


PROPERTY OWNERS WITHIN 200' OF BLOCK 260, LOTS 4.04 & 4.05 TOWNSHIP OF DENNIS, CAPE MAY COUNTY, NJ			
<p>THIS IS TO CERTIFY THAT THE FOLLOWING LIST OF PROPERTY OWNERS ARE WITHIN 200 FEET OF BLOCK 260, LOTS 4.04 & 4.05 ACCORDING TO THE OFFICIAL TAX MAP OF DENNIS TOWNSHIP</p>			
ADDRESS	BLK	LOT	QUAL
<p>ATTEST:  LISA M. BULLOCK TOWNSHIP CLERK</p>			
<p>BLK 260, LOTS 4.04 & 4.05</p>			
<p>CAPE MAY COUNTY PLANNING BOARD DR. DR. CENTRAL MAIL ROOM CAPE MAY COURT HOUSE, NJ 08210</p>	258	15	
<p>VERIZON COMMUNICATIONS % INFORMATION DEPARTMENT % TANDENBORG, T-2 BURLINGAME, NJ 08017</p>	258	16.01	
<p>ROUTE 1 BERRY GAS COMPANY % KROHN SCORINGER GENERAL MANAGER SYSTEM ENGINEERING & PLANNING % TANDENBORG, T-2 BURLINGAME, NJ 08017</p>	258	16.02	
<p>CONCRETE SEAL TREATMENT 1500 HAZARD HIGHWAY, SUITE 138 MAYTIA ANDSON, NJ 08310</p>	258	16.03	
<p>COMCAST CABLE 90 W LIZEN AVENUE ANDSON, NJ 08201</p>	259	9.01	
<p>PUBLIC SERVICE ELECTRIC & GAS CO. MANAGER COMMERCIAL PROPERTIES REPAIR PLAZA, 100 NEWARK, NJ 07102</p>	260	4.02	
<p>CAPE ATLANTIC SOIL CONCRETE & ASPHALT DISTRICT ATTN: MICHAEL KNOX 400 S. HANCOCK STREET MAYTIA ANDSON, NJ 08310</p>	260	4.03	
	260	5	
	261	15.01	
	261	15.02	
	261	15.03	C-1
	261	15.03	C-2
	261	15.03	C-3
	261	15.03	C-4
	261	15.04	
	261	15.05	
	261	16.02	
<p>PROPERTY OWNER & MAILING ADDRESS FOR IDENTIFICATION</p>			
<p>DAY, CHRISTOPHER 147 KINGS HWY CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>OWENBELL, FRANCIS E 1101 RT 83 CLAMORING, NJ 08210</p>			
<p>DEVER, THOMAS F 7 RACQUITT LA CLAMORING, NJ 08210</p>			
<p>PIFFERTY, CHARLES J 1208 CEDAR LN CITYVIEW HILLS, NJ 08003</p>			
<p>FITZDALLO, MATTHEW A 114 KINGS HWY CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>BAFF, DEAN 144 KINGS HWY CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>BOCK ASSOCIATES, LLC 2113 RT 9 CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>BRONKHORST, ROONEY & HART 115 GENTILE ROAD CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>WALKER, SANDRA L 143 KINGS HWY CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>PROCTOR, DENNIS 500 WHITE HORSE PINE ANDSON, NJ 08201</p>			
<p>1071 RT 83 LLC 480 CEDAR RD MADONNETTE, NJ 08003</p>			
<p>K & A PROPERTY MANAGEMENT 16 KELLY CORP CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>MCINTOSH, WILLIAM 22 CEDAR LN, PO BOX 111 OCEAN GROVE, NJ 08056</p>			
<p>COMLEY, JOHN K & ROBERTSON, SANDRA 17 BRANSTON GARDEN RD CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>CAPE ATLANTIC RE INV R BINDER J 3 BARBER DRIVE CAPE MAY, NJ 08204</p>			
<p>47331 LLC 3733 OCEAN DR AUSTIN, NJ 08002</p>			
<p>BECKER, JACQUELINE A & JANE 1055 RT 83 CAPE MAY COURT HOUSE, NJ 08210</p>			
<p>CAPE MAY COUNTY 4 MOORE RD CAPE MAY COURT HOUSE, NJ 08210, 1684</p>			

1. Applicant/Owner:
Ryan Development Group
Matt Ryan
3283 Dune Drive
Avaton, NJ 08202
Phone (410)-371-3122
2. The project site is known as Block 260 Lots 4.04 & 4.05, as shown on the Tax Sheet #28 of the Dennis Township Tax Maps.
3. The property is located in both the CVC - Clermont Village Center and R3 - Rural Density Residential Zoning Districts. It is currently vacant / wooded.
4. The project site consists of a total area of 1.966 Acres (85638.96 SF), Lot 4.04 consists of 0.924 AC (40,249.44SF) & Lot 4.05 consists of 1.042 AC (45,389.52 SF).
5. It is the intent of the Applicant to construct five contractor workshop units with office space. The building will be a total of 11,900 SF with an adjacent parking lot. Two basins are proposed to mitigate stormwater runoff.
6. Stormwater calculations were prepared by Engineering Design Associates and dated December 2022.
7. The Proposed improvements will be serviced from a proposed on-site septic system and proposed well.
8. All concrete curb, sidewalk, pavement disturbed in kind within road rights-of-way are to be repaired in kind.
9. All traffic signs, other signs, mailboxes, poles and/or safety devices that will be removed during construction are to be reinstalled at the proper location.
10. The proposed application will require approvals from the following agencies:
 - New Jersey Department of Transportation
 - Dennis Township Land Use Board
 - Cape May County Planning Board
 - Cape May County Soil Conservation District
 - Cape Atlantic Soil Conservation District

Outbound and topographic survey information taken from plan entitled "Survey of Premises 1084 & 1092 Route 83 Block 260: Lot 4.04, 4.05", prepared by Gregory K. Schneider N.J.P.L.S. #42577, dated 10/12/22.

SURVEY INFORMATION

This set of plans has been prepared for purposes of municipal and agency review and approval. This set of plans shall not be utilized as construction documents until all conditions of approval have been satisfied on the drawings and each drawing has been revised to indicate "Issued for Construction."

Contractor shall check and verify all existing utilities, grades, site dimensions and existing conditions before proceeding with construction. Any discrepancies or unusual conditions are to be reported to design engineer/project staff immediately for adjustments or directions.

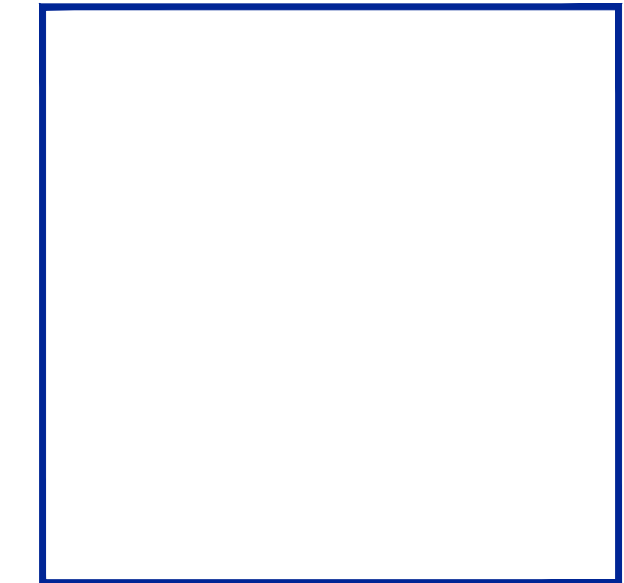
All construction to be performed in accordance with NJDOT Standard Specifications and supplementary specifications for this project.

These drawings do not include the necessary components for construction safety; however, all construction must be done in compliance with the Occupational Safety and Health Act of 1970 and all rules and regulations appurtenant to this project.

CONTRACTOR NOTES

SCHEDULE OF SHEETS	SHEET NUMBER	ORIGINAL DATE	LAST REVISION DATE
COVER SHEET	1 OF 8	12/13/2022	-
EXISTING CONDITIONS PLAN	2 OF 8	12/13/2022	-
SITE PLAN.....	3 OF 8	12/13/2022	-
GRADING AND SOIL EROSION PLAN	4 OF 8	12/13/2022	-
LANDSCAPING AND LIGHTING PLAN	5 OF 8	12/13/2022	-
ENGINEERING DETAILS	6 OF 8	12/13/2022	-
ENGINEERING DETAILS	7 OF 8	12/13/2022	-
SOIL EROSION AND SEDIMENT CONTROL NOTES.....	8 OF 8	12/13/2022	-

ZONING INFORMATION (CVC) CLERMONT VILLAGE CENTER DISTRICT EDA #9444					
Requirement	Required	Existing (4.04)	Existing (4.05)	Proposed	Variance
Lot Area	1 AC	0.924 AC	1.042 AC	1.966 AC	NO
Lot Width	150'	150'	638.69'	788.69'	NO
Lot Depth	200'	268.41'	144.34'	203.77'	NO
Front Yard Setback (Primary)	0'-8"	N/A	N/A	8'	NO
Front Yard Setback (Secondary)	0'-4"	N/A	N/A	195.5'	YES
Side Yard Setback	30'	N/A	N/A	71.3'	NO
Rear Yard Setback	55'	N/A	N/A	45.96'	YES
Building Coverage	35%	N/A	N/A	13.8%	NO
Impervious Coverage	60%	0%	0%	35.5%	NO
Building Height (Feet)	30'	N/A	N/A	<30'	NO
Building Height (Stories)	2.5	N/A	N/A	1	NO
Building Length	100'	N/A	N/A	170'	YES
Distance Between Buildings	20'	N/A	N/A	N/A	NO
Parking Setbacks					
Parking Front Setback (Primary)	30'	N/A	N/A	8'	YES
Parking Front Setback (Secondary)	10'	N/A	N/A	134.0'	NO
Parking Side Setback	10'	N/A	N/A	10'	NO
Parking Rear Setback	10'	N/A	N/A	10'	NO
Parking Requirement					
1,000 SF Contractor Office	5 spaces		5 Spaces	Variance	
1 space/200 SF					
10,900 SF Workshop	16 spaces		16 Spaces		
1 space/700 SF					
Total	21 spaces		21 spaces	No	
Sign Requirement					
Building Mounted Sign Area	30 SF MAX		30 SF MAX	No	
Variances:					
<ul style="list-style-type: none"> Section 185-18(D): Bulk Standards Secondary Front Yard; To permit a 195.5' setback, where a 0'-4' setback is required Section 185-18(D): Bulk Standards Rear yard; To permit a setback of 45.96', where a 55' setback is required. Section 185-18(D): Bulk Standards Building Length; To permit a building length of 170', where the maximum length is 100' Section 185-18(E): Bulk Standards Parking Setback; To permit a front yard parking setback of 8', where 30' is required. 					
Waivers:					
<ul style="list-style-type: none"> Requiring curbing in all parking areas (Section 185-38A(2)) Clearing Limits as it pertains to Section 185-41(J)(2) Environmental Assessment Report (Section 185-41K(2)(c)) 					



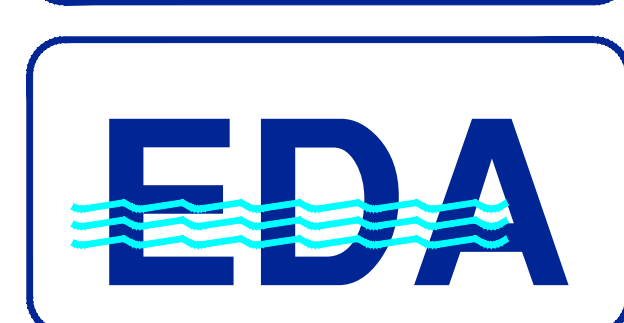
Page 10 of 10

STEVEN L. FILIPPONE
PROFESSIONAL ENGINEER
N.J.P.E. LIC. #29230



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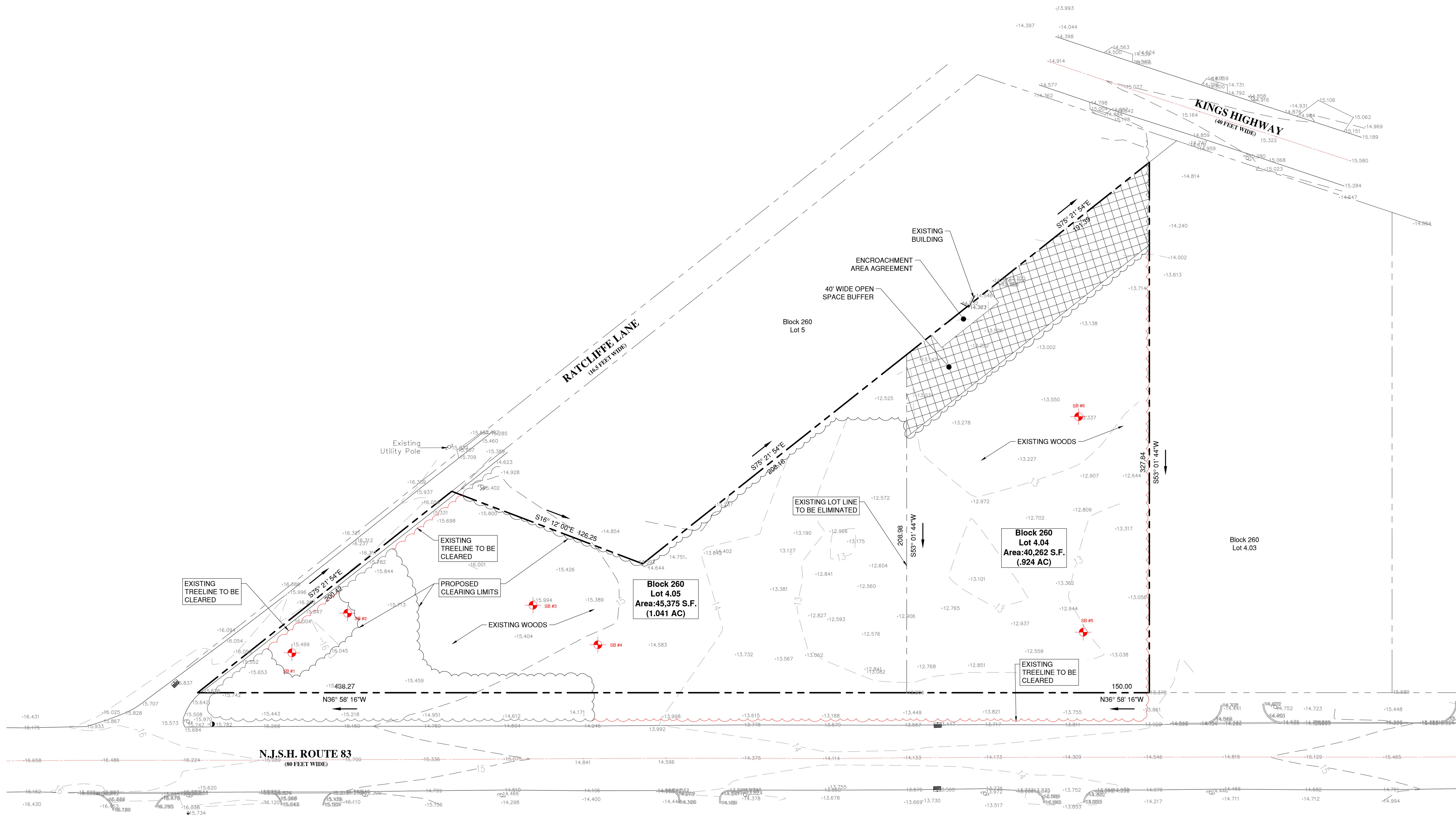


DATE: 12/13/2022	DRAWN BY: MSB
SCALE: AS NOTED	CHECKED BY: SLF
PROJECT #: 9444	SHEET: 1 OF 8

SITE PLAN FOR RYAN DEVELOPMENT GROUP

**BLOCK 260, LOTS 4.04 & 4.05
DENNIS TOWNSHIP
CAPE MAY COUNTY, NEW JERSEY**





NOTES:

1. Outbound and topographic survey information taken from plan entitled "Survey of Premises 1084 & 1092 Route 83 Block 260: Lot 4.04, 4.05", prepared by Gregory K. Schneider N.J.P.L.S. #42577, dated 10/12/22.

EXISTING CONDITIONS / DEMO PLAN



Engineers - Landscape Architects - Planners



DATE: 11/30/22	DRAWN BY: MSB
SCALE: 1" = 30'	CHECKED BY: SLF
PROJECT #: 9444	SHEET: 2 OF 8

STEVEN L. FILIPPONE

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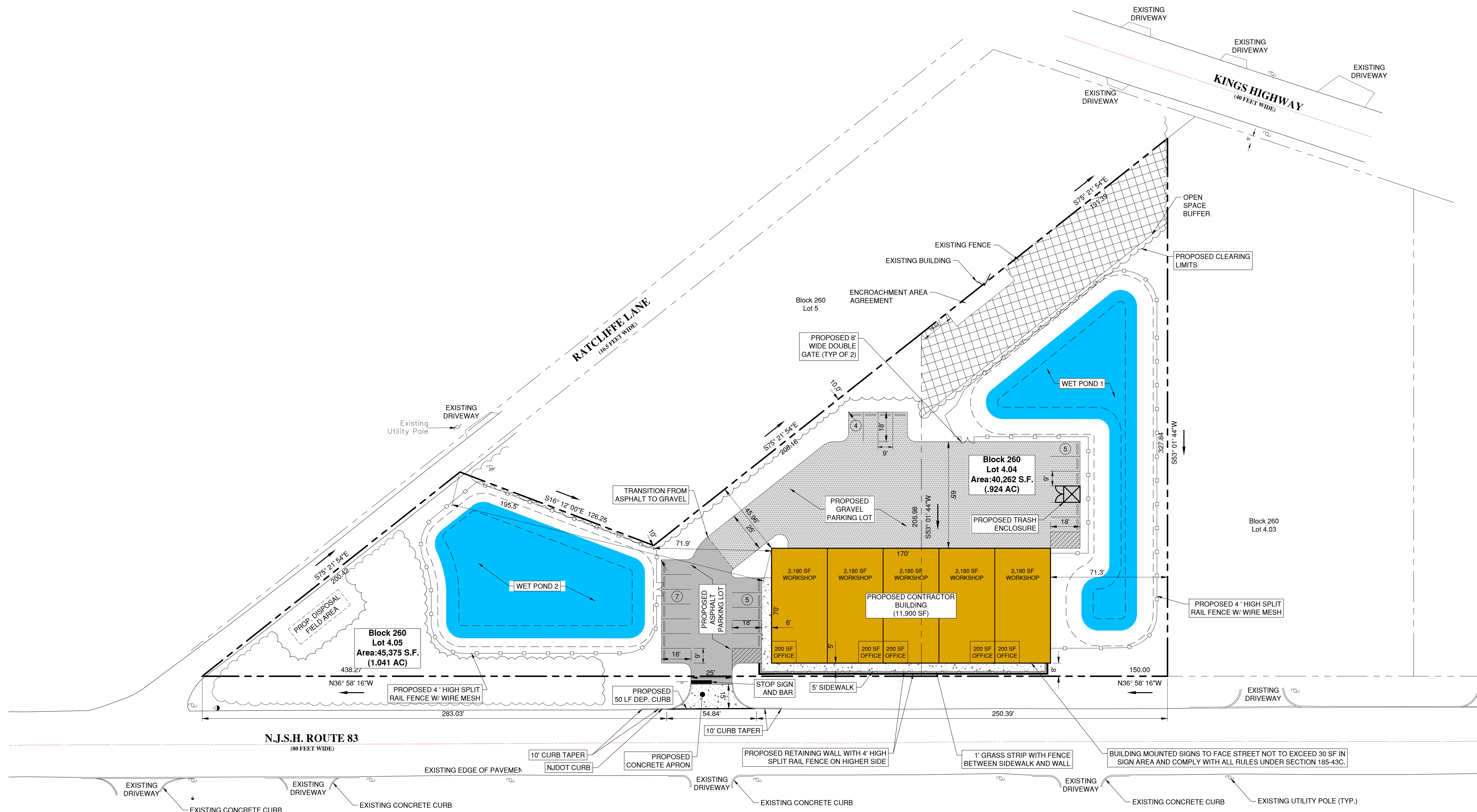


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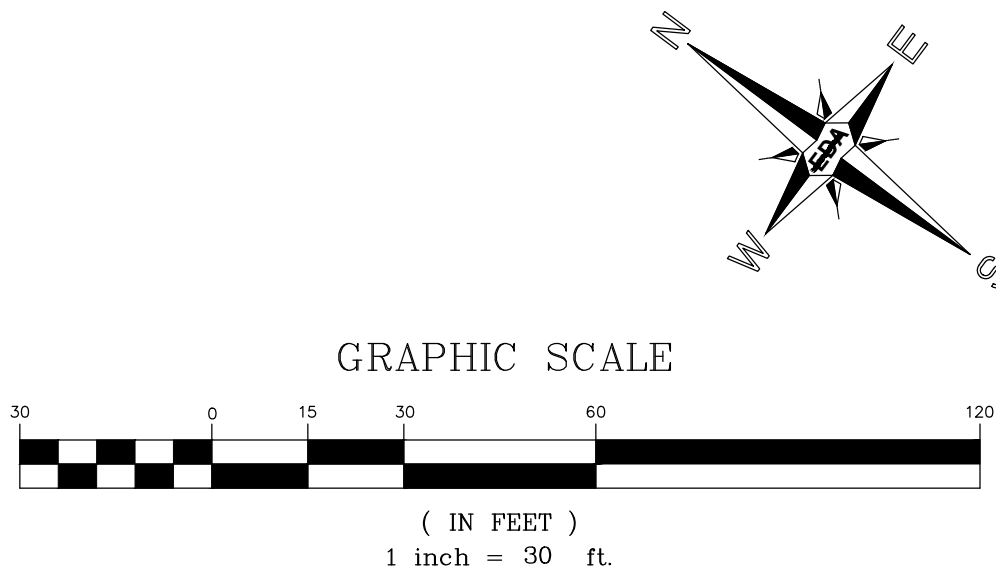
CAMBRIDGE PROFESSIONAL OFFICES
500 Northampton Street
Cambridge, MA 02142
(609) 390-0332 • Fax (609) 390-9204 • www.engineeringdesign.com • CERTIFICATE OF AUTHORIZATION# 24032370300

EXISTING CONDITIONS / DEMOLITION PLAN
BLOCK 260, LOT 4.04 & 4.05
DENNIS TOWNSHIP
CAPE MAY COUNTY, NEW JERSEY



Engineers - Landscape Architects - Planners

MAJOR SITE PLAN





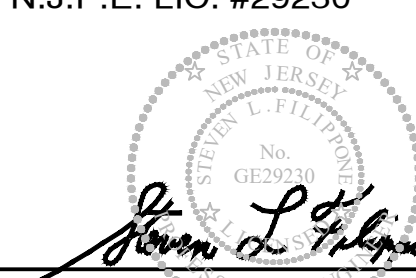
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MAJOR SITE PLAN
BLOCK 260, LOT 4.04 & 4.05
DENNIS TOWNSHIP
CAPE MAY COUNTY, NEW JERSEY

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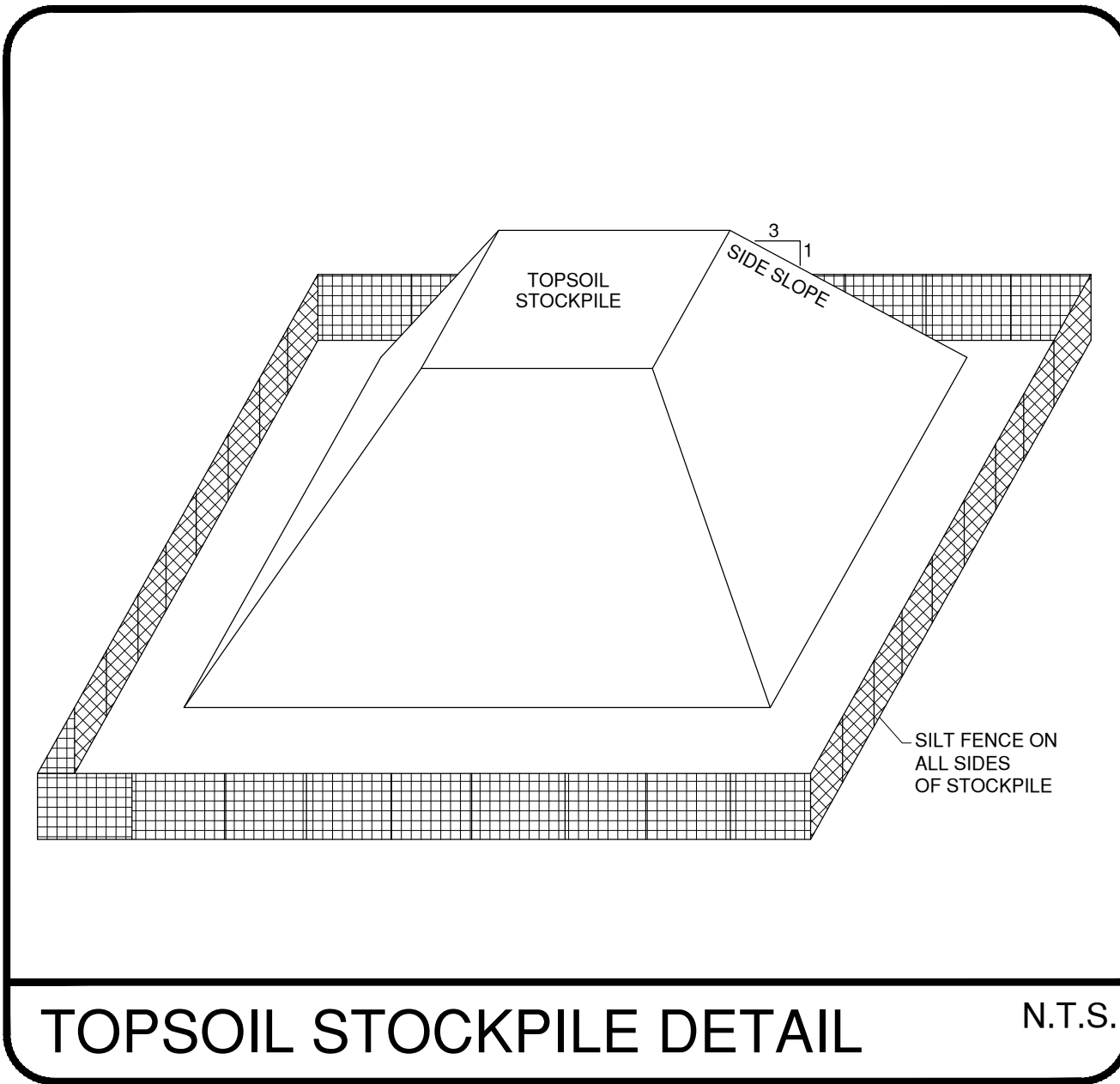


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PROJECT #: 9444	SHEET: 3 OF 8



Soil De-compaction and Testing Requirements

Soil Compaction Testing Requirements

1. Subgrade soils **prior to the application of topsoil** (see permanent seeding and stabilization notes for topsoil requirements) shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.

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

3. **Compaction testing locations** are denoted on the plan. A copy of the plan or portion of the plan shall be used to mark locations of tests, and attached to the compaction remediation form, available from the local soil conservation district. This form must be filled out and submitted prior to receiving a certificate of compliance from the district.

4. In the event that testing indicates compaction in excess of the maximum thresholds indicated for the simplified testing methods (see details below), the contractor/owner shall have the option to perform either (1) compaction mitigation over the entire mitigation area denoted on the plan (excluding exempt areas), or (2) perform additional, more detailed testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation. Additional detailed testing shall be performed by a trained, licensed professional.

Compaction Testing Methods

A. Probing Wire Test (see detail)
B. Hand-held Penetrometer Test (see detail)
C. Tube Bulk Density Test (licensed professional engineer required)
D. Nuclear Density Test (licensed professional engineer required)

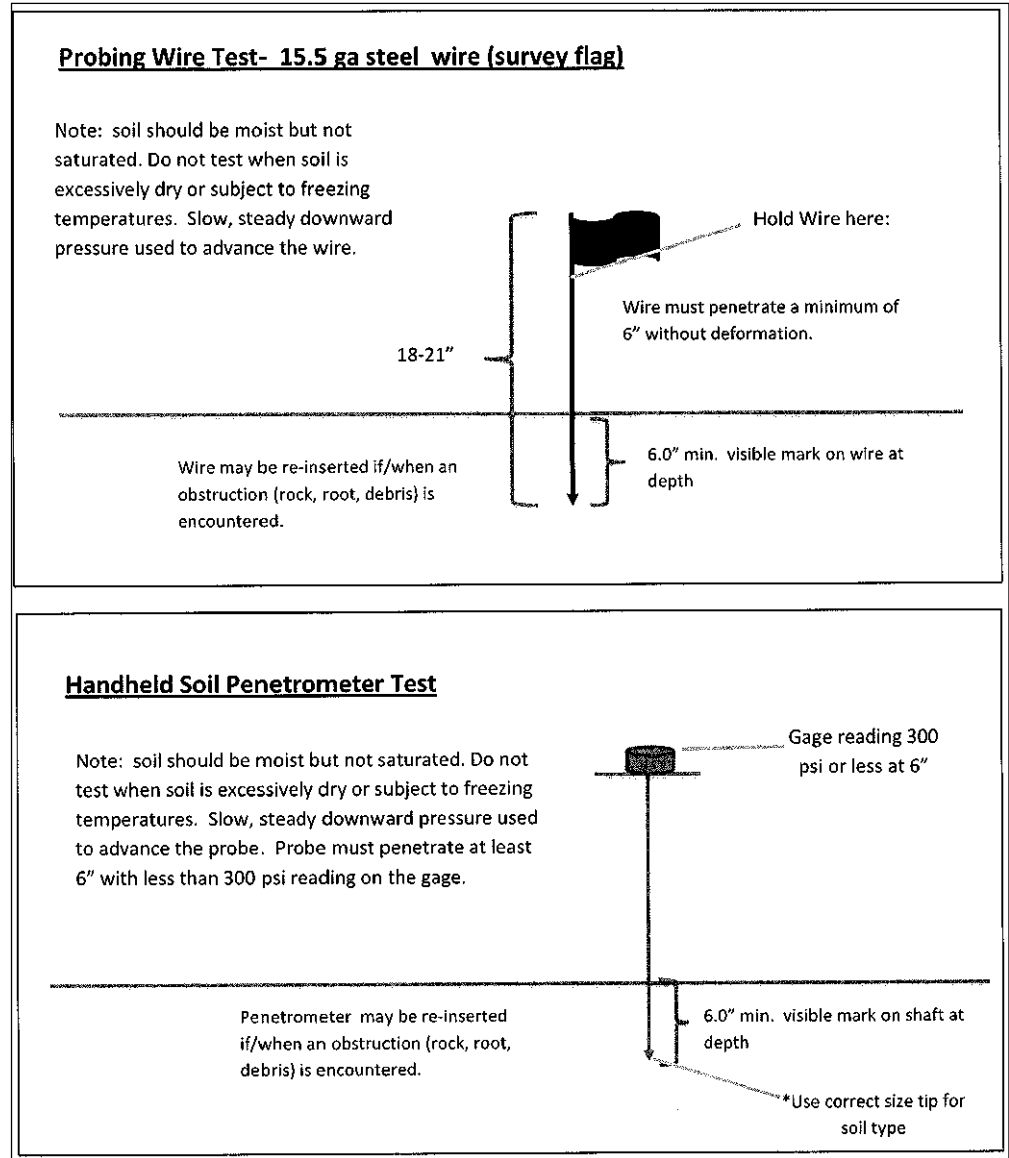
Note: Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to District approval.

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

Procedures for Soil Compaction Mitigation

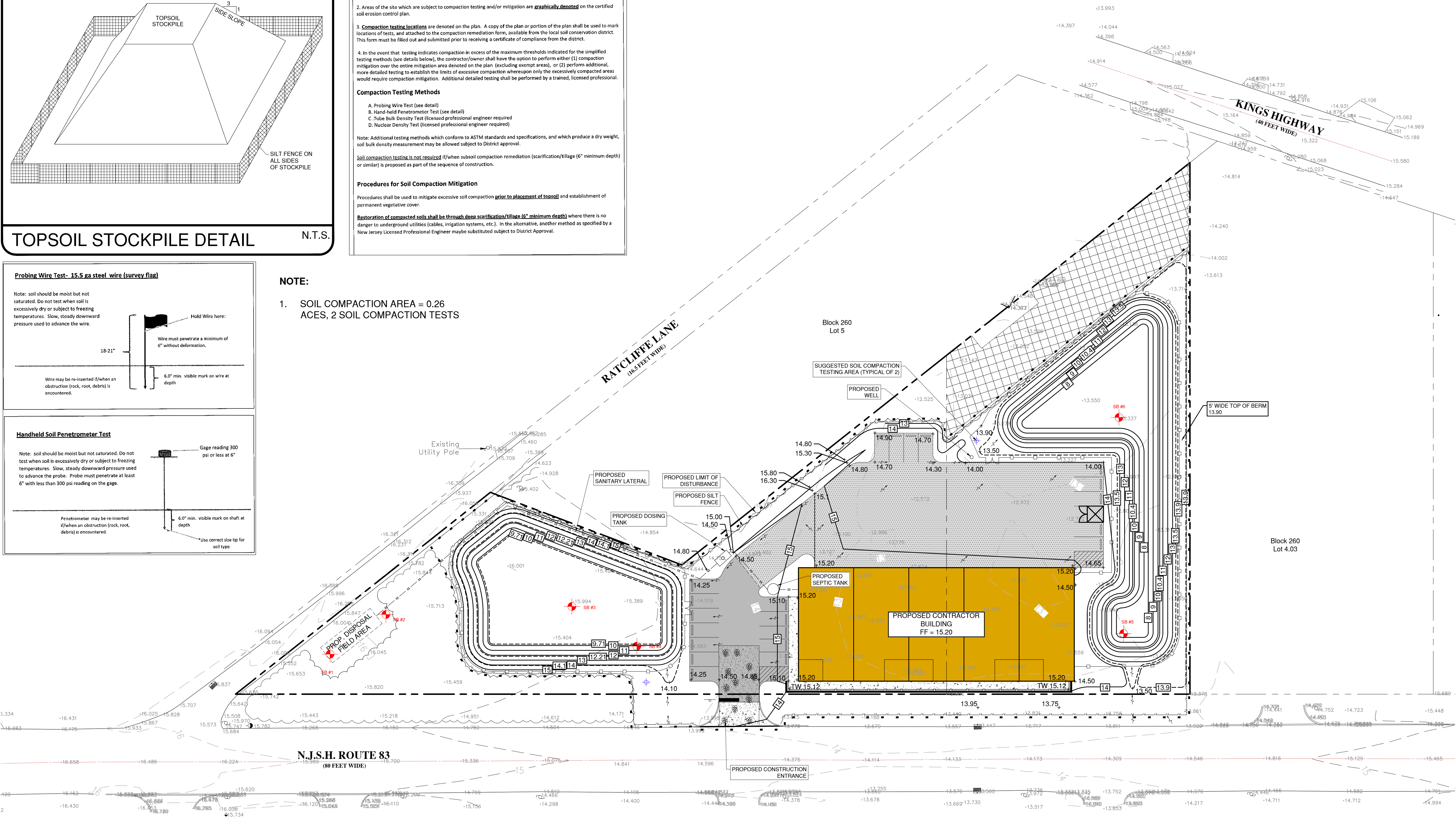
Procedures shall be used to mitigate excessive soil compaction **prior to placement of topsoil** and establishment of permanent vegetative cover.

Restoration of compacted soils shall be through deep scarification/tilage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.). In the alternative, another method as specified by a New Jersey Licensed Professional Engineer may be substituted subject to District Approval.

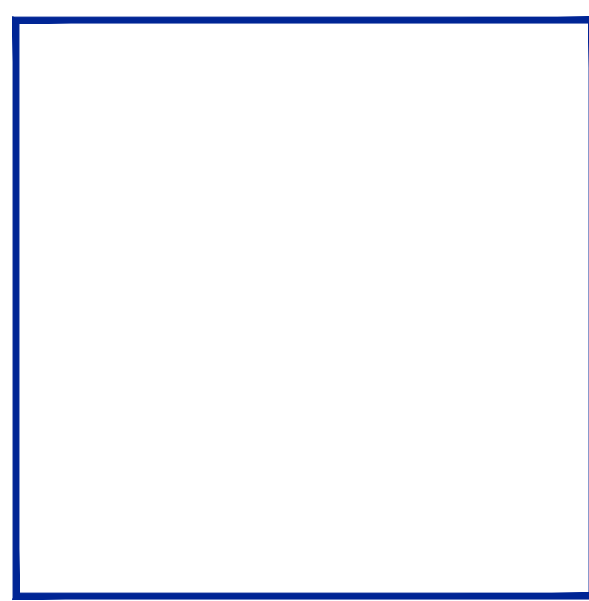
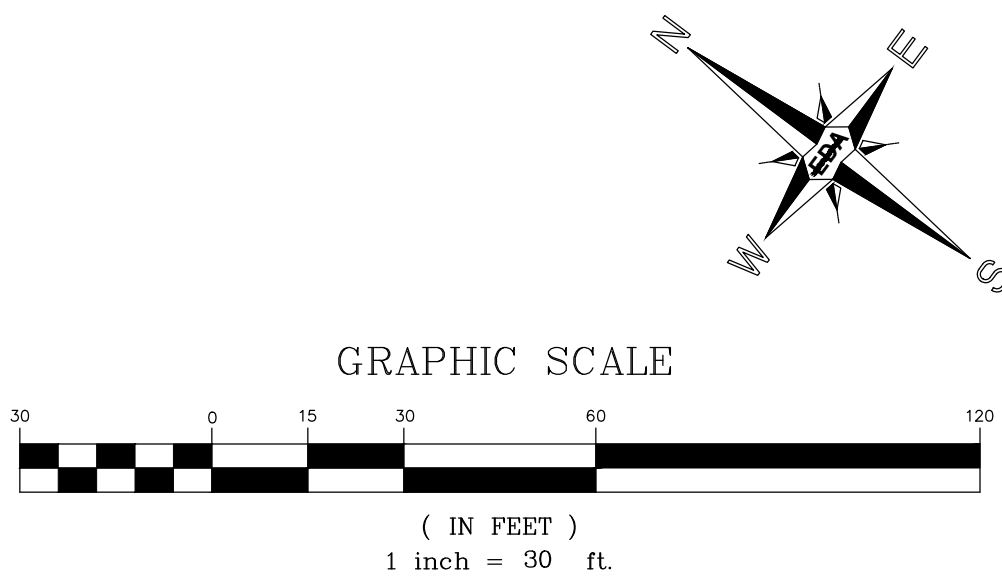


NOTE:

1. SOIL COMPACTION AREA = 0.26 ACES, 2 SOIL COMPACTION TESTS



GRADING, DRAINAGE & SESC PLAN



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GRADING, DRAINAGE & SESC PLAN
BLOCK 260, LOT 4.04 & 4.05
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SCALE: 1" = 30'	CHECKED BY: SLF
PROJECT #: 9444	SHEET: 4 OF 8

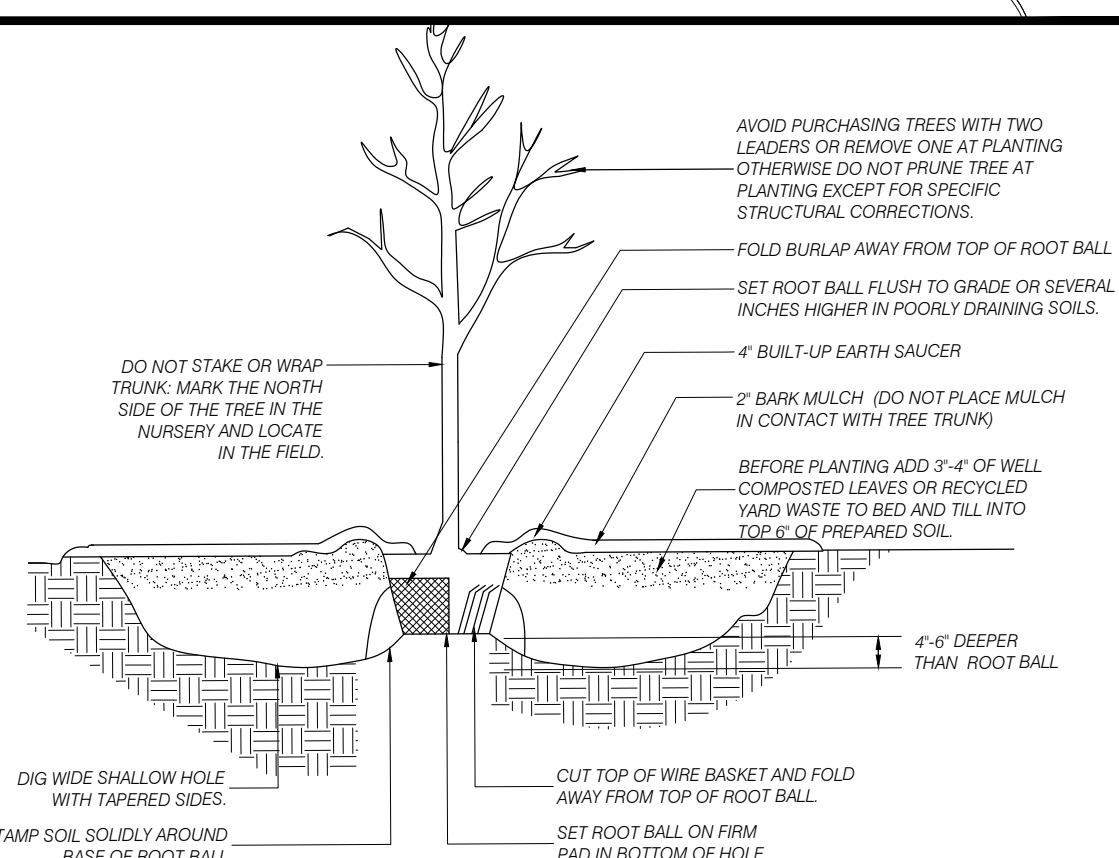
TREES					
ABRV	BOTANICAL NAME	COMMON NAME	SIZE	NOTES	QTY
AG	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	7'-8"	B&B	4
AR	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	7'-8"	B&B	5
CC	CERCIS CANADENSIS	EASTERN REDBUD	6'-7'	B&B	5
CF	CORNUS FLORIDA	FLOWERING DOGWOOD	6'-7'	B&B	4
IO	ILEX OPACA	AMERICAN HOLLY	5'-6'	B&B	9
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	5'-6'	B&B	6
JT	JUNIPERUS VIRGINIANA 'TAYLOR'	TAYLOR EASTERN RED CEDAR	5'-6'	B&B	34
TO	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	5'-6'	B&B	18

IG	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	#5	CONT.	30
IV	ITEA VIRGINICA 'HENRY'S GARNET'	HENRY'S GARNET SWEETSPICE	#5	CONT.	15
JC	JUNIPERUS CONFERA 'BLUE PACIFIC'	BLUE PACIFIC SHORE JUNIPER	#1	CONT.	37
SJ	SPIREA JAPONICA 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	#3	CONT.	25
SS	SEDUM SPECTABILE 'AUTUMN JOY'	AUTUMN JOY SPIREA	#1	CONT.	30

PLANT SCHEDULE

- A. MULCH - BEDS TO BE FILLED WITH A 4" LAYER OF LICORICE ROOT MULCH (RIGHT DRESS INC.)
B. WEED BARRIER - MULCH TO BE PLACED OVER TERRA TOP LS WEED CONTROL FABRIC OR 4 MIL. BLACK POLYETHYLENE.
C. EDGING - PLANTING BED TO BE EDGED WITH BLACK DIAMOND POLYETHYLENE BED DIVIDER (VALLEY VIEW SPECIALTIES CO.)

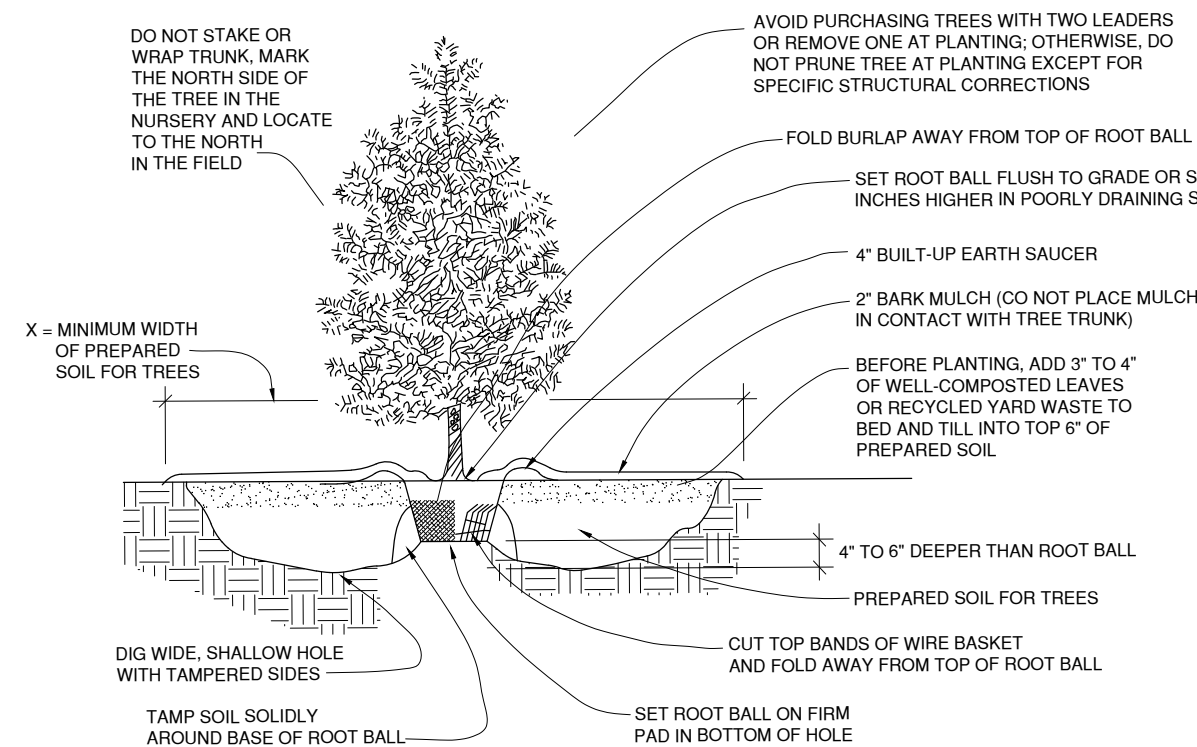
CONTRACTOR NOTES



- NOTES:
1. For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil; then cut or pull apart any roots circling the perimeter of the container.
 2. Incorporate commercially prepared mycorrhizal spores in the soil immediately around the root ball at rates specified by the manufacturer.
 3. During the design phase, confirm that water drains out of the soil, design alternative drainage systems as required.
 4. Thoroughly soak the tree root ball and adjacent prepared soil several times during the first month after planting and regularly throughout the following two summers.
 5. The planting process is similar for deciduous and evergreen types.

DECIDUOUS TREE PLANTING DETAIL

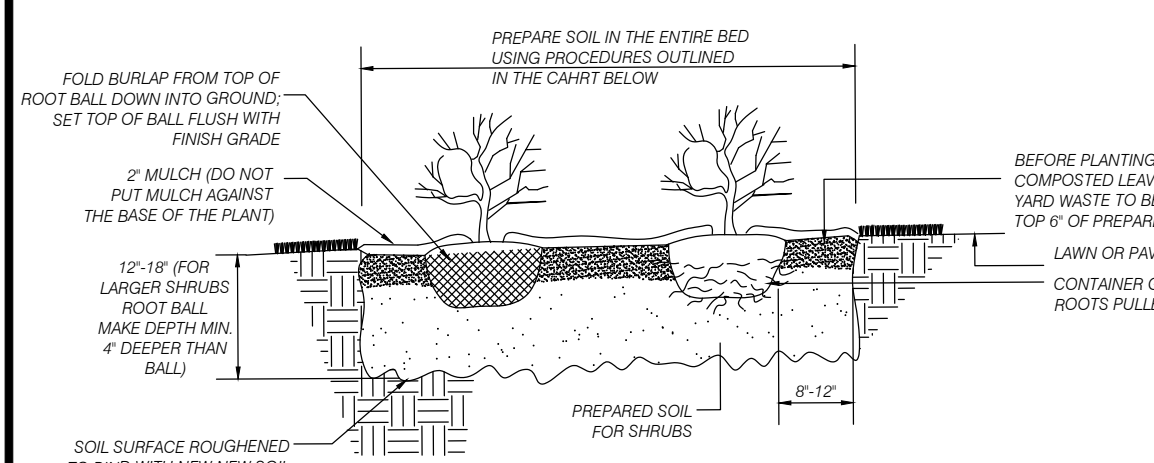
N.T.S.



- NOTES:
- | | |
|---|--|
| 1. For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil; then cut or pull apart any roots circling the perimeter of the container. | 3. During the design phase, confirm that water drains out of the soil, design alternative drainage systems as required, |
| 2. Incorporate commercially prepared mycorrhizal spores in the soil immediately around the root ball at rates specified by the manufacturer. | 4. Thoroughly soak the tree root ball and adjacent prepared soil several times during the first month after planting and regularly throughout the following two summers. |
| | 5. The planting process is similar for deciduous and evergreen trees. |

EVERGREEN TREE PLANTING DETAIL

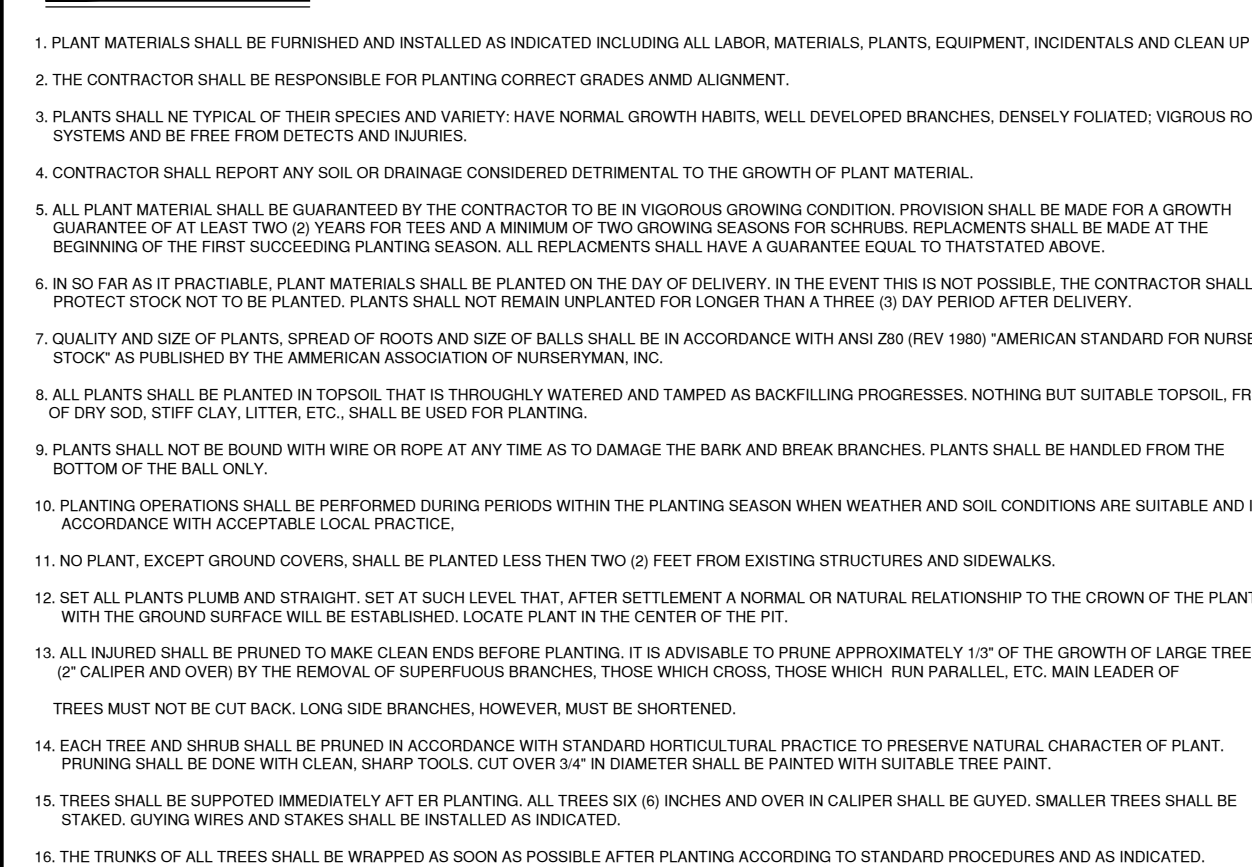
N.T.S.



- NOTES:
- | | |
|---|---|
| 1. For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil, then cut or pull apart any roots circling the perimeter of the container. | 3. During the design phase, confirm that water drains out of the soil, design alternative drainage systems as required. |
| 2. Incorporate commercially prepared mycorrhizal spores in the soil immediately around the root ball at rates specified by the manufacturer. | 4. Thoroughly soak the tree root ball and adjacent perimeter soil several times during the first month after planting and regularly throughout the following two summers. |
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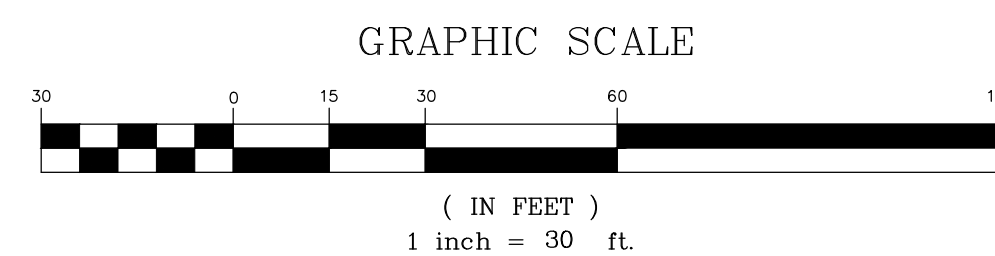
SHRUB PLANTING DETAIL

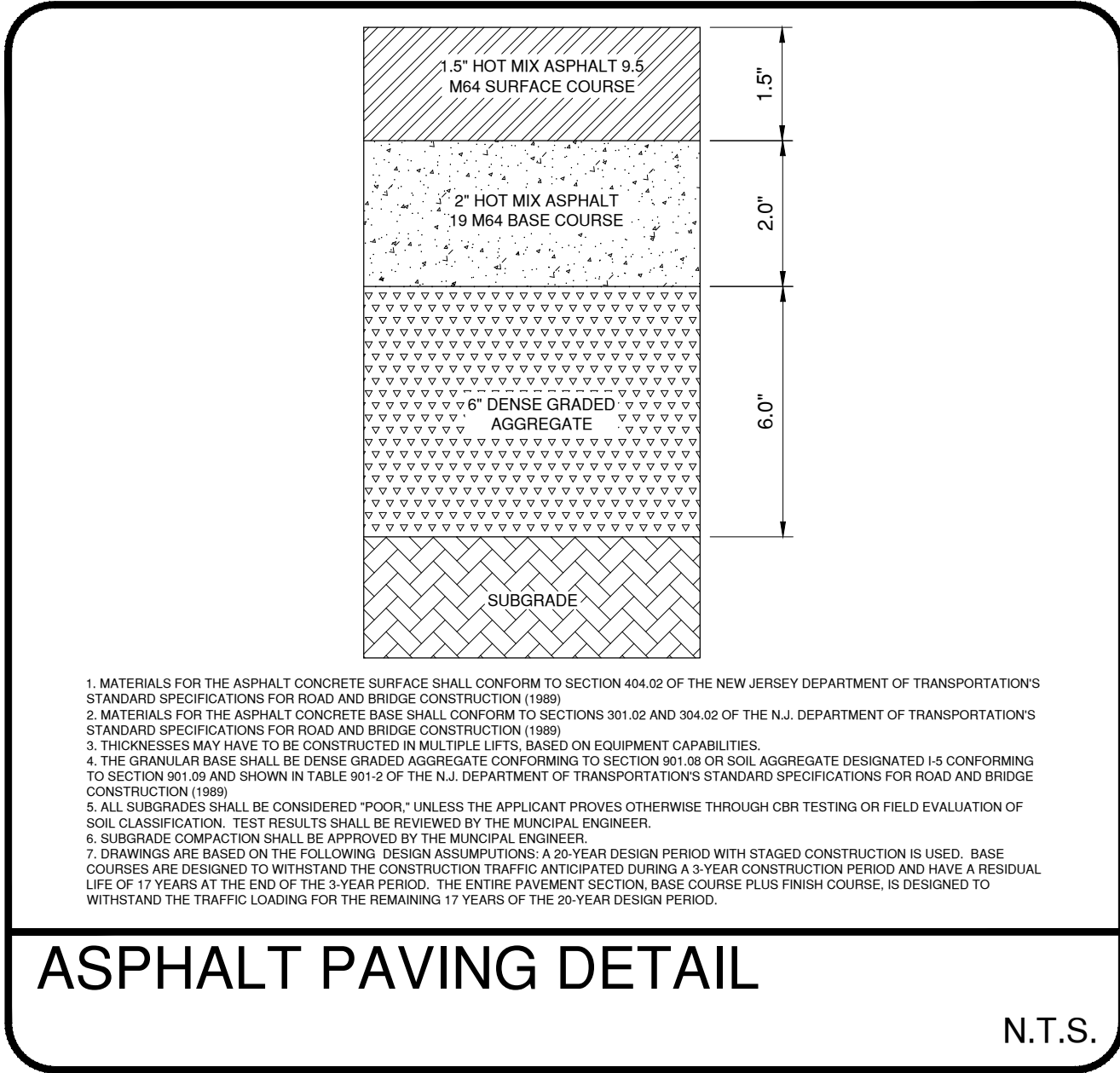
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PLANTING NOTES

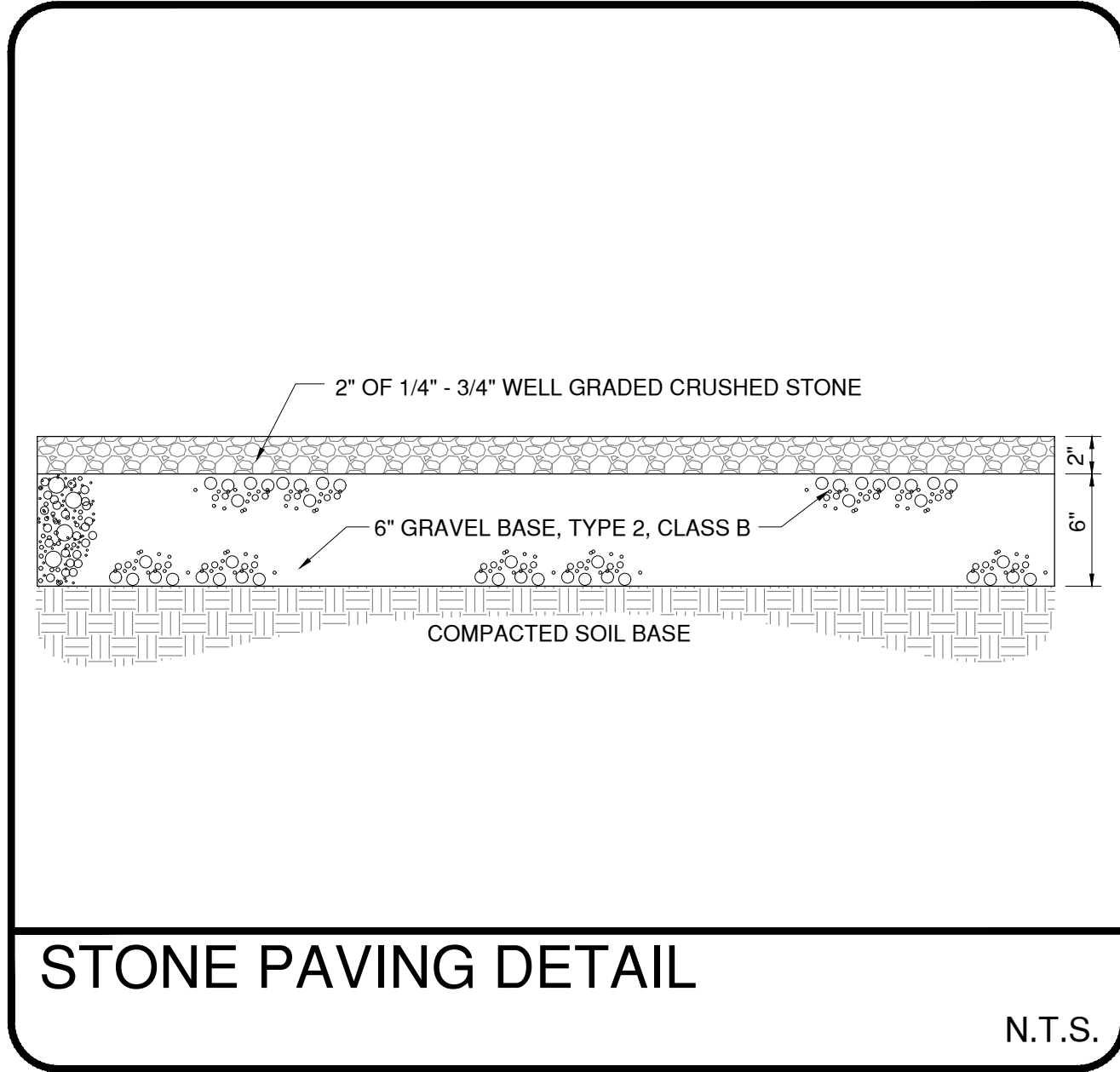
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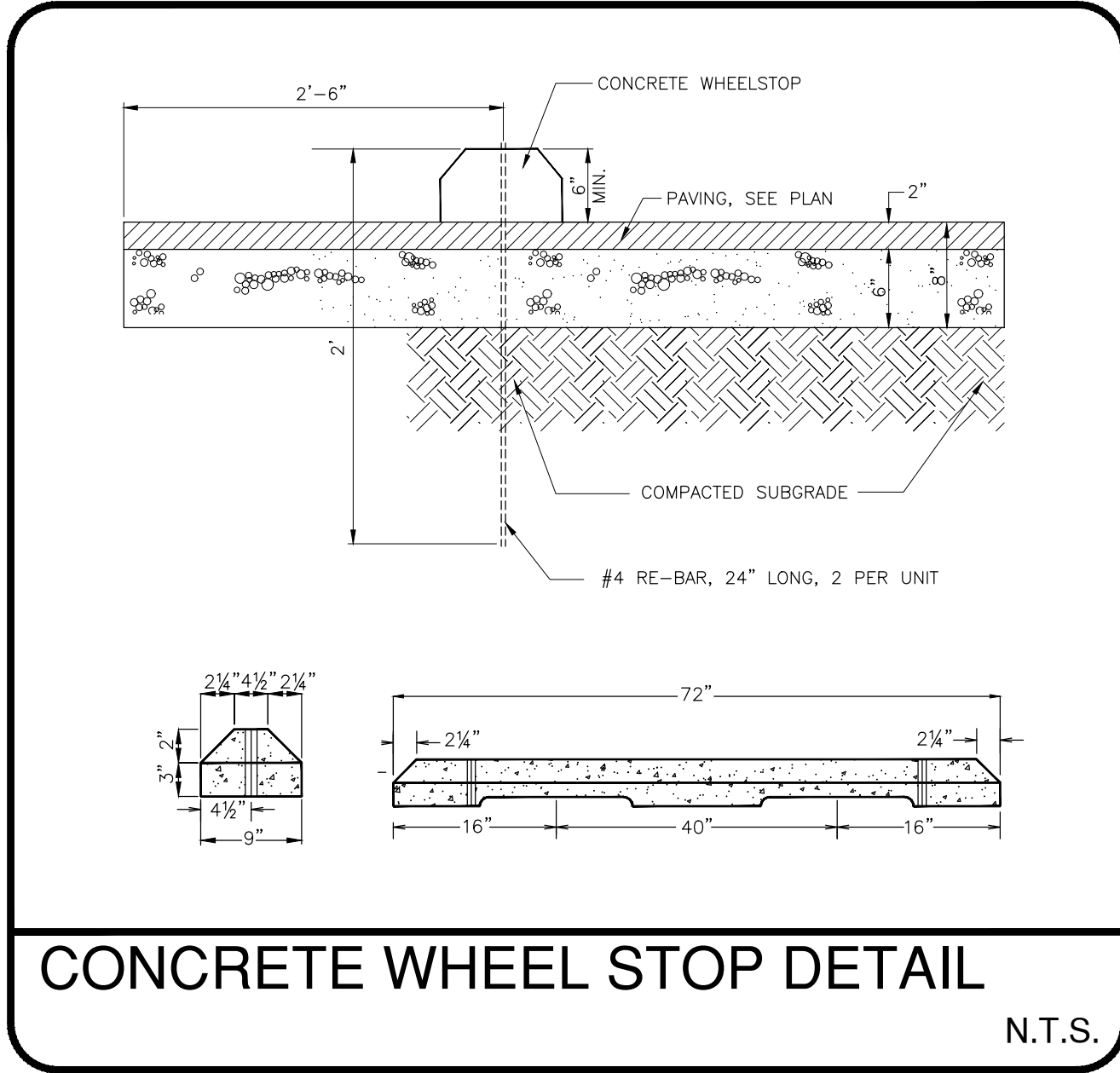
ASPHALT PAVING DETAIL

N.T.S.



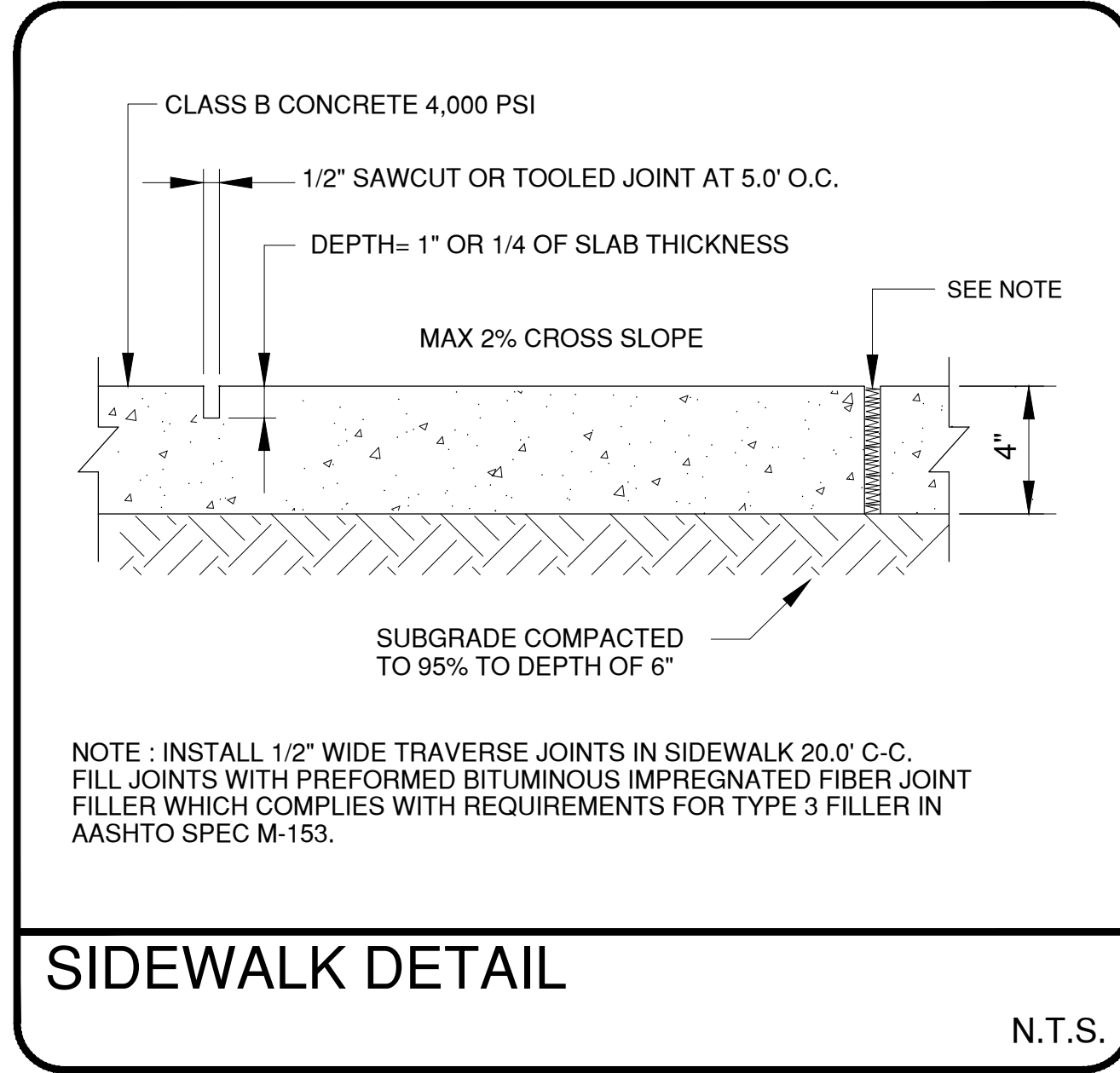
STONE PAVING DETAIL

N.T.S.



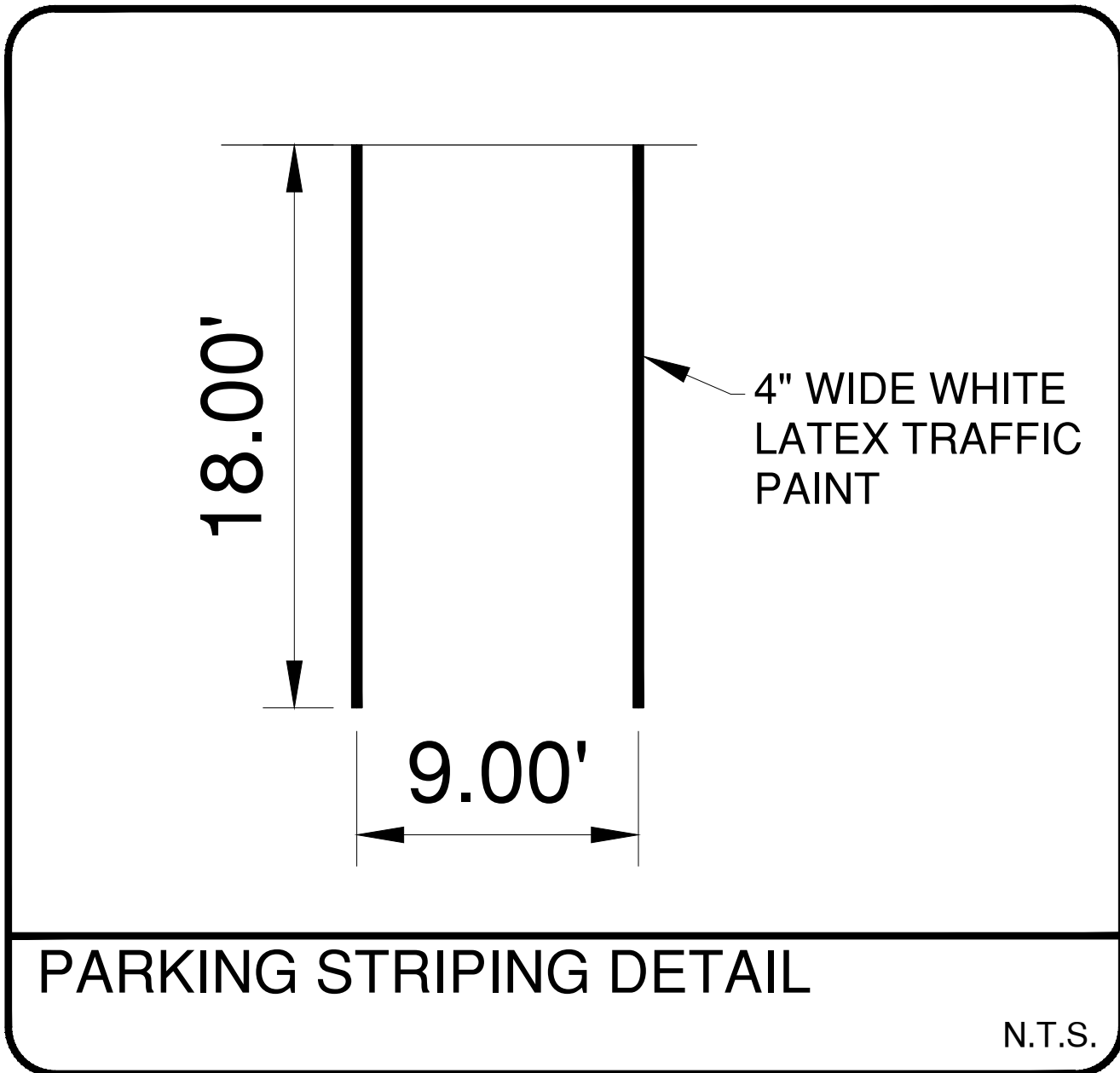
CONCRETE WHEEL STOP DETAIL

N.T.S.



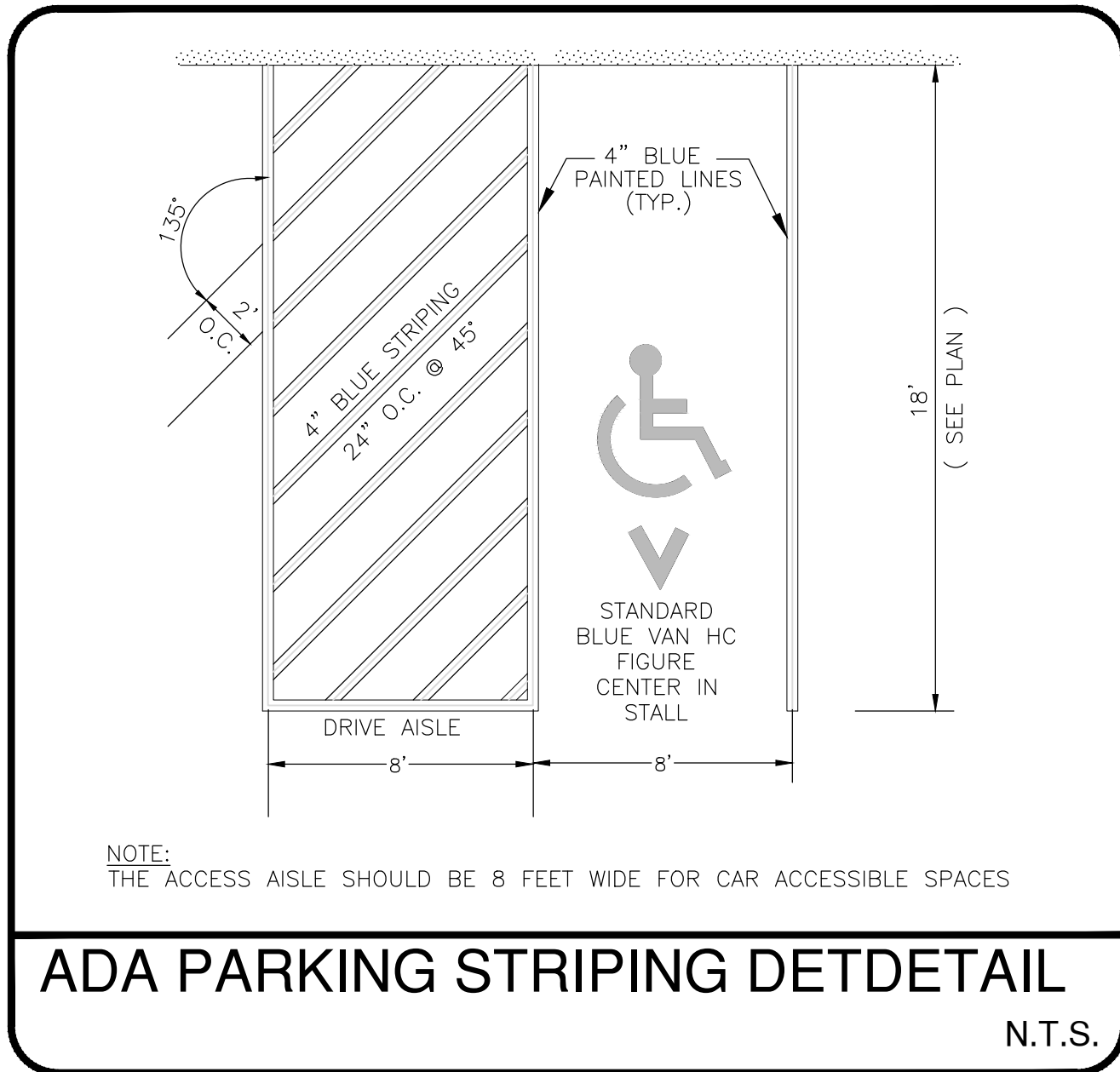
SIDEWALK DETAIL

N.T.S.



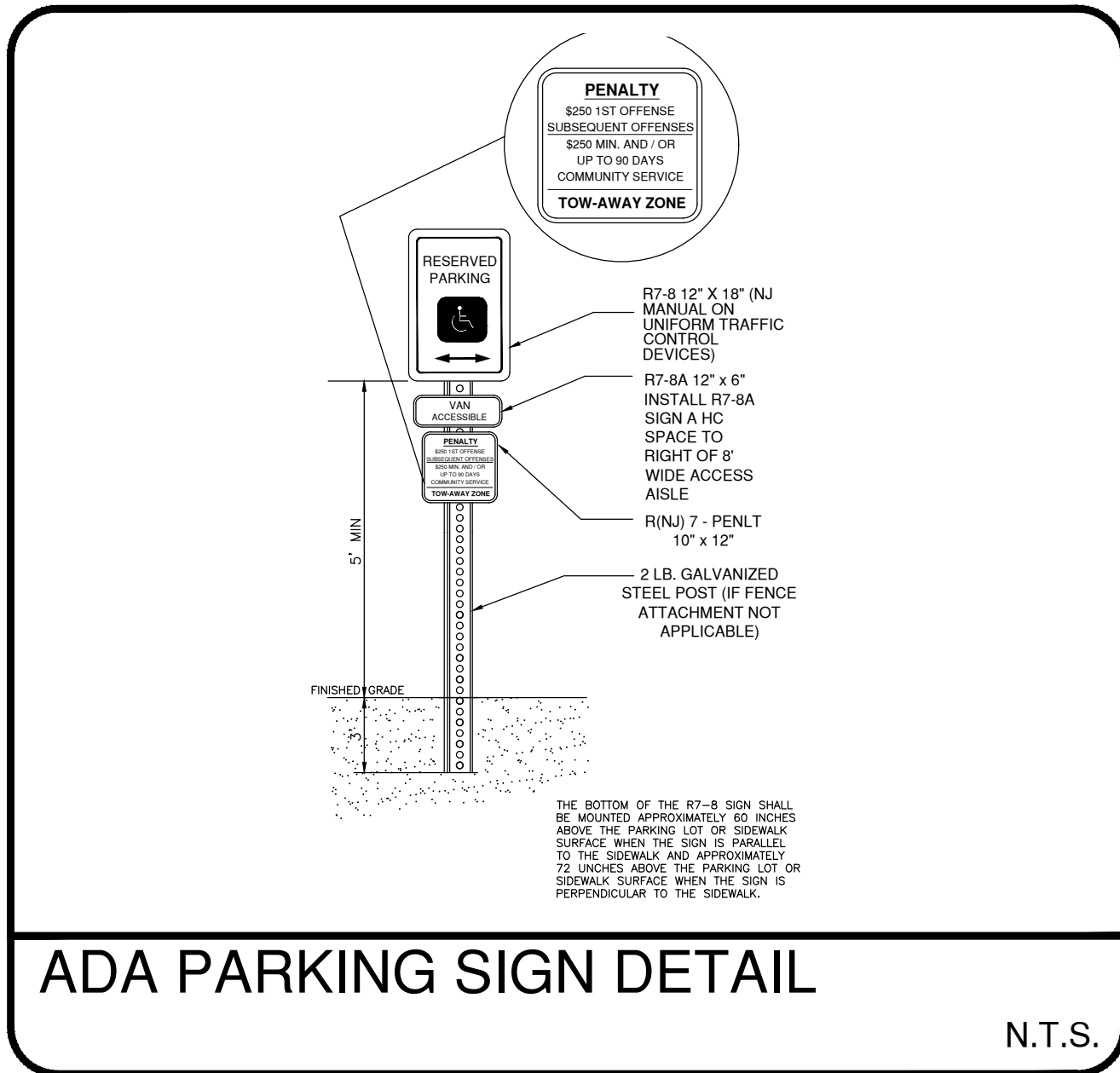
PARKING STRIPING DETAIL

N.T.S.



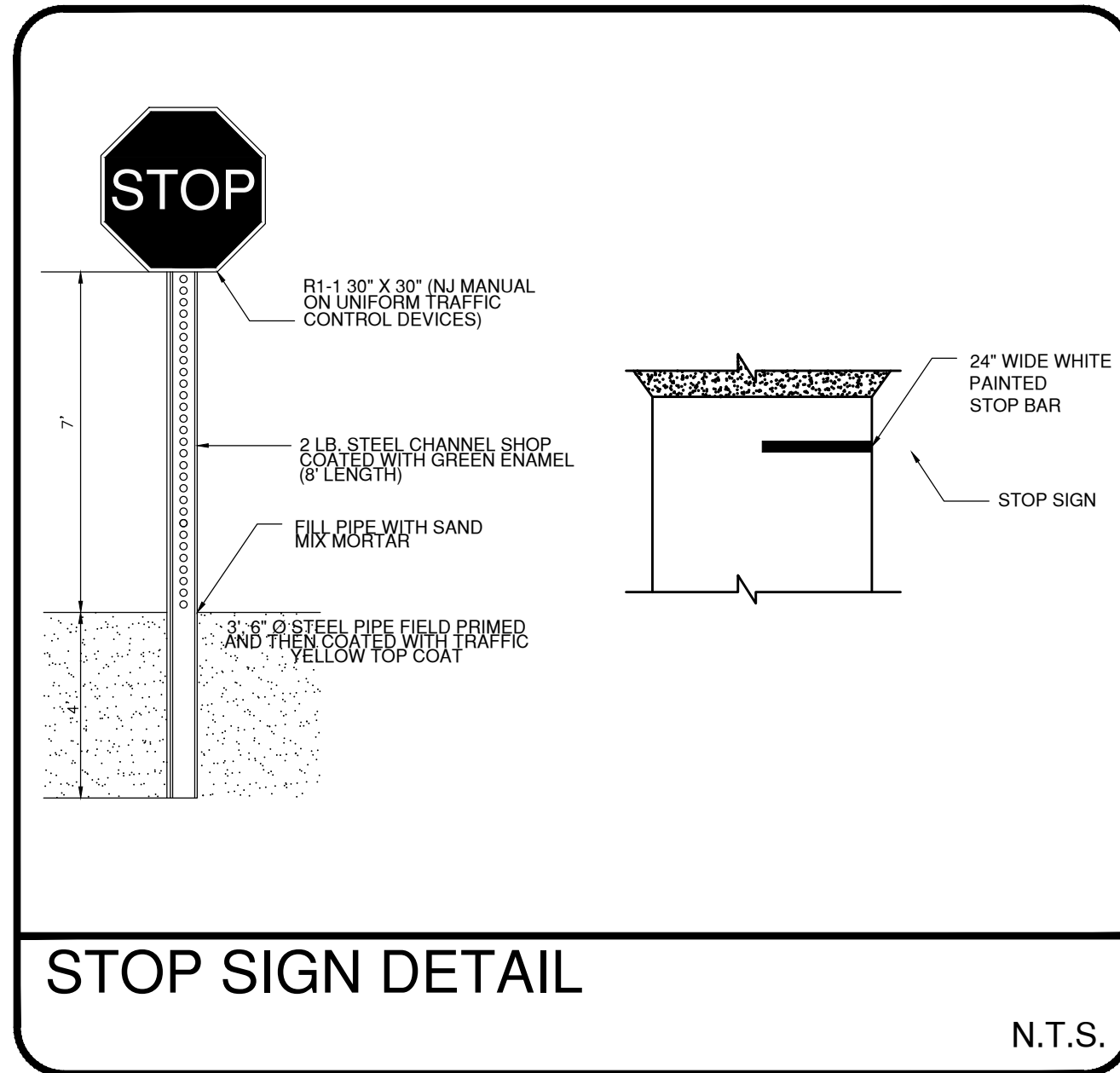
ADA PARKING STRIPING DETAIL

N.T.S.



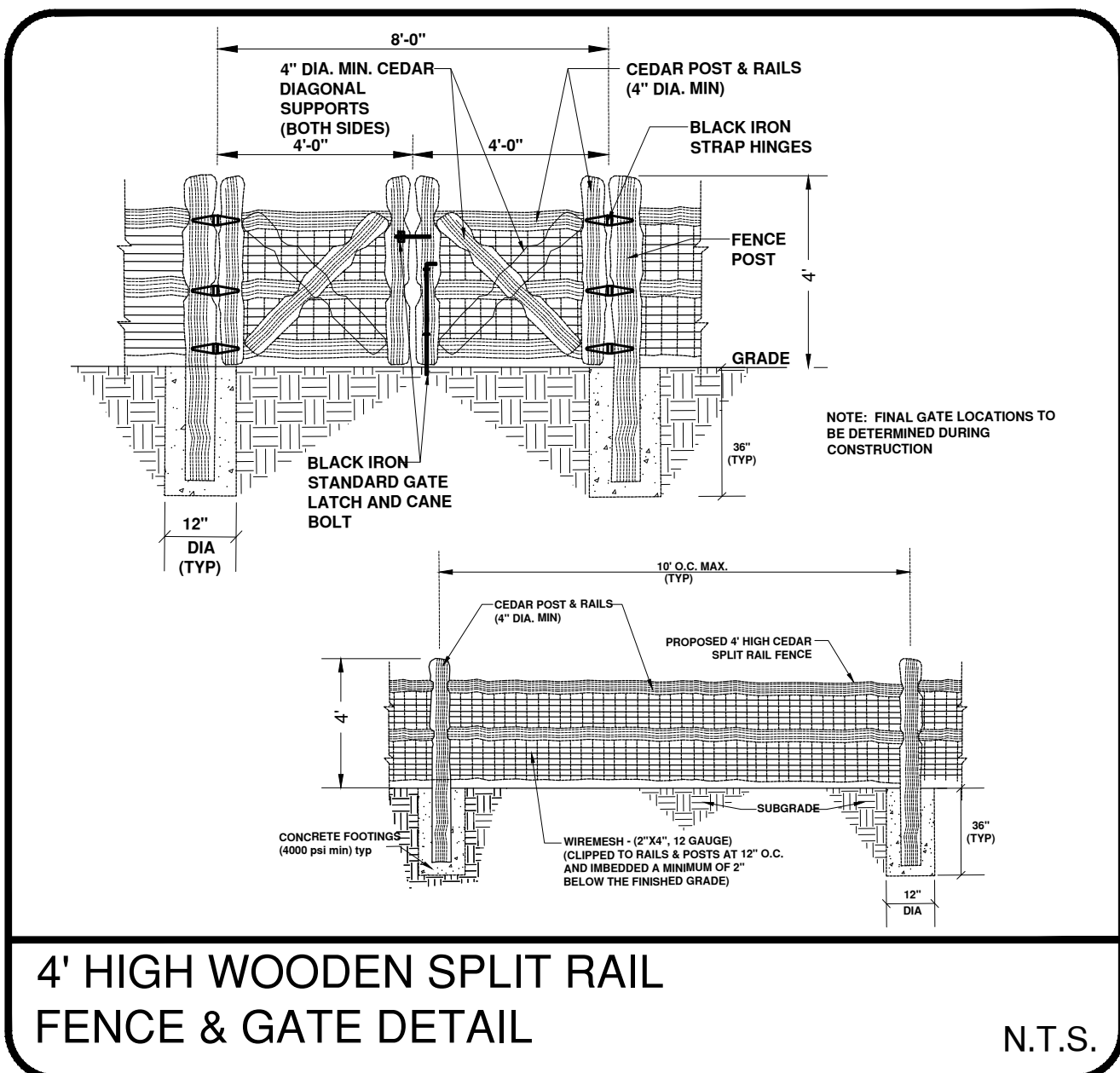
ADA PARKING SIGN DETAIL

N.T.S.



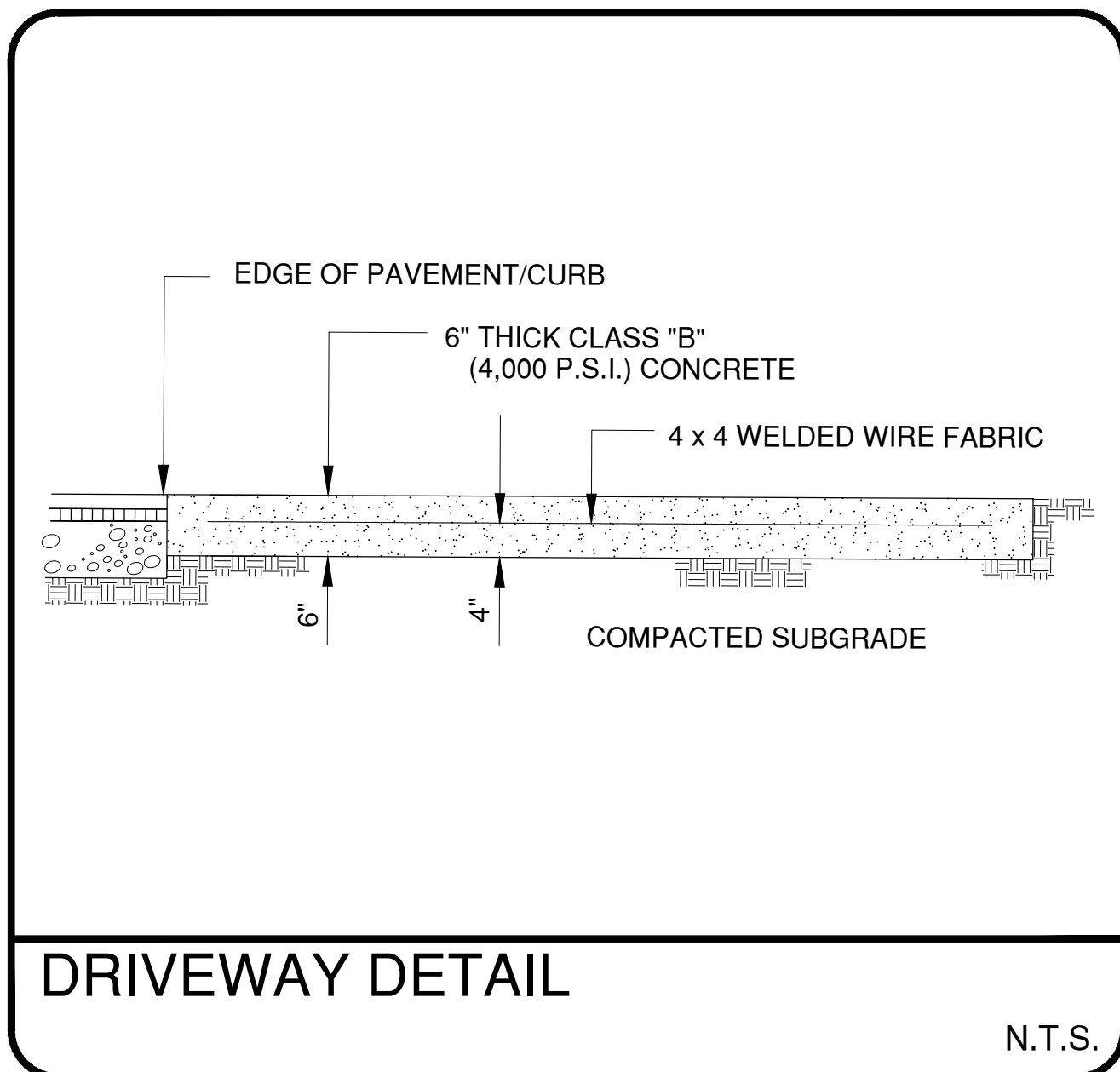
STOP SIGN DETAIL

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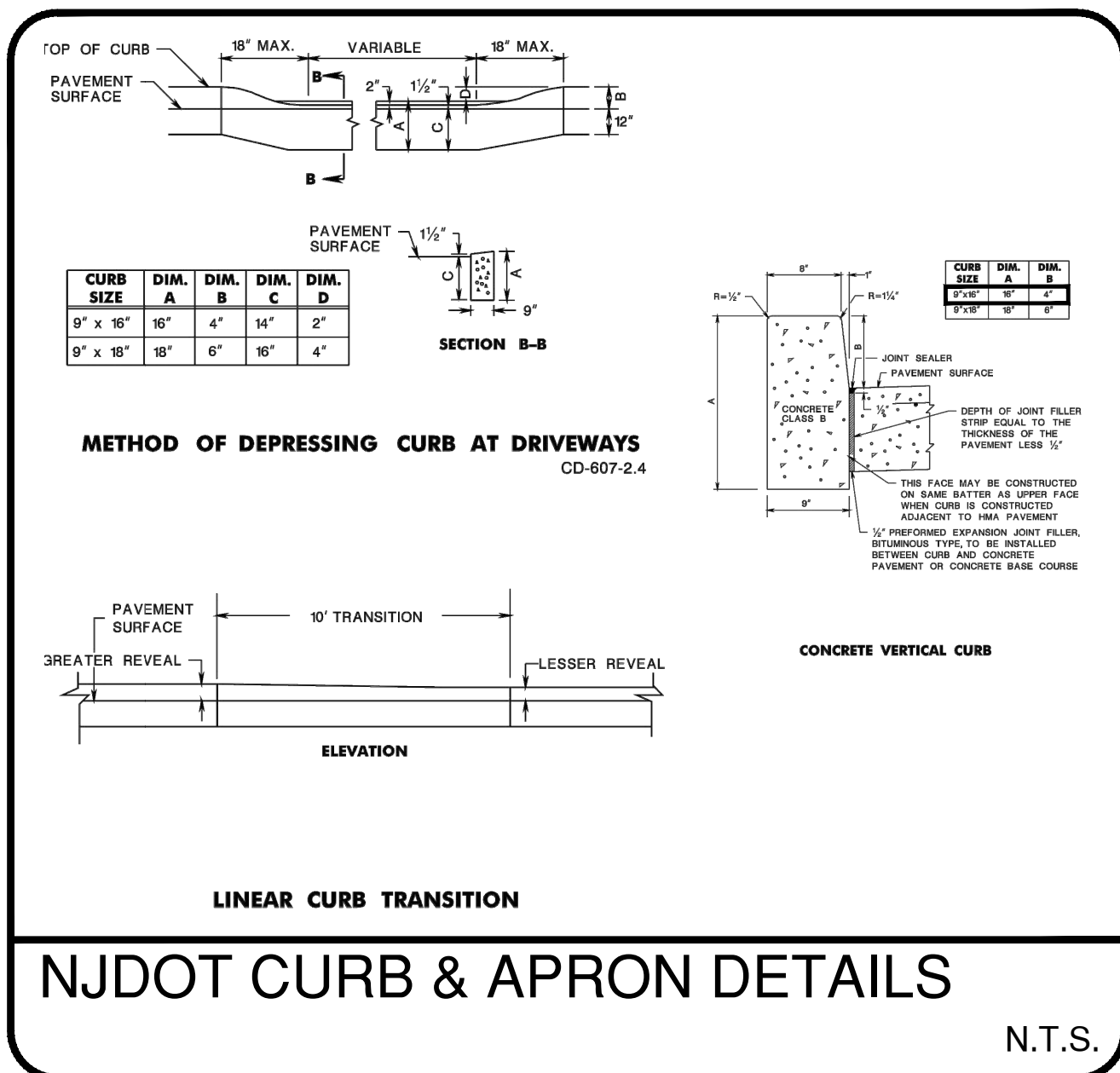
4' HIGH WOODEN SPLIT RAIL FENCE & GATE DETAIL

N.T.S.



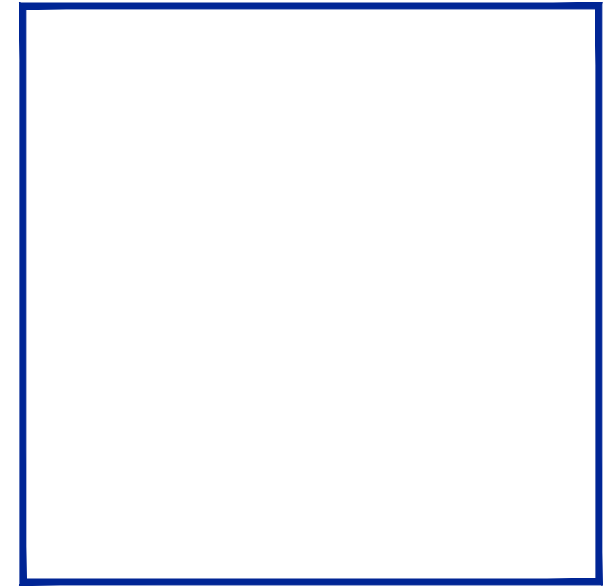
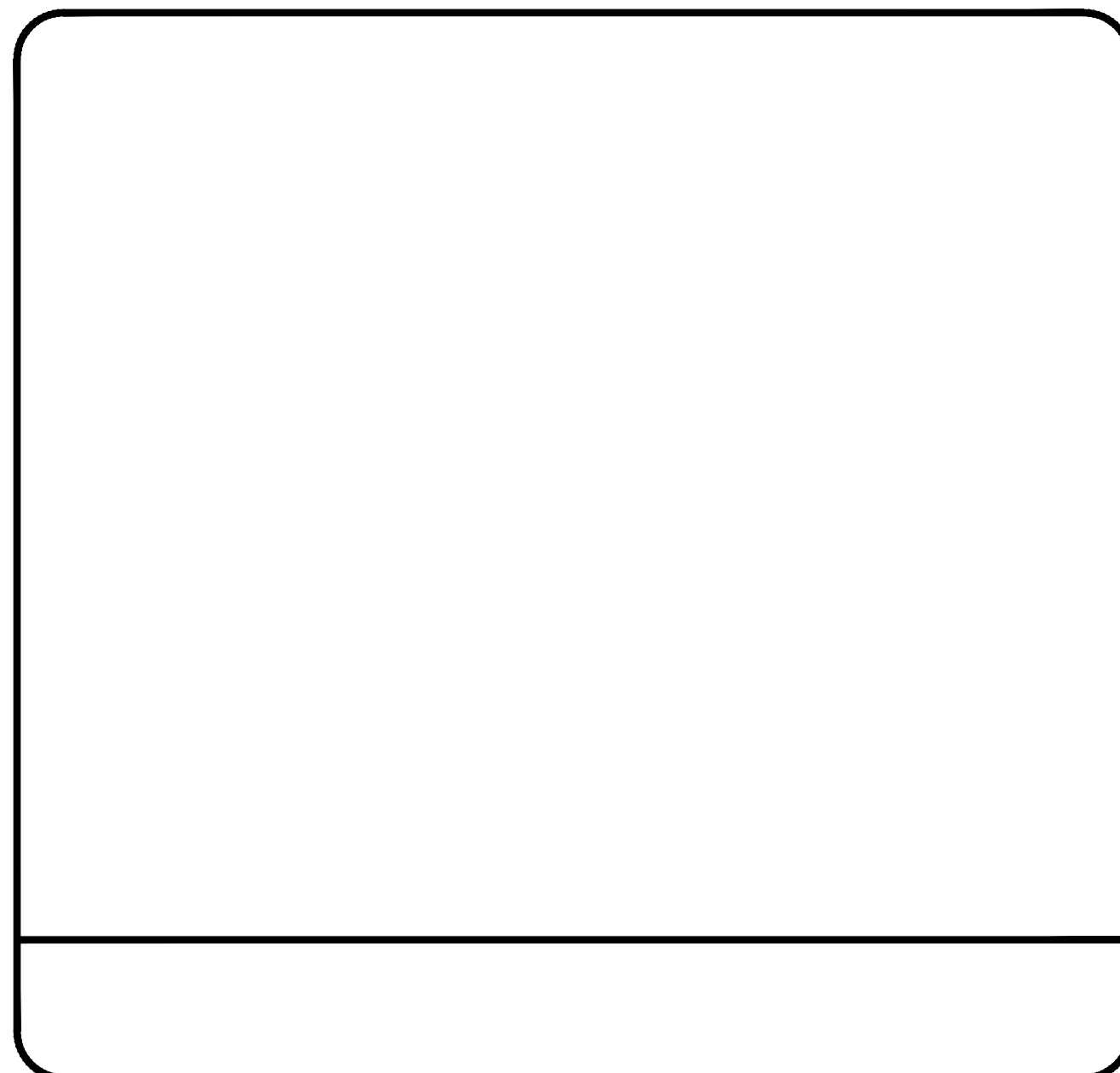
DRIVEWAY DETAIL

N.T.S.



NJDOT CURB & APRON DETAILS

N.T.S.



EDA Engineering Design Associates, P.A.
Environmental Planners Landscape Architects
CAMBRIDGE PROFESSIONAL OFFICES
5 Cambridge Drive Ocean View New Jersey 08230
(609) 390-0332 • Fax (609) 390-9204 • www.engineeringdesign.com • CERTIFICATE OF AUTHORIZATION: 24CA2970000

ENGINEERING DETAILS I
BLOCK 260 LOTS 4.04 & 4.05
DENNIS TOWNSHIP
CAPE MAY COUNTY, NEW JERSEY

STEVEN L. FILIPPONE
PROFESSIONAL ENGINEER
N.J.P.E. LIC. #29230

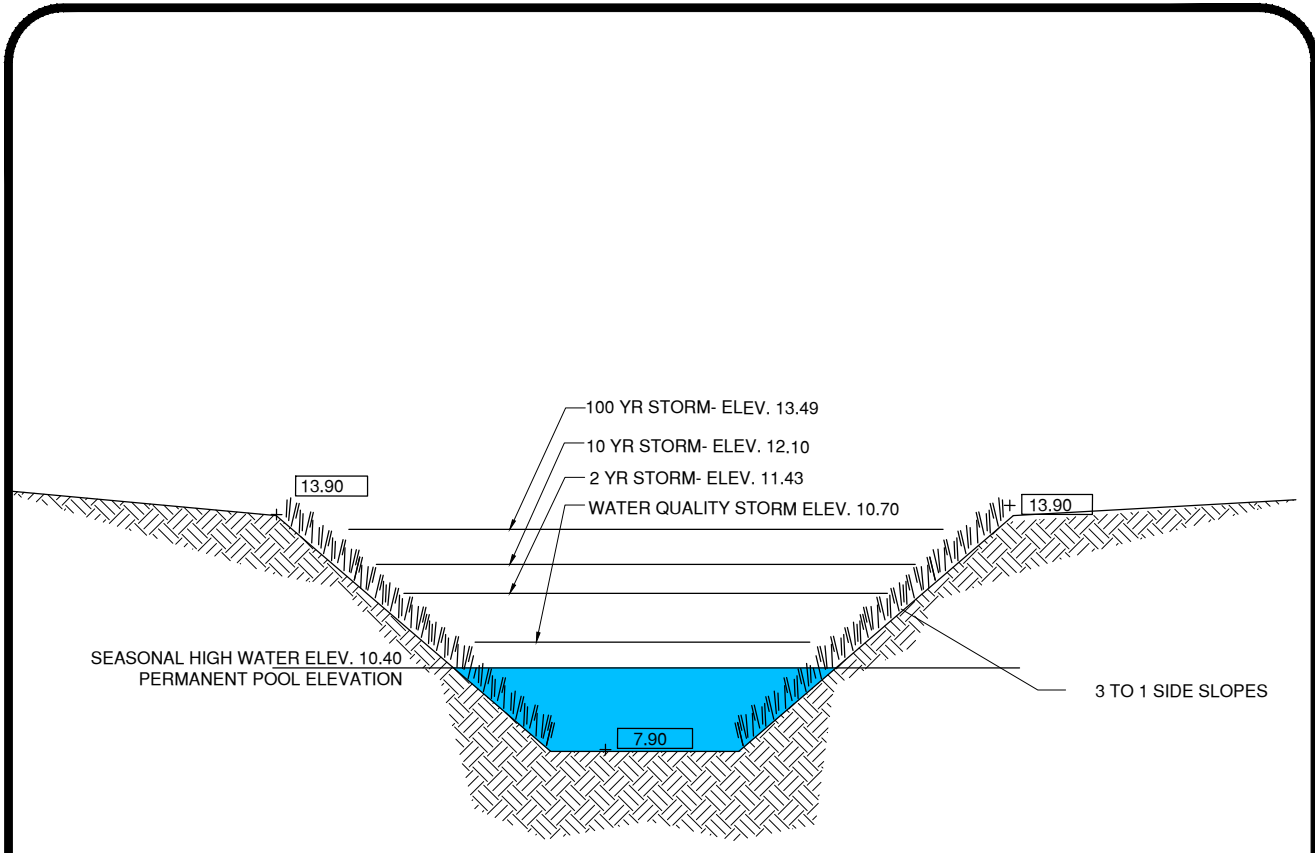
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REVISION	DATE	BY



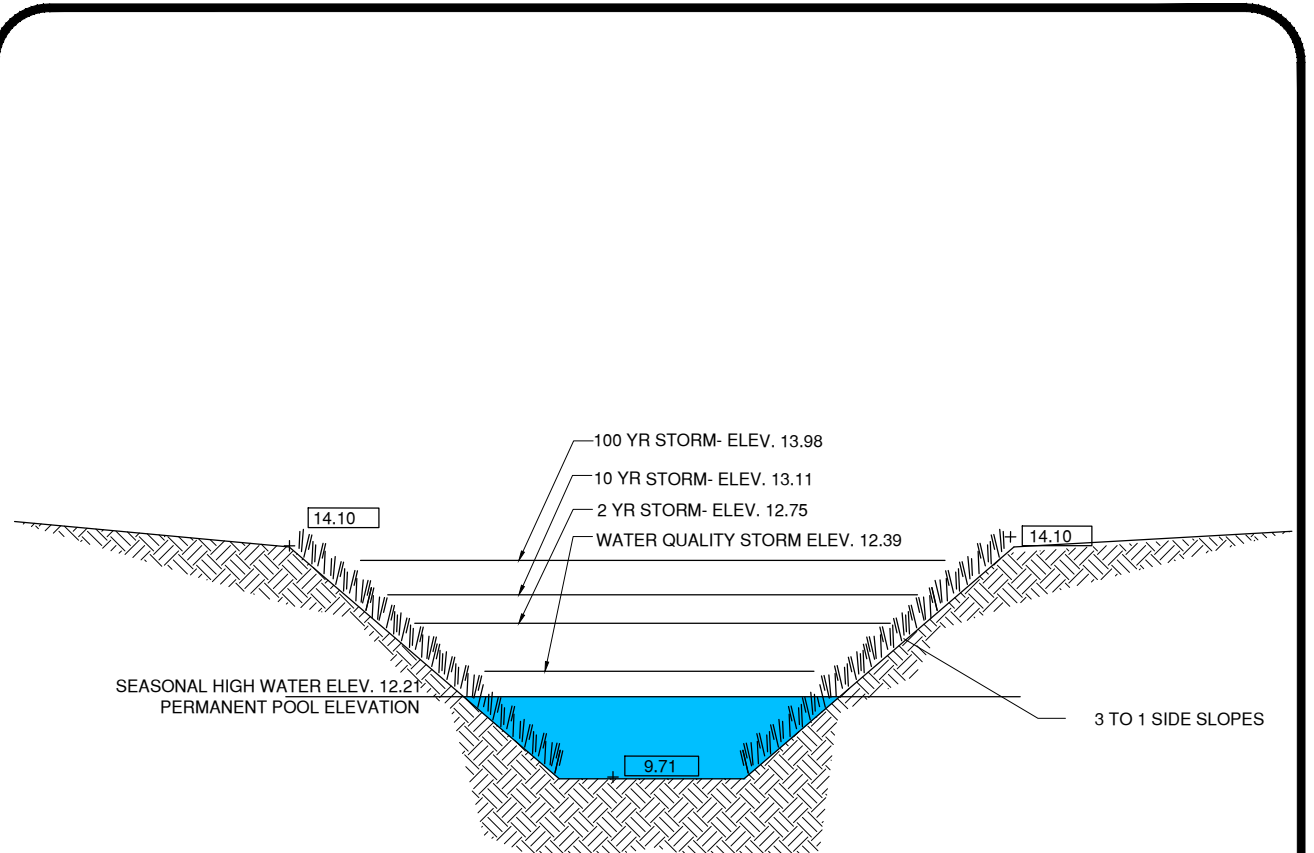
DATE: 12/13/22	DRAWN BY: MSB
SCALE: AS NOTED	CHECKED BY: SLF
PROJECT #: 9444	SHEET: 6 OF 8





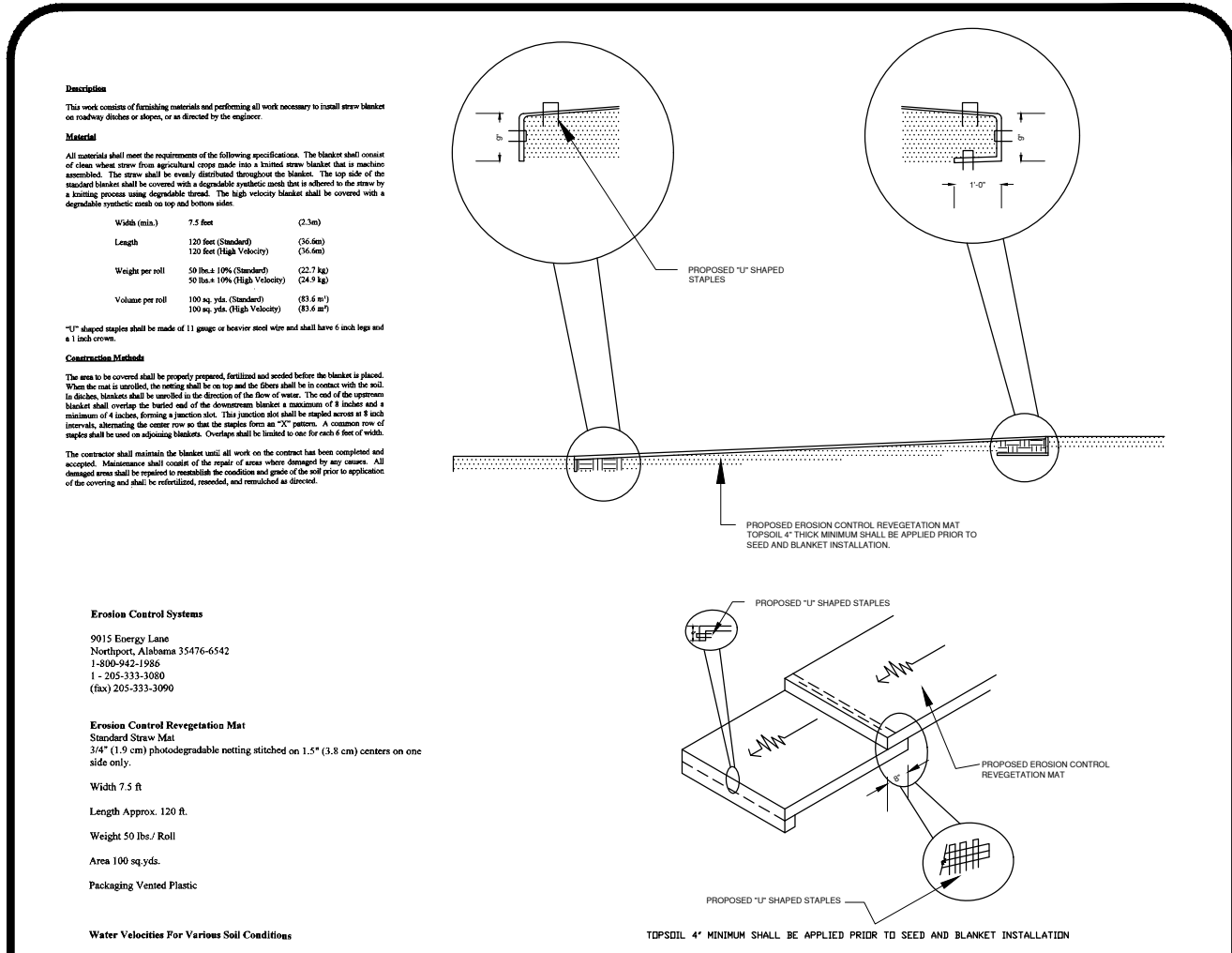
WET POND #1

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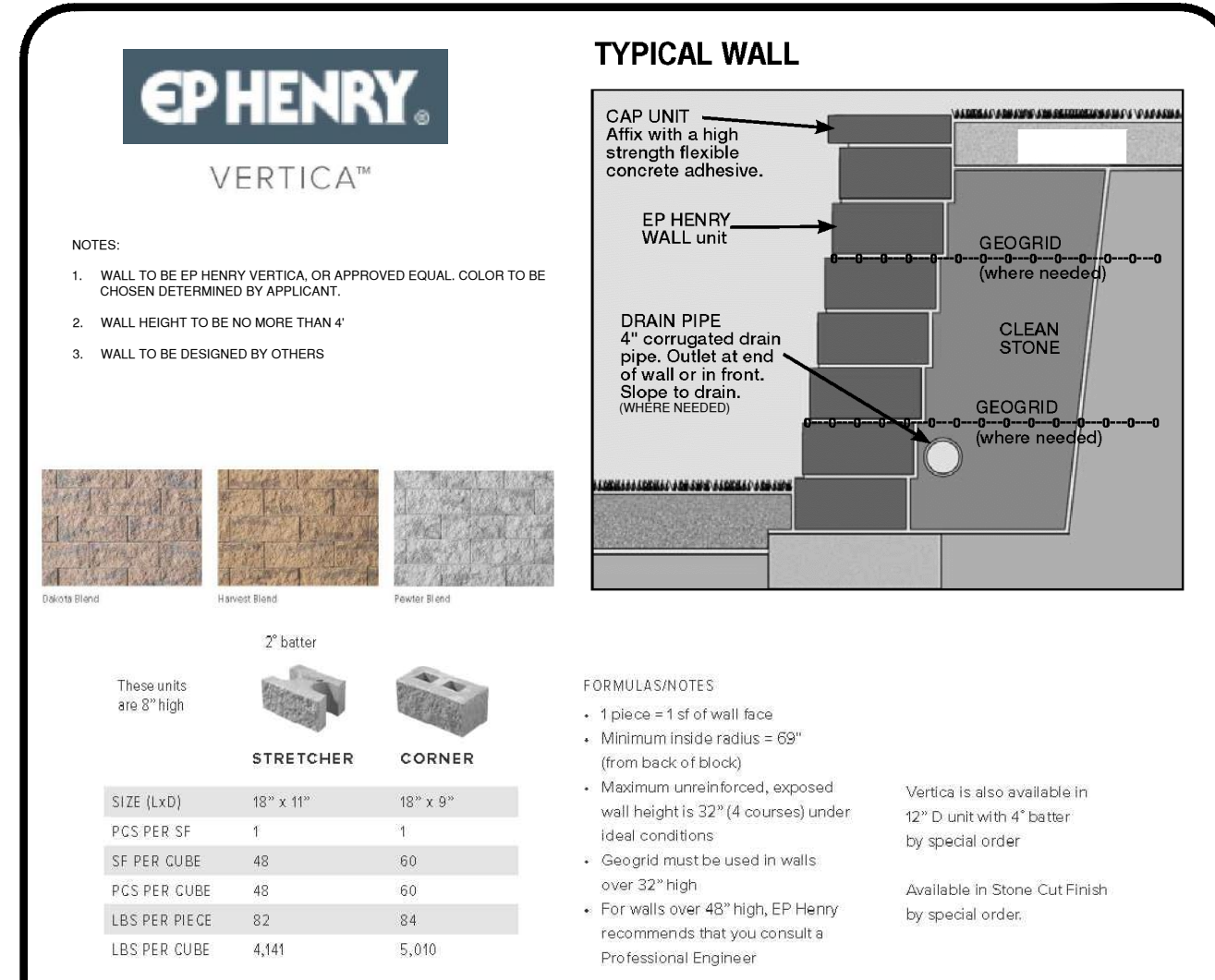
WET POND #2

N.T.S.



EROSION CONTROL MATTING

N.T.S.



WALL DETAIL

N.T.S.

DEPTH	DESCRIPTION
0"- 8"	10YR 4/2 Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
8"- 14"	10YR 6/3 Pale Brown, Loamy Sand, Subangular Blocky, Friable
14"- 25"	10YR 6/6 Brownish Yellow, Loamy Sand, Subangular Blocky, Friable
25"- 43"	10YR 6/6 Brownish Yellow, Sandy Loam, Subangular Blocky, Friable
43"- 70"	10YR 8/2 Very Pale Brown, Fine Sand, Single Grain, Loose w/mottles of
70"- 99"	10YR 8/1 White, Few, Fine & Faint
99"- 123"	10YR 7/1 Light Gray, Fine Sand, Single Grain, Loose w/mottles of
123"- 139"	10YR 6/3 Pale Brown, Fine Sand, Single Grain, Loose w/mottles of
139"- 155"	10YR 7/1 Light Gray, Common, Medium & Distinct

Depth of Seasonal High Water: 43"
Depth of Groundwater: 120"
Date Performed: 11/17/2022
Witnessed By: Heather Carr Johnson, Cape May County Health Dept.
Performed By: Christopher J. Carey, LLA

DEPTH	DESCRIPTION
0"- 5"	10YR 4/2 Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
5"- 15"	10YR 5/4 Yellowish Brown, Loamy Sand, Subangular Blocky, Friable
15"- 26"	10YR 5/4 Yellowish Brown, Sandy Loam, Subangular Blocky, Friable
26"- 35"	10YR 6/3 Pale Brown, Loamy Sand, Subangular Blocky, Friable
35"- 53"	10YR 7/4 Very Pale Brown, Loamy Sand, Subangular Blocky, Friable
53"- 86"	10YR 7/3 Very Pale Brown, Loamy Sand, Subangular Blocky, Friable
86"- 123"	10YR 8/1 White, Few, Fine & Faint
123"- 139"	10YR 6/3 Pale Brown, Fine Sand, Single Grain, Loose w/mottles of
139"- 155"	10YR 7/1 Light Gray, Few, Fine & Faint

Depth of Seasonal High Water: 53"
Depth of Groundwater: 120"
Date Performed: 11/17/2022
Witnessed By: Heather Carr Johnson, Cape May County Health Dept.
Performed By: Christopher J. Carey, LLA

TEST PITS #1-2

N.T.S.

DEPTH	DESCRIPTION
0"- 6"	10YR 3/2 Very Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
6"- 26"	10YR 5/3 Brown, Loamy Sand, Subangular Blocky, Friable
26"- 36"	10YR 5/6 Yellowish Brown, Sandy Loam, Subangular Blocky, Friable
36"- 43"	10YR 7/3 Very Pale Brown, Sand, Single Grain, Loose
43"- 123"	10YR 8/2 Very Pale Brown, Fine Sand, Single Grain, Loose w/mottles of
123"- 139"	10YR 7/1 Light Gray, Few, Fine & Faint

Depth of Seasonal High Water: 43"
Depth of Groundwater: 110"
Date Performed: 11/17/2022
Performed By: Christopher J. Carey, LLA

DEPTH	DESCRIPTION
0"- 8"	10YR 3/2 Very Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
8"- 21"	10YR 5/3 Brown, Loamy Sand, Subangular Blocky, Friable
21"- 36"	10YR 5/4 Yellowish Brown, Sandy Loam, Subangular Blocky, Friable
36"- 39"	10YR 7/4 Very Pale Brown, Sand, Single Grain, Loose w/mottles of
39"- 82"	10YR 8/1 White, Few, Fine & Faint
82"- 120"	10YR 6/2 Light Brownish Gray, Fine Sand, Single Grain, Loose w/mottles of
120"- 139"	10YR 8/1 White, Common, Medium & Distinct

Depth of Seasonal High Water: 39"
Depth of Groundwater: 96"
Date Performed: 11/17/2022
Performed By: Christopher J. Carey, LLA

TEST PITS #3-4

N.T.S.

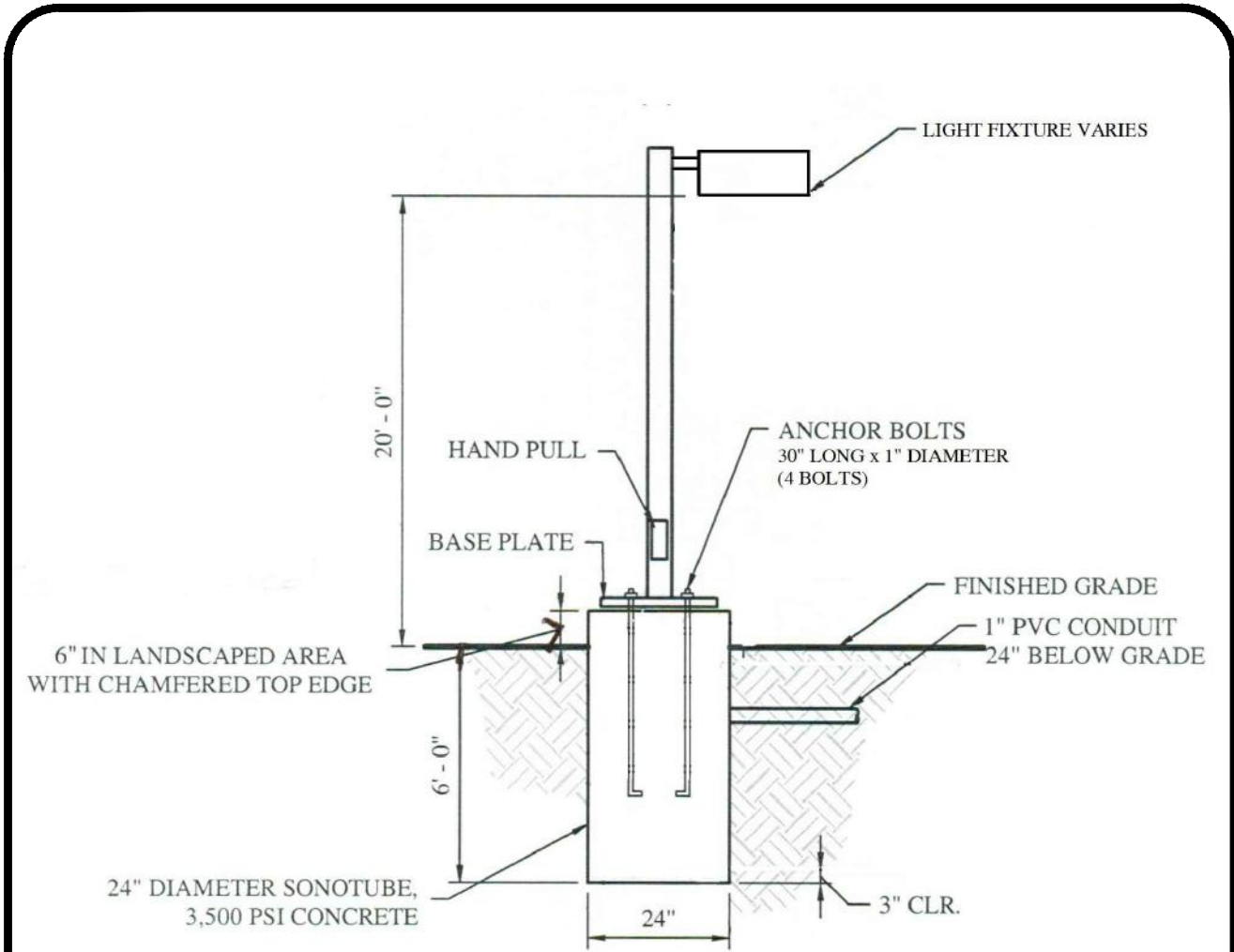
DEPTH	DESCRIPTION
0"- 8"	10YR 4/2 Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
8"- 30"	10YR 6/4 Light Yellowish Brown, Sandy Loam, Subangular Blocky, Friable
30"- 65"	10YR 6/2 Light Brownish Gray, Fine Sand, Single Grain, Loose w/mottles of
65"- 112"	10YR 7/1 Light Gray, Few, Fine & Faint
112"- 123"	10YR 8/1 White, Few, Fine & Faint
123"- 139"	10YR 8/2 Very Pale Brown, Fine Sand, Single Grain, Loose w/mottles of
139"- 155"	10YR 7/3 Very Pale Brown, Common, Medium & Distinct

Depth of Seasonal High Water: 30"
Depth of Groundwater: 48"
Date Performed: 11/17/2022
Performed By: Christopher J. Carey, LLA

DEPTH	DESCRIPTION
0"- 7"	10YR 3/2 Dark Brown, Sandy Loam, Subangular Blocky, Friable
7"- 12"	10YR 4/2 Dark Grayish Brown, Sandy Loam, Subangular Blocky, Friable
12"- 35"	10YR 5/4 Yellowish Brown, Sandy Loam, Subangular Blocky, Friable
35"- 59"	10YR 7/2 Light Gray, Sand, Single Grain, Loose w/mottles of
59"- 107"	10YR 8/1 White, Few, Fine & Faint
107"- 123"	10YR 6/1 Gray, Fine Sand, Single Grain, Loose

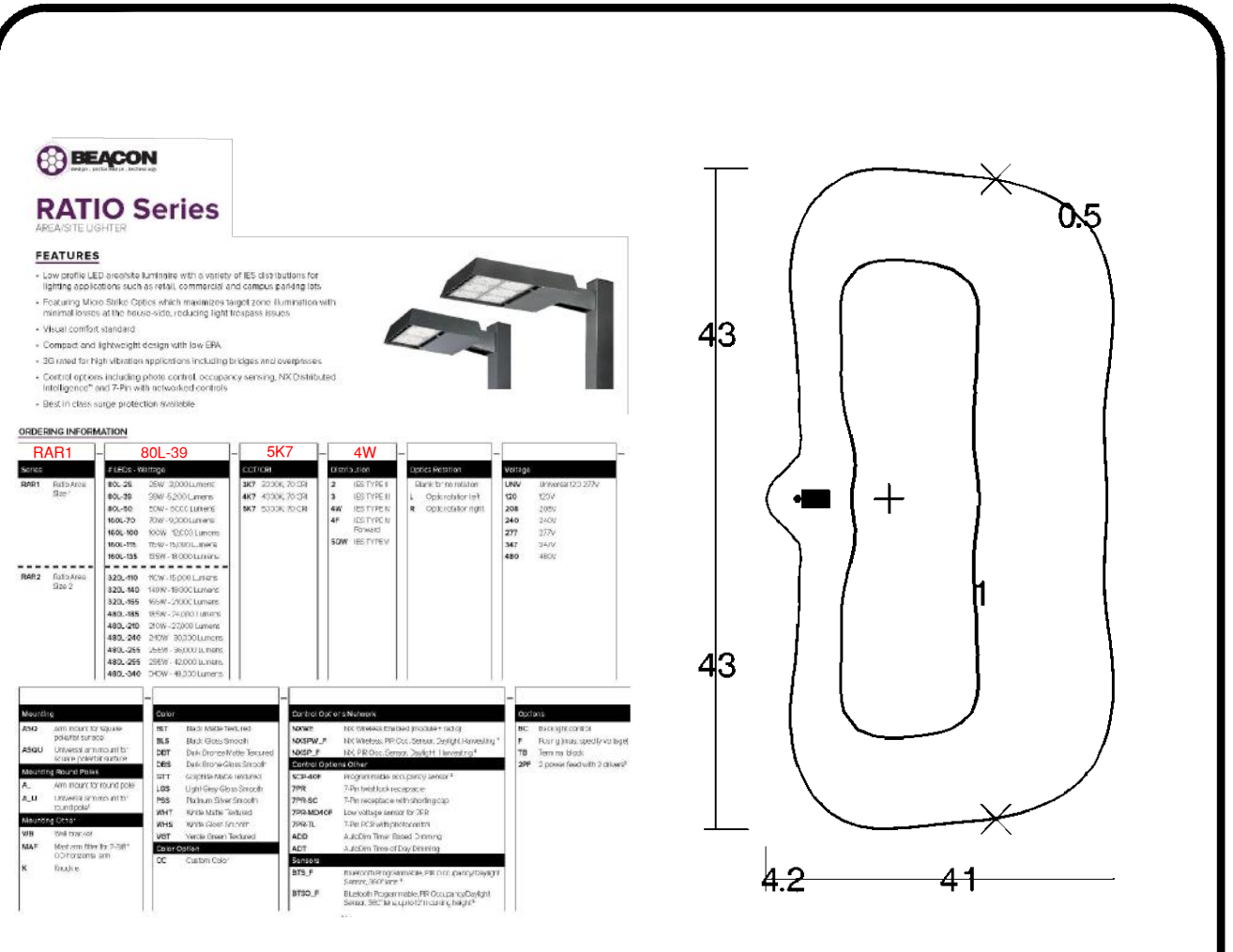
Depth of Seasonal High Water: 35"
Depth of Groundwater: 72"
Date Performed: 11/17/2022
Performed By: Christopher J. Carey, LLA

TEST PITS #5-6



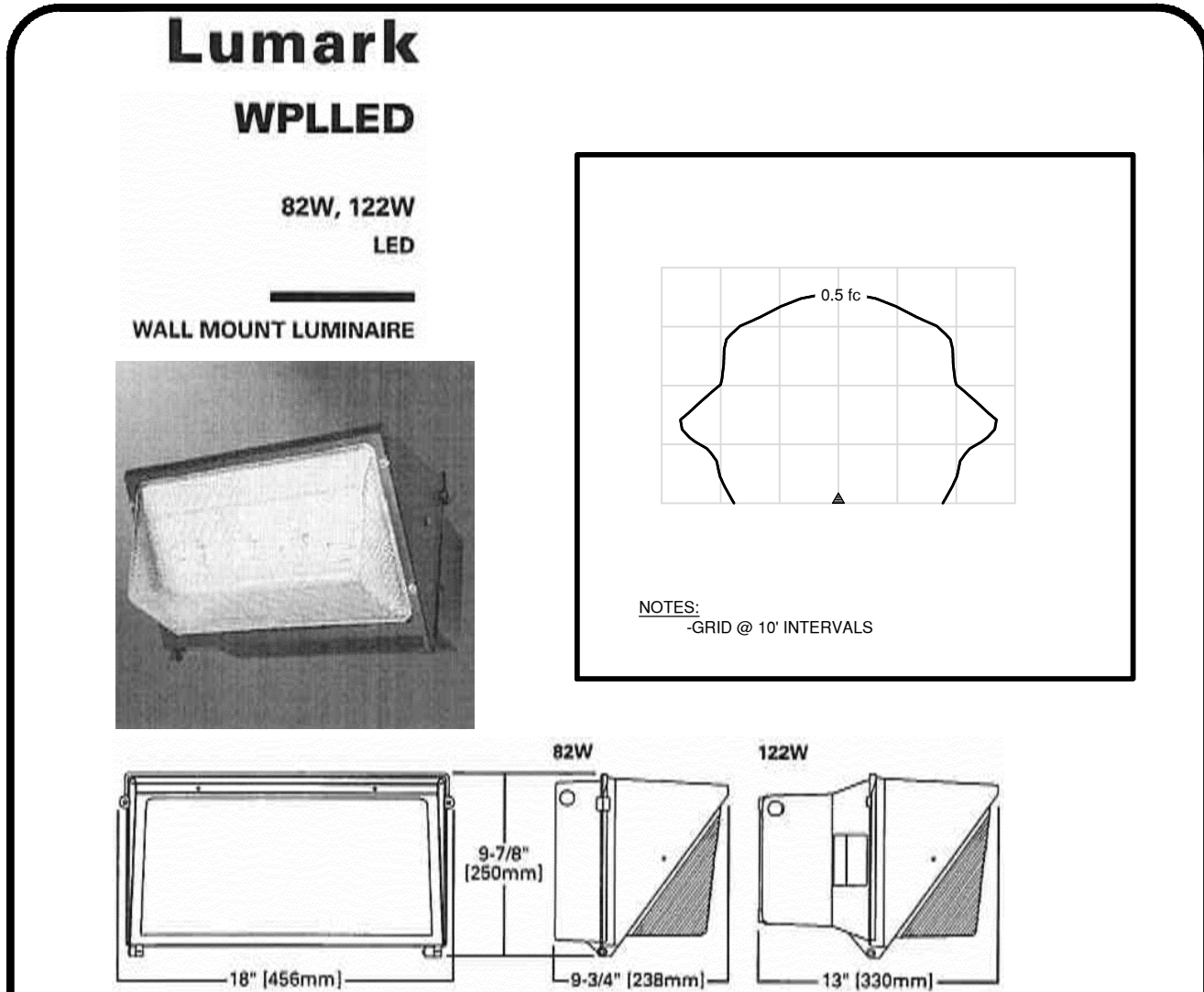
LIGHT POLE DETAIL

N.T.S.



FREESTANDING LIGHT DETAIL

N.T.S.



BUILDING MOUNTED LIGHT DETAIL

N.T.S.

ENGINEERING DETAILS II
BLOCK 260 LOTS 4.04 & 4.05
DENNIS TOWNSHIP
CAPE MAY COUNTY, NEW JERSEY

STEVEN L. FILIPPONE

PROFESSIONAL ENGINEER
N.J.P.E. LIC. #29230



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REVISION DATE BY



DATE: 12/13/22 DRAWN BY: MSB

SCALE: AS NOTED CHECKED BY: SLF

PROJECT #: 9444 SHEET: 7 OF 8



Engineers - Landscape Architects - Planners

SOIL EROSION AND SEDIMENT CONTROL PLAN

- All applicable erosion and sediment control practices shall be in place prior to any grading or installation of proposed structures or utilities.
- Soil Erosion and Sediment Control Practices on this plan shall be constructed in accordance with the standards for Soil Erosion and Sediment Control in New Jersey.
- Applicable erosion and sediment control practices shall be left in place until construction is completed and/or the area is stabilized.
- The contractor shall perform all work, furnish all materials and install all measures required to reasonably control soil erosion resulting from construction operations and prevent excessive flow of sediment from the construction site.
- Any disturbed area that is to be left exposed for more than thirty (30) days and not subject to construction traffic shall immediately receive a temporary seeding and fertilization in accordance with the New Jersey Standards and their rates should be included in the plan. If the season prohibits temporary seeding, the disturbed areas will be mulched with salt hay or equivalent and anchored in accordance with the New Jersey Standards (ie. peg and twine, mulch netting or liquid mulch binder).
- It shall be the responsibility of the developer to provide confirmation of time, fertilizer and seed and seed application and rates of application at the request of the Cumberland soil conservation district.
- All critical areas subject to erosion will receive a temporary seeding in combination with straw mulch at a rate of 2 tons per acre, according to the New Jersey Standards, immediately following rough grading.
- The site shall at all times be graded and maintained such that all storm water runoff is diverted to soil erosion and sediment control facilities.
- All sedimentation structures will be inspected and maintained on a regular basis and after every storm event.
- A crushed stone, tire cleaning pad will be installed wherever a construction access exists. The stabilized pad will be installed according to the standards for stabilized construction access.
- All driveways must be stabilized with 2 1/2" crushed stone or subbase prior to individual lot construction.
- All paved areas must be kept clean at all times.
- All catch basin inlets will be protected according to the certified plan.
- All storm drainage outlets will be stabilized, as required, before the discharge points become operational.
- All dewatering operations must discharge directly into a sediment filter area. The sediment filter should be composed of a suitable sediment filter fabric, (see detail). The basin must be dewatered to normal pool within 10 days of the design storm.
- NJSA 4.24-9, Est. Seq. requires that no certificate of occupancy be issued before all provisions of the certified soil erosion and sediment control plan have been complied with for permanent measures. All site work for the project must be completed prior to the district issuing a report of compliance as a prerequisite to the issuance of a certificate of occupancy by the municipality.
- Mitigation is required on all seeded areas to insure against erosion before grass is established to promote earlier vegetative cover.
- Off-site minimal disturbance may require additional control measures to be determined by the erosion control inspector.
- A copy of the certified Soil Erosion and Sediment Control Plan must be maintained on the project site during construction.
- The Cumberland Soil Conservation District shall be notified 48 hours prior to any land disturbance.
- Any conveyance of this project prior to its completion will transfer full responsibility for compliance with the certified plan to any subsequent owners.
- Immediately after the completion of stripping and stockpiling of topsoil, the stockpile must be stabilized according to the standard for temporary vegetative cover. Stabilize topsoil with straw mulch for protection if the season does not permit the application and establishment of temporary seeding. All soil stockpiles are not to be located within fifty (50') feet of a floodplain, slope, roadway or drainage facility and the base must be protected with a sediment barrier.
- Any changes to the site plan will require the submission of a revised Soil Erosion and Sediment Control Plan to the Cumberland Soil Conservation District. The revised plan must be in accordance with the current New Jersey Standards for Soil Erosion and Sediment Control.
- Methods for the management of high acid producing soils shall be in accordance with the standards. High acid producing soils are those found to contain iron sulfides or have a pH of 4.0 or less.
- Temporary and permanent seeding measures must be applied according to the New Jersey Standards, and mulched with salt hay or equivalent and anchored in accordance with the New Jersey Standards (ie. peg and twine, mulch netting or liquid mulch binder).
- Minimum side slopes of all exposed surfaces shall not be constructed steeper than 3:1 unless otherwise approved by the district.
- Dust is to be controlled by an approved method according to the New Jersey Standards and may include watering with a solution of calcium chloride and water.
- Adjoining properties shall be protected from excavation and land filling operations on the proposed site.
- Use staged construction methods to minimize exposed surfaces, where applicable.
- All vegetative material shall be selected in accordance with American Standards for Nursery Stock of the American Association of the Nurserymen and in accordance with the New Jersey Standards.
- Natural vegetation and species shall be retained where specified on the Landscaping Plan.
- The soil erosion inspector may require additional soil erosion measures to be installed, as directed by the district inspector.

STORMWATER MANAGEMENT MAINTENANCE PROGRAM

BASIN MAINTENANCE

In order to ensure that all retention and detention basins function properly, a maintenance program must be followed. The following are the minimum requirements for the maintenance of all basins.

- Annual visual inspection of outlet structures and basins.
 - Inspection of outlet structures to include checking for obstructions of outfall pipes and the accumulation of silts and sediments.
 - Inspection of basins to include the removal of debris and accumulated particles such as silts and sediments.
- For maintenance of vegetated basins:
 - Mowing of grass is required regularly to ensure the aesthetic quality of the site. All clippings shall be raked and bagged to avoid trash buildup.
 - A dense turf, with extensive root growth, is encouraged to reduce erosion and enhance infiltration through the bottom and the side of the basin. Well-established turf of the floor and sides will grow through sediment deposits, thus forming a porous turf and preventing the formation of an impermeable layer.
 - Grasses of the fescue family are recommended for seeding, primarily due to their adaptability to dry sandy soils, drought resistance, hardness, and ability to withstand trampling. Fescues will also permit longer intervals between mowings.
 - Seed type: A mixture of the following species water-tolerant seed will ensure a high quality grass for retention basins.

INGREDIENTS		
Mixture 8	SEEDING RATE	
Fescue	2.1Lbs./1,000 SF	
Perennial Rye Grass	0.25Lb./1,000 SF	
Kentucky Bluegrass	0.25Lb./1,000 SF	
White Clover	0.10Lb./1,000 SF	

- Fertilizing and liming: Bi-annually
Fertilize with 10-20-10 at a rate of 11lbs./1,000 SF
Lime with pulverized dolomite limestone at a rate of 900lb./1,000 SF
- Long term Maintenance
 - In order to ensure proper function of all basins, every seven years each basin bottom shall be scarified to a depth of 4" to remove sediments and silts. Then 4" of topsoil must be added and resided.

STORM WATER STRUCTURE MAINTENANCE

Maintenance is the work required to keep structures in practice, or restore them to their original physical and functional condition. Maintenance as it applies to this situation shall be divided into two stages, that which is necessary to allow for continuing performance of storm water control during the construction period and long term maintenance following construction. Both stages are necessary for the life of the storm water structures and systems.

1. MINIMUM REQUIREMENTS FOR MAINTENANCE

- TRENCHES/SWALES
Trenches/Swales to be inspected for rubbish or channel obstructions, bank failure, accumulation of silts and sediments, undesirable vegetation growth, rodents, and overall system failure.
- OUTLET STRUCTURE/CONDUIT
Inspection of outlet structures and conduit to include checking for obstruction of pipe, accumulation of silts and sediments, cracking, corrosion, deterioration from freezing, salt or chemicals, excessive wear or damage from settling.
- SPLILWAYS/INLETS/MANHOLES
Inspection to include checking for cracking, rodents, obstructions/silt-sediment, trash or other). Check any gates, racks, or grates, for damage from corrosion, ice debris. Check for unauthorized modifications, tampering or vandalism.

2. LONG TERM MAINTENANCE

As noted, any basin, pipe, pit, trench or inlet not functioning as designed will be thoroughly as prescribed. Any system that continues to remain inoperable after thorough cleaning must be removed and replaced.

RESPONSIBILITY

All on-site retention facilities shall be the sole responsibility of the developer/owner, his assigns and/or heir. The responsibility shall include but not be limited to installation, inspection, and maintenance.

DETENTION FACILITY MAINTENANCE

The primary mechanical equipment used in the Annual Maintenance of the Basins will be for lawn cutting. The exact type and size of this equipment is to be determined by the maintenance service under contract for the project.

MULCHING

Mulching is required on all seeding. It is defined as stabilizing exposed soils with non-vegetative materials. The purpose is to protect exposed soil surfaces from erosion damage and to reduce off-site environmental damage. Mulching provides temporary mechanical protection against wind or rainfall induced soil erosion until permanent vegetative cover may be established. This practice is applicable to areas subject to erosion, where the season and other conditions may not be suitable for growing. An erosion-resistant cover or where stabilization is needed for a short period until more suitable protection can be applied.

SITE PREPARATION

- Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, pg 19-1.
- Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.

PROTECTIVE MATERIALS

- Mulch materials should be unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 2.0 to 2.5 tons per acre (90 to 115 pounds per 1,000 square feet).
- Asphalt emulsion is recommended at the rate of 600 to 1,200 gallons per acres. This is suitable for a limited period of time where travel by people, animals, or machines is not a problem.
- Synthetic or organic soil stabilizers may be used under suitable conditions and in quantities as recommended by the manufacturer.
- Wood-fiber or paper-fiber mulch at a rate of 1,500 pounds per acre may be applied by a hydroseeder.
- Mulch netting such as paper jute, excelsior, cotton, or plastic may be used.
- Woodchips applied uniformly to a minimum depth of 2 inches may be used. Woodchips will not be used on areas where flowing water could wash them into an inlet and plug it.
- Gravel, crushed stone, or slag at the rate of 9 cubic yards per 1,000 SF applied uniformly to a minimum depth of 3 inches may be used. Size 2 or 3 (ASTM C-33) is recommended.
- Mulch anchoring should be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs depending upon the size of the area, steepness of slopes, and costs.
 - Peg and Twine - Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine with two or more round turns.
 - Mulch Netting - Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.
 - Crimper (mulch anchoring tool) - A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or customer of the broadcast long fiber mulch into the soil as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 to 5 tons per acre. No latching or adhesive agent is required.

- Liquid Mulch-Binders - May be used to anchor salt hay, hay, or straw mulches
- Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.
- Use one of the following:
 - Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 0.04 gal./sq.yd. or 194 gal./acre on flat slopes less than 8 feet high. On slopes 8 feet or more high, use 0.075 gal./sq.yd. or 363 gal./acre. These materials may be difficult to apply uniformly and will discolor surfaces.
 - Organic and Vegetable Based Binders - Naturally occurring, power based, hydrophilic materials that mixed with formulates a gel and when applied to much under satisfactory curing conditions will form manbraned networks of insoluble polymers. The vegetable gel will be physiologically harmless and not result in a phytotoxic effect or impede growth of turigrass. Vegetable based gels shall be applied at rates and weather conditions recommended by the manufacturer.
 - High polymer synthetic emulsion, with water diluted and following application to mulch, drying and curing shall no longer be obscured or dispersed in water. It shall be applied at rates under weather conditions recommended by the manufacturer and remain tacky until germination of grass.

STANDARDS FOR TOPSOILING

METHODS AND MATERIALS

- Materials**
 - Topsoil should be friable, 1 loamy, 2, free of debris, objectionable weeds and stones, and contain no toxic substance or adverse chemical or physical condition that may be harmful to plant growth. Soluble salts should not be excessive (conductivity less than 0.5 millimhos per centimeter. More than 0.5 millimhos may desiccate seedlings and adversely impact growth). Imported topsoil shall have a minimum organic matter content of 2.75 percent. Organic matter content may be added by additives.
 - Topsoil substitute is a soil material which may have been amended with sand, silt, clay, organic matter, fertilizer or lime and has the appearance of topsoil. Topsoil substitutes may be utilized on sites with insufficient topsoil for establishing permanent vegetation. All topsoil substitute materials shall meet the requirements of topsoil noted above. Soil tests shall be performed to determine the components of sand, silt, clay, organic matter, soluble salts and pH level.
- Stripping and Stockpiling**
 - Field exploration should be made to determine whether quantity and/or quality of surface soil justifies stripping.
 - Stripping shall be confined to the immediate construction area.
 - Where feasible, lime may be applied before stripping at a rate determined by soil tests to bring the soil pH to approximately 6.5.
 - A 4-6 inch stripping depth is common, but may vary depending on the particular soil.
 - Stockpiles of topsoil natural drainage or erosion control equipment shall be maintained on the project site during construction.
 - Stockpiles should be vegetated in accordance with standards previously described herein; see standards for Permanent (pg. 4-1) or Temporary (pg.7-1) Vegetative Cover for Soil Stabilization. Weeds should not be allowed to grow on stockpiles.
- Site Preparation**
 - Grade at the onset of the optimal seeding period so as to minimize the duration and area of exposure of disturbed soil to erosion. Immediately proceed to establish vegetative cover in accordance with the specified seed mixture. Time is of the essence.
 - Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance.
 - As guidance for ideal conditions, subsoil should be tested for lime requirement. Limestone, if needed, should be applied to bring soil to a pH of approximately 6.5 and incorporated into the soil as nearly as practical to a depth of 4 inches.
 - Prior to topsoiling, the subsoil shall be in compliance with the Standard for Land Grading, pg. 19-1.
 - Employ needed erosion control practices such as diversions, grade stabilization structures, channel stabilization measures, sedimentation basins, and waterways. See Standards 11 through 42.
- Applying Topsoil**
 - Topsoil should be handled only when it is dry enough to work without damaging soil structure; i.e., less than field capacity (see glossary).
 - A uniform application to an average depth of 5.0 inches, minimum of 4 inches, firmed in place is required. Alternative depths may be considered where special regulatory design standards are appropriate such as on golf courses, sports fields, landfill capping, etc. Soils with a pH of 4.0 or less or containing iron sulfide shall be covered with a minimum depth of 12 inches of soil having a pH of 5.0 or more, in accordance with the Standard for Management of High Acid Producing Soil (pg. 1-1).
 - Pursuant to the requirements in Section 7-4 of the Standards for Permanent Vegetation Stabilization, the contractor is responsible to ensure that permanent vegetative cover becomes established on at least 80% of the soils to be stabilized with vegetation. Failure to achieve the minimum coverage may require additional work to be performed by the contractor to include some or all of the following: supplemental seeding, re-application of lime and fertilizers, and/or the addition of organic matter (i.e. compost) as a top dressing. Such additional measures shall be based on soil tests such as those offered by Rutgers Cooperative Extension Service or other approved laboratory facilities qualified to test soil samples for agronomic properties.

DUST CONTROL STANDARDS

The following methods should be considered for dust control at the request of the Township Construction Code Official, or upon inspection by an S.C.D. official.

- Spray - On Adhesive - On mineral soils (not effective on muck soils):** Keep traffic off these areas.

	Water Dilution	Type of Nozzle	Apply Gallons/Acre
Anionic asphalt emulsion	7:1	Coarse spray	1,200
Latex emulsion	12 1/2:1	Fine spray	235
Resin in water	4:1	Fine spray	300

- Tillage -** To roughen surface and bring clods to the surface. This is a temporary emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, and spring-toothed harrows are examples of equipment which will produce the desired effect.
- Sprinkling -** Site is sprinkled until the surface is wet.
- Barriers -** Solid board fences, chain-link fences, crate walls, bales of hay and similar material can be used to crate walls, bales of hay and similar material can be used to control air currents and soil blowing.
- Calcium Chloride -** Shall be in the form of loose dry granules at a rate that will keep surface moist but not cause or create film enough to seed through pollution or erosion. If used on steeper slopes, then use on steeper slopes, then use on steeper slopes. If used on steeper slopes, then use other practices to prevent washing into streams or accumulation around plants.
- Stone -** Cover surface with crushed stone or coarse gravel.
- Mulch -** Stabilization with approved mulches and vegetation cover being temporary or permanent.

SEEDING SPECIFICATIONS

Temporary Seeding	(10-20-10 or equivalent)	11 Lbs./1,000 SF
Fertilizer	(50% Calcium plus MgO)	90 Lbs./1,000 SF
Limestone	(Lolium multiflorum)	1 Lb./1,000 SF
Perennial Rye Grass		

Permanent Seeding	(10-20-10 or equivalent)	11 Lbs./1,000 SF
Fertilizer	(50% Calcium plus MgO)	90 Lbs./1,000 SF
Limestone	(Kentucky Bluegrass	0.9 Lbs./1,000 SF
Mixture B-15	(Three Cultivar Blend)	
	Hard Fescue	4.0 Lbs./1,000 SF
	Perennial Rye Grass	0.7 Lbs./1,000 SF

FERTILIZER

Work time and fertilizer into soil as nearly as practical to depth of four inches (4"). Remove from the surface all stones two inches (2") or larger. Roll soil to firm the seed bed where feasible. Use specifications as shown above.
Note: Optimum seeding dates February 1 to April 30 and August 15 to October 30.

STANDARD FOR LAND GRADING

PLANNING CRITERIA

The grading plan and installation shall be based upon adequate topographic surveys and investigations. The plan is to show the location, slope, cut, fill and finish elevation of the surfaces to be graded. The plan should also include auxiliary practices for safe disposal of runoff water, slope stabilization, erosion control and drainage. Facilities such as waterways, ditches, diversions, grade stabilization structures, retaining walls and subsurface drains should be included where necessary.

Erosion control measures shall be designed and installed in accordance with the applicable standard contained herein.

The development and establishment of the plan shall include the following:

- The cut face of earth excavations and fills shall be no steeper than the safe angle of repose for the materials encountered and flat enough for proper maintenance.
- The permanently exposed faces of earth cuts and fills shall be vegetated or otherwise protected from erosion.
- Provisions shall be made to safely conduct surface water to storm drains or suitable water courses and to prevent surface runoff from damaging cut faces and fill slopes.
- Subsurface drainage is to be provided in areas having a high water table, to intercept seepage that would adversely affect slope stability, building foundations or create undesirable wetness. See Standard for Subsurface Drainage, pg. 32-1.
- Adjoining property shall be protected from excavation and filling operations.
- Fill shall not be placed adjacent to the bank of a stream or channel, unless provisions are made to protect the 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 areas 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 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 (when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

Soil Test Method Options

- Probing Wire Test Method**
This test shall be conducted with a firm wire (15-12 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) #RC20210-001, 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 pore 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 (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.

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, Silty Loam	1.50
Silty clay	1.45
Clay	1.40

Source: USDA Natural Resource Conservation Service, Soil Quality Information Sheet, Soil Quality Resource Concepts: Compaction, April 1996
5. 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.

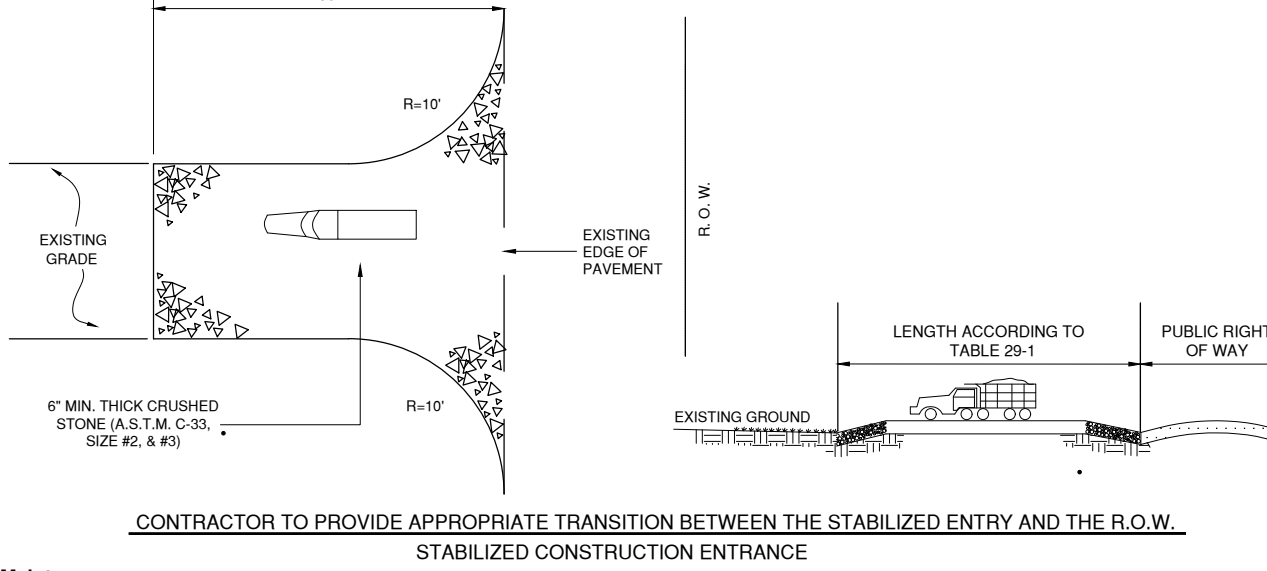
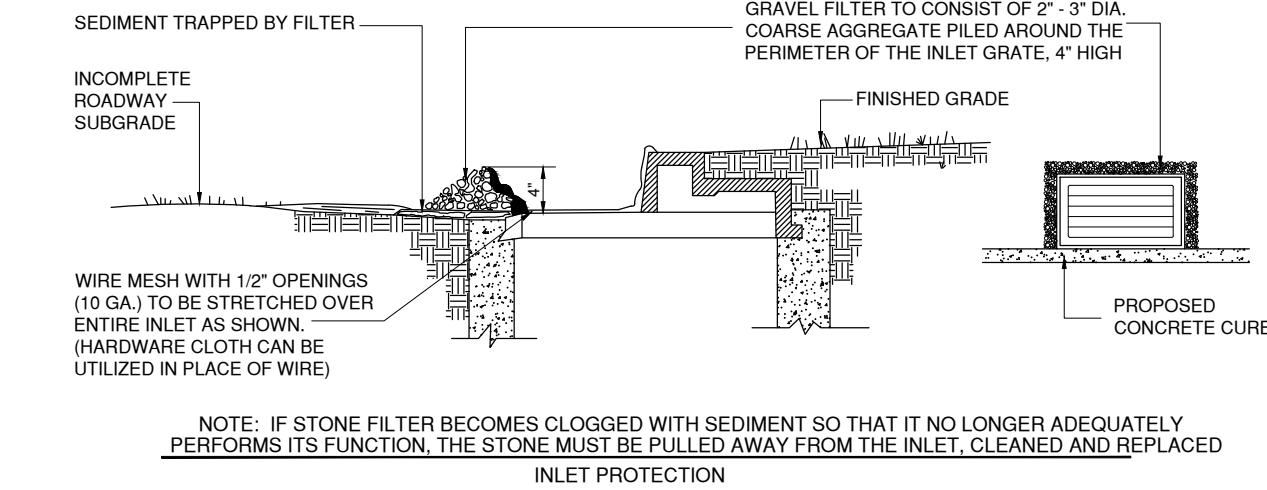
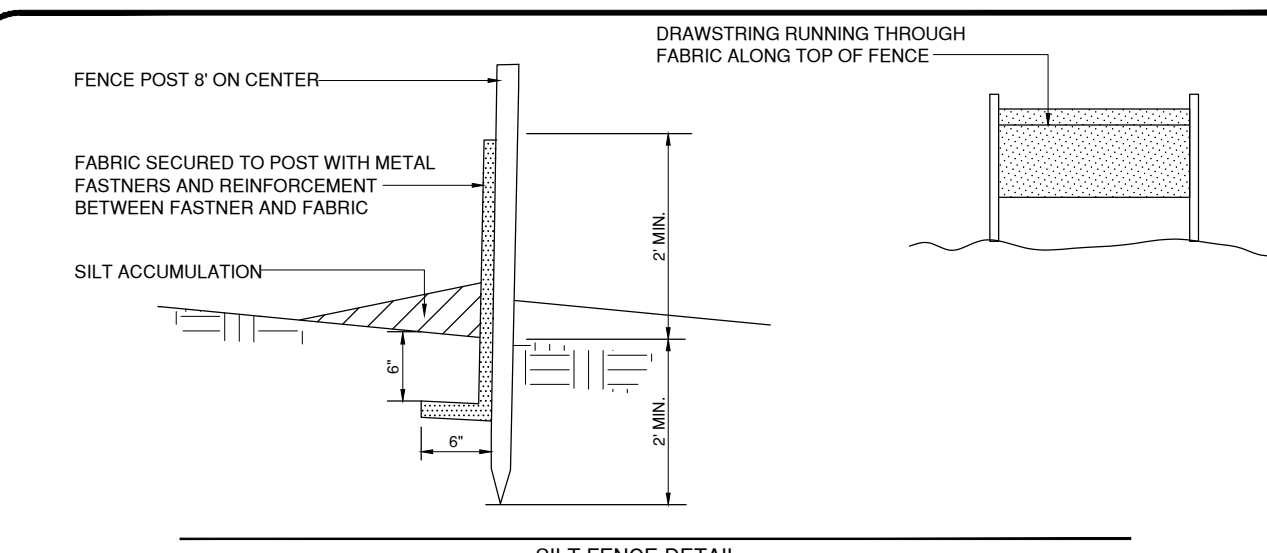
Procedures for Soil Compaction Mitigation

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

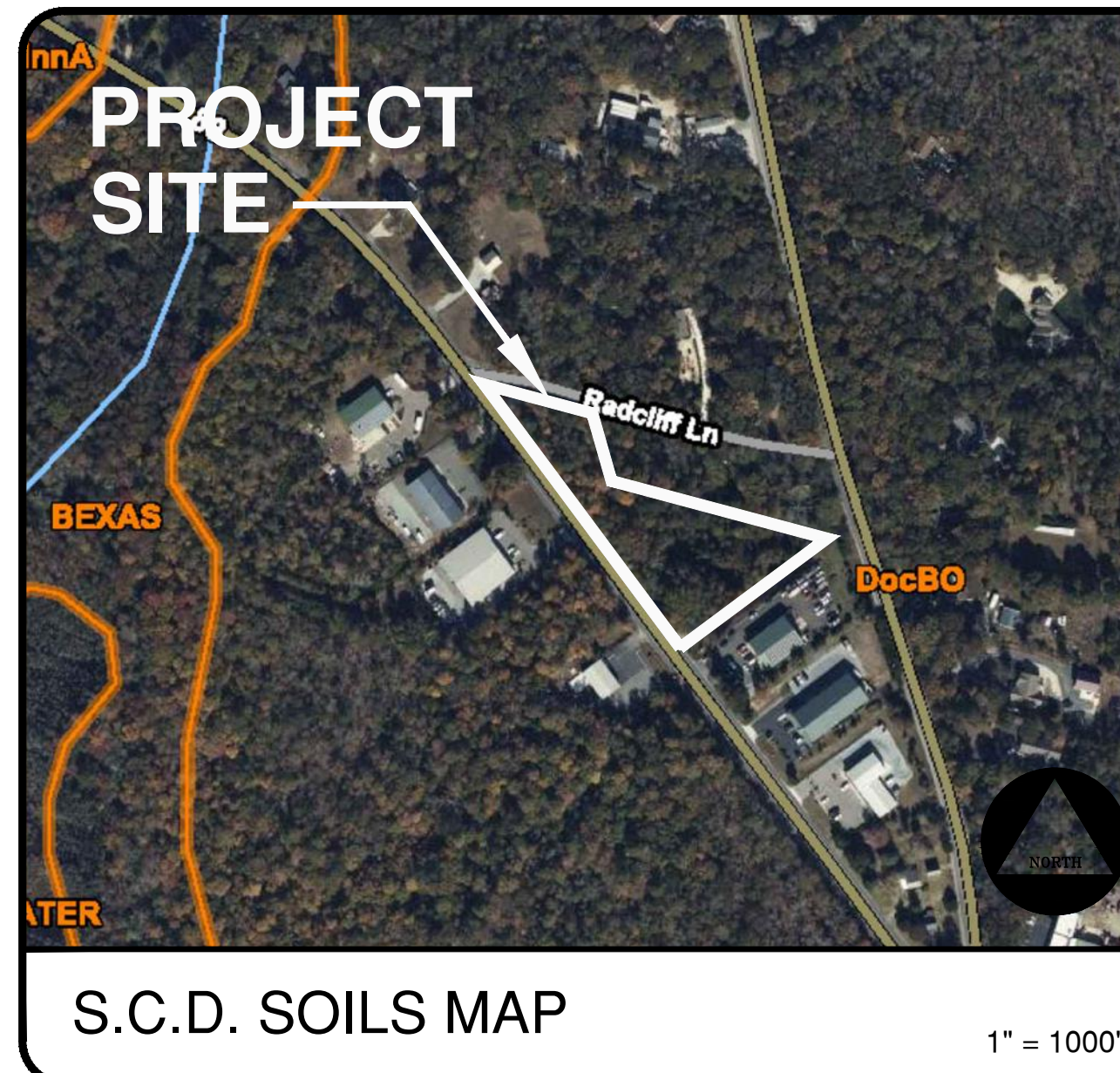
- Timber, logs, brush, rubbish, rocks, stumps and vegetative matter which will interfere with the grading operation or affect the planned structure or fill areas shall be removed and disposed of according to the plan.
- Topsoil is to be stripped and stockpiled in amounts necessary to complete finish grading of all exposed areas requiring topsoil. See Standard for Topsoiling.
- 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.
- Trees to be retained shall be protected if necessary in accordance with the Standard for Tree Protection During Construction.

SOIL CONSERVATION NOTES



The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto roadways. This may require periodic dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roadways (public or private) or other impervious surfaces must be removed immediately. Where accumulation of dust/sediment is inadequately cleaned or removed by conventional methods, a power broom or street sweeper will be required to clean paved or impervious surfaces. All other access points (which are not stabilized) shall be blocked off.

SOIL CONSERVATION DETAILS



S.C.D. SOILS MAP

1" = 1000'

Cape May County, New Jersey

DocBo--Downer loamy sand, 0 to 5 percent slopes, Northern Tidewater Area

Map Unit Setting
Hydrology: Soil Group: A
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 160 to 200 days
Parent material: Fossils of glacial drift

Map Unit Composition
Parent of map unit: 10 percent
Landscape position: three-dimensional, flat
Landscape position: three-dimensional, flat
Downslope slope: 0 to 10 percent
Downslope slope: 0 to 10 percent
Downslope slope: 0 to 10 percent

Description of Downer
Setting
Parent of map unit: 10 percent
Landscape position: three-dimensional, flat
Landscape position: three-dimensional, flat
Downslope slope: 0 to 10 percent
Downslope slope: 0 to 10 percent
Downslope slope: 0 to 10 percent

Typical profile
Ap: 0 to 10 inches, loamy sand
B: 10 to 60 inches, loamy sand
C: 60 to 100 inches, loamy sand
D: 100 to 150 inches, loamy sand
E: 150 to 200 inches, loamy sand
F: 200 to 250 inches, loamy sand
G: 250 to 300 inches, loamy sand
H: 300 to 350 inches, loamy sand
I: 350 to 400 inches, loamy sand
J: 400 to 450 inches, loamy sand
K: 450 to 500 inches, loamy sand
L: 500 to 550 inches, loamy sand
M: 550 to 600 inches, loamy sand
N: 600 to 650 inches, loamy sand
O: 650 to 700 inches, loamy sand
P: 700 to 750 inches, loamy sand
Q: 750 to 800 inches, loamy sand
R: 800 to 850 inches, loamy sand
S: 850 to 900 inches, loamy sand
T: 900 to 950 inches, loamy sand
U: 950 to 1000 inches, loamy sand
V: 1000 to 1050 inches, loamy sand
W: 1050 to 1100 inches, loamy sand
X: 1100 to 1150 inches, loamy sand
Y: 1150 to 1200 inches, loamy sand
Z: 1200 to 1250 inches, loamy sand
AA: 1250 to 1300 inches, loamy sand
AB: 1300 to 1350 inches, loamy sand
AC: 1350 to 1400 inches, loamy sand
AD: 1400 to 1450 inches, loamy sand
AE: 1450 to 1500 inches, loamy sand
AF: 1500 to 1550 inches, loamy sand
AG: 1550 to 1600 inches, loamy sand
AH: 1600 to 1650 inches, loamy sand
AI: 1650 to 1700 inches, loamy sand
AJ: 1700 to 1750 inches, loamy sand
AK: 1750 to 1800 inches, loamy sand
AL: