



TOWNSHIP of HOPEWELL
MERCER COUNTY

201 WASHINGTON CROSSING – PENNINGTON ROAD
TITUSVILLE, NEW JERSEY 08560-1410

PROJECT / APPLICATION

BLOCK:

LOT:

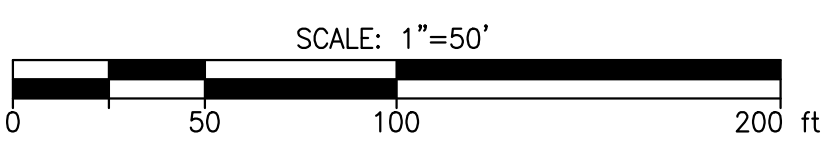
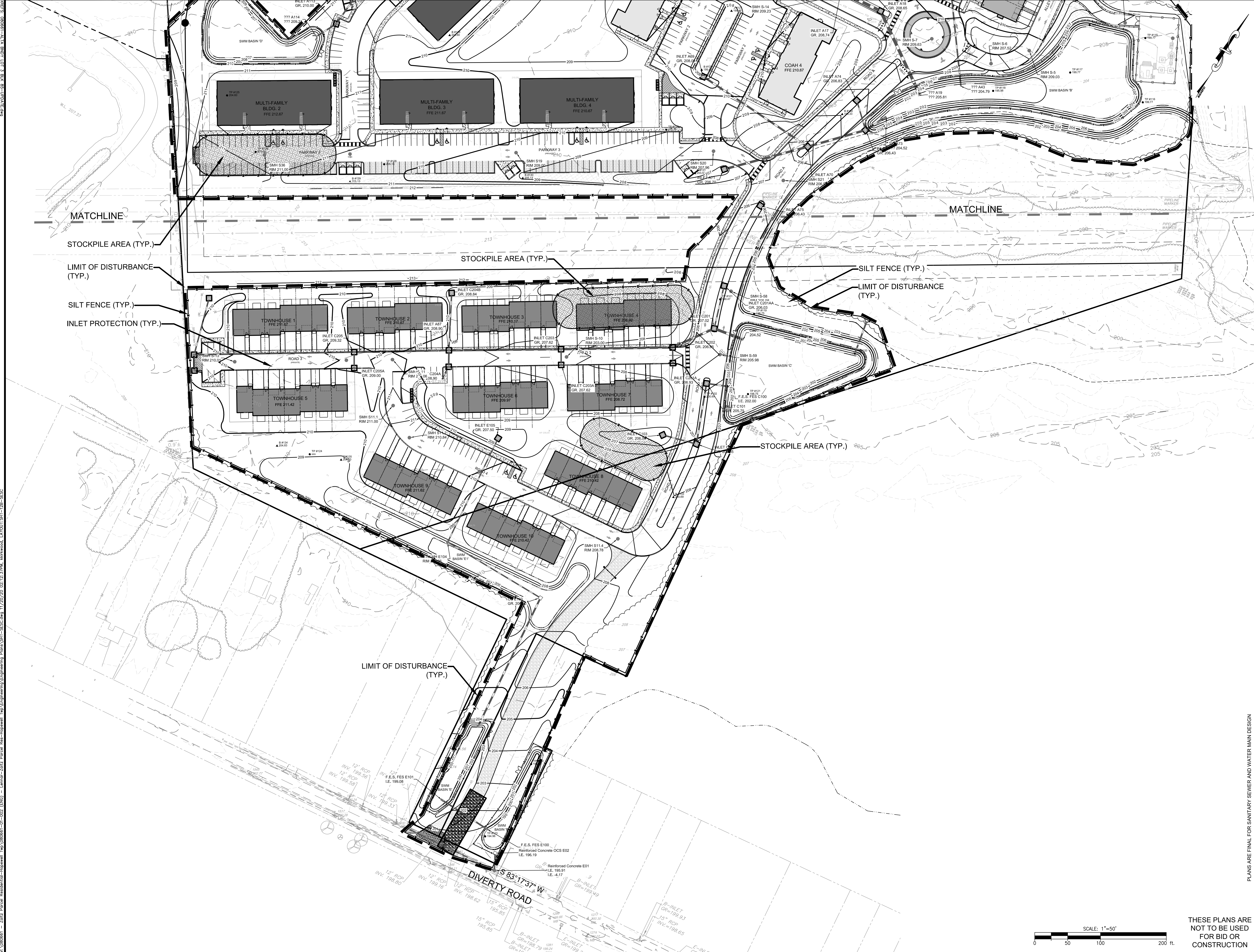
ADDRESS:

PROJECT NAME:

PLANS

Part 11 - Soil Erosion & Sediment Control Plans

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Bowman Consulting



THESE PLANS ARE
NOT TO BE USED
FOR BID OR
CONSTRUCTION

PLANS ARE FINAL FOR SANITARY SEWER AND WATER MAIN DESIGN

PRELIMINARY & FINAL MAJOR SUBDIVISION AND PRELIMINARY & FINAL SITE PLAN

THE COLLECTION at HOPEWELL

SOIL EROSION & SEDIMENT

CONTROL PLAN

BLOCK 86, LOT 3, BLOCK 86, LOTS 32-34, 41-50, AND PART OF BLOCK 85, LOT 9
TOWNSHIP OF HOPEWELL, MERCER COUNTY, NEW JERSEY

SHEET No.

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OF

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Bowman Consulting Group, Ltd.

300 W. Main Street

Freehold, New Jersey 07728

Phone: 732-665-5500

Fax: 732-665-5501

E-mail: NJ@BowmanConsulting.com

Sean A. Delany, N.J. Professional Engineer, Lic. 24GE0447100

Signature of Sean A. Delany

Professional Engineer Seal

Professional Engineer Seal

Professional Engineer Seal

Professional Engineer Seal

Bowman
CONSULTING

PROJECT: 080661-01-001

DATE: 11-20-2020

CHD: SAD

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CONSTRUCTION SEQUENCE

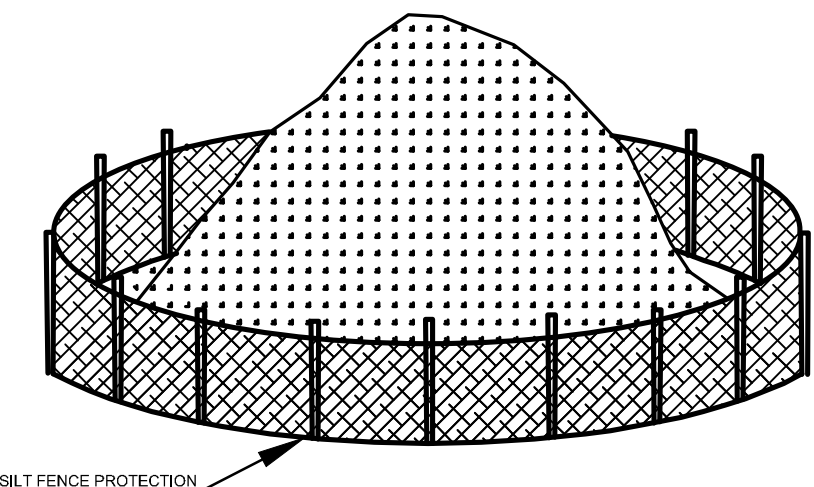
SITE PREPARATION	DURATION
1. INSTALL SEDIMENT FILTER FENCE, TREE PROTECTION FENCE, AND FENCING ALONG LIMITS OF DISTURBANCE.	4 WEEKS
2. INSTALL STABILIZED CONSTRUCTION ACCESS.	2 DAYS
3. CLEAR TREES AND REMOVE TREE STUMPS	4 WEEKS
4. REMOVE EXISTING BUILDINGS, PAVED AND GRAVEL DRIVES.	2 WEEKS
5. STRIP AND STOCKPILE TOPSOIL	1 WEEK
6. ROUGH GRADE SITE AND STORMWATER MANAGEMENT BASINS	8 WEEKS
7. PLACE CONSTRUCTION TRAILER AND CONSTRUCT STAGING AND LAYDOWN AREA. INSTALL STONE BEDDING OVER AREA FOR STABILIZATION DURING CONSTRUCTION OF SITE.	2 WEEKS
8. CONSTRUCT STORMWATER STRUCTURES AND PIPING, AND OUTFALLS AND SOIL EROSION AND SEDIMENT CONTROL MEASURES. STABILIZE BASINS UPON COMPLETION	12 WEEKS
9. ROUGH GRADE PROPOSED ROADWAYS ONSITE AND INSTALL CURB AND ROADWAY SUBBASE.	8 WEEKS
10. INSTALL ONSITE SANITARY SEWER AND WATER MAINS WITHIN ROADS. INSTALL WATER, SERVICE AND SANITARY SEWER LATERALS FROM MAINS WITHIN PROPOSED ROADWAYS BEHIND CURB LINE LOCATION.	12 WEEKS
11. CONSTRUCT ROADWAY WIDENING ALONG WASHINGTON CROSSING - PENNINGTON ROAD. INSTALL CURB, SAWCUT PAVEMENT, ROUGH GRADE. WIDENING AREA TO SUBGRADE ELEVATIONS.	2 WEEKS
12. FINE GRADE WASHINGTON CROSSING - PENNINGTON ROAD ROADWAY WIDENING. CONSTRUCT ROADWAY SUBBASE, BASE COURSE.	2 WEEKS
13. FINE GRADE ONSITE ROADWAYS AND PARKING AREAS. CONSTRUCT ROADWAY BASE COURSE PAVEMENT.	4 WEEKS
14. CONSTRUCT SIDEWALKS.	4 WEEKS
15. INSTALL ELECTRIC, TELEPHONE, CABLE, GAS UTILITIES.	8 WEEKS
16. FINE GRADE LANDSCAPE AREAS AND OPEN SPACE LOTS.	2 WEEKS
17. INSTALL BUFFER LANDSCAPING AND STREET TREES ALONG ROADWAYS. INSTALL LIGHTING FIXTURES AND STREET LIGHTS.	12 WEEKS
18. TOP SOIL AND SEED ALL DISTURBED LANDSCAPED AREAS IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.	4 WEEKS
19. INSTALL TRAFFIC SIGNS AND TEMPORARY STRIPING.	8 WEEKS
20. CONSTRUCT DWELLING UNITS AND AFFORDABLE HOUSING BUILDINGS.	ONGOING
21. UPON COMPLETION OF ALL RESIDENTIAL BUILDINGS ALONG A ROADWAY, CONSTRUCT FINAL PAVEMENT SURFACE COURSE AND INSTALL FINAL PAVEMENT STRIPING.	8 WEEKS

TYPICAL BUILDING CONSTRUCTION

1. INSTALL SEDIMENT FILTER FENCE AROUND LOT PERIMETER. INSTALL STABILIZED CONSTRUCTION ENTRANCE FOR EACH LOT AT A DRIVEWAY LOCATION.	1 WEEK
2. INSTALL BUILDING FOUNDATION	2 WEEKS
3. INSTALL UTILITY CONNECTIONS TO BUILDING.	1 WEEK
4. CONSTRUCT BUILDING	8-12 WEEKS
5. FINE GRADE LOT WITHIN LIMITS OF CLEARING/DISTURBANCE	1 WEEK
6. REMOVE STABILIZED CONSTRUCTION ACCESS AND CONSTRUCT DRIVEWAY, SIDEWALK AND PATIO.	1 WEEK
7. INSTALL PROPOSED LANDSCAPING ON LOT AND TOPSOIL, FERTILIZE AND SEED ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.	1 WEEK
8. REMOVE ACCUMULATED SEDIMENT AND FILTER FABRIC FENCE ON INDIVIDUAL LOT ONLY. (REPEAT TYPICAL LOT CONSTRUCTION FOR EACH LOT AT TIME OF DEVELOPMENT)	1 DAY

FINAL MEASURES AFTER FULL BUILD OUT OF DEVELOPMENT

1. REMOVE ALL ACCUMULATED SEDIMENT FROM ROADWAYS, AND STORMWATER BASINS, STORM PIPING AND AT BASIN OUTFALLS.	2 WEEKS
2. REMOVE ALL PERIMETER FILTER FABRIC FENCING AND TREE PROTECTION FENCING, AND ALL REMAINING INLET FILTER PROTECTION.	1 WEEK



TOPSOIL STOCK PILE DETAIL

NOT TO SCALE

Standards for Soil Erosion and Sediment Control in New Jersey

July 2017

hydraulic, biological, aesthetic and other environmental functions of the stream.

Soil Management and Preparation

Subgrade soils prior to the application of topsoil shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.

This section of this Standard addresses the potential for excessive soil compaction in light of the intended land use, testing for excessive soil compaction where permanent vegetation is to be established and mitigation of excessive soil compaction when appropriate.

Due to use or setting, certain disturbed areas will not require compaction remediation including, but not limited to the following:

- Within 20 feet of building foundations with basements, 12 feet from slab or crawl space construction.
- Where soils or gravel surfaces will be required to support post-construction vehicular traffic loads such as roads, parking lots and driveways (including gravel surfaces), bicycle paths or pedestrian walkways (sidewalks etc).
- Airports, railways or other transportation facilities
- Areas requiring industry or government specified soil designs, including golf courses, landfills, wetland restoration, septic disposal fields, wet/land ponds, etc.
- Areas governed or regulated by other local, state or federal regulations which dictate soil conditions
- Brownfields (capped uses), urban redevelopment areas, in-fill areas, recycling yards, junk yards, quarries and
- Slopes determined to be inappropriate for safe operation of equipment
- Portions of a site where no heavy equipment travel or other disturbance has taken place
- Areas receiving temporary vegetative stabilization in accordance with the Standard.
- Where the area available for remediation practices is 500 square feet or less in size.
- Locations containing shallow (close to the surface) bedrock conditions.

Areas of the site which are subject to compaction testing and/or mitigation shall be graphically denoted on the certified soil erosion control plan.

Soil compaction remediation or testing to prove remediation is not necessary will be required in areas where permanent vegetation is to be established that are not otherwise exempted above. Testing method shall be selected, and soil compaction testing shall be performed by the contractor or other project owner's representative (e.g., engineer). A minimum of two (2) tests shall be performed for projects with an overall limit of disturbance of up to one (1) acre and at a rate of two (2) tests per acre of the overall limit of disturbance for larger areas which shall be evenly distributed over the area of disturbance subject to testing. Tests shall be performed in areas representative of the construction activity prevailing in the area. In the event this testing indicates compaction in excess of the maximum thresholds indicated for the testing method, the contractor/owner shall have the option to perform compaction mitigation over the entire disturbed area (excluding exempt areas) or to perform additional testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation.

Soil compaction testing is not required if/when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

Standards for Soil Erosion and Sediment Control in New Jersey

July 2017

Soil Test Method Options

- Probing Wire Test Method
This test shall be conducted with a firm wire (15-1/2 gauge steel wire - e.g. survey marker flag, straight wire stock, etc.), 18 to 21 inches in length, with 6" inches from one end visibly marked on the wire. Conduct wire flag test by holding the wire flag near the flag end and push it vertically into the soil at several different locations in the field to the lesser of a 6 inch depth or the depth at which it bends due to resistance in the soil. Record the depth at which it bends due to resistance in the soil. The wire should penetrate without bending or deforming at least 6" into the ground by hand, without the use of tools. If penetration fails and an obstruction is suspected (rocks, root, debris, etc.) the test can be repeated in the same general area. If the test is successful the soil is not excessively compacted. If the wire is difficult to insert (wire bends or deforms prior to reaching 6 inches in depth) the soil may be excessively compacted and compaction mitigation or further testing via method 3 or 4 below is required, the choice of which is at the contractor/owner's discretion.
- Handheld Soil Penetrometer Test Method
This test shall be conducted based on the Standard Operation Procedure (SOP) #RCE2010-001, prepared by the Rutgers Cooperative Extension, Implemented June 1, 2010, last revised February 28, 2011. A result of less than or equal to 300 psi shall be considered passing. If the result is greater than 300 psi the soil may be excessively compacted and compaction mitigation or further testing via method 3 or 4 below is required, the choice of which is at the contractor/owner's discretion.
- Tube Bulk Density Test Method
This test shall be certified by a New Jersey Licensed Professional Engineer utilizing only undisturbed samples (reconstitution of the sample not permitted) collected utilizing the procedure for Soil Bulk Density Tests as described in the USDA NRCS Soil Quality Test Kit Guide, Section 1-4, July 2001. When the texture of the soil to be tested is a sand or loamy sand and lack of soil cohesion or the presence of large amounts of coarse fragments, roots or worm channels prevent the taking of undisturbed samples, this test shall not be used.

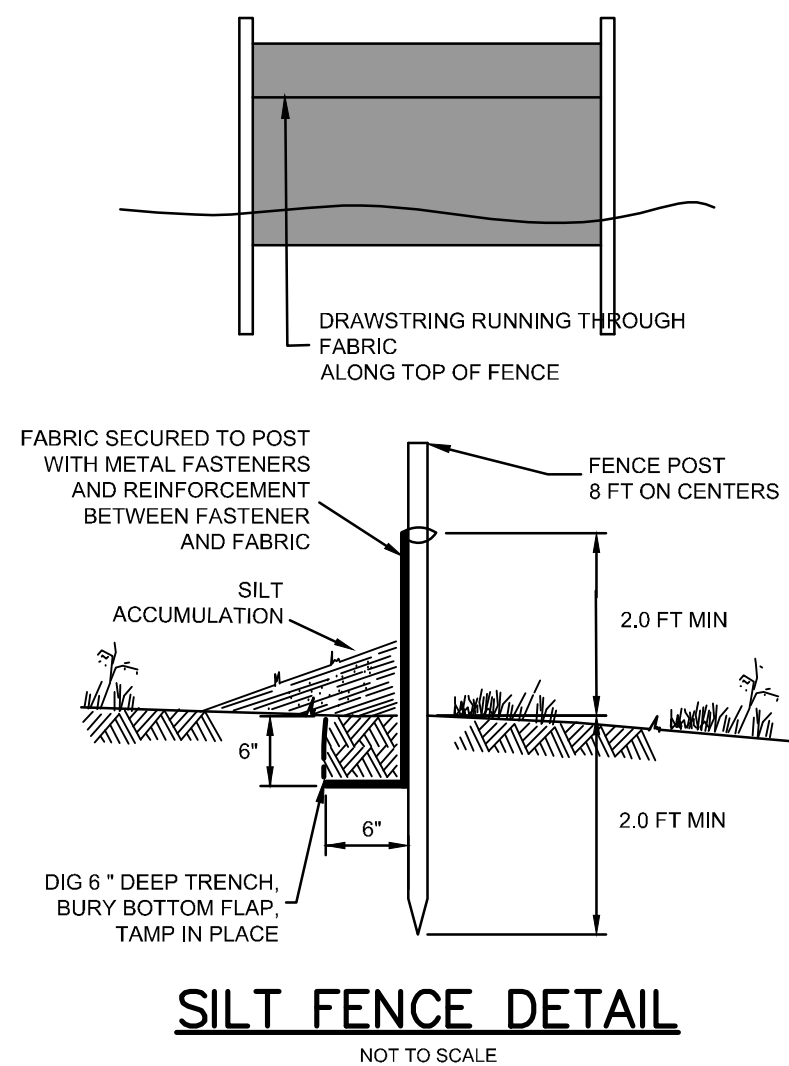
Where the results of replicate tests differ by more than ten percent (10%), the samples shall be examined for the following defects:

- Cracks, worm channels, large root channels or poor soil tube contact within the samples;
- Large pieces of gravel, roots or other foreign objects
- Smearing or compaction of the upper or lower surface of the samples

If any of the defects described in 3 (i-iii) above are found, the defective core(s) shall be discarded and the test repeated using a new replicate sample for each defective replicate sample. The bulk density (defined as the weight of dry soil per volume) results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction mitigation is required.

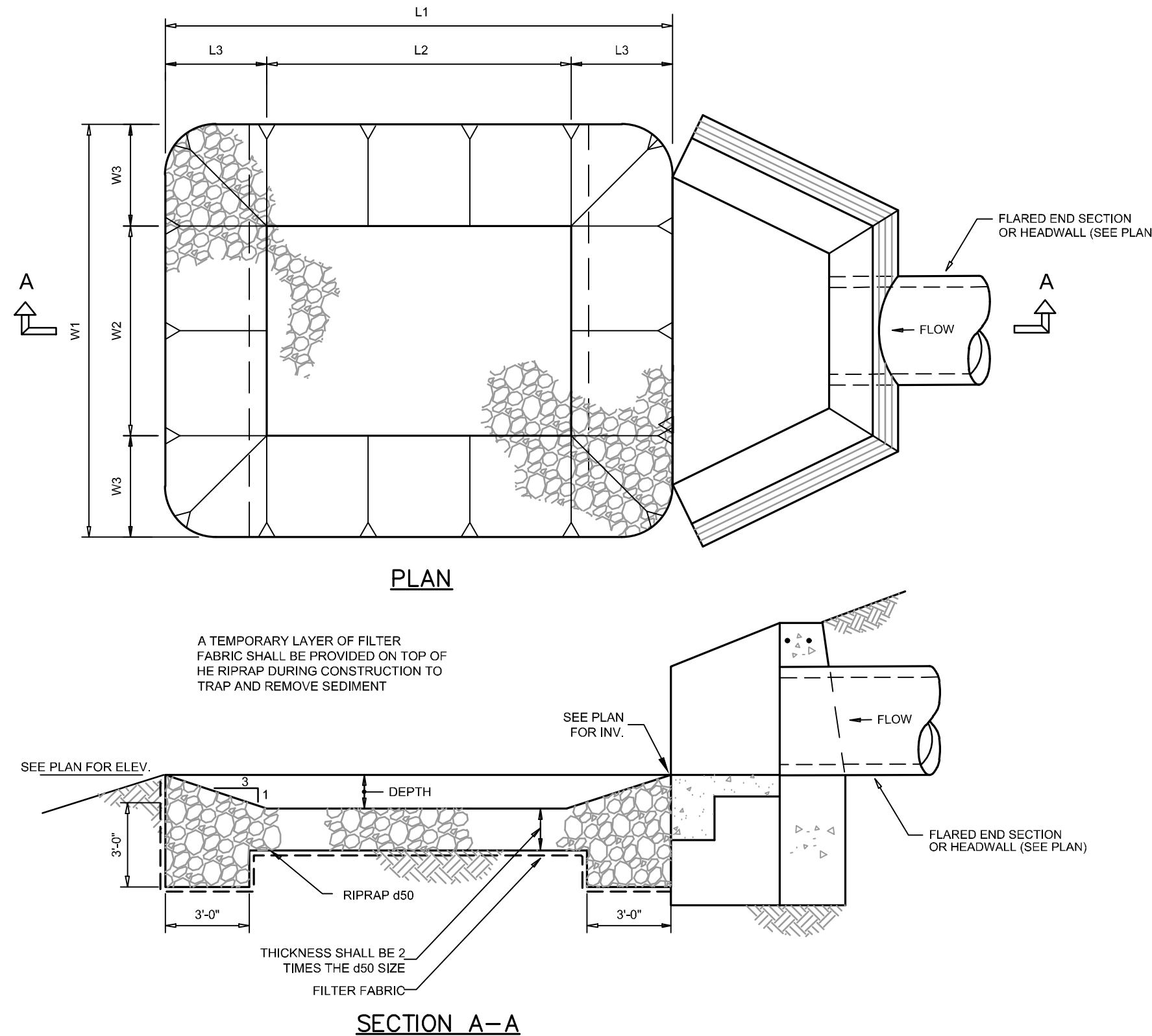
- Nuclear Density Test Method

This test shall be certified by a New Jersey Licensed Professional Engineer and conducted by a nuclear gauge certified inspector pursuant to ASTM D6938. The bulk density measurement results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction mitigation is required.



SILT FENCE DETAIL

NOT TO SCALE



PREFORMED SCOUR HOLE DETAIL

NOT TO SCALE

Standards for Soil Erosion and Sediment Control in New Jersey

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Table 19-1 - Maximum Dry Bulk Densities (grams/cubic centimeter) by soil type

Soil Type/Texture	Bulk Density (g/cc)
Coarse, Medium and Fine Sands and Loamy Sands	1.80
Very Fine Sand and Loamy Very Fine Sand	1.77
Sandy Loam	1.75
Loam, Sandy Clay Loam	1.70
Clay Loam	1.65
Sandy Clay	1.60
Silt, Silt Loam	1.55
Silty Clay Loam	1.50
Silty Clay	1.45
Clay	1.40

Source: USDA Natural Resource Conservation Service, Soil Quality Information Sheet, Soil Quality Resource Concerns: Compaction, April 1996

- Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to District approval.

Procedures for Soil Compaction Mitigation

If subgrade soils are determined to be excessively compacted by testing, as identified above, procedures shall be used to mitigate excessive soil compaction prior to placement of topsoil and establishment of permanent vegetative cover. Restoration of compacted soils shall be through deep scarification/tillage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.) or in the alternative, another method as specified by a New Jersey Licensed Professional Engineer.

Installation Requirements

Timber, logs, brush, rubbish, rocks, stumps and vegetative matter which will interfere with the grading operation or affect the planned stability or fill areas shall be removed and disposed of according to the plan.

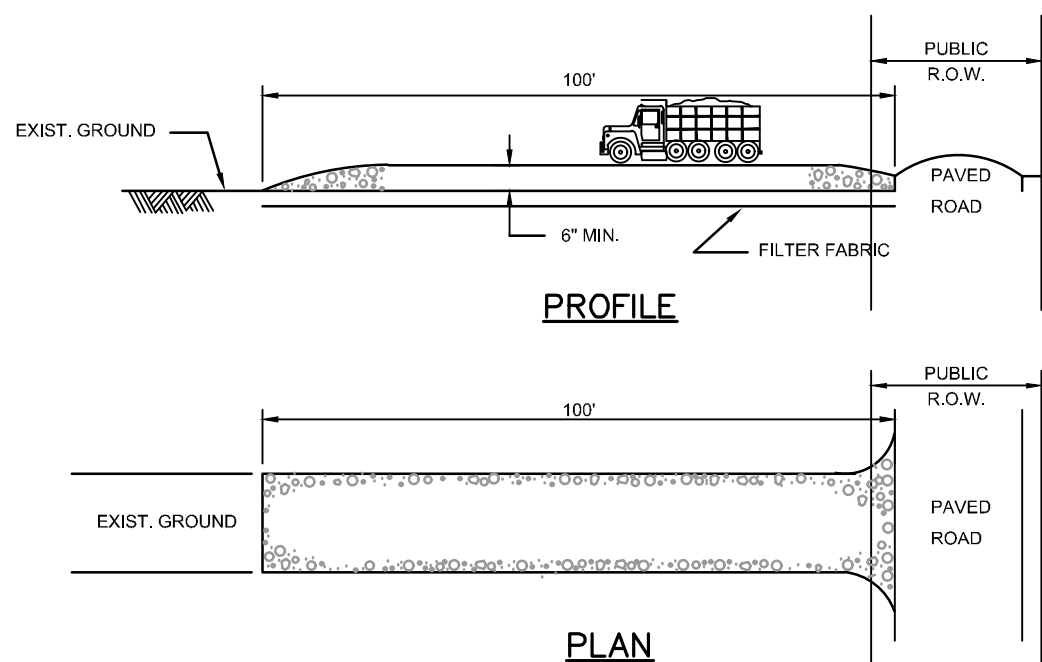
Topsoil is to be stripped and stockpiled in amounts necessary to complete finish grading of all exposed areas requiring topsoil. See Standard for Topsoiling, pg. 8-1.

Fill material is to be free of brush, rubbish, timber, logs, vegetative matter and stumps in amounts that will be detrimental to constructing stable fills.

All structural fills shall be compacted as determined by structural engineering requirements for their intended purpose and as required to reduce slipping, erosion or excessive saturation.

All disturbed areas shall be left with a neat and finished appearance and shall be protected from erosion. See Standards for Permanent Vegetative Cover for Soil Stabilization, pg. 4-1.

Trees to be retained shall be protected if necessary in accordance with the Standard for Tree Protection During Construction, pg. 9-1.



NOTES

STONE SIZE: 1 1/2" - 2 1/2" CRUSHED STONE

WIDTH NOT LESS THAN FULL WIDTH AT POINTS OF EGRESS AND INGRESS.

WARNING: WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC R.O.W. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.

MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC R.O.W. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY WEARIES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRAPPED ONTO PUBLIC R.O.W. MUST BE REMOVED IMMEDIATELY.

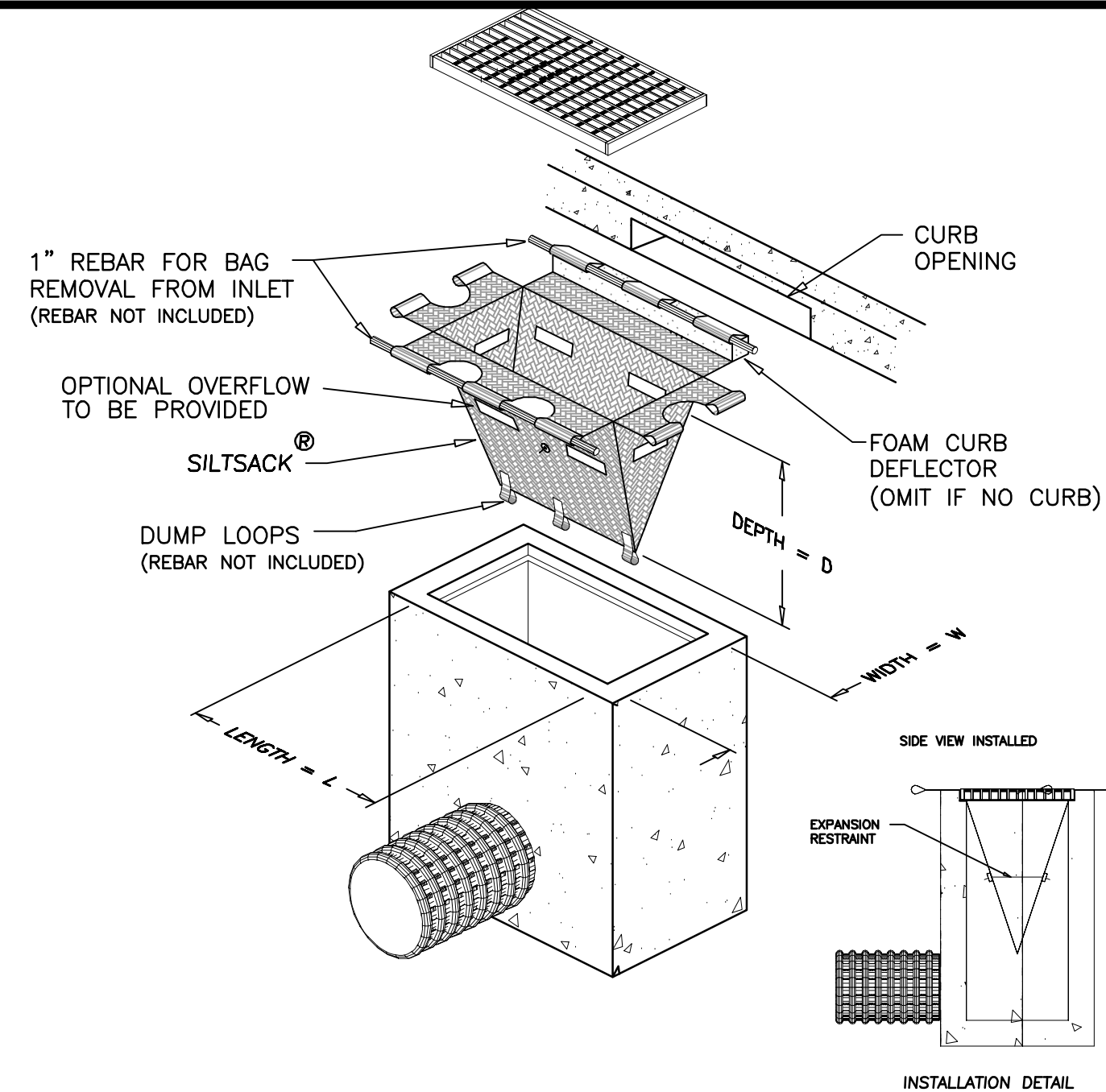
WHEN THE CONSTRUCTION ACCESS EXITS ONTO A MAJOR ROADWAY, A PAVED TRANSITION AREA MAY BE INSTALLED BETWEEN THE MAJOR ROADWAY AND THE STONED ENTRANCE TO PREVENT LOOSE STONES FROM BEING TRANSPORTED OUT ONTO THE ROADWAY BY HEAVY EQUIPMENT ENTERING OR LEAVING THE SITE.

PERCENT SLOPE OF ROADWAY	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 ft.	100 ft.
2 TO 5%	100 ft.	200 ft.
>5%	200 ft.	400 ft.

1. AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY

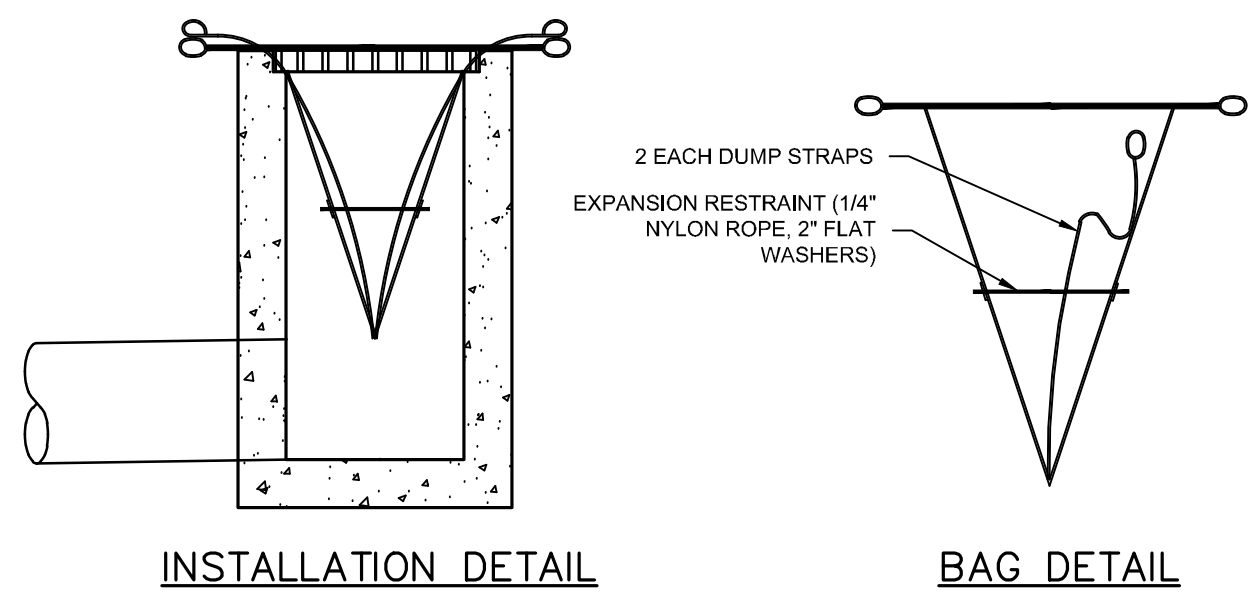
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



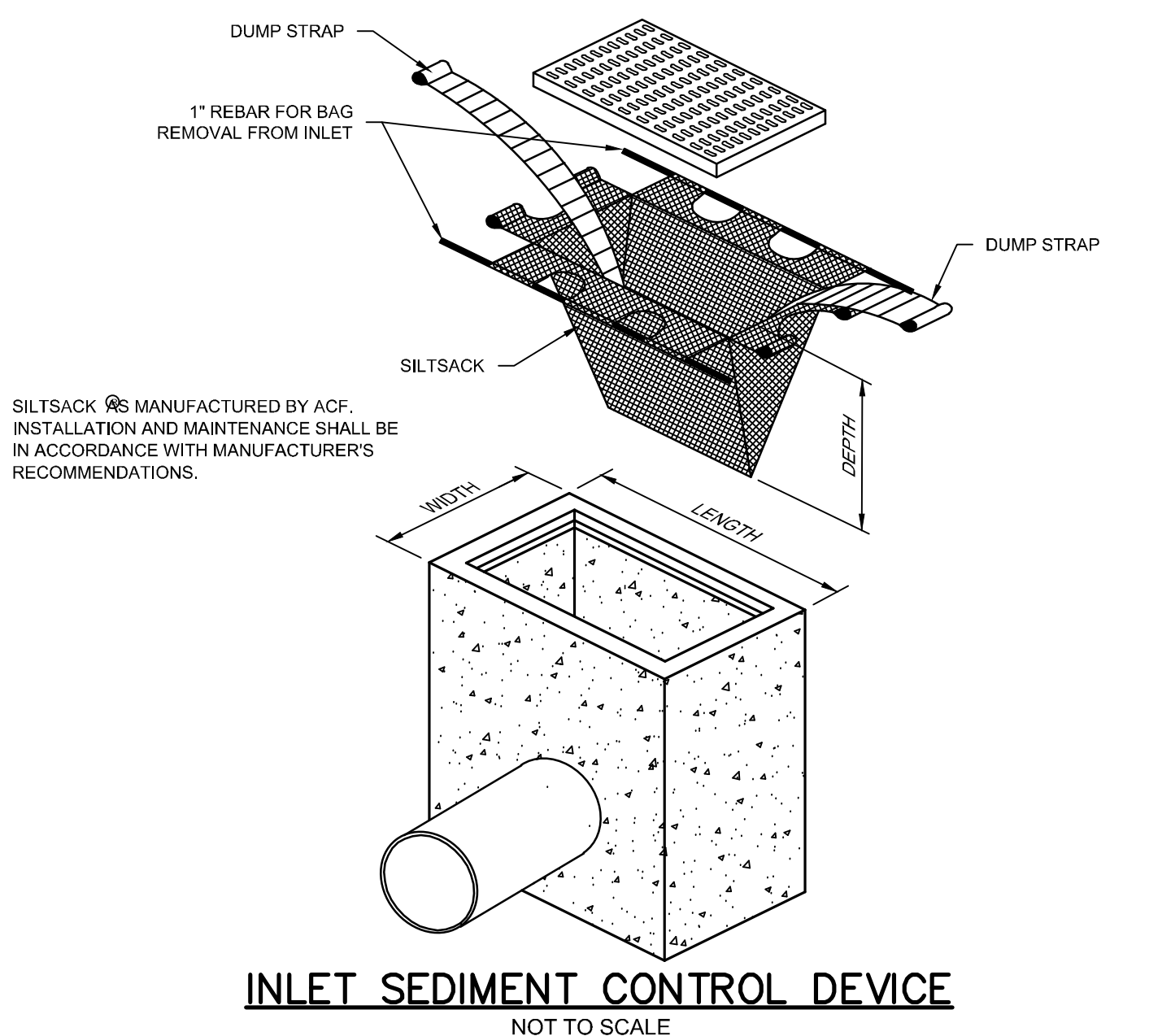
INLET SEDIMENT CONTROL DEVICE WITH CURB DEFLECTOR

NOT TO SCALE



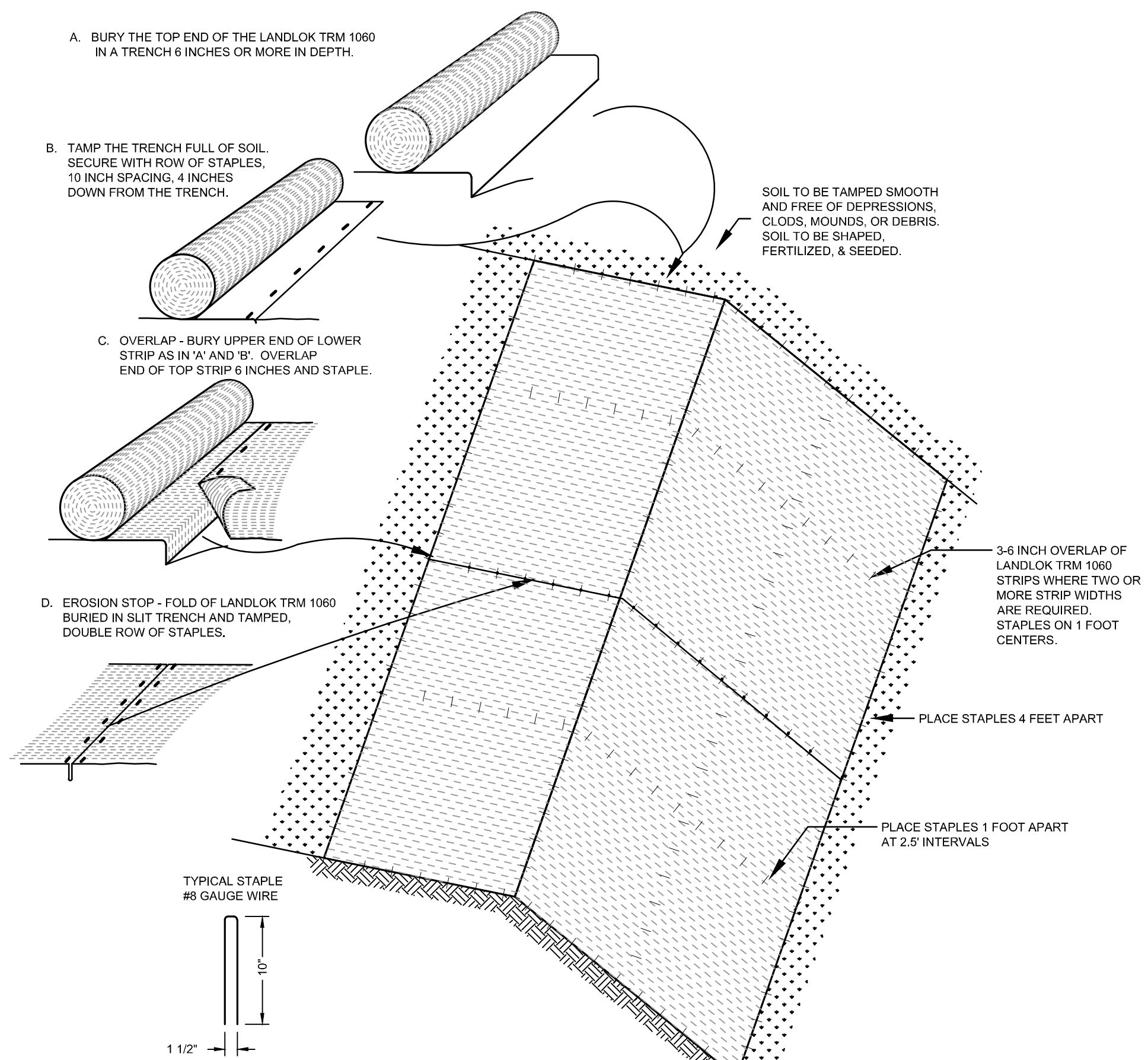
INSTALLATION DETAIL

BAG DETAIL



INLET SEDIMENT CONTROL DEVICE

NOT TO SCALE



SLOPE STABILIZATION MATTING (LANDLOK TRM 1060 OR APPROVED EQUAL)

N.T.S.

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DATE: 11/20/2020
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Phone: 732-665-5500
Fax: 732-665-5501
353 W. Main Street
Freehold, New Jersey 07728
E-mail: NJ@BowmanConsulting.com
NJ Certificate No. 24-G-02822600

SEAN A. DELANY, N.J. Professional Engineer, Lic. 24GE0447100

PRELIMINARY & FINAL MAJOR SUBDIVISION AND PRELIMINARY & FINAL SITE PLAN
THE COLLECTION at HOPEWELL
SOIL EROSION & SEDIMENT CONTROL
NOTES & DETAILS
BLOCK 86, LOT 3, BLOCK 86, LOTS 3234 & 133, AND PART OF BLOCK 86, LOT 9
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