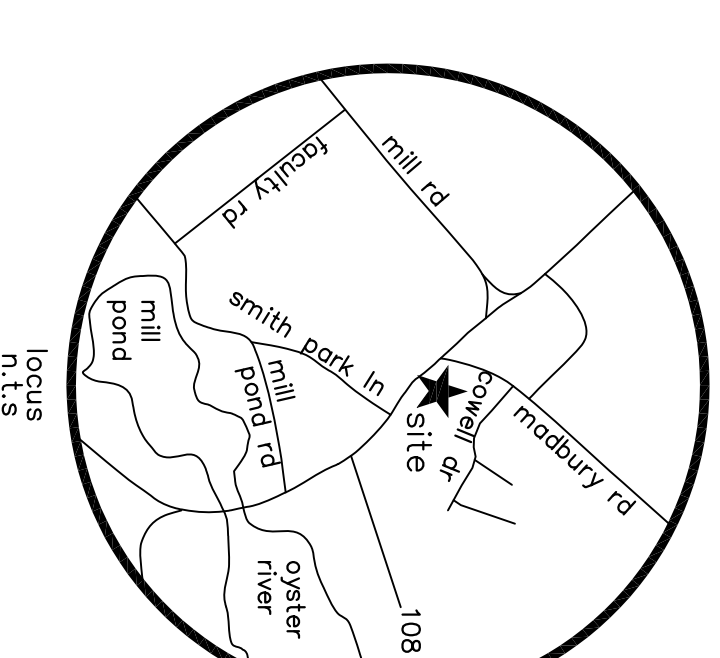
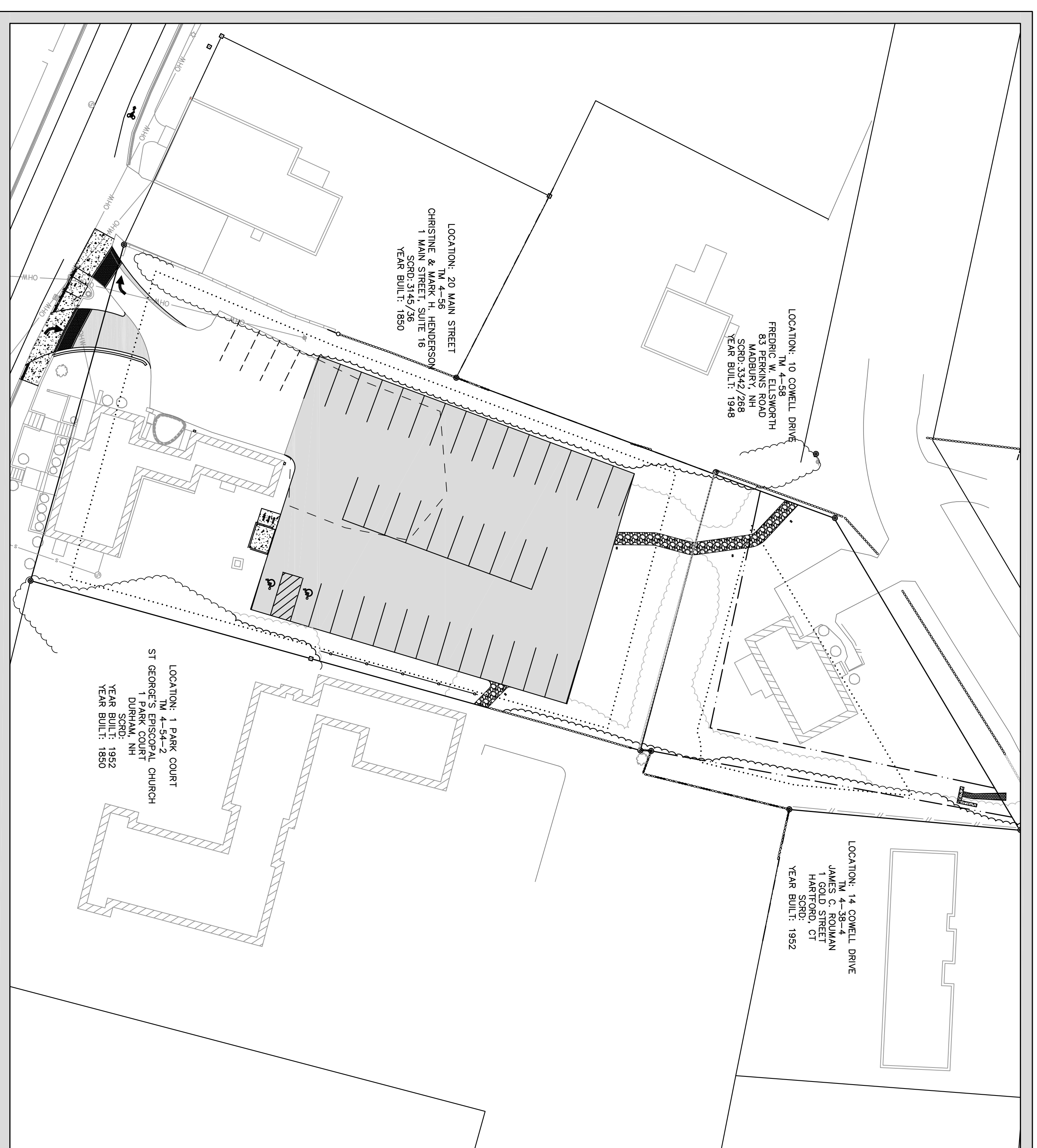


# SITE PLAN

for  
**TOOMERFS, LLC**  
 18 MAIN STREET & 12 COWELL DRIVE  
 DURHAM, NH  
 REVISED FEBRUARY 5, 2019

LEGEND

|       |                           |
|-------|---------------------------|
| ..... | EXISTING PROPERTY LINE    |
| ----- | SEBACK EDGE OF GRAVEL     |
| ----- | EXISTING EDGE OF PAVEMENT |
| ----- | EXISTING TREE LINE        |
| ----- | PROPOSED TREE LINE        |
| ----- | TO BE REMOVED TREE LINE   |
| ----- | PROPOSED TREE LINE        |
| ----- | PROPOSED PARKING SPACES   |
| ----- | PROPOSED SILT SOCK        |
| ----- | PROPOSED PAVEMENT RADIIUS |
| ----- | PROPOSED CONTOUR LINE     |
| ----- | EXISTING CONTOUR LINE     |



| TITLE                               | SHEET |
|-------------------------------------|-------|
| EXISTING CONDITIONS PLAN.....       | C1    |
| PROPOSED SITE PLAN.....             | C1    |
| UTILITY & EROSION CONTROL PLAN..... | C2    |
| LANDSCAPING PLAN.....               | L1    |
| TREE PROTECTION PLAN.....           | L2    |
| LIGHTING PLAN.....                  |       |
| CONSTRUCTION DETAILS.....           | D1-D3 |

### TABLE OF CONTENTS

### TITLE SHEET

**OWNER**  
 TOOMERFS, LLC  
 37 MAIN STREET  
 UNIT 0  
 DURHAM, NH 03824

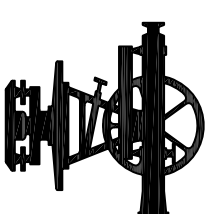
**CIVIL ENGINEER**



**SURVEYOR**  
 NORWAY PLAINS ASSOCIATES, INC.  
 2 CONTINENTAL BOULEVARD  
 ROCHESTER, NEW HAMPSHIRE  
 03867 (603) 335-3948

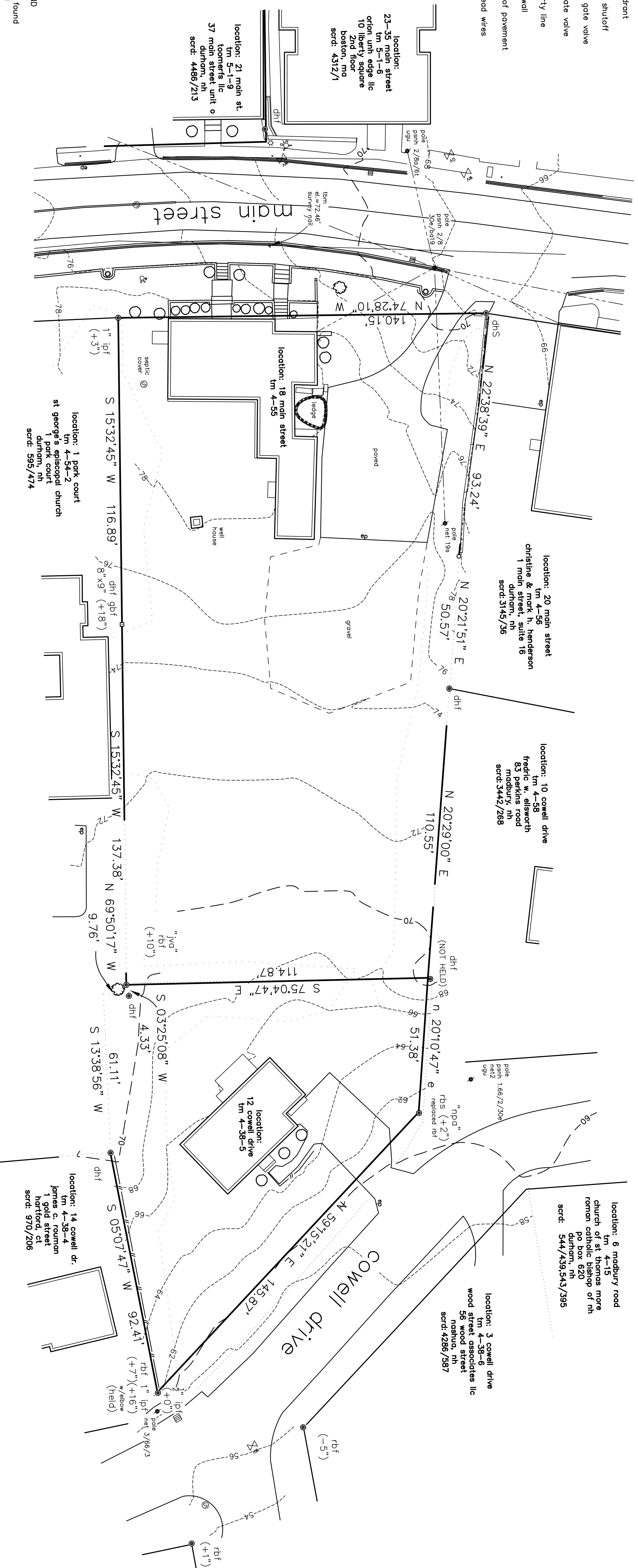
**LANDSCAPE ARCHITECT**  
 WOODBURN & COMPANY  
 103 KENT PLACE  
 NEWMARRKET, NEW HAMPSHIRE  
 (603) 659-5949

| NO. | REVISIONS   | DATE     | INT. |
|-----|---|----------|------|
| 4.  | DESIGN REVISIONS PER COA DATED 2/13/19            | 4/2/19   | EHK  |
| 3.  | DESIGN AND GRADING CHANGES                        | 2/6/19   | EHK  |
| 2.  | DESIGN REVISIONS PER FIRST PLANNING BOARD MEETING | 1/23/19  | EHK  |
| 1.  | PLAN UPDATES                                      | 11/29/18 | EHK  |
| 0.  | INITIAL SUBMISSION TO DURHAM PLANNING BOARD       | 10/5/18  | EHK  |



reserved registry of deeds

- LEGEND
- existing
  - monument
  - ☆ lamp post
  - utility pole
  - bush
  - deciduous tree
  - ☒ catch basin
  - ☒ firehydrant
  - ☒ water shutoff
  - ☒ water gate valve
  - ☒ gas gate valve
  - N 89°56'30" E 425.61' property line
  - stonewall
  - edge of pavement
  - overhead wires
  - fence



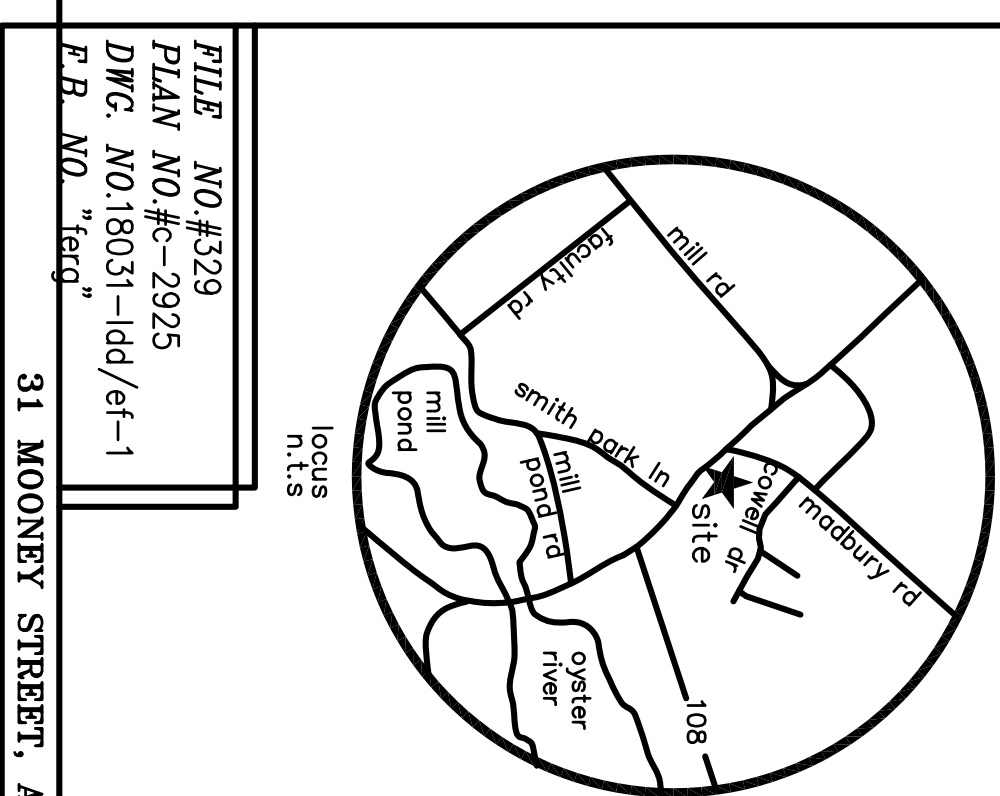
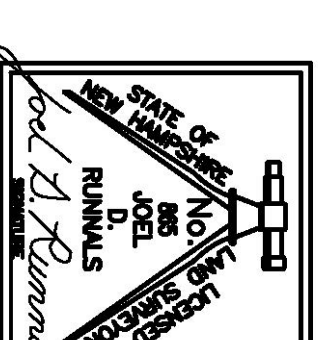
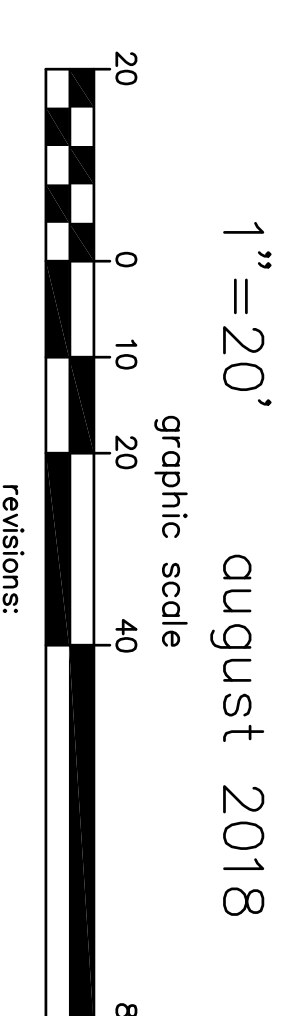
abbreviation legend:  
 dhf – drill hole FOUND  
 dhs – drill hole set  
 gbf – granite bound  
 ipf – iron pipe found  
 rpf – rebar found  
 (+2) – indicates height of the monument  
 st – Stafford county registry of deeds  
 stsd – Stafford county registry of deeds

- reference plans:
1. "plan of land of the catholic church, ray moorehead, r.s. & m.w. hamron, durham, nh" dated: sep. 19, 1920 by r.s. hamron, m.w. hamron, m.j. steele recorded: serd 1-3-13
  2. "title & same statement, proposed part of office site, durham, new hamphshire" dated: sep. 28, 1928 by r.s. hamron, m.w. hamron, m.j. steele, stsd & surveying unit recorded: serd 1-3-31
  3. "plan of land of st. george's church, durham, nh" dated: april 10, 1952 by r.s. hamron recorded: serd 1-3-45
  4. "plan showing land for new england tel-tel co, durham, nh" dated: june 1956 by thomas collard recorded: serd 2-14-19
  5. "plan of land of mrs. howard williams jones, durham, nh" dated: june 2, 1952 by r.s. hamron recorded: serd 1-3-44
  6. "durham ems, main street" dated: nov. 14, 1931 by w.s. wheeler, ce recorded: serd 3-3-40
  7. "plan of land of r.s. & m.w. hamron, durham, nh" dated: may 9, 1950 by m.j. chase & r.s. hamron recorded: serd 4-3-4
  8. "report of lots, property in durham, nh of home and lowen and h.w. lowen" dated: sept. 1945 by unknown recorded: serd 4-3-18
  9. "property in durham, nh of episcopal diocese of new hamphshire" dated: aug. 1924 by c.e. dudge recorded: serd 4-3-44
  10. "esement plan, 1 park court, durham, new hamphshire, owner: bishop of the protestant episcopal church in new hamphshire, assessor's parcel no. 004-054-002" dated: oct. 1983 by james verra and associates, inc recorded: serd 99-41

- notes:
1. total parcel areas:  
 tm 4-55: 32,054 sf/0.74 acres  
 tm 4-38-5: 12,394 sf/0.28 acres
  2. parcel zoning  
 tm 4-55 is in the church hill zone  
 tm 4-38-5 is in the residence A zone
  3. minimum lot requirements:  
 residence A:  
 lot size = 20,000 sf  
 frontage = 100'  
 Church Hill:  
 lot size = 5,000 sf  
 frontage = 50'
  4. building setbacks:  
 residence A = fy = 30', sy = 10', ry = 20'  
 church hill = fy = 15', sy = 5', ry = 15'
  5. the lots are serviced by the municipal water and sewer system.
  6. the lots are not located within the 100 year flood zone as shown on the flood insurance rate map dated 9/30/15 community panel 3301760318e.
  7. parcels maybe subject to any easements of record

tm 4-55 & 4-38-5  
 owner of record:  
 toomerfs, llc  
 37 main street unit o  
 durham, nh  
 serd: 4486/213

existing features plan  
 main street aka NH ROUTE 108  
 & cowell drive, durham  
 stafford county, nh  
 for: toomerfs, llc  
 1" = 20' august 2018

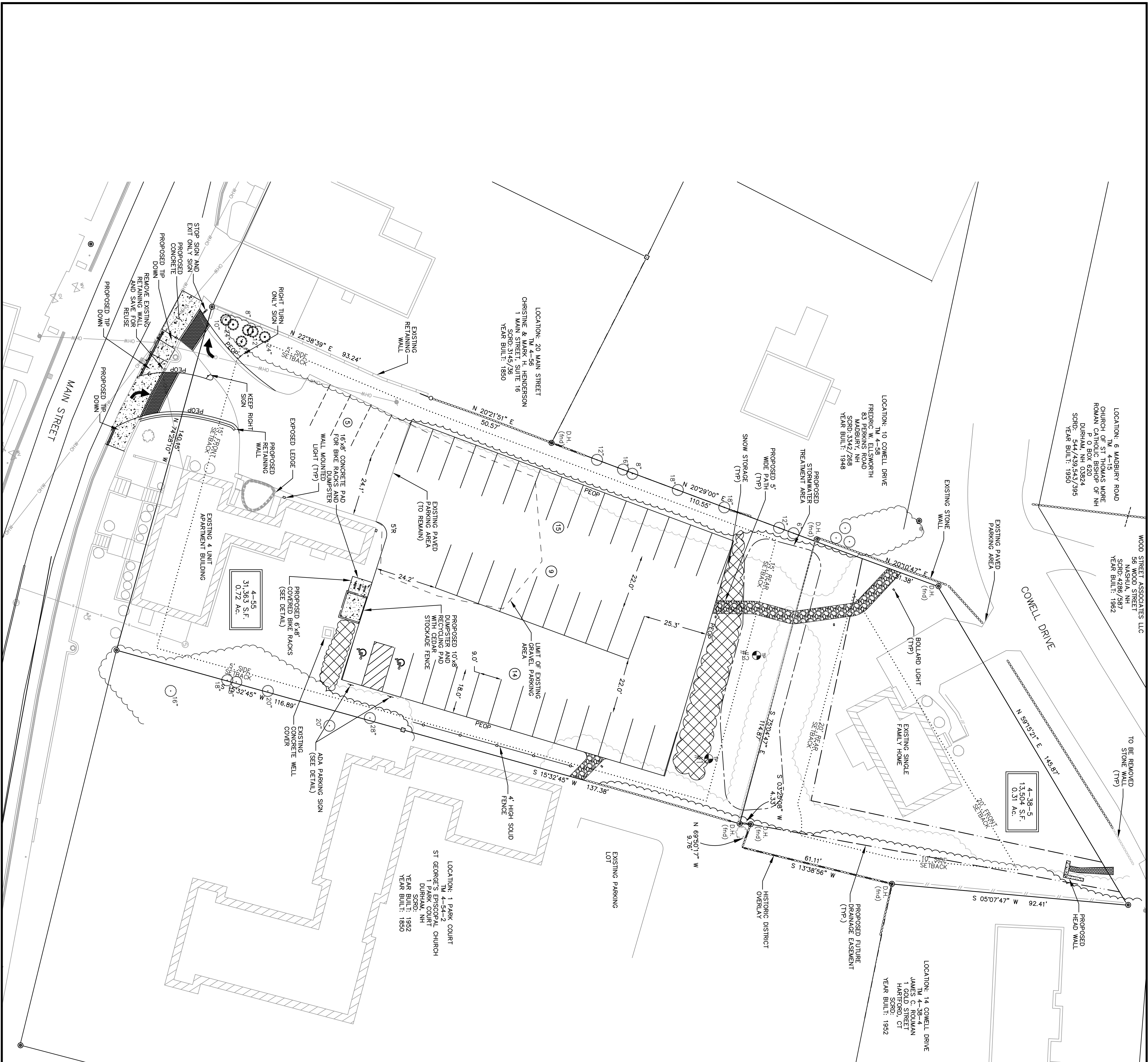


FILE NO.#329  
 PLAN NO.#c-2925  
 DWG. NO.18031-ldd/6-1  
 P.B. NO. "tag"

31 MOONEY STREET, ALTON, NH 603-875-3948

NORWAY PLAINS ASSOCIATES, INC.

2 CONTINENTAL BLVD., ROCHESTER, NH 603-335-3948



**GENERAL NOTES:**

- OWNER OF RECORD:  
 DURHAM, NEW HAMPSHIRE 03824  
 S.C.R.D. BOOK 4486, PAGE 213  
 OWNER OF RECORD:  
 TOOMERS, LLC  
 1 PARK COURT  
 DURHAM, NEW HAMPSHIRE 03824  
 S.C.R.D. BOOK 4486, PAGE 213
- LOT AREA: 72 ACRES (31,363 S.F.)
- REFERENCE PLANS:  
 A. EXISTING FEATURES PLAN MAIN STREET AKA NH ROUTE 108 AND COWELL DRIVE, DURHAM STRAFFORD COUNTY, NH PREPARED FOR TOOMERS, LLC, PREPARED BY NORWAY PLANS ASSOCIATES, INC. DATED AUGUST, 2018.  
 B. VERTICAL DATUM IS ASSUMED.  
 C. UNPERVIOUS SURFACE RATIO FOR LOT 4-55:  
 EXISTING = 28.6% (6,960 S.F.)  
 PROPOSED = 63.9% (20,032 S.F.)  
 DISCONNECTED IMPERVIOUS COVER = 0 S.F.  
 EFFECTIVE IMPERVIOUS AREA (EIA) = 20,032 S.F.
- ALL OUTSIDE CONSTRUCTION RELATED ACTIVITY RELATED TO THE DEVELOPMENT OF THIS SITE IS RESTRICTED TO THE HOURS OF 7:00 A.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY AND 8:00 A.M. TO 5:00 P.M. SATURDAY.
- FOR MORE INFORMATION ABOUT THIS SITE PLAN, OR TO SEE THE COMPLETE PLAN SET, CONTACT THE TOWN OF DURHAM PLANNING DEPARTMENT, 8 NEWMARKET ROAD, DURHAM, NH 03824, (603) 888-8064.
- ALL EXTERIOR LIGHTING MUST BE FULLY SHIELDED AND NOT PROJECT GLARE TOWARD ANY ADJUTING PROPERTIES.
- ACCESS INTO THE SITE FOR FIRE APPARATUS SHALL BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PROCESS. PLEASE CONTACT THE TOWN OF DURHAM PLANNING DEPARTMENT AT 888-5531 WITH ANY QUESTIONS ABOUT ACCESS REQUIREMENTS.
- SNOW SHALL NOT BE PUSHED AGAINST TREES OR SHRUBS IN ANY MANNER THAT COULD DAMAGE THEM.
- THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD BEFORE PROCEEDING WITH THE PROPOSED WORK. THIS INCLUDES DISCREPANCIES BETWEEN THESE PLANS AND ANY OTHER PLANS OR CONTRACT DOCUMENTS.

**SITE DATA BLOCK**

PLAN INTENT: THE PROPOSAL IS TO CONSTRUCT A NEW PAVED PARKING LOT ON THE SUBJECT PARCEL.  
 ZONE: CH - CHURCH HILL  
 OVERLAY DISTRICTS: HISTORIC DISTRICT  
 USE: COMMERCIAL

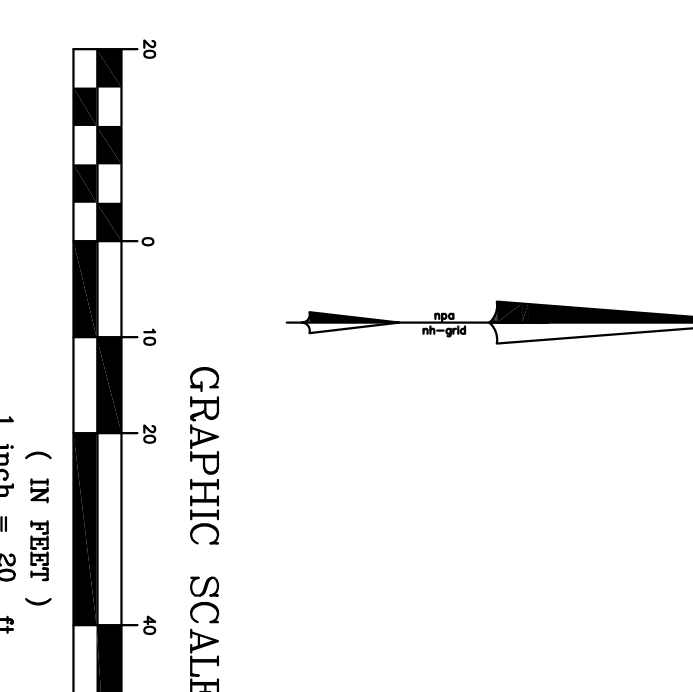
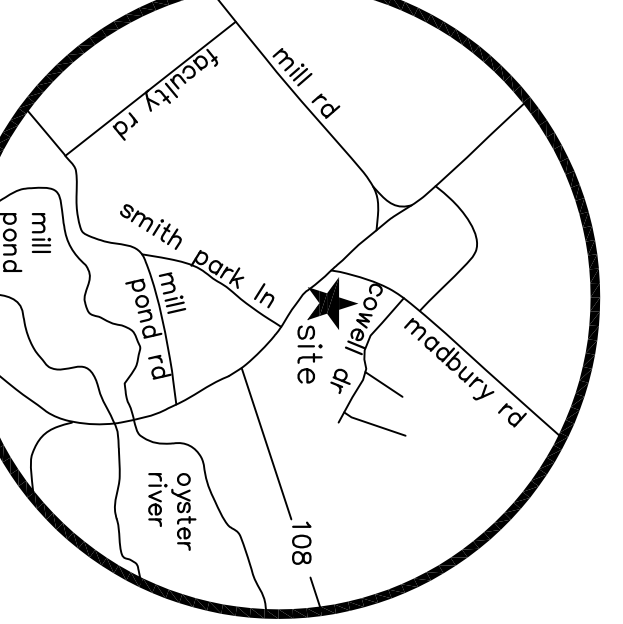
**DIMENSIONAL REQUIREMENTS**

| MINIMUM LOT SIZE (SQUARE FEET)         | REQUIRED IN CH DISTRICT | REQUIRED IN EA DISTRICT |
|--|-------------------------|-------------------------|
| 5,000 SF                               | 50                      | 20,000 SF               |
| MINIMUM FRONTAGE (FEET)                | 50                      | 100                     |
| MINIMUM LOT SETBACKS                   | 15'                     | 30'                     |
| FRONT (FEET)                           | 5'                      | 10'                     |
| REAR (FEET)                            | 15'                     | 20'                     |
| MAXIMUM ROAD SETBACK (FEET)            | 15'                     | 30'                     |
| MAXIMUM HEIGHT W/ P.B. APPROVAL (FEET) | 35'                     | 35'                     |
| IMPERVIOUS SURFACES RATIO              | 80%                     | 33%                     |

**PARKING REQUIREMENTS**

| USE  | OCCUPANTS | REQUIRED                      | EXISTING  | PROPOSED   |
|--|-----------|-------------------------------|-----------|------------|
| LOT 4-55   |           |                               |           |            |
| DWELLING UNITS - PERMITTED FOR 3 OR MORE UNRELATED OCCUPANTS | 15        | 1 SPACES/OCCUPANT = 15 SPACES | 17 SPACES | 43 SPACES* |

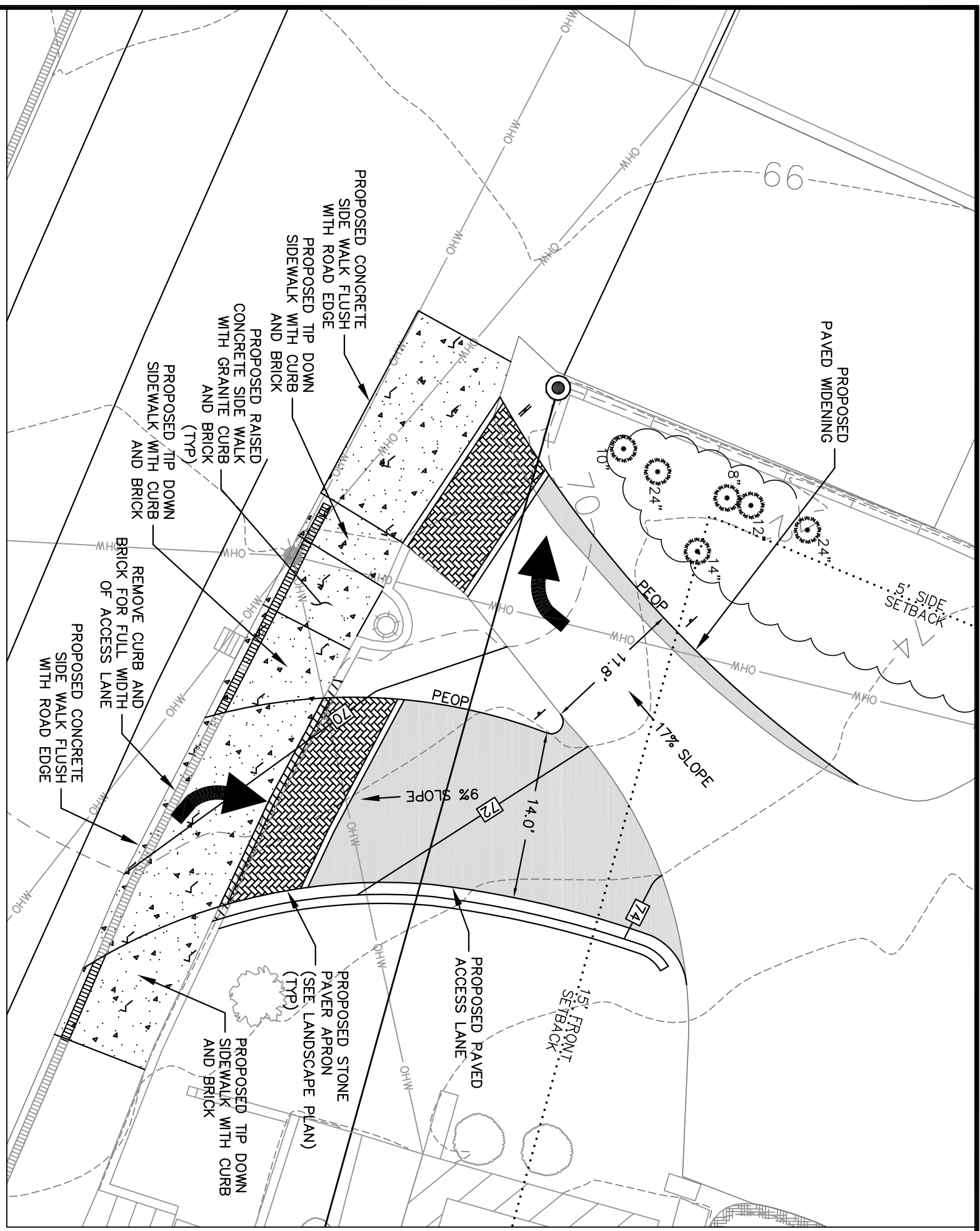
\*PER ARTICLE 10, SECTION 10.2.2, PARKING LOTS MAY CONTAIN UP TO THE PERCENT (17%) OF SPACES MORE THAN THE REQUIRED MINIMUM. CONDITIONAL USE REQUIRED.  
 NOTE: ADDITIONAL PARKING SPACES FOR USE BY LOTS 1-3, 1-10, AND 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-18, 1-19, 1-20, AND 1-21 ARE REQUIRED.



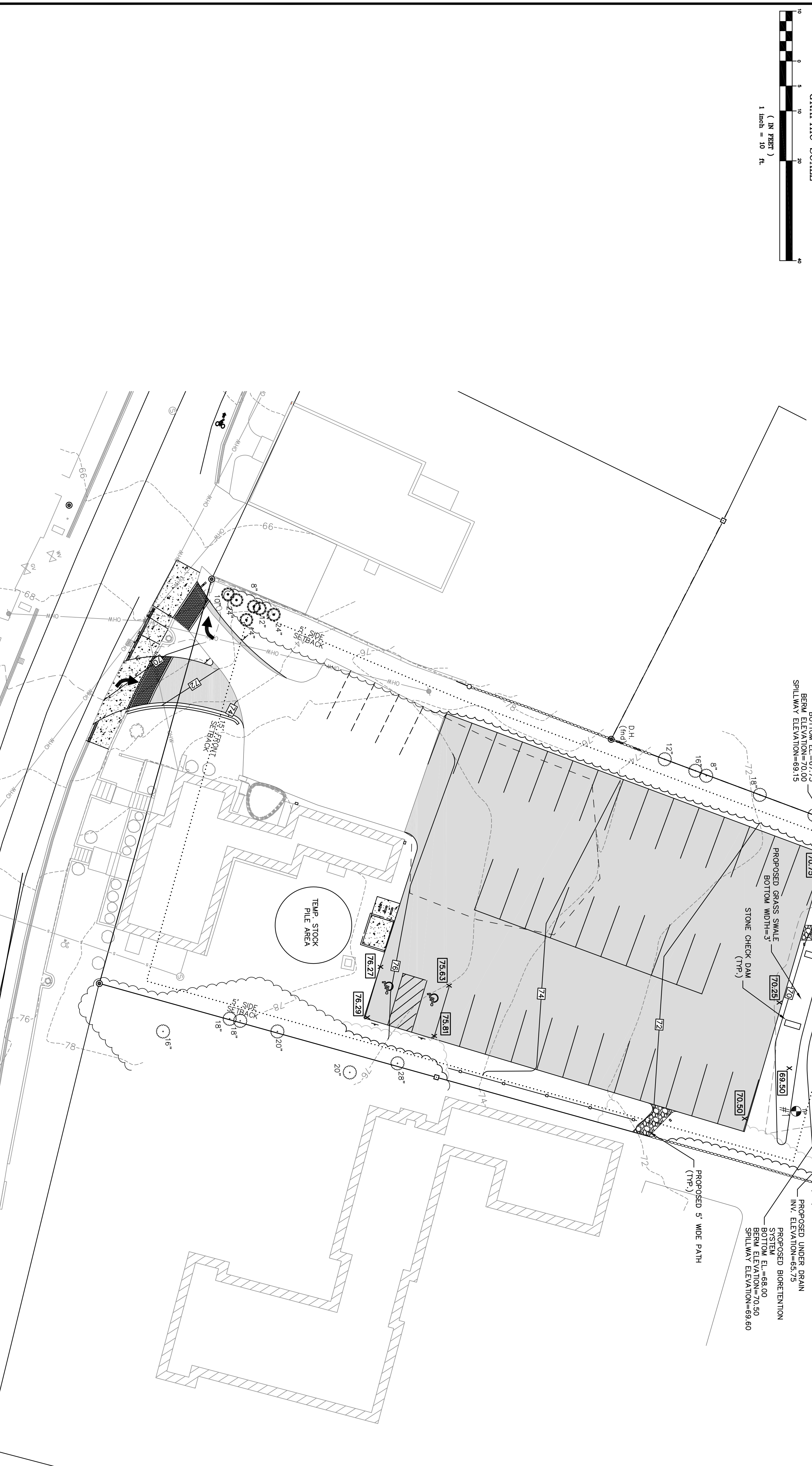
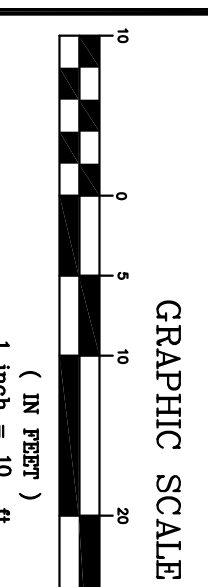
FINAL APPROVAL BY DURHAM PLANNING BOARD.  
 CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER  
 DATE \_\_\_\_\_

UTILITIES NOTE:  
 ALL ELECTRICAL, GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH. CALL DIG-5SAFE: 1-888-UC-SAFE (1-888-544-7233)

|  |  |  |   |   |  |
|--|--|--|---|---|--|
| <br>5 RAILROAD ST., P.O. BOX 3559<br>NEWHAMPSHIRE, NH 03857<br>PHONE: (603) 659-4979, FAX: (603) 659-4627<br>E-MAIL: MJS@MJS-ENGINEERING.COM | <b>SITE PLAN</b><br>prepared for<br><b>TOOMERS, LLC</b><br>TAX MAP 4, LOTS 38-5 AND 55<br>18 MAIN ST AND 12 COWELL DR., DURHAM, NH |  | DATE: 10/5/18<br>SCALE: 1"=20'<br>DESIGNED BY: EHK<br>DRAWN BY: EHK<br>APPROVED BY: MJS<br>DWG FILE: 18-040 Civil.dwg | 5. DESIGN REVISIONS PER COA DATED 2/13/19<br>4. DESIGN REVISIONS PER PUBLIC HEARING ON 1/9/19<br>3. DESIGN REVISIONS PER FIRST PLANNING BOARD MEETING<br>2. PLAN UPDATES<br>1. REDESIGN PARKING LOT ENTRANCE AND DRAINAGE<br>0. INITIAL SUBMISSION TO DURHAM PLANNING BOARD | 4/2/19 EHK<br>1/28/19 EHK<br>1/3/19 EHK<br>11/29/18 EHK<br>11/26/18 EHK<br>10/5/18 EHK |
|  | JOB: 18-040<br>C1  |  |   | REVISIONS<br>NO. _____ DATE _____ INT. _____  |  |



ENTRANCE LAYOUT  
 SCALE: 1" = 10'



- GRADING, DRAINAGE, UTILITY & EROSION CONTROL NOTES**
1. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL THE VEGETATION IS ESTABLISHED AND THE GROUND SURFACE IS STABILIZED. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MONITORED BY THE APPLICANT ON A PERIODIC BASIS DURING CONSTRUCTION AND ANY EROSION OR SEDIMENTATION SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
  2. REFER TO CONSTRUCTION AND SEDIMENTATION AND EROSION CONTROL NOTES ON SHEET 3.
  3. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS PUBLISHED BY THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, IS APPLICABLE TO ALL DISTURBED AREAS NOT PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" OF MINIMUM COMPACTATION.
  4. REFER TO CONSTRUCTION AND SEDIMENTATION AND EROSION CONTROL NOTES ON SHEET 5.
  5. COMPACTATION REQUIREMENTS:
    - BELOW PAVED OR CONCRETE AREAS: 95%
    - TRENCH BEDDING MATERIAL AND BELOW LOW AND SED AREAS: 90%
    - ALL PERCENTAGES OF COMPACTATION SHALL BE OF THE MAXIMUM PROCTOR DENSITY.
  6. ADJUST ALL MANHOLES, CATCH BASINS ETC. WITHIN LIMITS OF WORK TO FINISHED EROSION CONTROL DEVICES SHALL BE INSPECTED AFTER EACH RAIN STORM OF 0.25 INCHES OR GREATER. DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED/MODIFIED AS NECESSARY.
  7. EROSION CONTROL DEVICES SHALL RECEIVE TEMPORARY EROSION CONTROL MEASURES.
  8. REPAIRED/MODIFIED AS NECESSARY.

**TEST PIT DATA:**

1. LOCATION: \_\_\_\_\_

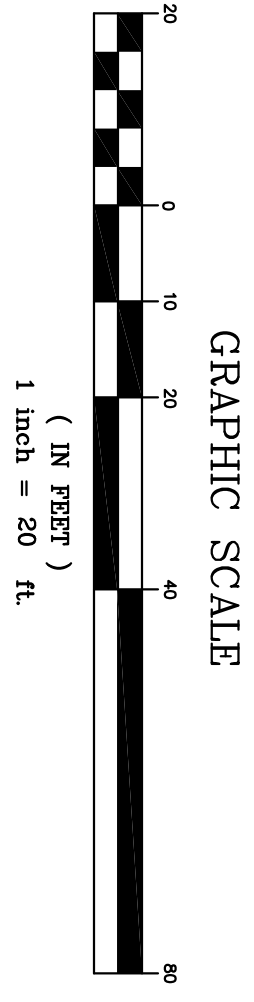
DEPTH: \_\_\_\_\_

1.2-1.5' VERY FINE SILT LOAM AND FILL WITH GRANITE

NO SHUNT TO 36"

TEST PITS LOCATED ON 8/22/18 BY MICHAEL J. SEVERT, MJS ENGINEERING, PC.

**UTILITIES NOTE:**  
 GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. LAND AND WORK WHATSOEVER SHALL BE UNDERGONE ON WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH. CALL 811-888-SAFE (1-888-344-7233).



FINAL APPROVAL BY DURHAM PLANNING BOARD.  
 CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER  
 DATE \_\_\_\_\_

| NO. | REVISIONS   | DATE     | INT. |
|-----|---|----------|------|
| 6.  | DESIGN REVISIONS PER COA DATED 2/13/19            | 4/2/19   | EHK  |
| 5.  | GRADING REVISIONS                                 | 2/5/19   | EHK  |
| 4.  | DESIGN REVISIONS PER PUBLIC HEARING ON 1/9/19     | 1/28/19  | EHK  |
| 3.  | DESIGN REVISIONS PER FIRST PLANNING BOARD MEETING | 1/3/19   | EHK  |
| 2.  | PLAN UPDATES                                      | 11/29/18 | EHK  |
| 1.  | REDESIGN PARKING LOT ENTRANCE AND DRAINAGE        | 11/26/18 | EHK  |

DATE: 10/5/18  
 SCALE: 1"=20'  
 DESIGNED BY: EHK  
 DRAWN BY: EHK  
 APPROVED BY: MJS  
 DWG FILE: 18-040 CIVIL.dwg

GRADING, DRAINAGE & EROSION CONTROL PLAN  
 prepared for  
**TOOMERFS, LLC**  
 TAX MAP 4, LOTS 38-5 AND 55  
 18 MAIN ST AND 12 COWELL DR., DURHAM, NH

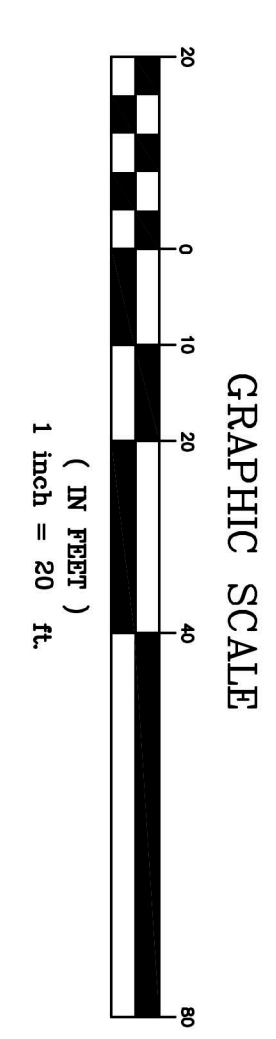
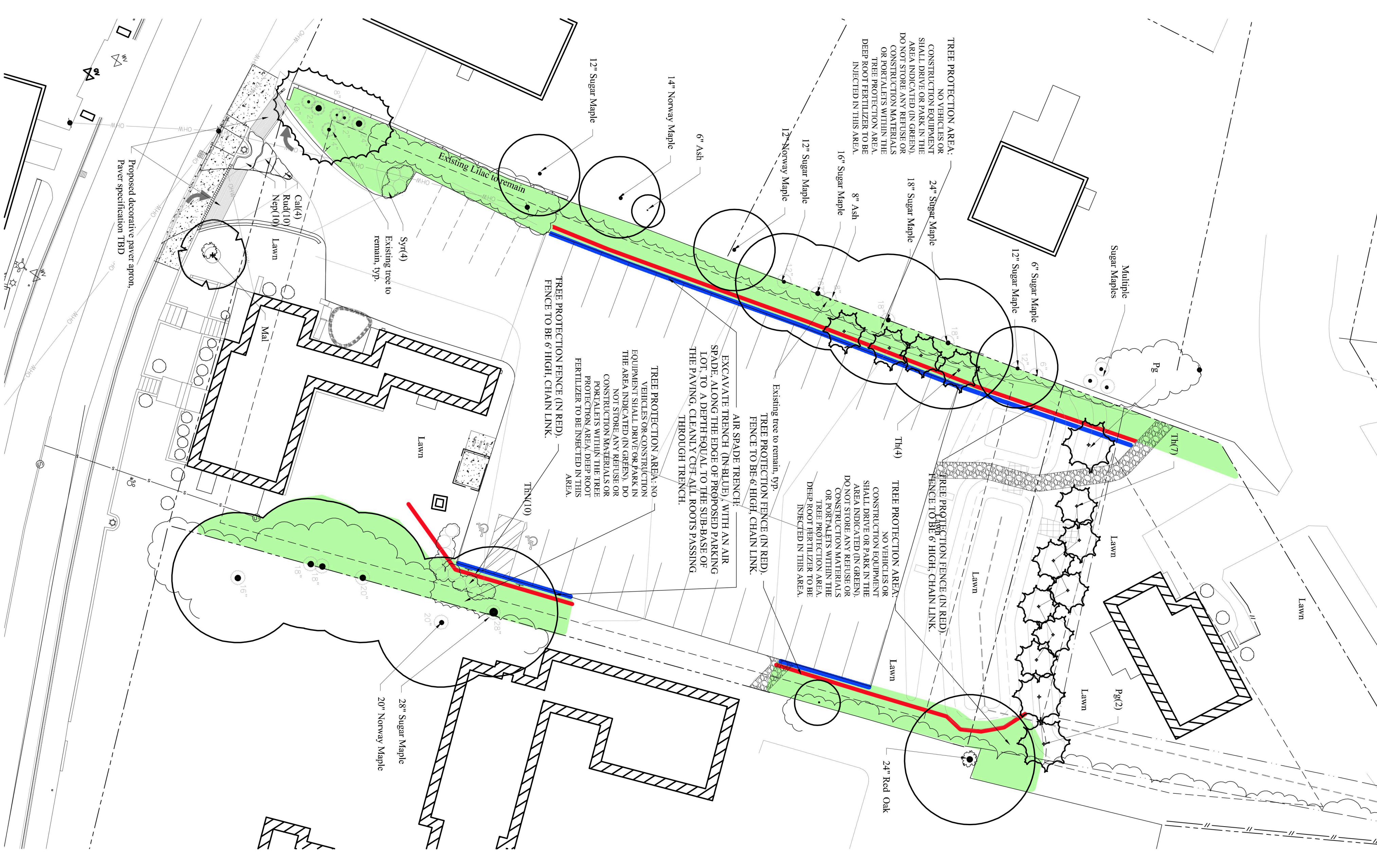
5 RAILROAD ST., P.O. BOX 359  
 NEWHAMPSHIRE, NH 03857  
 PHONE: (603) 659-4979, FAX: (603) 659-4627  
 E-MAIL: MJS@MJS-ENGINEERING.COM

C2  
 JOB: 18-040

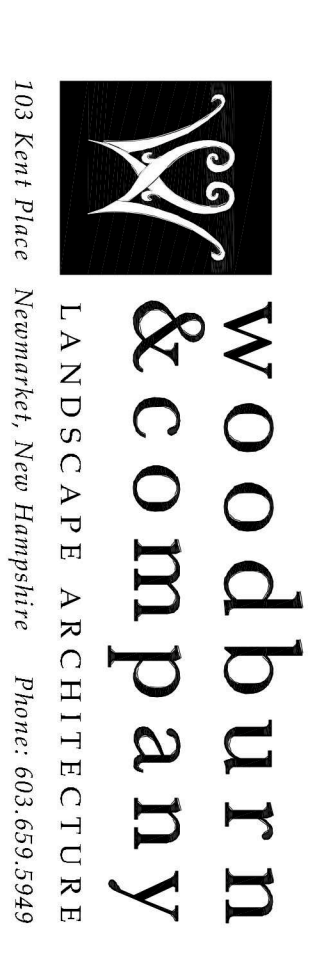


**Landscape Notes**

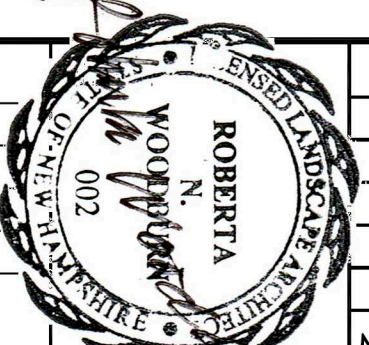
1. Design is based on drawings by MJS Engineering dated December 2018 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water Bodies, Wetlands and/or drainage ways prior to any construction.
4. The contractor shall obtain all necessary permits from the appropriate regulatory agencies prior to construction.
5. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water Bodies, Wetlands and/or drainage ways prior to any construction.
6. It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A project that is not to scale will be rejected.
7. Trees to remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's representative. Snow fence shall be installed in a line with the tree's drip line and shall be supported by 2x4 posts. Snow fence shall be installed in a line with the tree's drip line and shall be supported by 2x4 posts. Snow fence shall be installed in a line with the tree's drip line and shall be supported by 2x4 posts.
8. Location, support, protection, and restoration of all existing utilities and stormwater shall be the responsibility of the Contractor.
9. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call before you dig.
10. Prior to any landscape construction activities, Contractor shall treat all existing lawn and lawn from off site intended to be used for lawn and mow materials, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings.
11. Contractor shall notify landscape architect of owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. It is representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
12. The Contractor shall furnish and plant all plants shown on the drawings and listed therein. All plants shall be nursery-grown specimens of size, culture, and quality for the highest grades and standards as accorded by the American Association of Nurserymen, Inc. in the American Standard Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Nagsongton, O.C. 20005.
13. A list of plants including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
14. All plants shall be applied tagged with proper botanical name.
15. Owner or Owner's Representative will inspect plants upon delivery for conformity to specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and reject plants at any time during the progress of the work.
16. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
17. An underground sprinkling system.
18. An outside hose attachment within 150 feet.
19. The contractor is responsible for all plant material from the time their work commences until final acceptance. This includes but is not limited to maintaining all plants in good condition, the security of the plant material once delivered to the site, and watering of plants. Plants shall be appropriately watered prior, during and after planting. It is the contractor's responsibility to ensure that all plants are properly watered.
20. All disturbed areas will be seeded with 6" of topsoil and planted as noted on the plans or seeded except plant stock. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
21. All disturbed areas shall be seeded with 6" of topsoil and planted as noted on the plans or seeded except plant stock. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
22. In no case shall mulch be applied to a depth of more than 3" over any plant.
23. In no case shall mulch be applied to a depth of more than 3" over any plant.
24. In no case shall mulch be applied to a depth of more than 3" over any plant.
25. In no case shall mulch be applied to a depth of more than 3" over any plant.
26. In no case shall mulch be applied to a depth of more than 3" over any plant.
27. Snow shall be stored a minimum of 5' from shrubs and trucks of trees.
28. Landscape Architect is not responsible for the means and methods of the contractor.



FINAL APPROVAL BY DURHAM PLANNING BOARD.  
CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER  
DATE \_\_\_\_\_



DATE: 7/12/19  
SCALE: 1"=20'  
DESIGNED BY: VM  
DRAWN BY: VM  
APPROVED BY: RW  
DWG FILE:



| NO. | REVISIONS          | DATE    | INT. |
|-----|--------------------|---------|------|
| 0.  | INITIAL SUBMISSION | 7/12/19 | VM   |

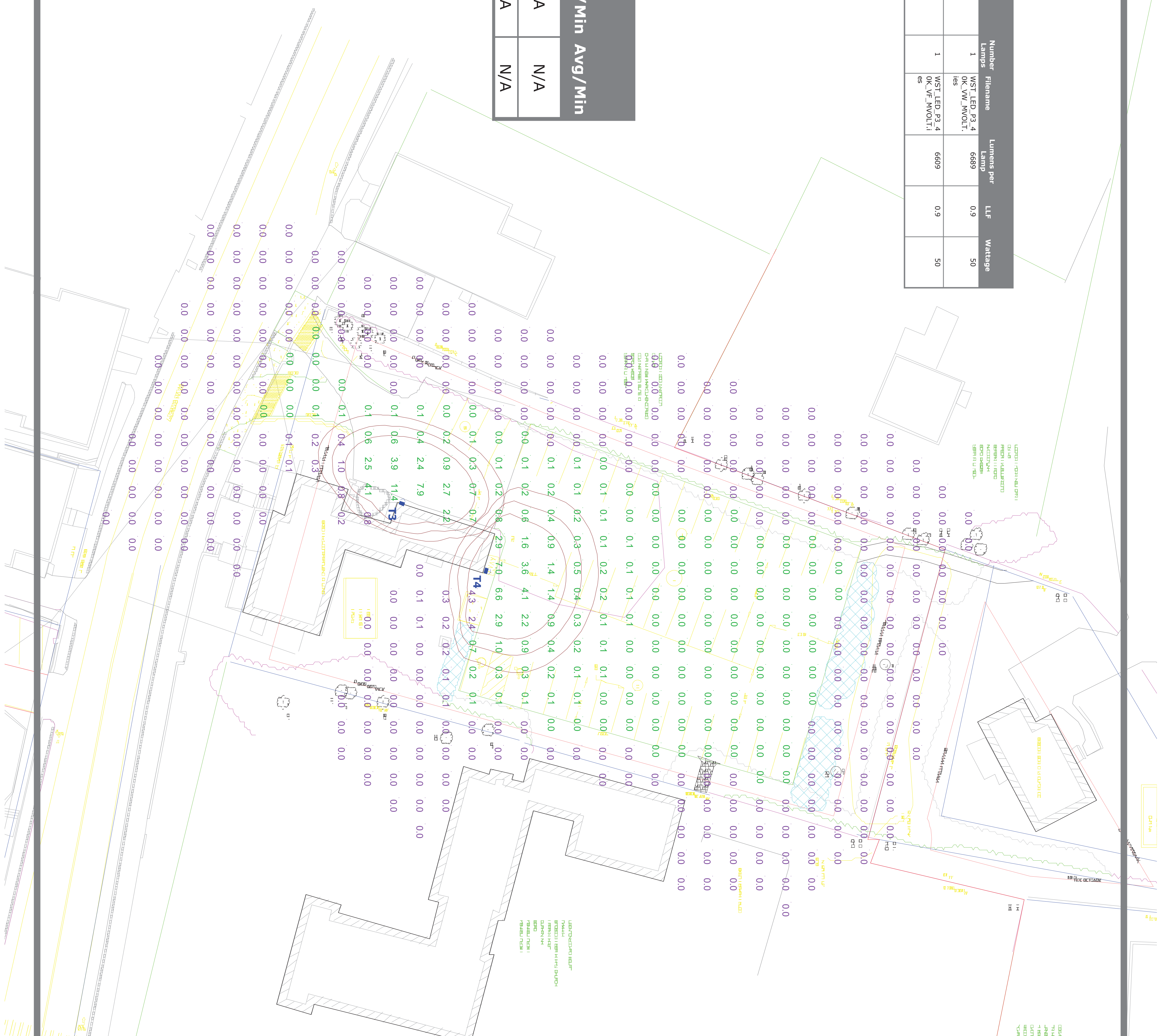
**TREE PROTECTION PLAN**  
prepared for  
**TOOMERFS, LLC.**  
TAX MAP 4, LOTS 38-5 AND 55  
18 MAIN ST AND 12 COWELL DR. DURHAM, NH

**MJS ENGINEERING, P.C.**  
CIVIL • STRUCTURAL • ENVIRONMENTAL  
5 RAILROAD ST., P.O. Box 359  
NEW MARKET, NH 03857  
PHONE: (603) 659-5979, FAX (603) 659-4627  
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 18-040  
L2

| Symbol | Label | QTY | Manufacturer      | Catalog Number          | Description   | Lamp | Number Lamps | Filename                  | Lumens per Lamp | LLF | Wattage |
|--------|-------|-----|-------------------|-------------------------|---|------|--------------|---------------------------|-----------------|-----|---------|
|        | T3    | 1   | Lithonia Lighting | WST_LED_P3_40K_VW_MVOLT | WST_LED, Performance package 3,4000 K, visual comfort wide, MVOLT; mounted at 16ft          | LED  | 1            | WST_LED_P3_40K_VW_MVOLT.i | 6689            | 0.9 | 50      |
|        | T4    | 1   | Lithonia Lighting | WST_LED_P3_40K_VF_MVOLT | WST_LED, Performance package 3,4000 K, visual comfort forward throw, MVOLT; mounted at 16ft | LED  | 1            | WST_LED_P3_40K_VF_MVOLT.i | 6609            | 0.9 | 50      |

| Statistics  |                        | Symbol | Avg    | Max     | Min    | Max/Min | Avg/Min |
|-------------|------------------------|--------|--------|---------|--------|---------|---------|
| Description | Outside of Parking Lot | +      | 0.0 fc | 4.3 fc  | 0.0 fc | N/A     | N/A     |
|             | Parking Lot            | +      | 0.5 fc | 11.4 fc | 0.0 fc | N/A     | N/A     |



# 18 MAIN ST Durham, NH Site Lighting Layout

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

**Date**  
4/2/2019

**Scale**  
1"=40'

**Drawing No.**

**Summary**

**CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES:**

**AREA OF DISTURBANCE/STABILIZATION**  
 1. ALL DISTURBED AREAS SHALL BE DESIGNED DURING CONSTRUCTION. THERE SHALL BE NO EXPOSED SOIL SURFACES THAT ARE UNPROTECTED AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.  
 2. ALL DISTURBED AREAS SHALL BE PROTECTED FROM THE PUBLIC AND OTHER UNAUTHORIZED PERSONS AT ALL TIMES. SIGNAGE SHALL BE INSTALLED TO DETERMINE THE BOUNDARIES OF THE AREA TO BE PROTECTED.  
 3. THE DISTURBED AREAS SHALL BE PROTECTED BY THE EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION. THE MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE AND SHALL REMAIN IN PLACE UNTIL THE AREA IS STABILIZED.  
 4. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. THE RESTORATION SHALL BE COMPLETED PRIOR TO THE END OF CONSTRUCTION. THE RESTORATION SHALL BE SUBJECT TO INSPECTION BY THE LOCAL HEALTH DEPARTMENT. THE LOCAL HEALTH DEPARTMENT SHALL HAVE THE FINAL SAY ON THE ACCEPTANCE OF THE RESTORATION.

**EROSION CONTROL PRACTICES**  
 A. INSTALLATION: ALL EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE. THE MEASURES SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE MANUFACTURER AND SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION. THE MEASURES SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
 B. MAINTENANCE: ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION. THE MEASURES SHALL BE REPAIRED AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
 C. REMOVAL: ALL EROSION CONTROL MEASURES SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
 D. MONITORING: ALL EROSION CONTROL MEASURES SHALL BE MONITORED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION. THE MEASURES SHALL BE REPAIRED AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.

**COLD WEATHER SITE STABILIZATION**  
 A. TO AVOID ALL PROTECTION WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE ADDITIONAL STABILIZATION TECHNIQUES SPECIFIED IN THIS SECTION SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1.  
 B. SUBJECT TO (C) BELOW, THE AREA OF EXPOSED UNSTABILIZED SOIL SHALL BE:  
 1. PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO THE ANY THAW OR SPRING MELT EVENT.  
 2. MAINTAINED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 3. PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO THE ANY THAW OR SPRING MELT EVENT.  
 4. MAINTAINED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 5. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (C) OR (E) ABOVE, SHALL BE INSTALLED PRIOR TO THE THAW OR SPRING MELT EVENT.  
 6. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 7. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 8. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 9. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
 10. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.

**TEMPORARY VEGETATION**

1. SITE PREPARATION

2. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (C) OR (E) ABOVE, SHALL BE INSTALLED PRIOR TO THE THAW OR SPRING MELT EVENT.

3. MAINTAINED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.

4. PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO THE ANY THAW OR SPRING MELT EVENT.

5. MAINTAINED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.

6. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.

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| SEASON       | APPLICATION DATE              | MIXTURE TYPE  | QUANTITY (lb./Ac.) |
|--------------|-------------------------------|---------------|--------------------|
| EARLY SPRING | NO LATER THAN 5/15            | OATS          | 80                 |
| LATE SPRING  | 4/1 TO 6/1 & 8/15 TO 9/15     | PERENNIAL RYE | 30                 |
| EARLY FALL   | 8/15 TO 9/15 & 10/15 TO 11/15 | ANNUAL RYE    | 40                 |
| FALL         | 8/15 TO 9/15                  | WINTER RYE    | 112                |

**PERMANENT VEGETATION**  
 A. SITE PREPARATION  
 1. ALL DISTURBED AREAS SHALL BE DESIGNED DURING CONSTRUCTION. THERE SHALL BE NO EXPOSED SOIL SURFACES THAT ARE UNPROTECTED AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.  
 2. ALL DISTURBED AREAS SHALL BE PROTECTED FROM THE PUBLIC AND OTHER UNAUTHORIZED PERSONS AT ALL TIMES. SIGNAGE SHALL BE INSTALLED TO DETERMINE THE BOUNDARIES OF THE AREA TO BE PROTECTED.  
 3. THE DISTURBED AREAS SHALL BE PROTECTED BY THE EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION. THE MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE AND SHALL REMAIN IN PLACE UNTIL THE AREA IS STABILIZED.  
 4. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. THE RESTORATION SHALL BE COMPLETED PRIOR TO THE END OF CONSTRUCTION. THE RESTORATION SHALL BE SUBJECT TO INSPECTION BY THE LOCAL HEALTH DEPARTMENT. THE LOCAL HEALTH DEPARTMENT SHALL HAVE THE FINAL SAY ON THE ACCEPTANCE OF THE RESTORATION.

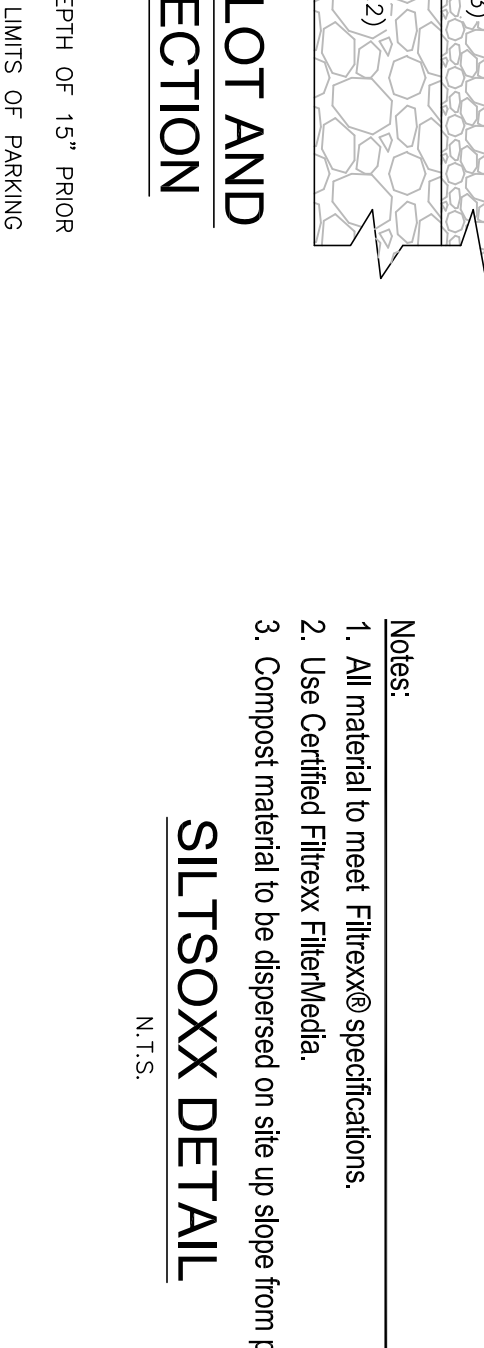
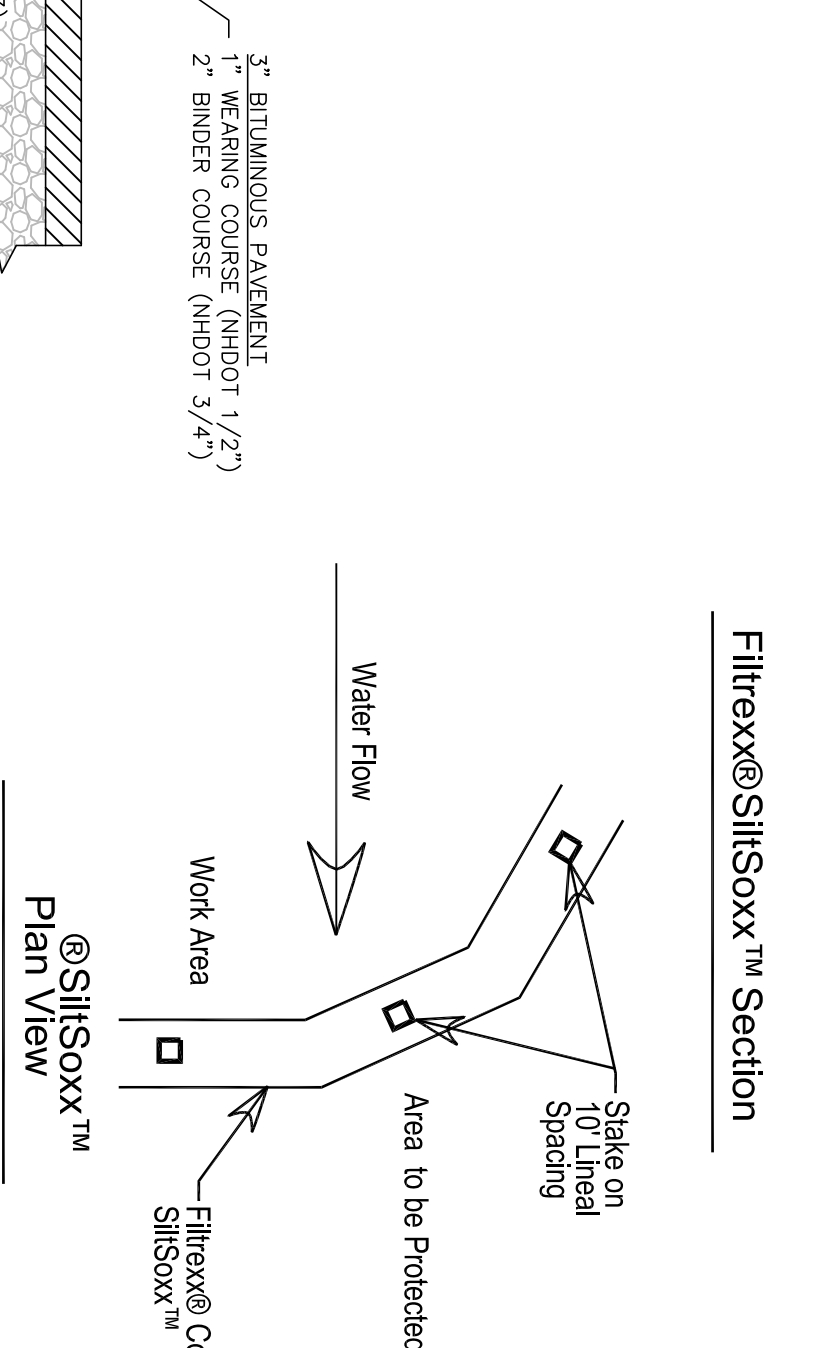
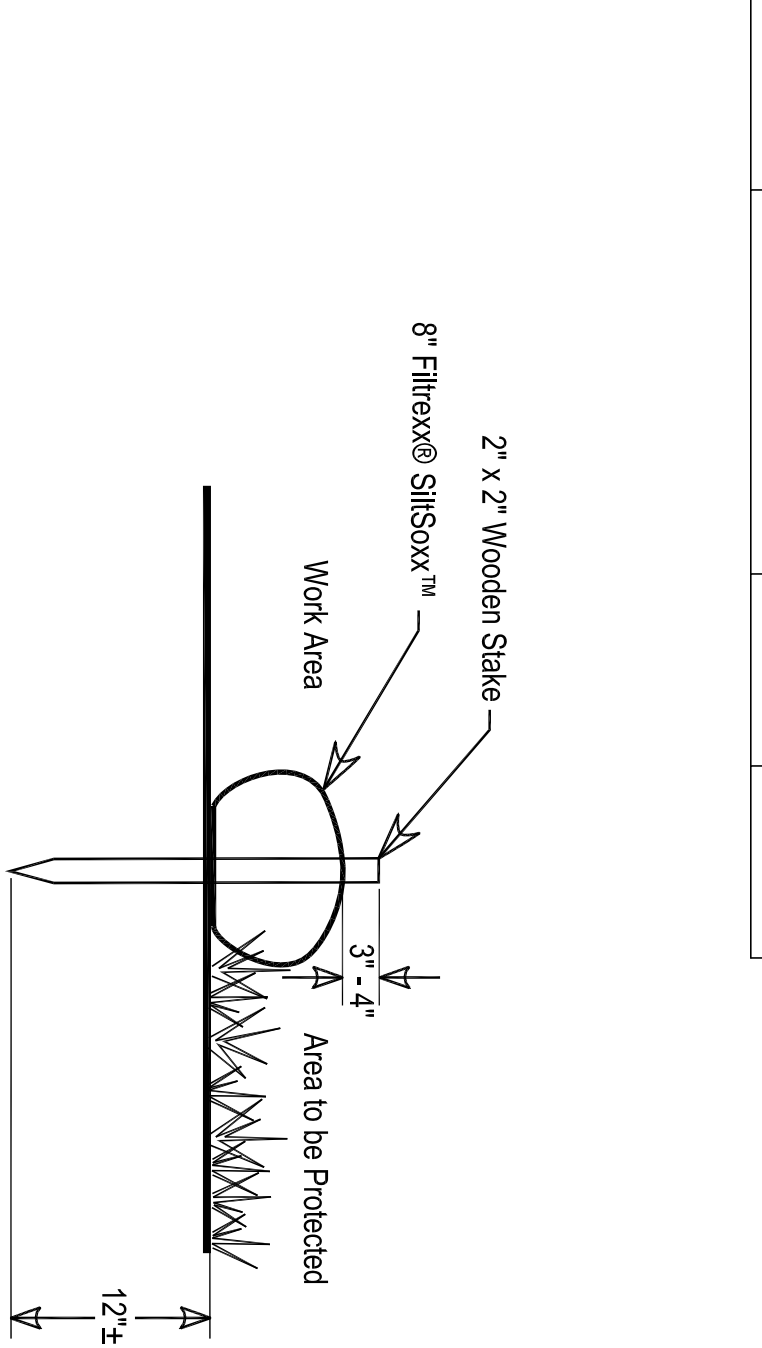
**MULCHING & EROSION CONTROL MATTING**  
 A. GENERAL  
 1. MULCHING SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE.  
 2. MULCHING SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE MANUFACTURER.  
 3. MULCHING SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION.  
 4. MULCHING SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
 5. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (C) OR (E) ABOVE, SHALL BE INSTALLED PRIOR TO THE THAW OR SPRING MELT EVENT.  
 6. ALL DISTICHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED IN ACCORDANCE WITH THE CRITERIA OF ENV-40 AND EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION.  
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**SEEDING**  
 A. GENERAL  
 1. SEEDING SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE.  
 2. SEEDING SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE MANUFACTURER.  
 3. SEEDING SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION.  
 4. SEEDING SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
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**FINAL APPROVAL BY DURHAM PLANNING BOARD**  
 CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER  
 DATE \_\_\_\_\_

**SOIL DRAINAGE**  
 A. GENERAL  
 1. SOIL DRAINAGE SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE.  
 2. SOIL DRAINAGE SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE MANUFACTURER.  
 3. SOIL DRAINAGE SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION.  
 4. SOIL DRAINAGE SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
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| MIXTURE | SPECIES             | POUNDS PER ACRE | POUNDS PER 1,000 SF |
|---------|---------------------|-----------------|---------------------|
| A       | CREEPING RED FESCUE | 20              | 0.45                |
| B       | PERENNIAL RYEGRASS  | 20              | 0.45                |
| C       | TALL FESCUE         | 20              | 0.45                |
| D       | LAUREL OAK          | 20              | 0.45                |
| E       | CREEPING RED FESCUE | 20              | 0.45                |
| F       | TALL FESCUE         | 20              | 0.45                |
|         | TOTAL               | 150             | 3.60                |



**CONSTRUCTION SEQUENCING**  
 1. CONSTRUCTION SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE.  
 2. CONSTRUCTION SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE MANUFACTURER.  
 3. CONSTRUCTION SHALL BE MAINTAINED AND REPAIRED AS NEEDED THROUGHOUT CONSTRUCTION.  
 4. CONSTRUCTION SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND REPAIR AS NEEDED UNTIL PERMANENT VEGETATION IS ESTABLISHED.  
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**ADDITIONAL NOTES**  
 1. ALL DISTURBED AREAS SHALL BE DESIGNED DURING CONSTRUCTION. THERE SHALL BE NO EXPOSED SOIL SURFACES THAT ARE UNPROTECTED AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.  
 2. ALL DISTURBED AREAS SHALL BE PROTECTED FROM THE PUBLIC AND OTHER UNAUTHORIZED PERSONS AT ALL TIMES. SIGNAGE SHALL BE INSTALLED TO DETERMINE THE BOUNDARIES OF THE AREA TO BE PROTECTED.  
 3. THE DISTURBED AREAS SHALL BE PROTECTED BY THE EROSION CONTROL MEASURES SPECIFIED IN THIS SECTION. THE MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SOIL SURFACE AND SHALL REMAIN IN PLACE UNTIL THE AREA IS STABILIZED.  
 4. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. THE RESTORATION SHALL BE COMPLETED PRIOR TO THE END OF CONSTRUCTION. THE RESTORATION SHALL BE SUBJECT TO INSPECTION BY THE LOCAL HEALTH DEPARTMENT. THE LOCAL HEALTH DEPARTMENT SHALL HAVE THE FINAL SAY ON THE ACCEPTANCE OF THE RESTORATION.  
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**TYPICAL BIKE RACK DETAIL**  
 1. ALL DISTURBED AREAS SHALL BE DESIGNED DURING CONSTRUCTION. THERE SHALL BE NO EXPOSED SOIL SURFACES THAT ARE UNPROTECTED AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.  
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| NO. | REVISIONS   | DATE    | INT. |
|-----|---|---------|------|
| 1   | DESIGN REVISIONS PER COA DATED 2/13/19            | 4/2/19  | EHK  |
| 2   | DESIGN REVISIONS PER FINAL PLANNING BOARD MEETING | 1/3/19  | EHK  |
| 3   | INITIAL SUBMISSION TO DURHAM PLANNING BOARD       | 10/5/18 | EHK  |

DATE: 10/5/18  
 SCALE: AS SHOWN  
 DESIGNED BY: EHK  
 DRAWN BY: EHK  
 APPROVED BY: MJS  
 DWG FILED: 18-040 CIVIL.DWG

SEALED BY: MICHAEL BEHRENDT, TOWN PLANNER  
 EXPIRES: 10/5/2020  
 LICENSE NO. 6887

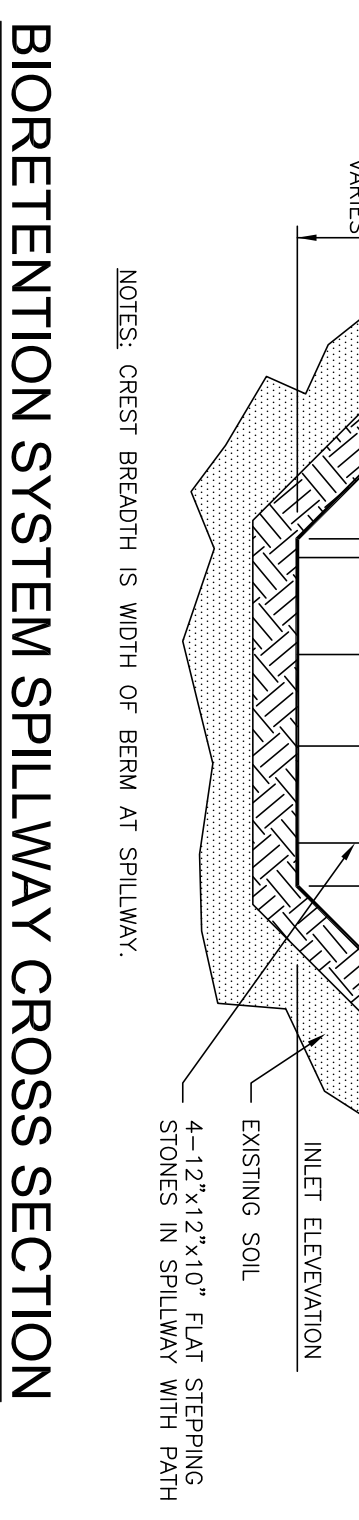
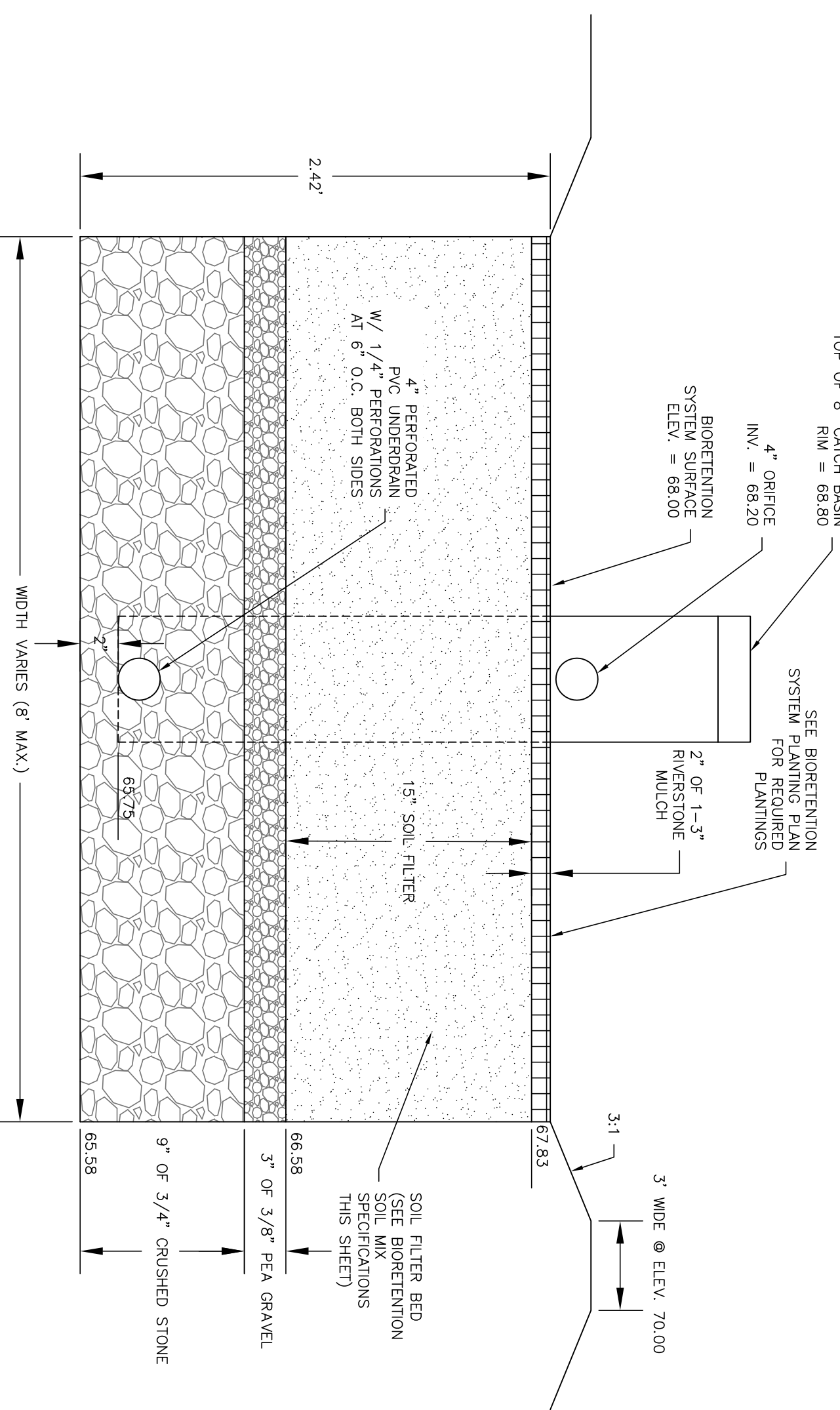
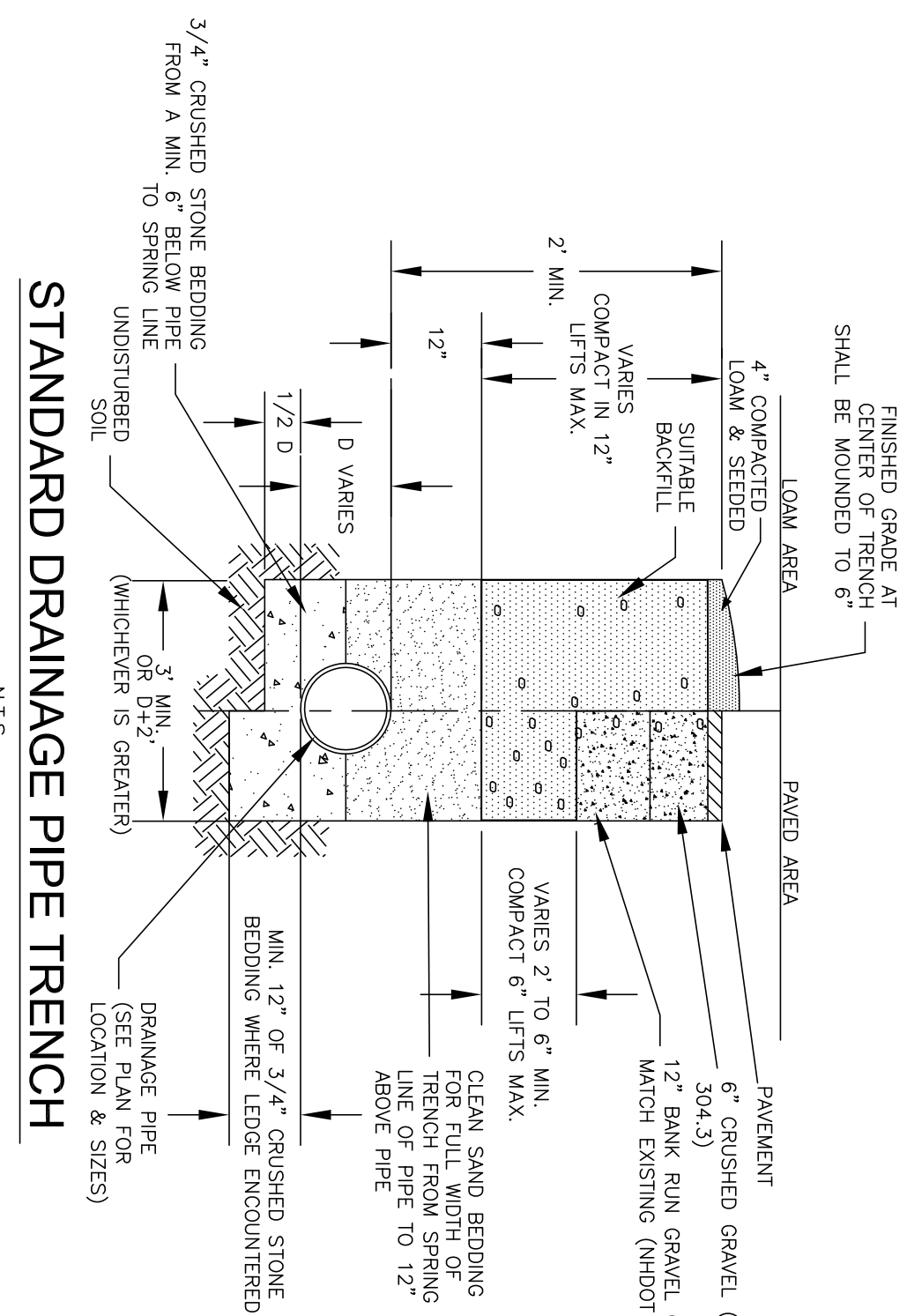
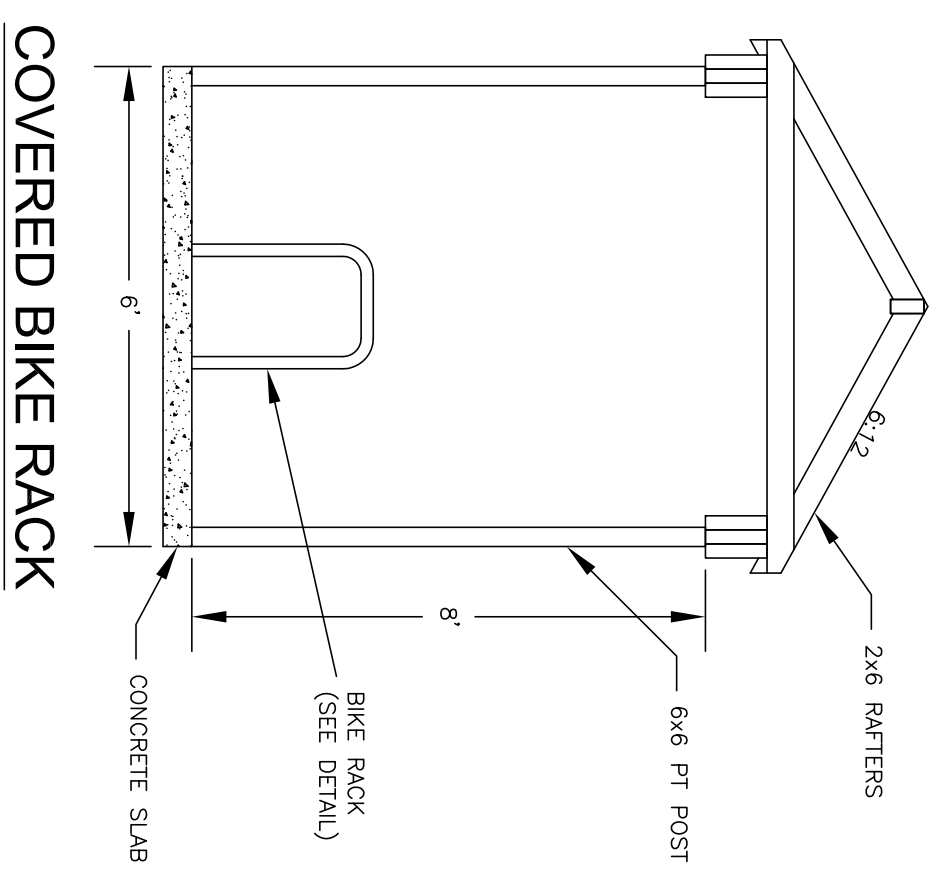
**CONSTRUCTION DETAILS**  
 prepared for  
**TOOMERFS, LLC**  
 TAX MAP 4, LOTS 38-5 AND 55  
 18 MAIN ST AND 12 COWELL DR., DURHAM, NH

**MJS ENGINEERING, P.C.**  
 CIVIL • STRUCTURAL • ENVIRONMENTAL  
 5 RAILROAD ST., P.O. BOX 359  
 NEWBURY, NH 03857  
 PHONE: (603) 659-4979, FAX: (603) 659-4627  
 E-MAIL: MJS@MJS-ENGINEERING.COM

**1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS**  
 2. ALL STEEL MEMBERS SHALL BE COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER  
 3. PIPE ASTM A53 GRADE B STANDARD WEIGHT STEEL  
 4. 6" DIA. (TYP) CONCRETE CURB  
 5. 3/8" THICK PLATE WITH THREE 3/8" HOLES AT 10" BORE SPACING  
 6. BOLT: DRIVE TYPE ANCHOR BOLT MADE OF ZINC PLATED A514 1038 HEAT TREATED CARBON STEEL, 1/2" DIA. (TYP)  
 7. CONCRETE STRENGTH TO BE 3,000 PSI AT 28 DAYS

**JOB: 18-040**  
**D1**

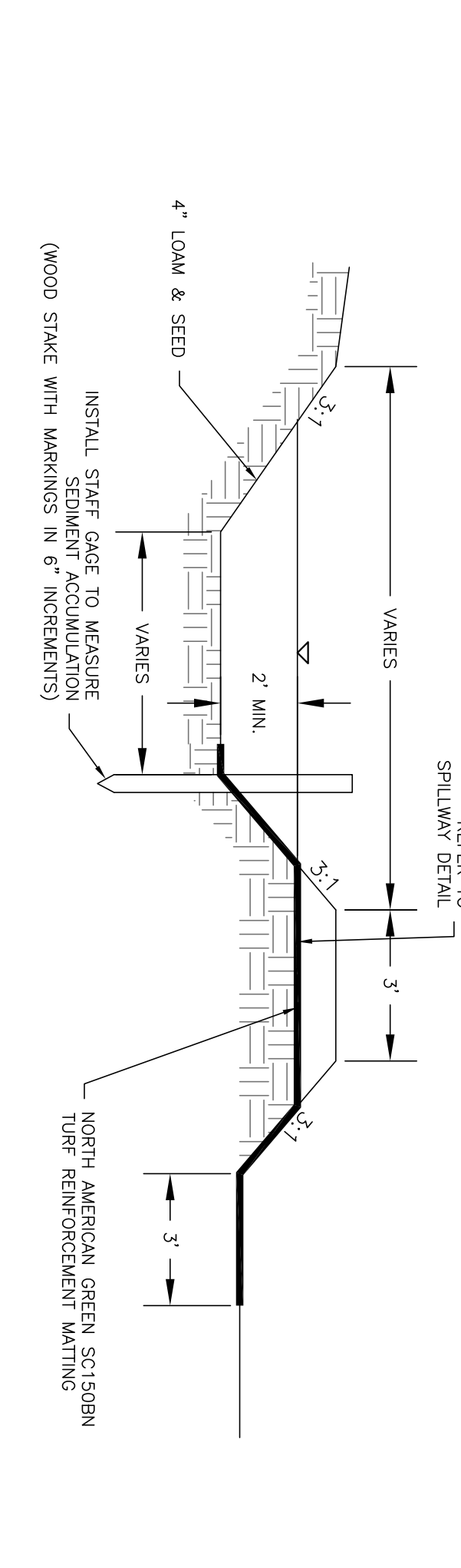
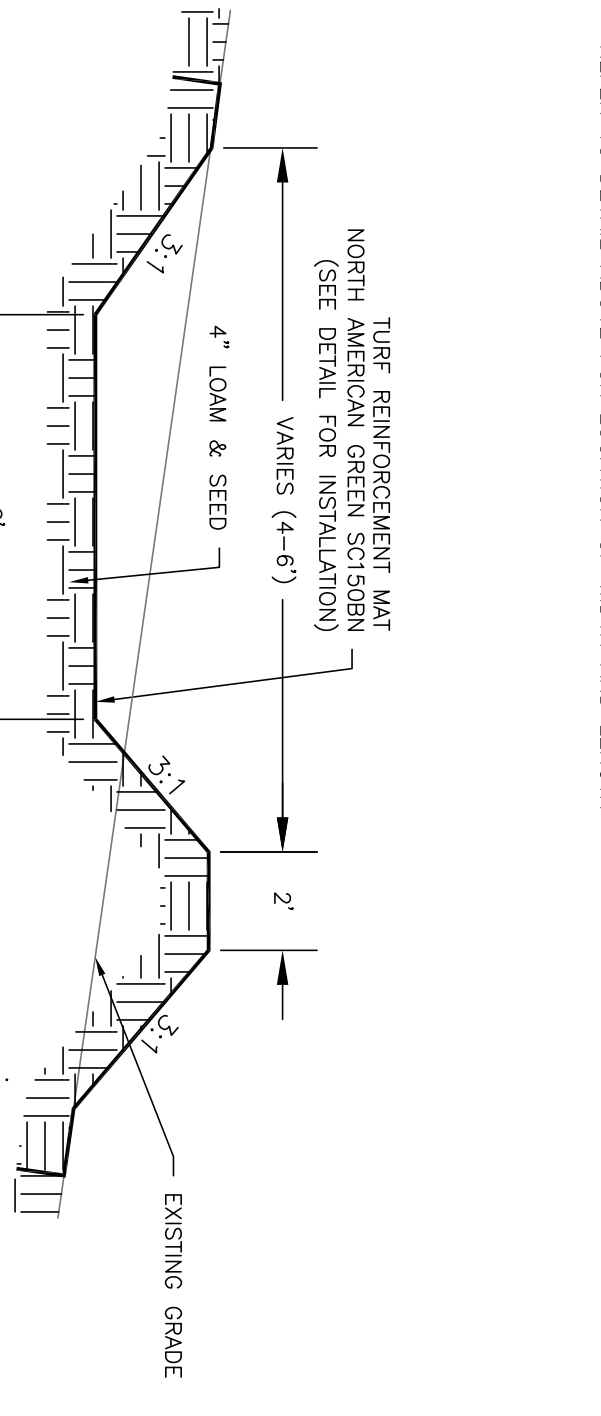
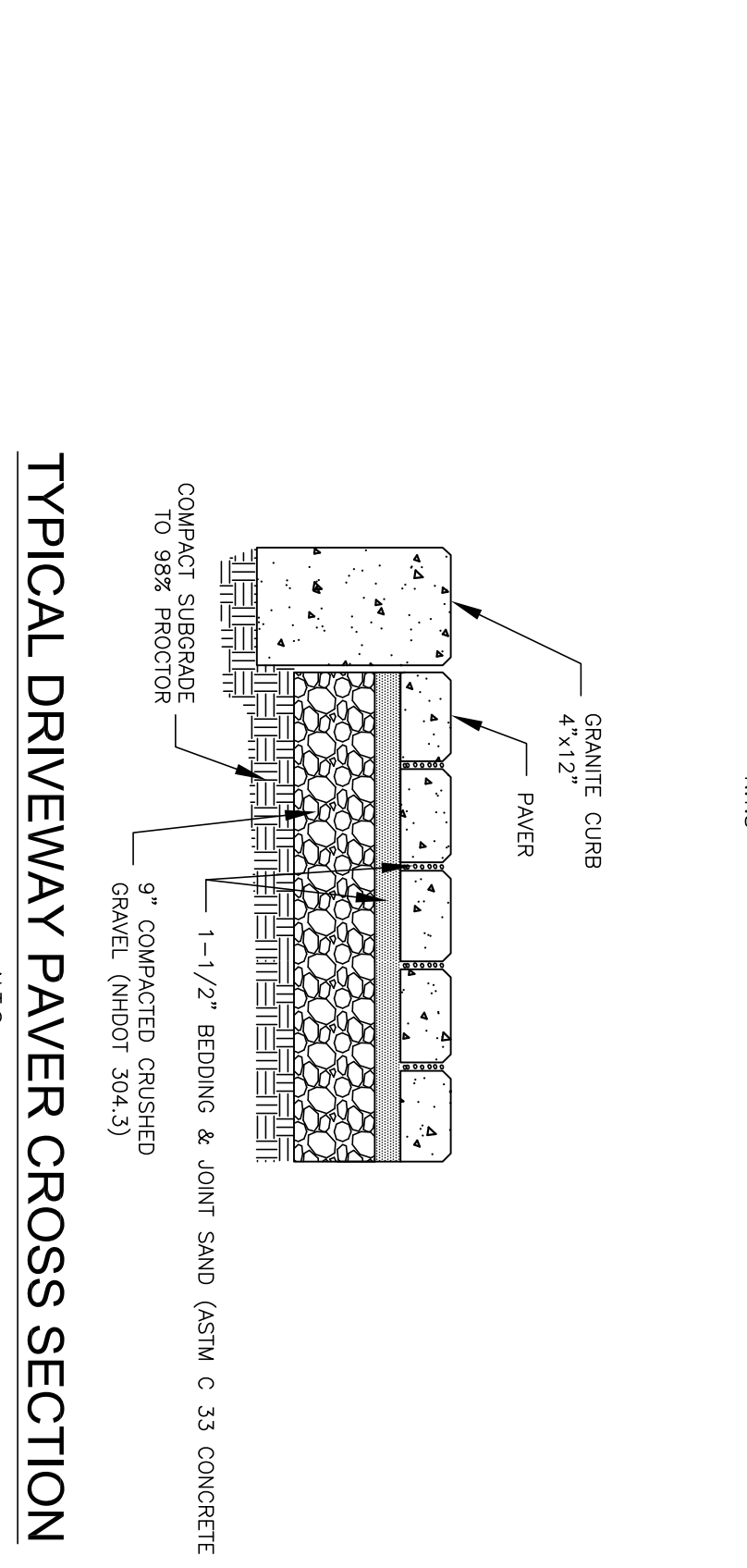
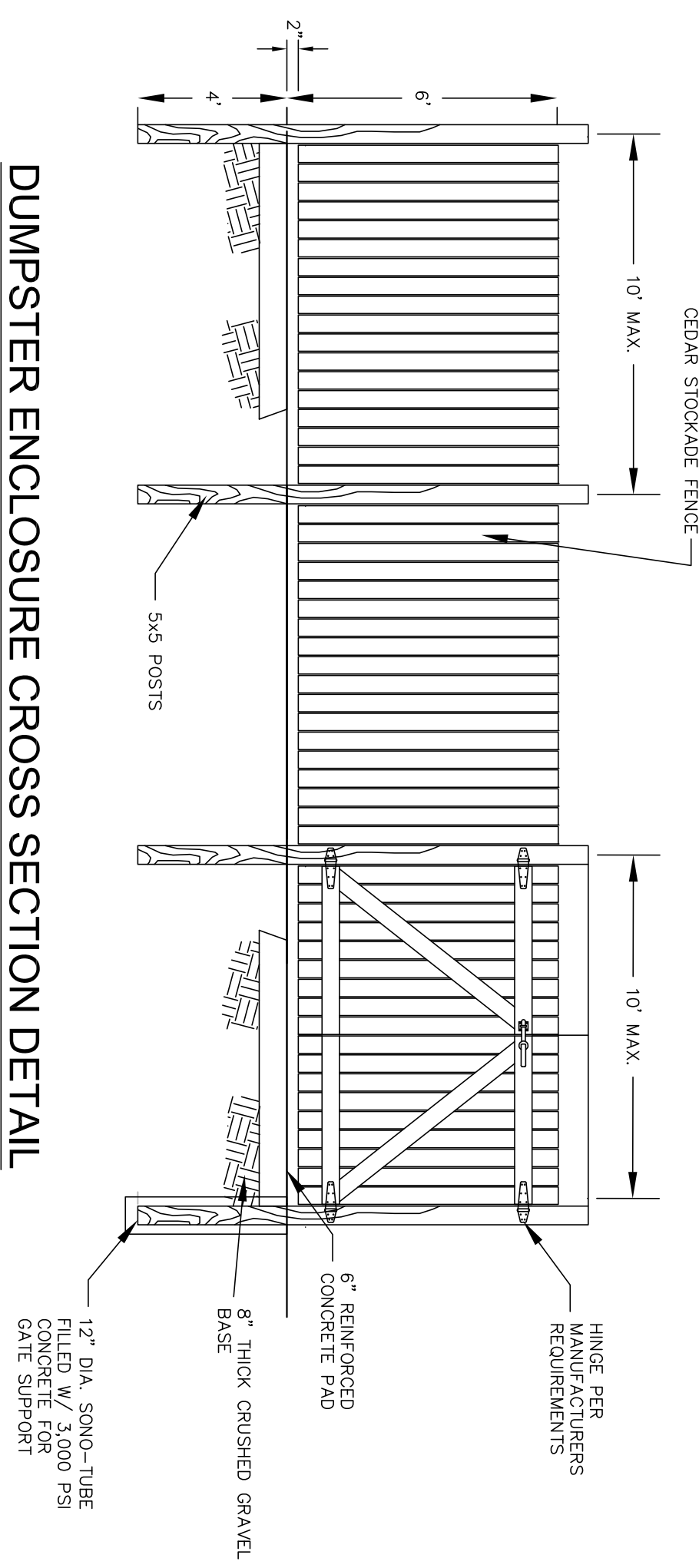
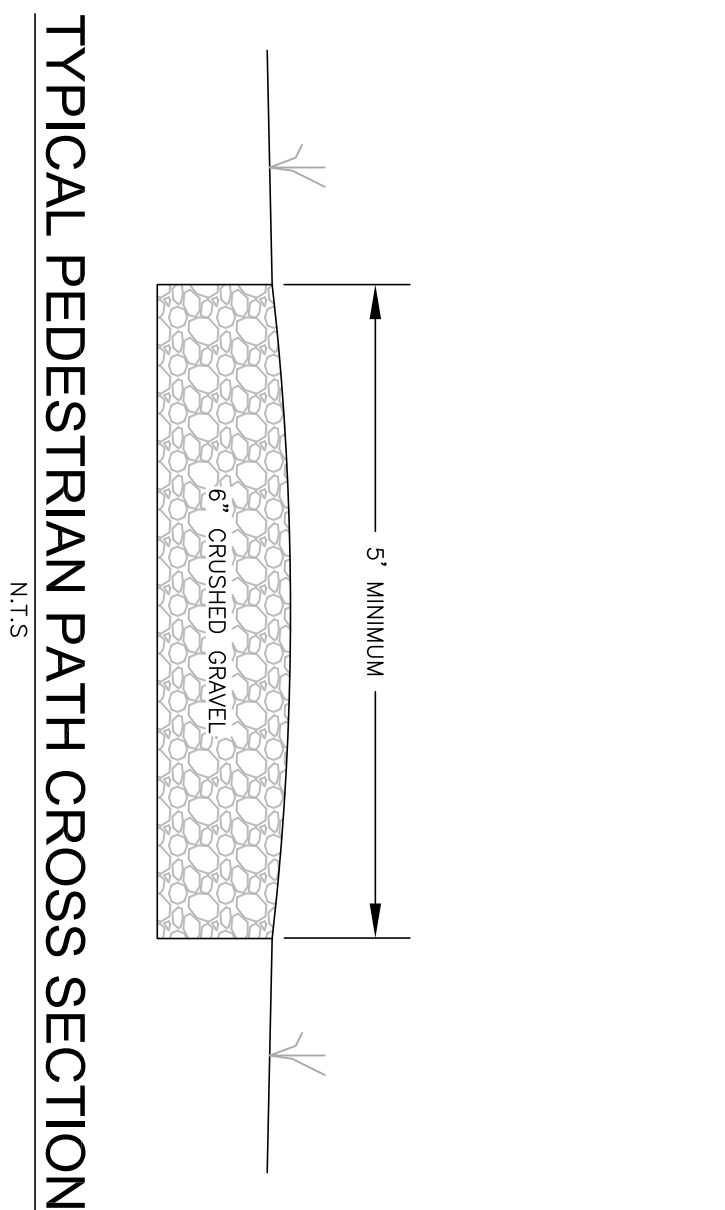




**SPILLWAY DIMENSION TABLE**

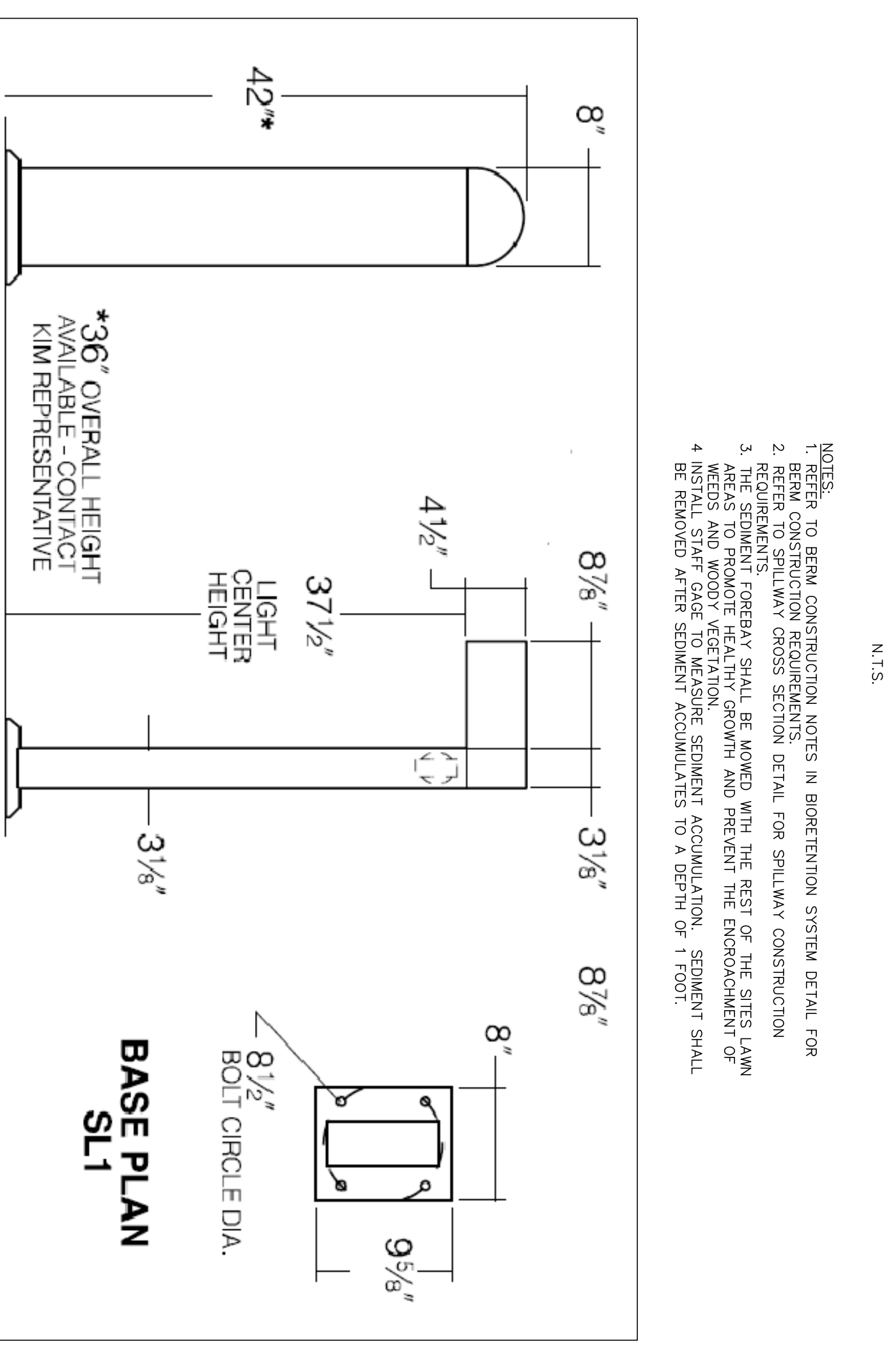
| LOCATION                          | CREST ELEV. BERM ELEV. | LENGTH | WIDTH |
|-----------------------------------|------------------------|--------|-------|
| SPILLWAY #1 - SEDIMENT FOREBAY    | 69.15                  | 70.00  | 6'    |
| SPILLWAY #2 - BIORETENTION SYSTEM | 69.60                  | 70.00  | 9'    |

\*REFER TO DETAIL ABOVE FOR LOCATION OF WIDTH AND LENGTH



**BIORETENTION SYSTEM SOIL MIX SPECIFICATIONS**

| COMPONENT MATERIAL  | PERCENT OF MIXTURE | SIEVE NO. | % BY WEIGHT PASSING |
|---|--------------------|-----------|---------------------|
| ASTM C-33 CONCRETE SAND   | 50 TO 55           |           | 15 TO 25            |
| LOAMY SAND TOPSOIL WITH FINES AS INDICATED                                | 20 TO 30           |           | 200                 |
| LOAMY SAND TOPSOIL WITH FINES AS INDICATED                                | 20 TO 30           |           | 200                 |
| LOAMY COARSE SAND   | 70 TO 80           |           | 10                  |
| UNDEGRADED FINE SHREDDED BARK OR WOOD FIBER MULCH WITH FINES AS INDICATED | 20 TO 30           |           | 200                 |
| LOAMY COARSE SAND   | 70 TO 80           |           | 10                  |
| UNDEGRADED FINE SHREDDED BARK OR WOOD FIBER MULCH WITH FINES AS INDICATED | 20 TO 30           |           | 200                 |
| LOAMY COARSE SAND   | 70 TO 80           |           | 10                  |
| UNDEGRADED FINE SHREDDED BARK OR WOOD FIBER MULCH WITH FINES AS INDICATED | 20 TO 30           |           | 200                 |



- CONSTRUCTION NOTES:**
- DO NOT PLACE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BIORETENTION SYSTEM HAS BEEN FULLY STABILIZED
  - TO PREVENT DEGRADATION OF INFILTRATION FUNCTION, DO NOT ALLOW ANY SOURCE OF EXCESSIVE WATER (EXCAVATIONS) TO THE BIORETENTION SYSTEM DURING ANY STAGE OF CONSTRUCTION. DO NOT ALLOW EXCESSIVE WATER TO ACCUMULATE WITH CONSTRUCTION EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
  - CLEAR AND GRUB THE AREA WHERE THE BIORETENTION SYSTEM IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
  - THE FOUNDATION AREA SHALL BE SCARIFIED PRIOR TO PLACING FILL. ALL UNSUITABLE MATERIAL UNDER THE BERM SHALL BE REMOVED AND REPLACED WITH SUITABLE FOUNDATION MATERIAL.
  - THE BERM SHALL BE CONSTRUCTED BEGINNING FROM THE LOWEST POINT OF THE BIORETENTION SYSTEM TO THE HIGHEST POINT. IN MAXIMUM 12" LOOSE LIFTS COMPACTED TO 95% MAXIMUM PROCTOR DENSITY. EMBANKMENT SOIL SHALL HAVE NO ORGANIC MATTER OR FROZEN MATERIAL AND NO STONES LARGER THAN 1/4" IN DIAMETER. THE EMBANKMENT SHALL BE PLANTED WITH 3" X 3" X 3" PINE TREES AND 3" X 3" X 3" PINE TREES AROUND ANY STRUCTURES AND/OR CONDUITS SHALL NOT EXCEED 3" INCHES. EMBANKMENT FILL MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

- GENERAL MAINTENANCE:**
- THE BIORETENTION BASIN SHALL BE INSPECTED TWICE EACH YEAR WITH PREVENTATIVE MAINTENANCE PROVIDED.
  - EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
  - WEEDS AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE BIORETENTION SYSTEM FOR INFILTRATION FUNCTION (AS APPLICABLE) BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
  - THE FILTER MEDIA BE INSPECTED AT LEAST ANNUALLY AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.
  - PLANTING REQUIREMENTS:  
 THE BIORETENTION BASIN AND SEDIMENT FOREBAY BERM, BOTTOM AND INTERIOR SIDE SLOPES SHALL BE PLANTED WITH A 50:50 MIX OF NEW ENGLAND ERIGON AND CONSERVATION/WILDLIFE MIX AT 1:500 SF/LB AVAILABLE FROM:  
 NEW ENGLAND WETLAND PLANTS, INC.  
 100 WILSON STREET  
 AMHERST, MA 01002

- BIORETENTION SYSTEM GENERAL NOTES:**
- BIORETENTION SYSTEM FILTER SOIL MIX SHALL MEET THE FOLLOWING REQUIREMENTS OF FILTER MEDIA OPTION A OR OPTION B.

- GENERAL LIGHTING NOTES:**
- ALL LIGHTING SHALL BE INSTALLED IN ACCORDANCE WITH THE ILLUMINANCE REQUIREMENTS OF THE IESNA HANDBOOK.
  - DESIGNER AND TOWN ENGINEER SHALL REVIEW AND APPROVE THE LIGHTING PLAN.
  - OWNER MAY ELECT TO USE ALTERNATIVE LIGHT FIXTURES IF FIRST APPROVED BY DESIGNER AND TOWN ENGINEER.
  - ALL NON-ESSENTIAL LIGHTING WILL BE REQUIRED TO BE TURNED OFF AFTER BUSINESS HOURS, LEAVING ONLY THE NECESSARY LIGHTING FOR SECURITY.
  - THE LIGHTING FOR SECURITY PURPOSES SHALL BE INSTALLED OUT-OF-OR A SHIELDED.
  - PRECAST CONCRETE POLE BASE SHEA CONCRETE OR EQUAL.

FINAL APPROVAL BY DURHAM PLANNING BOARD.  
 CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER  
 DATE \_\_\_\_\_

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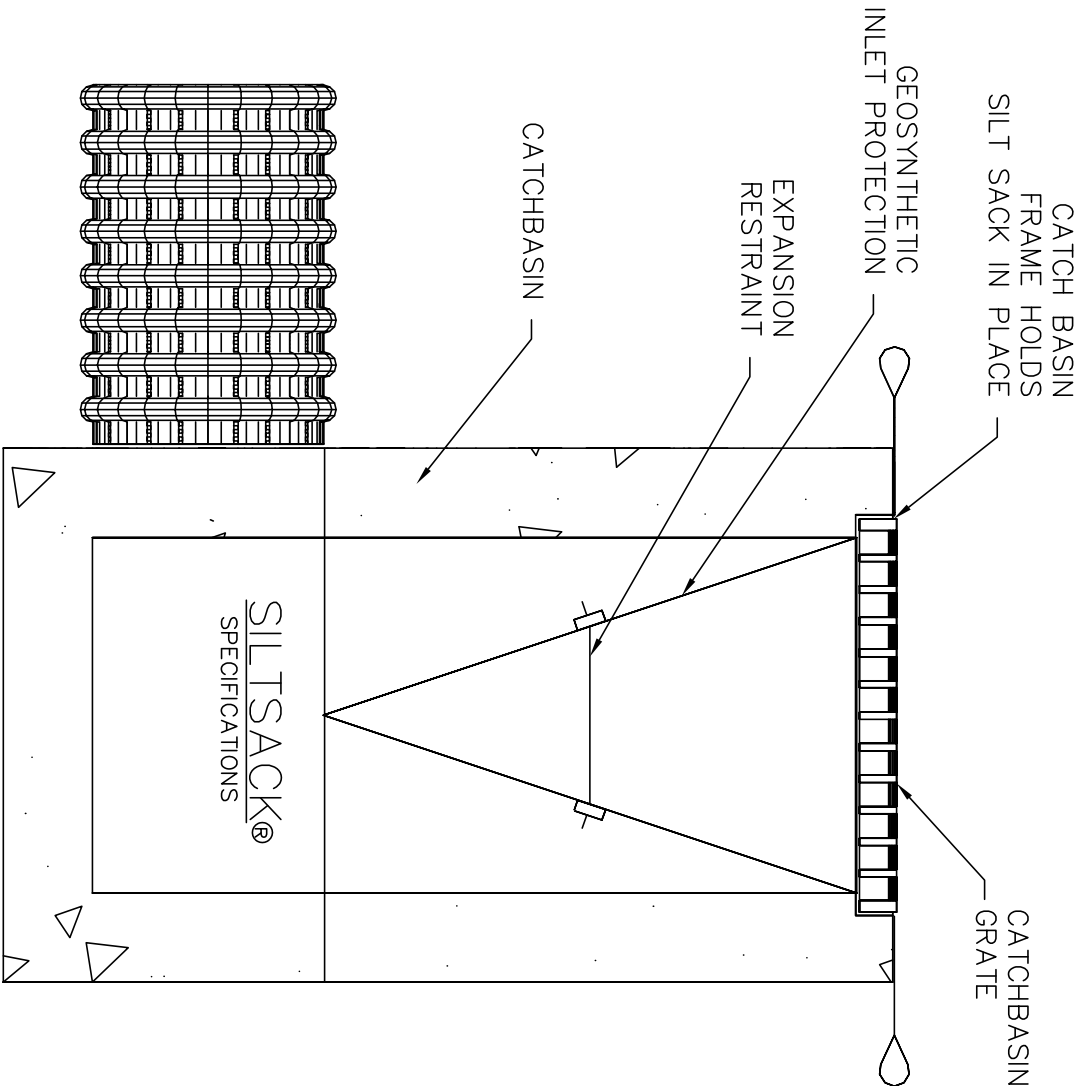
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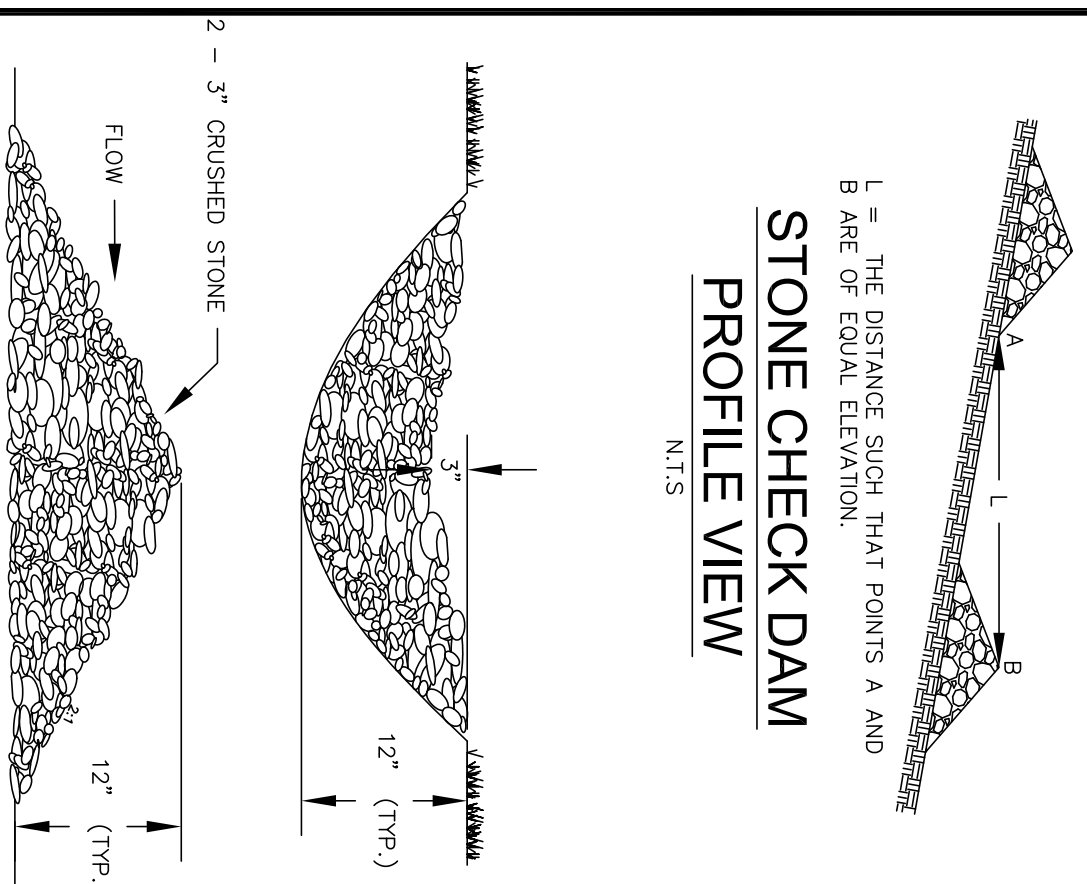
SEAL: MICHAEL BEHRENDT, TOWN PLANNER, LICENSE NO. 6887

| NO. | REVISIONS   | DATE    | INT. |
|-----|---|---------|------|
| 3.  | DESIGN REVISIONS PER COA DATED 2/13/19            | 4/2/19  | EHK  |
| 2.  | DESIGN REVISIONS PER PUBLIC HEARING ON 1/9/19     | 2/5/19  | EHK  |
| 1.  | DESIGN REVISIONS PER FIRST PLANNING BOARD MEETING | 1/3/19  | EHK  |
| 0.  | INITIAL SUBMISSION TO DURHAM PLANNING BOARD       | 10/5/18 | EHK  |



### STONE CHECK DAM

N.T.S.



- CONSTRUCTION SPECIFICATIONS:
- STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE BARE OF EQUAL ELEVATION.
  - CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION, AIR POLLUTION AND SOIL LOSS IS MINIMIZED.
  - STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.
- MAINTENANCE NOTES:
- TEMPORARY GRADE STABILIZATION STRUCTURES SHALL BE MAINTAINED AS LONG AS POSSIBLE TO PREVENT DAILY PROLONGED STORM EVENTS. ANY DAMAGE TO THE STRUCTURES SHALL BE REPAIRED IMMEDIATELY. ATTENTION SHOULD BE GIVEN TO END THE STRUCTURE.
  - RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
  - AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED.
  - SEDIMENT AND MULCH SHOULD BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.

### STONE CHECK DAM

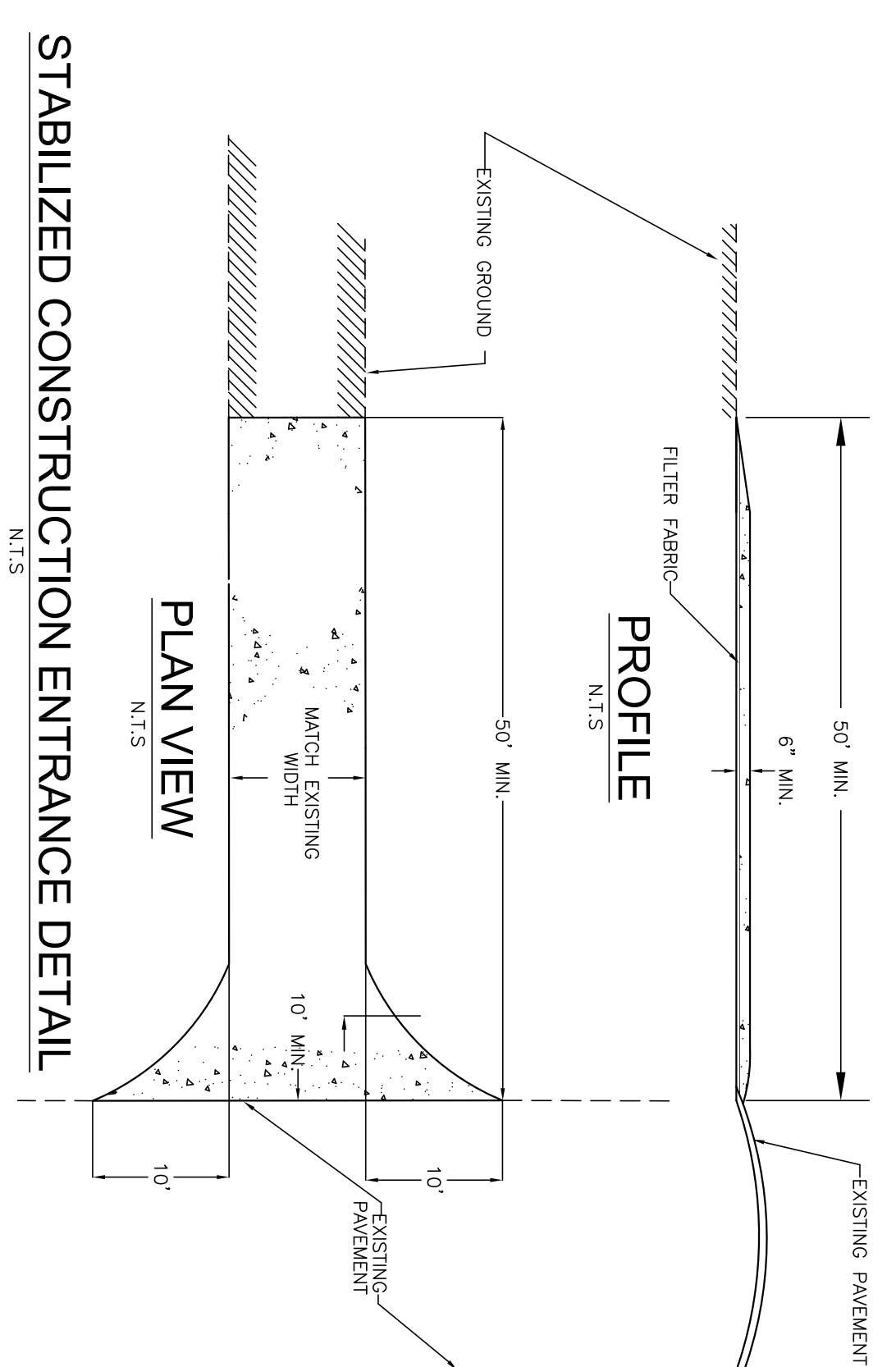
N.T.S.

| ITEM NO. | SIGN SIZE |       | TEXT | NO. SIGNS REQ'D. |
|----------|-----------|-------|------|------------------|
|          | HEIGHT    | WIDTH |      |                  |
| R1-1     | 30"       | 30"   |      | 1                |
| R3-2     | 24"       | 24"   |      | 1                |
| R4-7aR   | 18"       | 24"   |      | 1                |
| R5-1     | 30"       | 30"   |      | 1                |
| R7-8     | 18"       | 12"   |      | 2                |
| R7-8a    | 9"        | 18"   |      | 2                |

- NOTES:
- ALL SIGNS SHALL BE PER MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. STANDING SIGNS TO BE MOUNTED AT A MINIMUM HEIGHT OF 7' FROM THE EXISTING GRADE TO THE BOTTOM OF THE SIGN.

### SIGN SCHEDULE

N.T.S.



### STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

- STABILIZED CONSTRUCTION ENTRANCE NOTES:
- GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY. PLACE FILTER FABRIC (MINIMUM 1400 OR EQUAL) AND PLACE 6" OF 3/4" STONE TO MATCH SLOPE OF EXISTING ROAD.
  - FLOW OF WATER OVER STONE AREA.
  - CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS NECESSARY TO REMOVE SILT FROM TIRES PRIOR TO ENTERING PUBLIC ROADS. A SILENT SMALL SHALL BE CONSTRUCTED ON THE DOWN GRADENT SIDE TO TRAP ANY SILT WASHED FROM THE STONE ENTRANCE.

### REGULAR FLOW SILTSACK

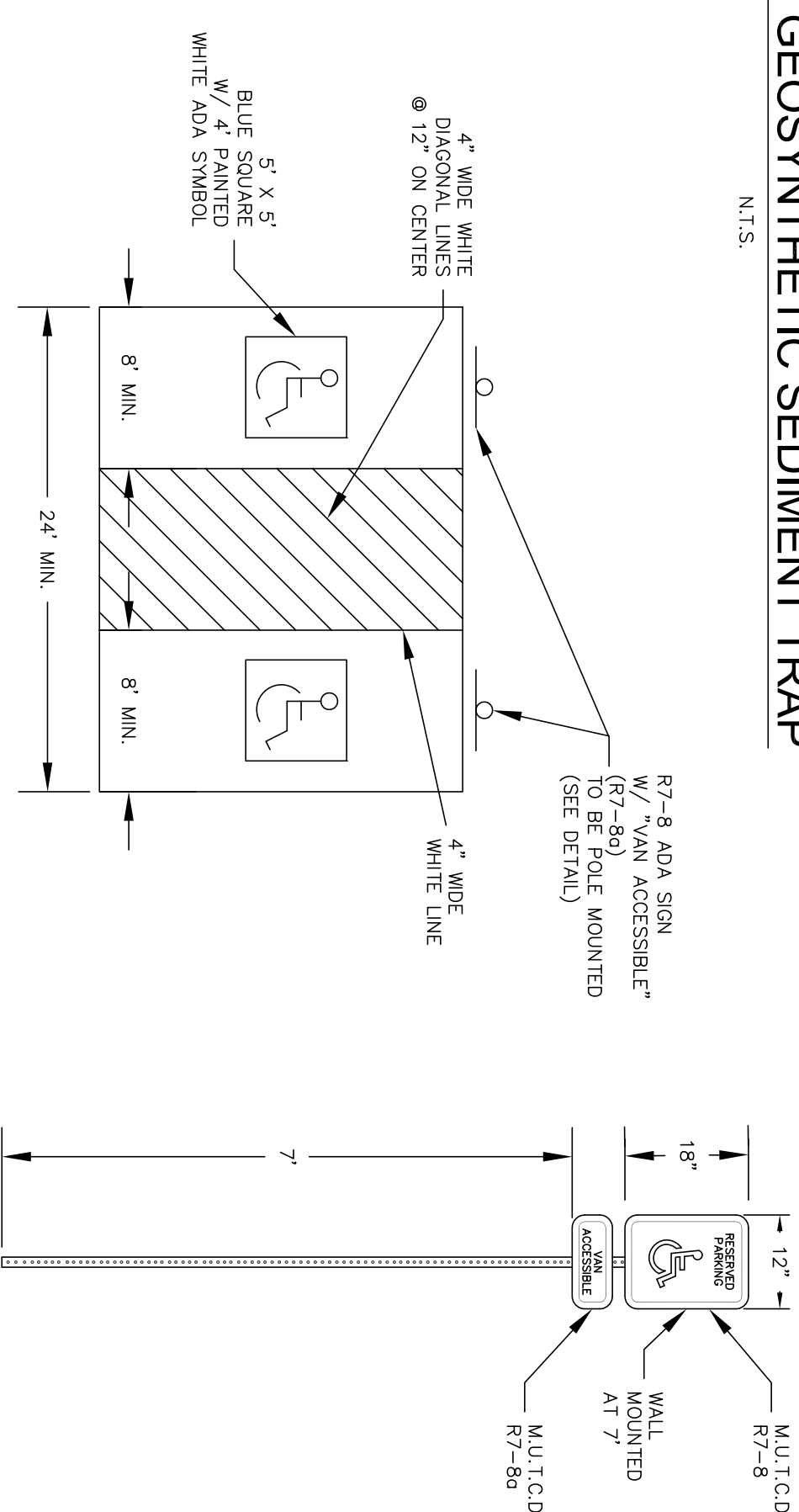
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

| PROPERTIES             | TEST METHOD | UNITS       |
|------------------------|-------------|-------------|
| GRAB TENSILE STRENGTH  | ASTM D-4832 | 300 LBS     |
| TENSILE ELONGATION     | ASTM D-4833 | 120 LBS     |
| WULLEN BURST           | ASTM D-3786 | 800 PSI     |
| UV RESISTANCE          | ASTM D-4355 | 80 %        |
| APPEARANT OPENING SIZE | ASTM D-4751 | 40 US SIEVE |
| PERMEABILITY           | ASTM D-4489 | 0.55 SEC.   |

- NOTES:
- GEOSYNTHETIC SEDIMENT FILTER TRAP SHALL BE "REGULAR FLOW SILTSACK" OR APPROVED EQUAL. SPECIFICATIONS FOR SILTSACK ARE DETAILED.
  - FILTER TRAPS SHALL BE INSPECTED AFTER EVERY RAIN EVENT OF 0.25" OR GREATER AND SEDIMENTS SHALL BE REMOVED FROM THE TRAP WHEN SEDIMENT HAS REACHED TWO THIRDS OF THE DEPTH OF THE TRAP, OR IF FILTER TRAP IS FULL. SIGNS TO CONSIDER: DO NOT PONDING. FILTER TRAP TO MINIMIZE PONDING.

### CATCH BASIN GEOSYNTHETIC SEDIMENT TRAP

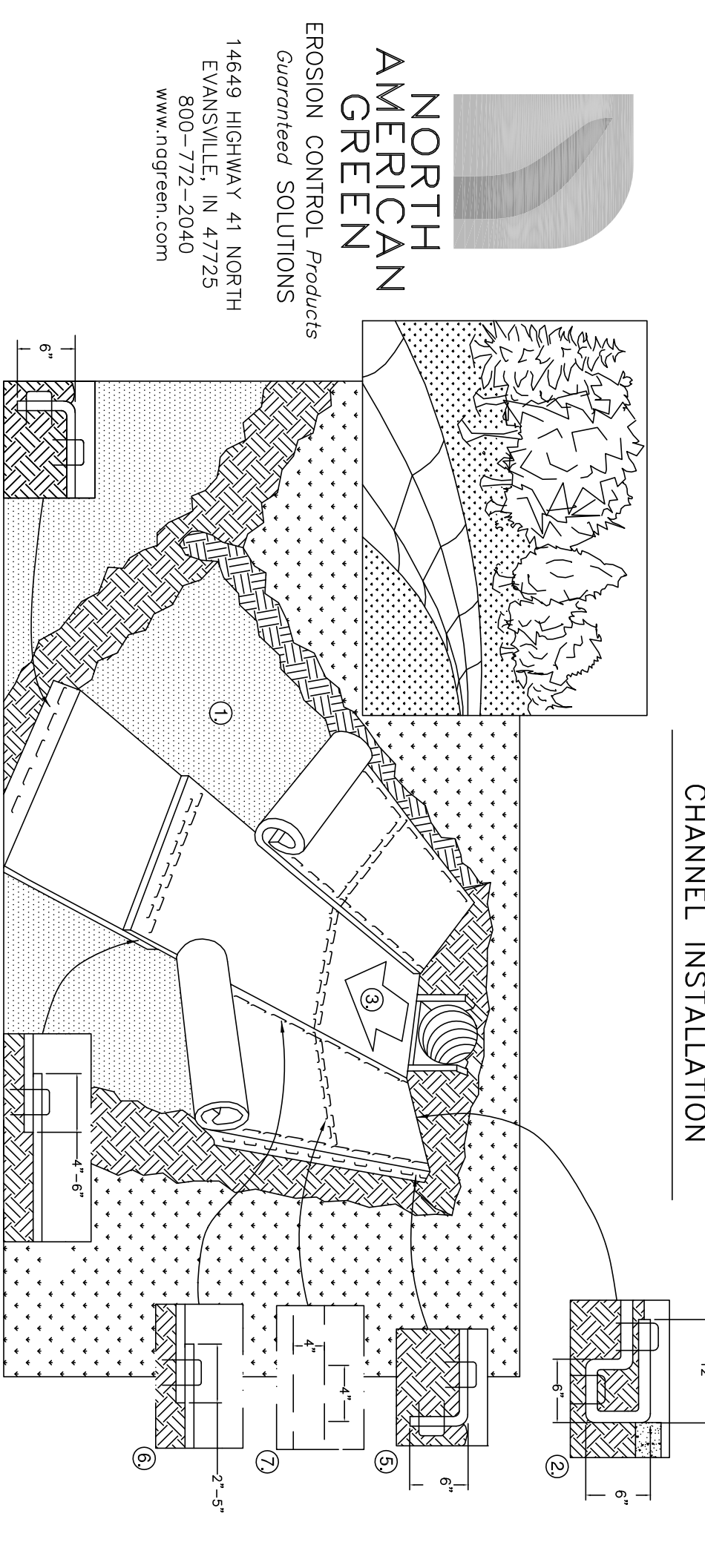
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### TYP. ADA STRIPING AND SIGN DETAIL

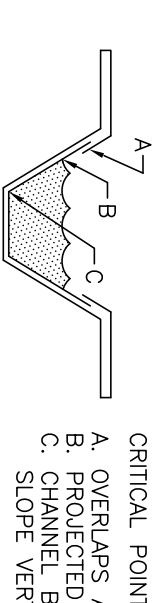
N.T.S.

- PAVEMENT MARKINGS:
- STRIPED PARKING AREAS AND DRIVERS AS SHOWN, INCLUDING PARKING SPACES, THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) AND ASHTO M248 TYPE "T" - MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
  - EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGN AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
  - AT 3 FT. O.C. BORDERED BY 4 INCH WIDE LINES.



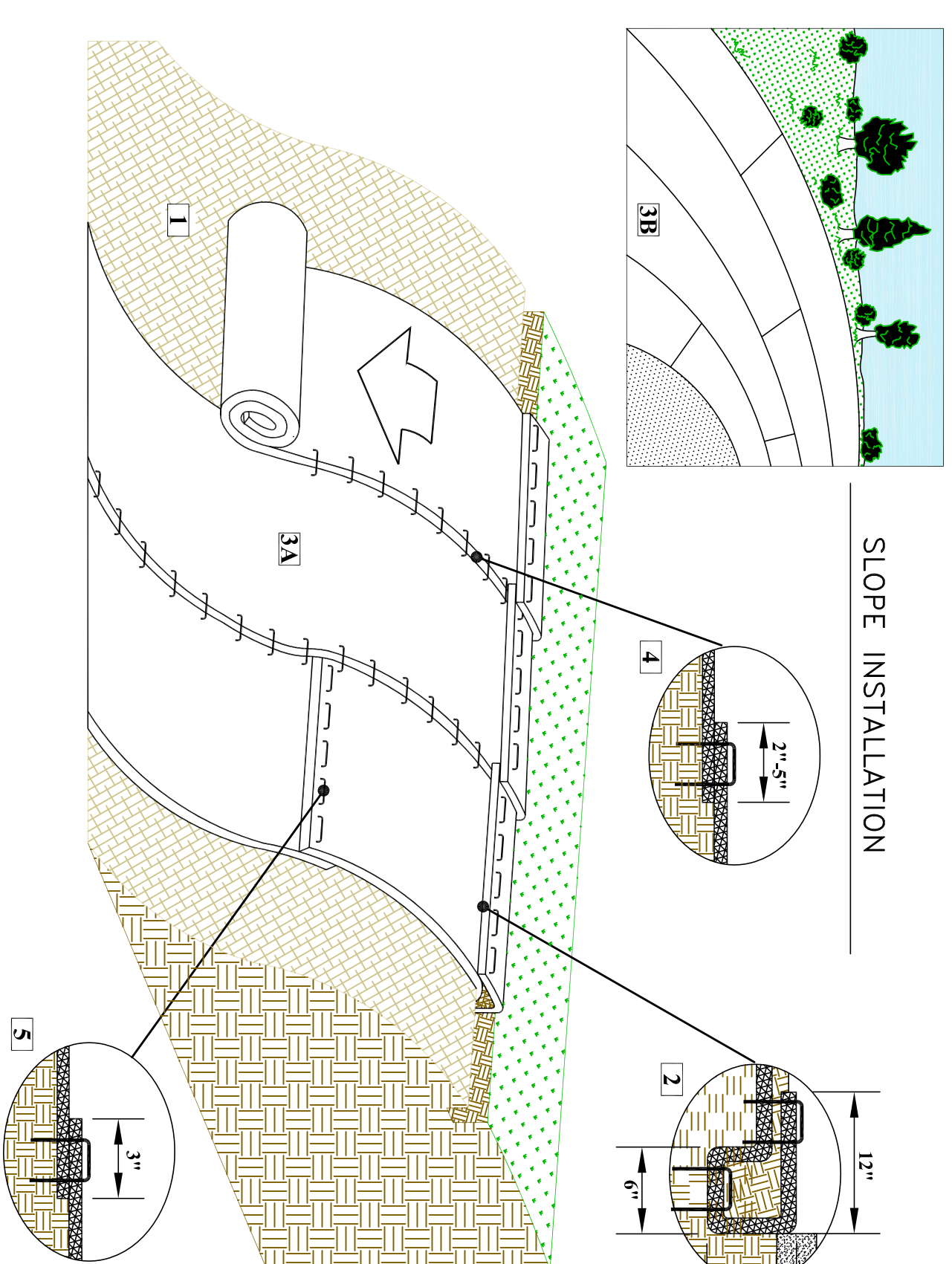
### CHANNEL INSTALLATION

- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED. PREPARE SOIL BY ANCHORING THE RECPS IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPS EXTENDED BEHIND THE UP-SLOPE PORTION OF THE TRENCH. 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 COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECPS OVER COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SHAPED APPROXIMATELY 12" (30 CM) APART IN THE WIDTH OF THE RECPS.
- 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. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE RECPS AT END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM - 15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT RECPS MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) (DEPENDENT ON RECPS TYPE) AND STAPLED.
- IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TERMINAL END OF THE RECPS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECPS.



- CRITICAL POINTS:
- A: OVERLAPS AND SEAMS
  - B: PROJECTED WATER LINE
  - C: CHANNEL BOTTOM/SIDE SLOPE VERTICES
- NOTE: \* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE. \*\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE REQUIRED.

### SLOPE INSTALLATION



- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPS EXTENDED BEHIND THE UP-SLOPE PORTION OF THE TRENCH. 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 COMPACTED SOIL AND FOLD THE REMAINING 12" (30CM) PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30CM) APART ACROSS THE WIDTH OF THE RECPS.
- THE RECPS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. 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.
- THE EDGES OF PARALLEL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
- IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
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- NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECPS.

### TYPICAL TURF REINFORCEMENT MATTING DETAIL

N.T.S.

- NOTES:
- BIORETENTION SYSTEM SPILLWAYS TO BE LINED WITH NORTH AMERICAN GREEN SCISSOR EROSION CONTROL BLANKET OR APPROVED EQUAL.
  - E.J. PRESCOTT, INC. 210 SHEEP DAVES RD. 603-224-9545

### CONSTRUCTION DETAILS

prepared for  
TOOMERFS, LLC

TAX MAP 4, LOTS 38-5 AND 55  
18 MAIN ST AND 12 COWELL DR., DURHAM, NH

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