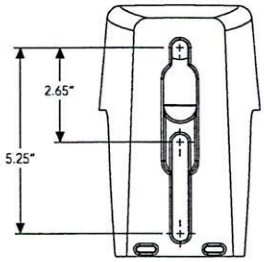


RSX POLE DRILLING

Template #8



RSX STANDARD ARM & ADJUSTABLE ARM



Round Tenon Mount - Pole Top Slipfitters

Tenon O.D.	RSX Mounting	Single	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2 - 3/8"	RPA, AARP	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 320	AS3-5 390	AS3-5 490
2 - 7/8"	RPA, AARP	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	RPA, AARP	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Drill/Side Location by Configuration Type

Drilling Template	Mounting Option	Single	2 @ 180	2 @ 90	3 @ 120	3 @ 90	4 @ 90
	Head Location	Side B	Side B & D	Side B & C	Round Pole Only	Side B, C & D	Side A, B, C & D
#8	**Drill Nomenclature**	DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

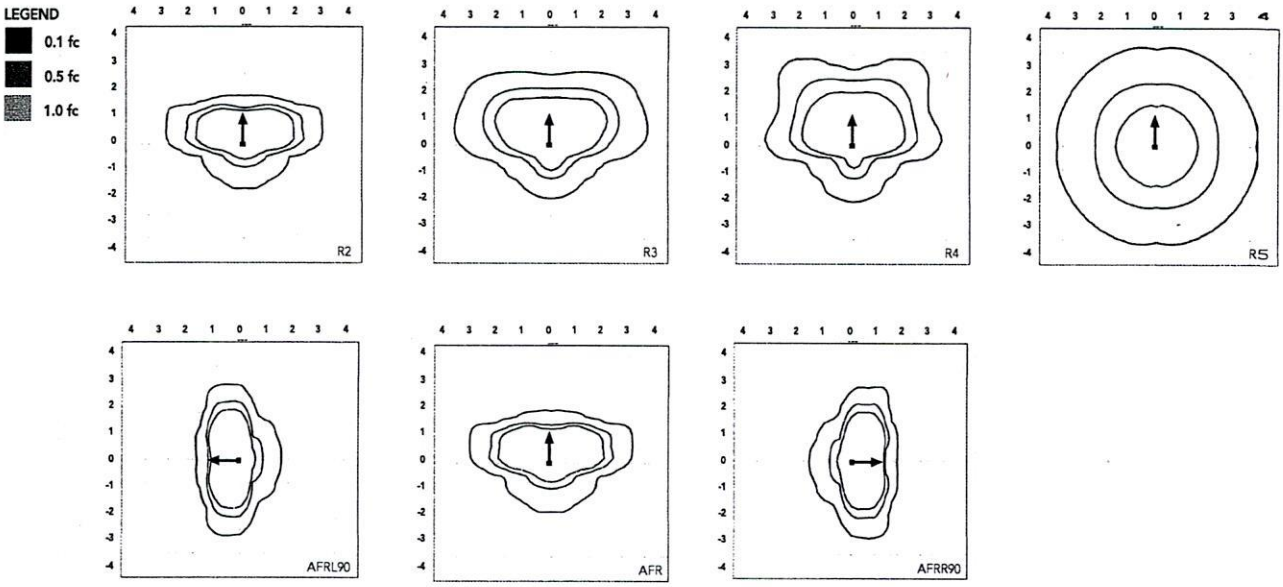
Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	**Tilt**									
SPA - Square Pole Adaptor	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adaptor		0.74	1.27	1.37	1.9	1.71	2.49	1.42	2.16	2.84
MA - Mast Arm Adaptor		0.61	1.14	1.11	1.64	1.45	2.23	1.29	1.9	2.58
IS - Integral Slipfitter AASP/AARP - Adjustable Arm Square/Round Pole	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.70	11.56	15.41

© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX2 LED P6 40K. Distances are in units of mounting height (30').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	71W	0.59	0.34	0.30	0.26	0.20	0.15
P2	111W	0.93	0.53	0.46	0.40	0.32	0.23
P3	147W	1.23	0.70	0.61	0.53	0.42	0.31
P4	187W	1.55	0.90	0.78	0.68	0.53	0.38
P5	210W	1.75	1.01	0.87	0.76	0.60	0.44
P6	244W	2.03	1.17	1.01	0.88	0.70	0.51

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

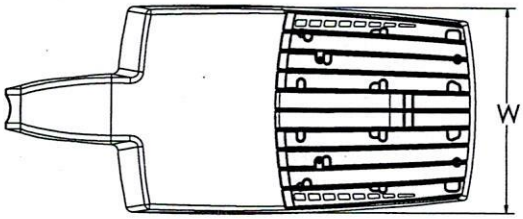
Performance Package	System Watts	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	71W	R2	10,040	2	0	1	139	11,031	2	0	1	153	11,031	2	0	1	153
		R3	10,005	2	0	2	141	10,992	2	0	2	155	10,992	2	0	2	155
		R3S	10,271	2	0	2	143	11,285	2	0	2	157	11,285	2	0	2	157
		R4	10,136	2	0	2	143	11,136	2	0	2	157	11,136	2	0	2	157
		R4S	9,779	2	0	2	138	10,744	2	0	2	151	10,744	2	0	2	151
		R5	10,271	4	0	2	145	11,285	4	0	2	159	11,285	4	0	2	159
		R5S	10,544	3	0	1	149	11,585	3	0	2	163	11,585	3	0	2	163
		AFR	10,026	2	0	1	141	11,016	2	0	1	155	11,016	2	0	1	155
		AFRR90	10,122	3	0	2	140	11,121	3	0	2	154	11,121	3	0	2	154
		AFRL90	10,164	3	0	2	141	11,167	3	0	2	155	11,167	3	0	2	155
P2	111W	R2	15,712	2	0	2	138	17,263	2	0	2	151	17,263	2	0	2	151
		R3	15,657	2	0	3	141	17,202	3	0	3	155	17,202	3	0	3	155
		R3S	16,075	2	0	2	141	17,661	2	0	2	155	17,661	2	0	2	155
		R4	15,862	2	0	3	143	17,427	2	0	3	157	17,427	2	0	3	157
		R4S	15,304	2	0	2	138	16,815	2	0	2	151	16,815	2	0	2	151
		R5	16,075	4	0	2	145	17,661	5	0	3	159	17,661	5	0	3	159
		R5S	16,502	4	0	2	149	18,130	4	0	2	163	18,130	4	0	2	163
		AFR	15,691	2	0	2	141	17,240	2	0	2	155	17,240	2	0	2	155
		AFRR90	15,841	3	0	3	139	17,404	4	0	3	153	17,404	4	0	3	153
		AFRL90	15,907	3	0	3	139	17,477	4	0	3	153	17,477	4	0	3	153
P3	147W	R2	19,855	3	0	2	132	21,814	3	0	2	145	21,814	3	0	2	145
		R3	19,785	3	0	3	135	21,737	3	0	4	148	21,737	3	0	4	148
		R3S	20,312	3	0	3	135	22,317	3	0	3	149	22,317	3	0	3	149
		R4	20,044	3	0	3	136	22,022	3	0	4	150	22,022	3	0	4	150
		R4S	19,339	3	0	3	132	21,247	3	0	3	145	21,247	3	0	3	145
		R5	20,313	5	0	3	138	22,317	5	0	3	152	22,317	5	0	3	152
		R5S	20,852	4	0	2	142	22,910	4	0	2	156	22,910	4	0	2	156
		AFR	19,828	3	0	2	135	21,785	3	0	2	148	21,785	3	0	2	148
		AFRR90	20,017	4	0	3	133	21,992	4	0	3	147	21,992	4	0	3	147
		AFRL90	20,101	4	0	3	134	22,084	4	0	3	147	22,084	4	0	3	147
P4	187W	R2	22,836	3	0	2	120	25,090	3	0	2	132	25,090	3	0	2	132
		R3	22,756	3	0	4	122	25,002	3	0	4	134	25,002	3	0	4	134
		R3S	23,363	3	0	3	123	25,668	3	0	3	135	25,668	3	0	3	135
		R4	23,054	3	0	4	123	25,329	3	0	4	135	25,329	3	0	4	135
		R4S	22,243	3	0	3	119	25,059	3	0	3	134	25,059	3	0	3	134
		R5	23,363	5	0	3	125	25,669	5	0	4	137	25,669	5	0	4	137
		R5S	23,983	4	0	2	128	26,350	4	0	2	141	26,350	4	0	2	141
		AFR	22,806	3	0	2	122	25,056	3	0	2	134	25,056	3	0	2	134
		AFRR90	23,023	4	0	3	121	25,295	4	0	3	133	25,295	4	0	3	133
		AFRL90	23,120	4	0	3	122	25,401	4	0	3	134	25,401	4	0	3	134
P5	210W	R2	26,141	3	0	2	122	28,721	3	0	2	135	28,721	3	0	2	135
		R3	26,049	3	0	4	124	28,620	3	0	4	136	28,620	3	0	4	136
		R3S	26,744	3	0	3	125	29,383	3	0	4	138	29,383	3	0	4	138
		R4	26,390	3	0	4	126	28,994	3	0	4	138	28,994	3	0	4	138
		R4S	25,462	3	0	3	121	27,974	3	0	3	133	27,974	3	0	3	133
		R5	26,744	5	0	4	127	29,383	5	0	4	140	29,383	5	0	4	140
		R5S	27,454	4	0	2	131	30,163	4	0	2	144	30,163	4	0	2	144
		AFR	26,106	3	0	2	124	28,682	3	0	2	137	28,682	3	0	2	137
		AFRR90	26,354	4	0	3	123	28,955	5	0	3	136	28,955	5	0	3	136
		AFRL90	26,465	4	0	3	124	29,077	5	0	3	136	29,077	5	0	3	136
P6	244W	R2	27,646	3	0	2	112	30,374	3	0	2	123	30,374	3	0	2	123
		R3	27,549	3	0	4	113	30,267	3	0	4	124	30,267	3	0	4	124
		R3S	28,283	3	0	3	115	31,075	3	0	4	126	31,075	3	0	4	126
		R4	27,909	3	0	4	114	30,663	3	0	4	126	30,663	3	0	4	126
		R4S	26,928	3	0	3	110	29,585	3	0	3	121	29,585	3	0	3	121
		R5	28,284	5	0	4	116	31,075	5	0	4	127	31,075	5	0	4	127
		R5S	29,035	4	0	2	119	31,900	5	0	3	131	31,900	5	0	3	131
		AFR	27,608	3	0	2	112	30,332	3	0	2	123	30,332	3	0	2	123
		AFRR90	27,872	4	0	3	113	30,622	5	0	3	124	30,622	5	0	3	124
		AFRL90	27,989	4	0	3	113	30,751	5	0	3	125	30,751	5	0	3	125

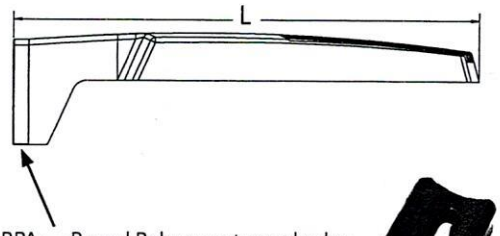
© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

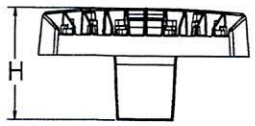
Luminaire Weight by Mounting Type

Mounting Configuration	Total Luminaire Weight
SPA	30 lbs
RPA	32 lbs
MA	30 lbs
WBA	33 lbs
WBASC	36 lbs
IS	33 lbs
AASP	33 lbs
AARP	35 lbs
AAWB	36 lbs
AAWSC	39 lbs

RSX2 with Round Pole Adapter (RPA)



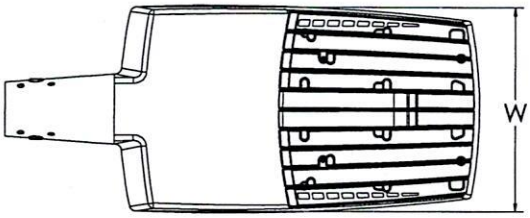


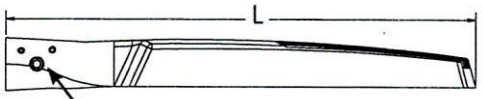


Length: 30.3" (77.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.3 cm) Arm

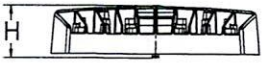
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

RSX2 with Mast Arm Adapter (MA)



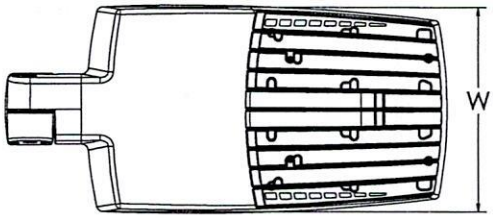


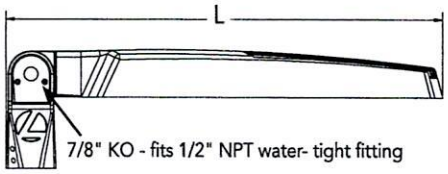
7/16" locking thru bolt/nut provided



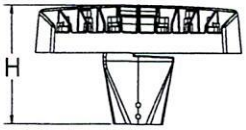
Length: 30.6" (77.7 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

RSX2 with Adjustable Slipfitter (IS)





7/8" KO - fits 1/2" NPT water- tight fitting

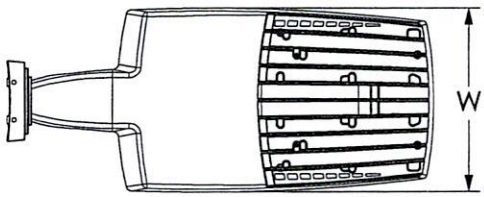


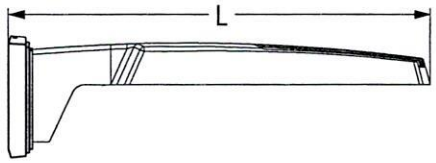
Length: 28.3" (71.9 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

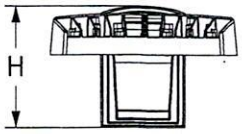
© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

Dimensions

RSX2 with Wall Bracket (WBA)

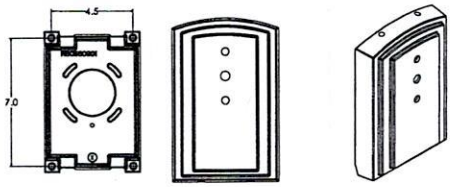




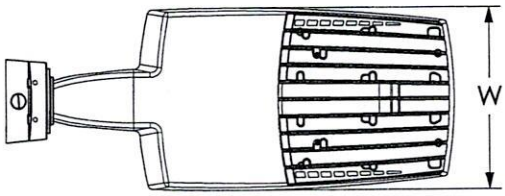


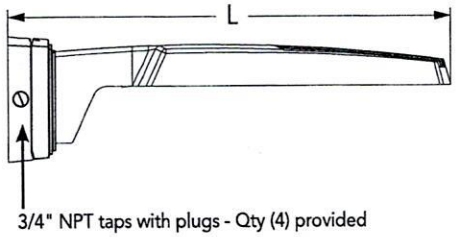
Length: 31.2" (79.2 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

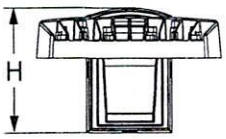
Wall Bracket (WBA) Mounting Detail



RSX2 with Wall Bracket with Surface Conduit Box (WBASC)

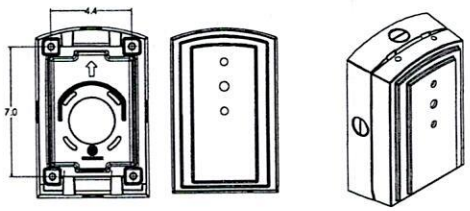






Length: 32.8" (83.3 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

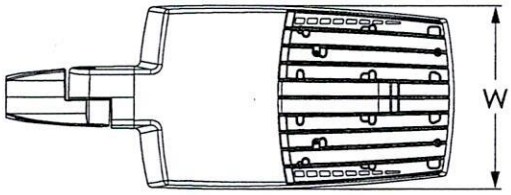
Surface Conduit Box (SCB) Mounting Detail

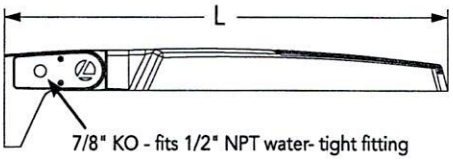


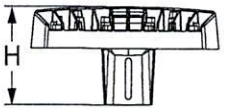
© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

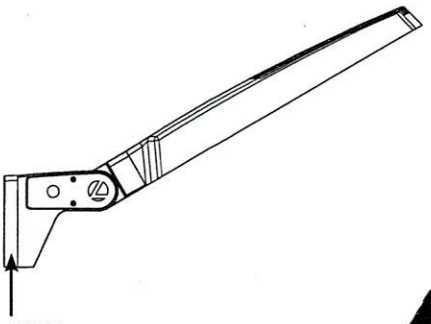
Dimensions

RSX2 with Adjustable Tilt Arm - Square or Round Pole (AASP or AARP)









Length: 32.8" (83.3 cm) **AASP**
33.8" (85.9 cm) **AARP**
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.2 cm) Arm

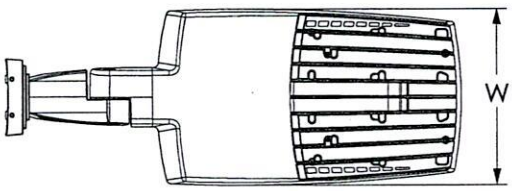
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

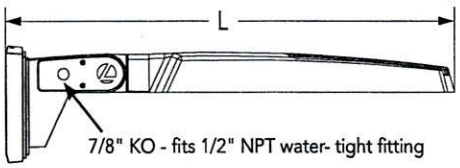
Notes

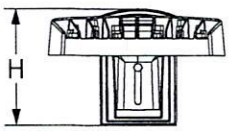
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.

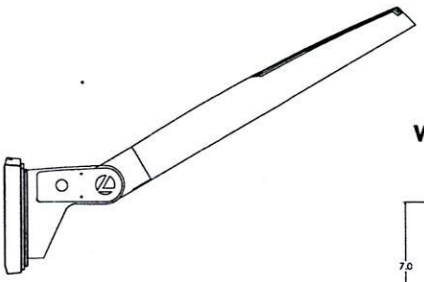
AARP: Requires 3.2" min. dia. round pole for 2, 3, 4 at 90°. Requires 3.0" min. dia. round pole for mounting 1 at 90°, 2 at 180°, 3 at 120°.

RSX2 with Adjustable Tilt Arm with Wall Bracket (AAWB)

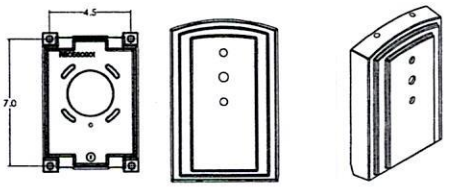








Wall Bracket (WBA) Mounting Detail

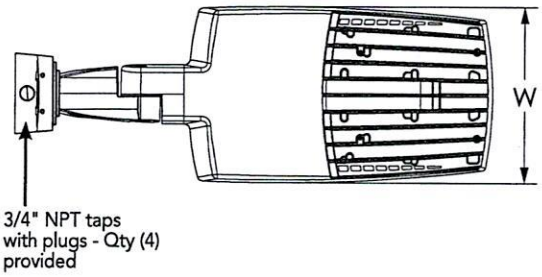


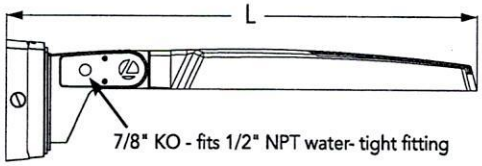
Length: 34.7" (88.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

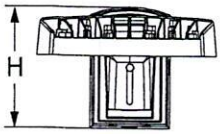
© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

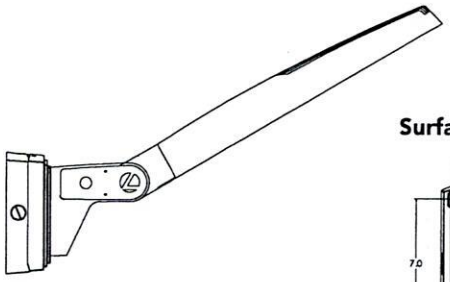
Dimensions

RSX2 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)



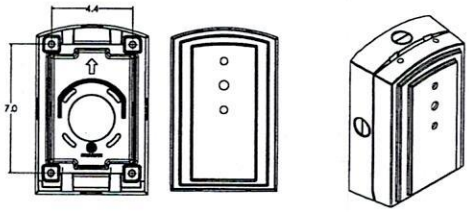




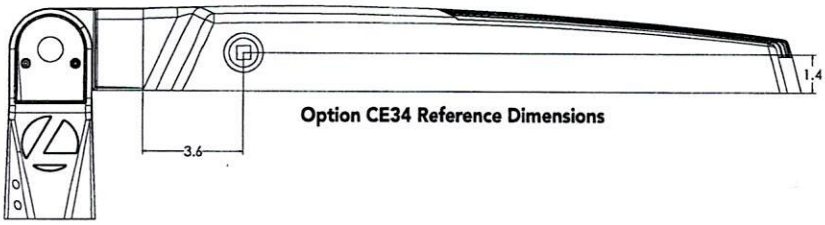


Length: 36.2" (91.9 cm)
Width: 13.4" (40.0 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

Surface Conduit Box (SCB) Mounting Detail

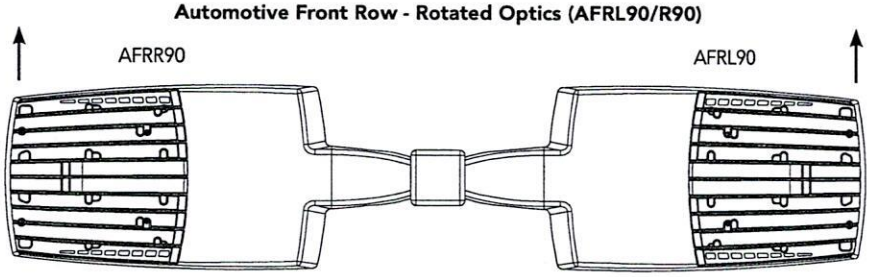


Additional Reference Drawings



Option CE34 Reference Dimensions

Automotive Front Row - Rotated Optics (AFRL90/R90)

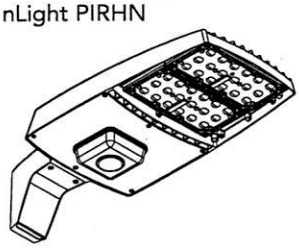


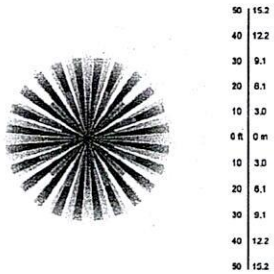
(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

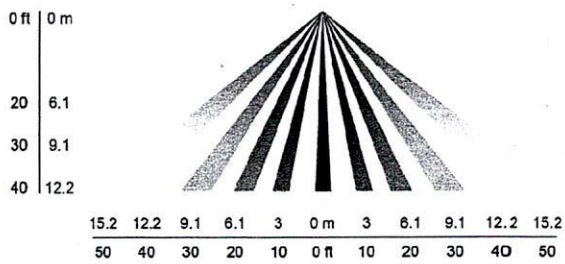
nLight Control - Sensor Coverage and Settings

NLTAIR2 PIRHN nLight
Sensor Coverage Pattern
nLight PIRHN





Top



Side

Motion Sensor Default Settings - Option PIRHN						
Option	Dimmed State (unoccupied)	High Level (when occupied)	Photocell Operation	Dwell Time (occupancy time delay)	Ramp-up Time (from unoccupied to occupied)	Ramp-down Time (from occupied to unoccupied)
NLTAIR2 PIRHN	Approx. 30% Output	100% Output	Enabled @ 1.5FC	7.5 minutes	3 seconds	5 minutes

*Note: NLTAIR2 PIRHN default settings including photocell set-point, high/low dim rates, and occupancy sensor time delay are all configurable using the Clairity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is titled.

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX2 delivers 11,000 to 31,000 lumens and is ideal for replacing 250W to 1000W HID pole-mounted luminaires in parking lots and other area lighting applications.

CONSTRUCTION AND DESIGN
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. Vibration rated per ANSI C136.31: 3G Mountings: Include SPA, RPA, MA, IS, AASP, AARP rated for 3G vibration. 1.5G Mountings: Include WBA, WBASC, AAWB and AAWSC rated for 1.5G vibration.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 2, Type 3, Type 3S, Type 4, Type 4S, Type 5, Type 5S, AFR (Automotive Front Row) and AFR rotated AFRR90 and ARFL90.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing with photocontrol functionality and is suitable for mounting heights up to 40 feet. No commissioning is required when using factory default settings that provide basic stand-alone motion occupancy dimming that is switched on and off with a built-in photocell. See chart above for motion sensor default out-of-box settings. For more advanced wireless functionality, such as group dimming, nLight AIR can be commissioned using a smartphone and the easy-to-use CLAIRITY app. nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Note, the RPA mount can also be used for mounting to square poles by omitting the RPA adapter plate. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slipfitter has an integral junction box and offers easy installation. Can be tilted up to 90° above horizontal. Additional mountings are available including a wall bracket, adjustable tilt arm for direct-to-pole and wall and a surface conduit box for wall mount applications.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. US Patent No. D882, 146S

BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

© 2011-2021 Acuity Brands Lighting, Inc. All rights reserved.

VCPG LED
Parking Garage

Buy American

Catalog Number

Notes

Type

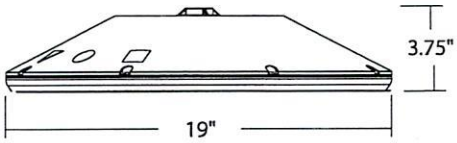
Hit the Tab key or mouse over the page to see all interactive elements

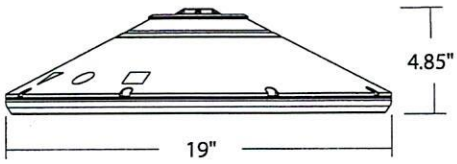
Specifications

Diameter: 19"

Height: 3.75" (4.85" with Up-Light)

Weight (max, with no options): 18 lbs





A+ Capable options indicated by this color background.

Introduction

The all new VCPG LED (Visually Comfortable Parking Garage) luminaire is designed to bring glare control, optical performance and energy savings into one package. The recessed lens design of VCPG LED minimizes high angle glare, while its precision molded acrylic lens eliminates LED pixilation and delivers the required minimums, verticals and uniformity. The dedicated up-light module option reduces the contrast between the luminaire and the ceiling creating a more visually comfortable environment.

The VCPG LED delivers up to 87% in energy savings when replacing 175W metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the VCPG LED luminaire provides significant maintenance savings over traditional luminaires.

Ordering Information

EXAMPLE: VCPG LED V4 P4 40K 70CRI T5M MVOLT SRM DNAXD

VCPG LED

Series	LED Light Engines	Package	Color temperature	Color Rendering Index	Distribution	Voltage		Mounting
VCPG LED	V4[1] 4 Light Engines V8[1] 8 Light Engines	P1[1] P2[1] P3[1] P4[1] P5[1] P6[1] P7[1]	30K 3000 K 35K 3500 K 40K 4000 K 50K 5000 K	70CRI 80CRI	T5M Type V, medium T5R[2] Type V, rectangular T5W Type V, wide T5E Type V entry LANE[2] Drive lane	MVOLT 347 480	For ordering with fuse 120 208 240 277 347 480	**Shipped included** PM Pendant mount standard (24-inch length supply leads) SRM Surface mount (24-inch length supply leads) ARM Arm mount (use RSXWBA accessory to mount to a wall) **Shipped separately** YK Yoke/trunnion mount[3]

Options

Shipped installed

UPL1	Up-Light: 500 lumens
UPL2	Up-Light: 700 lumens
E8WC	Emergency battery backup, Certified in CA Title 20 MAEDBS (8W, -20°C min)[4,5,6]
E10WH	Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C min)[4,5,6]
HA	High ambient (50°C, only P1-P4)
SF	Single fuse (120V, 277V, 347V)
DF	Double fuse (208V, 240V, 480V)
SPD10KV	10KV Surge Pack
LDS36	36in (3ft) lead length
LDS72	72in (6ft) lead length
LDS108	108in (9ft) lead length
DMG	External 0-10V leads (no controls)[7]

Shipped Separately

WG	Wire Guard
BDS	Bird Shroud[8]
HS	House Side Shield

Standalone Sensors/Controls[2]

PIR	Motion/ambient sensor for 8-15' mounting heights
PIRH	Motion/ambient sensor for 15-30' mounting heights
PIR3FC3V	Motion/ambient sensor for 8-15' mounting heights, pre programmed to 3fc and 35% light output
PIRH3FC3V	Motion/ambient sensor for 15-30' mounting heights, pre programmed to 3fc and 35% light output
PIR3FC3V924	UL924 Listed motion/ambient sensor for emergency circuit for 8-15' mounting heights, pre programmed to 3fc and 35% light output[9]
PIRH3FC3V924	UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre programmed to 3fc and 35% light output[9]

Networked Sensors/Controls[2]

NLTAIR2 PIR	nLIGHT AIR Wireless enabled motion/ambient sensor for 8-15' mounting heights
NLTAIR2 PIRH	nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights
NLTAIR2 PIR924	nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 8-15' mounting heights[10]
NLTAIR2 PIRH924	nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 15-30' mounting heights[10]

Finish

DWHXD	White
DNAXD	Natural aluminum
DDBXD	Dark bronze
DBLXD	Black

© 2012-2021 Acuity Brands Lighting, Inc. All rights reserved.

Ordering Information Cont.

Accessories

Ordered and shipped separately.

VCPGBDS DWHXD U	Bird shroud for PM (specify finish)
VCPGBDS YK DWHXD U	Bird shroud for YK (specify finish)
VCPGUBDS DWHXD U	Bird shroud for PM with Up-Light (specify finish)
VCPGUBDS YK DWHXD U	Bird shroud for YK with Up-Light (specify finish)
VCPGSRM U	Surface mount kit, with no Up-Light
VCPGUSRM U	Surface mount kit, with Up-Light
VCPGWG U	Wire guard
SLVSQ	Quick mount pendant swivel kit, square
SLVRD	Quick mount pendant swivel kit, round
VCPG YK DWHXD U	Yoke mount kit (specify finish)
RSXWBA DWHXD U	RSX WBA wall bracket (specify finish)

NOTES

1 P1-P6 not available with V8. P7 not available with V4.
2 Not available with P7.
3 Only vertical height adjustment. No angle adjustment. Use PM and SLVSQ or SLVRD for mounting to angled ceiling or canopies.
4 Not available with 347V or 480V.
5 E8WC and E10WH only rated up to 35°C ambient.
6 E8WC & E10WH only available with P1-P4 packages.
7 DMG option not available with standalone or networked sensors/controls.
8 BDS not available with UPL1 or UPL2.
9 Power interruption delay >30 milliseconds required for operation. Refer sequence of operations on page 4 for more details.
10 Not available with P6 & P7. Power interruption delay >200 milliseconds required for operation. Refer sequence of operations on page 4 for more details.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	Watts	Distribution Type	30K (3000K, 70 CRI)		35K (3500K, 70 CRI)		40K (4000K, 70 CRI)		50K (5000K, 70 CRI)	
			Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
P1	27W	T5E	3,581	135	3,670	138	3,815	144	3,876	146
		T5M	3,620	136	3,710	140	3,856	145	3,917	147
		T5W	3,592	135	3,681	139	3,827	144	3,888	146
		T5R	3,464	130	3,550	134	3,690	139	3,749	141
		LANE	3,507	132	3,594	135	3,736	141	3,796	143
P2	34W	T5E	4,577	135	4,691	138	4,876	144	4,954	146
		T5M	4,626	136	4,741	140	4,928	145	5,007	147
		T5W	4,591	135	4,705	139	4,891	144	4,968	146
		T5R	4,427	130	4,537	134	4,716	139	4,791	141
		LANE	4,482	132	4,594	135	4,775	141	4,851	143
P3	43W	T5E	5,808	134	5,952	137	6,187	143	6,286	145
		T5M	5,870	135	6,015	139	6,253	144	6,353	146
		T5W	5,825	134	5,970	138	6,205	143	6,304	145
		T5R	5,617	130	5,757	133	5,984	138	6,079	140
		LANE	5,688	131	5,829	134	6,059	140	6,155	142
P4	56W	T5E	7,391	131	7,575	135	7,874	140	7,999	142
		T5M	7,470	133	7,656	136	7,958	141	8,085	144
		T5W	7,414	132	7,597	135	7,898	140	8,023	143
		T5R	7,149	127	7,326	130	7,615	135	7,737	137
		LANE	7,238	129	7,418	132	7,711	137	7,834	139
P5	82W	T5E	10,189	124	10,442	127	10,854	132	11,027	134
		T5M	10,298	125	10,553	128	10,970	134	11,145	136
		T5W	10,220	124	10,473	128	10,887	133	11,060	135
		T5R	9,855	120	10,099	123	10,498	128	10,665	130
		LANE	9,978	121	10,226	124	10,629	129	10,799	131
P6	108W	T5E	12,878	120	13,197	123	13,719	127	13,937	129
		T5M	13,015	121	13,338	124	13,865	129	14,086	131
		T5W	12,917	120	13,237	123	13,760	128	13,979	130
		T5R	12,455	116	12,764	119	13,268	123	13,480	125
		LANE	12,611	117	12,924	120	13,435	125	13,649	127
P7	122W	T5E	15,503	125	15,887	128	16,515	133	16,778	135
		T5M	15,668	126	16,057	129	16,691	135	16,957	137
		T5W	15,549	125	15,935	129	16,564	134	16,828	136

Up-light Lumen Output

Up-light Option	Watts	Lumens
UPL1	6.5W	519
UPL2	8.5W	715

Lumen Multiplier for 80CRI

CCT	Multiplier
30K	0.926
35K	0.945
40K	0.967
50K	0.965

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.97	0.94	0.89

Electrical Load

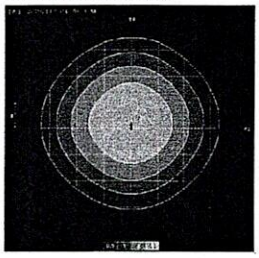
Power Package	System Watts	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	27W	0.22	0.13	0.12	0.10	0.08	0.06
P2	34W	0.28	0.16	0.14	0.13	0.10	0.08
P3	43W	0.37	0.21	0.18	0.16	0.13	0.09
P4	56W	0.48	0.28	0.24	0.21	0.16	0.12
P5	82W	0.68	0.40	0.35	0.30	0.24	0.18
P6	108W	0.91	0.52	0.45	0.39	0.32	0.23
P7	124W	1.03	0.59	0.51	0.44	0.37	0.27

© 2012-2021 Acuity Brands Lighting, Inc. All rights reserved.

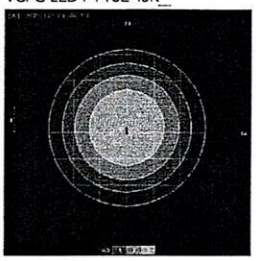
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting VCPG LED homepage.
Tested in accordance with IESNA LM-79 and LM-80 standards

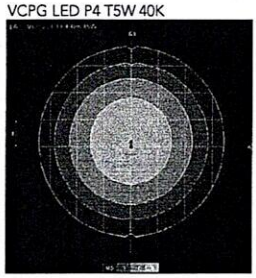
VCPG LED P4 T5M 40K



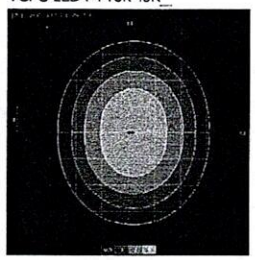
VCPG LED P4 T5E 40K



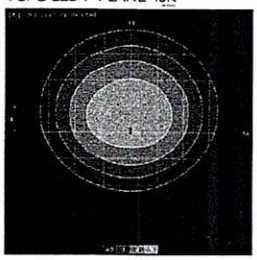
VCPG LED P4 T5W 40K



VCPG LED P4 T5R 40K



VCPG LED P4 LANE 40K



Control/Sensor Options

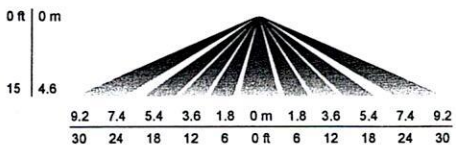
Motion/Ambient Sensor (PIR_, PIRH)

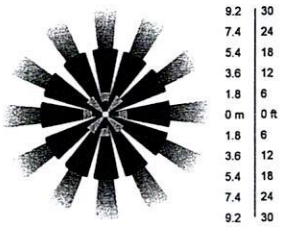
Motion/Ambeint sensor (Sensor Switch MSOD) is integrated into the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CLAIRITY™ Pro) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

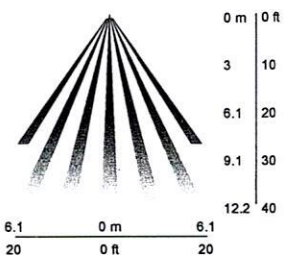
PIR HIGH VIEW



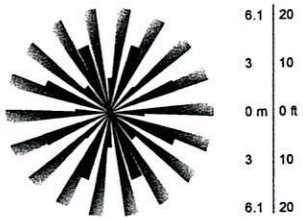


PIRH

SIDE VIEW



TOP VIEW



Motion/Ambient Sensor Default Settings

Option	Dim Level	High Level (when triggered)	Photocell: Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR3FC3V or PIRH3FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 3fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec

Sequence of Operations for UL924 Listed Controls/Sensors (PIR3FC3V924, PIRH3FC3V924, XAD924, NLTAIR2 PIR924, NLTAIR2 PIRH924)

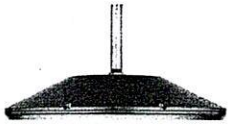
The UL924 listed control/sensor ("device") is designed to provide full light output for 90 minutes following power loss ("Egress Mode"), ignoring both manual and automatic dimming/occupancy/daylight control signals during this time. The sequence of operations is as follows:

- Normal condition: device can dim and turn off the luminaire as normal, in response to automatic and manual control.
- Utility power fails, and luminaire loses power.
- Backup power source activates, transfer switch moves the emergency circuit powering the luminaire onto the backup source, and luminaire regains power.
- The device detects this power interruption, if it is >30ms (for PIR3FC3V924, PIRH3FC3V924, XAD924) or >200ms (for NLTAIR2 PIR924, NLTAIR2 PIRH924).
- The device ignores all dimming commands and controls the driver to full light output for 90 minutes.
- The device resumes normal dimming controls after 90 minutes.

These UL924 listed controls/sensors are not intended for use with Non-interruptible central emergency power systems. The power interruption, when transferring from normal utility power to emergency backup power, is required for the controller to activate its Egress Mode and provide full light output.

© 2012-2021 Acuity Brands Lighting, Inc. All rights reserved.

Mounting, Options & Accessories



PM – Pendant Mount
(compatible with ¾ NPT, pendant stem provided by others)

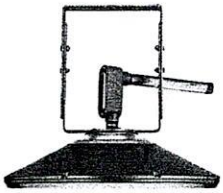
D = 19"
H = 4.1"

SRM – Surface Mount

D = 19"
H = 4.1"

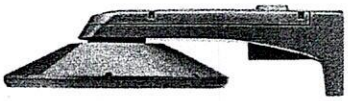
SRM – Surface Mount with Up-Light

D = 19"
H = 5.3"



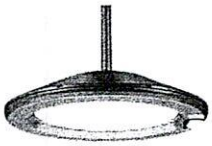
YK – Yoke/Trunnion Mount

D = 19"
H (Yoke) = 10"-18"



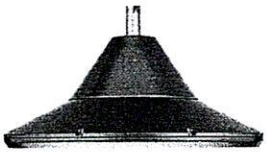
ARM – Arm Mount

L = 28"
W = 19"
H = 8"



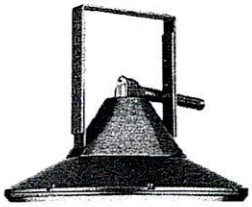
PIR & PIRH – Motion/ Ambient sensor

D = 19"
H = 4.6" (no up-light)
or 5.6" (with up-light)



BDS – Bird shroud for pendant mount

D = 19"
H = 8"

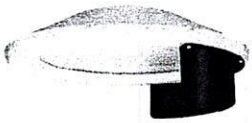


BDS – Bird shroud for yoke mount

D = 19"
H (Yoke) = 10"-18"

WG – Wire guard

D = 19"
H = 4.9" (no uplight)
or 5.9" (with up-light)



HS – House side shield

D = 19"
H = 7.1" (no up-light) or
8.1" (with up-light)

FEATURES & SPECIFICATIONS

INTENDED USE
The visually comfortable optics, energy savings, and long life of the VCPG LED Parking Garage luminaire make it an ideal choice for new commercial installations and retrofit parking garage opportunities. It is designed to meet or exceed recommended illuminance criteria when installed as a direct replacement of most HID parking garage luminaires. Its modern dayform and aesthetics also make it appealing for indoor low-bay applications.

CONSTRUCTION
Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is separated from the heat generating light engines and mounted in direct contact with the casting to promote low operating temperatures, higher lumen maintenance and long life. The housing is completely sealed against moisture and environmental contaminants (IP66) and is suitable for hose-down application.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Light guide technology provides a diffused light source, reducing glare from direct view of the LEDs. The light source is recessed into the luminaire, further reducing the high angle glare from the luminaire. A combination of precision molded micro prismatic acrylic lenses and back reflectors provide five different photometric distributions tailored specifically to parking garage applications. Up-light option comes with a dedicated light engine and custom optic designed to efficiently spread light on to the ceiling, thus reducing the cave effect.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L89/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%, and a minimum 6.0 KV surge rating. When ordering the SPD10KV option, a separate 10kV (5kA) surge protection device is installed within the luminaire which meets a minimum Category C low operation (per ANSI/IEEE C62.41.2). Luminaire is 0-10V dimmable down to 10% or lower.

INSTALLATION
Standard configuration accepts a rigid or free-swinging 3/4" NPT stem for pendant mounting. The surface mount option attaches to a 4x4" recessed or surface mount outlet box using a quick-mount kit (included); kit contains galvanized steel luminaire and outlet box plates and a full pad gasket. Kit has an integral mounting support that allows the luminaire to hinge down for easy electrical connections. Luminaire and plates are secured with set screws. Also, available with a yoke/trunnion mount option with 3/4" NPT provision for flexible conduit entry (conduit by others); height can be adjusted from 10-18". Supply leads are 24" in length as standard. Longer supply leads are available as additional options. Design can withstand up to a 3.0 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. IP66 rated for outdoor applications. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

BUY AMERICAN
This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FARS, DFARS and DOT. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

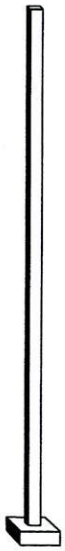
WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

© 2012-2021 Acuity Brands Lighting, Inc. All rights reserved.

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

Buy American

FEATURES & SPECIFICATIONS

INTENDED USE — These specifications are for USA standards only. Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION — Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, .1196"), or 50 KSI (7-gauge, .1793"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: A flush non-metalic black top cap is provided for all poles that will receive drilling patterns for side-mount luminaire arm assemblies or when ordered with PT option.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/ Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE – All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH – Extra durable standard powder-coat finishes include Dark Bronze, White, Black, Medium Bronze and Natural Aluminum colors. Classic finishes include Sandstone, Charcoal Gray, Tennis Green, Bright Red and Steel Blue colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Hot-dipped Galvanized, Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes. Factory-applied primer paint finish is available for customer field-paint applications.

BUY AMERICAN – Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION – Do not erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

See footnotes next page.

SSS Square Straight Steel Poles

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSS 20 5C DM19 DDB

SSS						
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness[2]**	**Mounting[3]**		**Options**	**Finish[11]**
SSS[1]	10'-39' (for 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.) See technical information table for complete ordering information.)	4C 4" 11g (.1196") 4G 4" 7g (.1793") 5C 5" 11g (.1196") 5G 5" 7g (.1793") 6G 6" 7g (.1793") See technical information table for complete ordering information.)	Tenon mounting PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) KAC/KAD/KSE/KSF/KVR/KVF Drill mounting DM19 1 at 90° DM28 2 at 180° DM28 PL 2 at 180° with one side plugged DM29 2 at 90° DM39 3 at 90° DM49 4 at 90° CSX/DSX/RSX/AERIS™/OMERO™/HLA/KAX Drill mounting DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90°	AERIS™ Suspend drill mounting[4,5] DM19AST_ 1 at 90° DM28AST_ 2 at 180° DM29AST_ 2 at 90° DM39AST_ 3 at 90° DM49AST_ 4 at 90° OMERO™ Suspend drill mounting[4,5] DM19MRT_ 1 at 90° DM28MRT_ 2 at 180° DM29MRT_ 2 at 90° DM39MRT_ 3 at 90° DM49MRT_ 4 at 90°	Shipped installed VD Vibration damper HAxy Horizontal arm bracket (1 fixture)[6,7] FDLxy Festoon outlet less electrical[6] CPL12/xy 1/2" coupling[6] CPL34/xy 3/4" coupling[6] CPL1/xy 1" coupling[6] NPL12/xy 1/2" threaded nipple[6] NPL34/xy 3/4" threaded nipple[6] NPL1/xy 1" threaded nipple[6] EHHxy Extra handhole[6,8] NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) IC Interior coating[9] L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant[10]	Standard colors DDBXD Dark bronze DWHXD White DBLXD Black DMBXD Medium bronze DNAXD Natural aluminum Classic colors DSS Sandstone DGC Charcoal gray DTG Tennis green DBR Bright red DSB Steel blue Architectural Colors and Special Finishes Galvanized, Paint over Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes available.

NOTES:

1. Handhole covers (HHC), full base covers (FBC) and top caps (TC) shipped separately. No need to call out in nomenclature. For additional parts please order as replacements.
2. Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.1196" | "G" - 0.1793".
3. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.
4. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
5. Insert "1" or "2" to designate fixture size; e.g. DM19AST2.
6. Specify location and orientation when ordering option.
   For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
   Example: 5ft = 5 and 20ft 3in = 20-3
   For "y": Specify orientation from handhole (A,B,C,D)
   Refer to the Handhole Orientation diagram below.
   Example: 1/2" coupling at 5' 8", orientation C = CPL12/5-8C
7. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxyy. Example: HA20BD.
8. Combination of tenon-top and drill mount includes extra handhole. EHH does not include cover, order replacement part if needed.
9. Provides enhanced corrosion resistance.
10. Use when mill certifications are required.
11. Additional colors available; see www.lithonia.com/archcolors or Architectural Colors brochure (Form No. 794.3). Available by formal quote only, consult factory for details.

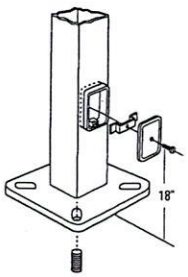
©1994-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 10/18/21

SSS Square Straight Steel Poles

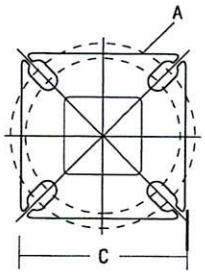
TECHNICAL INFORMATION — EPA (ft2) with 1.3 gust													
Catalog Number	Nominal Shaft Length (ft.)*	Pole Shaft Size (Base in. x Top in. x ft.)	Wall thick (in)	Gauge	EPA (ft²) with 1.3 gust						Bolt circle (in)	Bolt size (in. x in. x in.)	Approximate ship weight (lbs.)
					80 MPH	Max. weight	90 MPH	Max. weight	100 MPH	Max. weight			
SSS 10 4C	10	4.0 x 10.0	0.1196	11	30.6	765	23.8	595	18.9	473	8--9	3/4 x 18 x 3	75
SSS 12 4C	12	4.0 x 12.0	0.1196	11	24.4	610	18.8	470	14.8	370	8--9	3/4 x 18 x 3	90
SSS 14 4C	14	4.0 x 14.0	0.1196	11	19.9	498	15.1	378	11.7	293	8--9	3/4 x 18 x 3	100
SSS 16 4C	16	4.0 x 16.0	0.1196	11	15.9	398	11.8	295	8.9	223	8--9	3/4 x 18 x 3	115
SSS 18 4C	18	4.0 x 18.0	0.1196	11	12.6	315	9.2	230	6.7	168	8--9	3/4 x 18 x 3	125
SSS 20 4C	20	4.0 x 20.0	0.1196	11	9.6	240	6.7	167	4.5	150	8--9	3/4 x 18 x 3	140
SSS 20 4G	20	4.0 x 20.0	0.1793	7	14	350	11	275	8	200	8--9	3/4 x 30 x 3	198
SSS 20 5C	20	5.0 x 20.0	0.1196	11	17.7	443	12.7	343	9.4	235	10--12	1 x 36 x 4	185
SSS 20 5G	20	5.0 x 20.0	0.1793	7	28.1	703	21.4	535	16.2	405	10--12	1 x 36 x 4	265
SSS 25 4C	25	4.0 x 25.0	0.1196	11	4.8	150	2.6	100	1	50	8--9	3/4 x 18 x 3	170
SSS 25 4G	25	4.0 x 25.0	0.1793	7	10.8	270	7.7	188	5.4	135	8--9	3/4 x 30 x 3	245
SSS 25 5C	25	5.0 x 25.0	0.1196	11	9.8	245	6.3	157	3.7	150	10--12	1 x 36 x 4	225
SSS 25 5G	25	5.0 x 25.0	0.1793	7	18.5	463	13.3	333	9.5	238	10--12	1 x 36 x 4	360
SSS 30 4G	30	4.0 x 30.0	0.1793	7	6.7	168	4.4	110	2.6	65	8--9	3/4 x 30 x 3	295
SSS 30 5C	30	5.0 x 30.0	0.1196	11	4.7	150	2	50	--	--	10--12	1 x 36 x 4	265
SSS 30 5G	30	5.0 x 30.0	0.1793	7	10.7	267	6.7	167	3.9	100	10--12	1 x 36 x 4	380
SSS 30 6G	30	6.0 x 30.0	0.1793	7	19	475	13.2	330	9	225	11--13	1 x 36 x 4	520
SSS 35 5G	35	5.0 x 35.0	0.1793	7	5.9	150	2.5	100	--	--	10--12	1 x 36 x 4	440
SSS 35 6G	35	6.0 x 35.0	0.1793	7	12.4	310	7.6	190	4.2	105	11--13	1 x 36 x 4	540
SSS 39 6G	39	6.0 x 39.0	0.1793	7	7.2	180	3	75	--	--	11--13	1 x 36 x 4	605

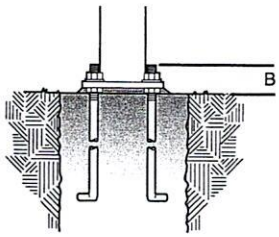
* EPA values are based ASCE 7-93 wind map. For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

BASE DETAIL

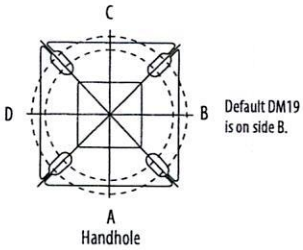


POLE DATA								
Shaft base size	Bolt circle A	Bolt projection B	Base diameter C	Base plate thickness	Template description	Anchor bolt description	Anchor bolt and template number	Anchor bolt description
4"C	8" – 9"	3.25"- 3.75"	8"- 8.25"	0.75"	ABTEMPLATE PJ50004	AB18-0	ABSSS-4C	3/4"x18"x3"
4"G	8" – 9"	3.38"- 3.75"	8"- 8.25"	0.875"	ABTEMPLATE PJ50004	AB30-0	ABSSS-4G	3/4"x30"x3"
5"	10" – 12"	3.5"- 4"	11"	1"	ABTEMPLATE PJ50010	AB36-0	ABSSS-5	1"x36"x4"
6"	11" – 13"	4"- 4.50"	12.5"	1"	ABTEMPLATE PJ50011	AB36-0	N/A	1"x36"x4"





HANDHOLE ORIENTATION



IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

©1994-2021 Acuity Brands Lighting, Inc. All rights reserved. Rev. 10/18/21

Fifthroom.com™
home • garden • leisure
5410 Route 8 Gibsonia, PA 15044
1-888-293-2339 / FAX: 1-724-444-5301

Quote #: 3038163 - H
Date: 2/22/22
Good Until: 3/8/22

Name: Robert Imbrogno
Phone: 888-293-2339 x246
Fax: 724-444-5301
Email: Robert.Imbrogno@fifthroom.com

Ref #:
Job Name:
PO #:

Quantity	Product & Description	Unit Price	Total
1	14' x 18' Treated Pine Gable Ramada	$12,599.00	$12,599.00
1	Walnut Tone Stain/Sealer - Color Confirmed	$1,599.00	$1,599.00
1	Rustic Cedar Asphalt Shingles - Color Confirmed	$0.00	$0.00
1	8 ft 5"x5" Straight Laminated Posts	$0.00	$0.00
1	16" High Post Trim	$0.00	$0.00
1	Open Gable	$0.00	$0.00
1	6/12 Roof Pitch	$0.00	$0.00
1	Engineered Drawings, with Stamp; Drawing State: NH; Permit to be acquired by Customer	$1,599.00	$1,599.00
0	Excluded: Ceiling, Cupola, Privacy Panel, Deck, Fan		

Subtotal	$15,797.00
Municipal Discount 5%	($709.90)
Shipping	$1,940.00
Pre-Tax Total	$17,027.10
Sales Tax	$0.00
TOTAL	$17,027.10

Billing Details

Company: Dover Rotary Club
Name: Gary Bannon
Address: PO Box 1801
City: Dover
State: New Hampshire
Zip Code: 03821-1801
Phone: 603-516-6410
Email: g.bannon@dover.nh.gov

Shipping Details

Company: Guppey Park - City of Dover
Name: Gary Bannon
Address: 150 Portland Ave
City: Dover
State: New Hampshire
Zip Code: 03820
Phone: 603-516-6410
Email: g.bannon@dover.nh.gov

Shipping Notes

Shipping As a kit
Method: Motor Freight
Estimated shipping 9-11 Weeks after Drawing Approval.
Estimated transit time 2-3 days.

Payment Terms

50% down payment to start production.
Balance due prior to shipping

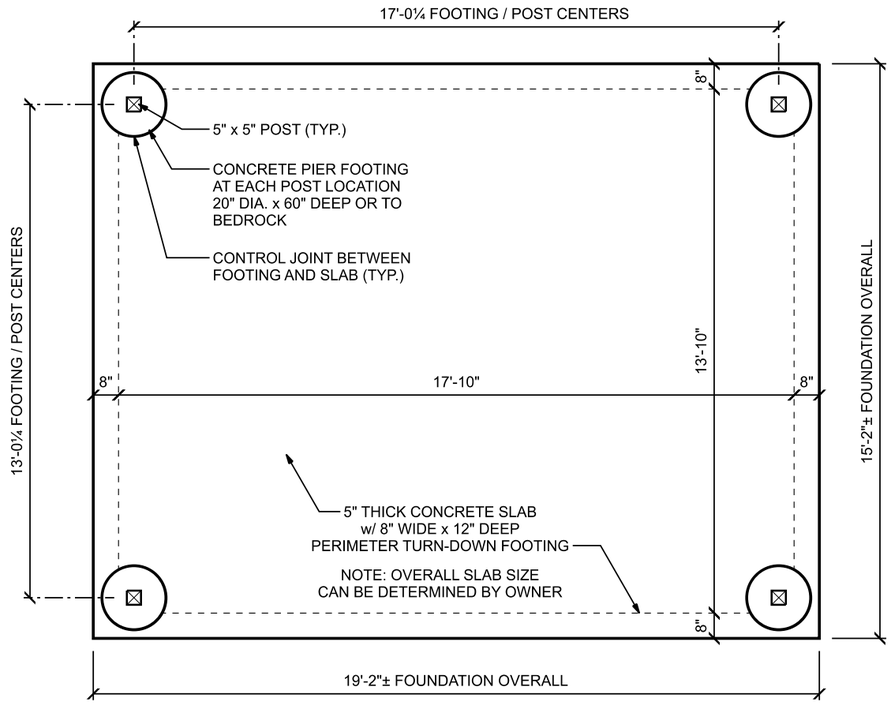
Notes

*Production will not begin until Stamped Engineered Drawings are Approved
*Stamped Engineered Drawings are currently taking 3-4 weeks to Complete

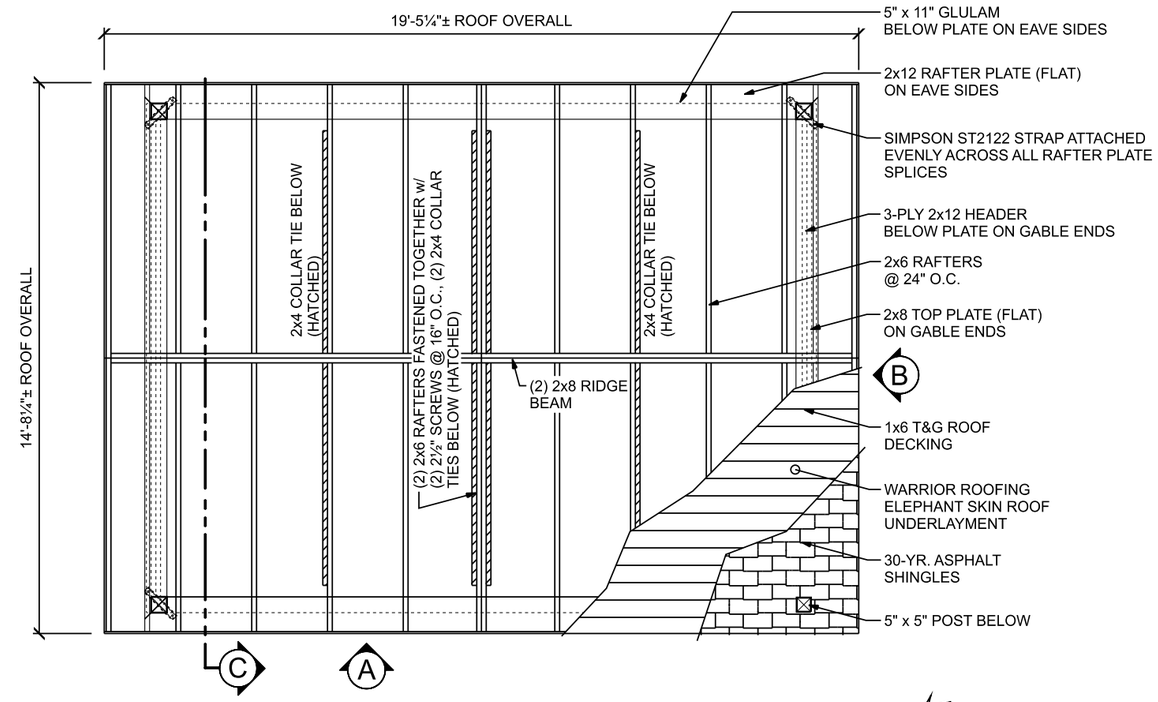
• Size or number of members, types of fastener and other design items could be affected by engineering or local ordinances. Fifthroom.com reserves the right to adjust pricing based on Engineering and local code compliance.
• Fasteners: All Fasteners Included

RECEIVED
Planning Office
APR 01 2022
Dover, New Hampshire

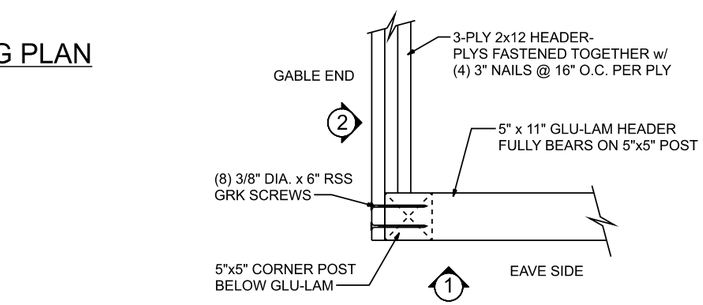
F

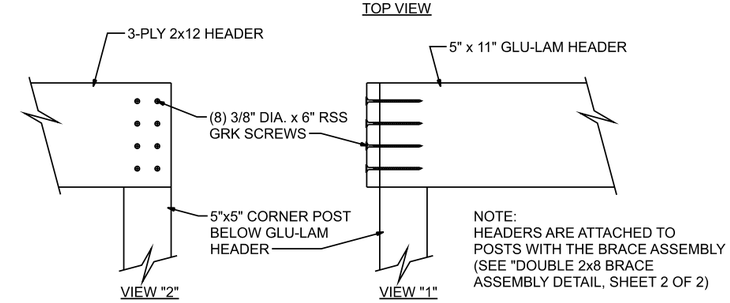


FOUNDATION / POST LOCATION PLAN



ROOF FRAMING PLAN





NOTE:
HEADERS ARE ATTACHED TO
POSTS WITH THE BRACE ASSEMBLY
(SEE "DOUBLE 2x8 BRACE
ASSEMBLY DETAIL, SHEET 2 OF 2)

HEADER DETAILS

NO SCALE

BUILDING CODES:
ALL CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF ANY AND ALL APPLICABLE STATE, COUNTY AND LOCAL BUILDING CODES OR REGULATIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
-2015 INTERNATIONAL BUILDING CODE (IBC),
AND/OR AS AMENDED OR ADOPTED BY LOCAL MUNICIPAL AUTHORITY

ENGINEERING NOTES:
-DESIGNED IN ACCORDANCE WITH ASCE 7 AND
BUILDING CODE 2015 OF NEW HAMPSHIRE (2015 IBC)
-RISK CATEGORY II STRUCTURE
-TYPE OF CONSTRUCTION: V-B
-USE GROUP: A-3
-OCCUPANCY LOAD: 18 PERSONS
-AREA BELOW ROOF = 286 S.F.
-DESIGN WIND SPEED (EXPOSURE B)
Vult = 119 MPH
-DESIGN GROUNG SNOW LOAD = 60 PSF
-SEISMIC DESIGN CATEGORY = B, SITE CLASS D
SD1 = 0.131, SDS = 0.288, Cs = 0.23, R = 1.25
-FROST LINE DEPTH = 60 INCHES
-FOUNDATION DESIGN BASED ON MINIMUM SOIL
BEARING CAPACITY OF 1500 PSF

CONSTRUCTION NOTES:
-ALL LUMBER TO BE PRESSURE TREATED SP #1 OR BETTER,
OR AS NOTED
-ALL GLU-LAMS TO BE 24F-V3 SP GRADE
-ATTACH EACH ROOF BOARD TO EACH FRAMING MEMBER w/
(3) 1/2" CROWN x 2" LEG x 16 GAUGE STAPLES OR
(2) 8d NAILS
-ALL HARDWARE TO BE GALVANIZED, POWDER-COATED
OR STAINLESS STEEL
-ALL SCREWS TO BE #10, LENGTH PER DRAWING, OR AS NOTED
-ALL CONCRETE TO BE 3500 PSI (MIN.)

NOTE:
THERE HAS NOT BEEN ANY MECHANICAL, ELECTRICAL
OR SITE ENGINEERING PERFORMED FOR THIS PROJECT.
IT SHALL BE THERESPONSIBILITY OF OTHERS TO OBTAIN
DESIGN DATA FROM A LICENSED ENGINEER FOR THESE
SYSTEMS. ENGINEERING SHALL CONFORM WITH ALL
APPLICABLE LOCAL AND/OR STATE BUILDING CODES
AND REGULATIONS.

SEAL

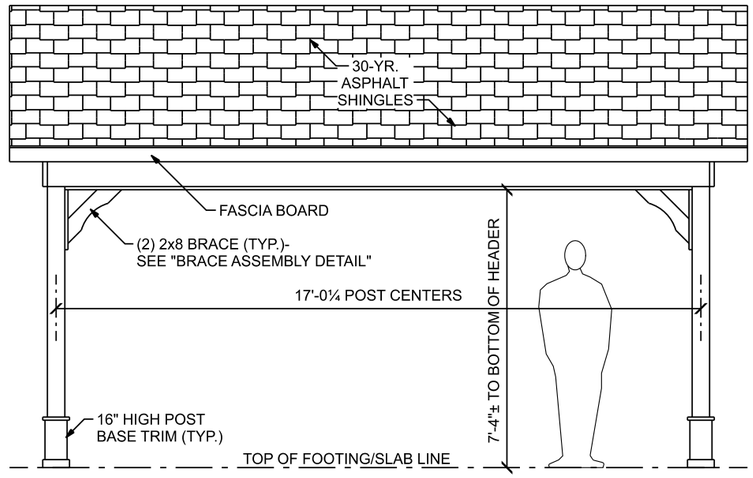
PLOT DATE Friday, June 3, 2022

MYERHILL CONSULTING
Glyn R. Boone, P.E.
Myer Hill Enterprises LLC
444 Myer Ter • Leola, PA 17540
NH PE# 8014 - NH COA# 02649

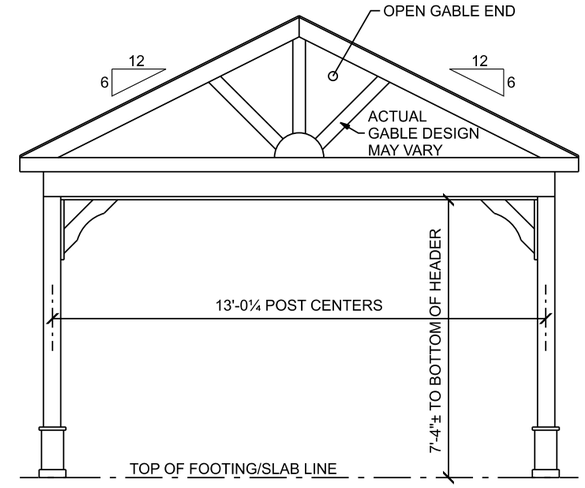
FIFTHROOM.COM
5410 ROUTE 8
GIBSONIA , PA 15044

SITE ADDRESS:
GUPPEY PARK - CITY OF DOVER
150 PORTLAND AVENUE
DOVER, NH 03820
FIFTHROOM ORDER # 3038163

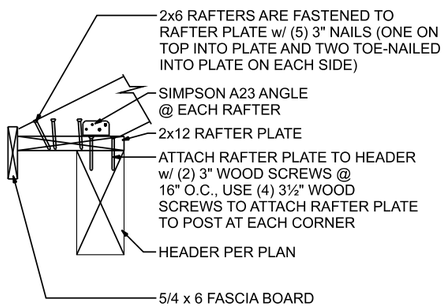
14'x18' TREATED PINE GABLE RAMADA PAVILION	
DATE 6/3/2022	SCALE 1/4" = 1'-0" U.N.O.
REVISIONS	P.N. 13-19 (12-03)
	SHEET NO. 1 OF 2



ELEVATION "A"

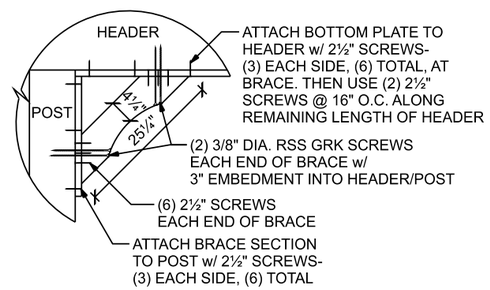


ELEVATION "B"



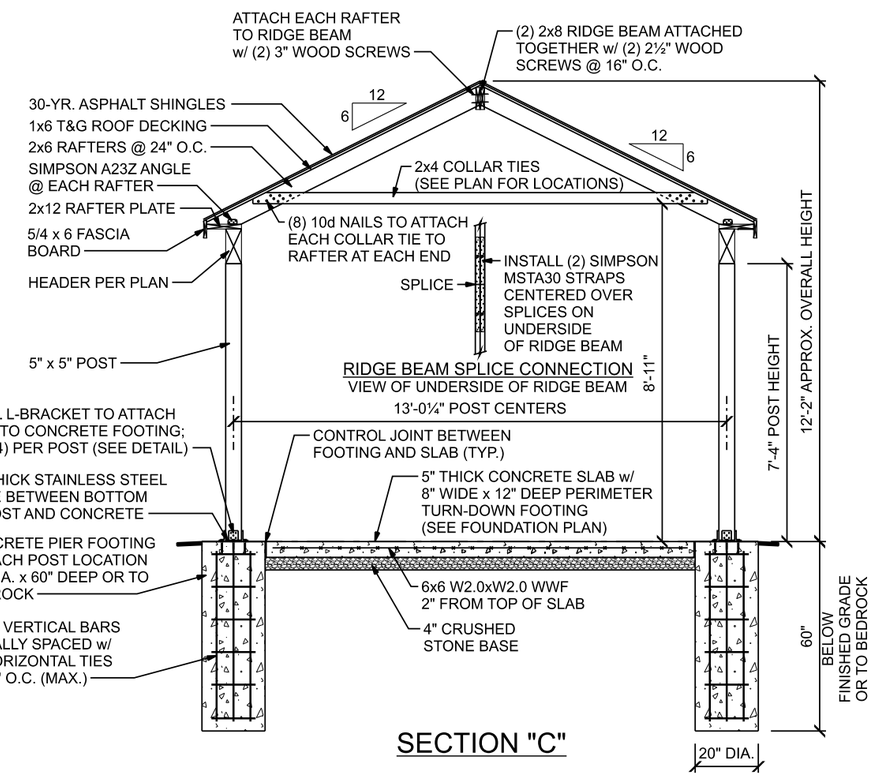
RAFTER CONNECTION DETAIL

SCALE: 3/4" = 1'-0"

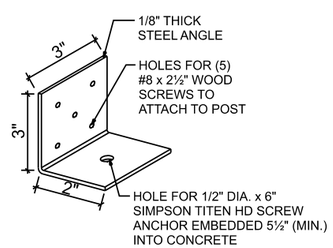


DOUBLE 2x8 BRACE ASSEMBLY DETAIL

SCALE: 1/2" = 1'-0"

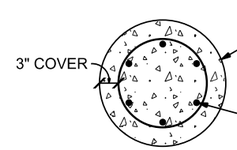


SECTION "C"



STEEL L-BRACKET DETAIL

NO SCALE



SECTION THROUGH FOOTING

SCALE: 1/2" = 1'-0"

SEAL

STATE OF NEW HAMPSHIRE
GLYN R. BOONE
No.8014
LICENSED
PROFESSIONAL ENGINEER

PLOT DATE Friday, June 3, 2022

MYERHILL CONSULTING

Glyn R. Boone, P.E.
Myer Hill Enterprises LLC
444 Myer Ter • Leola, PA 17540
NH PE# 8014 - NH COA# 02649

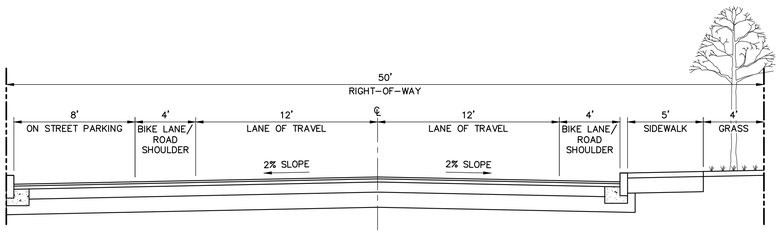
FIFTHROOM.COM
5410 ROUTE 8
GIBSONIA , PA 15044

SITE ADDRESS:
GUPPEY PARK - CITY OF DOVER
150 PORTLAND AVENUE
DOVER, NH 03820
FIFTHROOM ORDER # 3038163

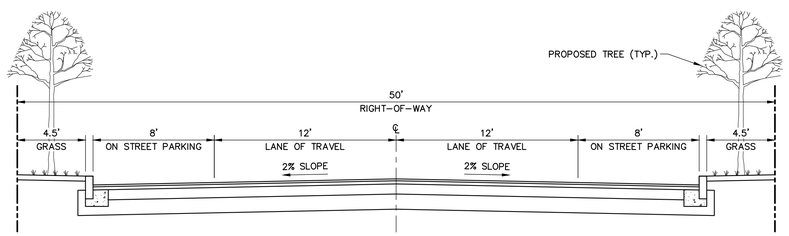
14'x18' TREATED PINE GABLE RAMADA PAVILION

DATE 6/3/2022	SCALE 1/4" = 1'-0" U.N.O.
REVISIONS	P.N. 13-19 (12-03)
	SHEET NO. 2 OF 2

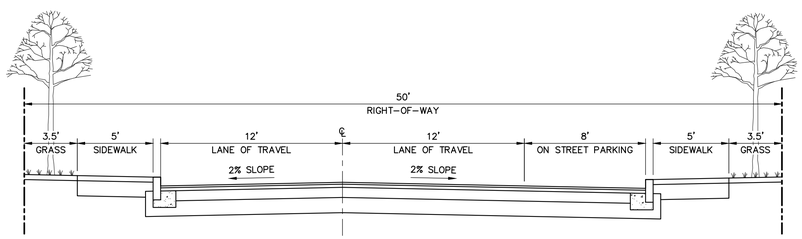
22x34
PLOT SCALE: 1:1



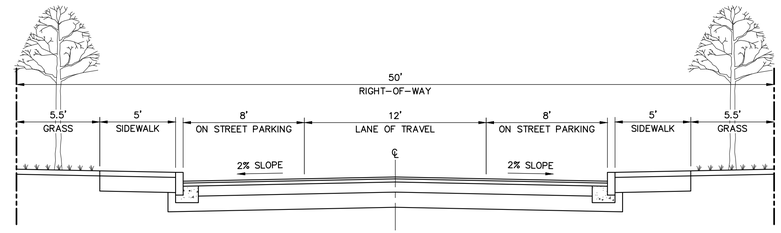
#1 – 32' STREET WIDTH, STREET PARKING AND SIDEWALK ONE SIDE ONLY, BIKE LANE AND ROAD SHOULDER INCLUDED



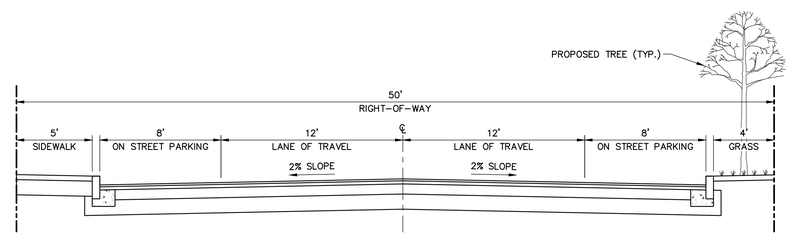
#2 – 12' LANES OF TRAVEL, STREET PARKING BOTH SIDES, NO SIDEWALKS



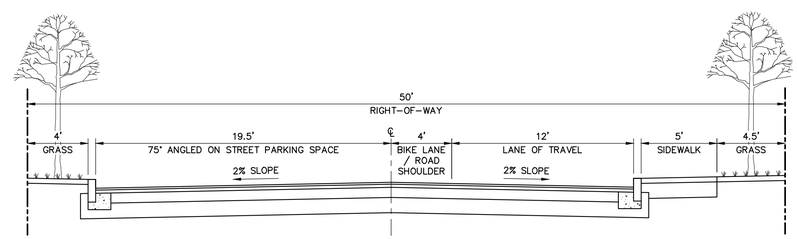
#3 – 12' LANES OF TRAVEL, SIDEWALK BOTH SIDES, PARKING ONE SIDE



#4 FIFTH STREET (GROVE TO CHESTNUT ONLY): ONE WAY, 12' LANE OF TRAVEL, PARKING AND SIDEWALK BOTH SIDES



#5 12' LANES OF TRAVEL, SIDEWALK ONE SIDE, STREET PARKING BOTH SIDES



#6 FIFTH STREET (GROVE TO CHESTNUT ONLY): ONE WAY, 12' LANE OF TRAVEL, 75–DEGREE ANGLED PARKING ONE SIDE, BIKE LANE/SHOULDER, SIDEWALK ONE SIDE ONLY

NOTES:

1. ROADWAY AND SIDEWALK CROSS SLOPES SHOWN ARE TYPICAL, BUT VARY ACCORDING TO THE CROSS SECTIONS AND GRADE.
2. BIKE LANE WIDTH PER NATIONAL ASSOCIATION OF TRANSPORTATION OFFICIALS (NACTO), REFERENCED BY CITY OF COVER COMPLETE STREETS AND TRAFFIC CALMING GUIDELINES.
3. ANGLED PARKING WIDTH PER THE CITY OF DOVER PLANNING BOARD REGULATIONS, ARTICLE IV, SECTION 153–14(D)(6).

5' 0 5' 10'
BAR SCALE
1" = 5'
CHECK GRAPHIC SCALE BEFORE USING

Woodard & Curran
40 Shattuck Road, Suite 110
Andover, Massachusetts 01810
866.702.6371 | www.woodardcurran.com

THIS DOCUMENT IS THE PROPERTY OF WOODARD & CURRAN AND ITS CLIENT. REPRODUCTION OR MODIFICATION WITHOUT WRITTEN PERMISSION IS PROHIBITED.

PE SEAL:

NOT FOR CONSTRUCTION

CLIENT INFO:

CITY OF DOVER
DOVER, NEW HAMPSHIRE

FIFTH & GROVE STREETS RECONSTRUCTION

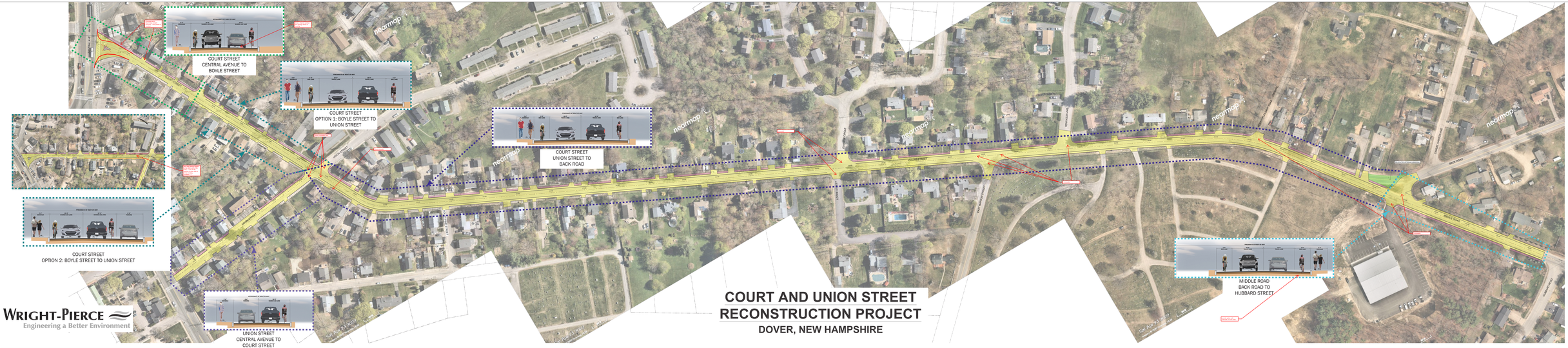
REV	MM/DD/YY	DESCRIPTION

JOB NO:	0234242.00
DATE:	JUNE 2022
SCALE:	1" = 5'
DESIGNED BY:	
DRAWN BY:	JBC
CHECKED BY:	
FILENAME:	0234242.00-C-300.dwg

DRAWING TITLE:
CIVIL
STREET CROSS SECTION OPTIONS

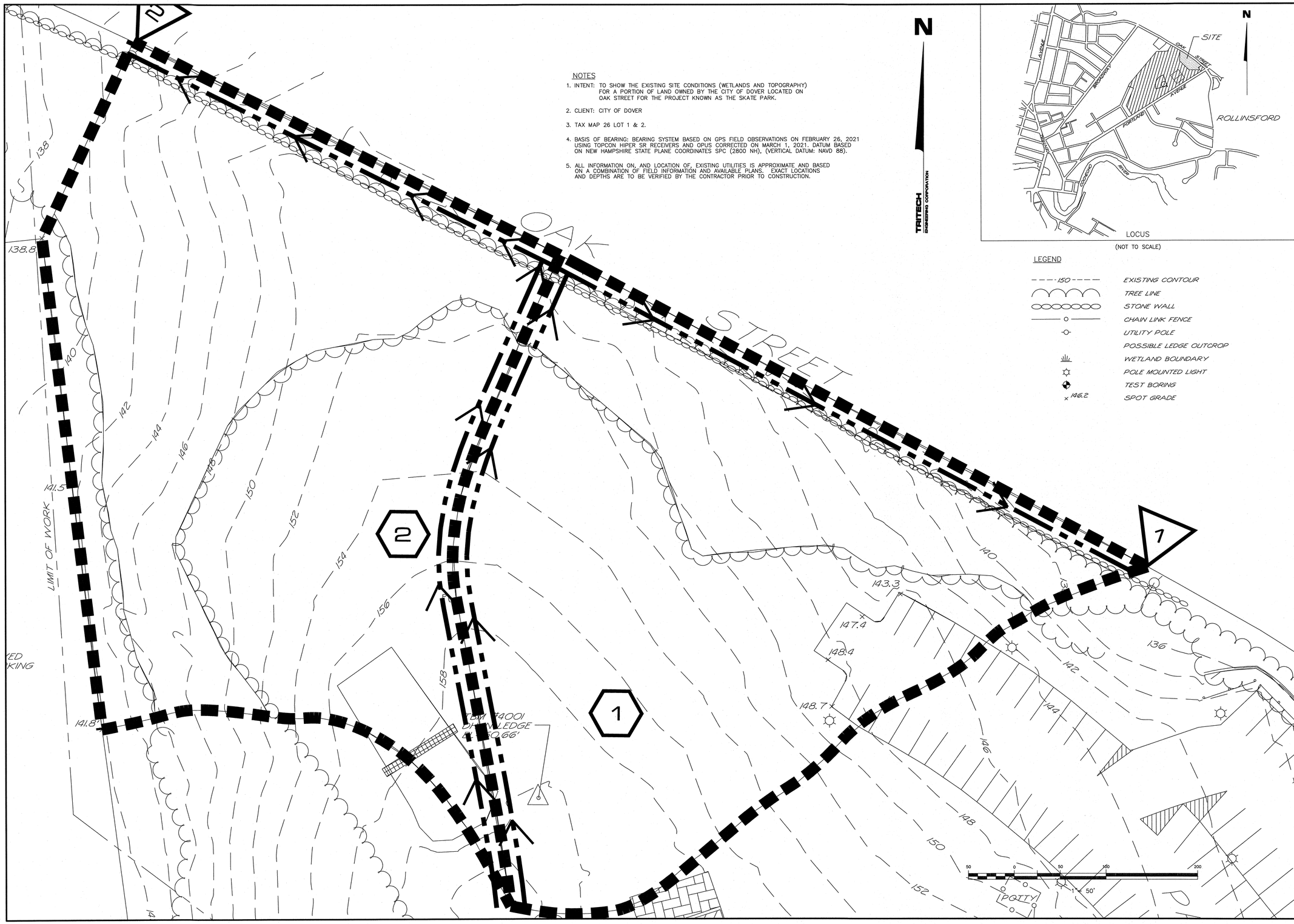
DRAWING NO:
C-300
SHEET: OF

C:\Users\jcoulombe\OneDrive - Woodard & Curran_PCFolders\Documents_000 PROJECTS_0234242.00 Dover - Fifth & Grove Utility Asmt Recon\CIVIL\0234242.00-C-300.dwg, Jun 02, 2022 - 12:42pm JCOULOMBE


COURT STREET
CENTRAL AVENUE TO
BOYLE STREET
COURT STREET
OPTION 1: BOYLE STREET TO
UNION STREET
COURT STREET
UNION STREET TO
BACK ROAD
COURT STREET
OPTION 2: BOYLE STREET TO UNION STREET
UNION STREET
CENTRAL AVENUE TO
COURT STREET
MIDDLE ROAD
BACK ROAD TO
HUBBARD STREET
COURT STREET
CENTRAL AVENUE
BOYLE STREET
UNION STREET
COURT STREET
UNION STREET
BACK ROAD
MIDDLE ROAD
HUBBARD STREET
CENTRAL AVENUE
BOYLE STREET
UNION STREET
COURT

NOTES

1. INTENT: TO SHOW THE EXISTING SITE CONDITIONS (WETLANDS AND TOPOGRAPHY) FOR A PORTION OF LAND OWNED BY THE CITY OF DOVER LOCATED ON OAK STREET FOR THE PROJECT KNOWN AS THE SKATE PARK.
2. CLIENT: CITY OF DOVER
3. TAX MAP 26 LOT 1 & 2.
4. BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 26, 2021 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 1, 2021. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (VERTICAL DATUM: NAVD 88).
5. ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES IS APPROXIMATE AND BASED ON A COMBINATION OF FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.



(NOT TO SCALE)

LEGEND

- 150 — EXISTING CONTOUR
- TREE LINE
- STONE WALL
- CHAIN LINK FENCE
- UTILITY POLE
- POSSIBLE LEDGE OUTCROP
- WETLAND BOUNDARY
- POLE MOUNTED LIGHT
- TEST BORING
- × 146.2 SPOT GRADE

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

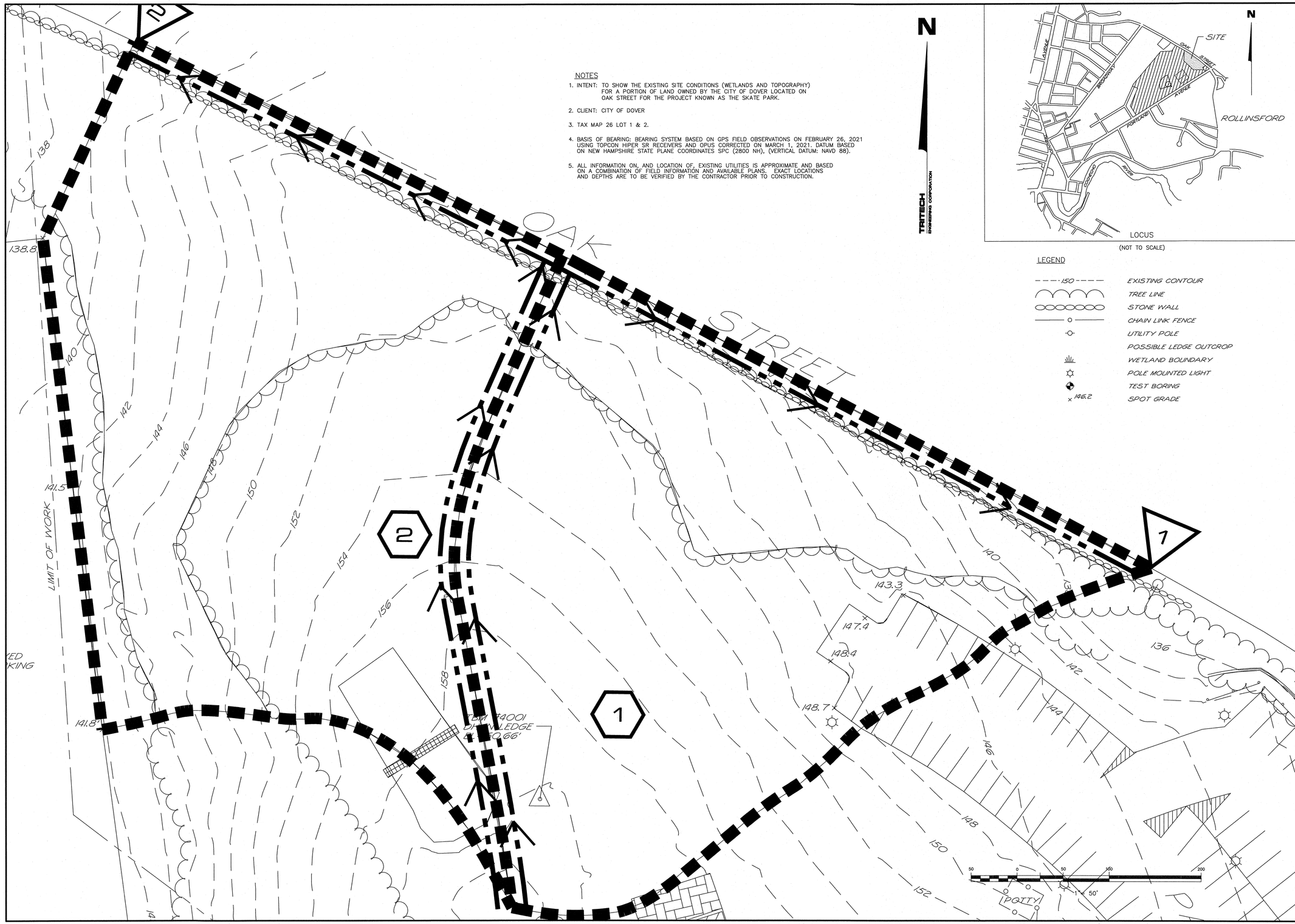
REVISIONS
DATE: DESCRIPTION:

TOPOGRAPHIC PLAN
DOVER SKATE PARK
OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 21103
SCALE: 1" = 50'

SHEET NO.
D-1

NOTES

1. INTENT: TO SHOW THE EXISTING SITE CONDITIONS (WETLANDS AND TOPOGRAPHY) FOR A PORTION OF LAND OWNED BY THE CITY OF DOVER LOCATED ON OAK STREET FOR THE PROJECT KNOWN AS THE SKATE PARK.
2. CLIENT: CITY OF DOVER
3. TAX MAP 26 LOT 1 & 2.
4. BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 26, 2021 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 1, 2021. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (VERTICAL DATUM: NAVD 88).
5. ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES IS APPROXIMATE AND BASED ON A COMBINATION OF FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.



(NOT TO SCALE)

LEGEND

150	EXISTING CONTOUR
	TREE LINE
	STONE WALL
	CHAIN LINK FENCE
	UTILITY POLE
	POSSIBLE LEDGE OUTCROP
	WETLAND BOUNDARY
	POLE MOUNTED LIGHT
	TEST BORING
146.2	SPOT GRADE

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

REVISIONS
DATE: DESCRIPTION:

TOPOGRAPHIC PLAN
DOVER SKATE PARK
OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 21103
SCALE: 1" = 50'

SHEET NO.
D-1

SITE DEVELOPMENT PLANS

DOVER SKATE PARK
PORTLAND AVE. & OAK STREET
DOVER, NEW HAMPSHIRE

LIST OF PLANS

T-1 - TITLE SHEET
T-2 - NEIGHBORHOOD PLAN 1"=100'
EX-1 - EXISTING CONDITIONS PLAN 1"=40'
SP-1 - GENERAL SITE PLAN 1"=30'
SP-2 - SITE DEVELOPMENT PLAN 1"=20'
SP-3 - GRADING AND DRAINAGE PLAN 1"=20'
SP-4 - BIORETENTION DETAILS
SP-5 - CONSTRUCTION DETAILS
SP-6 - CONSTRUCTION DETAILS
SP-7 - CONSTRUCTION DETAILS
LI-1 - PHOTOMETRIC PLAN

PRELIMINARY

PREPARED FOR:

DOVER RECREATION DEPARTMENT
61 LOCUST STREET
DOVER, NEW HAMPSHIRE

PREPARED BY

TRITECH
ENGINEERING CORPORATION

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

REVISIONS
DATE: DESCRIPTION:

TITLE SHEET
DOVER SKATE PARK
PORTLAND AVE & OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 2110 3

SHEET No.
T-1

PRELIMINARY

SHEET NO.	NEIGHBORHOOD PLAN
T-2	DOVER SKATE PARK PORTLAND AVE. & OAK STREET DOVER, NEW HAMPSHIRE JUNE 9, 2022 JOB NO. 21103 SCALE: 1" = 100'

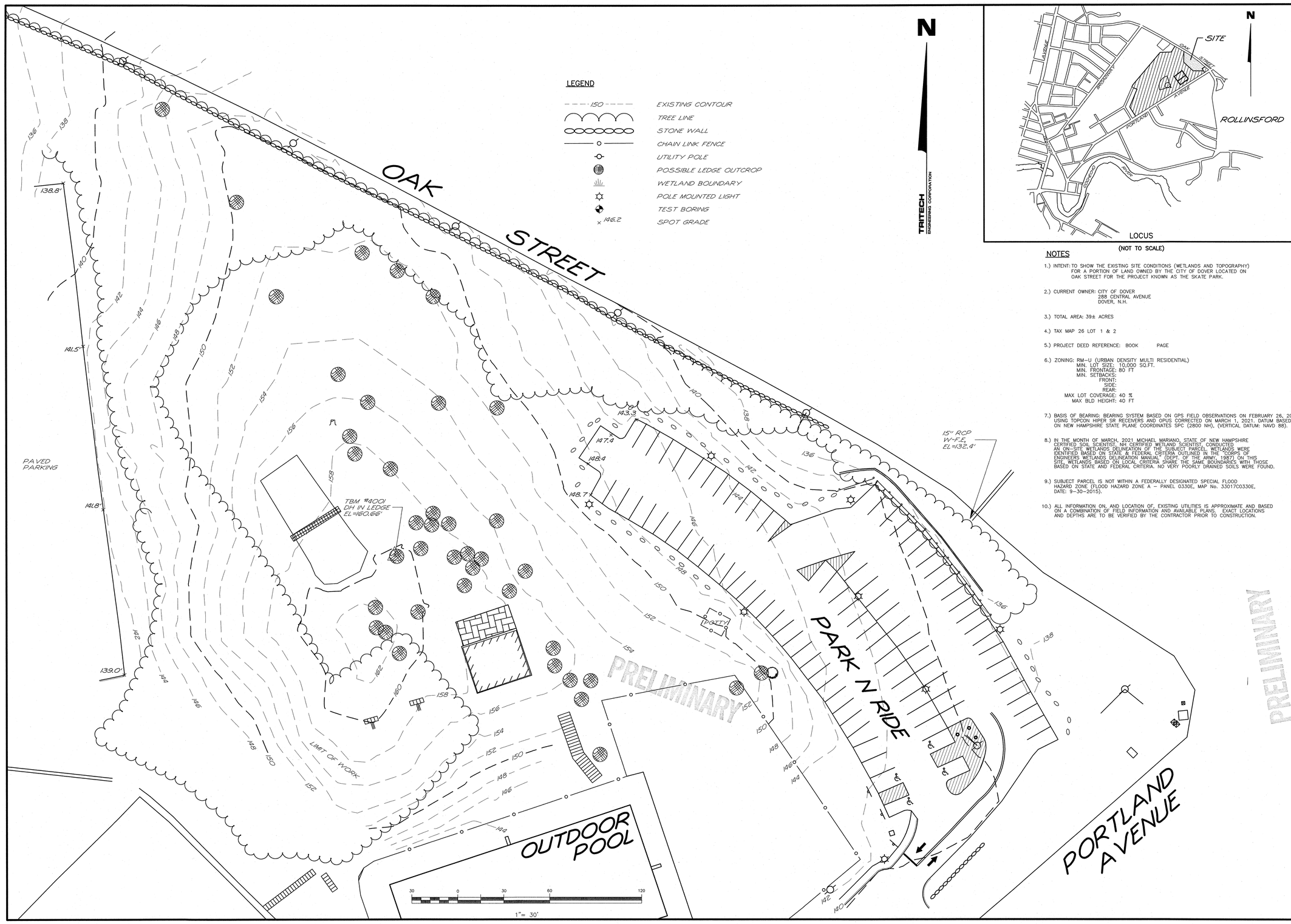
REVISIONS

DATE:	DESCRIPTION:

TRITECH
ENGINEERING CORPORATION

755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820

TELEPHONE 603 742 8107
FAX 603 742 3830



(NOT TO SCALE)

NOTES

1.) INTENT: TO SHOW THE EXISTING SITE CONDITIONS (WETLANDS AND TOPOGRAPHY) FOR A PORTION OF LAND OWNED BY THE CITY OF DOVER LOCATED ON OAK STREET FOR THE PROJECT KNOWN AS THE SKATE PARK.

2.) CURRENT OWNER: CITY OF DOVER
288 CENTRAL AVENUE
DOVER, N.H.

3.) TOTAL AREA: 39± ACRES

4.) TAX MAP 26 LOT 1 & 2

5.) PROJECT DEED REFERENCE: BOOK PAGE

6.) ZONING: RM–U (URBAN DENSITY MULTI RESIDENTIAL)
MIN. LOT SIZE: 10,000 SQ.FT.
MIN. FRONTAGE: 80 FT
MIN. SETBACKS:
FRONT:
SIDE:
REAR:
MAX LOT COVERAGE: 40 %
MAX BLD HEIGHT: 40 FT

7.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 26, 2021 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 1, 2021. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (VERTICAL DATUM: NAVD 88).

8.) IN THE MONTH OF MARCH, 2021 MICHAEL MARIANO, STATE OF NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST, NH CERTIFIED WETLAND SCIENTIST, CONDUCTED AN ON–SITE WETLANDS DELINEATION OF THE SUBJECT PARCEL. WETLANDS WERE IDENTIFIED BASED ON STATE & FEDERAL CRITERIA OUTLINED IN THE "CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL" (DEPT. OF THE ARMY, 1987) ON THIS SITE. WETLANDS BASED ON LOCAL CRITERIA SHARE THE SAME BOUNDARIES WITH THOSE BASED ON STATE AND FEDERAL CRITERIA. NO VERY POORLY DRAINED SOILS WERE FOUND.

9.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (FLOOD HAZARD ZONE A – PANEL 0330E, MAP No. 33017C0330E, DATE: 9–30–2015).

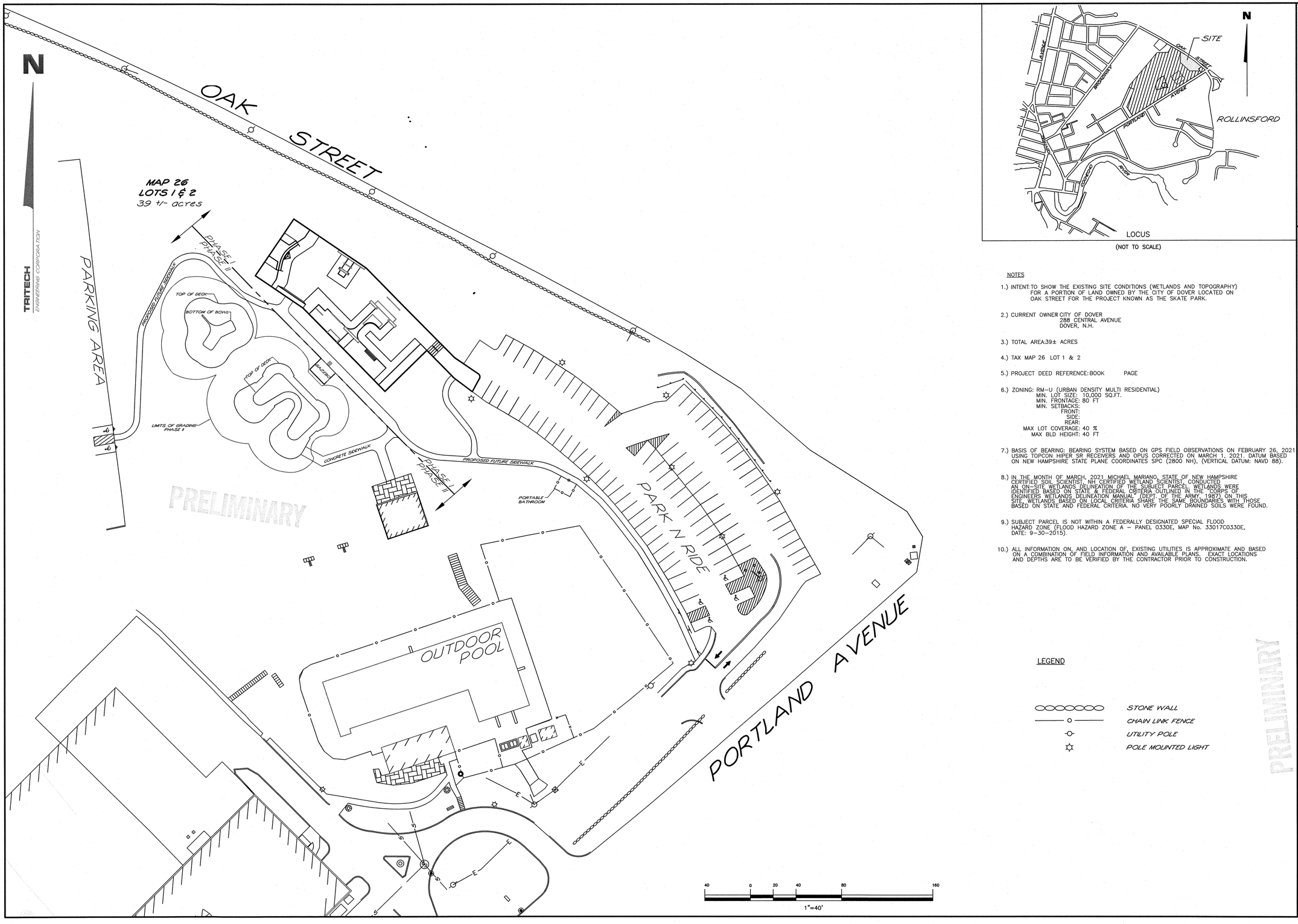
10.) ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES IS APPROXIMATE AND BASED ON A COMBINATION OF FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 9107
FAX 603 742 3830

REVISIONS
DATE: DESCRIPTION:

EXISTING CONDITIONS PLAN
DOVER SKATE PARK
OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 21103
SCALE: 1" = 30'

SHEET NO.
EX-1



LOCUS

(NOT TO SCALE)

NOTES

1.) INTENT: TO SHOW THE EXISTING SITE CONDITIONS (WETLANDS AND TOPOGRAPHY) FOR A PORTION OF LAND OWNED BY THE CITY OF DOVER LOCATED ON OAK STREET FOR THE PROJECT KNOWN AS THE SKATE PARK.

2.) CURRENT OWNER: CITY OF DOVER
288 CENTRAL AVENUE
DOVER, N.H.

3.) TOTAL AREA: 39± ACRES

4.) TAX MAP 26 LOT 1 & 2

5.) PROJECT DEED REFERENCE: BOOK PAGE

6.) ZONING: RM-U (URBAN DENSITY MULTI RESIDENTIAL)
MIN. LOT SIZE: 10,000 SQ.FT.
MIN. FRONTAGE: 80 FT
MIN. SETBACKS:
FRONT:
SIDE:
REAR:
MAX LOT COVERAGE: 40 %
MAX BLD HEIGHT: 40 FT

7.) BASIS OF BEARING: BEARING SYSTEM BASED ON GPS FIELD OBSERVATIONS ON FEBRUARY 26, 2021 USING TOPCON HIPER SR RECEIVERS AND OPUS CORRECTED ON MARCH 1, 2021. DATUM BASED ON NEW HAMPSHIRE STATE PLANE COORDINATES SPC (2800 NH), (VERTICAL DATUM: NAVD 88).

8.) IN THE MONTH OF MARCH, 2021 MICHAEL MARIANO, STATE OF NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST, NH CERTIFIED WETLAND SCIENTIST, CONDUCTED AN ON-SITE WETLANDS DELINEATION OF THE SUBJECT PARCEL. WETLANDS WERE IDENTIFIED BASED ON STATE & FEDERAL CRITERIA OUTLINED IN THE "CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL" (DEPT. OF THE ARMY, 1987). ON THIS SITE, WETLANDS BASED ON LOCAL CRITERIA SHARE THE SAME BOUNDARIES WITH THOSE BASED ON STATE AND FEDERAL CRITERIA. NO VERY POORLY DRAINED SOILS WERE FOUND.

9.) SUBJECT PARCEL IS NOT WITHIN A FEDERALLY DESIGNATED SPECIAL FLOOD HAZARD ZONE (FLOOD HAZARD ZONE A – PANEL 0330E, MAP No. 33017C0330E, DATE: 9-30-2015).

10.) ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES IS APPROXIMATE AND BASED ON A COMBINATION OF FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

LEGEND

	STONE WALL
	CHAIN LINK FENCE
	UTILITY POLE
	POLE MOUNTED LIGHT

PRELIMINARY

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 9830

REVISIONS
DATE: DESCRIPTION:

GENERAL SITE PLAN

DOVER SKATE PARK

PORTLAND AVENUE & OAK STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

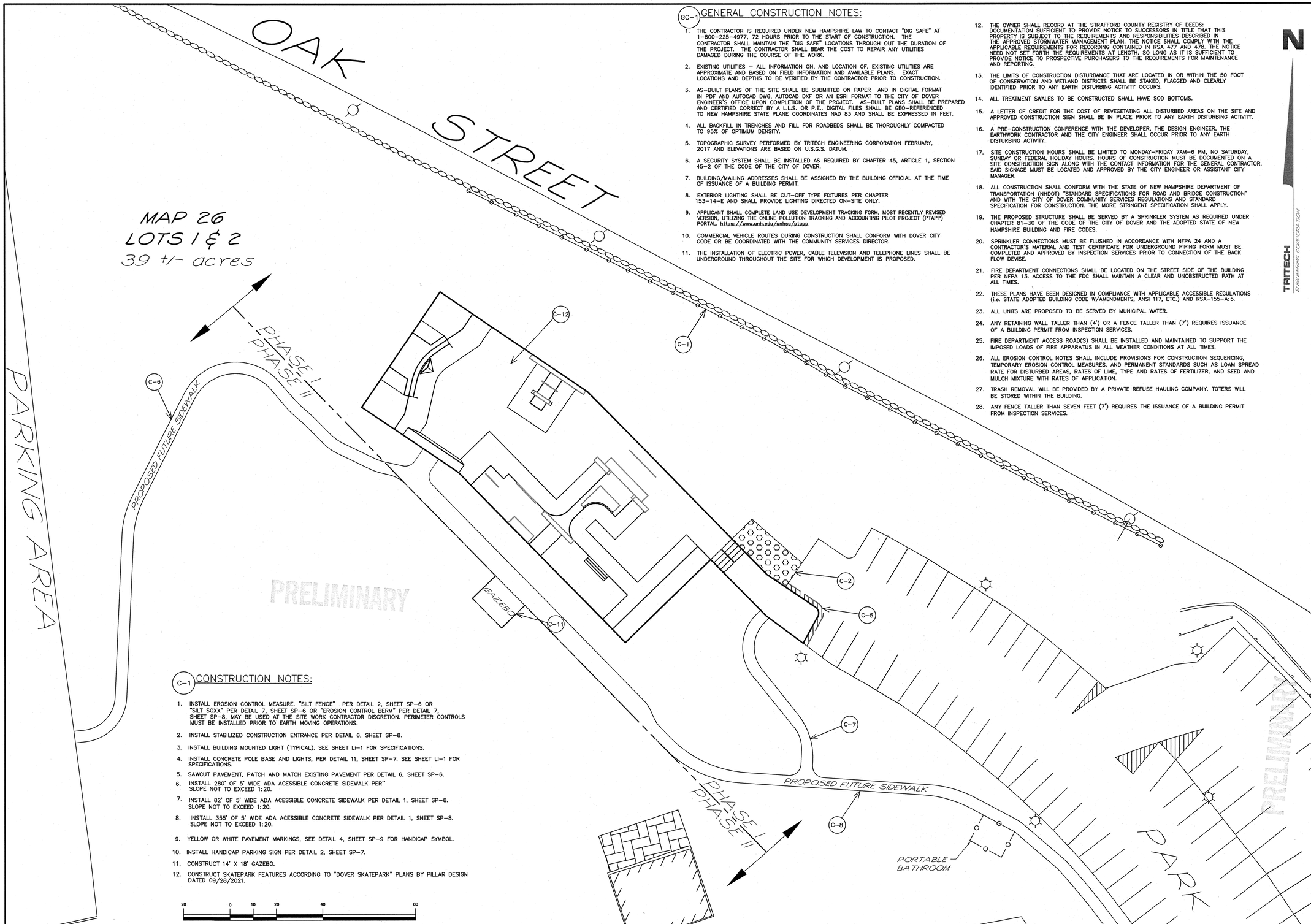
JUNE 9, 2022

JOB No. 21103

SCALE: 1" = 40'

SHEET No.

SP-1



GC-1 GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR IS REQUIRED UNDER NEW HAMPSHIRE LAW TO CONTACT "DIG SAFE" AT 1-800-225-4977, 72 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN THE "DIG SAFE" LOCATIONS THROUGH OUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL BEAR THE COST TO REPAIR ANY UTILITIES DAMAGED DURING THE COURSE OF THE WORK.
2. EXISTING UTILITIES – ALL INFORMATION ON, AND LOCATION OF, EXISTING UTILITIES ARE APPROXIMATE AND BASED ON FIELD INFORMATION AND AVAILABLE PLANS. EXACT LOCATIONS AND DEPTHS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF THE PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E.. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD 83 AND SHALL BE EXPRESSED IN FEET.
4. ALL BACKFILL IN TRENCHES AND FILL FOR ROADBEDS SHALL BE THOROUGHLY COMPACTED TO 95% OF OPTIMUM DENSITY.
5. TOPOGRAPHIC SURVEY PERFORMED BY TRITECH ENGINEERING CORPORATION FEBRUARY, 2017 AND ELEVATIONS ARE BASED ON U.S.G.S. DATUM.
6. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE 1, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
7. BUILDING/MAILING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
8. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
9. 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
10. COMMERCIAL VEHICLE ROUTES DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
11. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
12. THE OWNER SHALL RECORD AT THE STRAFFORD COUNTY REGISTRY OF DEEDS: DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO SUCCESSORS IN TITLE THAT THIS PROPERTY IS SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. 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.
13. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FOOT OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
14. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
15. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE AND APPROVED CONSTRUCTION SIGN SHALL BE IN PLACE PRIOR TO ANY EARTH DISTURBING ACTIVITY.
16. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.
17. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6 PM, NO SATURDAY, SUNDAY OR FEDERAL HOLIDAY HOURS. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
18. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
19. THE PROPOSED STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 81-30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NEW HAMPSHIRE BUILDING AND FIRE CODES.
20. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACK FLOW DEVISE.
21. FIRE DEPARTMENT CONNECTIONS 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.
22. THESE PLANS HAVE BEEN DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBLE REGULATIONS (i.e. STATE ADOPTED BUILDING CODE W/AMENDMENTS, ANSI 117, ETC.) AND RSA-155-A: 5.
23. ALL UNITS ARE PROPOSED TO BE SERVED BY MUNICIPAL WATER.
24. ANY RETAINING WALL TALLER THAN (4') OR A FENCE TALLER THAN (7') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
25. 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.
26. 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 OF FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.
27. TRASH REMOVAL WILL BE PROVIDED BY A PRIVATE REFUSE HAULING COMPANY. TOTERS WILL BE STORED WITHIN THE BUILDING.
28. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

C-1 CONSTRUCTION NOTES:

1. INSTALL EROSION CONTROL MEASURE. "SILT FENCE" PER DETAIL 2, SHEET SP-6 OR "SILT SOXX" PER DETAIL 7, SHEET SP-6 OR "EROSION CONTROL BERM" PER DETAIL 7, SHEET SP-8, MAY BE USED AT THE SITE WORK CONTRACTOR DISCRETION. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 6, SHEET SP-8.
3. INSTALL BUILDING MOUNTED LIGHT (TYPICAL). SEE SHEET LI-1 FOR SPECIFICATIONS.
4. INSTALL CONCRETE POLE BASE AND LIGHTS, PER DETAIL 11, SHEET SP-7. SEE SHEET LI-1 FOR SPECIFICATIONS.
5. SAWCUT PAVEMENT, PATCH AND MATCH EXISTING PAVEMENT PER DETAIL 6, SHEET SP-6.
6. INSTALL 280' OF 5' WIDE ADA ACESSIBLE CONCRETE SIDEWALK PER" SLOPE NOT TO EXCEED 1:20.
7. INSTALL 82' OF 5' WIDE ADA ACESSIBLE CONCRETE SIDEWALK PER DETAIL 1, SHEET SP-8. SLOPE NOT TO EXCEED 1:20.
8. INSTALL 355' OF 5' WIDE ADA ACESSIBLE CONCRETE SIDEWALK PER DETAIL 1, SHEET SP-8. SLOPE NOT TO EXCEED 1:20.
9. YELLOW OR WHITE PAVEMENT MARKINGS, SEE DETAIL 4, SHEET SP-9 FOR HANDICAP SYMBOL.
10. INSTALL HANDICAP PARKING SIGN PER DETAIL 2, SHEET SP-7.
11. CONSTRUCT 14' X 18' GAZEBO.
12. CONSTRUCT SKATEPARK FEATURES ACCORDING TO "DOVER SKATEPARK" PLANS BY PILLAR DESIGN DATED 09/28/2021.

20 0 10 20 40 80
1"=20'

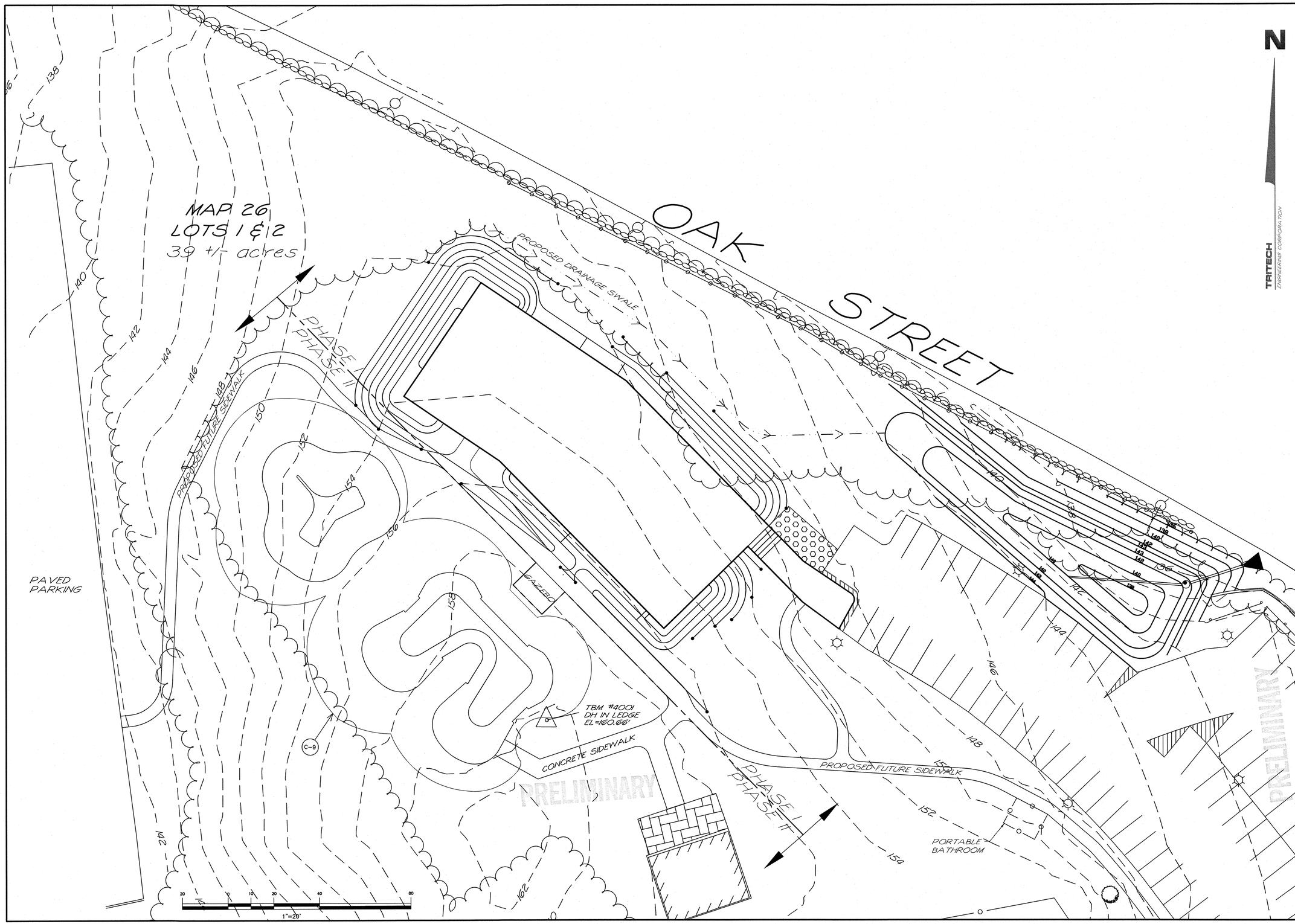
N
TRITECH
ENGINEERING CORPORATION

TRITECH
ENGINEERING CORPORATION
765 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 9107
FAX 603 742 3630

REVISIONS
DATE: DESCRIPTION:

GENERAL SITE PLAN
DOVER SKATE PARK
PORTLAND AVENUE & OAK STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY
JUNE 9, 2022
JOB No. 21103
SCALE: 1" = 20'

SHEET No.
SP-2



TRITECH
ENGINEERING CORPORATION

TRITECH
ENGINEERING CORPORATION

765 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8077
FAX 603 742 3630

REVISIONS
DATE: DESCRIPTION:

GRADING AND DRAINAGE PLAN

DOVER SKATE PARK

PORTLAND AVENUE & OAK STREET
DOVER, NEW HAMPSHIRE
STRAFFORD COUNTY

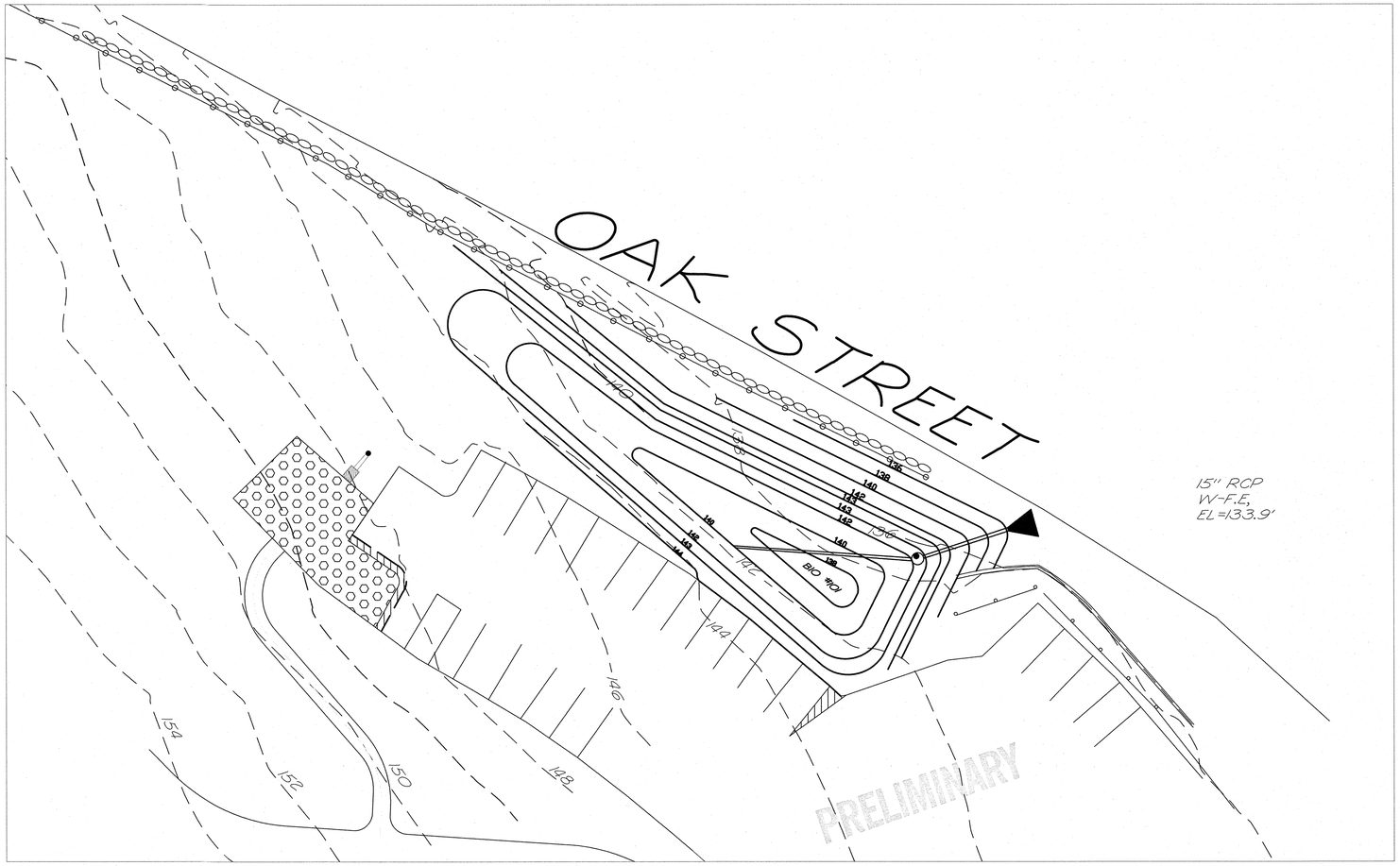
JUNE 9, 2022

JOB No. 21103

SCALE: 1" = 20'

SHEET No.

SP-3



1 BIORETENTION BASIN #101 PLAN
1" = 20'

1. PARTICLE SIZE DISTRIBUTION BY SEPARATES:
   a. EXCLUDE ANY MATERIAL >4.76MM – 0
   b. VERY COARSE SAND/GRAVEL: GRAVEL (2.0 TO 4.76 mm) 5 % MAXIMUM (% BY DRY WEIGHT)
   c. SAND (0.42 TO 2.0 mm) 60 – 85 (% BY DRY WEIGHT)
   d. SILT (0.075 TO 0.42 mm) 20 MAXIMUM (% BY DRY WEIGHT)
   e. CLAY (LESS THAN 0.075mm) 5 MAXIMUM (% BY DRY WEIGHT)

ACCEPTABLE PARTICLE SIZE DISTRIBUTION OF FINAL BIORETENTION SOIL MIX:

SIEVE	% PASSING
#4	100
#10	95
#40	40 – 15
#200	10 – 20
<#200	0 – 5

2. FRAGMENT SIZE DISTRIBUTION:
   a. STICKS AND ROOTS: SHOULD BE MINIMIZED AND PREFERABLY LIMITED TO NOTHING LARGER THAN 4.76mm
   b. DEBRIS AND OTHER FOREIGN MATERIALS: SHOULD BE MINIMIZED
3. PERCENTAGE ORGANIC MATTER: MINIMUM 3% BY VOLUME AND MAXIMUM 8% BY VOLUME
4. SOIL REACTION: pH OF 6 TO 7
5. CEC OF TOTAL SOIL: MINIMUM 10 meq/100mL AT pH OF 7.0
6. BASIS–OF–DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS INDICATED ON DRAWINGS
7. BASIC PROPERTIES: MANUFACTURED SOIL SHALL NOT CONTAIN THE FOLLOWING:
   a. UNACCEPTABLE MATERIALS: CONCRETE SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, BUILDING DEBRIS, ASPHALT, BRICKS, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, ACID, SOLID WASTE, AND OTHER EXTRANEOUS MATERIALS THAT ARE HARMFUL TO PLANT GROWTH.
   b. UNSUITABLE MATERIALS: STONES, ROOTS, PLANTS, SOD, CLAY LUMPS, AND POCKETS OF COARSE SAND THAT EXCEED A COMBINED MAXIMUM OF 5% BY DRY WEIGHT OF THE MANUFACTURED SOIL.
   c. LARGE MATERIALS: STONES, CLODS, ROOTS, CLAY LUMPS, AND POCKETS OF COARSE SAND EXCEEDING 0.187 INCHES (4.76mm) IN ANY DIMENSION
   ACCEPTABLE SOIL AMENDMENTS
   A. NO COMPOST SHOULD BE USED IN THE PLANTING MIX
   B. SPHAGNUM PEAT: PARTIALLY DECOMPOSED SPHAGNUM PEAT MOSS, FINELY DIVIDED OR OF GRANULAR TEXTURE WITH 100PASSING THROUGH THE 1/2–INCH (13mm) SIEVE, A pH OF 3.4 TO 4.8
   C. WOOD DERIVATIVES: SHREDDED WOOD, WOOD CHIPS, GROUND BARK, OR WOOD WASTE; OF UNIFORM TEXTURE AND FREE OF STONES, STICKS, SOIL, OR TOXIC MATERIALS.
   D. MEDIA AMENDMENTS SUCH AS ZERO–VALENT IRON AND/OR DRINKING WATER TREATMENT RESIDUALS (ALUM) TO ENHANCE PHOSPHORUS SORPTION AS SPECIFIED BY ENGINEER.
8. CONSTRUCTION VEHICLES SHALL NOT TREAD OVER THE FOOTPRINTS OF THE PROPOSED STORMWATER MANAGEMENT AREAS.

4 BIORETENTION SOIL MIX
NOT TO SCALE

NEW ENGLAND WETLAND PLANTS INC.
NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES

THE MIX MAY BE APPLIED BY HAND, BY MECHANICAL SPREADER, OR BY HYDRO–SEEDER. AFTER SOWING, LIGHTLY RAKE, ROLL, OR CULTIPACK TO INSURE GOOD SEED–TO–SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE FALL AND WINTER DORMANT SEEDING REQUIRES AN INCREASE IN THE APPLICATION RATE. A LIGHT MULCHING OF CLEAN, WEED–FREE STRAW IS RECOMMENDED.

NEW ENGLAND WETLAND PLANTS INC.
NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES MAY BE APPLIED BY HYDRO SEEDING, BY MECHANICAL SPREADER, OR ON SMALL SITES IT CAN BE SPREAD BY HAND. LIGHTLY RAKE, OR ROLL TO ENSURE PROPER SOIL–SEED CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE SPRING THROUGH MID–SUMMER SEEDING WILL BENEFIT FROM A LIGHT MULCHING OF WEED–FREE STRAW TO CONSERVE MOISTURE. IF CONDITIONS ARE DRIER THAN USUAL, WATERING WILL BE REQUIRED. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICUARLY INFERTILE. PREPARATION OF A CLEAN WEED FREE SEED BASE IS NECESSARY FOR OPTIMAL RESULTS.

ANYWHERE ON THE SITE THAT EXISTING VEGETATION IS TO BE REMOVED WILL REQUIRE IMMEDIATE EROSION CONTROL TREATMENT. SPECIAL CARE SHOULD BE TAKEN WHERE RUNOFF ENTERS WETLANDS. ALL STORM WATER AREAS SHALL BE STABILIZED PRIOR TO DIRECTING STORM WATER TO THEM; SPECIFICALLY ALL BIORETENTION BASINS AND ALL INFILTRATION AREAS.

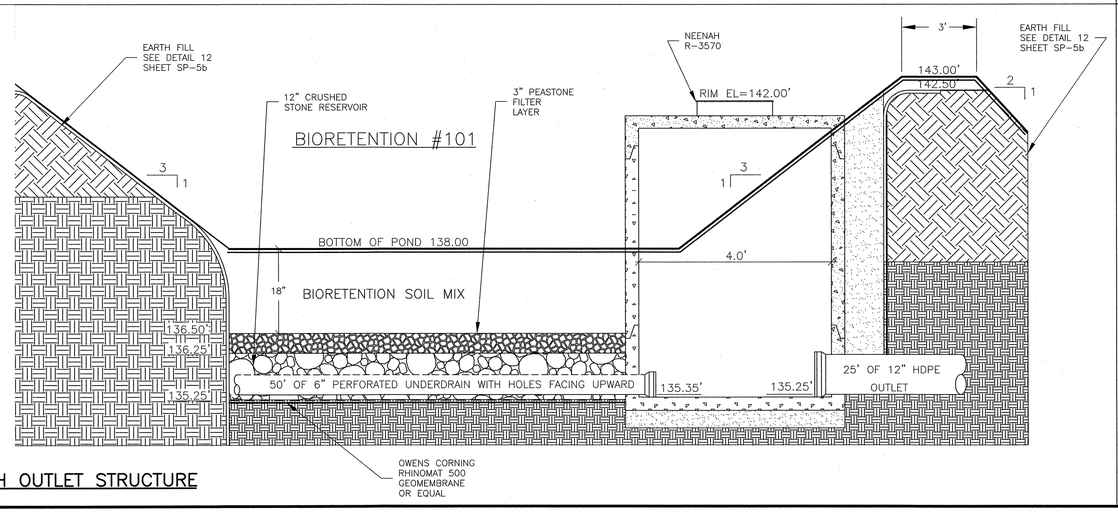
SEEDING LEGEND

– 50/50 BLEND OF NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES AND NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES.

BOTH MIXES FROM NEW ENGLAND WETLAND PLANTS INC.
APPLY: 35 LBS/ACRE : 1250 SQ FT/LB

– LIMITS OF BIORETENTION SOIL MIX

8 BIORETENTION SEEDING
NOT TO SCALE



9 BIORETENTION #101 CROSS SECTION WITH OUTLET STRUCTURE
NOT TO SCALE

12 EARTH FILL
NOT TO SCALE

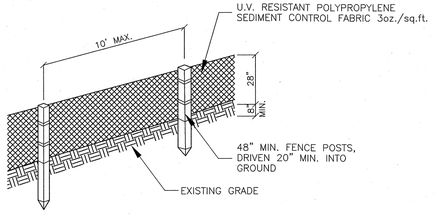
PRELIMINARY

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3890

REVISIONS
DATE: DESCRIPTION:

BIORETENTION DETAILS
DOVER SKATE PARK
PORTLAND AVE & OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 21103

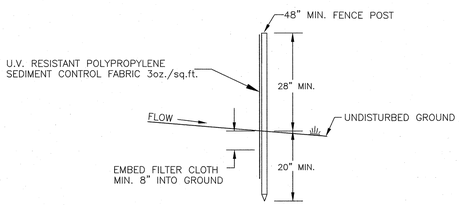
SHEET NO.
SP-4



PERSPECTIVE VIEW

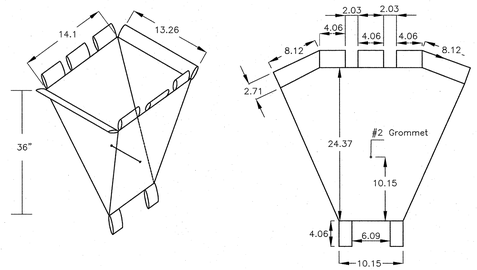
NOTES

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



SECTION

1 SILT FENCE
NOT TO SCALE

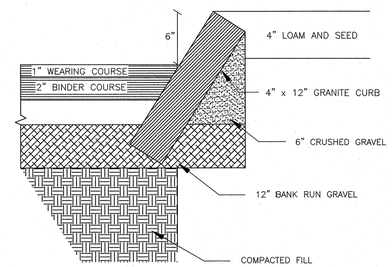


Specifications:

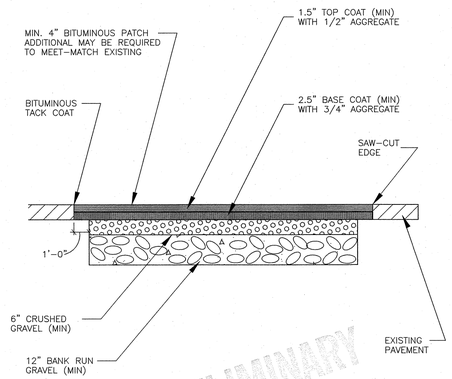
a) Fabric used should not be laminated.
b) Silt sack to have two #2 grommets, one on each of the two sides, 15" from the bottom of the silt sack
c) Tie 1/4" wide yellow rope 19" long through the grommets on two sides of the silt sack.

2 Hi Vis Hi Flow Silt Sack
NOT TO SCALE

*INSTALL IN ALL PROPOSED CATCH BASINS

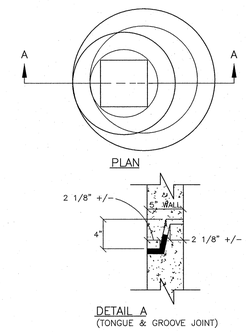


3 SLOPED GRANITE CURB SECTION
NOT TO SCALE



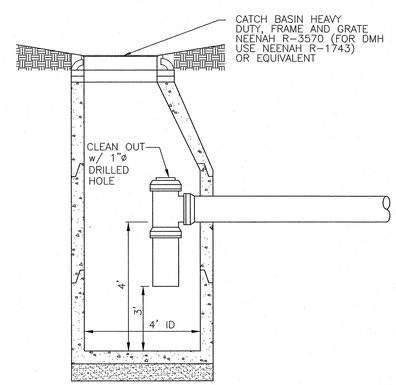
PRELIMINARY

6 PAVEMENT PATCH DETAIL
NOT TO SCALE

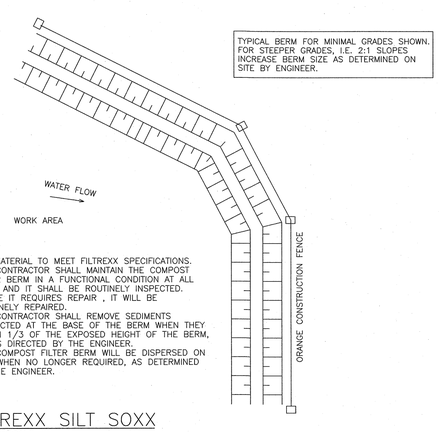


NOTES

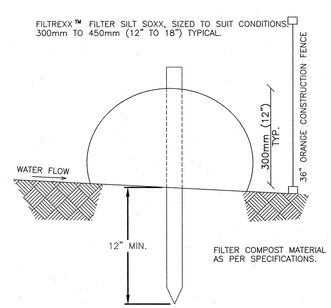
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ.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



11 DEEP SUMP HOODED CATCH BASIN
NOT TO SCALE



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



9 FILTREXX SILT SOXX
NOT TO SCALE

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

CRITICAL AREAS

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

EROSION AND SEDIMENT CONTROL PRACTICES

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

A. Erosion and Sediment Control Measures

1. The erosion control procedures shall conform to Section 645 of the "Standard Specifications for Road and Bridge Construction" of the NH DOT, and the "New Hampshire Stormwater Manual."
2. During Construction and thereafter, erosion control measures are to be implemented as noted. The smallest practical area of land should be exposed at any one time during development. The amount of exposed areas which are temporarily stabilized without permanent stabilization shall be limited to 5 acres.
3. During grading operations, install stone check dams at 50 foot intervals in drainage swales and at drain inlets where shown. Barriers are to be maintained and cleaned until disturbed areas are stabilized.
4. Any disturbed areas which are to be left temporarily, and which will be regraded later during construction shall be machine hay mulched and seeded with rye grass to prevent erosion.
5. Silt fences and other erosion control measures shall be inspected weekly and after every 0.25" rainfall event during the life of the project. All damaged silt fences shall be repaired. Sediment deposits shall periodically be removed.
6. Avoid the use of future open spaces (loam and seed areas) wherever possible during the construction. Construction traffic shall use the roadbeds of future roads and parking areas.
7. Topsoil required for the establishment of vegetation shall be stock piled in amounts necessary to complete finished grading of all exposed areas. All stockpiles shall be located a distance greater than 100 feet from the wetlands.
8. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. Stumps shall be disposed by grinding or fill in an approved facility.
9. All fills shall be placed and compacted to reduce erosion, slippage settlement, subsidence or other related problems.
10. All fill shall be placed and compacted in layers not to exceed 8 inches in thickness.
11. Frozen material or soft, mucky or highly compressible material shall not be incorporated into fills.
12. Fill material shall not be placed on a frozen foundation subgrade.
13. Disturbed areas shall be seeded immediately following finished grading.
14. Limit of exposed area that is temporarily stabilized without permanent stabilization is 5 acres or less.
15. All areas not stabilized by Nov. 1st must be protected by Erosion Control Blankets or equivalent and mulched/seeded with winter rye or oats.
16. All disturbed areas must be seeded and mulched within 3 days of final grading, cut and fill slopes must be stabilized within 72 hours of achieving finished grade and roadways and parking areas must be stabilized within 72 hours of achieving finished grade.
17. All ditches and swales are to be stabilized prior to directing runoff to these features.
18. All cut and fill slopes shall be seeded immediately.
19. An area shall be considered stable if one of the following has occurred:
    a.) Base course gravels are installed in areas to be paved
    b.) A minimum of 85% vegetated growth has been established
    c.) A minimum of 3" of non-erosive material such as stone or riprap has been installed
    d.) Erosion control blankets have been properly installed.

B. Vegetative Practice

All ground areas opened up for construction will be regraded, loamed, seeded and mulched in the shortest practical time. All Temporary and Permanent Seeding must be applied prior to September 15th. Employ temporary erosion and sedimentation control devices as detailed in this plan as necessary until adequate stabilization has been assured.

A. Temporary Seeding & Hay Mulching

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

B. Permanent Seeding & Hay Mulching

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

CONSTRUCTION SEQUENCE

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

MAINTENANCE

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

1. Seeded areas will be fertilized and reseeded as necessary to insure vegetative establishment.
2. The side slopes will be checked after each significant rainfall.
3. The side slopes will be checked weekly and repaired when necessary until adequate vegetation is established.
4. The silt fence barriers will be checked regularly and daily during rain events. Necessary repairs will be made to correct undermining or deterioration of the structures. Sediment shall be removed when it accumulates between 1/3 and 1/2 the height of the erosion control measure.

WINTER CONSTRUCTION NOTES

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

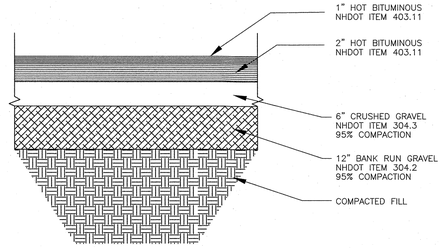
12 EROSION AND SEDIMENT CONTROL NOTES

TRITECH
ENGINEERING CORPORATION
7555 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3830

REVISIONS
DATE: DESCRIPTION:

CONSTRUCTION DETAILS
DOVER SKATE PARK
PORTLAND AVE & OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 2110 3

SHEET NO.
SP-5



GENERAL MATERIALS NOTES – APPLIES TO ALL DETAILS UNLESS NOTED.

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

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

4.) CRUSHED GRAVEL SHALL BE:

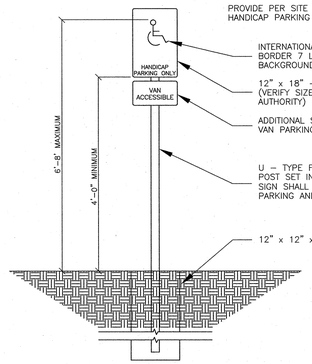
SIEVE	PERCENT PASSING
3"	100%
2"	95 – 100%
1"	55 – 85%
#4	27 –52%
#200	0 – 12%

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

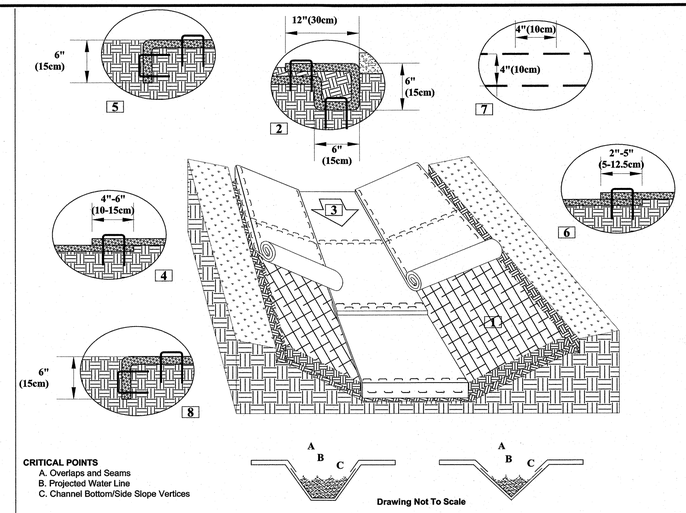
1 TYPICAL PAVEMENT SECTION
NOT TO SCALE

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

PROVIDE PER SITE PLAN – ONE PER EACH HANDICAP PARKING SPACE



2 HANDICAP PARKING SIGN
NOT TO SCALE



CRITICAL POINTS
A. Overlaps and Seams
B. Projected Water Line
C. Channel Bottom/Side Slope Vertices

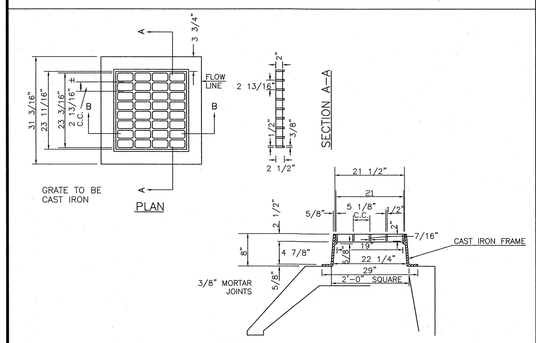
Drawing Not To Scale

NOTES
1. PREPARE SOIL BEFORE IN STALLING ROLLED EROSION CONTROL PRODUCTS (RECPs) INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECPs IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30 cm) OF RECPs EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. USE SHOREMAX MAT AT THE CHANNEL/CULVERT OUTLET AS SUPPLEMENTAL SCOUR PROTECTION AS NEEDED. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" (30 cm) PORTION OF RECPs BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPs.
3. ROLL CENTER RECPs IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE RECPs END–OVER–END (SHINGLE STYLE) WITH A 4"–6" OVERLAP USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECPs.
5. FULL LENGTH EDGE OF RECPs AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6"(15cm) DEEP x 6"(15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECPs MUST BE OVERLAPPED APPROXIMATELY 2"–5"(5–12cm) (DEPENDING ON RECPs TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT(9–12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4"(10cm) APART AND 4"(10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECPs MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12"(30cm) APART IN A 6"(15cm) DEEP X 6"(15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
9. THERE SHALL BE NO PLASTIC, OR MULTI FILAMENT, OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES MATERIAL UTILIZED. (NOT APPLICABLE TO TURF REINFORCEMENT MATS).
10. TURF REINFORCEMENT MATS SHALL BE COVERED WITH SOIL TO PREVENT EXPOSURE OF THE MATS TO THE SURFACE.
11. TO BE USED ON SLOPES OF GREATER THAN 3 TO 1 AND IN THE PROPOSED DRAINAGE SWALES.

NOTES:
***Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.**

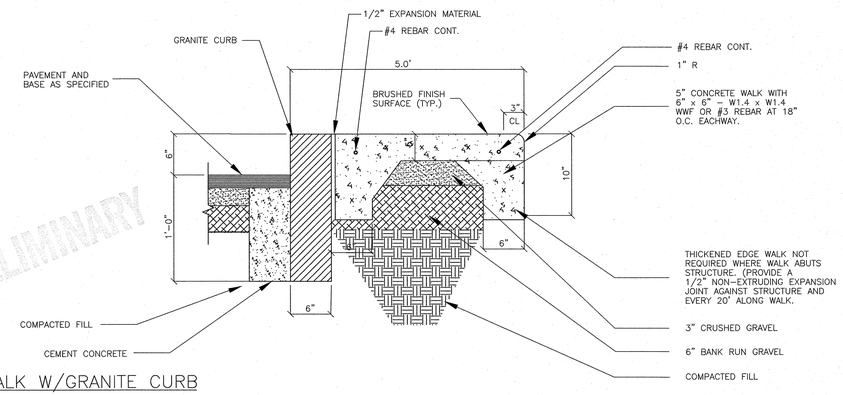
****In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.**

3 EROSION CONTROL BLANKET – NORTH AMERICAN GREEN – SC150BN
NOT TO SCALE



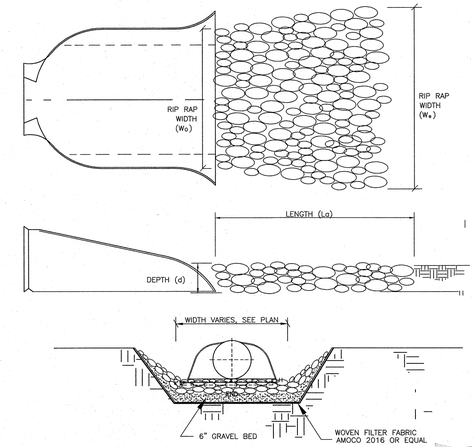
NOTES
1.) USE NEENAH R–3570
2.) FOR SHALLOW INVERTS, USE NEENAH R–3570–A.

5 CATCH BASIN FRAME & GRATE
NOT TO SCALE



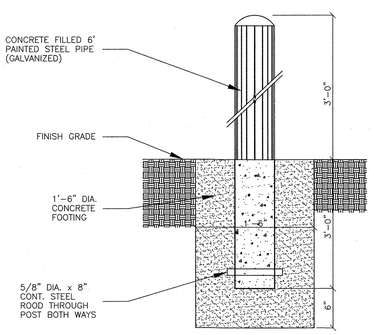
PRELIMINARY

6 CONCRETE WALK W/GRANITE CURB
NOT TO SCALE

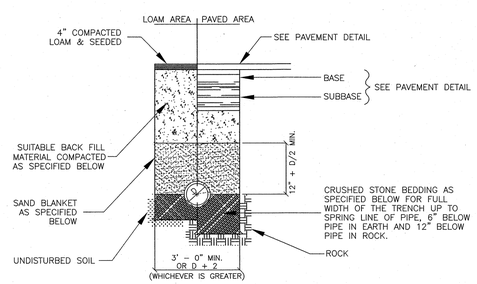


PRELIMINARY

8 RIPRAP DETAIL
NOT TO SCALE



9 BOLLARD
NOT TO SCALE



SAND BLANKET

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

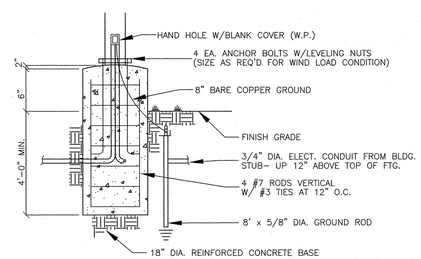
CRUSHED STONE BEDDING

SIEVE SIZE	%FINER BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
#4	0 – 10
#8	0 – 5

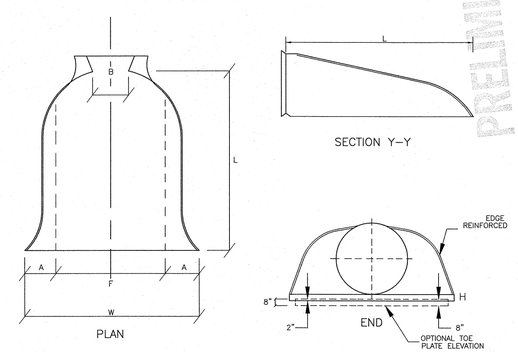
*EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

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

10 STORM DRAINAGE & SEWER PIPE TRENCH
NOT TO SCALE



11 SITE LIGHTING BASE
NOT TO SCALE



PRELIMINARY

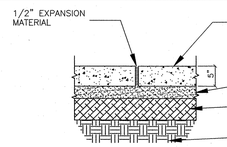
12 CMP FLARED END SECTION
NOT TO SCALE

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

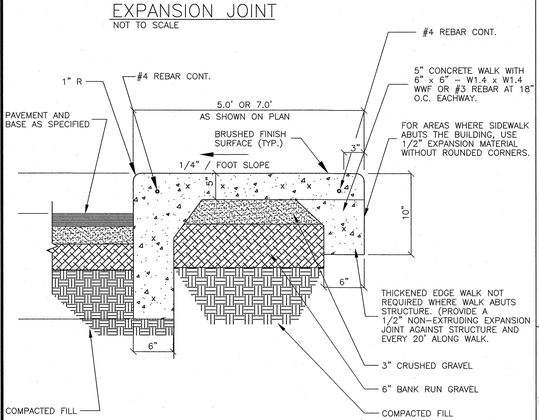
REVISIONS
DATE: DESCRIPTION:

CONSTRUCTION DETAILS
DOVER SKATE PARK
PORTLAND AVE & OAK STREET
DOVER, NEW HAMPSHIRE
JUNE 9, 2022
JOB No. 21103

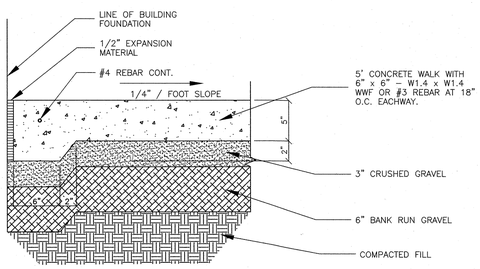
SHEET NO.
SP-6



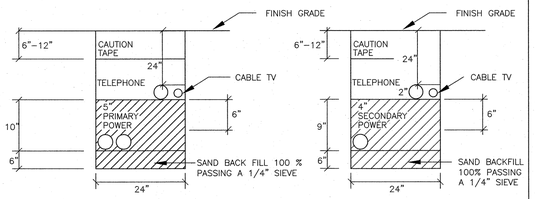
EXPANSION JOINT
NOT TO SCALE



CONCRETE WALK W/CONCRETE CURB
NOT TO SCALE



1 CONCRETE WALK DETAILS
NOT TO SCALE



ELECTRICAL TRENCH "A"
NOT TO SCALE

ELECTRICAL TRENCH "B"
NOT TO SCALE

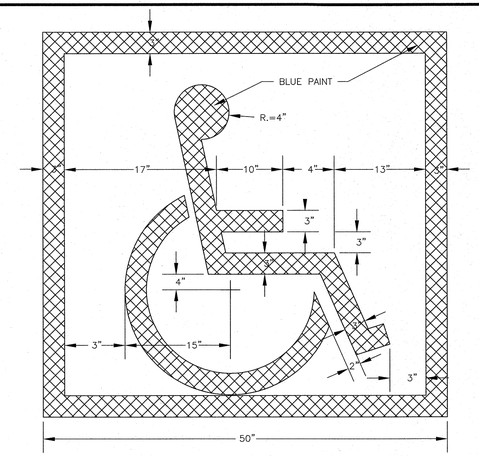
1.) TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.

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

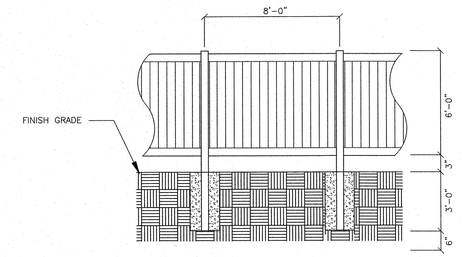
3.) FOR COMPLETE SPECIFICATION SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".

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

2 ELECTRICAL TRENCH
NOT TO SCALE



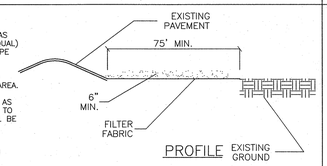
3 HANDICAP SYMBOL DETAIL
NOT TO SCALE



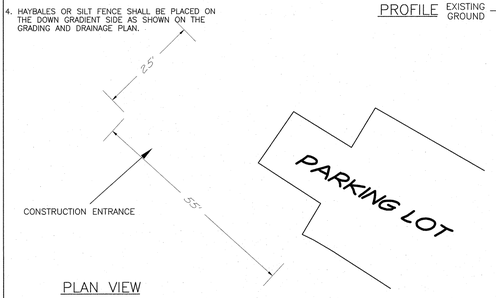
INSTALL 6' TALL VINYL FENCE
POSTS SHALL BE EMBEDDED 36" MINIMUM

4 VINYL STOCKADE FENCE DETAIL
NOT TO SCALE

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



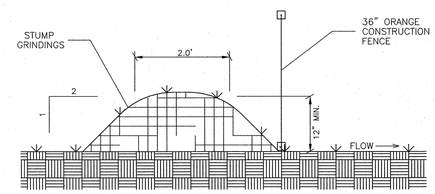
PROFILE



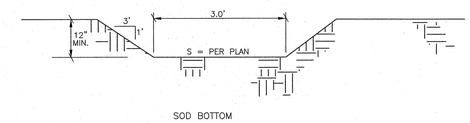
PLAN VIEW

6 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE WILL BE NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSE AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES OF LESS THAN 5%.
4. THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY MASS WEIGHT BASIS, AND BE FIBEROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIALS.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY OR FINE SANDS.
7. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.

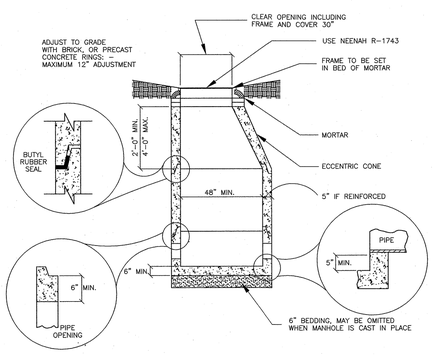


7 EROSION CONTROL MULCH BERM
NOT TO SCALE



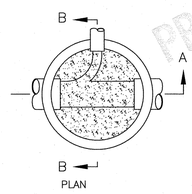
SOD BOTTOM

8 SOD BOTTOM SWALE DETAIL
NOT TO SCALE

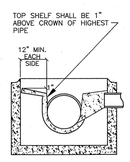


9 DRAIN MANHOLE DETAILS
NOT TO SCALE

TYPICAL SECTION

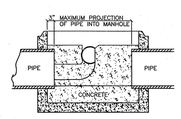


PLAN



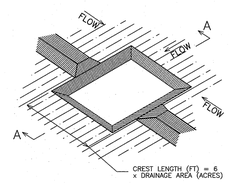
SECTION B–B

NOTE:
CARE SHALL BE TAKEN TO INSURE THAT THE CONCRETE INVERT IS A SMOOTH CONTINUATION OF THE DRAIN INVERT.

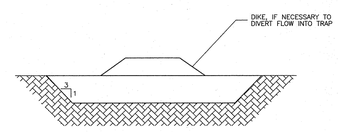


SECTION A–A

BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN



ISOMETRIC VIEW



SECTION A–A

EXCAVATED

11 EARTH OUTLET SEDIMENT TRAP
NOT TO SCALE

SPECIFICATIONS

1. SEDIMENT TRAPS SHOULD BE LOCATED SO THAT THEY CAN BE INSTALLED PRIOR TO DISTURBING THE AREA THEY ARE TO PROTECT.
2. THE TRAP SHOULD BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
3. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHOULD BE LESS THAN 5 ACRES.
4. THE MINIMUM VOLUME OF THE TRAP SHOULD BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
5. THE SIDE SLOPES OF THE TRAP SHOULD BE 3:1 OR FLATTER, AND SHOULD BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
6. THE MAXIMUM HEIGHT OF THE SEDIMENT TRAP EMBANKMENT SHOULD BE 4 FEET WHEN MEASURED FROM THE LOWEST POINT OF NATURAL GROUND ON THE DOWNSTREAM SIDE OF THE EMBANKMENT.
7. THE MINIMUM TOP WIDTH OF THE EMBANKMENT SHOULD BE 6 FEET.
8. THE OUTLET SHOULD BE DESIGNED, CONSTRUCTED AND MAINTAINED IN SUCH A MANNER THAT SEDIMENT DOES NOT LEAVE THE TRAP AND THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
9. OUTLETS SHOULD BE DESIGNED SO THAT THE TOP OF THE EMBANKMENT IS A MINIMUM OF 1 FOOT ABOVE THE CREST ELEVATION OF THE OUTLET. THE OUTLET OF THE TRAP SHOULD BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
10. THE OUTLET SHOULD DISCHARGE TO A STABILIZED AREA. THE OUTLETS MUST EMPTY ONTO UNDISTURBED GROUND, INTO A WATERCOURSE, STABILIZED CHANNEL OR A STORM SEWER SYSTEM.

MAINTENANCE

1. SEDIMENT TRAPS SHOULD BE INSPECTED AT LEAST WEEKLY DURING CONSTRUCTION AND AFTER EVERY STORM (OR DAILY DURING PROLONGED RAINFALL PERIODS), TO INSURE THAT THEY ARE FUNCTIONING PROPERLY AND ARE NOT DAMAGED. REPAIRS SHOULD BE MADE IMMEDIATELY.
2. SEDIMENT SHOULD BE REMOVED AND THE TRAP RESTORED TO ORIGINAL CAPACITY WHEN SEDIMENT HAS ACCUMULATED TO 50% OF THE ORIGINAL VOLUME.
3. THE MATERIALS REMOVED FROM THE TRAP SHOULD BE PROPERLY DISPOSED OF AND STABILIZED.
4. SEDIMENT TRAP OUTLETS SHOULD BE EXAMINED AT THE TIME OF INSPECTION FOR ANY DAMAGE, AND REPAIRED IMMEDIATELY IF ANY SUCH DAMAGE IS OBSERVED.
5 GEOTEXTILE FABRIC OR STONE USED AROUND A PIPE-OUTLET RISER SHOULD BE CHECKED PERIODICALLY AND REPLACED WHEN THE MATERIAL HAS BECOME CLOGGED WITH SEDIMENT.

PRELIMINARY

PRELIMINARY

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

REVISIONS
DATE: DESCRIPTION:

CONSTRUCTION DETAILS
DOVER SKATE PARK
PORTLAND AVE & OAK STREET
DOVER, NEW HAMPSHIRE
JOB NO. 2110 3
JUNE 9, 2022

SHEET NO.
SP-7